

FAA APPROVED
Airplane Flight Manual

CITATION

ENCORE+

MODEL 560
560-0751 THRU -5000



SERIAL NUMBER _____

REGISTRATION NUMBER _____

APPROVED BY  _____
for Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
DATE OF APPROVAL 12/21/06

LOG OF EFFECTIVE PAGES

Use this page to determine the currency and applicability of your FAA Approved Airplane Flight Manual. Pages affected by the current revision are indicated by an asterisk (*) preceding the pages listed under the Page column. Determine which pages are applicable to your airplane under the Airplane Configuration Code. As required by the FAA, only the pages applicable to your airplane should be retained in the FAA Approved Airplane Flight Manual.

Pages that apply to certain airplanes have the applicable configuration code on the bottom of the page. Pages marked AA apply to all airplanes. Refer to Airplane Configuration Codes on page 1-7.

Following is a description of the Log of Effective Pages columns:

Page - FAA Approved Airplane Flight Manual Page Numbers.

Page Status - Indicates if the page has been added, revised or deleted by the current revision.

Revision Number - Indicates the revision number.

Configuration Code - Indicates page effectivity by two letter code.

Revision Number	Date
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Page Number	Page Status	Revision Number	Configuration Code
Title	Original	0	AA
i/ii	Original	0	AA
Contents	Original	0	AA
1-1 thru 1-7/1-8	Original	0	AA
2-1 thru 2-22	Original	0	AA
3-1 thru 3-115/3-116	Original	0	AA
4-1 thru 4-323/4-324	Original	0	AA
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INTRODUCTION

The information in this publication is based on data available at the time of publication and is updated, supplemented, and automatically amended by Service Letters, Service Bulletins, Supplier Service Notices, Publications Changes, Revisions, Reissues, Temporary Revisions and Temporary Changes, which are issued through subscription services available from Citation Service Information. All such amendments become parts of and are specifically incorporated within this publication. Users are urged to keep abreast of the latest amendments to this publication through Citation Service Information subscription services and/or Citation Service Centers and Citation Service Stations.

COVERAGE

The Flight Manual, including supplements in the airplane at the time of delivery from Cessna Aircraft Company contains information applicable only to that particular airplane. The basic manual is applicable to airplane serials 560-0751 thru -5000.

NOTICE

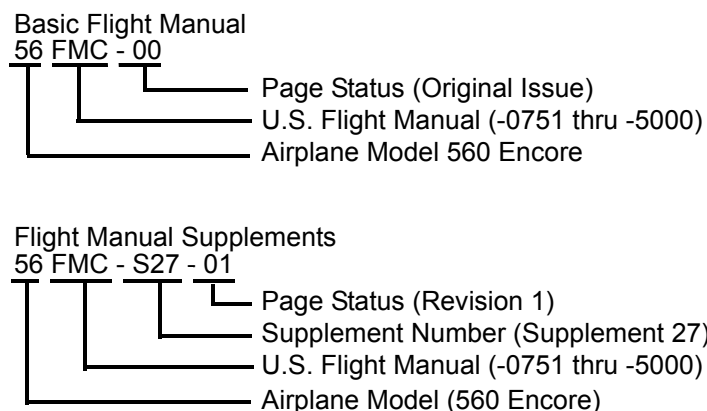
THE SUPPLEMENTS IN SECTION V OF THIS FLIGHT MANUAL CONTAIN AMENDED OPERATING LIMITATIONS, OPERATING PROCEDURES, PERFORMANCE DATA AND OTHER NECESSARY INFORMATION FOR AIRPLANES CONDUCTING SPECIAL OPERATIONS AND FOR AIRPLANES EQUIPPED WITH SPECIFIC OPTIONS. OPERATORS SHOULD REFER TO SECTION V TO ENSURE THAT ALL LIMITATIONS AND PROCEDURES APPROPRIATE FOR THEIR AIRPLANE ARE OBSERVED.

SERIAL NUMBER

On all Model 560 Encore+ airplanes, the serial numbers are stamped into the airplane identification nameplate. This manual uses serial numbers to describe airplane effectivities.

FLIGHT MANUAL PART NUMBER

Each page in the FAA Approved Airplane Flight Manual contains the part number of the manual and the page status of each page. Refer to the following example:



REVISIONS

As new information becomes available for your airplane, revisions will be issued to all registered owners. It is the pilot's responsibility to assure that this flight manual is complete and current at all times.

REVISED MATERIAL INDICATORS

Two types of revised material indicators will be used in this manual. A change bar located in the left margin adjacent to the applicable text will extend the full length of new pages and deleted, new, or revised text added on presently existing pages. A change bar in the footer will indicate a revision to the footer and/or that some text has slipped to or from that page.

A bar will extend the full length of deleted, new or revised text added on new or presently existing pages. This bar will be located adjacent to the applicable text in the margin on the left side of the page.

A bar located adjacent to the figure number in the margin on the left side of the page will be used to indicate that the figure number only has changed.

An asterisk located at the end of a figure number will be used to indicate that an illustration has been revised or is all new material (Ex: Figure 3-4*).

All revised pages will carry the revision number opposite the page number on the applicable page. A list of revisions is located at the beginning of the Log of Effective Pages.

DEFINITIONS

Performance definitions are available in Section IV; the remaining definitions are listed as follows:

WARNING

OPERATING PROCEDURES, TECHNIQUES, ETC., WHICH WILL RESULT IN PERSONAL INJURY OR LOSS OF LIFE IF NOT CAREFULLY FOLLOWED.

CAUTION

OPERATING PROCEDURES, TECHNIQUES, ETC., WHICH WILL RESULT IN DAMAGE TO EQUIPMENT IF NOT CAREFULLY FOLLOWED.

NOTE

An operating procedure, technique, etc., which is considered essential to emphasize.

(Continued Next Page)

DEFINITIONS (Continued)**LAND AS SOON AS POSSIBLE**

Land at the nearest suitable airport. Extreme situations could require off airport landing. Primary consideration is safety of occupants.

LAND AS SOON AS PRACTICAL

Land at a suitable airport. The primary consideration is the urgency of the emergency or abnormal situation. Continuing to the destination or an alternate with appropriate service facilities, may be an option.

EMERGENCY PROCEDURES

An emergency procedure is one requiring the use of special systems and/or regular systems in order to protect the occupants and the airplane from serious or critical harm. These procedures require immediate action.

ABNORMAL PROCEDURES

An abnormal procedure is one requiring the use of special systems and/or the alternate use of regular systems which, if followed, will maintain an acceptable level of airworthiness or reduce operational risk resulting from a failure condition.

NORMAL PROCEDURES

A normal procedure is one which may be thought of as routine in day-to-day flying.

ADVISORY INFORMATION

Section VII of this manual provides guidance information not approved by the FAA.

SERVICE BULLETIN CONFIGURATION LIST

The following is a list of Service Bulletins that are applicable to the operation of the airplane, and have been incorporated into this manual. This list contains only those Service Bulletins that are currently active.

<u>Number</u>	<u>Title</u>	<u>Airplane Serial Effectivity</u>	<u>Revision Incorporated</u>	<u>Incorporated in Airplane</u>
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AIRPLANE CONFIGURATION CODES

The following is a list of airplane configuration codes which appear at the bottom of each page of this FAA Approved Airplane Flight Manual. The codes indicate page effectivity by serial number. This list contains only the configurations which have been incorporated into this manual.

Configuration
Code
AA

Effectivity by
Serial Number
Airplanes 560-0751 and On.

OPERATING LIMITATIONS

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OPERATING LIMITATIONS

NOTICE

CERTIFICATION AND OPERATIONAL LIMITATIONS ARE CONDITIONS OF THE TYPE AND AIRWORTHINESS CERTIFICATES AND MUST BE COMPLIED WITH AT ALL TIMES AS REQUIRED BY LAW.

CERTIFICATION STATUS

This airplane is certified in accordance with 14 CFR Part 25.

WEIGHT LIMITATIONS

Maximum Design Ramp Weight	17,030 Pounds
Maximum Design Takeoff Weight	16,830 Pounds
Maximum Design Landing Weight	15,200 Pounds
Maximum Design Zero Fuel Weight	12,600 Pounds

Takeoff weight is limited by the most restrictive of the following requirements:

Maximum Certified Takeoff Weight	16,830 Pounds
--	---------------

Maximum Takeoff Weight Permitted by

Climb Requirements	Refer to Procedures for Use of Takeoff Performance Tables in Section IV
Takeoff Field Length	Refer to Procedures for Use of Takeoff Performance Tables in Section IV

Landing weight is limited by the most restrictive of the following requirements:

Maximum Certified Landing Weight	15,200 Pounds
--	---------------

Maximum Landing Weight Permitted by

Climb Requirements or Brake Energy Limit	Refer to Procedures for Use of Approach and Landing Performance Tables in Section IV
Landing Distance	Refer to Procedures for Use of Approach and Landing Performance Tables in Section IV
Maximum Nose Baggage Compartment Weight.	310 Pounds
Maximum Tail Baggage Compartment Weight	500 Pounds
Minimum weight in RVSM airspace	10,800 Pounds

CENTER-OF-GRAVITY LIMITS

Center-of-Gravity Moment Envelope Refer to Figure 2-1

WEIGHT AND BALANCE DATA

The airplane must be operated in accordance with the approved loading schedule. Refer to Weight and Balance Data Sheet and FAA Approved Model 560 Encore+ Weight and Balance Manual.

CENTER-OF-GRAVITY LIMITS

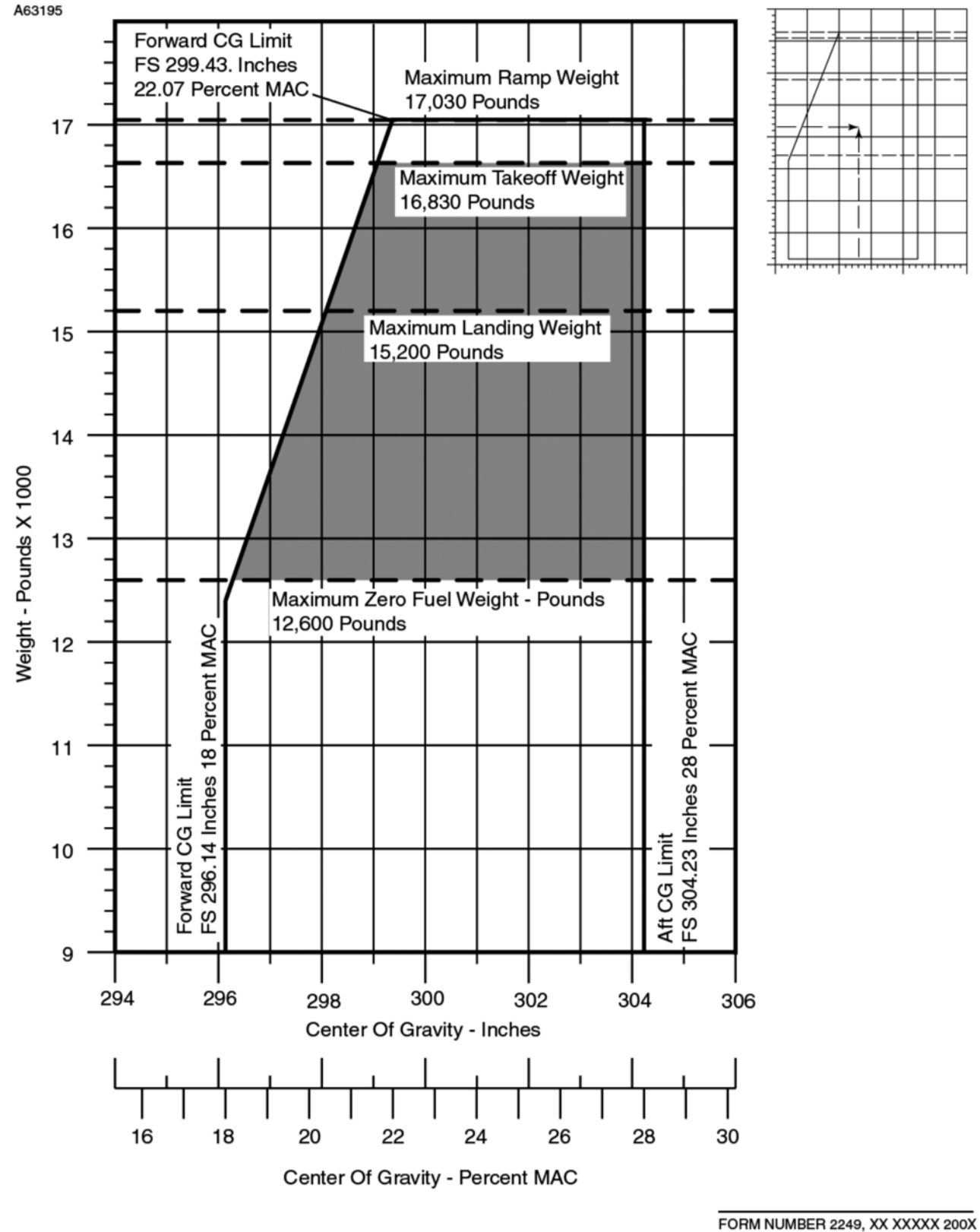


Figure 2-1

POWERPLANT LIMITATIONS

Engine Type Pratt and Whitney Canada Inc. PW535B Turbofan

Engine starts with ENG CNTL FAULT L/R Illuminated are prohibited.

TLD lights must be verified extinguished in preflight check. Refer to NORMAL PROCEDURES, EXTERIOR INSPECTION - Hot Items/Lights.

MFD must display valid Engine Indicating System (EIS) information prior to start.

Engine Operating Limits Refer to Figure 2-2

Inter-Turbine Temperatures Limits Refer to Figure 2-3

Engine Overspeed Limits Refer to Figure 2-4

Takeoff/Go-Around Thrust (TO Detent) Refer to Figure 4-11

Maximum Continuous Thrust (CLB Detent) Refer to Figure 4-12

Multi-Engine Normal Climb (CLB Detent) Refer to Figure 4-13

ENGINE OPERATING LIMITS

OPERATING CONDITION		OPERATING LIMITS				OIL TEMP °C
THRUST SETTING	TIME LIMIT	MAX OBSERVED ITT° C	N ₂ %	N ₁ %	OIL PRESSURE (NOTE 1) PSI	
TAKEOFF	5 MINUTES (NOTE 2)	700	100	100	45 TO 160	10 TO 132.2
MAXIMUM CONTINUOUS	CONTINUOUS	700	100	100	45 TO 160	10 TO 132.2
GROUND IDLE	CONTINUOUS	--	49.1 MIN	--	25 TO 160	-40 TO 132.2
FLIGHT IDLE (NOTE 3)	CONTINUOUS	--	52.9 MIN	--	25 TO 160	-40 TO 132.2
STARTING	--	740**	--	--	--	40 MIN
TRANSIENT	20 SECONDS	740**	102*	102*	0 MIN	--
TRANSIENT	400 SECONDS (NOTE 1b)	--	--	--	20 TO 270	140.5 MAX

* Refer to Figure 2-4.

** Refer to Figure 2-3.

Figure 2-2

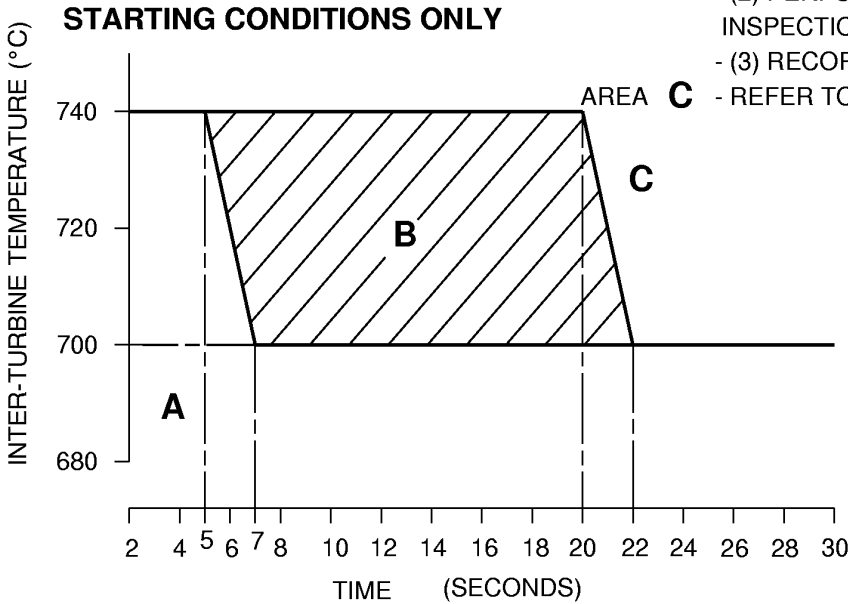
NOTE

1. Oil Pressure
 - a. Normal oil pressure is 45 to 160 PSI at N₂ speeds above 60%. Oil pressure below 45 PSI is undesirable and should be tolerated only for the completion of the flight, preferably at reduced power setting.
 - b. Oil pressure may be >160 PSI but ≤270 PSI for up to 400 seconds.
2. Takeoff ratings that are nominally limited to 5 minutes duration:
 - a. May be used for up to 10 minutes for One Engine Inoperative operations without adverse effects on engine airworthiness.
 - b. This is limited to 4 minutes for static operations when the ambient temperature is greater than 86°F (30°C).
3. High Idle corresponds to Flight Idle.

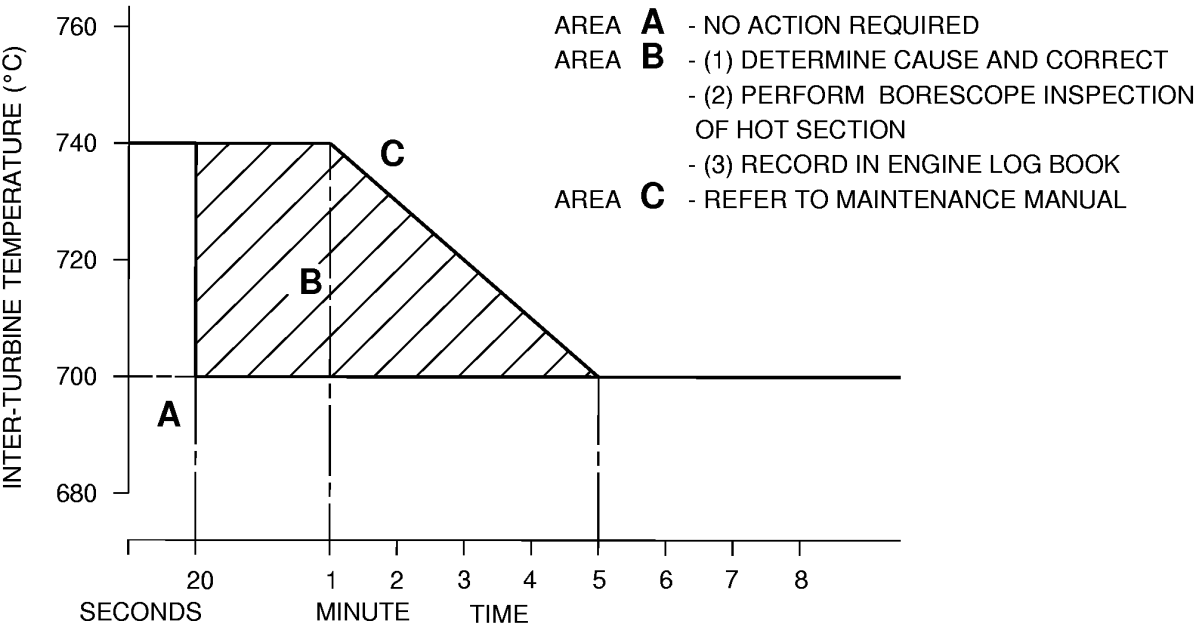
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INTER-TURBINE TEMPERATURE LIMITS

- AREA **A** - NO ACTION REQUIRED
- AREA **B** - (1) DETERMINE CAUSE AND CORRECT
- (2) PERFORM BORESCOPE INSPECTION OF HOT SECTION
- (3) RECORD IN ENGINE LOG BOOK
- AREA **C** - REFER TO MAINTENANCE MANUAL



ALL CONDITIONS EXCEPT STARTING



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Figure 2-3

ENGINE OVERSPEED LIMITS

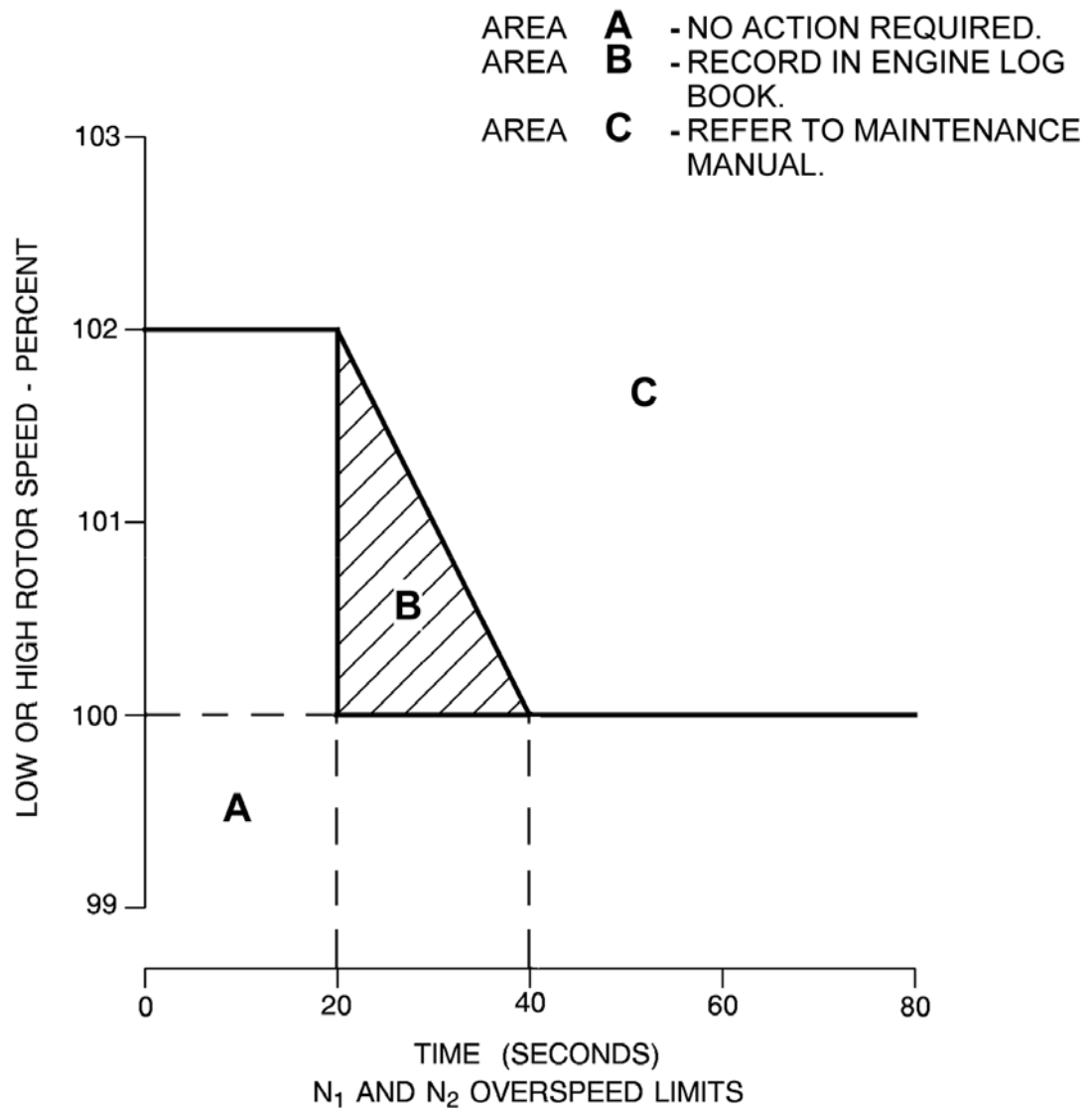


Figure 2-4

BATTERY AND STARTER CYCLE LIMITATIONS

- Starter Limitation: Three engine starts per 30 minutes. Three cycles of operation with a 90-second rest period between cycles is permitted.
- Battery Limitation: Three engine starts per hour. Refer to notes 2 and 3.

NOTE

1. If battery limitation is exceeded, a deep cycle including a capacity check must be accomplished to detect possible cell damage. Refer to Chapter 24 of the Maintenance Manual for procedure.
2. Three generator assisted cross starts are equal to one battery start.
3. If an external power unit is used for start, no battery cycle is counted.
4. Use of an external power source with voltage in excess of 28 VDC or current in excess of 1000 amps may damage the starter. Minimum 800 amps for start.

GROUND OPERATION

Continuous engine ground static operation up to and including five minutes at takeoff thrust is limited to those ambient temperatures shown in Figure 2-7.

Limit ground operation of pitot static heat to 2 minutes ON with 2 minutes OFF between cycles to preclude system damage.

Electrical load is limited to 125 amps per generator during ground operations at ground idle and 225 amps at high idle. Transients up to 300 amps are permissible for up to 4 minutes.

HYDRAULIC FLUID

Use Skydrol 500A, B, B-4, C, or LD-4; or Hyjet, Hyjet W, III, IV, IVA or IVA Plus only.

APPROVED OILS

The following oils are approved for engine use:

MOBIL JET OIL II	EXXON TURBO OIL 2380	AEROSHELL TURBINE OIL 500
MOBIL JET OIL 254	ROYCO TURBINE OIL 500	AEROSHELL TURBINE OIL 560
CASTROL 5000	ROYCO TURBINE OIL 560	BP TURBO OIL 2380

In addition, oils listed for the engine in the latest revision to Pratt and Whitney Canada Engine Maintenance Manual.

CAUTION

WHEN CHANGING FROM AN EXISTING LUBRICANT FORMULATION TO A "THIRD GENERATION" LUBRICANT FORMULATION (AEROSHELL TURBINE OIL 560 OR MOBIL JET 254), THE ENGINE MANUFACTURER STRONGLY RECOMMENDS THAT SUCH A CHANGE SHOULD ONLY BE MADE WHEN AN ENGINE IS NEW OR FRESHLY OVERHAULED. FOR ADDITIONAL INFORMATION ON USE OF THIRD GENERATION OILS, REFER TO ENGINE MANUFACTURER'S PERTINENT OIL SERVICE BULLETINS.

Should it be necessary to replenish oil consumption losses when oil of the same brand (as tank contents) is unavailable, then the following requirements apply:

For contingency purposes, oil replenishment using any other approved oil brand listed is acceptable provided:

1. The total quantity of added oil does not exceed two U.S. quarts in any 400-hour period.
2. If it is required to add more than two U.S. quarts of dissimilar oil brands, drain and flush complete oil system and refill with an approved oil in accordance with Engine Maintenance Manual instructions.

Should oils of nonapproved brands or of different viscosities become intermixed, drain and flush complete oil system and refill with an approved oil in accordance with Engine Maintenance Manual instructions.

SINGLE POINT REFUELING LIMITATION

Single point refueling operations must be accomplished per the procedures contained on the placard installed on the single point refueling access door. Refueling pressure range is 10 to 50 PSI, maximum defueling pressure is -10 PSI.

FUEL LIMITATIONS

FUEL BOOST Pumps - ON; when low fuel lights illuminate or at 180 ± 20 pounds or less indicated fuel.

The following fuels are approved for use in accordance with Figure 2-6.

COMMERCIAL KEROSENE JET A, JET A-1, JET B, JP-4, JP-5 and JP-8.

FUEL LIMITATIONS

FUEL GRADE	FUEL SPECIFICATION	MINIMUM FUEL TEMPERATURE (TAKEOFF)	MAXIMUM FUEL TEMPERATURE (TAKEOFF)	MAXIMUM ALTITUDE
JET A	ASTM-D1655	-35°C	+55°C	45,000 FEET
JET A-1	ASTM-D1655	-40°C	+55°C	45,000 FEET
JP-5	MIL-DTL-5624	-40°C	+55°C	45,000 FEET
JP-8	MIL-DTL-83133	-40°C	+55°C	45,000 FEET

Figure 2-5

Maximum Asymmetrical Fuel Differential for Normal Operations 200 Pounds

NOTE

Flight characteristics requirements were not demonstrated with unbalanced fuel above 200 pounds. A lateral fuel imbalance of 600 pounds has been demonstrated for emergency return.

RESERVED FOR FUTURE USE

Figure 2-6

UNUSABLE FUEL

Fuel remaining in the fuel tanks when the fuel quantity indicator reads zero is not usable in flight.

SPEED LIMITATIONS

Maximum Operating Limit Speeds:

M _{MO} (Above 28,907 Feet)	0.755 Mach (Indicated)
V _{MO} (Between 8000 and 28,907 Feet)	292 KIAS
V _{MO} (Below 8000 Feet)	262 KIAS

The maximum operating limit speeds may not be deliberately exceeded in any phase of flight (climb, cruise or descent) unless a higher speed is authorized for flight test or pilot training.

Maximum Maneuvering Speeds - V_A Refer to Figure 2-8

Full application of rudder and aileron controls as well as maneuvers that involve angles-of-attack near the stall should be confined to speeds below maximum maneuvering speed.

Maximum Flap Extended Speed - V_{FE}:

Full Flaps - LAND Position (35°)	173 KIAS
Partial Flaps - T.O. (7°) and T.O. & APPR Position (15°)	200 KIAS

Maximum Landing Gear Extended Speed - V_{LE} 250 KIAS

Maximum Landing Gear Operating Speed - V_{LO} (Extending) 250 KIAS

- V_{LO} (Retracting) 200 KIAS

Maximum Speed Brake Operation Speed - V_{SB} No Limit

Minimum Control Speeds (V_{MCA}, V_{MCL}, V_{MCG}) Refer to Section IV, PERFORMANCE GENERAL

Autopilot Operation 292 KIAS or 0.755 MACH

Minimum Speed For Sustained Flight In Icing Conditions:

(Except Approach and Landing) 160 KIAS

Minimum Speed in RVSM airspace 150 KIAS

TAKEOFF AND LANDING OPERATIONAL LIMITS

Maximum Altitude Limit 10,000 Feet

Maximum Tailwind Components 10 Knots

Maximum Ambient Temperature (Refer to Figure 2-7)

Minimum Ambient Temperature -54°C

Maximum Water/Slush on Runway 0.5 inches

Maximum Tire Ground Speed 165 Knots

Goodrich/Michelin part number 031-613-8 is the only nose tire approved. The nose tire must be inflated to 125 ±5 PSI.

The autopilot and yaw damper must be OFF for takeoff and landing.

Takeoff and landings are limited to paved runway surfaces.

Takeoff with antiskid inoperative is prohibited.

The nosewheel must be in firm contact with the ground prior to extending speed brakes and/or deploying thrust reversers.

Pulselight system operation within 300 feet AGL on landing approach is prohibited.

(Continued Next Page)

TAKEOFF AND LANDING OPERATIONAL LIMITS (Continued)

Takeoff is prohibited with the following forms of contamination:

1. With frost adhering to the following critical areas:
 - Wing Leading Edge
 - Upper Wing Surface
 - Windshield
2. With ice, snow or slush adhering to the following critical areas:
 - Wing Leading Edge and Upper Wing Surface
 - Flight Control Surfaces including all hinge gaps
 - Horizontal Stabilizer
 - Vertical Stabilizer
 - Engine Inlets
 - Top of Engine Pylons
 - Top of Fuselage
 - Windshield
 - All Static Ports
 - Angle of Attack Vanes
 - Upper surface of nose forward of the windshield

NOTE

Refer to Section VII for information regarding Ground Deicing and Anti-icing procedures.

3. A visual and tactile (hand on surface) check of the wing leading edge and wing upper surface must be performed to ensure the wing is free from frost, ice, snow, or slush when the outside air temperature is less than 10°C (50°F) or if it cannot be determined that the wing fuel temperature is above 0°C (32°F) and any of the following conditions exist:
 - a. There is visible moisture present (rain, drizzle, sleet, snow, fog, etc.); or
 - b. Water is present on the wing upper surface; or
 - c. The difference between dew point and outside temperature is 3°C (5°F) or less; or
 - d. The atmospheric conditions have been conducive to frost formation.

ICE AND RAIN PROTECTION

In icing conditions, the airplane must be operated, and its ice protection systems must be used, as described in Section III, Normal Procedures, ANTI-ICE SYSTEMS. Specific operational speeds and performance information must be used where established for such conditions.

The anti-ice switches should be selected WING/ENGINE ON when operating in visible moisture, and the indicated RAT is +10°C (+50°F) or below.

Tail deice should be turned on when in visible moisture and the indicated RAT is between +10°C (+50°F) and -35°C (-31°F)/-40°C (-40°F) as applicable.

Limit the ground operation of the pitot-static heat to two minutes to preclude damage to the pitot tubes and angle-of-attack vanes.

Anti-ice systems must not be used to deice surfaces prior to takeoff.

CAUTION

TO PREVENT POSSIBLE ENGINE DAMAGE FROM INGESTION OF ICE, DO NOT CHIP OR SCRAPE ICE OR SNOW FROM THE ENGINE AIR INLET. DEICE THESE AREAS PRIOR TO START (REFER TO SECTION VII, ADVISORY INFORMATION, GROUND DEICE/ANTI-ICE OPERATIONS).

ICE AND RAIN PROTECTION (Continued)

Minimum airspeed for sustained flight in icing (except approach and landing) is 160 KIAS.

In icing conditions, operating the airplane at other than flaps 0° for an extended period of time (except approach and landing) is prohibited.

OPERATIONS IN SEVERE ICING CONDITIONS

WARNING

SEVERE ICING MAY RESULT FROM ENVIRONMENTAL CONDITIONS OUTSIDE OF THOSE FOR WHICH THE AIRPLANE IS CERTIFIED. FLIGHT IN FREEZING RAIN, FREEZING DRIZZLE, OR MIXED ICING CONDITIONS (SUPERCOOLED LIQUID WATER AND ICE CRYSTALS) MAY RESULT IN ICE BUILD-UP ON PROTECTED SURFACES EXCEEDING THE CAPABILITY OF THE ICE PROTECTION SYSTEM, OR MAY RESULT IN ICE FORMING AFT OF THE PROTECTED SURFACES. THIS ICE MAY NOT BE SHED WHEN USING THE ICE PROTECTION SYSTEMS, AND MAY SERIOUSLY DEGRADE THE PERFORMANCE AND CONTROLLABILITY OF THE AIRPLANE. RUNBACK ICE EXTENDING APPROXIMATELY 12 TO 18 INCHES AFT OF THE HEATED LEADING EDGE ON THE UPPER SURFACE OF THE WING IS NORMAL IN SOME ICING CONDITIONS, HAS BEEN EVALUATED TO ENSURE SATISFACTORY PERFORMANCE AND CONTROLLABILITY, AND IS NOT AN INDICATION OF SEVERE ICING.

During flight, severe icing conditions that exceed those for which the airplane is certified shall be determined by the following visual cues:

1. Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.
2. Accumulation of ice on the upper surface of the wing aft of the protected area extending more than 12 to 18 inches aft of the heated leading edge.

NOTE

The outboard 32 inches of each wing is unheated and ice will accumulate with the wing anti-ice operating normally.

If one or more of these visual cues exist, immediately request priority handling from Air Traffic Control to facilitate a route or altitude change to exit the icing environment.

PERFORMANCE CONFIGURATION

The airplane configuration must be as presented under Standard Performance Conditions, Section IV, Performance.

ENROUTE OPERATIONAL LIMITS

Maximum Operating Altitude	45,000 Feet
Maximum Ambient Temperature	Refer to Figure 2-7
Minimum Ambient Temperature	Refer to Figure 2-7
Generator Load (Above Idle)	300 Amperes in Flight
Generator Load (Idle)	225 Amperes in Flight

OPERATIONS AUTHORIZED

This airplane is approved for day and night, VFR, IFR flight and flight into known icing conditions. This airplane is not approved for ditching under 14 CFR Part 25.801.

BOUNDARY LAYER ENERGIZERS

All boundary layer energizers must be present for dispatch (16 per wing).

MINIMUM CREW

Minimum Flight Crew for All Operations 1 Pilot and 1 Copilot

TAKEOFF/LANDING/ENROUTE TEMPERATURE LIMITATIONS

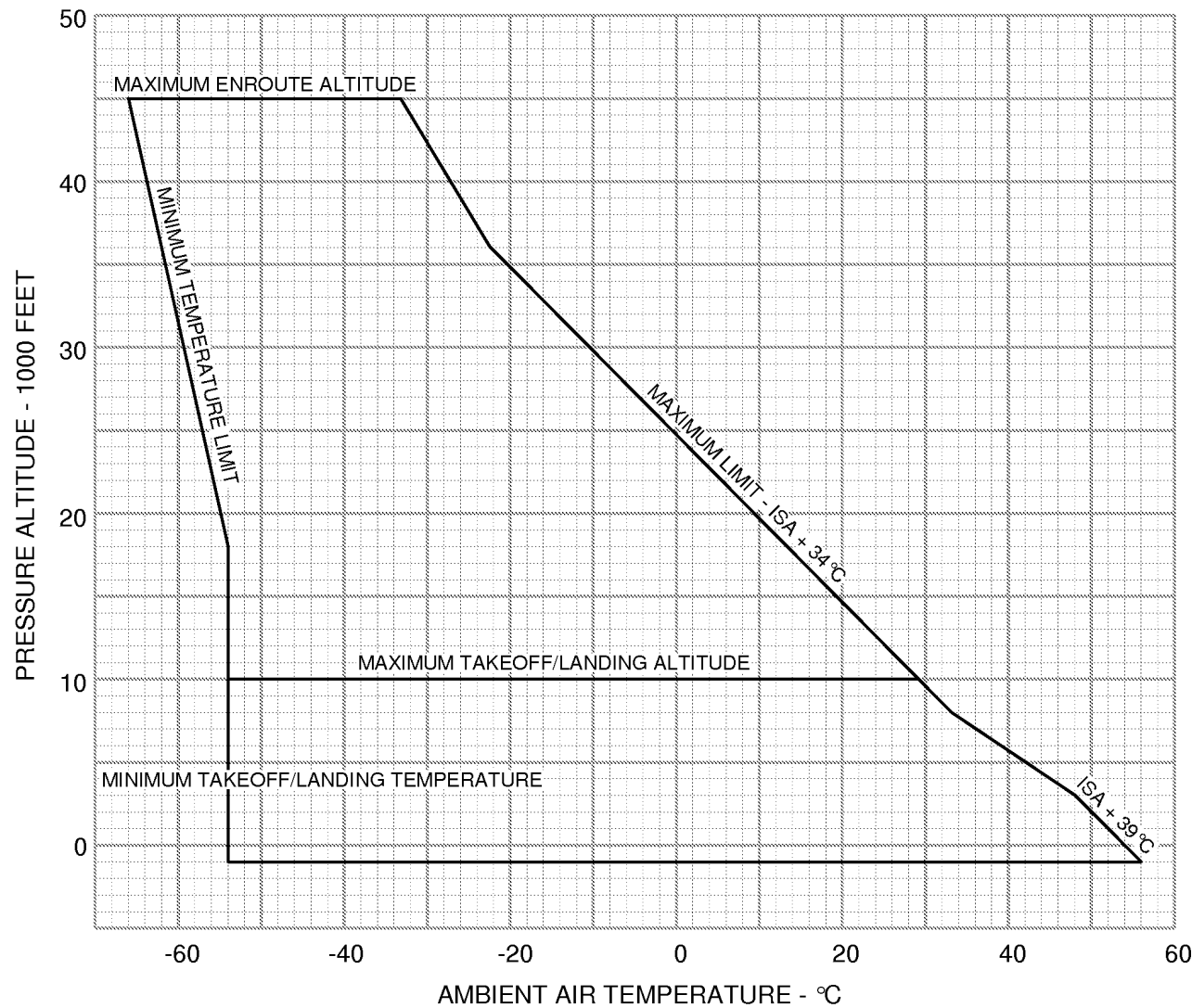


Figure 2-7

MAXIMUM MANEUVERING SPEEDS

EXAMPLE:

PRESSURE ALTITUDE - 25,000 FEET

WEIGHT - 16,830 POUNDS

MAXIMUM MANEUVERING SPEED - 236 KNOTS

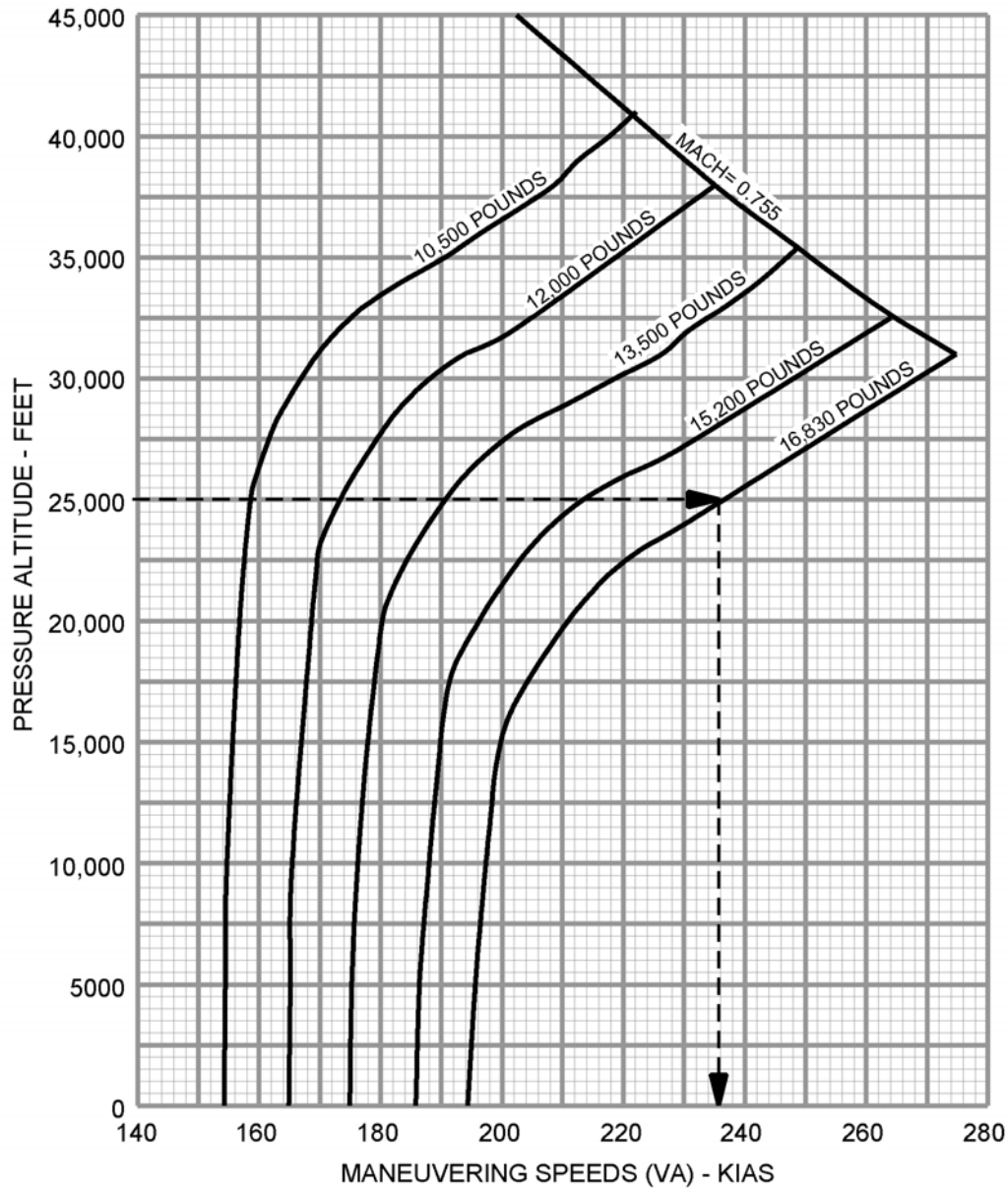


Figure 2-8

WARNING

AVOID RAPID AND LARGE ALTERNATING CONTROL INPUTS, ESPECIALLY IN COMBINATION WITH LARGE CHANGES IN PITCH, ROLL, OR YAW (E.G. LARGE SIDESLIP ANGLE), AS THEY MAY RESULT IN STRUCTURAL FAILURES AT ANY SPEED, INCLUDING BELOW V_A .

LOAD FACTOR

In Flight

Flaps UP Position (0°) -1.44 to +3.6G at 16,830 Pounds
Flaps T.O., T.O. & APPR and LAND Position
(7° To 35°) 0.0 to +2.0G at 16,830 Pounds

NOTE

These accelerations limit the angle-of-bank in turns and limit the severity of pull-up/
push-over maneuvers.

Landing

Flaps LAND Position (35°) +3.46G at 15,200 Pounds

NOTE

This acceleration limits the airplane to a maximum landing sink rate of 600 feet-per-minute.

CABIN PRESSURIZATION LIMITATIONS

Normal Cabin Pressurization Limitations 0.0 to 9.0 PSI Differential
Airplane must be depressurized for takeoff and landing.

MANEUVERS

No acrobatic maneuvers, including spins, are approved. No intentional stalls permitted above 25,000 feet.

PASSENGER COMPARTMENT

For all takeoff and landings, seats must be fully upright and outboard. The seat just aft of the emergency exit must be to the most aft position (toward rear of airplane) and passenger seat belts and shoulder harnesses must be fastened. Maximum number of passenger seats is 11.

ANGLE-OF-ATTACK/STICK SHAKER SYSTEM

The angle-of-attack system may be used as a reference system but does not replace the airspeed display in the PFD as a primary instrument.

The angle-of-attack system can be used as a reference for approach speed ($1.3 V_{S1}$) at all airplane weights and center-of-gravity locations at zero, takeoff/approach and landing flap positions. $1.3 V_{S1}$ is indicated by approximately .6 on the AOA gage and by the green circle on the pilot's and copilot's PFD airspeed tapes.

The angle-of-attack and stall warning system must be operable and a satisfactory preflight test must be performed in accordance with Section III, Normal Procedures.

AIRPLANE BATTERY

If the BATT O' TEMP light illuminates during ground operation, do not takeoff until after the proper maintenance procedures have been accomplished.

INSTRUMENT MARKINGS

FAN (N ₁) RPM INDICATORS		
Scale Markings	Red Line	102.1% RPM
	Yellow Band	100.1 - 102.0% RPM
Tape/Pointer/Digital Readout	Red	≥102.1% RPM or 100.1 - 102.0% RPM for more than 20 seconds
Tape/Pointer	White	≤100.0% RPM or 100.1 - 102.0% RPM for less than 20 seconds
Digital Readout	Green	≤100.0% RPM or 100.1 - 102.0% RPM for less than 20 seconds

INTER-TURBINE TEMPERATURE INDICATORS		
Engine Start		
Scale Markings	Red Line	741°C
	Yellow Band	701 - 740°C
Tape/Pointer	Red	≥741°C or 701 - 740°C for more than 5-7 seconds (see figure 2-3)
	White	≤700°C or 701 - 740°C for less than 5-7 seconds (see figure 2-3)

INTER-TURBINE TEMPERATURE INDICATORS		
Engine Running (Non-Start)		
Scale Markings	Red Line	741°C
	Yellow Band	701 - 740°C
Tape/Pointer	Red	≥741°C or 701 - 740°C for more than 20 seconds
	White	≤700°C or 701 - 740°C for less than 20 seconds

OIL TEMPERATURE INDICATORS		
Scale Markings	Red Band	>140°C and < -40°C
	Yellow Band	>132°C - ≤140°C and < +10°C to ≥ -40°C
	Green Band	≥10°C - ≤132°C
Pointer	Red	>140°C or >132°C - ≤140°C for more than 200 seconds or < -40°C
	Yellow	>132°C - ≤140°C for less than 200 seconds or < +10°C to ≥ -40°C
	Green	≥10°C - ≤132°C

NOTE

Digital readout is displayed only when temperature is outside normal operating limits.
Digit color will match pointer color.

(Continued Next Page)

INSTRUMENT MARKINGS (Continued)

TURBINE (N₂) RPM INDICATORS		
Digital Readout	Red	≥102.1% RPM or 100.1 - 102.0% for more than 20 seconds
	Green	≤100.0% RPM or 100.1 - 102.0% for less than 20 seconds

OIL PRESSURE INDICATORS		
Scale Markings	Red	>270 and <25
	Yellow	>160 - ≤270 and ≥25 - <45
	Green	≥45 - ≤160
Pointer (N ₂ ≥60%)	Red	<25 or ≥25 - <45 for more than 400 seconds or >270 or >160 - ≤270 for more than 400 seconds
	Yellow	≥25 - <45 for less than 400 seconds or >160 - ≤270 for less than 400 seconds
	Green	≥45 - ≤160
Pointer (N ₂ <60%)	Red	<25 or >270 or >160 - ≤270 for more than 400 seconds
	Yellow	>160 - ≤270 for less than 400 seconds
	Green	≥25 - ≤160

NOTE

- Digital readout is displayed only when pressure is outside normal operating limits. Digit color will match pointer color.

AIRSPPEED INDICATOR		
MARKING	SIGNIFICANCE	AIRSPPEED
Red Line	V _{MCA}	86 KIAS
Green Circle	1.3V _{S1}	V _{REF}
Red Marker (These speeds may not be deliberately exceeded in any flight regime)	V _{MO}	262 KIAS (Sea Level - 8,000 feet)
	V _{MO}	292 KIAS (Above 8,000 - 28,907 feet)
	M _{MO}	0.755 Mach (Above 28,907)
Top of Low Speed Cue (LSC)	Stick Shaker/ Impending Stall Speed	Function of Weight

(Continued Next Page)

INSTRUMENT MARKINGS (Continued)**LEFT AND RIGHT AMMETER INDICATORS**

	Red Line:	300 Amps
--	-----------	----------

CABIN DIFFERENTIAL PRESSURE INDICATOR

	Red Line:	9.0 PSI
	Green Arc:	0.0 to 8.9 PSI

OXYGEN PRESSURE INDICATOR

	Red Line:	2000 PSI
	Yellow Arc:	0.0 to 400 PSI
	Green Arc:	1600 to 1800 PSI

BRAKE AND GEAR PNEUMATIC PRESSURE INDICATOR (IN NOSE COMPARTMENT)

	Narrow Red Arc:	0-1600 PSI
	Wide Yellow Arc:	1600 to 1800 PSI
	Wide Green Arc:	1800 to 2050 PSI
	Wide Red Arc:	Above 2050 PSI

BRAKE HYDRAULIC ACCUMULATOR PRESSURE INDICATOR (IN NOSE COMPARTMENT)

	Red Arc:	<675 PSI
	Grey Band:	675 PSI
	Yellow Arc:	> 675 to 1100 PSI
	Green Arc:	>1100 to 1500 PSI
	Red Arc:	>1500 PSI

ANGLE OF ATTACK INDICATOR

	White Band:	0.57 to 0.63
	Yellow Arc:	0.63 to 0.84
	Red Arc:	0.84 to 1.00

BATTERY TEMPERATURE INDICATOR

	Yellow Arc:	145 to 160
	Red Arc:	160 to 180

AUTOPILOT

1. One pilot must remain in his seat with the seat belt fastened during all autopilot operations.
2. The FCS-3000 system must be verified to be operational by a satisfactory automatic preflight test (no messages on power up) prior to each flight in which the autopilot is to be used.
3. The autopilot minimum engage height, during climb following takeoff or go-around, is 300 feet AGL.
4. The autopilot minimum use height is:
 - a. ILS Approach (CAT I) 90 Feet AGL.
 - b. LNAV/VNAV Approach with a DA 200 Feet AGL.
 - c. Non-precision Approaches 200 Feet AGL.
 - d. Cruise 1000 Feet AGL.
5. Do not override the autopilot in pitch.

NOTE

Overriding the autopilot in pitch does not cancel the autopilot automatic trim. If a force is applied to the column with the autopilot engaged, then automatic trim will run to oppose the applied force. This can lead to a severe out-of-trim condition during any phase of flight.

6. Operation of the autopilot with a pitch trim malfunction is prohibited.

ROCKWELL COLLINS FCS-3000 INTEGRATED FLIGHT CONTROL SYSTEM

The Rockwell Collins Pro Line 21 Avionics System for Cessna Citation Encore+ Publication Number 523-0808124, dated 1 August 2006 or later applicable revision, must be immediately available to the flight crew.

1. Operating in the composite mode is limited to training and display failure conditions.
2. The pilot's PFD, copilot's PFD and MFD must be installed and operational in the normal mode for takeoff.
3. Category II approaches are not approved.
4. VOR approaches must be conducted in the APPR mode.
5. VOR approaches conducted without DME must be intercepted greater than 6 nautical miles from the VOR.
6. It is prohibited to display the non-coupled side Flight Director unless the coupled side Flight Director is being displayed. Failure to adhere to this limitation will result in incorrect Flight Director guidance. Use of the coupled side Flight Director by itself will operate correctly.
7. Nav and localizer captures must be accomplished with an intercept angle of less than 90°.
8. AHRS 1 and AHRS 2 must be operational for takeoff.
9. ADC 1 and ADC 2 must be operational for takeoff.

STANDBY FLIGHT DISPLAY

1. A satisfactory preflight test must be accomplished on the standby flight display using the test in the cockpit preparation check in Section III, Normal Procedures.
2. The standby flight display must be functioning prior to takeoff.
3. The GH-3000 Pilot's guide part number 501-1741-XX02, copyright 1999 or later applicable revision must be immediately available to the flight crew.

SUPPLEMENTAL OXYGEN SYSTEM

The following aircraft certification requirements are in addition to the requirements of applicable operating rules. The most restrictive requirements (certification or operating) must be observed:

Crew and passenger oxygen masks are not approved for use above 40,000 feet cabin altitude. Prolonged operation of passenger masks above 25,000 feet cabin altitudes is not recommended.

NOTE

Passenger masks are intended for use during an emergency descent to an altitude not requiring supplemental oxygen.

The pressure demand crew oxygen masks must be properly stowed in their containers to qualify as a quick-donning oxygen mask.

NOTE

Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.

Cabin temperature must be at or above 0°C (+32°F) for a minimum of 15 minutes prior to flight above FL250 after a prolonged ground cold soak period (two hours or longer) at ambient temperatures of -10°C (+14°F) or colder (refer to Normal Procedures, Cold Weather Operations). This temperature ensures proper deployment and operation of the passenger oxygen masks.

HIGH FREQUENCY (HF), AUTOMATIC DIRECTION FINDER (ADF) SYSTEMS

The ADF bearing information may be erratic when keying the HF transmitter. Should this occur, disregard the ADF bearing during periods of transmission.

THRUST REVERSERS

Reverse thrust power must be reduced to the idle reverse detent position at 60 KIAS on landing roll.

The FADEC will limit reverse thrust to a maximum of 2106 lbs. However, in the event of a FADEC fault, the pilot should not exceed 71.4% N_1 .

Maximum allowable thrust reverser deployed time is 3 minutes in any 10 minute period.

Engine static ground operation is limited to idle power (if thrust reversers are deployed).

Use of thrust reversers is prohibited during touch and go landings.

On the first flight of the day and the first flight after any maintenance action has been performed on the aircraft, the thrust reverser(s) must be verified to be operational by the Before Takeoff test in Section III Normal Procedures.

The use of thrust reversers to back the airplane is prohibited.

GND IDLE SWITCH

The GND IDLE switch must be in HIGH position when conducting touch and go landings.

TAIL DEICE SYSTEM

Minimum Temperature for use (Airspeed below 150 KIAS) -40°C (-40°F) RAT
Minimum Temperature for use (Airspeed at or above 150 KIAS) -35°C (-31°F) RAT

CAUTION

DO NOT OPERATE DEICE BOOTS UNDER ANY OF THE FOLLOWING
CONDITIONS BECAUSE BOOT CRACKING MAY RESULT:

- AIRSPEEDS AT OR ABOVE 150 KIAS AND THE RAT IS LESS THAN OR
EQUAL TO -35°C (-31°F).
- AIRSPEEDS BELOW 150 KIAS AND THE RAT IS LESS THAN OR
EQUAL TO -40°C (-40°F).

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OPERATING PROCEDURES - GENERAL

The operating procedures contained in this manual have been developed and recommended by Cessna Aircraft Company and are approved by the FAA for use in the operation of this airplane.

This section contains the emergency, abnormal and normal procedures for your airplane. For your convenience, definitions of these terms are listed in Section I. Some emergency situations require immediate corrective action. These numbered steps are printed in boxes in the emergency procedures and should be done without the aid of the checklist.

WARNING/CAUTION/ADVISORY LIGHT SYSTEM

Annunciator lights are classified as WARNING, CAUTION, and ADVISORY. All except those associated with the Electronic Flight Instrument System (EFIS), autopilot, avionics, and engine fire warning/suppression systems are located in the annunciator panel. The abnormal and emergency procedures in this section are keyed, where applicable, to these annunciators. Warning lights are generally red (except failure of both generators). Illumination of warning lights in the annunciator panel will cause both MASTER WARNING RESET lights to flash. Failure of both generators (amber annunciators) is considered a red function and triggers the MASTER WARNING. Illumination of the LH/RH ENGINE FIRE light(s) will not trigger the MASTER WARNING lights.

CAUTION lights are amber. Illumination of caution lights, located in the annunciator panel, will cause both MASTER CAUTION RESET lights to illuminate. Some annunciators have time delays before illuminating the MASTER CAUTION. Some pilot selected functions such as fuel crossfeed (causing the fuel boost pumps to come on), will not activate the MASTER CAUTION.

When a red annunciator illuminates, it will flash until the MASTER WARNING is reset by pushing the MASTER WARNING RESET light. If the condition which caused the annunciator to illuminate is corrected prior to resetting the MASTER WARNING, the annunciator will extinguish, but the MASTER WARNING will continue to flash until reset. When a yellow annunciator illuminates, it will flash until the MASTER CAUTION is reset by pushing the MASTER CAUTION RESET light. If the condition which caused the annunciator to illuminate is corrected prior to resetting the MASTER CAUTION, the annunciator and MASTER CAUTION will extinguish.

ADVISORY lights are white and do not trigger a master warning or master caution. When an advisory light is illuminated, pilot action may be required. If an action is required it will be in the ABNORMAL PROCEDURES in this section.

EMERGENCY PROCEDURES

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EMERGENCY PROCEDURES

ENGINE FAILURE OR FIRE, OR MASTER WARNING DURING TAKEOFF

SPEED BELOW V_1 - TAKEOFF ABORTED

- Brakes - AS REQUIRED.
 - Throttles - IDLE.
 - Speed Brakes - EXTEND.
 - Thrust Reverser - DEPLOY ON UNAFFECTED ENGINE.
1. Thrust Reverser Indicator Lights - CHECK ILLUMINATION of ARM, UNLOCK AND DEPLOY LIGHTS.
 2. Thrust Reverser - REVERSE THRUST ON THE UNAFFECTED ENGINE.
 3. Thrust Reverser - REVERSE LEVER TO IDLE REVERSE AT 60 KIAS.

NOTE

- To obtain maximum braking performance from the antiskid system, the pilot must apply continuous maximum effort (no modulation) to the brake pedals.
 - The Takeoff Field Lengths assume that the pilot has maximum effort applied to the brakes at the scheduled V_1 speed during the aborted takeoff.
4. When airplane comes to a stop - Refer to Emergency Procedures, EMERGENCY EVACUATION (if appropriate).

SPEED ABOVE V_1 - TAKEOFF CONTINUED

- Rotate - V_R .
 - Landing Gear - UP (after positive rate-of-climb).
 - Climb - V_2 until Level Off Altitude.
1. Flaps - RETRACT at Level Off Altitude and $V_2 + 10$ KIAS, accelerate to V_{ENR} (160 KIAS).

IF ENGINE FIRE

2. At or above 400 feet AGL, Accomplish Emergency Procedures, ENGINE FIRE.

IF ENGINE FAILURE

2. At or above 400 feet AGL, Accomplish Abnormal Procedures, IN-FLIGHT RESTART - ONE ENGINE or Abnormal Procedures, ENGINE FAILURE/PRECAUTIONARY SHUTDOWN.

ENGINE FIRE (LH OR RH ENGINE FIRE WARNING LIGHT ON)

- | |
|---|
| <ol style="list-style-type: none">1. Throttle (affected engine) - IDLE.IF LIGHT REMAINS ON (15 SECONDS) PROBABLE FIRE2. ENGINE FIRE Switch (affected engine) - LIFT COVER and PUSH.3. Either Illuminated BOTTLE ARMED Light - PUSH. |
|---|

4. Throttle (affected engine) - OFF.
5. Electrical Load - REDUCE as required.
6. Affected ENGINE Anti-ice - CHECK OFF.
7. WING XFLOW Switch - ON as required.

IF FIRE WARNING LIGHT REMAINS ON AFTER 30 SECONDS

8. Remaining Illuminated BOTTLE ARMED Light - PUSH.
9. Land as soon as possible.
10. Refer to Abnormal Procedures, SINGLE-ENGINE APPROACH and LANDING.

IF LIGHT GOES OUT AND SECONDARY INDICATIONS ARE NOT PRESENT

2. Land as soon as practical.
3. Refer to Abnormal Procedures, SINGLE-ENGINE APPROACH and LANDING.

ENGINE FAILURE DURING FINAL APPROACH

- | |
|---|
| <ol style="list-style-type: none">1. Thrust (operating engine) - INCREASE as required.2. Airspeed - V_{APP}3. Flaps - T.O. & APPR (15°). |
|---|

4. Rudder and Aileron Trim - TRIM toward operating engine as required.
5. Multiply Flaps 35° landing distance by 1.4.
6. Passenger Advisory Lights - PASS SAFETY.
7. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
8. Exterior Lights - AS REQUIRED.
9. Fuel CROSSFEED Switch - OFF.
10. Annunciators - CHECK.
11. GND IDLE Switch - NORM.
12. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
13. Landing Gear - DOWN.
14. Flap Override Switch - GPWS FLAP OVRD ON (amber).
15. ANTI-SKID Switch - CHECK ON.
16. Landing Lights - AS DESIRED.
17. Autopilot and Yaw Damper - OFF.
18. Speed Brakes - RETRACT (50 feet AGL and below).

EMERGENCY RESTART - TWO ENGINES

- | |
|---|
| 1. FUEL BOOST Pumps - BOTH ON.
2. Throttles - CUTOFF, then IDLE. |
|---|
3. If altitude allows - INCREASE AIRSPEED to 200 KIAS.
 4. ENGINE FIRE Switches - CHECK OPEN (F/W SHUTOFF Caution Light L or R extinguished).
 5. All Anti-Ice Switches - OFF.

IF NO START IN TEN SECONDS

6. Either ENGINE START Button - PRESS momentarily.

IF ENGINE DOES NOT START

7. ENGINE START DISENGAGE Button - PRESS momentarily.
8. ENGINE START Button - (Other engine) PRESS momentarily.

IF ENGINE DOES NOT START

9. ENGINE START DISENGAGE Button - PRESS momentarily.
10. Refer to Emergency Procedures, MAXIMUM GLIDE - EMERGENCY LANDING.

IF FIRST ENGINE STARTS

7. Thrust (operating engine) - INCREASE to arrest descent.
8. ENGINE START BUTTON (other engine) - PRESS momentarily.

IF ONLY ONE ENGINE RESTARTS

9. Refer to Abnormal Procedures, SINGLE ENGINE APPROACH AND LANDING.
10. Land as soon as practical.

IF BOTH ENGINES RESTART

9. Land as soon as practical.

MAXIMUM GLIDE - EMERGENCY LANDING

1. Airspeed - Per Chart Below.

AIRSPEED FOR MAXIMUM RANGE GLIDE (NO WIND)

WEIGHT (POUNDS)	11,000	12,000	13,000	14,000	15,000	16,000	16,830
KIAS	111	116	120	125	129	133	137

NOTE

The speed brakes and flaps may not operate. If flap lever is moved, the flaps may tend to float in a trail position. Landing gear extension, if required, must follow emergency gear release procedures.

2. Flaps - UP.
3. Flap Override Switch - GPWS FLAP OVRD ON (amber).
4. Speed Brakes - RETRACT.
5. ATC - ADVISE.
6. Transponder - EMERGENCY.
7. Passenger Advisory Lights - PASS SAFETY.
8. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure, and stow loose items securely.
9. Shoulder Harnesses - SECURE.
10. Landing Gear - AS DESIRED prior to touchdown.

AIRSTART ENVELOPE

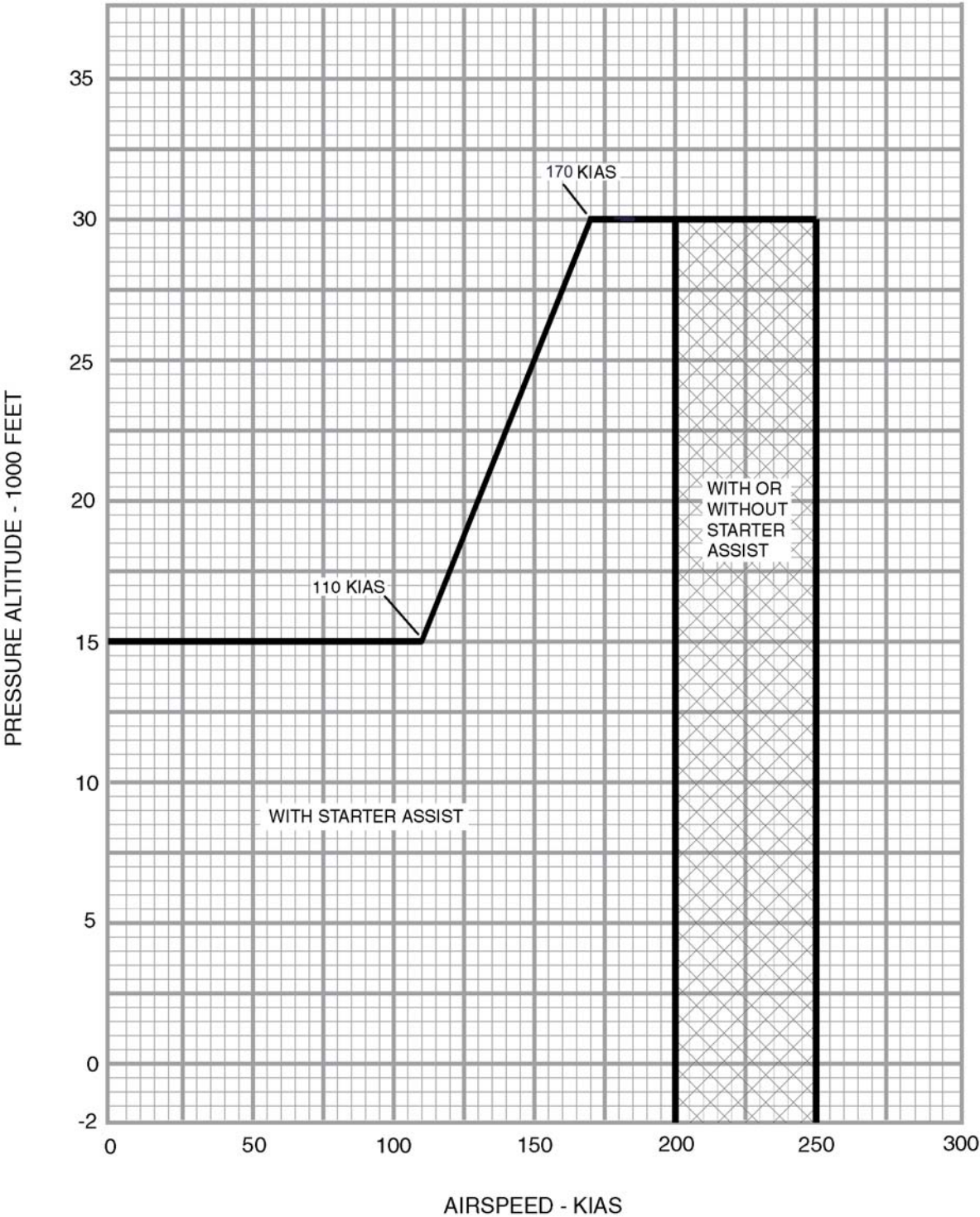


Figure 3-1

HIGH OIL PRESSURE INDICATION (RED POINTER AND DIGITS)

1. Throttle (affected engine) - REDUCE THRUST.
2. Land as soon as practical.

LOW OIL PRESSURE INDICATION (RED POINTER AND DIGITS)

1. Throttle (Affected Engine) - REDUCE THRUST (below 60% N₂).

IF POINTER AND DIGITS INDICATE ZERO AND LOW OIL PRESSURE ANNUNCIATION NOT ILLUMINATED

2. DCU PRI and DCU SEC circuit breaker (affected side panel) - CHECK.

IF POINTER AND DIGITS CHANGE TO AMBER OR GREEN

2. Throttle (Affected Engine) - MAINTAIN below 60% N₂.
3. Land as soon as practical.

IF POINTER AND DIGITS REMAIN RED OR RETURN TO RED

2. Throttle (Affected Engine) - OFF.
3. Refer to Abnormal Procedures, ENGINE FAILURE/PRECAUTIONARY SHUTDOWN.

LOW OIL PRESSURE (LO OIL PRESS L OR R WARNING LIGHT ON)

Indicates oil pressure at the warning transducer is 20 PSI or less.

1. Throttle (Affected Engine) - REDUCE.

IF OIL PRESSURE INDICATION DOES NOT RESPOND TO THROTTLE MOVEMENT OR POINTER TURNS RED

2. Throttle (Affected Engine) - OFF.
3. Refer to Abnormal Procedures, ENGINE FAILURE/PRECAUTIONARY SHUTDOWN.

IF OIL PRESSURE INDICATION RESPONDS TO THROTTLE MOVEMENT AND POINTER REMAINS GREEN

2. Throttle (Affected Engine) - IDLE or AS REQUIRED.
3. Monitor EIS oil pressure indication.
4. Land as soon as practical.

THRUST REVERSER INADVERTENT DEPLOYMENT DURING TAKEOFF**SPEED BELOW V₁ - TAKEOFF ABORTED**

- Brakes - AS REQUIRED.
 - Throttles - IDLE.
 - Speed Brakes - EXTEND.
 - Thrust Reversers - BOTH DEPLOY.
1. Thrust Reverser Indicator Lights - CHECK ILLUMINATION of ARM, UNLOCK and DEPLOY LIGHTS.
 2. Thrust Reversers - REVERSE THRUST ON BOTH ENGINES.

(Continued Next Page)

THRUST REVERSER INADVERTENT DEPLOYMENT DURING TAKEOFF (Continued)

SPEED ABOVE V_1 - TAKEOFF CONTINUED

1. Emergency STOW Switch (affected engine) - EMER.

- Rotate - V_R .
- Landing Gear - UP (after positive rate-of-climb). Do not exceed 150 KIAS until thrust reverser stows.
- Climb Airspeed - V_2 .

IF THRUST REVERSER STOWS

2. Thrust Reverser Indicator Lights - CHECK UNLOCK and DEPLOY LIGHT EXTINGUISHED.
- ARM LIGHT ILLUMINATED.
3. Throttle (affected engine) - IDLE, then AS REQUIRED.
4. Flaps - RETRACT at $V_2 + 10$ KIAS and accelerate.
5. Airspeed - MAINTAIN 200 KIAS or below (after T/R stows).
6. Altitude - FL310 or below.
7. Land as soon as practical (affected thrust reverser will be inoperative).

IF THRUST REVERSER WILL NOT STOW

WARNING

**DO NOT ADVANCE THE THROTTLE ON THE AFFECTED ENGINE.
REVERSE THRUST WILL INCREASE AFTER THE THROTTLE HAS BEEN
BROUGHT TO IDLE AND THEN ADVANCED.**

2. THRUST REVERSER Circuit Breaker (LH panel) - CHECK IN.
3. Throttle (affected engine) - OFF.
4. Airspeed - MAINTAIN 150 KIAS or below.
5. Land as soon as possible (affected thrust reverser will be inoperative).
6. Rudder and Aileron Trim - Trim toward operating engine as required.
7. GEN Switch (affected engine) - OFF.
7. Electrical Load - REDUCE as required.
8. Fuel CROSSFEED Switch - AS REQUIRED (maximum imbalance 200 lbs).
10. ENGINE Anti-Ice (affected engine) - CHECK OFF.
11. WING XFLOW Switch - ON as required.

WARNING

DO NOT USE THE AUTOPILOT OR YAW DAMPER.

NOTE

If possible, choose a runway with least possible crosswind.

BEFORE LANDING (WITH THRUST REVERSER DEPLOYED)

12. Landing Data - COMPUTE and SET.
 - a. Airspeed - V_{APP}
 - b. Landing Distance - Multiply landing distance by 1.4 for flaps 15°.
13. Crew Briefing - COMPLETE.
14. Avionics and Flight Instruments - CHECK and SET.

(Continued Next Page)

THRUST REVERSER INADVERTENT DEPLOYMENT DURING TAKEOFF (Continued)**BEFORE LANDING (WITH THRUST REVERSER DEPLOYED)** (Continued)

15. Passenger Advisory Lights - PASS SAFETY.
16. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
17. Flaps - T.O. & APPR (15°).
18. Flap Override Switch - GPWS FLAP OVRD ON (amber).
19. Exterior Lights - AS REQUIRED.
20. Fuel CROSSFEED Switch - OFF.
21. Annunciators - CHECK.
22. GND IDLE Switch - NORM.
23. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
24. Landing Gear - DOWN.
25. ANTI-SKID Switch - CHECK ON.
26. Landing Lights - AS DESIRED.
27. Airspeed - V_{APP}
28. Speed Brakes - RETRACT (50 feet AGL and below).

WARNING

DO NOT INITIATE GO-AROUND BELOW 600 FEET AGL WITH A THRUST REVERSER DEPLOYED.

GO-AROUND (WITH THRUST REVERSER DEPLOYED)

29. Throttle (operating engine) - TO Detent.
30. Airplane Pitch Attitude - +5°.
31. Climb Airspeed - $V_{APP} + 10$ KIAS.
32. Flaps - 0° (when $V_{APP} + 10$ KIAS).
33. Landing Gear - UP (when positive rate established).
34. Throttle (operating engine) - CLB Detent (when clear of obstacles).

THRUST REVERSER INADVERTENT INFLIGHT DEPLOYMENT

1. Control Wheel/AP TRIM DISC Button - GRIP/PRESS and RELEASE.
2. Emergency STOW Switch (affected engine) - EMER.
3. Airspeed - REDUCE TO 150 KIAS or below.

4. THRUST REVERSER Circuit Breaker (LH Panel) - CHECK IN.

IF THRUST REVERSER STOWS

5. Thrust Reverser Indicator Lights -CHECK UNLOCK and DEPLOY LIGHT EXTINGUISHED.
- ARM LIGHT ILLUMINATED.
6. Throttle (affected engine) - IDLE, then AS REQUIRED.
7. Airspeed - MAINTAIN 200 KIAS or below (after T/R stows).
8. Altitude - FL310 or below.
9. Land as soon as practical (affected thrust reverser will be inoperative).

IF THRUST REVERSER WILL NOT STOW

5. Throttle (affected engine) - OFF.

(Continued Next Page)

THRUST REVERSER INADVERTENT INFLIGHT DEPLOYMENT

(Continued)

IF THRUST REVERSER WILL NOT STOW (Continued)

6. Airspeed - MAINTAIN 150 KIAS or below.
7. Land as soon as possible (affected thrust reverser will be inoperative).
8. Rudder and Aileron Trim - Trim toward operating engine as required.
9. GEN Switch (affected engine) - OFF.
10. Electrical Load - REDUCE as required.
11. Fuel CROSSFEED Switch - AS REQUIRED (maximum imbalance 200 lbs).
12. ENGINE Anti-Ice (affected engine) - CHECK OFF.
13. WING XFLOW Switch - ON as required.

WARNING

DO NOT USE THE AUTOPILOT OR YAW DAMPER.

NOTE

If possible, the runway used for landing should have a minimum crosswind.

BEFORE LANDING (WITH THRUST REVERSER DEPLOYED)

14. Landing Data - COMPUTE and SET.
 - a. Airspeed - V_{APP} .
 - b. Landing Distance - Multiply landing distance by 1.4 for flaps 15°.
15. Crew Briefing - COMPLETE.
16. Avionics and Flight Instruments - CHECK and SET.
17. Passenger Advisory Lights - PASS SAFETY.
18. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
19. Flaps - T.O. & APPR (15°).
20. Flap Override Switch - GPWS FLAP OVRD ON (amber).
21. Exterior Lights - AS REQUIRED.
22. Fuel CROSSFEED Switch - OFF.
23. Annunciators - CHECK.
24. GND IDLE Switch - NORM.
25. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
26. Landing Gear - DOWN.
27. ANTI-SKID Switch - CHECK ON.
28. Landing Lights - AS DESIRED.
29. Airspeed - V_{APP} .
30. Speed Brakes - RETRACT (50 feet AGL and below).

WARNING

DO NOT INITIATE GO-AROUND BELOW 600 FEET AGL WITH A THRUST REVERSER DEPLOYED.

GO-AROUND (WITH THRUST REVERSER DEPLOYED)

31. Throttle (operating engine) - TO Detent.
32. Airplane Pitch Attitude - +5°.
33. Climb Airspeed - $V_{APP} + 10$ KIAS.
34. Flaps - 0° (when $V_{APP} + 10$ KIAS).
35. Landing Gear - UP (when positive rate established).
36. Throttle (operating engine) - CLB Detent (when clear of obstacles).

THRUST REVERSER UNLOCK LIGHT ON IN FLIGHT

1. Emergency STOW Switch (affected engine) - EMER.
2. Thrust Reverser Levers - CHECK THRUST REVERSER LEVERS AT STOWED (FULL FORWARD) POSITION.

IF LIGHT WILL NOT EXTINGUISH

3. L/R THRUST REVERSER Circuit Breakers (LH panel) - CHECK IN.
4. Airspeed - MAINTAIN 200 KIAS or below.
5. Altitude - FL310 or below.
6. Land as soon as practical (affected thrust reverser will be inoperative).

THRUST REVERSER ARM LIGHT ON IN FLIGHT

1. Thrust Reverser Levers - CHECK THRUST REVERSER LEVERS AT STOWED (FULL FORWARD) POSITION.
2. Emergency STOW Switch (affected engine) - Verify NORM.

IF ARM LIGHT IS STILL ILLUMINATED

3. HYD PRESS caution light - CHECK.

IF HYD PRESS CAUTION LIGHT IS NOT ILLUMINATED

4. Land as soon as practical.

IF HYD PRESS CAUTION LIGHT IS ILLUMINATED (THRUST REVERSER ISOLATION VALVE IS OPEN)

4. Emergency STOW Switch (affected engine) - EMER.
5. Airspeed - MAINTAIN 200 KIAS or below.
6. Altitude - FL310 or below.
7. Land as soon as practical (affected thrust reverser will be inoperative).

OVERPRESSURIZATION

1. Pressurization SYSTEM SELECT - MANUAL. Control pressurization with the manual toggle switch.

IF STILL OVERPRESSURIZED

2. PRESS SOURCE Select Knob - L or R; control cabin pressure with throttle corresponding to the selected source.

IF UNABLE TO CONTROL

3. Oxygen Masks - DON and 100% OXYGEN.
4. Microphone Switches - MIC OXY MASK.

NOTE

Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.

5. Oxygen Control Valve - MANUAL DROP.
6. Passenger Oxygen - ENSURE passengers are receiving oxygen.
7. Passenger Advisory Lights - PASS SAFETY.
8. PRESS SOURCE Select Knob - OFF.
9. Descend to 15,000 feet MSL or Minimum Safe Altitude, whichever is higher.

IF STILL OVERPRESSURIZED

10. EMER DUMP Switch - ON.
11. Refer to Emergency Procedures, EMERGENCY DESCENT and Abnormal Procedures, USE OF SUPPLEMENTAL OXYGEN.

CABIN DECOMPRESSION (CAB ALT WARNING LIGHT ON)

- | |
|---|
| <ol style="list-style-type: none">1. Oxygen Masks - DON and 100% Oxygen.2. Microphone Switches - MIC OXY MASK.3. Emergency Descent - AS REQUIRED. Refer to Emergency Procedures, EMERGENCY DESCENT. |
|---|
4. PRESS SOURCE Select Knob - NORM.
 5. Passenger Oxygen - ENSURE passengers are receiving oxygen (MANUAL DROP as required).
 6. Transponder - EMERGENCY.

NOTE

- Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.
- The passenger oxygen masks will deploy automatically when cabin altitude exceeds 14,500 feet \pm 500 feet.
- If a high altitude airport (field elevation greater than 8,000 feet MSL) is selected on the cabin pressurization controller, the CAB ALT warning light will illuminate at 14,500 feet \pm 500 feet.

IF NOT ARRESTED BY 14,000 FEET CABIN ALTITUDE

7. PRESS SOURCE Select Knob - EMER (control cabin temperature with LH throttle).

NOTE

The emergency pressurization system will automatically activate when cabin altitude exceeds 14,500 feet \pm 500 feet and will automatically deactivate when cabin altitude descends below this altitude.

8. PRESS SOURCE Select Knob - NORM (when below 10,000 feet MSL).
9. Refer to Abnormal Procedures, USE OF SUPPLEMENTAL OXYGEN.
10. Land as soon as practical.

IF ARRESTED BELOW 14,000 FEET CABIN ALTITUDE

7. Refer to Abnormal Procedures, USE OF SUPPLEMENTAL OXYGEN.
8. Land as soon as practical.

CABIN PRESSURIZATION CONTROLLER FAILURE (RED LED ILLUMINATED)

NOTE

Detection of an internal controller fault will be indicated by both SET ALT and RATE displays blanking and the illumination of a red LED in the upper left corner of the controller face.

IF CABIN ALTITUDE IS NOT BEING MAINTAINED (CABIN ALTITUDE INCREASING/DECREASING)

1. Pressurization SYSTEM SELECT Switch - MANUAL.
2. Manual Toggle Switch - UP/DOWN to control cabin altitude.

CAUTION

CABIN MUST BE MANUALLY DE-PRESSURIZED PRIOR TO LANDING.

IF CABIN ALTITUDE IS BEING MAINTAINED (CABIN ALTIMETER STEADY)

1. Cabin Altitude - MONITOR.
2. Pressurization SYSTEM SELECT - Be prepared to select MANUAL prior to airplane altitude change.

EMERGENCY DESCENT

- | |
|---|
| <ol style="list-style-type: none">1. AP TRIM DISC Button - PRESS and RELEASE.2. Throttles - IDLE.3. Speed Brakes - EXTEND.4. Airplane Pitch Attitude - INITIALLY TARGET 20 DEGREES NOSE DOWN ATTITUDE. |
|---|

5. Airspeed - M_{MO}/V_{MO} (use reduced speed if structural damage has occurred).
6. Transponder - EMERGENCY.
7. Passenger Advisory Lights - PASS SAFETY.
8. ATC - ADVISE and obtain local altimeter setting.
9. Altitude - 10,000 feet MSL or Minimum Safe Altitude, whichever is higher.

NOTE

If terrain or other circumstances prevent a direct descent to 10,000 feet MSL, the descent to 10,000 feet MSL should be completed within 25 minutes of the initiation of the emergency descent.

10. OXYGEN CONTROL VALVE – CREW ONLY (at 10,000 feet MSL and below).

IF DESCENT INTO ICING CONDITIONS IS REQUIRED

11. Anti-Ice/Deice - AS REQUIRED.
12. Throttles - AS REQUIRED, maintain sufficient thrust for wing anti-icing (WING ANTI-ICE lights extinguished).

ENVIRONMENTAL SYSTEM SMOKE OR ODOR

1. Oxygen Masks - DON and EMER.
2. Microphone Switches - MIC OXY MASK.

NOTE

Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.

3. Smoke Goggles - DON (if required).
4. Cabin OVHD Fan - OFF.
5. DEFOG Fan - OFF.
6. PRESS SOURCE Select Knob - Isolate source by first selecting L.

NOTE

The PRESS SOURCE Select Knob must remain in each position long enough to allow adequate system purging to determine the source of smoke (approximately 1 minute).

IF SMOKE CONTINUES

7. PRESS SOURCE Select Knob - R (allow time for smoke to dissipate).

IF SMOKE STILL CONTINUES

8. PRESS SOURCE Select Knob - EMER (control cabin temperature with LH throttle).
9. Refer to Emergency Procedures, SMOKE REMOVAL.

SMOKE REMOVAL

NOTE

No action is normally required; however, if smoke is intense:

- | |
|--|
| <ol style="list-style-type: none">1. Oxygen Masks - DON and EMER.2. Microphone Switches - MIC OXY MASK. |
|--|

NOTE

Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.

3. Smoke Goggles - DON (if required).
4. PASS OXY Knob (if fire source is known and away from oxygen system) - AS APPROPRIATE (assure passengers are receiving oxygen).

NOTE

Selection of the passenger oxygen system to ON may be appropriate in situations where the flight crew determines it is safe to do so and where supplemental oxygen may assist the passengers' breathing in a smoke filled cabin.

5. Cockpit Divider - OPEN.
6. Passenger Advisory Light - PASS SAFETY.
7. EMER DUMP Switch - ON for normal power (utilize the manual toggle switch for emergency power situations).

NOTE

Cabin altitude will not exceed approximately 14,000 feet.

8. Refer to Abnormal Procedures, USE OF SUPPLEMENTAL OXYGEN.

IF SMOKE PERSISTS OR IT CANNOT BE VERIFIED THAT THERE IS NO FIRE

9. Land as soon as possible.

WARNING

WHETHER OR NOT SMOKE HAS DISSIPATED, IF IT CANNOT BE VISIBLY CONFIRMED THAT ANY FIRE HAS BEEN EXTINGUISHED FOLLOWING FIRE SUPPRESSION AND/OR SMOKE EVACUATION PROCEDURE, LAND IMMEDIATELY AT THE NEAREST SUITABLE AIRPORT.

ELECTRICAL FIRE OR SMOKE

- | |
|--|
| 1. Oxygen Masks - DON and EMER. |
| 2. Microphone Switches - MIC OXY MASK. |
3. Smoke Goggles - DON (if required).
 4. PRESS SOURCE Select Knob - NORM.

NOTE

Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.

KNOWN SOURCE

5. Faulty Circuit(s) - PULL CIRCUIT BREAKER(s) to isolate.
6. Land as soon as practical.

UNKNOWN SOURCE

5. INTERIOR MASTER Switch - OFF.
6. Overhead FLOOD LTS - FULL BRIGHT.
7. BATT Switch - EMER.
8. L/R GEN Switches - OFF - With the battery switch in EMER and the generators OFF, a properly charged battery will supply power for approximately 30 minutes to the following equipment:

COMM 1	Standby Engine Instrument	Interior Entry Lights
NAV 1	LH Pitot and Static Heaters	Standby Flight Display
RTU 1	Landing Gear Control & Indication	Standby Pitot and Static Heaters
ADC 1	Overhead Flood Lights	Flap Control
ADF 1	Pilot's and Copilot's Audio Panels	AHRS 2

CAUTION

WHEN LANDING WITH EMERGENCY POWER (BATTERY SWITCH-EMER AND BOTH GENERATORS OFF), THE FOLLOWING ARE NOT AVAILABLE:

- THE ANTISKID/POWER BRAKE SYSTEM IS INOPERATIVE; ONLY THE EMERGENCY BRAKE SYSTEM IS AVAILABLE.
- THE WING AND ENGINE ANTI-ICE VALVES WILL BE OPEN. ANTI-ICE ON THRUST CHARTS APPLY.
- THE CABIN MUST BE DEPRESSURIZED WITH THE MANUAL TOGGLE SWITCH. THE EMERGENCY DUMP SWITCH IS INOPERATIVE.
- ALL EIS INDICATIONS ON THE MFD ARE INOPERATIVE.
- NEITHER PFD NOR MFD WILL BE OPERATIONAL.
- TRANSPONDER, TCAS AND HF RADIO ARE INOPERATIVE.

(Continued Next Page)

ELECTRICAL FIRE OR SMOKE (Continued)

NOTE

- The standby flight display will continue to operate on its own emergency battery pack. This battery pack will allow the standby flight display to operate for 3 hours and 58 minutes.
 - Sideslips of one ball or greater can cause the Secondary Flight Display airspeed to oscillate and may momentarily indicate up to 9 knots slow when at V_{REF} with landing gear and flaps extended. Maintain coordinated flight until landing flare.
9. WINDSHIELD BLEED AIR Knobs - OFF UNLESS REQUIRED FOR ANTI-ICING.
 10. Land as soon as practical (within 30 minutes).

IF SEVERITY OF SMOKE WARRANTS

11. Initiate Emergency Procedures, SMOKE REMOVAL and/or EMERGENCY DESCENT.
12. Land as soon as possible.

COCKPIT FIRE

13. Fire Extinguisher - UNSTOW and REMOVE SAFETY PIN (under copilot's seat).
14. Fire - LOCATE and EXTINGUISH.
15. Land as soon as possible.

CABIN FIRE

13. Fire Extinguisher - UNSTOW and REMOVE SAFETY PIN (aft cabin behind the aft, left seat).
14. Fire - LOCATE and EXTINGUISH.
15. Land as soon as possible.

WARNING

WHETHER OR NOT SMOKE HAS DISSIPATED, IF IT CANNOT BE VISIBLY CONFIRMED THAT ANY FIRE HAS BEEN EXTINGUISHED FOLLOWING FIRE SUPPRESSION AND/OR SMOKE EVACUATION, LAND IMMEDIATELY AT THE NEAREST SUITABLE AIRPORT.

APPROACH

16. Landing Data - COMPUTE and SET.
 - a. Airspeed - V_{APP}/V_{REF} .
 - b. Landing Distance - Multiply by 1.6 for emergency braking.
17. Crew Briefing - COMPLETE.
18. Avionics and Flight Instruments - CHECK and SET.
19. Passenger Advisory Lights - PASS SAFETY.
20. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
21. Flaps - AS REQUIRED.
22. Airspeed - $V_{APP} + 10$ KIAS minimum when flaps at 15° .
23. Annunciators - CHECK.

WHEN LANDING ASSURED

24. Pressurization - ZERO DIFFERENTIAL PRIOR TO LANDING.
25. Landing Gear - DOWN.
26. Flaps - LAND (35°).
27. Airspeed - V_{REF} .
28. Landing - Use emergency brake system. Refer to Abnormal Procedures, WHEEL BRAKE FAILURE.

BATTERY OVERTEMPERATURE (BATT O'TEMP WARNING LIGHT ON)

1. Amperage - NOTE.
2. BATT Switch - EMER.
3. Amperage - NOTE DECREASE.

NOTE

If current decreases and battery voltage is 1 volt less than generator voltage in 30 seconds to 2 minutes, monitor battery overheat annunciator for possible change.

IF NO VOLT/AMP DECREASE (Battery Relay Stuck)

4. BATT Switch - BATT.
5. BATTERY DISCONNECT Switch (LH panel) - LIFT GUARD AND DISC.
6. Amperage - NOTE DECREASE.

IF BATT O'TEMP WARNING LIGHT DOES NOT GO OUT OR >160° WARNING LIGHT FLASHES

7. Land as soon as possible.

IF BATT O'TEMP WARNING LIGHT GOES OUT

7. BATTERY DISCONNECT Switch (LH panel) - NORM AND CLOSE GUARD.
8. Land as soon as practical.

IF VOLT/AMP DECREASE

4. BATT Switch - OFF (voltmeter will be inoperative).

IF BATT O'TEMP WARNING LIGHT GOES OUT

5. BATT Switch - BATT.
6. Continue flight (as desired).

CAUTION

- PROLONGED OPERATION WITH THE BATTERY DISCONNECT SWITCH DISCONNECTED AND THE BATT SWITCH ON WILL GRADUALLY DEplete THE BATTERY THROUGH THE BATTERY DISCONNECT RELAY. STARTER ASSISTED AIRSTARTS WILL NOT BE AVAILABLE.
- AFTER LANDING, REFER TO AIRPLANE MAINTENANCE MANUAL FOR PROPER MAINTENANCE PROCEDURES, AS DAMAGE TO THE BATTERY MAY HAVE OCCURRED.

LOSS OF BOTH GENERATORS (GEN OFF L AND R CAUTION LIGHTS ON AND MASTER WARNING)

1. L/R GEN Switches - RESET THEN GEN.

IF NEITHER GENERATOR COMES ON

2. Overhead FLOOD LTS - FULL BRIGHT.
3. BATT Switch - EMER. With the battery switch in EMER and the generators OFF, a properly charged battery will supply power for approximately 30 minutes to the following equipment:

COMM 1	Standby Engine Instrument	Interior Entry Lights
NAV 1	LH Pitot and Static Heaters	Standby Flight Display
RTU 1	Landing Gear Control & Indication	Standby Pitot and Static Heaters
ADC 1	Overhead Flood Lights	Flap Control
ADF 1	Pilot's and Copilot's Audio Panels	AHRS 2

CAUTION

WHEN LANDING WITH EMERGENCY POWER (BATTERY SWITCH-EMER AND BOTH GENERATORS OFF), THE FOLLOWING ARE NOT AVAILABLE:

- THE ANTISKID/POWER BRAKE SYSTEM IS INOPERATIVE; ONLY THE EMERGENCY BRAKE SYSTEM IS AVAILABLE.
- THE WING AND ENGINE ANTI-ICE VALVES WILL BE OPEN. ANTI-ICE ON THRUST CHARTS APPLY.
- THE CABIN MUST BE DEPRESSURIZED WITH THE MANUAL TOGGLE SWITCH. THE EMERGENCY DUMP SWITCH IS INOPERATIVE.
- ALL EIS INDICATIONS ON THE MFD ARE INOPERATIVE.
- NEITHER PFD NOR MFD WILL BE OPERATIONAL.
- TRANSPONDER, TCAS AND HF RADIO ARE INOPERATIVE.

NOTE

- The standby flight display will continue to operate on its own emergency battery pack. This battery pack will allow the standby flight display to operate for 3 hours and 58 minutes.
 - Sideslips of one ball or greater can cause the Secondary Flight Display airspeed to oscillate and may momentarily indicate up to 9 knots slow when at V_{REF} with landing gear and flaps extended. Maintain coordinated flight until landing flare.
4. WINDSHIELD BLEED AIR Knobs - OFF UNLESS REQUIRED FOR ANTI-ICING.
 5. Land as soon as practical (within 30 minutes).

(Continued Next Page)

LOSS OF BOTH GENERATORS (GEN OFF L AND R CAUTION LIGHTS ON AND MASTER WARNING) (Continued)**APPROACH**

6. Landing Data - COMPUTE and SET.
 - a. Airspeed - V_{APP}/V_{REF} .
 - b. Landing Distance - Multiply by 1.6 for emergency braking.
7. Crew Briefing - COMPLETE.
8. Avionics and Flight Instruments - CHECK and SET.
9. Passenger Advisory Lights - PASS SAFETY.
10. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
11. Flaps - AS REQUIRED.
12. Airspeed - $V_{APP} + 10$ KIAS minimum when flaps at 15°.
13. Annunciators - CHECK.

WHEN LANDING ASSURED

14. Pressurization - ZERO DIFFERENTIAL PRIOR TO LANDING (use manual toggle switch to depressurize cabin).
15. Landing Gear - DOWN.
16. Flaps - LAND (35°).
17. Airspeed - V_{REF} .
18. Landing - Use emergency brake system. Refer to Abnormal Procedures, WHEEL BRAKE FAILURE.

IF ONLY ONE GENERATOR COMES ON

2. Electrical Load - REDUCE as required.
3. Air Conditioner Compressor - OFF or FAN.

NOTE

The Interior Master Switch, located on the LH Oxygen Panel, will shed all non-essential passenger cabin electrical loads.

AUTOPILOT MALFUNCTION

- | |
|---|
| 1. AP TRIM DISC Switch - PRESS and RELEASE. |
|---|

AUTOPILOT OUT OF TRIM (RED BOXED “E↑,↓” OR “A←,→” ON PFD’s)

Illumination of a red boxed “E” or “A” annunciation on the PFD indicates the autopilot is flying in a mistrimmed condition.

CAUTION

DO NOT MANUALLY OVERPOWER THE AUTOPILOT. OVERPOWERING THE AUTOPILOT DOES NOT CANCEL THE AUTOTRIM. THE AUTOTRIM WILL TRIM AGAINST FLIGHT CREW INPUTS TO THE COLUMN/WHEEL. THIS COULD LEAD TO A SEVERE OUT-OF-TRIM CONDITION. IF MANUAL CONTROL OF THE AIRPLANE IS REQUIRED, DISENGAGE THE AUTOPILOT WITH THE AUTOPILOT/TRIM DISENGAGE BUTTON.

1. Control Wheel - GRIP WITH BOTH HANDS.

CAUTION

BE PREPARED FOR CONTROL WHEEL FORCES IN EXCESS OF 25 POUNDS.

2. AP/TRIM DISC Button - PRESS AND RELEASE.
3. Elevator or Aileron Trim - ADJUST as required.
4. Autopilot - ENGAGE as desired.

PFD ATTITUDE FAILURE - SINGLE (RED AP, RED ATT AND WHITE XAHS DISPLAYED ON ONE PFD)

1. AHRS Reversion (Affected Side) - AHRS REV.
2. AP XFR - PUSH, select side with operating AHRS, if required.
3. Flight Director Mode Selectors - Select modes as desired.

NOTE

Autopilot will not engage. Flight director will not be displayed unless side with operating AHRS is selected.

4. Land as soon as practical.

PFD ATTITUDE FAILURE - DUAL (RED AP, RED ATT, AND WHITE XAHS ON BOTH PFD'S)

1. Airplane Attitude - CONTROL by reference to standby flight display.
2. Land as soon as practical.

PFD HEADING FAILURE - SINGLE (RED AP, RED HDG AND WHITE XAHS DISPLAYED ON ONE PFD)

1. AHRS Reversion (Affected Side) - AHRS REV.
2. AP XFR - PUSH, select side with operating AHRS, if required.
3. Flight Director Mode Selectors - Select modes as desired.

NOTE

Autopilot will not engage. Flight director will not be displayed unless side with operating AHRS is selected.

4. Land as soon as practical.

PFD HEADING FAILURE - DUAL (RED AP, RED HDG, AND WHITE XAHS ON BOTH PFD'S)

1. Airplane Heading - CONTROL by reference to standby flight display.
2. Land as soon as practical.

AIR DATA COMPUTER FAILURE - SINGLE (RED IAS/ALT/VS DISPLAYED ON ONE PFD)

1. DADC REV Switch (Affected Side) - REV.
2. AP XFR - PUSH, select side with operating ADC, if required.
3. Autopilot Mode Selector - Select modes as desired.

NOTE

The flight director will not display and the autopilot will engage only in basic pitch and roll mode unless the side with operating ADC is selected with AP XFR.

4. RTU - Select XPNDR on side with operating ADC.
5. Land as soon as practical, if ADC 1 has failed refer to Abnormal Procedures, CABIN PRESSURIZATION CONTROLLER FAILURE.

CAUTION

DEPENDING ON THE CAUSE OF THE FAILURE, THE PRESSURIZATION CONTROLLER MAY BE IN ISOBARIC MODE. STRUCTURAL DAMAGE IS POSSIBLE IF THE LANDING IS ACCOMPLISHED WITH THE CABIN PRESSURIZED.

AIR DATA COMPUTER FAILURE - DUAL (RED IAS/ALT/VS ON BOTH PFD'S)

1. Airplane Airspeed and Altitude - FLY AIRCRAFT by reference to standby flight display.
2. Land as soon as practical, refer to Abnormal Procedures, CABIN PRESSURIZATION CONTROLLER FAILURE.

CAUTION

DEPENDING ON THE CAUSE OF THE FAILURE, THE PRESSURIZATION CONTROLLER MAY BE IN ISOBARIC MODE. STRUCTURAL DAMAGE IS POSSIBLE IF THE LANDING IS ACCOMPLISHED WITH THE CABIN PRESSURIZED.

NOTE

The flight director will not display and the autopilot will engage only in basic pitch and roll mode. Transponder altitude reporting will be inoperative.

RED BOXED FD DISPLAYED ON PFD (FLIGHT GUIDANCE COMPUTER FAILURE)**NOTE**

- Failure of AHRS or DADC on the coupled side during normal operation will result in Flight Guidance Computer failure.
 - Vertical/Lateral modes with an amber strike-through line indicate the autopilot is in basic pitch and roll.
 - Indication of loss of NAV data from an ILS approach.
 - Normal after landing from an ILS, when passing the GS antenna.
1. AP XFR Button - PUSH (if required); select side with operating AHRS and ADC.
 2. Flight Director Modes - RESELECT as desired.
 3. Autopilot - ENGAGE as desired (if an AHRS failure occurred, autopilot will not engage).

RED AOA1 OR AOA2 DISPLAYED ON PFD (LOW SPEED CUE (LSC) AOA FAILURE)

Indicates AOA information is not valid.

1. Airspeed - Flaps 0° = $V_{APP} + 10$ KIAS
Flaps 7° = $V_{APP} + 5$ KIAS
Flaps 15° = V_{APP}
Flaps 35° = V_{REF}

NOTE

The default LSC indication is a default amber vertical line displayed on top of the ISS (Impending Stall Speed) checkerboard. The amber vertical line represents the minimum and maximum stall speeds, 69 KIAS to 97 KIAS.

RED DCP 1 OR DCP 2 DISPLAYED ON PFD (DISPLAY CONTROL PANEL FAILURE)

IF DCP 1 DISPLAYED

1. AP XFR Button - PUSH (if required). Select Copilot side.
2. Copilot DCP - Utilize to control DCP functions displayed on Copilot PFD and reference speeds on both PFDs.

The course heading panel (CHP) will be inoperative.

IF DCP 2 DISPLAYED

1. AP XFR Button - PUSH (if required). Select Pilot side.
2. Pilot DCP and CHP - Utilize to control DCP functions displayed on Pilot PFD and reference speeds on both PFDs.

NOTE

The copilot course knob panel (CKP) will be inoperative.

ELECTRIC ELEVATOR RUNAWAY TRIM

1. AP TRIM DISC Switch - PRESS and HOLD.
2. Throttles - As required to control airspeed.
3. Manual Elevator Trim - AS REQUIRED.
4. PITCH TRIM Circuit Breaker (LH panel) - PULL.
5. AP TRIM DISC Switch - RELEASE.

NOTE

Do not attempt to use the autopilot if the electric trim is inoperative. The autopilot will not be able to trim out servo torque, and disengaging the autopilot could result in a significant pitch upset.

EMERGENCY EVACUATION

1. Parking Brake - SET.
 2. Throttles - BOTH OFF.
 3. LH/RH ENGINE FIRE Switches - BOTH PRESS.
 4. LH/RH Fire Bottle Armed Switches - BOTH PRESS (if fire suspected).
 5. BATT Switch - OFF.
6. Airplane and Immediate Area - CHECK for BEST ESCAPE ROUTE.

IF THRU CABIN DOOR

7. Cabin Door - OPEN.
8. Move away from airplane.

IF THRU EMERGENCY EXIT

7. Emergency Exit - REMOVE and THROW OUT of airplane.
8. Move away from airplane.

DITCHING

Ditching is not approved under 14 CFR 25.801 and was not conducted during certification testing of the airplane. Should ditching be required, the following procedures are recommended:

PRELIMINARY

1. PRESS SOURCE Select Knob - OFF (A/C Altitude \leq 10,000 Feet MSL).
2. Radio - MAYDAY.
3. Transponder - Emergency (7700).
4. Emergency Locator Beacon - ON.
5. ATC - ADVISE.
6. Passenger Advisory Lights - PASS SAFETY.
7. Passengers - BRIEF.
 - a. Verify passenger seats are full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure, and stow loose items securely.
 - b. Don life vests (do not inflate).
8. Ditching Heading - Parallel to Major Swell System.

APPROACH

1. Landing Gear - UP.
2. Speed Brakes - RETRACT.
3. Flaps - LAND (35°) (aural gear warning will not cancel).
4. Rate of Descent - 200 to 300 feet/minute (maintain V_{REF}).
5. Approach Speed - V_{REF} .

NOTE

Plan approach to parallel any uniform swell pattern and attempt to touch down along a wave crest or just behind it. If the surface wind is very strong or the water surface rough and irregular, ditch into the wind on the back side of a wave.

WATER CONTACT

1. Aircraft Pitch Attitude - Slightly higher than Normal Landing Attitude.
2. Reduce airspeed and rate of descent to a minimum, but do not stall the airplane.
3. Throttles - OFF just prior to water contact and contact water on a crest of a swell, parallel to the major swell.

AFTER WATER CONTACT

Depending on sea conditions, multiple impacts can be expected. Seat belts should not be released until the airplane has come to a complete stop. Under reasonable ditching conditions, the aircraft should remain afloat an adequate time to launch and board life rafts in an orderly manner.

WARNING

THE MAIN CABIN DOOR SHOULD REMAIN CLOSED AND EVACUATION MADE THROUGH THE EMERGENCY EXIT.

ABNORMAL PROCEDURES

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ABNORMAL PROCEDURES**ENGINE FAILURE/PRECAUTIONARY SHUTDOWN**

1. AP TRIM DISC Button - PRESS and RELEASE.
2. Rudder and Aileron Trim - Trim toward operating engine as required.
3. Throttle (affected engine) - OFF.
4. Autopilot/Yaw Damper - ON as desired.
5. IGNITION Switch (affected engine) - NORM.
6. GEN Switch (affected engine) - OFF.
7. Electrical Load - REDUCE as required.
8. Fuel CROSSFEED Switch - AS REQUIRED (maximum imbalance 200 lbs.)
9. Affected ENGINE Anti-Ice - CHECK OFF.
10. WING XFLOW Switch - ON as required.
11. If no fire, Firewall Shutoff - LEAVE OPEN and FUEL BOOST Pump (affected engine ON).

NOTE

- If no fire hazard or engine damage exists, leave firewall shutoff valve OPEN, turn the fuel boost pump ON to prevent damage to engine-driven fuel pump.
 - If engine windmills with firewall shutoff CLOSED or with no indication of oil pressure, after landing refer to Engine Maintenance Manual for required inspections.
12. Refer to Abnormal Procedures, IN-FLIGHT RESTART - ONE ENGINE or Abnormal Procedures, SINGLE-ENGINE APPROACH and LANDING.

IN-FLIGHT RESTART - ONE ENGINE (Refer to Figure 3-3 for Airstart Envelope)
FOLLOWING SHUTDOWN - WITH STARTER ASSIST

1. Throttle - OFF.
2. GEN Switch - ON.
3. ENGINE FIRE Switch (affected engine) - CHECK OPEN. (F/W SHUTOFF Caution Light L or R extinguished).
4. ENGINE START L or R Button - PRESS momentarily.
5. Throttle - IDLE at 8% N₂ minimum.
6. Engine Instruments - MONITOR.

IF START DOES NOT OCCUR

7. ENGINE START DISENGAGE Button - PRESS.
8. Accomplish Abnormal Procedures, ENGINE FAILURE/PRECAUTIONARY SHUTDOWN.

IF START DOES OCCUR

7. Affected Engine Anti-Ice - ON as required.
8. WING XFLOW Switch - OFF.

FOLLOWING SHUTDOWN - WINDMILLING WITH AIRSPEED ABOVE 200 KIAS AND N₂ ABOVE 8%. (Refer to Figure 3-3 for Airstart Envelope)

1. Throttle - OFF.
2. ENGINE FIRE Switch (affected engine) - CHECK OPEN. (F/W SHUTOFF Caution Light L or R extinguished).
3. FUEL BOOST Pump - ON.
4. Throttle - IDLE.

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IN-FLIGHT RESTART - ONE ENGINE (Continued)

5. Engine Instruments - MONITOR.

IF START DOES NOT OCCUR

6. Accomplish Abnormal Procedures, ENGINE FAILURE/PRECAUTIONARY SHUTDOWN.

IF START DOES OCCUR

6. FUEL BOOST PUMP - NORM (after engine stabilizes).
7. GEN SWITCH - ON.
8. Affected Engine Anti-Ice - ON as required.
9. WING XFLOW Switch - OFF.

ENGINE START MALFUNCTION (ENGINE DOES NOT START ON GROUND)

1. Throttle - OFF.
2. ENGINE START DISENGAGE Button - PRESS 15 seconds after throttle OFF.

NOTE

Observe starter duty cycle limits.

ENGINE STARTER WILL NOT DISENGAGE (L OR R ENGINE START BUTTON LIGHT ON AFTER ENGINE START)

1. ENGINE START DISENGAGE Button - PRESS.

IF STARTER DOES NOT DISENGAGE AND ENGINE START BUTTON LIGHT REMAINS ILLUMINATED (START RELAY STUCK)

2. GEN Switches - OFF.
3. BATTERY DISCONNECT Switch (LH panel) - LIFT GUARD AND DISCONNECT.
4. Ground Power Unit - DISCONNECT.

NOTE

Verify ground power is disconnected prior to engine shutdown or the starter will continue to motor the engine.

5. Throttle(s) - OFF.
6. Disconnect the battery prior to turning the BATT Switch OFF.
7. BATT Switch - OFF.

HIGH SUSTAINED ITT DURING GROUND SHUTDOWN

1. Throttle - OFF.
2. ENGINE START Button - PRESS momentarily.
3. ENGINE START DISENGAGE Button - PRESS after 15 seconds.

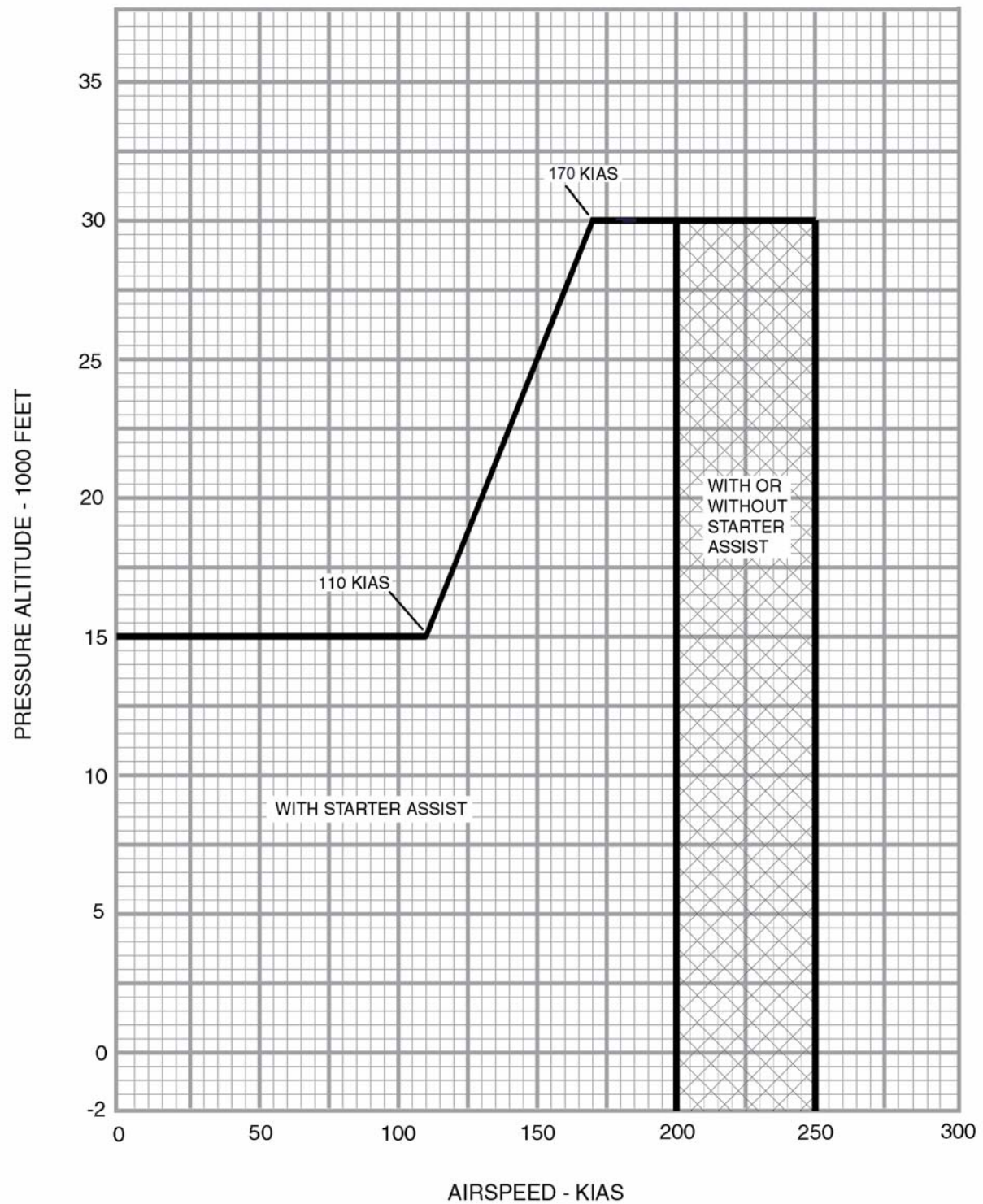
AIRSTART ENVELOPE

Figure 3-3

OIL FILTER BYPASS (OIL FLTR BP L OR R CAUTION LIGHT ON)

1. Land as soon as practical - Monitor affected engine oil pressure and temperature. Consider possibility of partial or total loss of affected engine thrust.
2. Perform inspection/maintenance after landing.

LOW FUEL PRESSURE (LO FUEL PRESS L OR R CAUTION LIGHT ON)

1. FUEL BOOST Pump Switch, (Affected Side) - ON.
2. L or R BOOST and L or R FUEL CONTROL Circuit Breakers (LH panel) - CHECK IN.
3. Fuel Quantity - CHECK.
4. Fuel CROSSFEED Switch - AS REQUIRED.

LOW FUEL QUANTITY (LO FUEL LEVEL L OR R CAUTION LIGHT ON)

The illumination of this light serves notice to the pilot that a minimum of 180 ±20 pounds of fuel remains in either tank.

1. FUEL BOOST Pump Switch (Affected Side) - ON.
2. L or R FUEL CONTROL Circuit Breakers (LH panel) - CHECK IN.
3. Fuel CROSSFEED Switch - AS REQUIRED.
4. Land as soon as possible.

FUEL BOOST PUMP ON (FUEL BOOST L OR R CAUTION LIGHT ON)

Indicates that the respective fuel boost pump was either automatically or manually turned on.

1. FUEL BOOST Pump Switch (Affected Pump) - ON; then NORM. CHECK for FUEL BOOST L or R caution light to illuminate and extinguish.

If affected FUEL BOOST L or R caution light does not extinguish, refer to Abnormal Procedure, LOW FUEL PRESSURE.

FUEL FILTER BYPASS (FUEL FLTR BP L OR R CAUTION LIGHT ON)

1. Land as soon as practical.

WARNING

IT IS POSSIBLE THAT CONTAMINATED FUEL COULD HAVE BEEN INTRODUCED INTO ALL FUEL TANKS. MONITOR OPPOSITE ENGINE, RESTRICT CROSSFEED AND CONSIDER POSSIBLE PARTIAL OR TOTAL LOSS OF THRUST FROM BOTH ENGINES. INSPECT FILTERS AFTER LANDING.

IF BOTH L AND R CAUTION LIGHTS ILLUMINATE

2. Land as soon as possible.

N₁, N₂ OR ITT FAILURE (AMBER DASHES IN DIGITAL READOUT AND/OR FAIL MESSAGE)

Indicates data from the FADEC is not available to the EIS.

1. FADEC Reset button - PUSH (if data is not restored, refer to standby N₁ indicator as required).

N₁ BUG AMBER

Indicates the FADEC Channel in control of the engine is also providing N₁ target information.

ENG CNTL FAULT (ENGINE CONTROL SYSTEM FAULT)**NOTE**

It is normal for a ENG CNTL SYS fault annunciation to illuminate for approximately 10 seconds when the FADEC is initially powered.

INFLIGHT

1. FADEC Reset button - PUSH.

IF ENGINE CONTROL SYSTEM FAULT DOES NOT EXTINGUISH

2. Throttle (Affected Engine) - Use Cautiously.

NOTE

An Engine Control System Fault annunciation that will not clear is an indication that the FADEC may not be able to control the engine in a normal fashion. Some or all of the following problems may occur:

- CRU, CLB and TO schedules may not be maintained with the throttle in the detent.
- Maximum reverse thrust may not be limited.
- Engine acceleration and deceleration rates may not be normal.
- Engine surging, bangs or flameout may occur with rapid throttle movement.
- If flameout occurs it may not be possible to restart.
- The pilot should move the throttle at a slower rate and ensure the engine remains within the normal operating range.

3. Land as soon as practical.

AFTER LANDING

4. Accomplish Normal Shutdown.
5. Battery - OFF.
6. Battery - BATT.
7. Verify ENG CNTL fault extinguishes after 10 seconds.

IF ENG CNTL FAULT EXTINGUISHES

8. Normal operations permitted.

IF ENG CNTL FAULT DOES NOT EXTINGUISH

8. Correct prior to engine start.

IF ENGINE CONTROL SYSTEM FAULT EXTINGUISHES

2. Throttle (Affected Engine) - Normal operations are permitted.

ON THE GROUND

1. Correct prior to engine start or departure.

LOSS OF OIL TEMPERATURE INDICATION (NO POINTERS DISPLAYED)

1. DCU PRI and DCU SEC Circuit Breakers (Affected Side Panel) - CHECK IN.

LOSS OF FUEL QUANTITY INDICATION (NO POINTER AND AMBER DASHES DISPLAYED IN DIGITAL READOUT)

1. DCU PRI, DCU SEC and FUEL QTY Circuit Breakers (Affected Side Panel) - CHECK IN.

LOSS OF FUEL FLOW INDICATION (AMBER DASHES DISPLAYED IN DIGITAL READOUT)

1. DCU PRI, DCU SEC, and FUEL FLOW Circuit Breakers (Affected Side Panel) - CHECK IN.

FIREWALL SHUTOFF VALVE CLOSED (F/W SHUTOFF L OR R CAUTION LIGHT ON)

Indicates the fuel and hydraulic firewall shutoff valves have closed and the generator field relay has been activated by their respective ENGINE FIRE switch.

ENGINE FIRE DETECTION SYSTEM FAILURE (FIRE DET SYS L OR R CAUTION LIGHT ON)

Indicates failure of the affected engine fire detection system.

ON GROUND

1. Correct prior to flight.

IN FLIGHT

1. L or R FIRE DET Circuit Breaker (LH Panel) - CHECK IN.
2. Engine Instruments - MONITOR (for secondary indications of fire).
3. Land as soon as practical.

NOTE

The fire warning system is inoperative. The firewall shutoff and fire extinguisher bottles are still available if secondary indications of fire are present.

GROUND IDLE (GND IDLE ADVISORY LIGHT ON)**ON GROUND**

Normal indication with the GND IDLE switch in the NORMAL position.

IN FLIGHT

Indicates that N_1 may be retarded to ground idle when the throttles are reduced to the idle stop. Engine acceleration time from idle to go-around thrust may be increased.

1. GND IDLE Switch - HIGH.

AFTER LANDING

1. GND IDLE Switch - NORM.

ENGINE VIBRATION (ENG VIB L OR R ADVISORY LIGHT ON)

Indicates engine vibration monitor has detected a higher than normal level of vibration.

1. Vibration - CONFIRM (audible and tactile indications).

IF VIBRATION EXISTS

ON GROUND

2. Correct prior to flight.

IN FLIGHT

2. Engine - MONITOR for other evidence of malfunction. Consider reducing RPM.
3. Throttle (affected engine) - REDUCE THRUST (as required).
4. Land as soon as practical.

IF VIBRATION INCREASES OR OTHER EVIDENCE OF ENGINE MALFUNCTION IS PRESENT

5. Consider the possibility of shutting down the engine. Refer to Abnormal Procedures ENGINE FAILURE/PRECAUTIONARY SHUTDOWN and SINGLE-ENGINE APPROACH AND LANDING.

CAUTION

IF SIGNIFICANT VIBRATION CONTINUES WITH THE ENGINE RUNNING,
ENGINE FAILURE MAY RESULT.

FUEL GAUGING SYSTEM FAULT (FUEL GAUGE L OR R CAUTION LIGHT ON)

Indicates that a fault has been detected in the respective fuel gauging system. Monitor the respective fuel gauge for proper indication. Consider the possibility that the tank contains less fuel than the opposite tank. This fault may also be the result of improper fuel capacitance. Check fuel after landing.

1. BATT SWITCH - BATT (until B.I.T.E. control box indications are checked by appropriate personnel; record fuel quantity in each tank at time of fault).

NOTE

Fuel Gauging System fault may cause the Engine Display Fuel Quantity Indicator to display amber dashes "---" and an amber "FAIL" message, or Fuel Quantity may not change.

SINGLE GENERATOR FAILURE (GEN OFF L OR R CAUTION LIGHT ON)

1. Electrical Load - DECREASE if required.
2. A/C COMPRESSOR Switch - OFF or FAN.
3. Failed GEN Switch - RESET and GEN.

NOTE

The air conditioner compressor will not automatically load-shed on the ground.

IF UNABLE TO RESET

4. Failed GEN Switch - OFF.

IF ABLE TO RESET

4. A/C COMPRESSOR Switch - As Desired.

AFT J-BOX CURRENT LIMITER OR CIRCUIT BREAKER (AFT J BOX LMT OR CB CAUTION LIGHT ON)

Indicates either an open current limiter or circuit breaker in the aft junction box.

ON GROUND

1. Correct prior to flight.

IN FLIGHT

1. Electrical System - MONITOR (generator voltages may vary from 25 to 33 volts).

CAUTION

DO NOT TURN OFF THE GENERATORS BECAUSE PARTIAL ELECTRICAL SYSTEM FAILURE MAY OCCUR ON THE BUS ASSOCIATED WITH A GENERATOR WHICH IS TURNED OFF.

ENGINE BLEED AIR OVERHEAT (BLD AIR O'HEAT L OR R CAUTION LIGHT ON)

1. PRESS SOURCE Select Knob - SELECT OPPOSITE SIDE.
2. Throttle (affected engine) - REDUCE when practical. Consider using WING XFLOW if in icing conditions.

IF LIGHT REMAINS ON

3. Land as soon as practical.

ENVIRONMENTAL SYSTEM AIR DUCT OVERHEAT (AIR DUCT O'HEAT CAUTION LIGHT ON)

1. TEMP Circuit Breaker (LH Panel) - CHECK IN.
2. Temperature Select Knob - MANUAL.
3. MANUAL HOT/COLD Switch - COLD; hold in this position until overheat light goes out (30 seconds maximum).

NOTE

Operation above 31,000 feet in MANUAL full cold mode may result in the air cycle machine overtemp and shutdown. Refer to Abnormal Procedures, AUTOMATIC TEMPERATURE CONTROLLER INOPERATIVE.

IF LIGHT DOES NOT EXTINGUISH

4. PRESS SOURCE Select Knob - L or R; reduce power on selected engine, if necessary to control temperature.

IF LIGHT STILL DOES NOT EXTINGUISH

5. Land as soon as practical.

IF LIGHT EXTINGUISHES

4. MANUAL HOT/COLD Switch - RELEASE TO OFF (center position).
5. Temperature Select Knob - AUTOMATIC (select a cooler temperature).

NOTE

If the AIR DUCT O'HEAT light illuminates again, select MANUAL on the Temperature Select Knob and control temperature with the MANUAL HOT/COLD Switch.

AUTOMATIC TEMPERATURE CONTROLLER INOPERATIVE

1. Temperature Select Knob - MANUAL.
2. MANUAL HOT/COLD Switch - ENSURE NOT MANUAL FULL COLD. Select full manual cold, at least 12 seconds then actuate at least 3 seconds toward MANUAL HOT.

NOTE

Operation in manual mode, full cold, above 31,000 feet, particularly at low (climb) airspeed may result in air cycle machine overtemp and shutdown. In the event that this should occur, refer to Abnormal Procedures, EMERGENCY PRESSURIZATION ON.

**EMERGENCY PRESSURIZATION ON (AUTOMATIC ACTUATION)
(EMER PRESS CAUTION LIGHT ON) AND CABIN ALTITUDE
(CAB ALT WARNING LIGHT NOT ON)**

Indicates air cycle machine shutdown or failure.

1. NORM PRESS Circuit Breaker (LH panel) - CHECK IN.
2. Temperature Select Knob - ADJUST TO WARMER SETTING (may require manual mode).
3. PRESS SOURCE Select Knob - R, L or NORM.

IF EMER PRESS CAUTION LIGHT REMAINS ON

4. PRESS SOURCE Select Knob - EMER, then R, L or NORM.

IF EMER PRESS CAUTION LIGHT STILL REMAINS ON

5. PRESS SOURCE Select Knob - EMER.
6. Control cabin temperature with left throttle.
7. Overhead Wemacs - OPEN.
8. OVHD Fan Switch - HI.

NOTE

Emergency pressurization utilizes precooled bleed air (475°F) from the left engine.

**CABIN PRESSURIZATION CONTROLLER FAILURE (AMBER
LED ILLUMINATED)**

Indicates probable loss of air data sensor (copilot's) input; therefore, the controller auto-schedule function will be inoperative.

NOTE

Detection of auxiliary control will be indicated by the SET ALT display showing the FL icon and illumination of an amber LED in the upper left corner of the controller face.

1. Pressurization Controller Knob - SELECT CA or FL (cabin altitude or flight level).
2. Pressurization SET ALT Knob - SET DESIRED CA or FL.
3. Prior to Descent - SET ALT Knob - SET CA to destination airport elevation.

AIR CYCLE MACHINE OVERHEAT (ACM O'HEAT CAUTION LIGHT ON)

Indicates possible excess pressure in the bleed air supply to the ACM or overheating of the air cycle machine. The ACM will automatically turn off and the emergency pressurization will automatically come on.

ON GROUND

1. Correct prior to flight.

IN FLIGHT

1. Temperature Select Knob - ADJUST to warmer setting (may require manual mode).
2. PRESS SOURCE Select Knob - R, L or NORM.

IF ACM O'HEAT CAUTION LIGHT REMAINS ON

3. PRESS SOURCE Select Knob - EMER.
4. Control cabin temperature with left throttle.

NOTE

Emergency pressurization utilizes precooled bleed air (475°F) from the left engine.

ELECTRIC TRIM INOPERATIVE

1. PITCH TRIM Circuit Breaker (LH panel) - CHECK IN.

IF STILL INOPERATIVE

2. Manual Elevator Trim - AS REQUIRED.

NOTE

Do not attempt to use the autopilot if the electric trim is inoperative. The autopilot will not be able to trim out servo torque, and disengaging the autopilot could result in a significant pitch upset.

JAMMED ELEVATOR TRIM

TRIM JAMMED AT CRUISE SETTING

1. AP TRIM DISC Button - PRESS and RELEASE.
2. Maintain trim speed as long as practical until speed reduction is required for approach.
3. Flaps - UP (0°). Do not extend flaps for approach or landing. Refer to Abnormal Procedures, FLAPS INOPERATIVE APPROACH and LANDING.

TRIM JAMMED AT TAKEOFF OR GO-AROUND SETTING

1. Throttles - REDUCE as required to maintain 120 KIAS or less.
2. Flaps - DO NOT MOVE.
3. Landing Gear - DOWN. Do not retract.
4. Landing Data - COMPUTE and SET.
 - a. Airspeed - Flaps 15°, V_{APP} .
 - Flaps 7°, $V_{REF} + 12$ KIAS.
 - Flaps 0° or unknown, $V_{REF} + 15$ KIAS.
 - b. Landing Distance - Multiply landing distance by:
 - 1.4 with Flaps 15°.
 - 1.5 with Flaps 7°.
 - 1.6 with Flaps 0°.
5. Flap Override Switch - GPWS FLAP OVRD ON (amber) if landing with flaps other than FULL.
6. Speed Brakes - RETRACT (50 feet AGL and below).
7. Yaw Damper Switch - OFF.
8. Land as soon as practical.

CAUTION

AVOID LANDINGS WITH TAILWINDS OR DOWNHILL RUNWAY GRADIENTS OR AT FIELD ELEVATIONS ABOVE 10,000 FEET MSL WITH FLAPS 15°, 5000 FEET MSL WITH FLAPS 7°, OR 3000 FEET MSL WITH FLAPS 0°.

NOTE

Do not attempt to use the autopilot if the electric trim is inoperative. The autopilot will not be able to trim out servo torque, and disengaging the autopilot could result in a significant pitch upset.

LANDING WITH FAILED PRIMARY FLIGHT CONTROL CABLE

RUDDER

1. Utilize rudder trim.
2. Yaw Damper - OFF.
3. If possible, choose a runway with least possible crosswind.
4. After touchdown, lower the nose and extend speed brakes as soon as possible.

CAUTION

- AVOID THE USE OF ASYMMETRIC THRUST REVERSERS DURING LANDING ROLLOUT.
- NOSE WHEEL STEERING MAY NOT BE AVAILABLE, USE DIFFERENTIAL BRAKING.

AILERON

1. Yaw Damper - OFF.
2. Use rudder for directional control limiting bank angle to 15° maximum. Do not use aileron trim except for gross adjustments.
3. If possible, choose a runway with least possible crosswind.
4. Land with flaps 15°, V_{APP} .
5. Multiply landing distance by 1.4 for flaps 15°.
6. Flap Override Switch - GPWS FLAP OVRD ON (amber).
7. After touchdown, lower the nose and extend speed brakes as soon as possible.
8. Thrust Reversers - AS DESIRED.

ELEVATOR

1. Use manual elevator trim wheel for primary pitch control. Do not use electric trim.
2. Make small pitch and power changes and set up landing configuration early.
3. After touchdown and nose wheel on ground, extend speed brakes and apply wheel brakes as soon as possible.
4. Land with flaps 15°, V_{APP} .
5. Multiply landing distance by 1.4 for flaps 15°.
6. Flap Override Switch - GPWS FLAP OVRD ON (amber).

WARNING

DO NOT DEPLOY THRUST REVERSERS DURING LANDING ROLLOUT WITH FAILED ELEVATOR CONTROL.

WING ANTI-ICE FAILURE (WING ANTI-ICE L OR R CAUTION LIGHT ON AND MASTER CAUTION)

1. Throttle (affected side) - INCREASE THRUST (as required above 70% N₂).

IF WING ANTI-ICE LIGHT REMAINS ON

2. WING XFLOW Switch - ON.
3. Throttle (opposite side) - INCREASE THRUST (as required above 70% N₂).

IF WING ANTI-ICE LIGHT STILL REMAINS ON

4. L/R WING/ENG Anti-ice Circuit Breaker (affected side) (LH panel) - PULL.

CAUTION

RESPECTIVE WING AND ENG ANTI-ICE ANNUNCIATORS WILL BE INOPERATIVE AND THE WING/ENGINE ANTI-ICE VALVES WILL OPEN. AFFECTED WING OVERHEAT PROTECTION WILL BE DISABLED.

5. Monitor wing leading edges. If any significant ice accumulates on the heated surface, the affected side must be considered inoperative.

NOTE

The outboard **32** inches of each wing is unheated and ice will accumulate with the wing anti-ice operating normally.

6. After exiting icing conditions, L/R WING/ENG Anti-ice Circuit Breaker (affected side) (LH panel) - RESET.

IF ICE ACCUMULATES ON THE FAILED SIDE WING LEADING EDGE

7. L and R WING/ENGINE Anti-ice Switches (**both sides**) - ENGINE.
8. L/R WING/ENG Anti-ice Circuit Breaker (affected side) (LH panel) - RESET.
9. WING XFLOW Switch - OFF.
10. Autopilot - OFF.
11. Leave icing environment as soon as possible.

WARNING

IF WING ANTI-ICE HAS FAILED ON ONE SIDE, BOTH SIDES MUST BE SWITCHED TO ENGINE ANTI-ICE ONLY TO AVOID ASYMMETRIC WING ICE ACCUMULATION AND TO RETAIN AIRPLANE CONTROL.

NOTE

- Minor airframe buffet may be present during operation with ice on both wing leading edges.
- After an icing encounter with failed wing anti-ice, the crew should visually confirm the presence of ice on the wing leading edges. If no ice is present on either wing (except the outboard 32 inches), the following BEFORE LANDING procedure is not applicable and normal landing procedures should be used.

(Continued Next Page)

WING ANTI-ICE FAILURE (WING ANTI-ICE L OR R CAUTION LIGHT ON AND MASTER CAUTION) (Continued)

BEFORE LANDING (with ice on wing leading edges)

WARNING

- **APPROXIMATELY 15 KNOT INCREASE IN STALL SPEEDS CAN BE EXPECTED.**
- **DO NOT USE AUTOPILOT FOR APPROACH AND LANDING.**
- **USE FLAPS T.O. AND APPR (15°) FOR LANDING.**
- **USE $V_{APP} + 15$ KNOTS FOR APPROACH AND LANDING.**
- **DURING DESCENT TO WARMER TEMPERATURES (ABOVE FREEZING), ACCUMULATED ICE WILL SHED FROM THE INBOARD WING LEADING EDGE AND MAY BE INGESTED BY THE ENGINE(S). PARTIAL THRUST LOSS MAY RESULT.**

1. Landing Data - COMPUTE and SET.
 - a. Airspeed - $V_{APP} + 15$.
 - b. Landing Distance - Multiply by 1.9.
2. Crew Briefing - COMPLETE.
3. Avionics and Flight Instruments - CHECK and SET.
4. Passenger Advisory Lights - PASS SAFETY.
5. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
6. Flaps - T.O. & APPR (15°).
7. Flap Override Switch - GPWS FLAP OVRD ON (amber).
8. Exterior Lights - AS REQUIRED.
9. Fuel CROSSFEED Switch - OFF.
10. Annunciators - CHECK.
11. GND IDLE Switch - NORM.
12. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
13. Landing Gear - DOWN.
14. ANTI-SKID Switch - CHECK ON.
15. Landing Lights - AS DESIRED.
16. Airspeed - $V_{APP} + 15$ KIAS (minimum).
17. Autopilot and Yaw Damper - OFF.
18. Speed Brakes - RETRACT (50 feet AGL and below)

ENGINE ANTI-ICE FAILURE (ENG ANTI-ICE L OR R CAUTION LIGHT ON AND MASTER CAUTION)

1. L/R WING/ENG Anti-ice Circuit Breaker (affected side) (LH panel) - PULL.

CAUTION

RESPECTIVE WING AND ENG ANTI-ICE ANNUNCIATORS WILL BE INOPERATIVE AND THE WING/ENGINE ANTI-ICE VALVES WILL OPEN.

2. Monitor engine inlet - If any ice accumulates, leave icing environment as soon as possible.
3. After leaving icing environment, reset L/R WING/ENG Anti-ice Circuit Breaker and select anti-ice switches OFF.

WING BLEED AIR OVERHEAT (WING O'HEAT L OR R CAUTION LIGHT ON)**IF ANTI-ICE SWITCH IS WING/ENG ON****CONTINUOUS ILLUMINATION**

1. AFFECTED WING - DECREASE THRUST (affected engine).

IF LIGHT DOES NOT EXTINGUISH

2. AFFECTED WING ANTI-ICE Switch - ENGINE ON.
3. WING XFLOW Switch - ON.
4. LEAVE ICING ENVIRONMENT AS SOON AS POSSIBLE.

IF ANTI-ICE SWITCH IS OFF OR ENG ON**IF ON GROUND**

1. Correct prior to flight - Indicates failed wing anti-ice valve or false indication.

IF IN FLIGHT

1. AFFECTED WING - DECREASE THRUST TO IDLE (affected engine).

IF LIGHT DOES NOT EXTINGUISH

2. Annunciation may be considered false.

IF LIGHT DOES EXTINGUISH (WING ANTI-ICE VALVE MAY HAVE FAILED OPEN)

2. LAND AS SOON AS PRACTICAL. Refer to ABNORMAL PROCEDURE, SINGLE ENGINE APPROACH AND LANDING.

TAIL DEICE FAILURE (TL DEICE FAIL L OR R CAUTION LIGHT ON)

1. Throttles - INCREASE THRUST (as required above 70% N₂).
2. TAIL DEICE Switch - OFF, then AUTO.

IF TL DEICE FAIL LIGHT REMAINS ON

3. TAIL DEICE Switch - MANUAL (Repeat at 3 to 5 minute intervals).
4. Monitor Advisory Light(s) (TAIL DEICE PRESS L or R) for illumination.

NOTE

- Tail de-ice pressure is not monitored when using manual operation. Failure of the tail de-ice system in this mode must be detected by the absence of the TAIL DEICE PRESS advisory light(s) after switch activation.
- Airflow disturbance during manual boot cycle may cause a minor pitch bump.

IF ADVISORY LIGHT(S) FAILS TO ILLUMINATE

5. Leave icing environment as soon as possible.

BEFORE LANDING (with suspected ice contamination on tail leading edges)

WARNING

DO NOT SELECT FLAPS LAND (35°). DEGRADATION AND/OR LOSS OF PITCH CONTROL MAY RESULT.

1. Landing Data - COMPUTE and SET.
 - a. Airspeed - V_{APP}.
 - b. Landing Distance - Multiply landing distance by 1.4 for flaps 15°.
2. Crew Briefing - COMPLETE.
3. Avionics and Flight Instruments - CHECK and SET.
4. Passenger Advisory Lights - PASS SAFETY.
5. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
6. Flaps - T.O. & APPR (15°).
7. Flap Override Switch - GPWS FLAP OVRD ON (amber).
8. Exterior Lights - AS REQUIRED.
9. Fuel CROSSFEED Switch - OFF.
10. Annunciators - CHECK.
11. GND IDLE Switch - NORM.
12. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
13. Landing Gear - DOWN.
14. ANTI-SKID Switch - CHECK ON.
15. Landing Lights - AS DESIRED.
16. Airspeed - V_{APP}.
17. Autopilot and Yaw Damper - OFF.
18. Speed Brakes - RETRACT (50 feet AGL and below).

TAIL DEICE TIMER FAILURE (TL DEICE PRESS L OR R ADVISORY LIGHT FAILS TO ILLUMINATE OR CONTINUES TO CYCLE OR TL DEICE PRESS REMAINS ILLUMINATED WITH SWITCH IN AUTO OR OFF)**IF TL DEICE ADVISORY LIGHT(S) FAILS TO ILLUMINATE**

1. TAIL DEICE Switch - CHECK AUTO.
2. TAIL DEICE Circuit Breaker (LH panel) - CHECK IN.
3. TAIL DEICE Switch - MANUAL (Repeat at 3 to 5 minute intervals).
4. Monitor advisory lights (TL DEICE PRESS L or R) for illumination.

NOTE

Airflow disturbance during manual boot cycle may cause a minor pitch bump.

IF TL DEICE ADVISORY LIGHT(S) FAILS TO ILLUMINATE IN MANUAL OPERATION

5. Leave icing environment as soon as possible.

IF TL DEICE PRESS ADVISORY LIGHT REMAINS ILLUMINATED WITH SWITCH IN OFF OR AUTO POSITION

1. TAIL DEICE Circuit Breaker (LH panel) - PULL.
2. Reset circuit breaker as needed to actuate the system. (3-5 minute interval in icing conditions).
3. Leave icing environment as soon as practical.

BEFORE LANDING (with suspected ice contamination on tail leading edges)**WARNING****DO NOT SELECT FLAPS LAND (35°). DEGRADATION AND/OR LOSS OF PITCH CONTROL MAY RESULT.**

1. Landing Data - COMPUTE and SET.
 - a. Airspeed - V_{APP} .
 - b. Landing Distance - Multiply landing distance by 1.4 for flaps 15°.
2. Crew Briefing - COMPLETE.
3. Avionics and Flight Instruments - CHECK and SET.
4. Passenger Advisory Lights - PASS SAFETY.
5. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
6. Flaps - T.O. & APPR (15°).
7. Flap Override Switch - GPWS FLAP OVRD ON (amber).
8. Exterior Lights - AS REQUIRED.
9. Fuel CROSSFEED Switch - OFF.

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TAIL DEICE TIMER FAILURE (TL DEICE PRESS L OR R ADVISORY LIGHT FAILS TO ILLUMINATE OR CONTINUES TO CYCLE OR TL DEICE PRESS REMAINS ILLUMINATED WITH SWITCH IN AUTO OR OFF) (Continued)

BEFORE LANDING (with suspected ice contamination on tail leading edges)

10. Annunciators - CHECK.
11. GND IDLE Switch - NORM.
12. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
13. Landing Gear - DOWN.
14. ANTI-SKID Switch - CHECK ON.
15. Landing Lights - AS DESIRED.
16. Airspeed - V_{APP} .
17. Autopilot and Yaw Damper - OFF.
18. Speed Brakes - RETRACT (50 feet AGL and below).

WINDSHIELD AIR OVERHEAT (WS AIR O'HEAT CAUTION LIGHT ON)

IF W/S BLEED SWITCH LOW OR HI

WS AIR O'HEAT MOMENTARY ILLUMINATION (AIR FLOW CYCLES OFF AND ON)

1. If W/S BLEED Switch is HI - SELECT LOW.
2. WINDSHIELD BLEED AIR Knobs - REDUCE (OFF if windshield bleed air is not required).

IF AIR FLOW CYCLING CONTINUES

3. W/S BLEED Switch - OFF.
4. WINDSHIELD BLEED AIR Knobs - OFF.
5. W/S ALCOHOL Switch - AS REQUIRED.

NOTE

10 minutes alcohol available to pilot's windshield only.

6. Leave icing environment as soon as possible.

(Continued Next Page)

WINDSHIELD AIR OVERHEAT (WS AIR O'HEAT CAUTION LIGHT ON)

(Continued)

WS AIR O'HEAT CONTINUOUS ILLUMINATION

1. W/S BLEED Switch - OFF.
2. WINDSHIELD BLEED AIR Knobs - OFF.
3. W/S ALCOHOL Switch - AS REQUIRED.

NOTE

10 minutes alcohol available to pilot's windshield only.

4. Leave icing environment as soon as possible.

IF W/S BLEED SWITCH OFF**WS AIR O'HEAT MOMENTARY OR CONTINUOUS ILLUMINATION**

Indicates probable solenoid valve failure or leak. Windshield air temperature is not regulated. Windshield heat damage is possible. Maintenance is required.

1. WINDSHIELD BLEED AIR Knobs - OFF.

WINDSHIELD BLEED AIR FAILURE**LOSS OF HOT AIR SUPPLY (VALVE WILL NOT OPEN OR POSSIBLE LINE FAILURE)**

1. W/S BLEED Switch - OFF.
2. WINDSHIELD BLEED AIR Knobs - OFF.
3. W/S ALCOHOL Switch - AS REQUIRED.

NOTE

10 minutes alcohol available to pilot's windshield only.

4. Leave icing environment as soon as possible.

PITOT-STATIC HEATER FAILURE (P/S HTR L OR R, OR STBY P/S HTR CAUTION LIGHT ON)

1. PITOT & STATIC Heat Switch - CHECK ON.
2. L PITOT STATIC, R PITOT STATIC, and STBY P/S HEATER Circuit Breakers (LH panel) - CHECK IN.
3. Leave icing environment as soon as practical (if affected heater remains failed).

ANGLE-OF-ATTACK PROBE HEATER FAILURE (AOA HTR FAIL CAUTION LIGHT ON)

Indicates that the angle of attack probe heating element has failed.

1. PITOT & STATIC Heat Switch - CHECK ON.
2. AOA HEATER Circuit Breaker (LH panel) - CHECK IN.
3. Leave icing environment as soon as practical.
4. If AOA Probe becomes iced, maintain the following minimum airspeeds:
 - FLAPS 0°, $V_{APP} + 10$ KIAS
 - FLAPS 7°, $V_{APP} + 5$ KIAS
 - FLAPS 15°, V_{APP}
 - FLAPS 35°, V_{REF}

NOTE

If the AOA probe heater fails and the AOA probe becomes iced, the stick shaker, angle of attack indexer, angle of attack gauge, and low airspeed awareness display on the PFDs may not function properly.

TT0 HEATER FAILURE (TTO HTR FAIL)

It is normal for a TT0 HTR FAIL annunciation to illuminate for approximately 10 seconds when the FADEC is initially powered.

IN FLIGHT, IF WING/ENGINE ANTI-ICE SWITCH IS ON

1. Leave icing conditions as soon as possible.

IN FLIGHT, IF WING/ENGINE ANTI-ICE SWITCH IS OFF

1. Operate engine normally.

ON THE GROUND

1. Correct prior to engine start or departure.

BLANK PILOT PFD (PILOT PFD FAILURE)

1. Display Reversion - Select REV TO MFD.

BLANK COPILOT PFD (COPILOT PFD FAILURE)

1. Continue flight referring to pilot PFD and standby flight display.
2. AP XFR - PUSH, select pilot's side, if required.
3. PFD2 PRI and HTR Circuit Breakers (R Panel) - CHECK IN.

BLANK MFD (MFD FAILURE)

1. Display Reversion - Select REV TO PFD.
2. Engine Instruments - MONITOR PFDs and/or standby engine instrument.

DUAL PFD AND MFD FAILURE (BLANK DISPLAY)

1. Airplane - CONTROL by reference to standby flight display.
2. Engine Instruments - MONITOR standby engine instrument.
3. Land as soon as practical.

AUTOPILOT OUT OF TRIM (AMBER BOXED “E↑,↓” OR “A←,→” ON PFD’s)

Illumination of an Amber Boxed “E↑,↓” or “A←,→” on the PFD indicates the Autopilot is flying in a mistrimmed condition.

CAUTION

DO NOT MANUALLY OVERPOWER THE AUTOPILOT. OVERPOWERING THE AUTOPILOT DOES NOT CANCEL THE AUTOTRIM. THE AUTOTRIM WILL TRIM AGAINST FLIGHT CREW INPUTS TO THE COLUMN/WHEEL. THIS COULD LEAD TO A SEVERE OUT-OF-TRIM CONDITION. IF MANUAL CONTROL OF THE AIRPLANE IS REQUIRED, DISENGAGE THE AUTOPILOT WITH THE AUTOPILOT/TRIM DISENGAGE BUTTON.

NOTE

This annunciation may be displayed during aggressive acceleration/deceleration or configuration changes and should extinguish as the autopilot retrimms.

1. Control Wheel - GRIP WITH BOTH HANDS.

CAUTION

BE PREPARED FOR CONTROL WHEEL FORCES IN BETWEEN 15 AND 20 POUNDS.

2. AP/TRIM DISC Button - PRESS AND RELEASE.
3. Elevator or Aileron Trim - ADJUST as required.
4. Autopilot - ENGAGE as desired.

AMBER FLC OVRSPD MODE (AUTOPILOT OVERSPEED RECOVERY)

1. Throttles - REDUCE.
2. Speed Brakes - EXTEND (as desired).
3. Autopilot - RESELECT Vertical Mode after FLC OVRSPD extinguishes.

NOTE

- IAS or Mach reference can not be adjusted by the Pitch Wheel in FLC OVRSPD.
- The selection of any vertical mode except Altitude Hold is inhibited in FLC OVRSPD.
- FLC OVRSPD provides a pitch up command to decelerate the aircraft and maintain slightly less than V_{MO}/M_{MO} .

WHITE ATT/HDG ALIGNING (INFLIGHT AHRS ALIGNING)

1. Maintain CONSTANT airspeed with straight and level attitude.
2. Valid attitude and heading information should be available within 60 seconds.

AMBER ROL, PIT, ATT, HDG, ALT OR IAS (COMPARATOR MONITOR ALERT)

Indicates that data between the appropriate systems does not agree within comparator limits.

1. Pilot and Copilot Attitude, Altitude, Airspeed and Heading - MONITOR AND COMPARE TO STANDBY FLIGHT DISPLAY.
2. ADC or AHRS Reversion (side that disagrees with Standby Flight Display) - DADC Rev or AHRS REV.
3. AP XFR - PUSH, select side with valid ADC and AHRS.

WHITE XAHS OR XADC (LOSS OF COMPARATOR MONITOR ALERTS)

Indicates lack of comparator monitor capability.

1. Pilot and Copilot Attitude, Altitude, and Airspeed - MONITOR.

AMBER FD1 OR FD2 DISPLAYED ON PFD (FLIGHT DIRECTOR ALERT)

Indicates loss of NAV signal on PFD or a different NAV tuned during an ILS Approach between pilot and copilot displays.

DURING ILS APPROACH

1. Nav Radios - Select ILS frequency on off-side NAV.

DURING GO-AROUND

1. Flight Directors - Utilize flight director with GA mode annunciated.

AMBER XTLK DISPLAYED ON PFD AND/OR MFD (CROSSTALK BETWEEN PFD'S AND/OR MFD HAS FAILED)

Indicates data displayed on PFDs and MFD may not be synchronized. This is normal on the MFD until the avionics are turned on after starting.

1. PFDs/MFD -Verify information is set as desired.

AMBER FREQUENCIES DISPLAYED IN RTU (RIU OR RTU FAILURE)

Indicates a Radio Interface Unit (RIU), Radio Tuning Unit (RTU) or specific equipment has failed.

IF ONLY ONE FREQUENCY IS AMBER

1. Affected equipment is inoperative; continue using remaining operative equipment.

IF ALL OR MULTIPLE FREQUENCIES ARE AMBER

1. Either the affected RIU or RTU is inoperative.
2. Affected RTU BRT Knob - OFF.
3. Opposite RTU 1/2 Button - PUSH as required to tune frequencies; or tune via the FMS.

NOSE AVIONIC FAN FAILURE (NOSE AVN FAN CAUTION LIGHT ON)

Indicates inoperative avionics fan. This fan is not required for adequate avionics cooling.

LANDING GEAR WILL NOT EXTEND

1. Landing Gear Handle - CHECK DOWN.
2. GEAR CONTROL Circuit Breaker (LH panel) - CHECK IN.
3. Airspeed - 160 to 180 KIAS recommended.
4. EMERGENCY GEAR RELEASE - PULL T-HANDLE AND ROTATE TO LOCK.
5. Yaw Damper Switch- OFF.
6. Airplane - YAW as required to force main gear into locked position.
7. Airspeed - INCREASE as required to assist main gear in achieving locked position (DO NOT EXCEED 200 KIAS).
8. EMERGENCY GEAR RELEASE - PULL KNOB TO BLOW DOWN (for positive lock).

NOTE

Pneumatic pressure should be used to assure positive locking of all three gear actuators.

9. LANDING GEAR - CHECK DOWN and LOCKED (three green lights).
10. EMERGENCY GEAR RELEASE - RESET KNOB AND T-HANDLE (after gear down and locked).

CAUTION

AFTER BLOW DOWN HAS BEEN ACTUATED, DO NOT ATTEMPT TO RETRACT THE LANDING GEAR.

LOW HYDRAULIC FLOW (LO HYD FLOW L OR R CAUTION LIGHT ON)

Indicates inoperative left or right hydraulic pump.

IF BOTH LO HYD FLOW L AND R CAUTION LIGHTS ARE ON

1. Altitude - Maximum FL410.
2. Land as soon as practical. Refer to Abnormal Procedures, LANDING GEAR WILL NOT EXTEND, FLAPS INOPERATIVE APPROACH AND LANDING.

NOTE

The speed brakes, thrust reversers, and flaps may not operate. If the flap lever is moved, the flaps may tend to float in a trail position. The landing gear may not operate using normal procedures.

HYDRAULIC SYSTEM REMAINS PRESSURIZED (HYD PRESS CAUTION LIGHT REMAINS ON AFTER SYSTEM CYCLE IS COMPLETED)

1. HYD CONTROL Circuit Breaker (LH panel) - PULL.

IF SYSTEM REMAINS PRESSURIZED (Indicates bypass valve failed)

2. HYD CONTROL Circuit Breaker (LH panel) - RESET.
3. Airspeed - MAINTAIN 200 KIAS or below.
4. Altitude - FL310 or below.
5. Land as soon as practical.

IF SYSTEM DEPRESSURIZED

2. HYD CONTROL Circuit Breaker - RESET prior to approach.

LOW HYDRAULIC FLUID LEVEL (LO HYD LEVEL CAUTION LIGHT ON)

1. Altitude - Maximum FL410.
2. Flap Lever - Do not move from position at time of failure.
3. Land as soon as practical. Refer to Abnormal Procedures, LANDING GEAR WILL NOT EXTEND, and/or FLAPS INOPERATIVE APPROACH AND LANDING.

NOTE

The speed brakes, thrust reversers, and flaps may not operate. If the flaps are extended and the flap lever is moved, the flaps may tend to float in a trail position. The landing gear may not operate using normal procedures.

WHEEL BRAKE FAILURE

1. Multiply landing distance by 1.6 for a landing airspeed of V_{REF} .
2. Brake Pedals - REMOVE FEET from BRAKE PEDALS.
3. EMER BRAKE Handle - PULL as required.

CAUTION

- ANTISKID SYSTEM DOES NOT FUNCTION DURING EMERGENCY BRAKING. EXCESSIVE PRESSURE ON EMER BRAKE HANDLE CAN CAUSE BOTH WHEEL BRAKES TO LOCK, RESULTING IN BLOWOUT OF BOTH TIRES.
- APPLYING PRESSURE TO BRAKE PEDALS WHILE SIMULTANEOUSLY PULLING ON EMER BRAKE HANDLE CAN ALLOW PNEUMATIC AIR PRESSURE ACCESS TO THE HYDRAULIC BRAKE RESERVOIR, POSSIBLY LEADING TO RUPTURE.
- DO NOT ATTEMPT TO TAXI AFTER USING EMERGENCY BRAKES TO STOP.

POWER BRAKE SYSTEM FAILURE (LO BRK PRESS AND ANTISKID INOP CAUTION LIGHT ON)

1. SKID CONTROL Circuit Breaker (LH panel) - CHECK IN.

IF LIGHT REMAINS ILLUMINATED

2. Use the emergency brake system for landing.
3. Multiply landing distance by 1.6.
4. Brake Pedals - REMOVE FEET from BRAKE PEDALS.
5. EMER BRAKE Handle - PULL as required.

CAUTION

- ANTISKID SYSTEM DOES NOT FUNCTION DURING EMERGENCY BRAKING. EXCESSIVE PRESSURE ON EMER BRAKE HANDLE CAN CAUSE BOTH WHEEL BRAKES TO LOCK, RESULTING IN BLOWOUT OF BOTH TIRES.
- APPLYING PRESSURE TO BRAKE PEDALS WHILE SIMULTANEOUSLY PULLING ON EMER BRAKE HANDLE CAN ALLOW PNEUMATIC AIR PRESSURE ACCESS TO THE HYDRAULIC BRAKE RESERVOIR, POSSIBLY LEADING TO RUPTURE.
- DO NOT ATTEMPT TO TAXI AFTER USING EMERGENCY BRAKES TO STOP.

ANTISKID SYSTEM FAILURE (ANTISKID INOP CAUTION LIGHT ON AND LO BRK PRESS CAUTION LIGHT EXTINGUISHED)

1. SKID CONTROL Circuit Breaker (LH panel) - CHECK IN.
2. ANTISKID Switch - OFF then ON.

IF LIGHT REMAINS ILLUMINATED

3. ANTISKID Switch - OFF.
4. Multiply landing distance by 1.6.
5. Thrust Reverser - Maximum Reverse Thrust.
6. Wheel Brakes - Lightly apply.

CAUTION

DIFFERENTIAL POWER BRAKING IS AVAILABLE. HOWEVER, SINCE THE ANTISKID IS INOPERATIVE, EXCESSIVE PRESSURE ON THE BRAKE PEDALS MAY CAUSE WHEEL BRAKES TO LOCK, RESULTING IN TIRE BLOWOUT.

7. Be prepared to use the emergency brake system.

CAUTION

APPLYING PRESSURE TO BRAKE PEDALS WHILE SIMULTANEOUSLY PULLING ON EMER BRAKE HANDLE CAN ALLOW PNEUMATIC AIR PRESSURE ACCESS TO THE HYDRAULIC BRAKE RESERVOIR, POSSIBLY LEADING TO RUPTURE.

NOTE

If the antiskid hydraulic pump fails after the accumulator pressure exceeds 850 PSI, the LO BRK PRESS light may not illuminate until normal brakes are used.

SINGLE-ENGINE APPROACH AND LANDING

1. Landing Data - COMPUTE and SET.
 - a. Airspeed - Flaps 35°, V_{REF} .
- Flaps 15°, V_{APP} .
 - b. Landing Distance - Multiply landing distance by 1.4 with Flaps 15°.
2. Crew Briefing - COMPLETE.
3. Avionics and Flight Instruments - CHECK and SET.
4. Passenger Advisory Lights - PASS SAFETY.
5. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
6. Flaps - T.O. & APPR (15°).
7. Exterior Lights - AS REQUIRED.
8. Fuel CROSSFEED Switch - OFF.
9. Annunciators - CHECK.
10. GND IDLE Switch - NORM.
11. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
12. Landing Gear - DOWN.
13. ANTI-SKID Switch - CHECK ON.
14. Landing Lights - AS DESIRED.
15. Flap Override Switch - GPWS FLAP OVRD ON (amber) for a flaps 15° landing.
16. Flaps - LAND (35°) if desired.
17. Airspeed - V_{REF} with flaps 35°, V_{APP} with flaps 15°.
18. Autopilot and Yaw Damper - OFF.
19. Speed Brakes - RETRACT (50 feet AGL and below).
20. Refer to Abnormal Procedures, SINGLE ENGINE REVERSING and SINGLE ENGINE GO-AROUND.

SINGLE-ENGINE REVERSING

1. Throttle - IDLE.
2. Brakes - APPLY.
3. Speed Brakes - EXTEND.
4. Thrust Reverser - DEPLOY (after nose wheel on ground).
5. Thrust Reverser Indicator Lights - CHECK ILLUMINATION of ARM, UNLOCK and DEPLOY LIGHTS.
6. Thrust Reverser - REVERSE POWER ON UNAFFECTED ENGINE.
7. Thrust Reverser - REVERSER LEVER TO IDLE REVERSE AT 60 KIAS.

NOTE

Reverse thrust may need to be reduced during crosswind landings on wet or icy runways to prevent airplane from being forced to runway edge.

SINGLE-ENGINE GO-AROUND

1. Throttle (operating engine) - TO Detent.
2. Airplane Pitch Attitude - 10° (Go-around mode on flight director for reference).
3. Flaps - T.O. & APPR (15°).
4. Climb Speed - V_{APP} .
5. Landing Gear - UP (when positive rate-of-climb is established).

NOTE

The landing gear warning horn cannot be silenced if the landing gear is retracted prior to the flaps reaching the TAKEOFF and APPROACH position.

6. If anti-ice required, R WINDSHIELD BLEED AIR Knob - OFF.
7. Flaps (when clear of obstacle) - RETRACT at 1500 feet and $V_{APP} + 10$ KIAS and accelerate to V_{ENR} (160 KIAS).
8. Throttle (operating engine) - CLB Detent.

FLAPS INOPERATIVE APPROACH AND LANDING (NOT IN LANDING POSITION)

1. FLAPS CONTROL Circuit Breaker (LH panel) - CHECK IN.
2. Flap Override Switch - GPWS FLAP OVRD ON (amber).
3. Landing Data - COMPUTE and SET.
 - a. Airspeed - Flaps 15° , V_{APP} .
 - Flaps 7° , $V_{REF} + 12$ KIAS.
 - Flaps 0° or unknown, $V_{REF} + 15$ KIAS.
 - b. Landing Distance - Multiply landing distance by:
 - 1.4 with Flaps 15° .
 - 1.5 with Flaps 7° .
 - 1.6 with Flaps 0° .
4. Crew Briefing - COMPLETE.
5. Avionics and Flight Instruments - CHECK and SET.
6. Passenger Advisory Lights - PASS SAFETY.
7. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
8. Exterior Lights - AS REQUIRED.
9. Fuel CROSSFEED Switch - OFF.
10. Annunciators - CHECK.
11. GND IDLE Switch - NORM.
12. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
13. Landing Gear - DOWN.
14. ANTI-SKID Switch - CHECK ON.
15. Landing Lights - AS DESIRED.
16. Autopilot and Yaw Damper - OFF.
17. Speed Brakes - RETRACT (50 feet AGL and below).

CAUTION

AVOID LANDINGS WITH TAILWINDS OR DOWNHILL RUNWAY GRADIENTS OR AT FIELD ELEVATIONS ABOVE 10,000 FEET MSL WITH FLAPS 15° , 5000 FEET MSL WITH FLAPS 7° , OR 3000 FEET MSL WITH FLAPS 0° OR UNKNOWN.

CABIN DOOR NOT LOCKED (CABIN DOOR CAUTION LIGHT ON)

Indicates failure or improper position of door switch(es) and/or possible disengagement of the lower forward cabin door pin.

ON GROUND

1. Correct prior to flight.

IN FLIGHT

1. Pressurization SYSTEM SELECT - MANUAL.
2. Cabin Altitude - SELECT to 9500 feet using manual toggle valve.
3. Airspeed - REDUCE to 200 KIAS.
4. Passenger Advisory Lights - PASS SAFETY.
5. Cabin Door - KEEP CLEAR.
6. Altitude - DESCEND to 41,000 feet or lower altitude. Do not descend below Minimum Safe Altitude.
7. Land as soon as practical.

CABIN DOOR PRESSURE SEAL FAILURE (DOOR SEAL CAUTION LIGHT ON)**ON GROUND**

1. Correct prior to flight.

IN FLIGHT

1. Altitude - DESCEND to 41,000 feet or lower altitude. Do not descend below Minimum Safe Altitude.
2. OXYGEN MASKS - DON AND 100%.
3. Microphone Switches - MIC OXY MASK.
4. Passenger Advisory Lights - PASS SAFETY.
5. Monitor cabin pressure.
6. Land as soon as practical.

NOTE

- Secondary door seal will maintain cabin pressurization.
- Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.

BAGGAGE OR TAILCONE DOOR NOT LOCKED (BAGGAGE DOOR L OR R OR TAILCONE DOOR CAUTION LIGHT ON)

Indicates unlocked baggage or tailcone door.

ON GROUND

1. Correct prior to flight.

IN FLIGHT

1. Airspeed - REDUCE to 200 KIAS.
2. Passenger Advisory Lights - PASS SAFETY.

USE OF SUPPLEMENTAL OXYGEN (UNPRESSURIZED)

1. Oxygen Masks - NORMAL below 25,000 feet cabin altitude.
 - 100% at or above 25,000 feet cabin altitude.
 - EMER for SMOKE OR FIRE.
 - Ensure crew and passengers are receiving oxygen.

NOTE

Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.

2. Cabin Altitude - MAX 25,000 feet with passengers.
 - MAX 40,000 feet crew only.
3. Microphone Switches - MIC OXY MASK.
4. Oxygen - CHECK ENDURANCE (refer to Figure 3-4).
5. Range - COMPUTE, (based on oxygen endurance and revised fuel flow and ground speed).

MASTER WARNING LIGHT ON STEADY

1. MASTER WARNING RESET Button - PRESS to RESET.
2. WARN LTS 1 and 2 Circuit Breaker (LH panel) - CHECK IN.
3. Instruments (Fuel, Electrical, and Engine) - MONITOR.

MASTER CAUTION LIGHT ON STEADY, NO CAUTION LIGHTS ON

1. MASTER CAUTION RESET Button- PRESS to RESET.
2. WARN LTS 1 and 2 Circuit Breaker (LH panel) - CHECK IN.
3. Instruments (Fuel, Electrical, and Engine) - MONITOR.

MASTER WARNING LIGHT FLASHING, NO WARNING LIGHTS ON

1. MASTER WARNING RESET Button - PRESS to RESET.
2. WARN LTS 1 and 2 Circuit Breaker (LH panel) - CHECK IN.
3. Instruments (Fuel, Electrical, and Engine) - MONITOR.

SPEED BRAKES (SPD BRK EXTEND ADVISORY LIGHT ON)

Normal indication if speed brakes are extended.

IF SPEED BRAKES FAIL TO STOW

1. SPEED BRAKE Circuit Breaker (LH panel) - PULL.
2. Speed Brake Position - VERIFY visually that speed brakes blow back to near flush position.

INADVERTENT ICING ENCOUNTER

1. WING/ENGINE Anti-Ice L and R Switches - ON.

CAUTION

CONSIDER DELAYING ACTIVATION OF ANTI-ICE ON THE SECOND ENGINE UNTIL ICE HAS CLEARED FROM THE FIRST ENGINE AND IT IS OPERATING NORMALLY.

2. WINDSHIELD BLEED AIR Knobs - OPEN.
3. W/S BLEED Switch - LOW or HI.
4. TAIL DEICE Switch - AUTO.
5. Airspeed - Maintain 160 KIAS minimum (except for approach and landing).

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NORMAL PROCEDURES

PREFLIGHT INSPECTION

1. Battery - CONNECTED.
2. Engine Covers (2) - REMOVED.
3. Pitot Covers (3) - REMOVED.

NOTE

Refer to Normal Procedures, Cold Weather Operations, if the airplane has been exposed to ambient temperatures below -10°C (+14°F) for a prolonged period (2 hours or more).

PRELIMINARY COCKPIT INSPECTION

1. Documents - CHECK ABOARD.
 - a. To be displayed in airplane at all times:
 - (1) Airworthiness and Registration Certificates.
 - (2) Radio Station License(s) (if required).
 - b. To be carried in the airplane at all times:
 - (1) FAA Approved Airplane Flight Manual.
 - (2) Collins ProLine 21 Avionics System Operator's Guide.
 - (3) Collins FMS 3000 Flight Management System Pilot's Guide.
 - (4) Other applicable pilot's manuals as required in Section III, Operating Limitations or applicable AFM Supplement.
2. Flashlight - ABOARD.
3. Portable Fire Extinguisher - SERVICED and SECURE (under copilot's seat).
4. Microphones, Headsets, Oxygen Masks and Smoke Goggles - ABOARD and PROPERLY STOWED.
5. Oxygen Quantity - CHECK in Green arc.

NOTE

Refer to Normal Procedures, Oxygen System, Figure 3-5 for dispatch pressures with less than full oxygen bottle.

6. CONTROL LOCK - UNLOCKED.
7. Gear Handle - DOWN.
8. Rudder, Aileron and Elevator Trim - POSITION Elevator trim tab indicator just below top of takeoff trim range and aileron and rudder trim tabs in neutral.
9. Flap Handle - AGREES with Flaps position.
10. Circuit Breakers - IN.
11. Generator Switches - L GEN and R GEN (OFF, if external power is to be used for start).
12. All other switches - OFF, NORM or AUTO.
13. Throttles - OFF.
14. Battery Switch - BATT (24 volts minimum).
15. Fuel Quantity and Balance - CHECK.

NOTE

Maximum lateral fuel imbalance is 200 pounds. If imbalance exceeds 200 pounds, correct prior to flight.

16. Battery Switch - EMER. Check Engine Instrument (all dashes), RTU 1 (HSI Mode) and Landing Gear Indicator receiving power.

NOTE

Standby Flight Display will be blank.

17. Battery Switch - BATT (verify ENG CNTL SYS fault and TT0 HTR FAIL annunciators illuminate for approximately 10 seconds, then extinguish).

EXTERIOR INSPECTION

During inspection, make a general check for security, condition and cleanliness of the airplane and components. Check particularly for damage; fuel, oil and hydraulic fluid leakage; security of access panels; and removal of keys from locks.

NOTE

- Expedite all checks with electrical power on and ensure that the air conditioner switch is OFF, if external power is not used.
 - Landing and nav lights may be omitted if night flight is not anticipated.
1. Hot Items/Lights - ON and CHECK.
 - a. Left, Right and Standby Static Ports - CLEAR and WARM.
 - b. Left, Right and Standby Pitot Tubes - CLEAR and HOT.
 - c. Landing Lights - ALL ON (if not observed from cockpit).
 - d. Recognition Lights - ALL ON (if not observed from cockpit).
 - e. Angle-of-attack Vane - FREE and HOT.
 - f. Beacon Light - ON and FLASHING (if not observed from cockpit).
 - g. Right Wing Inspection, Navigation, and Anti-collision - ON (if not observed from cockpit).
 - h. Tail Navigation Light - ON.
 - i. Left Wing Inspection, Navigation, and Anti-collision Lights - ON (if not observed from cockpit).
 - j. Time Limited Dispatch Lights - VERIFY OFF.

NOTE

It is normal for the TLD lights to be illuminated for approximately 2 minutes after the FADEC is initially powered.

- k. Hot Items/Lights and Battery Switches - OFF.
2. Left Nose - CHECK.
 - a. Static Ports and Surrounding Fuselage Skin (3) - CLEAN and NO DAMAGE.
 - b. Brake Fluid Reservoir Sight Gauges - FLUID VISIBLE.
 - c. Power Brake Accumulator Charge - MINIMUM. Grey band (675 psi) with brake accumulator not charged. System Charged - IN GREEN ARC.

NOTE

If airplane has been cold soaked (2 hours or more) in ambient temperature below -10°C (+14°F), the accumulator charge may indicate below the grey band (675 psi), but the needle must be visibly above the lower stop. Refer to Normal Procedures, COLD WEATHER OPERATIONS.

- d. Nose Baggage Door - SECURE and LOCKED.
- e. Nose Gear, Doors, Wheel and Tire - CONDITION.

NOTE

Chrome showing strut extension should be between 1.5 and 6.5 inches.

3. Right Nose and Fuselage Right Side - CHECK.
 - a. Windshield Alcohol Reservoir Sight Gauge - FLUID VISIBLE.
 - b. Brake and Gear Pneumatic Pressure Gauge - IN GREEN ARC.
 - c. Nose Baggage Door - SECURE and LOCKED.
 - d. Static Ports and Surrounding Fuselage Skin (3) - CLEAN and NO DAMAGE.
 - e. Overboard Vent Lines - CLEAR.
 - f. Top and Bottom Antennas - CONDITION and SECURE.
 - g. Dorsal Fin Air Inlet - CLEAR.
4. Right Wing - CHECK.
 - a. Pylon Air Inlet - CLEAR.
 - b. Engine Temperature Sensor (1) - CONDITION.

(Continued Next Page)

EXTERIOR INSPECTION (Continued)

- c. Engine Fan Duct and Fan - CONDITION.
- d. Wing Inspection Light - CONDITION.
- e. Anti-Ice Bleed Air Cooling Air Inlet - CLEAR.
- f. Heated Leading Edge - CONDITION and VENTS CLEAR.
- g. Fuel Quick Drains (5) - DRAIN and CHECK for contamination.
- h. Main Gear Door, Wheel, Tire and Brake - CONDITION and SECURE.

NOTE

Chrome showing strut extension should be between 1.5 and 6.5 inches.

- i. Boundary Layer Energizers (16) - CHECK (none may be missing).
 - j. Fuel Filler Cap - SECURE.
 - k. Fuel Tank Vent - CLEAR.
 - l. Navigation, Anti-Collision, Landing and Recognition Lights - CONDITION.
 - m. Static Wicks (7) - CHECK (one on tip may be missing).
 - n. Aileron, Speed Brakes and Flaps - CONDITION and SECURE. (Flap position should match cockpit indication).
5. Right Nacelle - CHECK.
- a. Oil Level - CHECK.
 - b. Chip Detector - TEST.
 - c. Oil Filler Cap and Access Door - SECURE.
 - d. Generator Cooling Air Exhaust - CLEAR.
 - e. Engine Fluid Drain Mast - CLEAR.
 - f. Engine Exhaust and Bypass Ducts - CONDITION and CLEAR.
 - g. Thrust Reverser Buckets - CONDITION AND STOWED.
 - h. Precooler Exhaust - CLEAR.
 - i. Single Point Refueling Cap and Door - SECURE.
6. Right Empennage - CHECK.
- a. Air Conditioning Overboard Exhaust - CLEAR.
 - b. Hydraulic Service Door - SECURE, drain mast clear.
 - c. Right Horizontal Stabilizer Deice Boot - CONDITION and SECURE.
 - d. Right Elevator and Trim Tab - CONDITION and SECURE (position matches cockpit indication, flush with elevator trailing edge).
 - e. Rudder and Trim Tab - CONDITION and SECURE (correct servo tab action).
 - f. Static Wicks (Rudder, Vertical Stabilizer and Both Elevators) (8) - CHECK (static wick on the stinger may be missing).
 - g. Tail Skid - CONDITION and SECURE.
 - h. Tail Mounted Beacon Light - CONDITION.
7. Left Empennage - CHECK.
- a. Left Elevator and Trim Tab - CONDITION and SECURE (position matches cockpit indication, flush with elevator trailing edge).
 - b. Left Horizontal Stabilizer Deice Boot - CONDITION and SECURE.
 - c. Oxygen Blowout Disk - GREEN.
 - d. External Power Service Door - SECURE.
 - e. Battery Cooling Intake and Vent Lines - CLEAR.
 - f. Windshield Heat Exchanger Overboard Exhaust - CLEAR.

(Continued Next Page)

EXTERIOR INSPECTION (Continued)

8. Aft Compartment - CHECK.
 - a. Hydraulic Fluid Quantity - CHECK.
 - b. Fire Bottle Pressure Gauges - CHECK (temperature/pressure relationship).
 - c. ACM Oil Level - CHECK.
 - d. Tailcone Access Door - CLOSED and LATCHED.
 - e. Aft Compartment Baggage - SECURE.
 - f. Aft Compartment Light - OFF.
 - g. Aft Compartment Door - SECURE and LOCKED.
9. Left Nacelle - CHECK.
 - a. Precooler Exhaust - CLEAR.
 - b. Thrust Reverser Buckets - CONDITION AND STOWED.
 - c. Engine Exhaust and Bypass Ducts - CONDITION and CLEAR.
 - d. Engine Fluid Drain Mast - CLEAR.
 - e. Generator Cooling Air Exhaust - CLEAR.
 - f. Oil Level - CHECK.
 - g. Chip Detector - TEST.
 - h. Oil Filler Cap and Access Door - SECURE.
10. Left Wing - CHECK.
 - a. Flap, Speed Brakes, Aileron and Trim Tab - CONDITION and SECURE.
 - b. Static Wicks (7) - CHECK (one on tip may be missing).
 - c. Navigation, Anti-Collision, Landing and Recognition Lights - CONDITION.
 - d. Fuel Tank Vent - CLEAR.
 - e. Fuel Filler Cap - SECURE.
 - f. Main Gear Door, Wheel, Tire and Brake - CONDITION and SECURE.
 - g. Boundary Layer Energizers (16) - CHECK (none may be missing).
 - h. Fuel Quick Drains (6) - DRAIN and CHECK for contamination.
 - i. Heated Leading Edge - CONDITION and VENTS CLEAR.
 - j. Anti-Ice Bleed Air Cooling Air Inlet - CLEAR.
 - k. Wing Inspection Light - CONDITION.
 - l. Engine Fan Duct and Fan - CONDITION.
 - m. Engine Temperature Sensor (1) - CONDITION.
 - n. Pylon Air Inlet - CLEAR.
11. Cabin Entry - CHECK.
 - a. Dorsal Fin Air Inlet - CLEAR.
 - b. Secondary Cabin Door Seal - CHECK for RIPS, TEARS and FOLDING.

CABIN INSPECTION

1. Emergency Exit - SECURE; Handle Lock Pin - REMOVE.
2. Passenger Seats - UPRIGHT, OUTBOARD and POSITIONED AFT or FORWARD as required to clear exit doors.
3. Door Entry Lights - OFF.
4. Portable Fire Extinguishers - SERVICED and SECURE.

COCKPIT PREPARATION

1. Preflight Inspection - COMPLETE.
2. Oxygen - CHECK.
 - a. OXYGEN CONTROL VALVE - NORMAL.
 - b. Crew Oxygen Masks - CHECK and SET to 100%.
3. Circuit Breakers - CHECK IN.
4. Cockpit Switches - SET.
 - a. Left Microphone - MIC HEAD SET.
 - b. Generators - L GEN and R GEN (OFF if external power is to be used for start).
 - c. STBY FLT Display - TEST, verify green light, then ON (Amber light on).

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COCKPIT PREPARATION (Continued)

- d. AVIONIC POWER Switch - OFF.
 - e. FUEL BOOST Pumps - NORM.
 - f. IGNITION Switch - NORM.
 - g. Fuel CROSSFEED Switch - OFF.
 - h. Anti-Ice/Deice - OFF.
 - i. BATTERY DISCONNECT Switch - NORM (cover down).
 - j. LEFT AHRS SLAVE Switch - AUTO.
 - k. Exterior Lights - OFF or AS REQUIRED.
 - l. PANEL LIGHTS - AS REQUIRED.
 - m. PANEL LIGHT CONTROLS - SET.
 - n. BEACON Light - AS DESIRED.
 - o. LANDING LIGHTS - OFF.
 - p. Pilots AHRS REV Switch - NORM.
 - q. Pilots DADC REV Switch - NORM.
 - r. Display Reversion Switch - NORM.
 - s. Gear Handle - DOWN.
 - t. ANTISKID Switch - ON.
 - u. GND IDLE Switch - NORM.
 - v. Pressurization SYSTEM SELECT - AUTO.
 - w. EMER DUMP - NORM.
 - x. PRESS SOURCE Select Knob - NORM.
 - y. A/C COMPRESSOR - OFF.
 - z. Temperature Select Knob - AS DESIRED.
 - aa. WINDSHIELD BLEED AIR Knobs - OFF.
 - ab. OVHD FAN - OFF.
 - ac. DEFOG FAN - OFF.
 - ad. RIGHT AHRS Slave Switch - AUTO.
 - ae. Copilots AHRS REV Switch - NORM.
 - af. Copilots DADC REV Switch - NORM.
 - ag. Right Microphone - MIC HEAD SET.
 - ah. ENGINE SYNC Knob - NORM.
- 5. Battery Switch - BATT.
 - 6. Battery Voltage - CHECK (24 volts minimum).
 - 7. External Power - CONNECTED (if applicable).
 - 8. Tail Deice Switch - AUTO, CHECK TL DEICE FAIL L/R ILLUMINATED.
 - 9. Tail Deice Switch - OFF.
 - 10. AVIONIC POWER Switch - ON.
 - 11. Engine Instrument Warning Indicators - CHECK NORMAL (no dashes and/or FAIL messages).
 - 12. Gear Position Indicator - 3 GREEN.
 - 13. Warning Systems - TEST/OFF.

NOTE

The W/S TEMP annunciator may not test after cold soak (2 hours or more) at extremely cold temperatures. If this occurs, repeat the test after the cabin has warmed up. The test must be completed prior to each flight.

- 14. AVIONIC POWER Switch - OFF.
- 15. Windshield Ice Detection Lights - CHECK FOR ILLUMINATION.

DELAY BEFORE FLIGHT W/O EXTERNAL POWER

1. STBY FLT Display - OFF.
2. Battery Switch - OFF.

BEFORE STARTING ENGINES

1. Passenger Briefing - COMPLETED.
 - a. Emergency exit location and operation.
 - b. Use of emergency oxygen.
 - c. Smoking.
 - d. Seat adjustment - CHECK passenger seats are full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
2. Battery Switch - BATT.
3. STBY FLT Display - ON.
4. PARK BRAKE - SET.
5. Wheel Chocks - REMOVED.
6. Pilot's Cockpit Side Window - CLOSED/LATCHED.
7. Exterior Lights - AS REQUIRED.
 - a. BEACON - ON.
 - b. NAV Lights - ON (during night operations).
8. Annunciators - CHECKED.

STARTING ENGINES

NOTE

- Either engine may be started first.
- If the aircraft has been cold soaked (2 hours or more) at temperatures below -10°C (+14°F), the use of external power or warming the battery to -10°C (+14°F) or warmer is recommended. This temperature may be checked with the battery temperature gauge. Proper battery warmup may require extended application of heat to the battery. Refer to Normal Procedures, Cold Weather Operations.

1. Engine - START.
 - a. Engine Start Button - PUSH L or R, verify button light illuminates.
 - b. Throttle - IDLE at 8% N₂.

NOTE

In cold conditions, up to 20 seconds may be required before achieving an N₂ indication.

2. ITT - CHECK for rise. Abort start if ITT rapidly approaches 700C°.

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STARTING ENGINES (Continued)

3. Engine Instruments - CHECK Normal.
 - a. Abort start if no indication of N_1 rotation by 25% N_2 .
 - b. Fuel, Oil, Generator and Hydraulic Annunciators - EXTINGUISHED.
4. GND Idle - HIGH (if cross generator start).
5. Other Engine - START, repeat steps 1 through 3.

NOTE

The operating engine should be set to GND IDLE-HIGH for a cross generator start to provide additional amperage. Load on operating generator should be 200 AMPS or less prior to starting other engine.

6. GND Idle - NORM.
7. Engine Annunciators - EXTINGUISHED (except GND IDLE).
8. External Power - DISCONNECTED (if used).
9. Generator Switch - L GEN and R GEN/CHECK DC AMPS/VOLTS.
 - a. Left generator - OFF, right generator - GEN, check left generator voltage, check right generator AMPS.
 - b. Left generator - GEN, right generator - OFF, check left generator AMPS, check right generator voltage.
 - c. Left generator - GEN, right generator - GEN, check left generator AMPS, check right generator AMPS, check system voltage.

NOTE

When operating in visible moisture and ambient air temperature is $+10^{\circ}\text{C}$ (50°F) or below, turn pitot and static heat ON and engine LH and RH anti-ice systems ON. If temperature is above -18°C , turn W/S BLEED AIR switch to LOW. If temperature is -18°C or below, turn W/S BLEED AIR switch to HI. Check W/S BLEED AIR Knobs MAX. For sustained ground operation, the engines should be operated for one out of every four minutes at 65% N_2 or above.

CAUTION

LIMIT GROUND OPERATION OF PITOT STATIC HEAT TO TWO MINUTES ON WITH TWO MINUTES OFF BETWEEN CYCLES TO PRECLUDE SYSTEM DAMAGE.

10. Battery Temperature - CHECK.

BEFORE TAXI

1. AVIONIC POWER Switch - ON.
2. Flight Controls/Speed Brakes/Flaps - CHECKED/SET.

NOTE

Verify flaps trim interconnect operation is between 15 and 25 degrees.

3. Pitch Trim - CHECK/SET for Takeoff.
 - a. LH - Push both trim switches down and verify elevator trim movement, and push AP TRIM DISC, verify no elevator trim movement. Release AP TRIM DISC.
 - b. LH - Push both trim switches up, and verify elevator trim movement, and push AP TRIM DISC, verify no elevator trim movement. Release AP TRIM DISC.
 - c. LH - Push left half of trim switch up and down, verify no elevator trim movement.
 - d. LH - Push right half of trim switch up and down, verify no elevator trim movement.
 - e. Verify manual trim wheel can move elevator trim.
 - f. RH - Push both trim switches down, and verify elevator trim movement, and push AP TRIM DISC, verify no elevator trim movement. Release AP TRIM DISC.
 - g. RH - Push both trim switches up, and verify elevator trim movement, and push AP TRIM DISC, verify no elevator trim movement. Release AP TRIM DISC.
 - h. RH - Push left half of trim switch up and down, verify no elevator trim movement.
 - i. RH - Push right half of trim switch up and down, verify no elevator trim movement.
4. Anti-Ice/Deice - CHECKED/SET AS REQUIRED.

NOTE

Proper tail deice system operation is indicated by the following:

AUTO- TL DEICE PRESS L advisory light, on 6 seconds.
TL DEICE PRESS L and R advisory lights, both off 6 seconds.
TL DEICE PRESS R advisory light, on 6 seconds.
TL DEICE PRESS L and R advisory lights, both off remainder of 3 minute cycle.

MANUAL- TL DEICE PRESS L and R advisory lights, both on when switch is in MANUAL.
TL DEICE PRESS L and R advisory lights, both off when switch is released.

5. TEMPERATURE CONTROL - AS REQUIRED.
6. PRESSURIZATION Controller - SET Landing Field Elevation.
7. ATIS/Clearance/FMS - AS REQUIRED.
8. Avionics/Flight Instruments - SET.

(Continued Next Page)

BEFORE TAXI (Continued)

- a. Radio Altimeter - SET.
- b. Altimeters (pilot, standby and copilot) - SET and COMPARE. Pilot and copilot altimeters must indicate departure field elevation within +/-50 feet and within 75 feet of each other when set to local altimeter setting.
- c. Heading - CROSS CHECK.
- d. Communication Frequencies - SET.
- e. Navigation Source/Frequencies - SET.
- f. Course - SET.
- g. Autopilot (at pilot's discretion) - ENGAGE, PUSH left AP TRIM DISC switch, verify autopilot disconnects and chime sounds. Repeat using right AP TRIM DISC switch.
9. Takeoff Speeds - SET.
 - a. Confirm V_1 , V_R , V_2 and V_T displayed on PFD.
 - b. Takeoff Distance - CHECK (add 500 feet for rolling takeoff).
10. COCKPIT VOICE RECORDER TEST Button - PUSH and HOLD for 5 seconds, verify test light illuminates.
11. Annunciators - CHECKED.

NOTE

The antiskid system must be turned on and the self-test sequence completed (antiskid annunciator light out) while the airplane is stationary. If the airplane is taxiing when the antiskid system is actuated, the antiskid test sequence will not be completed successfully and the antiskid will not be operational during takeoff.

12. Avionics Cooling Fans - CHECK OPERATING.
13. Passenger Advisory Lights - PASS SAFETY.
14. Pilot and Copilot Foot Warmers - OPEN (Down).

TAXI

1. Brakes - CHECK.

CAUTION

IF, DURING TAXI, A NORMAL BRAKE PEDAL - NO BRAKING CONDITION IS ENCOUNTERED, OPERATE THE EMERGENCY BRAKE SYSTEM AS REQUIRED. CORRECT PRIOR TO FLIGHT.

2. Nosewheel Steering - CHECK.

NOTE

When taxiing in strong crosswinds, differential braking may be required to supplement nosewheel steering.

3. Thrust Reversers - CHECK.
 - a. Deploy Thrust Reversers, check sequencing and timing of lights.
 - b. Select STOW EMER, check sequencing and timing of lights.
 - c. Stow Thrust Reversers, check ARM lights remain illuminated.
 - d. Deselect STOW EMER, verify all Thrust Reverser lights extinguished.

BEFORE TAKEOFF

1. Flaps - SET.
2. Speed Brakes - RETRACTED.
3. Trims - (3) SET FOR TAKEOFF.
4. Anti-ice/Deice - AS REQUIRED. Check anti-ice and deice systems when icing conditions are anticipated.

CAUTION

- IF ANTI-ICE SYSTEMS ARE TO BE USED FOR TAKEOFF AND GROUND AMBIENT TEMPERATURE IS BETWEEN 0°C AND 10°C, CLOSE THE R WINDSHIELD BLEED AIR MANUAL VALVE FOR TAKEOFF. THIS WILL ENSURE ADEQUATE BLEED AIR TEMPERATURE REGULATION TO THE PYLON PRE-COOLERS. AFTER THE THROTTLES HAVE BEEN REDUCED TO CLIMB POWER, THE R WINDSHIELD BLEED AIR KNOB MAY BE OPENED AS DESIRED.
- DO NOT OPERATE TAIL DEICE BOOTS UNDER ANY OF THE FOLLOWING CONDITIONS BECAUSE BOOT CRACKING MAY RESULT:

AIRSPEEDS AT OR ABOVE 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -35°C (-31°F).

AIRSPEEDS BELOW 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -40°C (-40°F).

- LIMIT GROUND OPERATION OF PITOT STATIC HEAT TO TWO MINUTES ON WITH TWO MINUTES OFF BETWEEN CYCLES TO PRECLUDE SYSTEM DAMAGE.

5. Crew Briefing - COMPLETE.

CLEARED FOR TAKEOFF

6. PITOT & STATIC Heat - ON.
7. Exterior Lights - AS REQUIRED.

NOTE

- Do not operate the anti-collision lights in conditions of fog, clouds or haze as the reflection of the light beam can cause disorientation or vertigo.
- Care must be exercised, especially at night, to minimize pulselite distractions to other pilots while remaining conspicuous during ground operations.
- Moving either or both landing light switches out of REC/TAXI will disable pulselite illumination.
- Selecting Pulselite switch to GND ON will enable pulselite illumination until one or both REC/TAXI lights are selected OFF.

8. Transponder/TCAS - TA/RA.
9. Radar - ON.
10. Engine Instruments - CHECK.
11. Annunciator Panel - CHECK.

NOTE

Generally, in non-icing conditions, all annunciators should be extinguished except GND IDLE.

TAKEOFF

STATIC TAKEOFF

1. Throttles – TO Detent.
2. Engine Instruments – CHECK NORMAL.
3. Brakes – RELEASE.

ROLLING TAKEOFF

1. Computed Takeoff Distance – ADD 500 FEET.
2. Brakes – RELEASE.
3. Throttles – TO Detent within 500 feet after brake release.
4. Engine Instruments – CHECK NORMAL (no dashes, FAIL messages, or incorrect indications).

AFTER TAKEOFF - CLIMB

1. Landing Gear - UP.
2. Flaps - UP ($V_2 + 10$).
3. Throttles - CLB DETENT.
4. Yaw Damper - ENGAGE.
5. Passenger Advisory Lights - AS REQUIRED.
6. Pressurization - CHECK.
7. Altimeters - SET and CROSS CHECK (transition altitude).
8. REC/TAXI Lights - OFF (transition altitude).
9. A/C COMPRESSOR - OFF or FAN (above 18,000 feet).
10. Anti-Ice/Deice - AS REQUIRED.

CRUISE

1. Throttles - CRU DETENT OR AS DESIRED.
2. Pressurization - CHECK.
3. Temperature Control - AUTO ABOVE FL310.
4. Anti-Ice/Deice - AS REQUIRED.

CAUTION

DO NOT OPERATE TAIL DEICE BOOTS UNDER ANY OF THE FOLLOWING CONDITIONS BECAUSE BOOT CRACKING MAY RESULT:

- AIRSPEEDS AT OR ABOVE 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -35°C (-31°F).
- AIRSPEEDS BELOW 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -40°C (-40°F).

NOTE

- Check deice systems for proper operation prior to entering areas in which icing might be encountered.
 - The outboard **32** inches of each wing is unheated and ice will accumulate with the wing anti-ice operating normally.
5. In RVSM Airspace:
 - a. Autopilot - ALT Mode unless severe turbulence is encountered.
 - b. Altimeters - CROSSCHECK pilot and copilot altimeters at 1 hour intervals or less. Maximum allowed difference is 200 feet.
 6. Fuel CROSSFEED - AS REQUIRED (maximum imbalance 200 lbs.)
 7. Autopilot Bank Angle - SELECT FULL BANK AS REQUIRED.

NOTE

When using the FMS-3000 as the navigation source and operating at or above FL290, the bank angle should be selected to full bank (deselect half-bank angle) when entering holding or making course changes greater than or equal to 70° .

DESCENT

1. DEFOG Fan - HI or LOW (minimum of 15 minutes prior to descent).
2. Pilot and Copilot Foot Warmers - CLOSE (Up).
3. AIR FLOW DISTR - CKPT.
4. WINDSHIELD BLEED AIR Knobs - AS REQUIRED.
5. W/S BLEED Switch - AS REQUIRED.
6. Anti-ice/Deice - AS REQUIRED.

CAUTION

DO NOT OPERATE TAIL DEICE BOOTS UNDER ANY OF THE FOLLOWING CONDITIONS BECAUSE BOOT CRACKING MAY RESULT:

- AIRSPEEDS AT OR ABOVE 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -35°C (-31°F).
- AIRSPEEDS BELOW 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -40°C (-40°F).

NOTE

- Maintain sufficient thrust for wing anti-ice (approximately 70% N₂); advance throttles to extinguish wing anti-ice lights.
 - Check deice system for proper operation prior to entering areas in which icing might be encountered.
 - Adequate engine anti-ice is provided at all throttle settings, including idle.
7. Pressurization - CHECK/SET Landing Elevation.
 8. A/C COMPRESSOR - AS DESIRED (below 18,000 feet).
 9. REC/TAXI Lights - ON (below 18,000 feet).
 10. Altimeter - SET (Transition Level).

APPROACH

1. Landing Data - COMPUTE and SET.
 - a. Airspeed - V_{APP}/V_{REF} .
 - b. Landing Distance - COMPUTE.
2. Crew Briefing - COMPLETE.
3. Avionics and Flight Instruments - CHECK and SET.
4. Passenger Advisory Lights - PASS SAFETY.
5. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
6. Flaps - AS REQUIRED.
7. Exterior Lights - AS REQUIRED.
8. Fuel CROSSFEED Switch - OFF.
9. Annunciators - CHECK.
10. GND IDLE Switch - NORM.

NOTE

In moderate sideslips the angle-of-attack derived on speed indication for V_{REF} may be in error by a small amount and should be disregarded for the duration of the sideslip. This applies to LSC and RAS in the PFD, round dial AOA indicator and the AOA indexer mounted on the glareshield.

(Continued Next Page)

APPROACH (Continued)

11. Landing at airports above 11,500 feet:
 - a. PRESS SOURCE Select Knob - OFF (below 15,000 feet).
 - b. OXYGEN CONTROL VALVE - CREW ONLY.

WARNING

WHEN HOLDING OR OTHERWISE OPERATING AT ALTITUDES BELOW 25,000 FEET FOR PERIODS GREATER THAN 30 MINUTES WITH THE CABIN ALTITUDE WARNING SHIFTED FROM 10,000 FEET TO 14,500 FEET (SLA BETWEEN 8000 AND 14,500 FEET), REFER TO APPROPRIATE OPERATING REQUIREMENTS FOR USE OF SUPPLEMENTAL OXYGEN.

NOTE

- If the OXYGEN CONTROL VALVE remains selected to NORMAL and cabin altitude exceeds 14,500 feet \pm 500 feet, CAB ALT warning light will illuminate and passenger oxygen masks will deploy.
- Failure to select pressurization source to OFF will result in a sudden cabin depressurization at touchdown.

- c. OVHD Fan - HI.

BEFORE LANDING

1. Pressurization - ZERO DIFFERENTIAL PRIOR TO LANDING.
2. Landing Gear - DOWN.
3. ANTISKID Switch - CHECK ON.
4. Landing Lights - AS DESIRED.

NOTE

- Both recognition lights must be ON for the Pulselite system to operate.
 - The landing lights must be turned ON prior to 300 feet AGL on landing approach to cause the pulsing to stop.
 - The Pulselite system is automatically deactivated on the ground, except for systems configured with the optional ground override switch.
5. Flaps - LAND (35°).
 6. Airspeed - V_{REF} .
 7. Autopilot and Yaw Damper - OFF.
 8. Speed Brakes - RETRACT (50 feet AGL and below).

ALL ENGINES GO-AROUND

1. Throttles -TO Detent.
2. Airplane Pitch Attitude - POSITIVE ROTATION TO +10 degrees (use flight director GA mode).
3. Flaps - T.O. & APPR (15°).
4. Climb Speed - V_{APP} .
5. Landing Gear - UP (positive rate-of-climb).
6. At airports above 11,500 feet:
 - a. PRESS SOURCE Select Knob - NORM.
 - b. OXYGEN CONTROL VALVE - NORMAL.

NOTE

If cabin altitude exceeds 14,500 \pm 500 feet, CAB ALT warning light will illuminate and passenger oxygen masks will deploy.

7. Flaps - UP, V_{APP} + 10 KIAS - above 400 feet AGL.
8. Throttles - CLB DETENT.

LANDING

1. Throttles - IDLE.

NOTE

Eight seconds after touchdown, engines will spool down from flight idle to ground idle if the GND IDLE switch is in NORM.

2. Brakes - APPLY (after touchdown).

CAUTION

- IF, DURING LANDING, A NORMAL BRAKE PEDAL - NO BRAKING CONDITION IS ENCOUNTERED, OPERATE THE EMERGENCY BRAKE SYSTEM. CORRECT PRIOR TO NEXT FLIGHT.
- ANTISKID SYSTEM DOES NOT FUNCTION DURING EMERGENCY BRAKING. EXCESSIVE PRESSURE ON EMERGENCY BRAKE HANDLE CAN CAUSE BOTH WHEEL BRAKES TO LOCK, RESULTING IN BLOWOUT OF BOTH TIRES.

NOTE

To obtain maximum braking performance from the antiskid system, the pilot must apply continuous maximum effort (no modulation) to the brake pedals.

3. Control Wheel - APPLY FORWARD PRESSURE.
4. Speed Brake - EXTEND (after nosewheel firm ground contact).
5. Thrust Reversers - DEPLOY (after nosewheel firm ground contact).

WARNING

DO NOT ATTEMPT TO RESTOW REVERSERS AND TAKE OFF ONCE REVERSERS HAVE STARTED TO DEPLOY.

CAUTION

THE NOSEWHEEL MUST BE IN FIRM CONTACT WITH THE GROUND PRIOR TO DEPLOYING THRUST REVERSERS.

NOTE

- To prevent any possible nose up pitch during thrust reverser deployment, maintain forward pressure on the control column after the nosewheel is on the ground.
 - To avoid possible jamming of the throttle lockout cams, do not exceed approximately 15 pounds force on the thrust reverser levers until thrust reversers are fully deployed.
6. Thrust Reverser Indicator Lights - CHECK ILLUMINATION OF ARM, UNLOCK AND DEPLOY LIGHTS.
 7. Reverse Thrust - AS REQUIRED.
 8. Thrust Reversers - REVERSER LEVERS TO IDLE REVERSE AT 60 KIAS.

AFTER LANDING

1. Thrust Reversers - STOW.

CAUTION

DO NOT ADVANCE THROTTLES UNTIL THE THRUST REVERSER UNLOCK LIGHTS ARE OUT.

2. Speed Brakes - RETRACT.
3. Flaps - UP.
4. Transponder/TCAS - STBY.
5. PITOT & STATIC Heat - OFF.
6. Anti-Ice/Deice - AS REQUIRED
 - a. W/S BLEED Switch - OFF.
 - b. WINDSHIELD BLEED AIR Knob - OFF.
 - c. TAIL DEICE - OFF.
 - d. WING/ENGINE ANTI-ICE - ENGINE ONLY, if required.
7. Exterior Lights - AS REQUIRED.
 - a. Anti-collision lights - OFF.
 - b. REC/TAXI lights - AS REQUIRED.

NOTE

- Care must be exercised, especially at night, to minimize pulselite distractions to other pilots while remaining conspicuous during ground operations.
- Moving either or both landing light switches out of REC/TAXI will disable pulselite illumination.
- Selecting Pulselite switch to GND ON will enable pulselite illumination until one or both REC/TAXI lights are selected OFF.

8. Radar - STBY or OFF.

SHUTDOWN

1. Parking Brake - SET, or Wheels - CHOCK.
2. AVIONIC POWER Switch - OFF.
3. STBY FLT Display - OFF.
4. Anti-Ice Systems - OFF.
5. Exterior Lights - OFF.
6. A/C COMPRESSOR - OFF.
7. Throttles - CUT OFF.
8. Defog Fan - OFF.
9. Passenger Advisory Lights - OFF.
10. Battery Switch - OFF.
11. CONTROL LOCK - PULL (as required).
12. Oxygen Masks - REMOVE from airplane if prolonged exposure to temperatures of 0°C (+32°F) or below is anticipated.

NOTE

- Engine intake and exhaust covers should be installed to prevent long periods of windmilling.
- Refer to Normal Procedures, COLD WEATHER OPERATIONS, if prolonged exposure (2 hours or more) to temperatures of -10°C (+14°F) or less are anticipated.

DRY MOTORING

1. Throttle - OFF.
2. IGNITION Switch - NORM.
3. FUEL BOOST Pump - ON.
4. ENGINE START Button - PRESS momentarily. Motor engine for the desired duration. Observe starter and battery limitations.
5. ENGINE START DISENGAGE Button - PRESS.
6. FUEL BOOST Pump - NORM.

QUICK TURN

1. Warning Systems - TEST/OFF.
2. Return to BEFORE STARTING ENGINES checklist.

TURBULENT AIR PENETRATION

Flight through severe turbulence should be avoided if possible. The following is recommended for flight in severe turbulence.

1. Airspeed approximately 180 KIAS. Do not chase airspeed.
2. Maintain a constant attitude without chasing the altitude. Avoid sudden large control movements.
3. Operation of the autopilot is recommended using basic pitch hold and lateral mode only.
4. Passenger Advisory Switch - PASS SAFETY.

ANTI-ICE ADDITIVES**NOTE**

EGME and DIEGME additives are not required but may be used if desired, in accordance with the following procedures.

PROCEDURE FOR ADDING ETHYLENE GLYCOL MONOMETHYL ETHER (EGME) FUEL ADDITIVE

Use the following procedure to blend anti-icing additive as the airplane is being refueled through the wing filler caps:

1. Attach MIL-I-27686 additive to refuel nozzle, making sure blender tube discharges in the refueling stream.
2. Start refueling while simultaneously fully depressing and slipping ring over trigger of blender.

WARNING

ANTI-ICING ADDITIVES CONTAINING ETHYLENE GLYCOL MONOMETHYL ETHER (EGME) ARE HARMFUL IF INHALED, SWALLOWED OR ABSORBED THROUGH THE SKIN, AND WILL CAUSE EYE IRRITATION. ALSO, IT IS COMBUSTIBLE. BEFORE USING THIS MATERIAL, REFER TO ALL SAFETY INFORMATION ON THE CONTAINER.

CAUTION

ASSURE THAT THE ADDITIVE IS DIRECTED INTO THE FLOWING FUEL STREAM AND THAT THE ADDITIVE FLOW IS STARTED AFTER THE FUEL FLOW STARTS AND IS STOPPED BEFORE FUEL FLOW STOPS. DO NOT ALLOW CONCENTRATED ADDITIVE TO CONTACT COATED INTERIOR OF FUEL TANK OR AIRPLANE PAINTED SURFACE. USE NOT LESS THAN 20 FLUID OUNCES OF ADDITIVE PER 156 GALLONS OF FUEL OR MORE THAN 20 FLUID OUNCES OF ADDITIVE PER 104 GALLONS OF FUEL.

PROCEDURE FOR ADDING DIETHYLENE GLYCOL MONOMETHYL ETHER (DIEGME) FUEL ADDITIVE**NOTE**

Service experience has shown that DIEGME has provided acceptable protection from bacterial growth in fuel systems.

Use the following procedure to blend anti-icing additive as the airplane is being refueled through the wing filler caps:

1. Attach MIL-I-85470 additive to refuel nozzle, making sure blender tube discharges in the refueling stream.
2. Start refueling while simultaneously fully depressing and slipping ring over trigger of blender.

ANTI-ICE ADDITIVES (Continued)

PROCEDURE FOR ADDING ETHYLENE GLYCOL MONOMETHYL ETHER (EGME) FUEL ADDITIVE (Continued)

CAUTION

- DIETHYLENE GLYCOL MONOMETHYL ETHER (DIEGME) IS SLIGHTLY TOXIC IF SWALLOWED AND MAY CAUSE EYE REDNESS, SWELLING AND IRRITATION. IT IS ALSO COMBUSTIBLE. BEFORE USING THIS MATERIAL, REFER TO ALL SAFETY INFORMATION ON THE CONTAINER. ASSURE THE ADDITIVE IS DIRECTED INTO THE FLOWING FUEL STREAM WITH THE ADDITIVE FLOW STARTED AFTER THE FUEL FLOW STARTS AND STOPPED BEFORE FUEL FLOW STOPS. DO NOT ALLOW CONCENTRATED ADDITIVE TO CONTACT COATED INTERIOR OF FUEL TANK OR AIRPLANE PAINTED SURFACE.
- USE NOT LESS THAN 20 FLUID OUNCES OF ADDITIVE PER 156 GALLONS OF FUEL OR MORE THAN 20 FLUID OUNCES OF ADDITIVE PER 104 GALLONS OF FUEL.

PROCEDURE FOR CHECKING FUEL ADDITIVES

1. Prolonged storage of the airplane will result in a water buildup in the fuel which "leaches out" the additive. An indication of this is when an excessive amount of water accumulates in the fuel tank sumps. The concentration can be checked using an anti-icing additive concentration test kit available from Cessna Aircraft Company, Citation Marketing Division, Wichita, KS 67277. It is imperative that the instructions for the test kit be followed explicitly when checking the additive concentration. The concentrations by volume for EGME/DIEGME shall be 0.10 percent minimum and 0.15 percent maximum, either individually or mixed in a common tank. Fuel, when added to the tank, should have a minimum concentration of 0.10 percent by volume.

SUPPLEMENTAL OXYGEN SYSTEM

Oxygen for flight crew and passengers is supplied from a 64-cubic foot oxygen cylinder. The oxygen cylinder pressure gage is located on the instrument panel. Refer to the oxygen utilization chart for duration of oxygen supply (Figure 3-4).

A three-position oxygen control switch (OXYGEN CONTROL VALVE) is located on the pilot's left console. The three positions are CREW ONLY/NORMAL/MANUAL DROP. In the NORMAL position, if the cabin altitude exceeds 14,500 \pm 500 feet, the passenger masks will automatically drop. Oxygen will flow to these masks when the lanyard is pulled as the mask is donned. Therapeutic oxygen may be supplied to the passengers at any cabin altitude by placing the OXYGEN CONTROL VALVE selector in the MANUAL DROP position. This will cause all masks in the cabin to deploy. Oxygen flow may be shut off from passenger masks by positioning the OXYGEN CONTROL VALVE to the CREW ONLY position.

WARNING

- **NO SMOKING WHEN OXYGEN IS BEING USED OR FOLLOWING USE OF PASSENGER OXYGEN UNTIL LANYARDS HAVE BEEN REINSTALLED.**
- **DUE TO HUMAN PHYSIOLOGICAL LIMITATIONS, THE PASSENGER OXYGEN SYSTEM IS NOT SATISFACTORY FOR PROLONGED OPERATION ABOVE 25,000 FEET CABIN ALTITUDE AND THE CREW OXYGEN SYSTEM IS NOT SATISFACTORY FOR USE ABOVE 40,000 FEET CABIN ALTITUDE. INDIVIDUAL PHYSIOLOGICAL LIMITATIONS MAY VARY. IF CREW OR PASSENGERS EXPERIENCE HYPOXIC SYMPTOMS, DESCEND TO A LOWER CABIN ALTITUDE.**

The high altitude airport mode is automatically selected when a field elevation above 8000 feet is set into the cabin pressurization controller. In this mode, the CAB ALT annunciator is inhibited below a cabin pressure altitude of approximately 14,500 feet.

WARNING

WHEN HOLDING OR OTHERWISE OPERATING AT ALTITUDES BELOW 25,000 FEET FOR PERIODS GREATER THAN 30 MINUTES WITH THE CABIN ALTITUDE WARNING SHIFTED FROM 10,000 FEET TO 14,500 FEET (SLA BETWEEN 8,000 AND 14,500 FEET), REFER TO APPROPRIATE OPERATING REQUIREMENTS FOR USE OF SUPPLEMENTAL OXYGEN.

NOTE

- If cabin altitude exceeds 14,500 \pm 500 feet, CAB ALT warning light will illuminate and passenger oxygen masks will deploy.

(Continued Next Page)

SUPPLEMENTAL OXYGEN SYSTEM (Continued)

When using an oxygen mask for smoke protection, 100% position should be selected. The EMER position may be used with the oxygen mask to provide a pressurized flow of oxygen.

The EROS crew mask is a quick donning diluter-demand/pressure breathing mask with integral microphone and oxygen regulator. It is certified to a maximum cabin altitude of 40,000 feet.

A red rocker lever on the bottom of the mask labeled "N" and "100%" selects either NORMAL or 100% oxygen scheduling to the mask. In Normal mode, the regulator increases the proportion of oxygen mixed with cabin air as cabin altitude increases. Above approximately 27,000 feet cabin altitude, NORMAL mode provides 100% oxygen. The "100%" position provides 100% oxygen at all cabin altitudes. To provide the quickest recovery from hypoxia symptoms, the mask should be stowed with 100% selected. To conserve oxygen, in the absence of smoke/fumes, the mask should be switched to NORMAL when worn at any cabin altitude for an extended period of time.

Depressing a red tab on the front of the mask (left side, as viewed while wearing mask) inflates the harness for donning. Releasing the tab causes the harness to conform to the user's head. To prevent damage to the harness, it should not be inflated until the mask is completely out of the storage box.

The mask automatically supplies oxygen under pressure (pressure breathing) beginning at approximately 35,000 feet cabin altitude. Automatic pressure breathing is available in either NORMAL or 100% mode. Once pressure breathing begins, pressure supplied to the mask gradually increases as cabin altitude increases. Ability to speak via the mask microphone is not significantly impaired during pressure breathing.

A red knob on the bottom of the mask labeled EMERGENCY provides selection of 100% oxygen flow and creates a positive oxygen pressure in the mask. Turning the knob approximately one quarter turn in the direction of the arrow selects EMERGENCY mode. Pressing the knob "in" momentarily may be used for mask pre-flight to ensure flow to the mask. Continuous EMERGENCY mode must be used in a smoke/fume environment to provide positive pressure to the mask and goggles. Once the need for emergency pressure has been alleviated, EMERGENCY mode should be deselected as the oxygen consumption rate is high.

(Continued Next Page)

SUPPLEMENTAL OXYGEN SYSTEM (Continued)

Smoke goggles are designed to fit over the mask nose bridge and interface with a vent on the outside of the mask nose-bridge area. In a smoke/fumes environment the mask should be donned first, then the goggles. The goggles vent valve will open when the goggles are on the face and against the mask nose bridge valve. When smoke/fumes have been eliminated the mask should be switched out of EMERGENCY mode and the nose bridge valve closed.

NOTE

- Crew masks are assumed to be in the NORMAL setting below FL250 feet cabin altitude and at 100% setting at or above FL250 feet.
- Cabin temperature must be held at or above 0°C (+32°F) for a minimum of 15 minutes prior to flight above FL250 after a prolonged ground cold soak period (two hours or longer) at ambient temperatures of -10°C (+14°F) or colder (refer to Normal Procedures, Cold Weather Operations). This temperature ensures proper deployment and operation of the passenger oxygen masks.
- Unless carefully trimmed, mustaches and/or beards worn by crew members may interfere with proper sealing of the oxygen mask. Mask fit and seal should be checked on the ground prior to flight.
- Headsets or hats worn by the crew should be removed prior to donning the oxygen masks.
- For airplanes equipped with the EROS MLD20-510 Oxygen Masks, due to the "clip-on" feature of the smoke goggle to the mask, crew members should familiarize themselves with smoke goggle donning procedures while wearing the mask.

STANDARD OXYGEN MASK AND 64-CUBIC FOOT CYLINDER

AVAILABLE TIME IN MINUTES								
CABIN ALTITUDE	1 COCKPIT	2 COCKPIT	2 COCKPIT 2 CABIN	2 COCKPIT 4 CABIN	2 COCKPIT 6 CABIN	2 COCKPIT 8 CABIN	2 COCKPIT 10 CABIN	2 COCKPIT 11 CABIN
8000	1684	842	150	83	57	43	35	32
10,000	1882	941	154	84	58	44	36	32
15,000	2000	1000	159	86	59	45	36	33
20,000	1455	727	153	85	59	45	37	34
25,000	525	262	113	72	53	42	34	32
30,000	717	359						
34,000	914	457						
35,000	970	485						
37,000	1103	552						
39,000	1338	669						
40,000	1386	693						

Figure 3-4

(Continued Next Page)

SUPPLEMENTAL OXYGEN SYSTEM (Continued)

Figure 3-5 provides information for dispatch with less than full oxygen bottle. (Unless otherwise noted) the following assumptions apply to this figure and are factored into available time calculations:

OXYGEN DURATION OF 64 CU. FT. BOTTLE

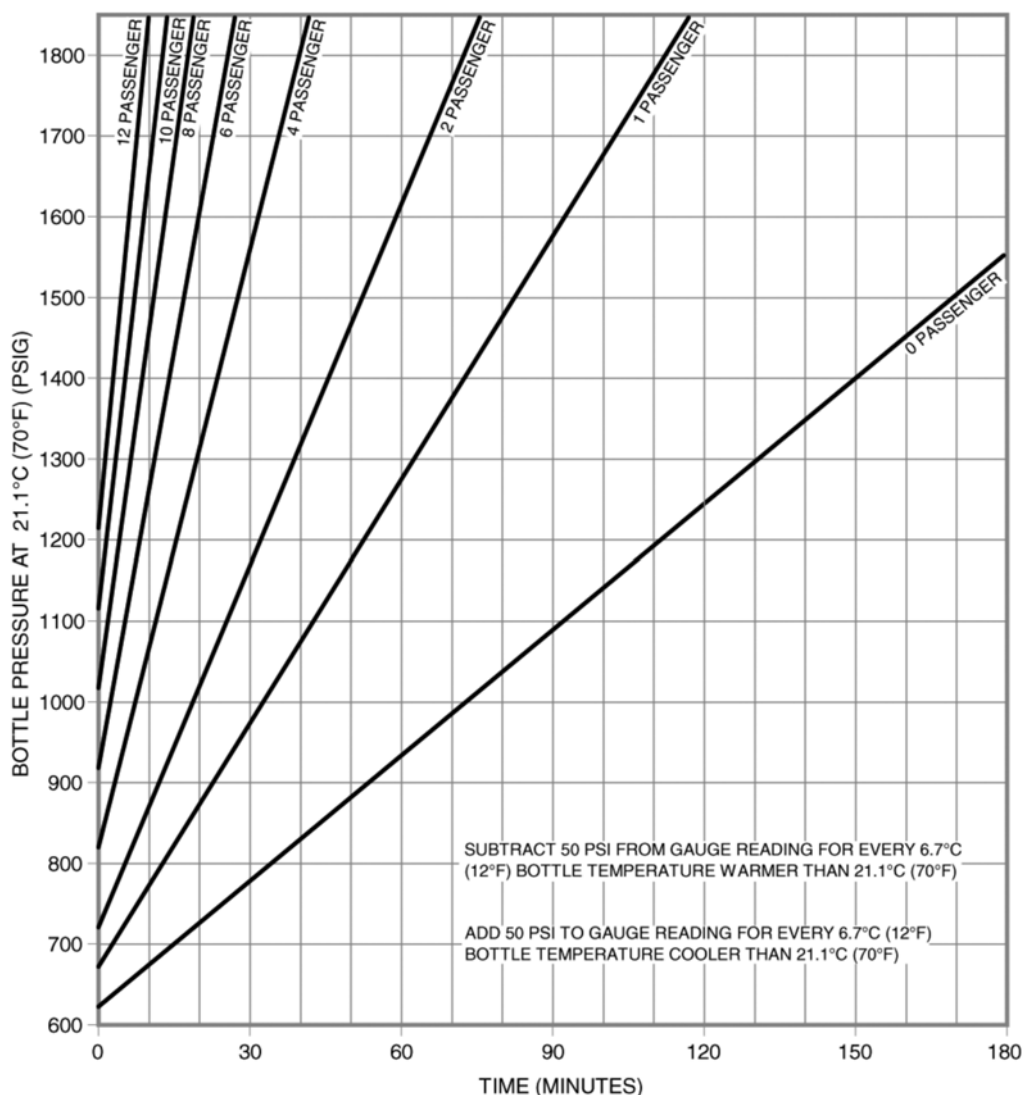


Figure 3-5

NOTE

- Oxygen consumed during a 10 minute emergency descent from FL450 to 10,000 feet MSL. This defines the starting point of each bottle pressure vs. available time plot.
- After the emergency descent, the cabin altitude for the remainder of the flight is between FL250 and 10,000 feet MSL.
- All Pilot and Copilot oxygen requirements are included. Crew consumption rate is 20 LPM (Liters/Minute) during the emergency descent and 10 LPM thereafter.
- Cockpit masks are at 100% setting regardless of cabin altitude.
- Normal pilot usage, as required by operating rules, when operating above FL350 is not taken into account.

FLIGHT INTO ICING

Flight into known icing is the intentional flight into icing conditions that are known to exist by either visual observation or pilot weather report information. Icing conditions exist any time the indicated RAT is +10°C (+50°F) and below, and visible moisture in any form is present. This airplane, with properly operating anti-ice and deice equipment, is approved to operate in maximum intermittent and maximum continuous icing conditions as defined by 14 CFR 25, Appendix C. The equipment has not been designed to provide protection against freezing rain or severe conditions of mixed or clear ice. During all operations, the pilot is expected to exercise good judgment and be prepared to alter the flight plan, i.e. exit icing, if conditions exceed the capability of the aircraft and equipment.

Ice accumulations significantly alter the shape of airfoils and increase the weight of the aircraft. Flight with ice accumulated on the aircraft will increase stall speeds and alter the speeds for optimum performance. Flight at high angle-of-attack (low airspeed) can result in ice building on the underside of the wings and the horizontal tail aft of areas protected by boots or leading edge anti-ice systems. Minimum airspeed for sustained flight in icing conditions (except approach and landing) is 160 KIAS. Prolonged flight with the flaps and/or landing gear down is not recommended. Trace or light amounts of icing on the horizontal tail can significantly alter airfoil characteristics which will affect stability and control of the aircraft.

Freezing rain and clear ice will be deposited in layers over the entire surface of the airplane and can “runback” over the surface before freezing. Runback ice is normal under the right icing conditions. This can occur during prolonged exposure in moderate or heavy icing when the wing temperature (fuel temperature) is below freezing. This is typical of most bleed air heated wings and no adjustment to approach speed is required. Rime ice is an opaque, granular and rough deposit of ice that usually forms on the leading edges of wings, tail surfaces, pylons, engine inlets, antennas, etc. The outboard 32 inches of each wing is unheated and ice will accumulate with the wing anti-ice operating normally.

ANTI-ICE AND DEICE SYSTEMS

The anti-ice systems consist of bleed air heated engine inlets, wing leading edges, fan spinner and stators, and electrically heated pitot tubes, static ports and angle-of-attack probe. The horizontal stabilizer is deiced by pneumatic boots. Windshield anti-ice is provided by bleed air with alcohol backup.

All anti-ice systems should be turned on when operating in visible moisture and the indicated RAT is +10°C (+50°F) or below.

CAUTION

- IF ANTI-ICE SYSTEMS ARE TO BE USED FOR TAKEOFF AND GROUND AMBIENT TEMPERATURE IS BETWEEN 0°C (+32°F) AND +10°C (+50°F), CLOSE THE R WINDSHIELD BLEED AIR MANUAL VALVE FOR TAKEOFF. THIS WILL ENSURE ADEQUATE BLEED AIR TEMPERATURE REGULATION TO THE PYLON PRE-COOLERS. AFTER THE THROTTLES HAVE BEEN REDUCED TO CLIMB POWER, THE R WINDSHIELD BLEED AIR MANUAL VALVE MAY BE OPENED AS DESIRED.
- ANY TIME ICE ACCUMULATION IS OBSERVED ON EITHER THE WINDSHIELD, WING FENCES, OR WING LIGHT SHIELDS (NEAR WING TIP), THE FLIGHT CREW MUST VISUALLY INSPECT BOTH WING LEADING EDGES AT A TIME INTERVAL OF NO LESS THAN 5 MINUTES.
- IF ICE ACCUMULATION IS DETECTED ON THE HEATED PORTION OF THE WING LEADING EDGE, THE ABNORMAL PROCEDURES FOR WING ANTI-ICE FAILURE MUST BE OBSERVED. THE OUTBOARD 32 INCHES OF EACH WING IS UNHEATED.

NOTE

- Icing conditions exist when the indicated RAT on the ground and for takeoff is +10°C (+50°F) or below; the indicated RAT inflight is +10°C (+50°F) or below; and visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet or ice crystals).
- Icing conditions also exist when the indicated RAT on the ground and for takeoff is +10°C (+50°F) or below when operating on ramps, taxiways or runways where snow, ice, standing water, or slush may be ingested by the engines or freeze on engine nacelles or engine sensor probes.

Tail deice should be turned on in visible moisture and the indicated RAT is between +10°C (+50°F) and -35°C (-31°F)/-40°C (-40°F) as applicable.

(Continued Next Page)

ANTI-ICE AND DEICE SYSTEMS (Continued)**ENGINE AND WING ANTI-ICE SYSTEM**

Bleed air flows continuously through the fan spinner whether the anti-ice system is activated or not. When the wing/engine anti-ice switches (one for each engine) are positioned to ENGINE ON, bleed air flows through the applicable engine inlet and engine stators. Adequate bleed air flow is available to maintain the proper engine inlet temperatures at flight idle thrust. The engine anti-ice annunciators may illuminate initially when the system is turned on if the inlets are cold. When the wing/engine anti-ice switches are positioned to WING/ENGINE ON, bleed air flows to the wing leading edges in addition to the engine inlet and stators. If sufficient bleed air flow is not available to maintain the proper wing temperature, the WING ANTI-ICE L or R annunciator will illuminate. The light may be extinguished by increasing engine RPM. Operation of the system may be checked by observing engine ITT rise when the wing/engine anti-ice switches are turned on. If the check is made on the ground, it may require up to two minutes to extinguish the wing anti-ice light with N_1 set at approximately 70%. Maximum engine power setting values are reduced when using anti-ice, as shown in Section IV. The FADEC adjusts the engine power appropriately when the wing/engine anti-ice switches are on. Loss of electrical power results in the anti-ice valves opening, thus assuring anti-ice capability. The WING XFLOW switch is designed to provide wing anti-ice protection to both wings in the event of an inoperative engine. The over-temperature and undertemperature sensors of both wings are active during WING XFLOW operations. During WING XFLOW operations, the anti-ice switch of the inoperative engine should be selected OFF to prevent illumination of the ENG ANTI-ICE annunciator.

The wing and engine anti-ice systems may be checked on preflight by selecting both systems ON with the engines at idle. A very small increase in ITT and very small drop in N_2 signifies that bleed flow has occurred. The WING ANTI-ICE L-R will illuminate initially to indicate an under temperature condition on the wing leading edges. The ENG ANTI-ICE L-R may not illuminate initially if the ambient temperature is above 15°C.

The TT0 probe is electrically heated whenever the wing/engine anti-ice switches are on. A TT0 HTR FAIL annunciation with ANTI-ICE switches on indicates the TT0 probe is not being heated. A TT0 HTR FAIL annunciation with the ANIT-ICE switches OFF indicates the TT0 probe heater is receiving electrical power.

CAUTION

DURING SUSTAINED GROUND OPERATIONS IN FREEZING PRECIPITATION, IF THE ENGINES ARE OPERATED AT IDLE, ICE MAY FORM ON ENGINE PROBES AND INTERNAL COMPONENTS. THIS MAY CAUSE ENGINE VIBRATION. BY INCREASING THE ENGINE SPEED TO 60% N_2 OR HIGHER, THE ENGINE VIBRATION WILL BE ELIMINATED.

NOTE

During sustained ground operations in freezing precipitation, the engines should be operated for one minute out of every 4 minutes at 65% N_2 or above to preclude ice forming on engine probes or internal components.

(Continued Next Page)

ANTI-ICE AND DEICE SYSTEMS (Continued)

TAIL DEICE

The horizontal tail is deiced by pneumatic boots controlled by the tail deice AUTO/OFF MANUAL switch. Selecting the switch to AUTO will activate a controller which will inflate the boots one side at a time and then repeat this cycle after 3 minutes, continuously, providing automatic deice of the stabilizer. Selecting the momentary MANUAL position will inflate both boots as long as the pilot holds the switch in the MANUAL position. Vacuum is supplied to deflate the boots after each cycle and keep them deflated between cycles and when OFF.

NOTE

Allow the tail deice boot system to complete at least one complete cycle (approximately 18 seconds) before turning off.

Proper activation of the deice boots is annunciated by a white TL DEICE PRESS L or R advisory light on the annunciator panel which illuminates when proper inflation pressure is reached in each deice boot.

CAUTION

DO NOT OPERATE TAIL DEICE BOOTS UNDER ANY OF THE FOLLOWING CONDITIONS BECAUSE BOOT CRACKING MAY RESULT:

- AIRSPEEDS AT OR ABOVE 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -35°C (-31°F).
- AIRSPEEDS BELOW 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -40°C (-40°F).

Failure of the deice boots to activate properly is annunciated by an amber TL DEICE FAIL L or R advisory light on the annunciator panel which illuminates when tail deice pressure is not sequenced correctly to either deice boot.

If the switch is placed in MANUAL during a cycle of automatic operation, MANUAL will override the AUTO function and all the tubes will simultaneously inflate.

NOTE

Airflow perturbations during manual boot cycle or during AUTO boot cycle with significant ice on the stabilizer may cause a minor pitch bump.

If icing conditions are anticipated after takeoff, operation of the tail deice system should be functionally checked prior to takeoff. The pilot should also check the system for proper operation prior to entering areas in which icing may be encountered.

(Continued Next Page)

ANTI-ICE AND DEICE SYSTEMS (Continued)**WINDSHIELD ANTI-ICE**

The windshield bleed air system provides windshield anti-ice under all normal operating conditions. This system also provides external windshield defog and rain removal. The system supplies engine bleed air through an electrically actuated pressure regulating shutoff valve in the tailcone of the airplane and manually positioned valves which regulate air to each windshield. The manual valves are located at each bleed air nozzle and are left in the OFF position for all normal operation. A check should be made to ensure that the rain removal knob is pushed IN for windshield anti-icing. When windshield anti-icing is required, the WINDSHIELD BLEED AIR Knobs are turned ON and the W/S BLEED Switch is turned to LO if the indicated OAT is above -18°C or to HI if the indicated OAT is -18°C or below. Normal system operation is indicated by an increase in air noise as the bleed air discharges from the nozzles. A temperature sensor is located near the discharge nozzles and automatically controls the windshield bleed air temperature by modulating crossflow air through a heat exchanger in the tailcone. An additional temperature sensor is located in the bleed air line, which automatically actuates the electrical shutoff valve and illuminates the WS AIR O'HEAT annunciator light should the bleed air temperature exceed the normal control value. This condition should not occur unless a sustained high power, low airspeed condition is maintained or a system malfunction occurs. If the WS AIR O'HEAT light illuminates, the WINDSHIELD BLEED AIR Knobs should be modulated to reduce the flow. If the light remains on for over 60 seconds, position the WINDSHIELD BLEED AIR Knobs to OFF. The WS AIR O'HEAT light will also illuminate if the electrical shutoff valve in the tailcone opens with the W/S BLEED Switch in the OFF position.

Self-test of the temperature monitor system is normally accomplished during the preflight warning systems check by turning the windshield bleed air switch to either the HI or LO position and selecting the W/S temperature position on the rotary test switch. Proper system function is verified by illumination of the WS AIR O'HEAT annunciator light. Self-tests may also be accomplished in flight, if desired.

If the windshield bleed air anti-ice system fails, a backup alcohol anti-ice system is provided for the left windshield only. Sufficient alcohol is provided for ten minutes of operation; therefore, plans should be made to leave the icing environment without delay.

Verification of proper operation of the windshield bleed anti-ice system may be accomplished prior to flight with the engines running by turning the manual windshield bleed valves to MAX and selecting windshield bleed to LOW. Presence of bleed flow can be determined by the air noise audible in the cockpit.

PITOT-STATIC AND ANGLE-OF-ATTACK ANTI-ICE

Electric heating elements are provided in the pilot's, copilot's and standby pitot tubes; pilot's, copilot's, and standby static ports, RAT probe, and the angle-of-attack probe. The pitot static anti-ice switch actuates all of these elements. Operation may be checked on preflight by turning the switch ON for approximately 30 seconds, then OFF; then feel each element during the external inspection. Failures of pitot and static heating elements and of the angle-of-attack probe element are annunciated by P/S HTR L or R, STBY P/S HTR and AOA HTR FAIL lights, respectively, in the annunciator panel.

CAUTION

LIMIT GROUND OPERATION OF PITOT STATIC HEAT TO TWO MINUTES
ON WITH TWO MINUTES OFF BETWEEN CYCLES TO PRECLUDE
SYSTEM DAMAGE.

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ANTI-ICE AND DEICE SYSTEMS (Continued)

ICE DETECTION AND WING INSPECTION LIGHTS

The ice detection and wing inspection lights are utilized at night or in conditions of poor visibility to visually detect the presence of any ice accumulating on the lower center portion of the windshield and wings. One ice detection light is located on each side of the windshield center post. These lights would typically be used first to visually detect the presence of any ice accumulating on the windshield. The ice detection lights come on when the battery switch is in the BATT position. If any ice is detected, the wing inspection lights located on the fuselage sides may then be used to determine to what extent ice is accumulating on the wings.

COLD WEATHER OPERATIONS

COLD SOAK

Operation of the airplane has been demonstrated after prolonged exposure (2 hours or more) to ground ambient temperature of -40°C (-40°F). This was the minimum temperature achieved in cold weather testing. The following operational procedures are recommended or required for operations where prolonged exposure to ground ambient temperatures below -10°C (+14°F) is anticipated or has occurred:

1. Preflight:
 - a. Battery warmup to at least -10°C (+14°F) is required. Battery temperature may be checked with the battery temperature gage. Proper battery warmup may require extended application of heat to the battery.
 - b. Brake accumulator charge may be below the grey band (675 psi). The needle must, however, indicate above the lower stop (peg). If this cannot be visibly verified by the flight crew, the airplane must be serviced prior to flight.
 - c. After two hours (or longer) of exposure, cabin temperature must be held at or above 0°C (+32°F) for a minimum of 15 minutes prior to flight above FL250. This temperature ensures proper deployment and operation of the passenger oxygen masks. Cabin temperature can be determined using a handheld thermometer, or with the cockpit cabin temperature indicator, if installed. If using a handheld thermometer, the temperature should be taken in the middle of the cabin across from the cabin door. Heating the cabin may be accomplished with either pre-head or engine bleed air after engine start.

NOTE

Pre-Heat - Use a high output (BTU) external heater to directly heat the cabin. Care should be exercised as much as possible to heat the cabin uniformly.

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COLD WEATHER OPERATIONS (Continued)

2. Engine Start Preparation:
 - a. Engine preheat should not be required for engine oil temperatures down to -40°C (-40°F). However, minor engine oil leaks may occur after start at extremely cold temperatures if the engines have not been preheated. Any leak should stop once the oil seals have warmed up. Any visible oil leak must stop prior to flight.
3. After Engine Start:
 - a. Some electrical systems and avionics computers and displays may be slow to warm up. All avionics must be operating properly before flight.
 - b. WS TEMP annunciator may not test after cold soak at extremely cold temperatures. If this occurs, repeat the test after the cabin has warmed up. This test must be completed prior to flight.
 - c. May require 20 minutes to obtain oil temperature above +10°C.

NOTE

- Thrust settings above idle may require repositioning the airplane to a suitable ramp location, and depending on the severity of the cold soak, greater than one hour of engine operation. Be aware of fuel consumption.
 - In order to use engine bleed air to heat the cabin, Increase engine thrust setting above idle ($\geq 65\%$ N₂, with oil temperature $\geq 10^{\circ}\text{C}$ or $\leq 60\%$ with oil temperature $< 10^{\circ}\text{C}$) to achieve higher cabin heat supply duct temperatures. Select the cockpit/ cabin environmental TEMPERATURE CONTROL knob to MANUAL and the MANUAL toggle switch to full HOT, and the AIR FLOW DISTR to CABIN.
4. Postflight:
 - a. If prolonged exposure is anticipated:
 - (1) Do not set the parking brake or control lock.
 - (2) Remove the battery and store at a temperature above -10°C (+14°F).
 - (3) Parking the airplane within a heated shelter (hangar) is recommended.
 - b. Remove crew oxygen masks if prolonged exposure to temperatures of 0°C (+32°F) or less are anticipated.

RAIN REMOVAL

The windshield bleed air system provides rain removal during flight and ground operations. This system also serves as the windshield anti-ice system when used as described in the windshield anti-ice paragraph of this section.

When rain removal is desired, the PULL RAIN knob should be pulled out first and then the W/S BLEED switch should be positioned to LOW. A check should be made to ensure the WINDSHIELD BLEED AIR Knobs are in the MAX position.

WATER/SLUSH OPERATION

The airplane should not be operated when standing water/slush depths exceed 0.5 inch. If the 0.5 inch depth is inadvertently exceeded, compressor surges (bangs) may result.

HEAVY RAIN

The engine ignition should be selected to ON when flying in heavy rain.

HYDRAULIC SYSTEM

Hydraulic system pressure is supplied by one pump on each engine. The system is pressurized to 1500 PSI only during actuation of the landing gear, flaps, speed brakes, or thrust reversers. Only Skydrol 500A, B, B-4, C, LD-4, or Hyjet, Hyjet W, III, IV, IVA or IVA Plus are to be used as fluid. Normal operation is indicated by the HYD PRESS light on the annunciator panel. When a cycle of the gear, flaps, speed brakes, or thrust reversers is complete, the light should go out.

ENGINE

The Pratt & Whitney PW535B engines produce 3400 pounds of takeoff thrust at sea level, flat rated to +27°C (+81°F). Thrust is managed by throttle lever input to a Full Authority Digital Engine Control (FADEC).

Ejector pumps in each wing tank supply fuel pressure to the engine driven fuel pump, which supplies fuel to the fuel metering valve. Metered fuel is then supplied to two fuel manifolds (PRI and SEC) in the engine combustor section.

Should fuel supply pressure to the engine driven pump fall below approximately 5 PSI, a pressure switch will illuminate the amber LO FUEL PRESS L or R annunciator. If the fuel boost pump switch is in NORM, the fuel boost pump will be automatically switched on. The amber FUEL BOOST L or R annunciator will illuminate and the LO FUEL PRESS annunciator can be reset by selecting the boost pump switch to OFF and then back to NORM if the low pressure condition has been corrected.

All operations can be conducted with engine synchronization selected to NORM.

ENGINE INDICATING SYSTEM (EIS)

The EIS displays N_1 , ITT, N_2 , oil pressure, oil temperature, fuel temperature, fuel flow, and fuel quantity (individually for each engine). A compressed format of the EIS is automatically selected for certain enhanced display modes of the MFD. The ENG button, located on each Display Control Panel (DCP), alternately toggles between the normal and compressed formats. In the compressed format, placing either throttle in the Takeoff detent will automatically cause the EIS to display the normal format. If a chart is displayed when a throttle is placed in the takeoff detent it will be removed and can be reselected after thrust is set.

Digital data for N_1 , N_2 , and ITT are provided to the EIS by the respective engine FADEC. The FADEC also provides information to the standby engine instrument. Analog data for oil pressure, oil temperature, fuel temperature, fuel flow, and fuel quantity are provided to the EIS by the respective Data Concentrator Unit (DCU).

IGNITION OPERATING

A green 'IGN' legend is displayed adjacent to the upper center of the applicable analog ITT scale when the respective engine's ignition discrete is received by a DCU (from the on-side ignition system).

With the ignition switch in the NORM position, ignition will be automatically turned on anytime a throttle is placed to takeoff, Anti-Ice is turned on (ENG only or WING/ENG), or the landing gear is down with weight off wheels.

MISCOMPARE WARNINGS

Miscompare warnings are used to alert the pilots that redundant data from dual independent systems does not agree within specified limits. Comparator monitoring is performed full time for N_1 , N_2 and ITT.

The miscompare warning annunciations are displayed in yellow, flash for 5 seconds when a miscompare condition first exists, and then are steady. They are removed when the miscompare condition is removed. For the N_1 , N_2 and ITT Comparator Warns, the respective Legend associated with each parameter is removed and replaced with a yellow N_1 , N_2 , or ITT, as appropriate, and a direction arrow pointing to the side with the engine that is causing the Comparator Warn. If both engines have a miscomparing parameter, the direction arrows show on both sides.

THRUST REVERSERS

The thrust reversers are of the "target door" design which form the aft portion of the nacelle when in the stowed position. Their support structure attaches directly to the aft engine bypass duct mounting ring. Each reverser is actuated by two hydraulic cylinders to deploy and/or stow. The reversers are locked into the stowed position by the design which incorporates an overcenter feature in the actuation linkage. The hydraulic power required for operation is provided by the standard airplane system through the thrust reverser isolation and control valves. Activation of the system is by pilot operation of the thrust reverser throttle levers mounted on the primary throttle levers. The reversers can only be deployed when the primary throttle levers are in the idle thrust position and the airplane is on the ground. The thrust reverser lever(s) should not be placed in the idle reverse detent position in flight since a single failure of either squat switch could permit deployment of the thrust reverser(s). If the thrust reverser lever is inadvertently placed in the idle reverse detent position in flight, the airplane MASTER WARNING light will flash along with the illumination of the ARM and HYD PRESS annunciator lights. A MASTER WARNING light when thrust reversers are moved to deploy on the ground means that neither landing gear squat switch has activated. To ensure actuation of the squat switches and to eliminate any delay in the deployment of the thrust reversers, it is recommended that the speed brakes be extended immediately following touchdown.

Three reverser indicator lights for each reverser are mounted on the panel for monitoring reverse functions: ARM light, UNLOCK light, and DEPLOY light. The amber ARM light indicates hydraulic pressure to the control valve. The amber UNLOCK light indicates the thrust reversers are not in the fully stowed position. The white DEPLOY light indicates that the thrust reversers are in the full deploy position. The DEPLOY light shall illuminate in less than 2.5 seconds after the hydraulic UNLOCK light illuminates. An erroneous sequencing or a delay in the thrust reverser lights indicates a failure in the thrust reverser system. Either or both conditions require a maintenance check before further flight.

WARNING

DO NOT ATTEMPT TO FLY THE AIRPLANE IF THE THRUST REVERSER PREFLIGHT CHECK IS UNSUCCESSFUL UNLESS APPROPRIATE MAINTENANCE ACTION HAS BEEN TAKEN.

After deployment, thrust may be increased by moving the thrust reverser levers aft for maximum reverse thrust. The FADEC will limit reverse thrust to the allowable maximum. This will allow the pilot to keep his attention on the landing rollout instead of diverting his attention to the reverse power settings.

In the event of an inadvertent thrust reverser deployment in flight, the FADEC will reduce thrust to idle. After the thrust reverser has been stowed, normal engine control can be regained by retarding the throttle to idle, then advancing as required.

WARNING

DO NOT ADVANCE THE THROTTLE ON THE AFFECTED ENGINE UNTIL THRUST REVERSER HAS STOWED. REVERSE THRUST WILL INCREASE AFTER THE THROTTLE HAS BEEN BROUGHT TO IDLE AND THEN ADVANCED.

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THRUST REVERSERS (Continued)

An emergency stow switch is installed on the fire tray for each thrust reverser. They are used only for stowing the reversers when they will not stow through the primary thrust reverser controls. Each emergency stow switch receives its electrical power through the opposite thrust reverser circuit breaker. The emergency stow function can be checked on the ground by deploying the reversers normally and then actuating each emergency stow switch. When the emergency stow switch is actuated, the DEPLOY and UNLOCK light shall extinguish and the ARM and HYD PRESS light will remain illuminated. Return the thrust reverser lever to stowed position, then turn each emergency stow switch off. All lights shall be extinguished.

The nose wheel must be on the ground and forward pressure maintained on the control column prior to and during the deployment and actuation of the thrust reversers. Single engine reversing has been demonstrated during normal landings and is easily controllable. Also, for an increased aerodynamic drag during the landing roll, it is suggested that the thrust reversers remain in the idle deployed position below 60 KIAS. Care should be taken on runways with loose dirt, gravel or grit as idle reverse at low speed can cause foreign object damage.

TIME LIMITED DISPATCH (TLD) LIGHTS

Four lights, one for each FADEC channel are located in the tailcone battery compartment. When the battery switch is moved to BAT, the TLD lights will illuminate for approximately two minutes. After the two minute test is complete, illumination of a TLD is an indication of a minor discrepancy.

ELECTRICAL SYSTEM

DC power is supplied by a 300-ampere starter-generator unit on each engine and a 40 ampere-hour nickel-cadmium battery. Engine ground starts may be accomplished by use of either external power or the airplane battery for the first engine start. The second engine normally uses the generator from the operating engine to assist the battery in supplying electrical power for the start. External power or the airplane battery may be used for starting the second engine, if desired, by turning the generators to the off position. Generator assist start capability is disabled in flight; therefore, all starter assist airtasks are from the battery. One generator is capable of supplying all standard electrical requirements in flight in the event of a generator failure. A protected DC power path is included which provides bus extension to the opposite circuit breaker panel. This is identified on each circuit breaker panel as RH and LH CB PANEL. The bus extensions feed DC power from one side to the bus extension on the opposite circuit breaker panel in order to allow logical grouping of corresponding LH and RH system circuit breakers.

Power for the avionics system is controlled by a switch labeled AVIONICS POWER on the left instrument panel.

An emergency battery bus is provided to supply DC power to operate the following equipment:

COMM 1	Standby Engine Instrument	Interior Entry Lights
NAV 1	LH Pitot and Static Heaters	Standby Flight Display
RTU 1	Landing Gear Control & Indication	Standby Pitot and Static Heaters
ADC 1	Overhead Flood Lights	Flap Control
ADF 1	Pilot's and Copilot's Audio Panels	AHRS 2

If the battery switch is selected to EMER, only the equipment connected to the emergency bus receives DC power. The standby flight display operates on its own emergency battery pack when the battery switch is selected to EMER.

A battery overheat warning system is provided to warn the pilot in the event of abnormally high battery temperatures. During self-testing of the circuit by the rotary test switch, the red BATT O'TEMP and the MASTER WARNING light will flash. An internal battery temperature of +63°C (+145°F) will cause the red BATT O'TEMP annunciator light to illuminate steadily and trigger the MASTER WARNING light. Battery temperatures exceeding +71°C (+160°F) will cause the annunciator and the MASTER WARNING light to flash.

ROCKWELL COLLINS PRO LINE 21 FLIGHT CONTROL SYSTEM FLIGHT GUIDANCE

The Rockwell Collins Pro Line 21 Flight Control System (FCS) is an integrated three-axis autopilot with yaw damper, flight guidance, and automatic pitch trim. The FCS provides fail-safe autopilot and dual flight guidance functions. The system consists of two identical FGC-3000 Flight Guidance Computers (FGCs), three SVO-3000 Primary Servos, an APP-85 Autopilot Panel, two MSP-85 Mode Select Panels (MSP) and a CKP-3000 copilot course knob.

The Rockwell Collins "Pro Line 21 Avionics System Pilot's Guide For Cessna Citation Encore+" is provided with the airplane and must be on board the airplane immediately available to the crew.

The FGC receives Flight Director mode select data from the MSP and vertical speed/pitch wheel input, autopilot engage logic from the Autopilot Panel (APP), attitude and heading data from the onside Attitude Heading Computer, and cross-side data from the opposite FGS. The controls integrated in the APP include the ROLL knob, vertical speed/pitch wheel, autopilot engage lever, yaw damper engage lever, TURB and AP XFR controls. Control inputs from the APP are applied to both FGCs.

NOTE

When using the FMS-3000 as the navigation source and operating at or above FL290, the bank angle should be selected to full bank (deselect half-bank angle) when entering holding or making course changes greater than or equal to 70°.

MODE SELECTION

The MSP-85 Mode Select Panel (MSP) provides push buttons to select and deselect flight guidance modes. The lateral and vertical mode select controls as well as the flight director on/off control are located on this panel. Both MSP's are active and the last selection on either panel will select the active FCS modes.

NOTE

Both MSP-85 mode select panels are active at all times. Use caution and good crew coordination procedures to avoid unexpected changes to the selected flight director modes.

Several additional controls are external to the APP and MSP. These include an AP DISC Button, two GA Buttons, two pitch synchronization switches (AP Sync), and pitch trim controls.

FLIGHT DIRECTOR

The pilot's and copilot's flight director modes are synchronized so that either pilot may select the new mode from the associated MSP.

NOTE

- When the NAV mode is engaged for enroute navigation, and VOR is the source, it is recommended that the HDG mode be engaged prior to changing the active VOR frequency. After positive acquisition of the new VOR frequency, reselect the NAV mode and verify capture and tracking of the new course.
- Coupled VOR navigation should be switched to HDG mode if CDI wandering is encountered. This wandering is caused by VOR azimuth sensitivity.

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ROCKWELL COLLINS PRO LINE 21 FLIGHT CONTROL SYSTEM (Continued)

AUTOPILOT CONTROL PANEL

The APP-85 autopilot control panel, mounted on the center pedestal, provides the means of engaging the autopilot and yaw damper, as well as manually controlling the autopilot through the turn knob and pitch wheel.

The AP XFR button switches control of the autopilot from the pilot's flight director to the copilot's flight director. To operate, push the button once to switch control from the pilot's to copilot's side. Push the button again to switch control of the autopilot back from the copilot's flight director to the pilot's flight director. The arrow at the top of the PFD indicates which flight director is in control.

The pitch wheel allows control of the flight director vertical mode. Rotate the pitch wheel to change the existing vertical command reference to the flight guidance system. Rotating the wheel toward UP increases the existing reference value. Rotating the wheel toward DN decreases the existing reference value. While engaged in FLC, rotating the wheel UP decreases the target airspeed and rotating the wheel DN increases the target airspeed. The wheel is spring loaded and will return to the center detent if released.

The APP-85 autopilot system features a turbulence mode that is used to soften the airplane ride in turbulent weather conditions. When in turbulence mode, the aileron and elevator channel gains are reduced. The turbulence mode is automatically deselected in any approach mode.

The turn knob is used to input a bank command to the flight guidance system. The amount of airplane bank is proportional to the amount of knob rotation. The knob is not spring loaded and will remain in the position selected by the pilot. If flight director modes cannot be engaged, check that the turn knob is centered.

The YD engage lever is used to select the yaw damper mode for the flight guidance system. Push the lever up and hold for one second to engage the mode.

NOTE

Engaging the yaw damper does not engage the autopilot.

If the flight guidance system turns the yaw damper off via an automatic yaw damper disconnect, the lever will drop and the green YD on the primary flight display changes to flashing yellow. For manual yaw damper disconnect, push the YD engage lever down or push the yoke-mounted AP/YD DISC switch.

NOTE

Disengaging the yaw damper also disengages the autopilot, if not already disengaged.

The CHP-3000 Course Heading Panel, located in the center pedestal, is used to input desired course, altitude, and heading reference to the flight guidance system. The course knob sets the desired VOR/ILS course on the pilots PFD only. Altitude and heading references are set on both PFD's.

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ROCKWELL COLLINS PRO LINE 21 FLIGHT CONTROL SYSTEM (Continued)

The PUSH CANCEL switch deactivates the 200 foot altitude alert. The PUSH DIRECT switch automatically selects a course direct to the tuned left side VOR NAV station and returns the left side course deviation to zero. The PUSH SYNC switch is used to synchronize the heading reference to the current airplane heading. This switch simultaneously synchronizes the heading bug on the left PFD and right PFD.

A second CKP-3000 Course Knob Panel is located on the copilot instrument panel below the right Display Control Panel. The course knob panel is used by the copilot to input the desired VOR/ILS course reference to the right side flight guidance system.

Four means exist to disconnect the autopilot and/or yaw damper, they are:

1. AP Disconnect red button located on left and right control columns.
2. Activation of the manual electric trim switch located on both left and right control column disconnects AP only.
3. Activation of the Go-Around button located on the throttle quadrant disconnects AP only.
4. De-Activation of the AP engage lever on the AP control panel disconnects AP only.

NOTE

AP disconnect will activate an aural alert that will continue until acknowledged by the flight crew.

Four means exist that will acknowledge the AP and quiet the aural alert.

1. Activation of the AP disconnect button located on the left and right control column.
2. Activation of the manual electric trim switch on the left and right control column.
3. Activation of the Go-Around button located on the throttle quadrant.
4. Re-engaging the autopilot.

DISPLAY CONTROL PANEL/CONTROLS

The two DCP-3000 Display Control Panels are located on the instrument panel adjacent to the primary flight displays. The left display control panel controls the data being shown on the left PFD and MFD. The right display control panel controls the data being shown on the right PFD.

The BARO knob is used to set the barometric pressure reference value, which is displayed below the PFD altitude scale. The PUSH STD button in the center of the BARO knob selects the standard barometric pressure reference of 29.92 inches of Mercury or 1013 hecto Pascals.

The REFS button is pushed to display the V speed menu (appropriate to either takeoff or landing) on the PFD. The landing V speed menu also displays the approach minimums selection for either radio altitude or barometric altitude. Individual items on the V speed menu are set by first boxing the item by pressing the adjacent line select key, then using the MENU SET KNOB to change the value. Alternatively, repeatedly pressing the PUSH MENU ADV button (in the center of the MENU SET KNOB) will cycle the box outline through the individual menu items; then again use the MENU SET KNOB to set the desired values.

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ROCKWELL COLLINS PRO LINE 21 FLIGHT CONTROL SYSTEM (Continued)

DISPLAY CONTROL PANEL/CONTROLS (Continued)

When not being used within a V speed menu, the MENU SET knob is used to select the navigation source in the PRESET box for the CDI. The PUSH MENU ADV button, when pressed, swaps the PRESET source to the CDI and the current navigation source to the PRESET box. This function is also accomplished by pressing the line select key adjacent to the PRESET box. The NAV/BRG button is pushed to display the BRG SOURCE and NAV SOURCE menus on the PFD. Line select keys adjacent to the menu items toggle between selections for the bearing pointers and CDI navigation source.

The RADAR button is pushed to display the weather radar menu on the PFD. Line select keys are used to select STBY, WX and MAP modes and turn STAB on and off. The MENU SET knob is used to adjust GAIN. The GCS button is pushed to activate/deactivate the ground clutter suppression circuitry in the weather radar system.

The TILT and RANGE knobs control radar antenna tilt angle and the desired display range for radar coverage, respectively.

Additional items displayed on the PFD, with adjacent line select keys, include FORMAT, RDR, and TFC. FORMAT toggles the HSI between a full compass rose, an arc, and a map display. RDR selects/deselects the radar display to the HSI (radar is selectable only in the arc and map modes of the HSI display). TFC selects/deselects the TCAS traffic display to the HSI. The traffic display range is controlled by the RANGE knob and is limited to 25 nm when in the full compass mode of the HSI and 150 nm in the arc and map modes. Note that changing the TCAS traffic display range on the pilot's PFD also changes the MFD map range.

STANDBY FLIGHT DISPLAY

The Goodrich GH-3000 Electronic standby flight display (SFD) is located in the center instrument panel between the pilot PFD and MFD.

Power to the system is controlled by a switch marked STBY FLT DISPLAY ON/OFF/TEST located on the upper right of the switch panel. A separate 10 ampere-hour BF Goodrich Avionics Systems Model PS-855A sealed lead acid battery pack is located in the tail of the aircraft. When fully charged, the PS-855A allows for at least 3 hours and 58 minutes of operation in the event of total loss of airplane electrical power. The battery pack is constantly charged by the airplane's electrical system, and should therefore be fully charged in the event of an electrical power failure. The STBY FLT DISPLAY switch must be ON for automatic transfer to battery power to occur. An amber ON light next to the STBY FLT DISPLAY switch illuminates when the SFD is turned ON and the airplane's electrical system is not charging the emergency power supply battery. When the SFD switch is held to the spring loaded TEST position, a self-test of the battery and circuits is accomplished. The application of 28V DC power to the display system initiates the attitude initialization process, which is identified by the display of the message "attitude initializing" on the SFD. The duration of the initialization process is usually less than 180 seconds.

A light sensor is located on the bottom left side of the instrument case. It provides ambient light level data to the backlight control system to optimize display brightness.

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STANDBY FLIGHT DISPLAY (Continued)

The lighting level can still be manually controlled from the SET BRIGHTNESS OFFSET function by pressing the [M] menu access button and the adjustment knob for the submenu.

Rotate the knob to adjust, then press the knob to finish setting the brightness offset. The brightness of the [M] menu access button is controlled from the center instrument panel light rheostat control.

SELF-TEST

The unit has a built-in test feature, which automatically detects any failure of the display at power up and during continuous operation. If a failure is detected, a message, red 'X' or blank screen will appear. Where it is not possible for the diagnostics feature to automatically correct a failure, the system will prompt the crew to intervene by resetting power.

NOTE

All power resets should only be accomplished while in straight and level, unaccelerated flight.

MENU FUNCTIONS

Pressing the MENU [M] button will bring the submenus into view. Select a submenu function by turning the adjustment knob to highlight the desired function. Enable that highlighted function by pressing the adjustment knob in.

NOTE

- LOC and GS course deviation bars present raw data only. They are not flight director command bars.
- VOR, FMS, and TACAN information is not available on the XLS GH-3000 installation.

Other menu functions configured on the Encore+ are:

FAST ERECT
SET BRIGHTNESS OFFSET
BARO TYPE

RADIO ALTIMETER

COLLINS ALT-1000

The Collins ALT-1000 radio altimeter displays radio altitude at all times up to an absolute altitude of 2500 feet. The system becomes operational when the airplane electrical system is powered up and it remains operational throughout the flight. Radio altitude is displayed in the bottom center of the attitude sphere in the ADI displays.

WEATHER RADAR

WXR-800 WEATHER RADAR SYSTEM

The Collins Pro Line 21 Weather Radar System, or the RTA-800, is a fully integrated radar system that utilizes the airplane's Electronic Flight Instrument Systems (EFIS) equipment to provide the crew with a display of radar indications of precipitation. The standard configuration consists of a receiver, transmitter and antenna. The RTA-800 operates on X-band frequency and is capable of detecting wet precipitation along the flight path and in front of the airplane within an arc of the heading angle plus or minus 60 degrees, at a selectable display range of up to 300 nautical miles.

An optional installation configuration, the RTA-852, is physically and functionally identical to the RTA-800 except for featuring auto-tilt operation and the additional capability of detecting moisture-based turbulence. Both the RTA-800 and RTA-852 accept radar control data from the left PFD/MFD and the right PFD. The weather radar system may be operated in a split mode, where the radar functions like two independent radars, each updating on alternate sweeps of the antenna.

WARNING

- **THE SYSTEM PERFORMS ONLY THE FUNCTIONS OF WEATHER DETECTION AND GROUND MAPPING. IT SHOULD NOT BE USED OR RELIED UPON FOR PROXIMITY WARNING, ANTI-COLLISION OR TERRAIN AVOIDANCE.**
- **THE AREA WITHIN THE SCAN ARC (± 60 DEG) AND WITHIN 0.65 METERS (2 FEET) OF AN OPERATING RTA-800/852 WEATHER RADAR CAN BE A HAZARDOUS AREA. DO NOT OPERATE THE SYSTEM IN ANY MODE OTHER THAN STANDBY (STBY) OR TEST (TEST) WHEN PERSONNEL OR COMBUSTIBLE MATERIALS ARE WITHIN THAT RANGE.**

COCKPIT SPEAKER AUDIO INHIBIT SWITCH

At initial power up, the Cockpit Speaker Audio Inhibit system defaults to the normal operating mode, indicated by "AUDIO SPK/HPH" illuminated in the switch. This allows normal audio operation through the overhead speakers and the flight crew headsets.

Overhead speaker audio is inhibited by depressing the Cockpit Speaker Audio Inhibit switch and verifying that "AUDIO HPH ONLY" is illuminated in the switch. When the Cockpit Speaker Audio Inhibit switch is activated (i.e. overhead speakers are muted), any one of the following actions will revert the system back to the normal operating mode resulting in "AUDIO SPK/HPH" being illuminated in the switch:

1. Deselecting Cockpit Speaker Audio Inhibit switch.
2. Interruption of DC power.
3. Either the pilot or the copilot selects "MIC OXY MASK" position on the microphone select switch.

NOTE

It is the flight crew's responsibility to verify and maintain vigilance as to which mode is in operation and comply with and understand the limitations associated with operation of the Cockpit Speaker Audio Inhibit System.

Enabling the Cockpit Speaker Audio Inhibit Switch prevents audio broadcast over the cockpit speakers from all avionics radios as well as audio from the Traffic Alert and Collision Avoidance System (TCAS), Ground Proximity Warning System (GPWS), and aural warnings (i.e. Gear warning, Overspeed, Altitude alert and Decision Height alert). The Cockpit Speaker Audio Inhibit Switch allows the crew to deselect the overhead speakers, preventing passengers from becoming alarmed in the event a TCAS, GPWS or other alert activates.

PRECISE FLIGHT - AUTOMATIC PULSELITE SYSTEM

The Precise Flight, Inc. Automatic Pulselite System provides pulsing of the taxi/recognition lights. The system is automatically activated when both LANDING LIGHTS switches are selected REC/TAXI and the airplane is airborne. The Pulselite system is overridden (steady illumination of taxi/recognition lights) when the left main squat switch indicates that the airplane is on the ground. Selecting one, or both, LANDING LIGHTS ON will deactivate the Pulselite system.

PULSE LIGHT GROUND OVERRIDE SWITCH

The Ground Override switch allows the user to select GND ON. With GND ON selected, the Pulselite system will operate on the ground, bypassing the left main gear squat switch disable circuit. To disable ground pulsing place either LANDING LIGHTS switch to OFF or ON.

The Pulselite system always powers up with ground mode deselected. NORM ON will illuminate with weight off wheels.

PULSE LIGHT TA/RA SWITCH

The Pulse Light TA/RA switch allows the user to select between AUTO and OFF.

With AUTO selected, one or both LANDING LIGHTS switches to OFF, the Pulselite System will activate any time the TCAS triggers a Traffic Advisory or Resolution Advisory. When the TA/RA condition is resolved, the Pulselite System will deactivate.

With OFF selected, the Pulselite System will not activate with a Traffic Advisory or Resolution Advisory.

FUEL SYSTEM

The fuel system consists of a single fuel tank feeding the right engine and a single tank feeding the left engine. No fuel management is required in normal operation of the airplane. If necessary to balance the fuel load due to asymmetric fueling, both engines may be operated from one tank or, for single-engine operation, the operating engine may be fed from either tank. When selecting crossfeed, allow sufficient time for the INTRANSIT light to illuminate, prior to reselecting OFF or the opposite tank. If the airplane is parked on a slope, care should be taken to assure fuel is not being lost through the fuel vents.

Ejector pumps in each wing tank supply fuel to the engine driven fuel pumps. Should fuel supply pressure to the engine driven pump fall below approximately 5 psi, a pressure switch will illuminate the amber LO FUEL PRESS L or R annunciator. If the fuel boost switch is in NORM, the fuel boost pump will automatically activate and the amber FUEL BOOST L or R annunciator will illuminate. If the low pressure condition has been corrected, the fuel boost pump can be reset by selecting the switch to OFF then NORM. The airplane may be refueled over-the-wing through the wing fuel filler ports or single point through the single point refueling receptacle located below the right engine nacelle.

NOTE

- Refueling instructions on the access door placard must be followed to ensure proper operation. In particular, the precheck procedure is required.
- When single point refueling to less than full, small differences in fuel flow within the single point distribution system may result in more fuel entering one wing than the other. The fuel quantity shall be balanced within 200 lbs. using the crossfeed system prior to takeoff.

LOW FUEL WARNING SYSTEM

The low fuel level warning system provides a visual warning to the pilot when 180 ± 20 pounds (84 ± 9 kilograms) or less of usable fuel remains in either fuel tank. The system consists of an electromagnetic float switch in each fuel tank and left and right LO FUEL LEVEL lights. These lights are tested by the annunciator panel test switch, and dimmed by the same control as the annunciator panel.

SECONDARY CABIN DOOR SEAL

The secondary cabin door seal provides backup sealing if the primary door seal should fail. There are no tests to check secondary door seal, so a thorough inspection is required. The secondary door seal should be inspected during preflight for rips and tears; it should not be folded under primary seal.

PRESSURIZATION/ENVIRONMENTAL SYSTEM

Normal system pressure is supplied by compressor bleed air from each engine at the rate of 6 pounds/minute passing through a series of control valves and precoolers and into the air cycle machine air conditioning and pressurization systems.

The control valves are combination flow control, shutoff and check valves. Valve position is controlled by a pressurization source selector switch providing OFF, LH, NORM, RH and EMER positions. Normal inflight operation would be in the NORM mode. An electrical system malfunction will usually not affect normal pressurization. The control valves require electrical power to move from the normal mode position. If a different mode has been selected at the time electrical power to the valves is interrupted, the valves will return to the normal mode position. An overheat failure of the air cycle machine will result in automatic transfer from NORM mode to EMER mode. EMER mode should be used any time normal pressurization bleed air is not available. Its operation is indicated by the amber EMER PRESS annunciator. An increase in cabin noise level and temperature will also result since emergency bleed air comes directly from the left engine into the cabin.

The pressurization system should be operated in NORM during routine operation because in that position air is bled from both engines equally, which results in a total airflow of approximately 12 pounds/minute at sea level. LH and RH positions are provided in case bleed air must be shut off from one engine. An air cycle machine overtemperature is indicated by illumination of the ACM O'TEMP light on the annunciator panel. If an overtemperature condition is annunciated, the flow control valves will close, shutting off the ACM, and emergency pressurization will automatically activate. When the ACM cools, normal operation will be automatically restored.

The emergency pressurization system will also be automatically activated any time cabin altitude exceeds approximately 14,500 \pm 500 feet, unless the PRESS SOURCE select knob is in OFF. The system will automatically deactivate after the cabin descends through this altitude.

Normal bleed air supply to the cabin passes through the air cycle machine, which provides cooling or heating of the cabin as desired by the pilot. The temperature range of this control is +18°C (+65°F) to +29°C (+85°F). In the event that automatic control is lost, a manual control is provided. The manual control drives the bleed air mixing valve from one temperature extreme to the other, when actuated, in approximately 10 seconds. If the cockpit is heat soaked due to solar radiation, select the AIR FLOW DISTR to COCKPIT, open the cockpit wemacs fully, and close cabin wemacs. This will ensure that hot, stagnant cockpit air is circulated through the aft cabin temperature sensor.

The air cycle machine will automatically shut down and trip the emergency pressurization on if the air cycle machine reaches its overtemperature limit. To preclude this happening, a temperature controller bias circuit will bias the air cycle machine to a warmer output temperature if the air cycle machine nears its overtemperature limit. This bias circuit operates only in the automatic temperature cooling mode. Therefore, high altitude operations where air cycle machine cooling efficiency is low should be limited to AUTO mode operation. Additional heating of the cockpit area may be obtained by turning on the COCKPIT fan and opening the pilot's and copilot's shoulder and foot warmer vents.

(Continued Next Page)

PRESSURIZATION/ENVIRONMENTAL SYSTEM (Continued)

The air cycle machine should be operated in the automatic mode above 31,000 feet. High altitude operation in MANUAL (cold mode) could result in air cycle machine overtemperature and shutdown.

NOTE

Should the automatic temperature controller become inoperative and it is necessary to operate in manual mode above FL310, refer to Abnormal Procedures, "AUTOMATIC CABIN TEMPERATURE CONTROLLER INOPERATIVE."

Cabin pressure is maintained at any value selected by the pilot during flight up to a maximum value of 8.9 PSID. Rate of change of cabin altitude may also be controlled by the pilot.

A guarded emergency dump switch provides a rapid dump capability for the pilot. The ON position causes the pressurization outflow valves to open, releasing cabin pressure and allowing cabin altitude to equalize with airplane altitude up to approximately 13,000 ±1500 feet. PRESS SOURCE selector must be OFF to obtain complete depressurization at altitudes above 13,000 feet.

The high altitude airport mode is automatically selected when a field elevation above 8000 feet is set into the cabin pressurization controller. In this mode, the cabin will climb at an increased rate, if needed, to the selected elevation after the airplane descends through FL250. Since the maximum cabin altitude attainable with the pressurization system on is limited to 13,000 ±1500 feet, it will be necessary to position the PRESS SOURCE selector to OFF below an aircraft altitude of 15,000 feet to ensure the cabin is depressurized prior to landing at a high altitude airport. Prior to departure, set the departure field elevation. After climbing through FL250, the cabin will descend to intersect the auto schedule. After takeoff, the controller may be set to the destination field elevation.

WARNING

WHEN HOLDING OR OTHERWISE OPERATING AT ALTITUDES BELOW 25,000 FEET FOR PERIODS GREATER THAN 30 MINUTES WITH THE CABIN ALTITUDE WARNING SHIFTED FROM 10,000 FEET TO 14,500 FEET (SLA BETWEEN 8000 AND 14,500 FEET), REFER TO APPROPRIATE OPERATING REQUIREMENTS FOR USE OF SUPPLEMENTAL OXYGEN.

NOTE

If cabin altitude exceeds 14,500 ±500 feet, the CAB ALT warning light will illuminate and passenger oxygen masks will deploy.

To obtain adequate cabin ventilation either on the ground or in flight with the pressurization source selector OFF, the OVHD fan must be selected to HI.

VAPOR CYCLE AIR CONDITIONING

A vapor cycle air conditioner discharges conditioned air from floor mounted evaporator/blowers in the forward dropped isle and overhead wemacs, to provide rapid cabin cooling. The air conditioner is controlled by a switch panel on the copilot's instrument panel, and can be used on the ground or in flight up to 18,000 feet. The system may not be operated in the AC mode above 18,000 feet. A ground power unit, or at least one generator, must be on line to run the compressor. In flight, the AC is automatically shut off if a generator fails.

WINDSHIELD DEFOG

Windshield defog is accomplished by diverting conditioned cockpit air to the windshield and crew side windows. The overhead and defog fans must be turned to HI and the pilot's footwarmers CLOSED to obtain defogging. The defog fan should be turned on 15 minutes or more prior to descent from altitude to provide adequate clearing for descent into high humidity conditions. If the descent is begun prior to turning on the defog, the windshield anti-ice should be turned on to assure defogging. If the outside of the windshield fogs over after landing, the windshield bleed air should be turned to LOW to clear the windshield.

ANTISKID SYSTEM

The antiskid system provides power assisted braking with skid protection. It is designed to provide maximum braking efficiency on all runway surfaces. The system consists of two wheel speed transducers, a brake metering valve, an antiskid valve assembly, digital control box, reservoir, accumulator and an electrically-driven hydraulic pump.

CAUTION

DO NOT PULL THE POWER BRAKES CIRCUIT BREAKER TO PREVENT THE POWER BRAKE PUMP FROM CYCLING. WITH THE CIRCUIT BREAKER DISENGAGED, THE POWER BRAKE SYSTEM IS INOPERATIVE AND THE RUDDER PEDAL TOE BRAKES ARE DISABLED. BRAKING IS THEN AVAILABLE ONLY BY USE OF THE PNEUMATIC BRAKE SYSTEM.

System operation is conventional with power braking available at all speeds while antiskid protection is available at speeds above approximately 12 knots. The antiskid protection feature is designed to operate with maximum pilot applied brake pressure. Do not modulate brake pressure when maximum braking is desired.

To ensure proper braking on water, snow and ice-covered, hard-surface runways and all unimproved surfaces, it is necessary for the pilot to apply maximum effort to the brake pedals throughout the braking run. When the system anticipates a skid and releases the applied brake pressure, any attempt by the pilot to modulate braking can result in an interruption of the applied brake signal and may increase stopping distance significantly.

Certain faults in the system are displayed on a "BITE" indicator (fault display unit), which is located in the left nose compartment. A white flag may appear in any of the five circular indicators located in a row on the fault display unit.

ELECTRIC ELEVATOR TRIM

The pilot's and copilot's control wheels contain electric elevator trim switches. The pilot's electric elevator trim switch has priority and will operate the trim interrupting and overriding actuation of the copilot's switch. Both control wheels also contain trim disconnect switches for the trim runaway condition.

PERFORMANCE
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GENERAL
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PERFORMANCE - GENERAL

REGULATORY COMPLIANCE

Information in this section is presented for the purpose of compliance with the appropriate performance criteria and certification requirements of 14 CFR 25.

STANDARD PERFORMANCE CONDITIONS

All performance in this manual is based on flight test data and the following conditions:

1. Thrust ratings include the installation, bleed air and accessory losses.
2. Full temperature accountability within the operational limits for which the airplane is certified.

NOTE

Should ambient air temperature or altitude be below the lowest temperature or altitude shown on the performance charts, use the performance at the lowest value shown.

3. Wing flap positions as follows:

	Flap Handle Position	Flap Deflection
a. Takeoff	TO	7°
b. Takeoff	TO/APPR	15°
c. Enroute	UP	0°
d. Approach	TO/APPR	15°
e. Landing	LAND	35°

4. All takeoff and landing performance is based on a paved, dry runway.
5. The takeoff performance was obtained using the following procedures and conditions:

SINGLE ENGINE TAKEOFF - ACCELERATE-GO

- a. The power was set to takeoff detent, N_1 's were stabilized and then the brakes were released.
- b. The pilot recognized engine failure at V_1 .
- c. The airplane continued to accelerate to V_R at which time positive rotation (3° to 5° per second) to $+10^\circ$ nose up pitch attitude was made. Pitch attitude was adjusted as required to achieve V_2 upon reaching 35 feet AGL.

NOTE

After rotation, as much as 15° to 17° pitch attitude (at light weights) may be required to achieve V_2 .

- d. The landing gear was retracted when a positive climb rate was established at or above 35 feet AGL.
- e. V_2 was maintained from the 35-foot point above the runway to 1500 feet AGL.

SINGLE ENGINE TAKEOFF - ACCELERATE-STOP

- a. The power was set to takeoff detent, N_1 's were stabilized and then the brakes were released.
- b. The pilot recognized the necessity to stop because of engine failure or other reasons just prior to V_1 .
- c. Maximum pilot braking effort was started at V_1 and continued until the airplane came to a stop.
- d. Both throttles were brought to idle immediately after brake application.
- e. Directional control was maintained through the rudder pedals as required.
- f. Antiskid was ON during all tests.
- g. Speedbrakes were not used.
- h. Thrust reversers were not used.

MULTI-ENGINE TAKEOFF

- a. The power was set to takeoff detent, N_1 's were stabilized and then the brakes were released.
- b. Positive rotation (3° to 5° per second) to 10° to 15° was made at V_R to achieve $V_2 + 15$ KIAS by 35 feet AGL.
- c. The landing gear was retracted when a positive climb rate was established above 35 feet. After reaching 35 feet, flaps were retracted.

6. The landing performance was obtained using the following procedures and conditions:

LANDING

- a. Landing preceded by a steady three degree angle approach down to the 50-foot height point with airspeed at V_{REF} in the landing configuration.
- b. Two engine thrust setting during approach was selected to maintain the three degree approach angle at V_{REF} .
- c. Idle thrust was selected at the 50-foot height point and throttles remained in that setting until the airplane had stopped.
- d. Rotation to a landing attitude was accomplished just prior to touchdown.
- e. Maximum wheel braking was initiated immediately on nose wheel contact and continued throughout the landing roll.
- f. The antiskid system was ON during all tests.
- g. Speedbrakes were not used.
- h. Thrust reversers were not used.

Conditions

Wing Flaps	Land
Engines	Two engines operating
Landing gear	Extended
Antiskid system	Operative

VARIABLE FACTORS AFFECTING PERFORMANCE

Details of variables affecting performance are given with tables to which they apply. Assumptions which relate to all performance calculations, unless otherwise stated, are:

- Cabin pressurization.
- Anti-ice off.
- Humidity corrections on thrust have been applied according to the applicable regulations.
- Winds, for which correction information is presented on the charts, are to be taken as the tower winds 32.8 feet (10 meters) above runway surface. Factors have been applied as prescribed in the applicable regulations. In the tables, negative represents tailwind and positive represents headwind.
- Gradient correction factors can be applied to gradients less than or equal to 2 percent downhill or 2 percent uphill. In the tables, negative represents downhill gradients and positive represents uphill gradients.

DEFINITIONS

Accelerate-Stop Distance:	The distance required to accelerate to V_1 , and abort the takeoff and come to a complete stop with maximum braking applied at V_1 .
Airport Barometric Altitude:	Indicated altitude with altimeter set to airport altimeter setting while at airport elevation.
Altitude:	All altitudes used in this manual are pressure altitudes unless otherwise stated.
Anti-Ice Systems:	<p>The following systems comprise the anti-ice systems which affect performance in this section:</p> <ul style="list-style-type: none">a. Windshield Bleed Air Anti-Ice.b. Engine Anti-Ice.c. Wing Anti-Ice. <p>Performance, when referred to ANTI-ICE ON, is based on all the above systems being operated at the same time.</p> <p>Additionally, the pitot-static and angle-of-attack anti-ice systems are anti-ice systems which do not affect performance.</p>
Calibrated Airspeed (KCAS):	Indicated airspeed (knots) corrected for position error and assumes zero instrument error.

(Continued Next Page)

DEFINITIONS (Continued)

CAT II:	Category II operation. A straight-in ILS approach to the runway of an airport under a Category II ILS instrument approach procedure.
Climb Gradient:	The ratio of the change in height during a portion of a climb, to the horizontal distance traversed in the same time interval.
Deice Systems:	The horizontal stabilizer is the only deice system.
Demonstrated Crosswind:	The demonstrated crosswind velocity of 30 knots (measured at 30 feet above the runway surface) is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated during certification tests. This is not limiting.
Engine Out Accelerate-Go Distance:	The horizontal distance from brake release to the point at which the airplane attains a height of 35 feet above the runway surface, on a takeoff during which an engine is recognized to have failed at V_1 and the takeoff is continued.
Gross Climb Gradient:	The climb gradient that the airplane can actually achieve with ideal ambient conditions (smooth air).
Gross Takeoff Flight Path:	The takeoff flight path that the airplane can actually achieve under ideal conditions.
Indicated Airspeed (KIAS):	Airspeed indicator readings (knots). Zero instrument error is assumed.
ISA:	International Standard Atmosphere.
Landing Distance:	The distance from a point 50 feet above the runway surface to the point at which the airplane would come to a full stop on the runway.
Level Off Altitude:	The barometric altitude at which second segment climb ends.
Mach Number:	The ratio of true airspeed to the speed of sound.
Net Climb Gradient:	The gross climb gradient reduced by 0.8% during the takeoff phase and 1.1% during enroute.
Net Takeoff Flight Path:	Takeoff flight path used to determine obstacle clearance. Uses net climb gradients to climb to a height of 1500 feet above the runway surface.

(Continued Next Page)

DEFINITIONS (Continued)

Position Correction:	A correction applied to indicated airspeed or altitude to eliminate the effect of the location of the static pressure source on the instrument reading. No position corrections are required when using performance section charts in Section IV since all airspeeds and altitudes in this section are presented as "indicated" values except for stall speeds which are presented as "calibrated" values.
RAT:	Ram Air Temperature. RAT is displayed on each PFD. RAT is ambient air temperature increased by ram rise due to Mach Number. On the ground with engines operating, RAT is ambient temperature.
Reference Zero:	The point in the takeoff flight path at which the airplane is 35 feet above the takeoff surface and at the end of the takeoff distance required.
SAT:	Static (ambient) Air Temperature. SAT is displayed on each PFD. SAT is the temperature of the air, undisturbed by the presence or motion of the airplane. On the ground with engines operating, SAT is ambient temperature.
Takeoff Climb Increment (TCI):	Altitude increment to be added to the airport barometric altitude to obtain level off altitude. This increment includes corrections for non-standard temperature.
Takeoff Field Length:	<p>The Takeoff Field Length given for each combination of gross weight, ambient temperature, altitude, wind and runway gradients is the greatest of the following:</p> <ol style="list-style-type: none"> 115 percent of the two-engine horizontal takeoff distance from start to a height of 35 feet above runway surface. Accelerate-stop distance. The engine-out accelerate-go distance. <p>No specific identification is made on the charts as to which of these distances governs a specific case.</p>
TEMP:	Ambient Temperature used to determine airplane performance from performance charts. For takeoff performance, use RAT displayed on each PFD with engines operating. For landing performance, use reported temperature from an appropriate ground station.
True Airspeed (KTAS):	The airspeed (knots) of an airplane relative to undisturbed air.
V_1 :	Takeoff Decision Speed. The distance to continue the takeoff to 35 feet will not exceed the scheduled takeoff field length if recognition occurred at V_1 (accelerate-go). The distance to bring the airplane to a full stop (accelerate-stop) will not exceed the scheduled takeoff field length provided that the brakes are applied at V_1 .

(Continued Next Page)

DEFINITIONS (Continued)

V_2 :	Takeoff Safety Speed. This climb speed is the actual speed at 35 feet above the runway surface as demonstrated in flight during takeoff with one engine inoperative.
V_{35} :	This climb speed is the actual speed at 35 feet above the runway surface as demonstrated in flight during takeoff with both engines operating.
V_A :	The maneuvering speed is the maximum speed at which application of full available aerodynamic control will not overstress the airplane.
V_{APP} :	The landing approach climb airspeed ($1.3 V_{S1}$) with flaps 15° , landing gear UP.
V_{ENR} :	Single-engine enroute climb speed. Use the speed bug V_T for display of V_{ENR} on the PFD.
V_{FE} :	Maximum flap extended speed. The highest speed permissible with wing flaps in a prescribed extended position.
V_{LE} :	Maximum landing gear extended speed. The maximum speed at which an airplane can be safely flown with the landing gear extended.
V_{LO} (Extension):	Maximum landing gear extension speed. The maximum speed at which the landing gear can be safely extended.
V_{LO} (Retraction):	Maximum landing gear retracting speed. The maximum speed at which the landing gear can be safely retracted.
V_{MCA} :	Minimum airspeed in the air at which directional control can be maintained, when one engine is suddenly made inoperative. V_{MCA} is a function of engine thrust which varies with altitude and temperature. The V_{MCA} presented was determined for maximum takeoff thrust. $V_{MCA} = 86$ KIAS.
V_{MCG} :	Minimum airspeed on the ground at which directional control can be maintained, when one engine is suddenly made inoperative, using only aerodynamic controls. V_{MCG} is a function of engine thrust which varies with altitude and temperature. The V_{MCG} presented was determined for maximum takeoff thrust. Flaps 7° , $V_{MCG} = 96$ KIAS. Flaps 15° , $V_{MCG} = 92$ KIAS.
V_{MCL} :	Minimum airspeed in the air, in the landing configuration, at which directional control can be maintained, when one engine is suddenly made inoperative. V_{MCL} is a function of engine thrust which varies with altitude and temperature. The V_{MCL} is 88 KIAS at maximum takeoff thrust.
V_{MO}/M_{MO} :	Maximum operating limit speed.

(Continued Next Page)

DEFINITIONS (Continued)

V_R :	The rotation speed is the speed at which rotation is initiated during takeoff to attain the V_2 climb speed at or before a height of 35 feet above runway surface has been reached.
V_{REF} :	The airspeed equal to the landing 50-foot point speed ($1.3 V_{SO}$) with flaps LAND and landing gear extended.
V_{SB} :	Maximum operating speed with speed brakes in the extended position.
V_{SO} :	The stalling speed or the minimum steady flight speed in the landing configuration.
V_{S1} :	The stalling speed or the minimum steady flight speed obtained in a specified configuration.
Visible Moisture:	Visible moisture includes, but is not limited to, the following conditions: fog with visibility less than one mile, wet snow, sleet, ice crystals, clouds, rain, etc.
Wind:	The wind velocities recorded as variables on the charts of this section are to be understood as the headwind or tailwind components of the actual winds at 32.8 feet (10 meters) above the runway surface (tower winds).

CONFIGURATIONS

	NUMBER OF OPERATING ENGINES	THRUST	FLAP SETTING (DEGREE)	GEAR
1st SEGMENT TAKEOFF CLIMB	1	TAKEOFF	7° or 15°	DOWN
2nd SEGMENT TAKEOFF CLIMB	1	TAKEOFF	7° or 15°	UP
3rd SEGMENT HORIZONTAL ACCELERATION	1	TAKEOFF (10 MINUTES MAXIMUM) THEN MAXIMUM CONTINUOUS	7° or 15° TRANSITIONING TO UP	UP
ENROUTE CLIMB	1	MAXIMUM CONTINUOUS	UP	UP
APPROACH CLIMB	1	TAKEOFF	15°	UP
LANDING CLIMB	2	TAKEOFF	35° (LAND)	DOWN

Figure 4-1

NOISE CHARACTERISTICS

CERTIFICATED NOISE LEVELS

The following noise levels were established using test data obtained and analyzed under procedures of 14 CFR 36, Amendment 21 and ICAO Annex 16, Volume 1, 3rd Edition, July 1993. This aircraft complies with both the requirements of 14 CFR 36, Stage 3, and Chapter 3 of ICAO Annex 16, Volume 1.

NOISE REFERENCE	EPNdB
FLYOVER	71.5
LATERAL	89.6
APPROACH	90.7

Flyover and lateral noise levels were obtained at a takeoff weight of 16,830 pounds with flaps 7° and climb speed of 134 KIAS. For flyover, thrust was cut back from takeoff N_1 to 69.8% N_1 at 3395 feet AGL. Approach data was obtained at 15,200 pounds, landing gear down, flaps 35° and 117 KIAS.

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are, or should be, acceptable or unacceptable for operation at, into, or out of, any airport.

SUPPLEMENTAL NOISE LEVEL INFORMATION

The following A-weighted noise levels were established for 14 CFR 36 reference conditions used in CERTIFICATED NOISE LEVELS.

NOISE REFERENCE	dBA
FLYOVER	59.5
LATERAL	78.9
APPROACH	83.2

Flyover and lateral noise levels were obtained at a takeoff weight of 16,830 pounds with flaps 7° and climb speed of 134 KIAS. For flyover, thrust was cut back from takeoff N_1 to 69.8% N_1 at 3395 feet AGL. Approach data was obtained at 15,200 pounds, landing gear down, flaps 35° and 117 KIAS.

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TEMPERATURE CONVERSION

CELSIUS TO FAHRENHEIT

DEG. C	DEG. F	DEG. C	DEG. F	DEG. C	DEG. F	DEG. C	DEG. F	DEG. C	DEG. F	DEG. C	DEG. F
-100	-148	-74	-101	-48	-54	-22	-8	4	39	30	86
-99	-146	-73	-99	-47	-53	-21	-6	5	41	31	88
-98	-144	-72	-98	-46	-51	-20	-4	6	43	32	90
-97	-143	-71	-96	-45	-49	-19	-2	7	45	33	91
-96	-141	-70	-94	-44	-47	-18	0	8	46	34	93
-95	-139	-69	-92	-43	-45	-17	1	9	48	35	95
-94	-137	-68	-90	-42	-44	-16	3	10	50	36	97
-93	-135	-67	-89	-41	-42	-15	5	11	52	37	99
-92	-134	-66	-87	-40	-40	-14	7	12	54	38	100
-91	-132	-65	-85	-39	-38	-13	9	13	55	39	102
-90	-130	-64	-83	-38	-36	-12	10	14	57	40	104
-89	-128	-63	-81	-37	-35	-11	12	15	59	41	106
-88	-126	-62	-80	-36	-33	-10	14	16	61	42	108
-87	-125	-61	-78	-35	-31	-9	16	17	63	43	109
-86	-123	-60	-76	-34	-29	-8	18	18	64	44	111
-85	-121	-59	-74	-33	-27	-7	19	19	66	45	113
-84	-119	-58	-72	-32	-26	-6	21	20	68	46	115
-83	-117	-57	-71	-31	-24	-5	23	21	70	47	117
-82	-116	-56	-69	-30	-22	-4	25	22	72	48	118
-81	-114	-55	-67	-29	-20	-3	27	23	73	49	120
-80	-112	-54	-65	-28	-18	-2	28	24	75	50	122
-79	-110	-53	-63	-27	-17	-1	30	25	77	51	124
-78	-108	-52	-62	-26	-15	0	32	26	79	52	126
-77	-107	-51	-60	-25	-13	1	34	27	81	53	127
-76	-105	-50	-58	-24	-11	2	36	28	82	54	129
-75	-103	-49	-56	-23	-9	3	37	29	84	55	131

PRESSURE CONVERSION

INCHES OF MERCURY TO MILLIBARS

INCHES OF MERCURY MILLIBARS	28.0 948	28.1 951	28.2 955	28.3 958	28.4 962	28.5 965	28.6 968	28.7 972	28.8 975	28.9 979	29.0 982
INCHES OF MERCURY MILLIBARS	29.1 985	29.2 989	29.3 992	29.4 995	29.5 999	29.6 1002	29.7 1006	29.8 1009	29.9 1012	30.0 1016	
INCHES OF MERCURY MILLIBARS	30.1 1019	30.2 1023	30.3 1026	30.4 1029	30.5 1033	30.6 1036	30.7 1040	30.8 1043	30.9 1046	31.0 1050	

Figure 4-2 (Sheet 1 of 3)

FUEL QUANTITY CONVERSION

U.S. GALLONS TO LITERS

U.S. GALLONS	LITERS	U.S. GALLONS	LITERS	U.S. GALLONS	LITERS	U.S. GALLONS	LITERS
10	37.9	310	1173.4	610	2308.9	910	3444.7
20	75.7	320	1211.2	620	2346.7	920	3482.6
30	113.6	330	1249.1	630	2384.6	930	3520.4
40	151.4	340	1286.9	640	2422.4	940	3558.3
50	189.3	350	1324.8	650	2460.3	950	3596.1
60	227.1	360	1362.6	660	2498.1	960	3634.0
70	265.0	370	1400.5	670	2536.0	970	3671.8
80	302.8	380	1438.3	680	2573.8	980	3709.7
90	340.7	390	1476.2	690	2611.7	990	3747.5
100	378.5	400	1514.0	700	2649.5	1000	3785.4
110	416.4	410	1551.9	710	2687.4	1010	3823.3
120	454.2	420	1589.7	720	2725.2	1020	3861.1
130	492.1	430	1627.6	730	2763.1	1030	3899.0
140	529.9	440	1665.4	740	2800.9	1040	3936.8
150	567.8	450	1703.3	750	2838.8	1050	3974.7
160	605.6	460	1741.1	760	2876.6	1060	4012.5
170	643.5	470	1779.0	770	2914.5	1070	4050.4
180	681.3	480	1816.8	780	2952.3	1080	4088.2
190	719.2	490	1854.7	790	2990.2	1090	4126.1
200	757.0	500	1892.5	800	3028.0	1100	4163.9
210	794.9	510	1930.4	810	3065.9	1110	4201.8
220	832.7	520	1968.2	820	3103.7	1120	4239.6
230	870.6	530	2006.1	830	3141.6	1130	4277.5
240	908.4	540	2043.9	840	3179.4	1140	4315.4
250	946.3	550	2081.8	850	3217.3	1150	4353.2
260	984.1	560	2119.6	860	3255.1	1160	4391.1
270	1022.0	570	2157.5	870	3293.0	1170	4428.9
280	1059.8	580	2195.3	880	3330.8	1180	4466.8
290	1097.7	590	2233.2	890	3368.7	1190	4504.6
300	1135.5	600	2271.0	900	3406.5	1200	4542.5

WEIGHT CONVERSION

POUNDS TO KILOGRAMS

POUNDS	KILOGRAMS	POUNDS	KILOGRAMS	POUNDS	KILOGRAMS
18200	8255	13400	6078	8600	3900
18000	8164	13200	5988	8400	3810
17800	8074	13000	5897	8200	3719
17600	7983	12800	5806	8000	3628
17400	7892	12600	5715	7800	3538
17200	7801	12400	5625	7600	3447
17000	7711	12200	5534	7400	3356
16800	7620	12000	5443	7200	3265
16600	7529	11800	5352	7000	3175
16400	7439	11600	5262	6800	3084
16200	7348	11400	5171	6600	2993
16000	7257	11200	5080	6400	2903
15800	7166	11000	4990	6200	2812
15600	7076	10800	4899	6000	2721
15400	6985	10600	4808	5800	2630
15200	6894	10400	4717	5600	2540
15000	6804	10200	4627	5400	2449
14800	6713	10000	4536	5200	2358
14600	6622	9800	4445	5000	2268
14400	6532	9600	4354	4800	2177
14200	6441	9400	4263	4600	2086
14000	6350	9200	4173	4400	1995
13800	6260	9000	4082	4200	1905
13600	6169	8800	3991	4000	1814

Figure 4-2 (Sheet 2)

HORIZONTAL LENGTH CONVERSION

FEET TO METERS

FEET	METERS	FEET	METERS
15000	4572	7400	2256
14800	4511	7200	2195
14600	4450	7000	2134
14400	4389	6800	2073
14200	4328	6600	2012
14000	4267	6400	1951
13800	4206	6200	1890
13600	4145	6000	1829
13400	4084	5800	1768
13200	4023	5600	1707
13000	3962	5400	1646
12800	3901	5200	1585
12600	3840	5000	1524
12400	3780	4800	1463
12200	3719	4600	1402
12000	3658	4400	1341
11800	3597	4200	1280
11600	3536	4000	1219
11400	3475	3800	1158
11200	3414	3600	1097
11000	3353	3400	1036
10800	3292	3200	975
10600	3231	3000	914
10400	3170	2800	853
10200	3109	2600	792
10000	3048	2400	732
9800	2987	2200	671
9600	2926	2000	610
9400	2865	1800	549
9200	2804	1600	488
9000	2743	1400	427
8800	2682	1200	366
8600	2621	1000	305
8400	2560	800	244
8200	2499	600	183
8000	2438	400	122
7800	2377	200	61
7600	2316	0	0

Figure 4-2 (Sheet 3)

TEMPERATURE CALIBRATION

CALIBRATED SAT = INDICATED SAT

CALIBRATED RAT = INDICATED RAT

Figure 4-3

AIRSPD AND MACHMETER CALIBRATION

PILOT'S AND COPILOT'S SYSTEMS

AIRSPD CALIBRATION*

IN FLIGHT			
GEAR UP 0°, 7° and 15 ° FLAP POSITION		GEAR DOWN 7°, 15° and 35 ° FLAP POSITION	
KIAS	KCAS	KIAS	KCAS
80	78	80	78
85	83	85	83
90	88	90	89
95	93	95	94
100	99	100	99
105	104	105	104
110	109	110	109
115	114	115	115
120	119	120	120
125	124	125	125
130	129	130	130
135	134	135	135
140	139	140	140
145	144	145	145
150	149	150	150
155	154	155	155
160	159	160	160
165	164	165	165
170	169	170	170
175	174	175	175
180	179	180	180
185	184	185	185
190	189	190	190
195	194	195	195
200	199	200	199
205	204		
210	209		
215	214		
220	219		
225	224		
230	229		
235	234		
240	239		
245	244		
250	248		
255	254		
260	258		
265	264		
270	268		
275	274		
280	278		
285	284		
290	288		
295	294		
300	298		

GROUND AIRSPD CALIBRATION

FLAPS 7° AND 15°	
GEAR DOWN	
KIAS	KCAS
60	64
70	74
80	84
90	94
100	104
110	114
120	124
130	134

MACHMETER CALIBRATION

ALL ALTITUDES	
GEAR UP FLAPS UP	
INDICATED MACH NO.	CALIBRATED MACH NO.
0.400	0.397
0.410	0.407
0.420	0.417
0.430	0.427
0.440	0.438
0.450	0.448
0.460	0.458
0.470	0.468
0.480	0.478
0.490	0.488
0.500	0.498
0.510	0.508
0.520	0.518
0.530	0.527
0.540	0.537
0.550	0.547
0.560	0.557
0.570	0.567
0.580	0.577
0.590	0.587
0.600	0.597
0.610	0.607
0.620	0.617
0.630	0.626
0.640	0.636
0.650	0.646
0.660	0.656
0.670	0.666
0.680	0.676
0.690	0.685
0.700	0.695
0.710	0.705
0.720	0.715
0.730	0.724
0.740	0.734
0.750	0.744
0.760	0.754

Figure 4-4

*(Also applicable for Standby System)

ALTIMETER POSITION CORRECTION - FEET

PILOT AND COPILOT SYSTEMS

CONDITIONS:

Flap - ANY POSITION

Landing Gear - UP

EXAMPLE:

A. Airspeed = 280 KIAS

B. Pressure Altitude = 30,000 FEET

C. Altimeter Position Correction = +40 FEET

Actual Pressure Altitude = 30,040 FEET

ALT FEET	AIRSPEED - KIAS																					
	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	
0	10	10	10	20	20	20	20	20	20	20	30	30	40	40	50	50	50	50				
1000	10	10	10	20	20	20	20	20	20	30	30	40	40	50	50	50	50	50				
2000	10	10	10	10	20	20	20	20	20	30	30	40	40	50	50	50	50	50				
3000	10	10	10	10	20	20	20	20	20	30	30	40	40	50	50	50	50	50				
4000	10	10	10	10	20	20	20	20	20	30	30	40	40	50	50	50	50	50				
5000	10	10	10	10	20	20	20	20	30	30	40	40	50	50	50	50	50	50				
6000	10	10	10	10	10	20	20	20	30	30	40	40	50	50	50	50	50	50				
7000	10	10	10	10	10	20	20	30	30	40	40	40	50	50	50	50	50	50	50	50	40	
8000	10	10	10	10	10	20	20	30	30	40	40	50	50	50	50	50	50	50	50	50	40	
9000	10	10	10	10	10	20	20	30	30	40	40	50	50	50	50	50	50	50	50	50	40	
10000	0	10	10	10	10	20	30	30	40	40	40	50	50	50	50	50	50	50	50	40	40	
11000	0	10	10	10	10	20	30	30	40	40	50	50	50	50	60	60	50	50	50	40	40	
12000	0	10	10	10	10	20	30	40	50	50	50	60	60	60	60	60	60	60	50	50	50	
13000	0	0	10	10	20	30	40	40	50	50	60	60	60	60	70	70	60	60	60	50	50	
14000	0	0	10	10	20	30	40	50	60	60	60	70	70	70	70	70	70	60	60	60	60	
15000	0	0	10	10	20	30	40	50	60	60	70	70	70	70	80	80	70	70	60	60	60	
16000	0	0	10	10	20	30	40	50	60	70	70	70	70	70	80	80	70	70	60	60	60	
17000	0	0	10	10	20	40	50	50	60	60	70	70	70	70	80	80	70	60	60	60	60	
18000	0	0	0	10	30	40	50	50	60	60	60	70	70	70	80	70	70	60	60	60	60	
19000	-10	0	0	20	30	40	50	60	60	60	60	70	70	70	70	70	70	60	60	60	60	
20000	-10	0	0	20	30	40	50	60	60	60	60	70	70	70	70	70	70	60	60	60	60	
21000	-10	0	0	20	30	40	50	60	60	60	60	70	70	70	70	70	60	60	60	60	50	
22000	-10	0	10	20	30	40	50	60	60	60	60	70	70	70	70	70	60	60	60	60	50	
23000	-10	-10	10	20	30	40	50	60	60	60	60	70	70	70	70	70	60	60	50	60	50	
24000	-10	-10	10	20	30	40	50	60	60	60	60	70	70	70	70	60	60	60	50	50	50	
25000	-10	-10	10	20	30	50	50	60	60	60	60	70	70	70	70	60	60	60	50	50	50	
26000	-10	-10	10	20	40	50	50	50	60	60	60	60	60	60	60	60	60	50	50	50	50	
27000	-20	0	10	20	40	50	50	50	60	60	60	60	60	60	60	60	60	50	50	50	50	
28000	-20	0	10	20	40	50	50	50	60	60	60	60	60	60	60	60	60	50	50	50	50	
29000	-20	0	10	20	40	40	50	50	60	60	60	60	60	60	60	60	60	50	40	50	50	
30000	-20	0	10	20	40	40	50	50	60	60	60	60	60	60	60	60	50	50	40	50	60	
31000	-20	0	10	30	40	40	50	50	50	50	50	50	60	60	60	60	50	50	40	50		
32000	-20	0	10	30	40	40	50	50	50	50	50	50	60	60	60	60	50	40	50			
33000	-20	0	10	30	30	40	50	50	50	50	50	50	60	60	60	50	50	50	50			
34000	-20	0	10	20	30	40	40	50	50	50	50	50	50	60	60	50	50	50				
35000	-20	0	10	20	30	40	40	50	50	50	50	50	50	50	50	50	50	60				
36000	-20	0	10	20	30	40	40	40	40	40	50	50	50	50	50	50	60					
37000	-20	0	10	20	30	40	40	40	40	40	50	50	50	50	50	60						
38000	-20	-10	10	20	30	40	40	40	40	40	40	50	50	50	60	60						
39000	-20	-10	0	10	20	30	40	40	40	40	40	40	50	50	60							
40000	-20	-10	0	10	20	30	30	40	40	40	40	40	50	50	70							
41000	-20	-10	0	10	20	30	30	40	40	40	40	40	50	60								
42000	-30	-10	0	10	20	30	30	30	40	40	40	40	50	70								
43000	-30	-20	-10	10	20	20	30	30	30	40	40	40	60									
44000	-30	-20	-10	0	10	20	30	30	30	30	40	40	60									
45000	-30	-20	-10	0	10	20	30	30	30	30	30	50										

Figure 4-5

NOTEShaded areas are beyond V_{MO}/M_{MO} and are provided for interpolation purposes only.

ALTIMETER POSTITION CORRECTION - FEET **PILOT AND COPILOT SYSTEMS**

CONDITIONS:

Flap - ANY POSITION

Landing Gear - DOWN

EXAMPLE:

A. Airspeed =170 KIAS

B. Pressure Altitude = 6000 FEET

C. Altimeter Position Correction =+50 FEET

Actual Pressure Altitude = 6050 FEET

ALT FEET	AIRSPEED - KIAS																				
	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
0	30	30	30	30	30	30	40	40	40	50	60	60	70	80	80	90	90	90			
1000	30	30	30	30	30	30	40	40	40	50	60	60	70	80	80	90	90	90			
2000	30	30	30	30	30	40	40	40	50	50	60	70	70	80	90	90	90	90			
3000	30	30	30	30	30	40	40	40	50	60	60	70	80	80	90	90	90	90			
4000	30	30	30	30	30	40	40	40	50	60	60	70	80	90	90	90	90	90			
5000	30	30	30	30	30	40	40	50	50	60	70	70	80	90	90	90	90	90			
6000	30	30	30	30	30	40	40	50	60	60	70	80	80	90	90	90	90	90			
7000	30	30	30	30	30	40	40	50	60	70	70	80	90	90	90	90	90	90	100	100	100
8000	30	30	30	30	30	40	50	50	60	70	70	80	90	90	90	90	90	90	100	100	100
9000	30	30	30	30	40	40	50	60	60	70	80	80	90	90	90	90	100	100	100	100	100
10000	30	30	30	30	40	40	50	60	70	70	80	90	90	90	90	100	100	100	100	100	100
11000	20	30	30	30	40	40	50	60	70	80	80	90	90	90	100	100	100	100	100	100	100
12000	20	30	30	30	40	50	60	60	70	80	80	90	90	90	100	100	100	100	100	100	100
13000	20	30	30	30	40	50	60	70	70	80	90	90	90	100	100	100	100	100	100	100	110
14000	20	30	30	30	40	50	60	70	80	80	90	90	90	100	100	100	110	100	100	110	110
15000	20	30	30	30	40	50	60	70	80	90	90	90	100	100	100	110	110	100	100	110	110

Figure 4-6

NOTE

Shaded areas are beyond V_{MO} and are provided for interpolation purposes only.

**ALTIMETER POSITION CORRECTION - FEET
STANDBY SYSTEM****CONDITIONS:**

Flap - ANY POSITION

Landing Gear - UP

EXAMPLE:

A. Airspeed = 230 KIAS

B. Pressure Altitude = 30,000 FEET

C. Altimeter Position Correction = +40 FEET
Actual Pressure Altitude = 30,040 FEET

ALT FEET	AIRSPEED - KIAS																				
	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
0	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
1000	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
2000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
3000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
4000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
5000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
6000	10	10	10	10	20	20	10	10	10	10	10	10	10	10	10	20	20	20			
7000	10	10	10	10	20	20	20	10	10	10	10	10	10	10	10	20	20	20	20	20	30
8000	10	10	10	10	20	20	20	20	10	10	10	10	10	10	20	20	20	20	20	20	30
9000	10	10	10	20	20	20	20	10	10	10	10	10	10	10	20	20	20	20	20	30	30
10000	10	10	10	20	20	20	20	20	10	10	10	10	10	10	20	20	20	20	20	30	30
11000	10	10	10	20	20	20	20	20	10	10	10	20	20	20	20	30	30	20	30	40	40
12000	10	10	10	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30	30	40	50
13000	10	10	20	20	20	30	30	30	20	20	20	30	30	30	30	40	40	30	40	50	50
14000	10	10	20	20	20	30	30	30	30	30	30	30	30	30	40	40	40	40	40	50	60
15000	10	10	20	20	20	30	30	30	30	30	30	40	40	40	40	50	50	40	50	60	70
16000	10	10	20	20	20	30	30	30	30	30	30	40	40	40	50	50	50	40	50	60	70
17000	10	10	20	20	20	30	30	30	30	30	30	40	40	40	50	50	40	40	50	50	70
18000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	50	50	40	40	50	50	70
19000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	50	50	40	40	50	50	70
20000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	50	50	40	40	40	50	70
21000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	50	50	40	40	40	50	70
22000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	50	50	40	40	40	50	70
23000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	50	40	40	40	40	50	60
24000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	40	40	40	40	40	50	60
25000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	40	40	40	40	40	50	60
26000	10	10	20	20	30	30	30	30	30	30	30	40	40	40	40	40	40	40	40	50	60
27000	10	10	20	30	30	30	30	30	30	30	30	40	40	40	40	40	40	30	40	50	60
28000	10	10	20	30	30	30	30	30	30	30	30	40	40	40	40	40	40	30	30	40	60
29000	10	10	20	30	30	30	30	30	30	30	30	40	40	40	40	40	40	30	30	40	60
30000	10	10	20	30	30	30	30	30	30	30	30	40	40	40	40	40	30	30	30	40	60
31000	10	10	20	30	30	30	40	30	30	30	30	40	40	40	40	40	30	30	30	40	
32000	10	10	20	30	30	30	40	30	30	30	30	40	40	40	40	40	30	20	20		
33000	10	10	20	30	30	40	40	30	30	30	30	40	40	40	40	30	30	20	20		
34000	10	10	20	30	30	40	40	30	30	30	30	40	40	40	40	30	30	20			
35000	10	10	20	30	30	40	40	30	30	30	30	40	40	40	40	30	20	20			
36000	10	10	20	30	30	40	40	30	30	30	30	40	40	40	40	30	20				
37000	10	10	20	30	30	40	40	30	30	30	30	40	40	40	40	30	20				
38000	10	10	20	30	30	40	40	30	30	30	30	40	40	40	40	30	20				
39000	10	10	20	30	40	40	40	30	30	30	20	20	30	30	20						
40000	10	10	20	30	40	40	40	30	30	30	20	20	20	20	20						
41000	10	10	20	30	40	40	40	30	30	30	20	20	20	20	20						
42000	10	10	20	30	40	40	40	30	30	20	20	20	20	20							
43000	0	10	20	30	40	40	40	30	30	20	20	20	20								
44000	0	10	20	30	40	40	40	30	20	20	10	10									
45000	0	10	20	30	40	40	40	30	20	20	10	10									

Figure 4-7

NOTEShaded areas are beyond V_{MO} and are provided for interpolation purposes only.

ALTIMETER POSITION CORRECTION - FEET STANDBY SYSTEM

CONDITIONS:

Flap - ANY POSITION

Landing Gear - DOWN

EXAMPLE:

A. Airspeed =170 KIAS

B. Pressure Altitude = 6000 FEET

C. Altimeter Position Correction =+40 FEET

Actual Pressure Altitude = 6040 FEET

ALT FEET	AIRSPEED - KIAS																					
	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	
0	20	20	20	30	30	30	30	30	30	30	30	40	40	40	50	50	50	50				
1000	20	20	30	30	30	30	30	30	30	30	40	40	40	40	50	50	50	50				
2000	20	20	30	30	30	30	30	30	30	30	40	40	40	50	50	50	50	50				
3000	20	20	30	30	30	30	30	30	30	40	40	40	40	50	50	50	50	60				
4000	20	20	30	30	30	30	30	40	40	40	40	40	40	50	50	50	50	60				
5000	20	30	30	30	30	30	40	40	40	40	40	40	50	50	50	60	60	60				
6000	20	30	30	30	30	40	40	40	40	40	40	40	50	50	50	60	60	60				
7000	20	30	30	30	40	40	40	40	40	40	40	50	50	50	60	60	60	60	70	80	90	
8000	30	30	30	30	40	40	40	40	40	40	40	50	50	50	60	60	60	60	70	80	90	
9000	30	30	30	40	40	40	40	40	40	40	50	50	50	60	60	60	60	70	70	80	90	
10000	30	30	30	40	40	40	40	40	40	40	50	50	50	60	60	60	70	70	70	80	100	
11000	30	30	30	40	40	40	40	40	40	50	50	50	60	60	60	70	70	70	80	90	100	
12000	30	30	40	40	40	40	40	50	50	50	50	50	60	60	70	70	70	70	80	90	100	
13000	30	30	40	40	40	40	50	50	50	50	50	50	60	60	70	70	70	80	80	90	110	
14000	30	30	40	40	40	50	50	50	50	50	50	60	60	70	70	70	80	80	80	100	110	
15000	30	40	40	40	50	50	50	50	50	50	50	60	60	70	70	80	80	80	90	100	110	

Figure 4-8

STALL SPEEDS - KCAS

CONDITIONS:

Landing Gear - UP or DOWN
Engines - IDLE THRUST

ANGLE OF BANK DEG	FLAP SETTING - UP WEIGHT - LBS												
	16830	16000	15500	15000	14500	14000	13500	13000	12500	12000	11500	11000	10500
0	98	95	94	92	91	89	88	86	85	83	81	79	78
10	98	96	95	93	92	90	89	87	85	84	82	80	78
20	101	98	97	95	94	92	91	89	87	86	84	82	80
30	105	102	101	99	98	96	94	93	91	89	87	85	83
40	111	109	107	106	104	102	100	99	97	95	93	91	89
50	122	119	117	115	113	111	110	108	106	103	101	99	97
60	138	135	133	131	129	126	124	122	120	117	115	112	110

ANGLE OF BANK DEG	FLAP SETTING - 7 DEG WEIGHT - LBS												
	16830	16000	15500	15000	14500	14000	13500	13000	12500	12000	11500	11000	10500
0	95	93	92	90	89	87	86	84	83	81	79	78	76
10	96	94	92	91	89	88	86	85	83	82	80	78	76
20	98	96	94	93	92	90	88	87	85	84	82	80	78
30	102	100	98	97	95	94	92	90	89	87	85	83	81
40	109	106	105	103	101	100	98	96	94	93	91	89	87
50	119	116	114	112	111	109	107	105	103	101	99	97	94
60	135	131	130	128	125	123	121	119	117	115	112	110	107

ANGLE OF BANK DEG	FLAP SETTING - 15 DEG WEIGHT - LBS												
	16830	16000	15500	15000	14500	14000	13500	13000	12500	12000	11500	11000	10500
0	91	89	88	86	85	84	82	81	79	78	76	74	73
10	92	90	88	87	86	84	83	81	80	78	77	75	73
20	94	92	91	89	88	86	85	83	82	80	78	77	75
30	98	96	94	93	91	90	88	87	85	83	82	80	78
40	104	102	100	99	97	96	94	92	91	89	87	85	83
50	114	111	110	108	106	104	103	101	99	97	95	93	91
60	129	126	124	122	120	118	116	114	112	110	108	105	103

ANGLE OF BANK DEG	FLAP SETTING - LAND WEIGHT - LBS												
	16830	16000	15500	15000	14500	14000	13500	13000	12500	12000	11500	11000	10500
0	86	84	83	82	80	79	78	76	75	73	72	70	69
10	87	85	84	82	81	80	78	77	76	74	72	71	69
20	89	87	86	84	83	82	80	79	77	76	74	73	71
30	93	91	89	88	86	85	84	82	81	79	77	76	74
40	99	96	95	93	92	90	89	87	86	84	82	80	79
50	108	105	104	102	100	99	97	95	94	92	90	88	86
60	122	119	117	116	114	112	110	108	106	104	102	99	97

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Figure 4-9

INTERNATIONAL STANDARD ATMOSPHERE (ISA)

ALTITUDE FEET	ISA DEG. C	ALTITUDE FEET	ISA DEG. C
SEA LEVEL	15.0	23000	-30.5
1000	13.0	24000	-32.5
2000	11.0	25000	-34.5
3000	9.1	26000	-36.5
4000	7.1	27000	-38.4
5000	5.1	28000	-40.4
6000	3.1	29000	-42.4
7000	1.1	30000	-44.4
8000	-0.8	31000	-46.3
9000	-2.8	32000	-48.3
10000	-4.8	33000	-50.3
11000	-6.8	34000	-52.3
12000	-8.8	35000	-54.2
13000	-10.7	36000	-56.2
14000	-12.7	37000	-56.5
15000	-14.7	38000	-56.5
16000	-16.7	39000	-56.5
17000	-18.7	40000	-56.5
18000	-20.6	41000	-56.5
19000	-22.6	42000	-56.5
20000	-24.6	43000	-56.5
21000	-26.6	44000	-56.5
22000	-28.5	45000	-56.5

Figure 4-10

TAKEOFF THRUST SETTING

EXAMPLE 1:

Anti-Ice Systems = OFF

- A Ambient Temperature = 15°C
- B Pressure Altitude = 2000 FEET
- C N_1 = 90.4% RPM

EXAMPLE 2:

Anti-Ice Systems = ON

- A Ambient Temperature = 0°C
- B Pressure Altitude = 2000 FEET
- C N_1 = 88.6% RPM

TAKEOFF / GO-AROUND THRUST SETTING
ANTI-ICE SYSTEMS - OFF

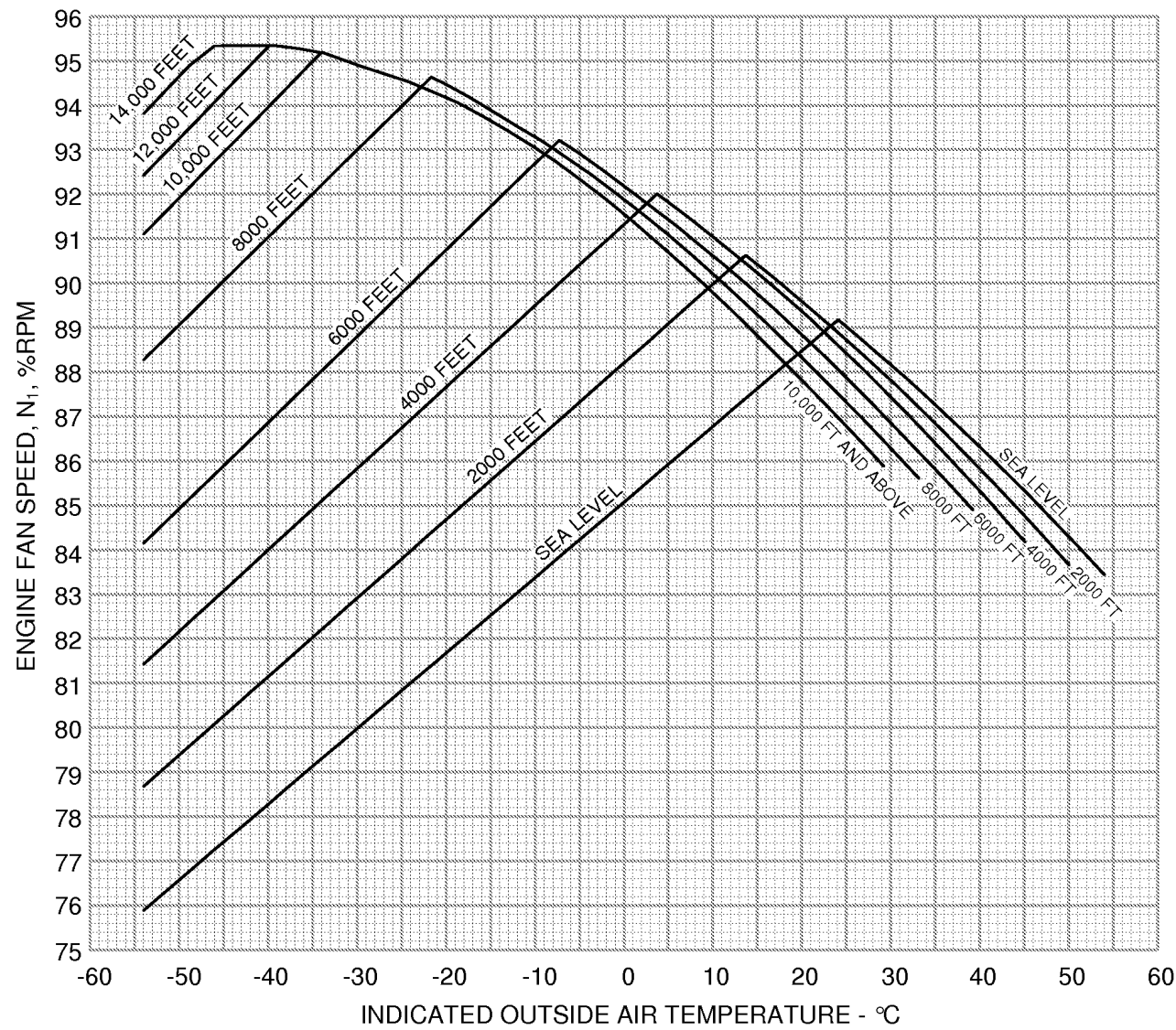


Figure 4-11 (Sheet 1 of 2)

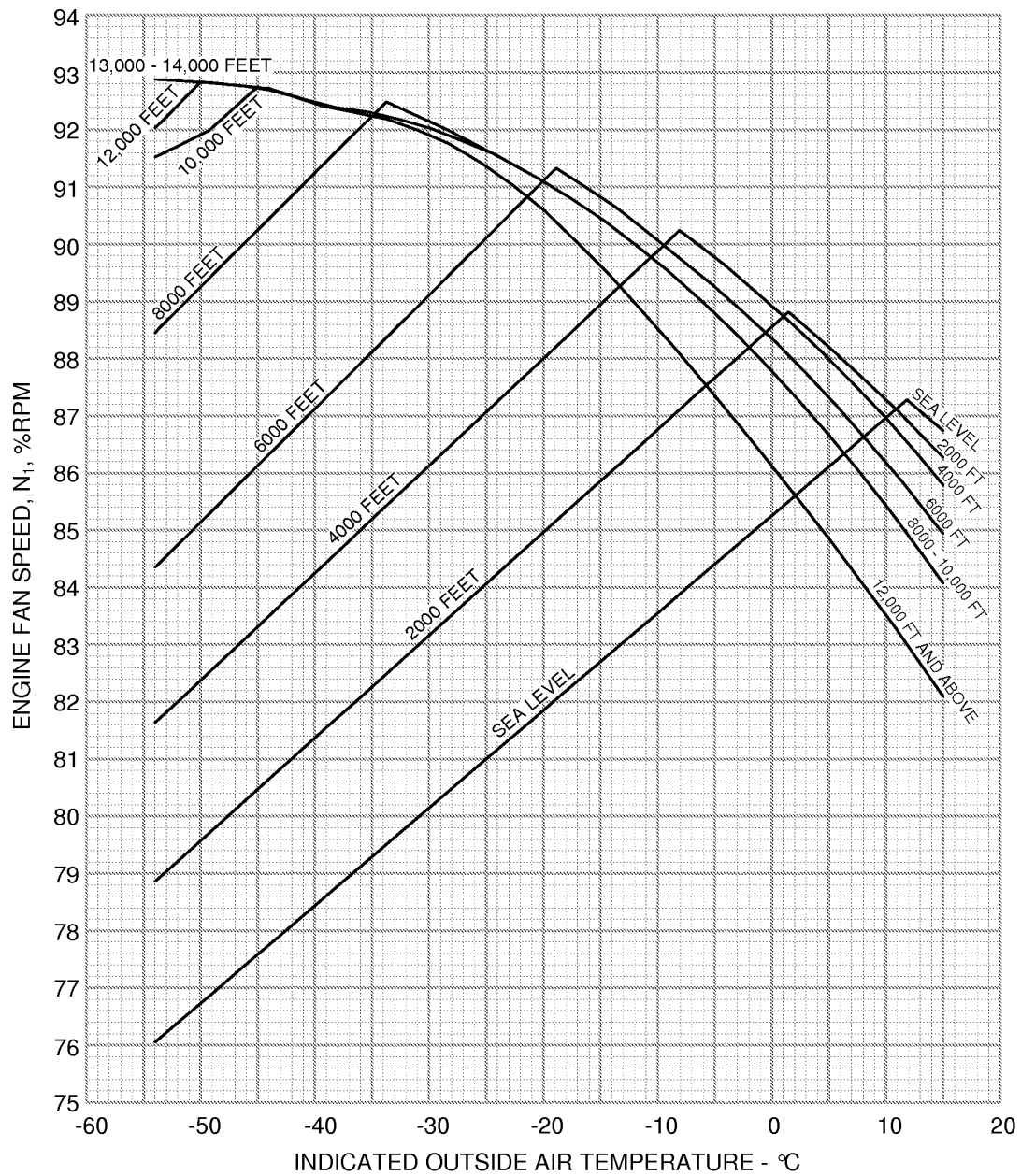
**TAKEOFF / GO-AROUND THRUST SETTING
ANTI-ICE SYSTEMS - ON**

Figure 4-11 (Sheet 2)

MAXIMUM CONTINUOUS THRUST SETTING ENROUTE CLIMB

EXAMPLE 1:

Anti-Ice Systems = OFF

- A Indicated RAT = 20°C
- B Pressure Altitude = 2000 FEET
- C N_1 = 87.3% RPM (Refer to Figure 4-12)

EXAMPLE 2:

Anti-Ice Systems = ON

- A Indicated RAT = 0°C
- B Pressure Altitude = SEA LEVEL
- C N_1 = 84.8% RPM (Refer to Figure 4-12)

MULTI-ENGINE NORMAL CLIMB MAXIMUM CONTINUOUS THRUST SETTING

EXAMPLE 1:

Anti-Ice Systems = OFF

- A Indicated RAT = -10°C
- B Pressure Altitude = 35,000 FEET
- C N_1 = 88.1% RPM (Refer to Figure 4-13)

EXAMPLE 2:

Anti-Ice Systems = ON

- A Indicated RAT = -30°C
- B Pressure Altitude = 10,000 FEET
- C N_1 = 91.0% RPM (Refer to Figure 4-13)

MAXIMUM CONTINUOUS THRUST SETTING
SINGLE-ENGINE ENROUTE CLIMB
ANTI-ICE SYSTEMS - OFF

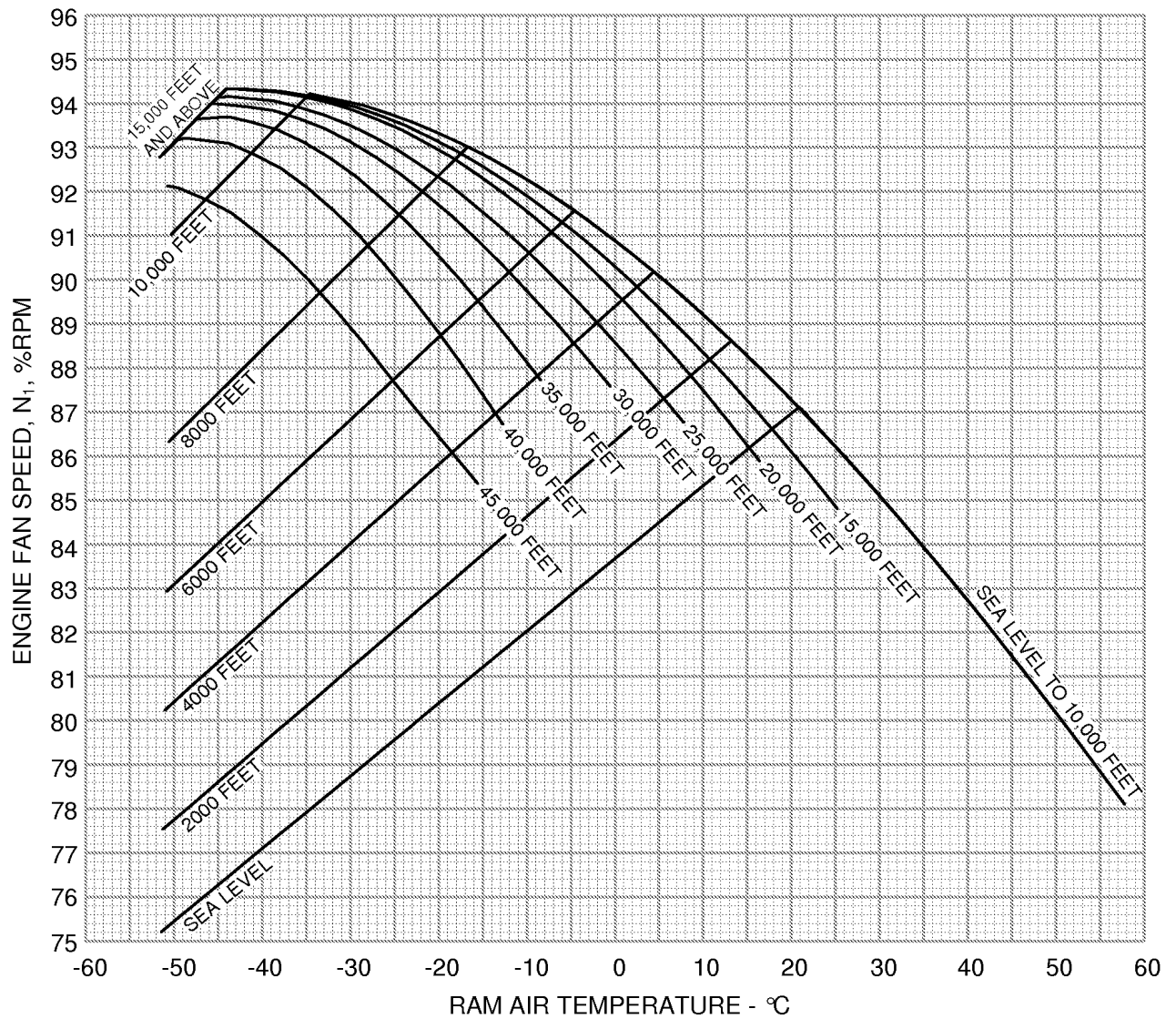


Figure 4-12 (Sheet 1 of 2)

MAXIMUM CONTINUOUS THRUST SETTING
SINGLE-ENGINE ENROUTE CLIMB
ANTI-ICE SYSTEMS - ON

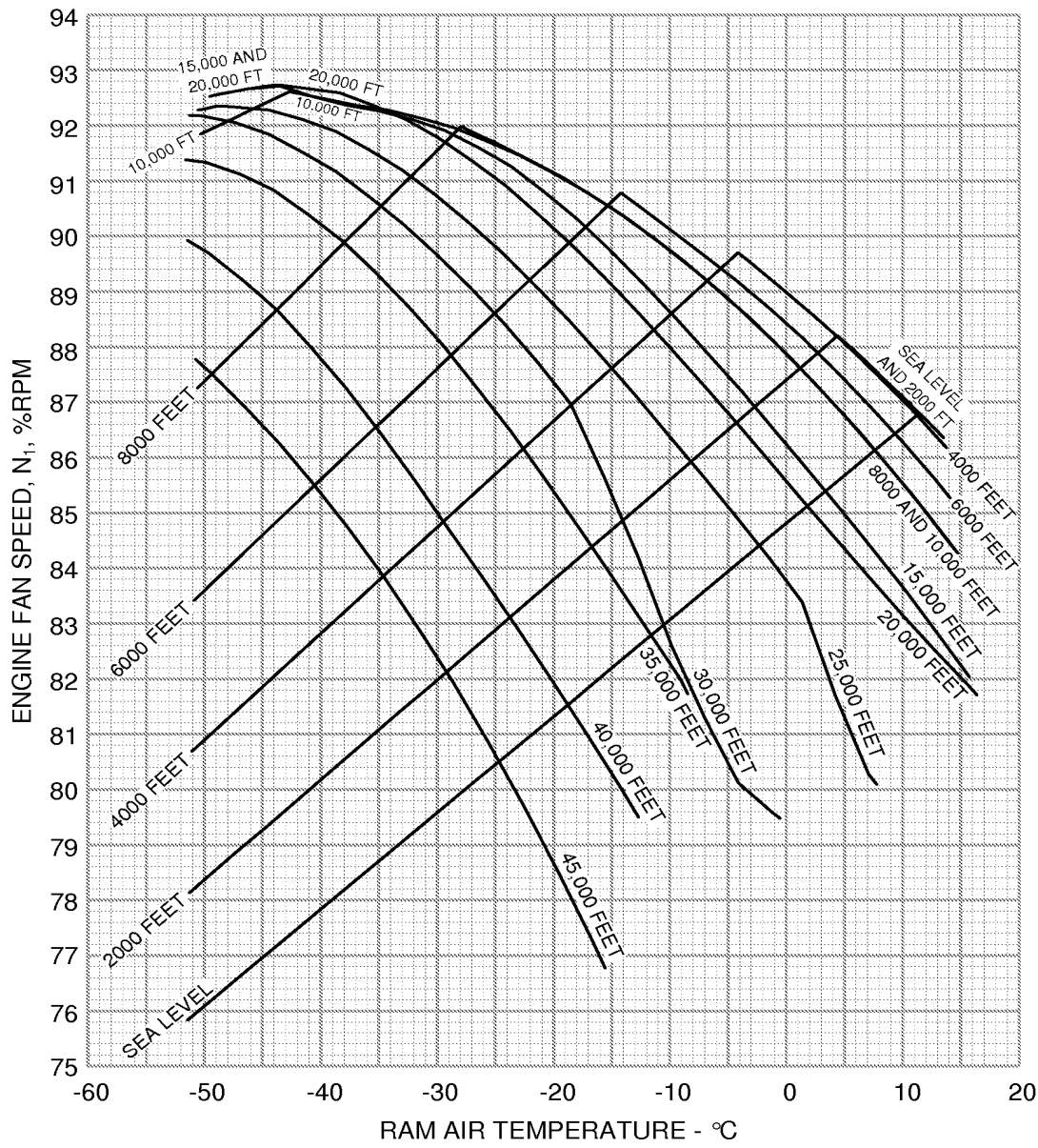


Figure 4-12 (Sheet 2)

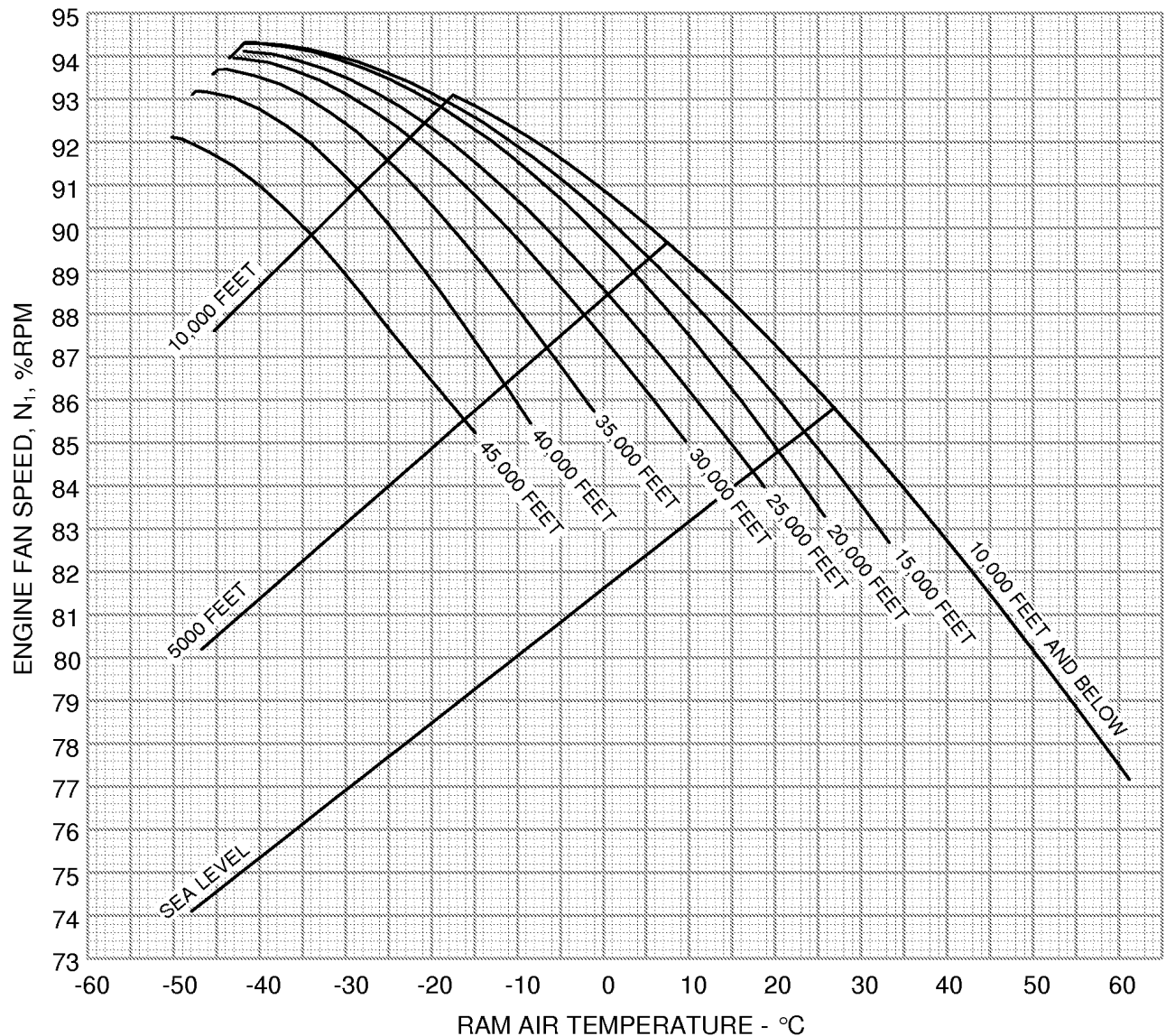
**MULTI-ENGINE NORMAL CLIMB
ANTI-ICE SYSTEMS - OFF**

Figure 4-13 (Sheet 1 of 2)

**MULTI-ENGINE NORMAL CLIMB
ANTI-ICE SYSTEMS - ON**

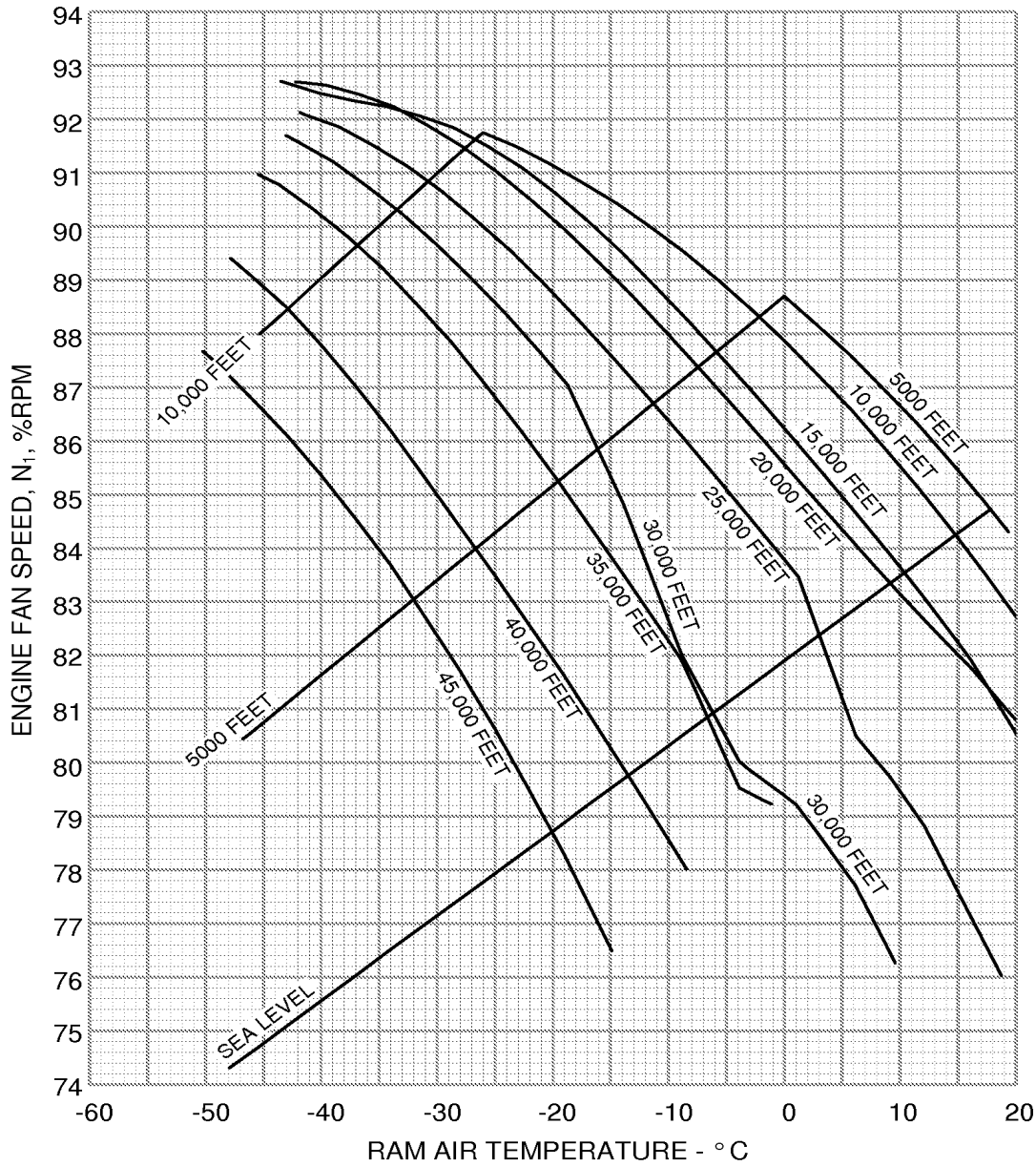


Figure 4-13 (Sheet 2)

BUFFET ONSET

LOW SPEED

HIGH SPEED

EXAMPLE:

INDICATED MACH = 0.38

PRESSURE ALTITUDE = 30,000 FEET

WEIGHT = 10,000 POUNDS

BUFFET ONSET

LOAD FACTOR = 1.90 G'S

BANK ANGLE = 58°

EXAMPLE:

INDICATED MACH = 0.56

PRESSURE ALTITUDE = 25,000 FEET

WEIGHT = 15,000 POUNDS

BUFFET ONSET

LOAD FACTOR = 2.75 G'S

BANK ANGLE = GREATER THAN 65°

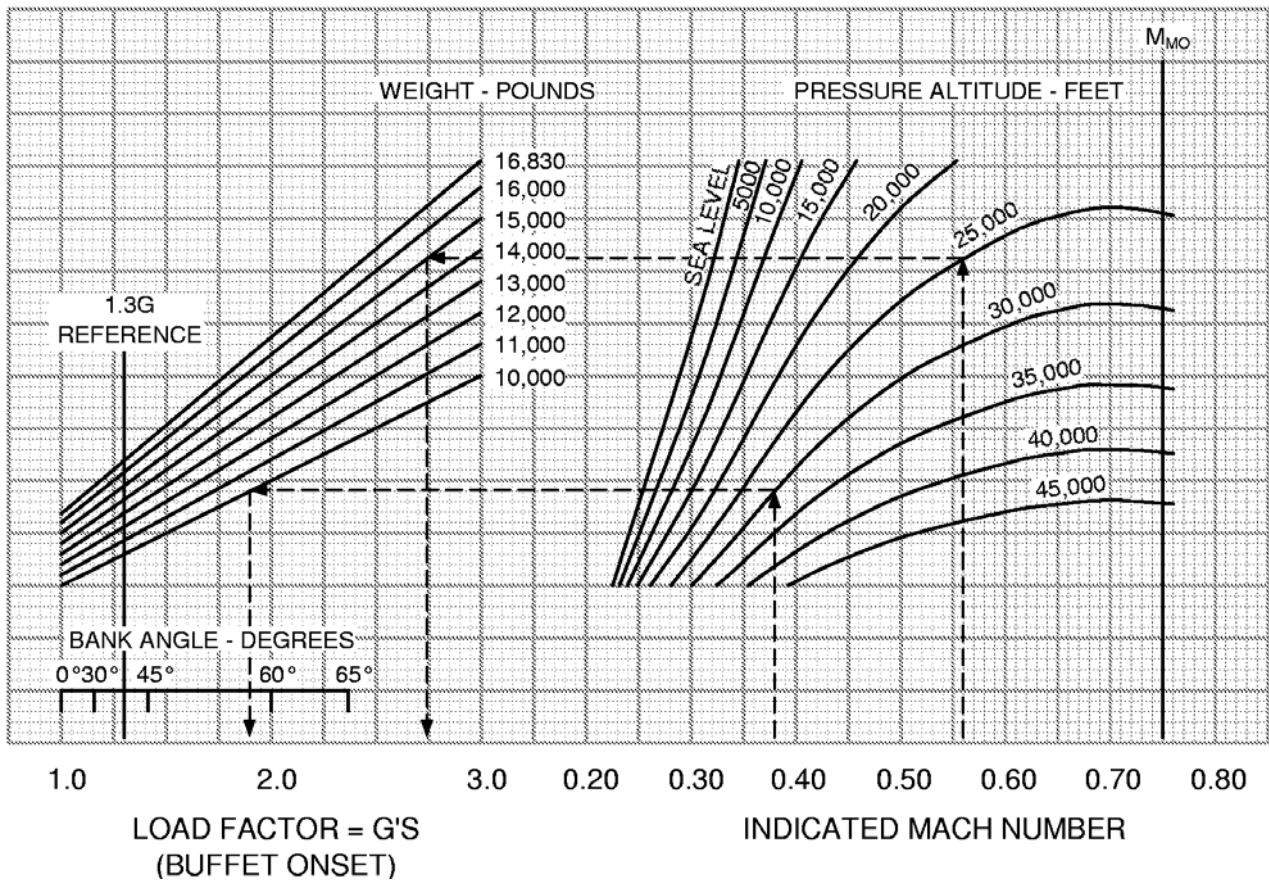


Figure 4-14

CROSSWIND COMPONENT

EXAMPLE:

WIND VELOCITY = 30 KNOTS

ANGLE BETWEEN WIND DIRECTION AND RUNWAY = 30°

CROSSWIND COMPONENT = 15 KNOTS

WIND COMPONENT PARALLEL TO RUNWAY = 26 KNOTS

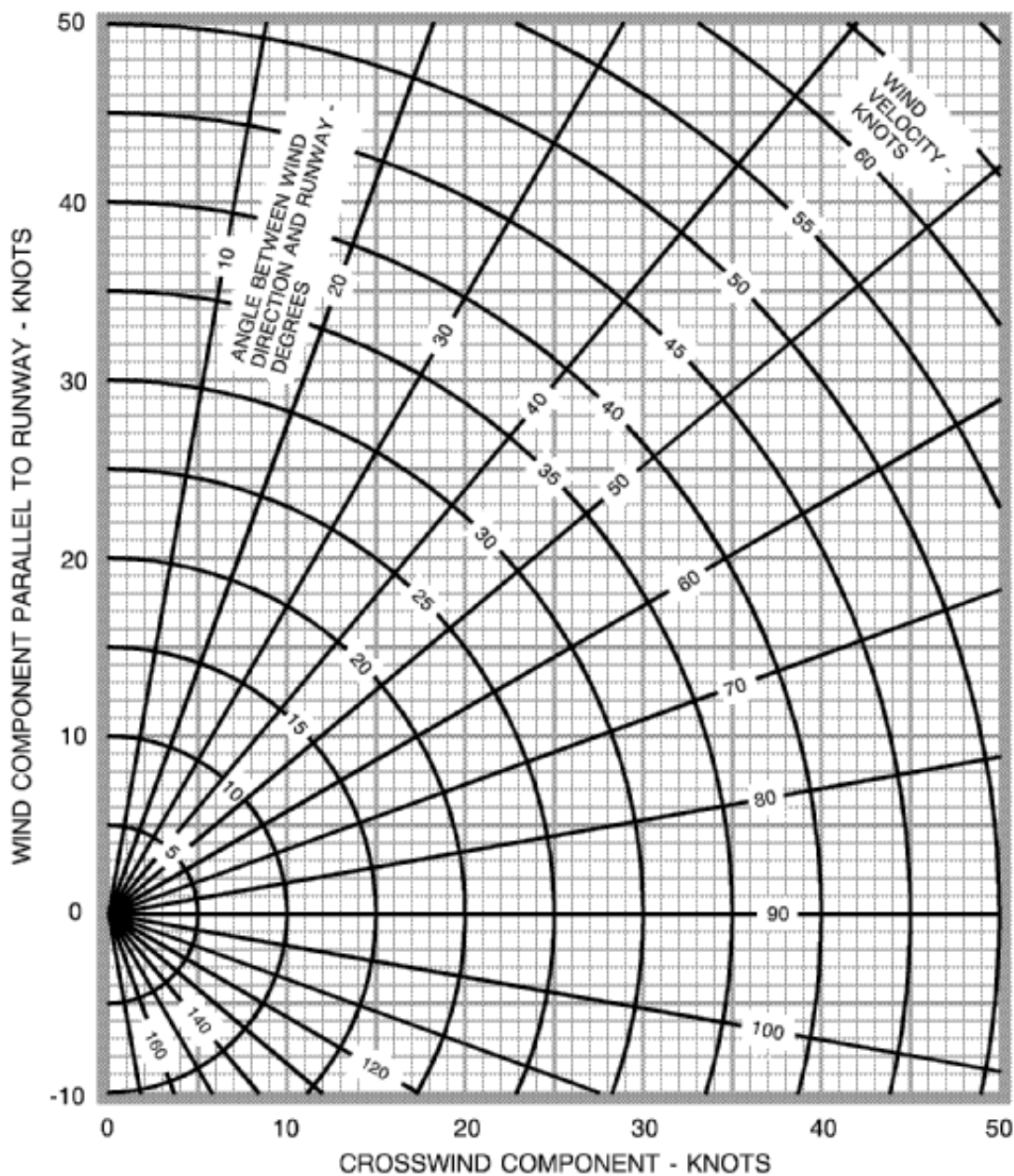


Figure 4-15

TAKEOFF

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TAKEOFF PERFORMANCE

SIMPLIFIED CRITERIA

A simplified criteria is provided which is intended to cover the majority of situations where runway length is appreciably longer than required for this airplane. The other tabulated data gives more exact performance criteria through a range of conditions which include all but the most extreme cases.

The majority of takeoff situations results in field length margins that permit using a single set of values for speeds and power settings for takeoff. If the following conditions are met, the simplified procedures may be used.

1. No obstacle in flight path.
2. Anti-ice systems off.
3. Takeoff and approach flaps (15°).
4. Takeoff field length available = 5000 feet or longer.
5. No tail wind.
6. No runway gradient.
7. Dry paved runway.

The values to be used are as follows:

WEIGHT RANGE - POUNDS	16,830 POUNDS - 15,501 POUNDS	15,500 POUNDS - 13,501 POUNDS	13,500 POUNDS - 12,000 POUNDS
ALTITUDE OF AIRPORT	2000 FEET OR BELOW	4000 FEET OR BELOW	4000 FEET OR BELOW
AMBIENT TEMPERATURE BETWEEN	30 °C AND 15 °C	30 °C AND 15 °C	30 °C AND 15 °C
V ₁	99 KIAS	96 KIAS	96 KIAS
V _R	106 KIAS	102 KIAS	98 KIAS
V ₂	116 KIAS	113 KIAS	115 KIAS
SINGLE-ENGINE ENROUTE CLIMB SPEED	160 KIAS	160 KIAS	160 KIAS

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When conditions are other than those specified in the simplified criteria, the appropriate tabulated data must be referred to.

PROCEDURES FOR USE OF TAKEOFF PERFORMANCE TABLES

1. Determine gross weight of airplane for type of loading desired.
2. Obtain airport information; i.e., active runway, available runway length, temperature, altitude, wind, icing conditions and runway gradient (if applicable) and obstacles in the takeoff flight path. Some performance data provided in this section are outside of operating temperature limits. Determine that the temperature is within the ambient temperature limits found in Section II, Limitations.
3. Determine wind component parallel to active runway from the crosswind component chart (Figure 4-15).
4. Check the maximum takeoff weight permitted by climb requirements (Figure 4-16 or Figure 4-18). If takeoff is to be made with anti-ice on, refer to Figure 4-17 or Figure 4-19. If this limitation restricts the gross weight, the pilot must off load weight until the requirement is met.
5. Using the takeoff weight determined in step 4, determine takeoff field length, V_1 , V_R , V_2 , V_{ENR} from Figure 4-21 (Flaps 7°, anti-ice off), Figure 4-23 (Flaps 7°, anti-ice on), Figure 4-25 (Flaps 15°, anti-ice off) or Figure 4-27 (Flaps 15°, anti-ice on).
6. For runway gradients, V_1 and takeoff field length must be corrected using the correction table in Figure 4-20 (Flaps 7°, anti-ice off), Figure 4-22 (Flaps 7°, anti-ice on), Figure 4-24 (Flaps 15°, anti-ice off), or Figure 4-26 (Flaps 15°, anti-ice on).
7. If the available runway length is less than the required field length, the airplane weight must be reduced until this requirement can be met.
8. Determine level off altitude. Level off altitude is airport barometric altitude plus takeoff climb increment (Figure 4-30, 4-31, 4-34, or 4-35) required for obstacle clearance.
9. If the obstacle clearance is a factor, the single-engine takeoff flight path charts (Figures 4-28, 4-30, or 4-31 and 4-32, 4-34 or 4-35) must be used to determine if the net takeoff flight path provides the required obstacle clearance. If the required obstacle clearance is not achieved, the gross weight must be reduced until the net takeoff flight path assures the required obstacle clearance.

NOTE

If third segment has not been completed within ten (10) minutes, reduce power to maximum continuous thrust and continue with the takeoff flight path.

10. The second segment (Figure 4-40, 4-41, 4-42, or 4-43) and enroute (Figure 4-44 or 4-45) climb gradients can be 1.0 less for banks up to and including 15°.
11. The first segment takeoff net climb gradient tables are presented in Figures 4-36, 4-37, 4-38 and 4-39.

MAXIMUM TAKEOFF WEIGHT - POUNDS PERMITTED BY CLIMB REQUIREMENTS

ANTI-ICE SYSTEMS - OFF

FLAPS - 7°

ALTITUDE = SEA LEVEL		ALTITUDE = 1000 FEET		ALTITUDE = 2000 FEET		ALTITUDE = 3000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 54	16830	-54 TO 52	16830	-54 TO 50	16830	-54 TO 48	16830

ALTITUDE = 4000 FEET		ALTITUDE = 5000 FEET		ALTITUDE = 6000 FEET		ALTITUDE = 7000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 45	16830	-54 TO 42	16830	-54 TO 39	16830	-54 TO 36	16830

ALTITUDE = 8000 FEET		ALTITUDE = 9000 FEET		ALTITUDE = 10,000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 32	16830	-54 TO 27	16830	-54 TO 23	16830
33	16650	30 31	16460 16260	25 29	16600 15890

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Figure 4-16

WHERE CONDITIONS ALLOW FOR 7° OR 15° FLAP SETTING, IT IS DESIRED TO SELECT THE FLAP SETTING WHICH GIVES THE SHORTER TAKEOFF FIELD LENGTH.

**MAXIMUM TAKEOFF WEIGHT - POUNDS
PERMITTED BY CLIMB REQUIREMENTS****ANTI-ICE SYSTEMS - ON****FLAPS - 7°**

ALTITUDE = SEA LEVEL		ALTITUDE = 1000 FEET		ALTITUDE = 2000 FEET		ALTITUDE = 3000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830

ALTITUDE = 4000 FEET		ALTITUDE = 5000 FEET		ALTITUDE = 6000 FEET		ALTITUDE = 7000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830

ALTITUDE = 8000 FEET		ALTITUDE = 9000 FEET		ALTITUDE = 10,000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 9	16830	-54 TO 7	16830	-54 TO 4	16830
10	16810	10	16210	5 10	16700 15620

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Figure 4-17

WHERE CONDITIONS ALLOW FOR 7° OR 15° FLAP SETTING, IT IS DESIRED TO SELECT THE FLAP SETTING WHICH GIVES THE SHORTER TAKEOFF FIELD LENGTH.

MAXIMUM TAKEOFF WEIGHT - POUNDS PERMITTED BY CLIMB REQUIREMENTS

ANTI-ICE SYSTEMS - OFF

FLAPS - 15°

ALTITUDE = SEA LEVEL		ALTITUDE = 1000 FEET		ALTITUDE = 2000 FEET		ALTITUDE = 3000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 54	16830	-54 TO 52	16830	-54 TO 50	16830	-54 TO 48	16830

ALTITUDE = 4000 FEET		ALTITUDE = 5000 FEET		ALTITUDE = 6000 FEET		ALTITUDE = 7000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 44	16830	-54 TO 40	16830	-54 TO 36	16830	-54 TO 32	16830
45	16770	42	16570	39	16360	35	16320
						36	16130

ALTITUDE = 8000 FEET		ALTITUDE = 9000 FEET		ALTITUDE = 10,000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 27	16830	-54 TO 23	16830	-54 TO 19	16830
30	16410	25	16610	20	16820
33	15890	30	15710	25	15850
		31	15520	29	15160

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Figure 4-18

WHERE CONDITIONS ALLOW FOR 7° OR 15° FLAP SETTING, IT IS DESIRED TO SELECT THE FLAP SETTING WHICH GIVES THE SHORTER TAKEOFF FIELD LENGTH.

**MAXIMUM TAKEOFF WEIGHT - POUNDS
PERMITTED BY CLIMB REQUIREMENTS****ANTI-ICE SYSTEMS - ON****FLAPS - 15°**

ALTITUDE = SEA LEVEL		ALTITUDE = 1000 FEET		ALTITUDE = 2000 FEET		ALTITUDE = 3000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830

ALTITUDE = 4000 FEET		ALTITUDE = 5000 FEET		ALTITUDE = 6000 FEET		ALTITUDE = 7000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830	-54 TO 10	16830

ALTITUDE = 8000 FEET		ALTITUDE = 9000 FEET		ALTITUDE = 10,000 FEET	
TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT	TEMP DEG. C	MAXIMUM TAKEOFF WEIGHT
-54 TO 9	16830	-54 TO 7	16830	-54 TO 4	16830
10	16810	10	16210	5 10	16700 15620

56FMC-00-00

Figure 4-19

WHERE CONDITIONS ALLOW FOR 7° OR 15° FLAP SETTING, IT IS DESIRED TO SELECT THE FLAP SETTING WHICH GIVES THE SHORTER TAKEOFF FIELD LENGTH.

TAKEOFF FIELD LENGTH - FEET, FLAPS 7° (DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE OFF)

Determine takeoff field length, V_1 , V_R , V_2 and V_{ENR} from Figure 4-21. If the runway has a gradient, adjust V_1 and takeoff field length using Figure 4-20.

If the required distance is greater than the available distance, the airplane weight must be reduced until distance required is less than or equal to the distance available.

TAKEOFF FIELD LENGTH AND V_1 ADJUSTED FOR RUNWAY GRADIENT - FLAPS 7°, ANTI-ICE - OFF

TAKEOFF FIELD LENGTH (ZERO GRADIENT) FROM FIG. 4-21	UPHILL GRADIENT				DOWNHILL GRADIENT			
	FOR BOTH SHADED AND NON-SHADED				SHADED		NON-SHADED	
	2%	1.5%	1%	0.5%	-1%	-2%	-1%	-2%
1600	1800	1750	1700	1650	1600	1600	1650	1700
1800	2000	1950	1900	1850	1800	1800	1850	1900
2000	2250	2200	2150	2100	2000	2000	2100	2100
2200	2500	2450	2350	2300	2200	2200	2300	2300
2400	2800	2700	2600	2500	2400	2400	2500	2550
2600	3050	2900	2800	2700	2600	2600	2700	2750
2800	3300	3150	3050	2950	2800	2800	2950	2950
3000	3550	3400	3250	3150	3000	3000	3150	3200
3200	3850	3650	3500	3350	3200	3150	3350	3400
3400	4100	3900	3750	3550	3400	3350	3600	3650
3600	4400	4150	3950	3800	3600	3550	3800	3850
3800	4700	4450	4200	4000	3800	3700	4000	4100
4000	5000	4700	4450	4200	3950	3900	4250	4300
4200	5300	4950	4700	4450	4150	4050	4450	4550
4400	5600	5250	4950	4650	4350	4250	4700	4800
4600	5950	5500	5200	4900	4550	4400	4900	5050
4800	6300	5850	5400	5100	4750	4600	5150	5300
5000	6650	6100	5700	5350	4900	4750	5350	5550
5200	7000	6350	5900	5550	5100	4950	5600	5800
5400	7350	6700	6200	5750	5300	5100	5800	6000
5600	7650	6950	6400	6000	5450	5300	6050	6250
5800	8050	7300	6700	6200	5650	5450	6300	6500
6000	8400	7550	6900	6400	5850	5650	6500	6800
6200	8750	7800	7100	6650	6000	5800	6750	7050
6400	9050	8050	7300	6850	6200	5950	7000	7350
6600	9350	8300	7550	7050	6400	6100	7250	7600
6800	9650	8550	7750	7250	6550	6300	7500	7900
7000	10000	8850	7950	7450	6750	6450	7750	8150
7200	10350	9150	8200	7650	6900	6600	8000	8450
7400	10800	9400	8400	7900	7100	6800	8250	8750
7600	11200	9650	8600	8100	7250	6950	8500	9050
7800	11600	9950	8850	8350	7450	7050	8800	9350
8000	11950	10200	9100	8550	7600	7250	9050	9600
8200	12350	10500	9400	8800	7800	7400	9300	9950
8400	12750	10850	9650	9000	7950	7550	9550	10250
8600	13200	11200	9900	9250	8150	7700	9850	10550
8800	13600	11500	10200	9500	8300	7850	10100	10850
9000	14000	11800	10500	9700	8500	8000	10400	11200
9500	15000	12600	11200	10250	8900	8400	11050	12050
10000		13400	11850	10800	9350	8800	11750	12850
10500		14250	12550	11400	9750	9150	12450	13700
11000		15050	13250	11950	10200	9550	13150	14550
12000			14600	13150	11050	10250	14550	16300
13000			15900	14250	11850	10950	15900	
14000				15400	12700	11600		
15000					13450	12250		
V_1 ADJUSTMENT*	$V_1 + 4$ Knots	$V_1 + 3$ Knots	$V_1 + 2$ Knots	$V_1 + 1$ Knot	$V_1 - 3$ Knots	$V_1 - 6$ Knots	$V_1 + 1$ Knot	$V_1 + 1$ Knot

* If the adjusted V_1 is greater than V_R , the value of V_R must be used for V_1 .

† Takeoffs in shaded area are prohibited from runways with a downhill gradient if all three limits (Altitude, Gross Weight and Wind) in a row are exceeded:

Altitude	Gross Weight	Wind
Greater than 2,000 ft	Greater than 15,000 lbs	Any Tailwind
Greater than 8,000 ft	Greater than 14,500 lbs	Any Tailwind
Greater than 13,000 ft	Greater than 14,500 lbs	All Winds

Figure 4-20

**TAKEOFF FIELD LENGTH - FEET, FLAPS 7°
(DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE OFF)****EXAMPLE:**

Pressure Altitude = 10,000 FEET
Gross Weight = 16,500 POUNDS
Ambient Temperature = 25° C

Wind = 20 KNOTS (HEADWIND)
Runway Gradient = -2% (DOWNHILL)
Anti-Ice = OFF

For Zero Runway Gradient from Figure 4-21:

Takeoff Field Length is 9000 FEET
 V_1 is 104 KNOTS
 V_R is 109 KNOTS
 V_2 is 119 KNOTS
 V_{ENR} is 160 KNOTS
 V_1 and Distance are SHADED

Adjustments for -2% (Downhill) Runway Gradient from Figure 4-20:

Takeoff Field Length is 8000 FEET
 V_1 is 98 KNOTS

EXAMPLE:

Pressure Altitude = 1000 FEET
Gross Weight = 16,830 POUNDS
Ambient Temperature = 30° C

Wind = 10 KNOTS (HEADWIND)
Runway Gradient = 2% (UPHILL)
Anti-Ice = OFF

For Zero Runway Gradient from Figure 4-21:

Takeoff Field Length is 4400 FEET
 V_1 is 103 KNOTS
 V_R is 107 KNOTS
 V_2 is 121 KNOTS
 V_{ENR} is 160 KNOTS
 V_1 and Distance are NON-SHADED

Adjustments for 2% (Uphill) Runway Gradient from Figure 4-20:

Takeoff Field Length is 5600 FEET
 V_1 is 107 KNOTS

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
SEA LEVEL**CONDITIONS: DRY RUNWAY****RUNWAY GRADIENT - ZERO****LANDING GEAR - DOWN****SPEED BRAKES - RETRACT****ANTI-ICE - OFF****INOPERATIVE ENGINE - WINDMILLING AFTER V1****OPERATIVE ENGINE - TAKEOFF THRUST**

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST																
-25	101	4640	104	3370	105	3110	106	2870	106	2670	107	121	-25	101	4430	103	3230	104	2980	105	2750	105	2570	105	120														
-20	101	4720	103	3440	105	3170	106	2930	106	2720	107	121	-20	100	4510	103	3290	104	3040	105	2800	105	2620	105	120														
-15	100	4800	103	3500	104	3240	106	2980	106	2760	107	121	-15	100	4590	102	3360	104	3100	105	2860	105	2660	105	120														
-10	100	4880	103	3570	104	3300	105	3040	106	2810	107	121	-10	99	4670	102	3420	103	3160	104	2920	105	2700	105	120														
-5	99	4960	102	3630	104	3360	105	3100	106	2860	107	121	-5	99	4740	101	3480	103	3220	104	2970	105	2740	105	120														
0	99	5040	102	3700	103	3420	105	3160	106	2920	106	121	0	98	4820	101	3540	103	3280	104	3030	105	2790	105	120														
5	98	5120	102	3770	103	3490	104	3220	106	2970	106	121	5	98	4920	101	3600	102	3340	103	3080	105	2850	105	120														
10	98	5230	101	3830	103	3550	104	3280	105	3030	106	121	10	98	5090	100	3670	102	3400	103	3140	104	2900	105	120														
15	98	5420	101	3910	102	3620	104	3350	105	3090	106	121	15	98	5270	100	3740	102	3460	103	3200	104	2960	105	120														
20	98	5630	101	3980	102	3680	104	3410	105	3150	106	121	20	98	5470	100	3800	101	3520	103	3260	104	3010	105	120														
25	97	5660	101	4110	102	3810	104	3530	105	3260	107	121	25	97	5500	100	3930	101	3640	103	3370	104	3110	105	120														
30	98	5960	101	4390	103	4060	104	3760	106	3470	107	121	30	97	5690	101	4190	102	3880	103	3600	105	3320	106	120														
35	98	6420	102	4700	104	4350	105	4020	106	3710	107	121	35	98	6120	101	4490	103	4150	104	3840	105	3550	106	120														
40	99	6940	103	5050	104	4670	106	4310	107	3980	108	121	40	99	6590	102	4810	104	4450	105	4110	106	3800	107	120														
45	100	7540	103	5450	105	5040	106	4640	108	4280	108	121	45	99	7140	103	5180	104	4790	106	4420	107	4080	107	120														
50	100	8250	104	5910	106	5460	107	5030	108	4630	109	120	50	100	7790	104	5610	105	5180	106	4770	107	4410	108	119														
54	101	8920	105	6340	107	5850	108	5380	109	4960	109	120	54	101	8410	104	6000	106	5530	107	5100	108	4730	108	119														

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR V2 KIAS												
					10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS																
					V1	DIST	V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST	V1	DIST													
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT													
-25	100	4150	101	3030	103	2800	103	2590	103	2420	103	119	-25	99	3880	100	2840	101	2620	101	2440	101	2280	102	117														
-20	99	4220	101	3090	102	2850	103	2630	103	2460	103	119	-20	98	3950	100	2890	101	2670	101	2480	101	2320	102	117														
-15	99	4290	101	3140	102	2910	103	2680	103	2500	103	119	-15	98	4040	99	2950	100	2720	101	2520	101	2350	102	117														
-10	98	4360	100	3200	102	2960	103	2730	103	2540	103	119	-10	98	4170	99	3000	100	2770	101	2560	101	2390	102	117														
-5	98	4440	100	3260	101	3010	103	2790	103	2580	103	119	-5	98	4300	99	3050	100	2820	101	2610	101	2430	102	117														
0	98	4590	100	3310	101	3070	102	2840	103	2620	103	119	0	98	4440	98	3100	100	2870	101	2660	101	2470	101	117														
5	98	4750	100	3370	101	3120	102	2890	103	2660	103	119	5	98	4590	98	3170	99	2920	100	2700	101	2500	101	117														
10	98	4910	99	3430	101	3180	102	2940	103	2720	103	119	10	98	4740	98	3250	99	2980	100	2750	101	2540	101	117														
15	98	5070	99	3500	100	3240	102	3000	103	2770	103	119	15	98	4890	98	3340	99	3030	100	2800	101	2590	101	117														
20	98	5250	99	3560	100	3300	101	3050	102	2820	103	119	20	98	5050	98	3430	99	3080	100	2850	101	2640	101	117														
25	97	5280	99	3670	100	3400	101	3150	102	2910	104	119	25	98	5080	98	3450	99	3180	100	2950	101	2720	102	117														
30	97	5290	99	3910	101	3630	102	3350	103	3100	104	119	30	96	4920	98	3650	99	3380	101	3130	102	2890	102	117														
35	97	5680	100	4180	102	3870	103	3580	104	3310	104	118	35	97	5270	99	3890	100	3610	101	3340	102	3080	103	117														
40	98	6100	101	4470	102	4130	104	3820	105	3530	105	118	40	97	5650	100	4150	101	3840	102	3560	103	3300	103	117														
45	99	6590	102	4800	103	4440	104	4100	105	3800	105	118	45	98	6080	101	4450	102	4120	103	3810	103	3550	103	116														
50	100	7160	103	5180	104	4790	105	4420	106	4120	106	118	50	99	6580	101	4790	103	4430	104	4090	104	3840	104	116														
54	100	7700	103	5530	105	5100	106	4710	106	4420	106	118	54	100	7050	102	5100	103	4710	104	4370	104	4120	104	116														

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
					V1	DIST	V1	DIST	V1	DIST						VR	V2	V1	DIST	V1	DIST	V1	DIST	VR	V2
-25	98	3700	98	2660	99	2460	99	2290	99	2140	100	115	-25	98	3610	98	2590	99	2360	99	2200	99	2050	99	115
-20	98	3810	98	2710	99	2500	99	2330	99	2180	100	115	-20	98	3720	98	2660	98	2410	99	2240	99	2090	99	115
-15	98	3930	98	2790	99	2550	99	2370	99	2210	100	115	-15	98	3820	98	2730	98	2460	99	2280	99	2130	99	115
-10	98	4050	98	2860	99	2600	99	2400	99	2250	100	115	-10	98	3940	98	2810	98	2520	99	2320	99	2170	99	115
-5	98	4180	98	2940	98	2640	99	2440	99	2280	100	115	-5	98	4060	98	2880	98	2590	99	2370	99	2210	99	115
0	98	4310	98	3020	98	2710	99	2480	99	2320	99	115	0	98	4180	98	2960	98	2660	99	2420	99	2250	99	116
5	98	4440	98	3100	98	2780	99	2530	99	2350	99	115	5	98	4310	98	3040	98	2730	99	2470	99	2290	100	116
10	98	4580	98	3180	98	2850	99	2580	99	2390	100	115	10	98	4430	98	3120	98	2800	98	2520	100	2330	100	116
15	98	4720	98	3270	98	2920	99	2630	99	2430	100	116	15	98	4560	98	3200	98	2870	98	2570	99	2370	100	116
20	98	4870	98	3350	98	2990	98	2680	99	2480	100	116	20	99	4700	99	3280	99	2940	99	2640	99	2420	100	116
25	98	4890	98	3370	98	3010	98	2750	99	2540	100	115	25	98	4720	98	3300	98	2950	98	2650	99	2450	99	115
30	95	4670	97	3400	98	3150	99	2920	100	2700	100	115	30	95	4520	95	3180	96	2940	97	2720	98	2530	98	114
35	96	4900	98	3620	99	3360	100	3110	100	2890	101	115	35	95	4540	96	3370	97	3120	98	2890	99	2700	99	113
40	96	5230	98	3860	100	3580	101	3310	101	3090	101	115	40	95	4850	97	3590	98	3320	99	3080	99	2890	99	113
45	97	5620	99	4120	100	3830	101	3540	101	3320	102	115	45	96	5190	98	3830	99	3550	99	3300	99	3100	100	113
50	98	6060	100	4430	101	4100	102	3810	102	3590	102	115	50	97	5580	99	4100	100	3800	100	3560	100	3340	100	113
54	99	6470	101	4700	102	4360	102	4070	102	3830	102	114	54	98	5940	99	4340	100	4030	100	3790	100	3560	100	113

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
SEA LEVEL**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEAD WINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO		HEAD WINDS								VR V2 KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS				20 KTS		30 KTS																						
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST		V1	DIST								
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT								
-25	98	3530	98	2550	98	2300	99	2140	99	1990	99	115	-25	98	3450	98	2510	98	2260	99	2080	99	1940	99	116	-25	98	3450	98	2510	98	2260	99	2080	99	1940	99	116	
-20	98	3620	98	2620	98	2360	99	2180	99	2030	99	115	-20	98	3540	98	2570	98	2320	99	2120	99	1980	99	116	-20	98	3540	98	2570	98	2320	99	2120	99	1980	99	116	
-15	98	3730	98	2690	98	2420	99	2220	99	2070	99	116	-15	99	3640	99	2640	99	2380	99	2170	99	2010	99	116	-15	99	3640	99	2640	99	2380	99	2170	99	2010	99	116	
-10	98	3840	98	2760	98	2480	99	2270	99	2110	99	116	-10	99	3740	99	2710	99	2440	99	2210	99	2050	99	116	-10	99	3740	99	2710	99	2440	99	2210	99	2050	99	116	
-5	98	3950	98	2830	98	2550	99	2310	99	2150	99	116	-5	99	3850	99	2780	99	2510	99	2260	99	2090	100	116	-5	99	3850	99	2780	99	2510	99	2260	99	2090	100	116	
0	99	4060	99	2910	99	2610	99	2360	99	2190	100	116	0	99	3960	99	2850	99	2570	99	2320	99	2130	100	116	0	99	3960	99	2850	99	2570	99	2320	99	2130	100	116	
5	99	4180	99	2980	99	2680	99	2410	100	2230	100	116	5	99	4070	99	2930	99	2640	99	2380	99	2180	100	117	5	99	4070	99	2930	99	2640	99	2380	99	2180	100	117	
10	99	4300	99	3060	99	2750	99	2470	99	2270	100	116	10	99	4180	99	3000	99	2700	99	2430	99	2220	100	117	10	99	4180	99	3000	99	2700	99	2430	99	2220	100	117	
15	99	4420	99	3130	99	2810	99	2530	99	2320	100	116	15	99	4290	99	3070	99	2760	99	2490	99	2260	100	117	15	99	4290	99	3070	99	2760	99	2490	99	2260	100	117	
20	99	4550	99	3210	99	2880	99	2590	99	2360	100	116	20	99	4410	99	3150	99	2830	99	2550	99	2310	100	117	20	99	4410	99	3150	99	2830	99	2550	99	2310	100	117	
25	98	4570	98	3230	98	2900	98	2610	99	2390	99	115	25	98	4430	98	3160	98	2840	98	2560	98	2330	99	116	25	98	4430	98	3160	98	2840	98	2560	98	2330	99	116	
30	96	4380	96	3120	96	2800	96	2580	97	2400	97	112	30	96	4250	96	3050	96	2750	96	2510	97	2330	97	113	30	96	4250	96	3050	96	2750	96	2510	97	2330	97	113	
35	93	4220	95	3140	96	2910	96	2690	96	2520	97	112	35	93	4080	93	2950	94	2710	94	2520	94	2360	95	110	35	93	4080	93	2950	94	2710	94	2520	94	2360	95	110	
40	94	4490	95	3330	96	3090	97	2870	97	2690	97	111	40	93	4160	94	3090	95	2870	95	2680	95	2510	95	110	40	93	4160	94	3090	95	2870	95	2680	95	2510	95	110	
45	95	4810	96	3550	97	3290	97	3080	97	2890	98	111	45	94	4440	95	3290	95	3050	95	2870	95	2690	96	109	45	94	4440	95	3290	95	3050	95	2870	95	2690	96	109	
50	96	5150	97	3800	98	3520	98	3310	98	3110	98	111	50	95	4750	95	3510	96	3280	96	3080	96	2890	96	109	50	95	4750	95	3510	96	3280	96	3080	96	2890	96	109	
54	97	5470	98	4020	98	3750	98	3530	98	3310	98	111	54	96	5040	96	3710	96	3480	96	3280	96	3070	96	109	54	96	5040	96	3710	96	3480	96	3280	96	3070	96	109	

WEIGHT = 13000 LBS											VENR = 160 KIAS											WEIGHT = 12500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR V2 KIAS																
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																						
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																					
-25	99	3370	99	2470	99	2230	99	2030	99	1890	99	116	-25	99	3300	99	2430	99	2200	99	1990	99	1830	99	117																		
-20	99	3460	99	2530	99	2290	99	2070	99	1920	99	116	-20	99	3390	99	2500	99	2260	99	2040	99	1880	100	117																		
-15	99	3550	99	2600	99	2350	99	2120	99	1960	100	116	-15	99	3480	99	2560	99	2310	99	2090	99	1910	100	117																		
-10	99	3650	99	2670	99	2410	99	2170	100	2000	100	117	-10	99	3570	99	2620	99	2370	99	2150	99	1950	100	117																		
-5	99	3750	99	2730	99	2470	99	2230	99	2040	100	117	-5	99	3660	99	2690	99	2430	99	2200	99	2000	100	117																		
0	99	3850	99	2800	99	2530	99	2290	99	2080	100	117	0	99	3760	99	2760	99	2490	99	2250	99	2040	100	117																		
5	99	3960	99	2870	99	2590	99	2340	99	2130	100	117	5	99	3860	99	2820	99	2550	99	2310	99	2090	100	118																		
10	99	4060	99	2940	99	2660	99	2400	99	2170	100	117	10	99	3960	99	2890	99	2610	99	2360	99	2140	100	118																		
15	99	4170	99	3010	99	2720	99	2450	99	2220	100	117	15	99	4060	99	2960	99	2670	99	2420	99	2190	100	118																		
20	99	4280	99	3090	99	2780	99	2510	99	2270	100	117	20	99	4160	99	3030	99	2740	99	2470	99	2240	100	118																		
25	98	4300	98	3100	98	2790	98	2520	98	2280	99	116	25	98	4180	98	3040	98	2750	98	2490	98	2250	100	117																		
30	96	4120	96	2990	96	2700	96	2450	97	2270	97	113	30	96	4010	96	2940	96	2660	96	2400	97	2210	97	114																		
35	93	3960	93	2890	94	2630	95	2440	95	2280	95	110	35	94	3860	94	2840	94	2570	94	2380	95	2210	95	111																		
40	91	3860	92	2870	93	2660	93	2500	93	2340	93	108	40	91	3720	91	2760	92	2560	92	2390	92	2240	92	108																		
45	92	4110	93	3050	93	2840	93	2670	93	2500	93	108	45	91	3800	91	2820	91	2640	91	2480	91	2310	91	106																		
50	93	4390	94	3250	94	3050	94	2860	94	2680	94	107	50	92	4050	92	3010	92	2830	92	2650	92	2480	92	106																		
54	94	4640	94	3440	94	3230	94	3040	94	2840	94	107	54	92	4300	92	3190	92	3000	92	2810	92	2630	92	105																		

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR V2											
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT										
-25	99	3230	99	2400	99	2180	99	1970	99	1790	100	117	-25	99	3170	99	2370	99	2150	99	1950	99	1760	100	118														
-20	99	3320	99	2460	99	2230	99	2020	99	1830	100	117	-20	99	3250	99	2430	99	2200	99	2000	99	1810	100	118														
-15	99	3400	99	2520	99	2280	99	2070	99	1870	100	117	-15	99	3340	99	2490	99	2260	99	2050	99	1850	100	118														
-10	99	3490	99	2580	99	2340	99	2120	99	1920	100	118	-10	99	3420	99	2550	99	2310	99	2100	99	1900	100	118														
-5	99	3580	99	2650	99	2400	99	2170	99	1970	100	118	-5	99	3510	99	2610	99	2370	99	2150	99	1950	100	118														
0	99	3670	99	2710	99	2460	99	2230	99	2020	100	118	0	99	3590	99	2670	99	2430	99	2200	99	2000	100	118														
5	99	3770	99	2780	99	2520	99	2280	99	2070	100	118	5	99	3680	99	2740	99	2480	99	2250	99	2040	101	119														
10	99	3860	99	2840	99	2580	99	2330	99	2110	100	118	10	99	3770	99	2800	99	2540	99	2310	99	2090	101	119														
15	99	3960	99	2910	99	2630	99	2390	99	2160	101	118	15	99	3860	99	2860	99	2600	99	2360	99	2140	101	119														
20	99	4050	99	2980	99	2690	99	2440	99	2210	101	118	20	99	3950	99	2930	99	2680	99	2410	99	2190	101	119														
25	98	4070	98	2990	98	2700	98	2450	98	2220	100	117	25	99	3960	99	2940	99	2660	99	2420	99	2190	100	118														
30	96	3910	96	2880	96	2610	96	2370	96	2160	97	114	30	96	3810	96	2840	96	2570	96	2340	96	2120	97	115														
35	94	3760	94	2790	94	2530	94	2310	95	2140	95	111	35	94	3670	94	2740	94	2490	94	2260	94	2080	95	111														
40	91	3630	91	2700	92	2480	92	2310	92	2160	92	108	40	91	3540	91	2650	91	2410	92	2240	92	2090	92	108														
45	90	3580	90	2670	90	2500	90	2340	90	2180	90	105	45	89	3460	89	2590	90	2410	90	2250	90	2110	90	105														
50	89	3760	89	2790	89	2620	89	2450	89	2290	89	104	50	88	3510	88	2600	88	2440	88	2280	88	2130	88	102														
54	90	3980	90	2950	90	2770	90	2590	90	2420	90	104	54	87	3680	87	2720	87	2550	87	2390	87	2230	88	102														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
1000 FEET

CONDITIONS: DRY RUNWAY

ANTI-ICE - OFF

RUNWAY GRADIENT - ZERO

INOPERATIVE ENGINE - WINDMILLING AFTER V1

LANDING GEAR - DOWN

OPERATIVE ENGINE - TAKEOFF THRUST

SPEED BRAKES - RETRACT

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS											VENR = 160 KIAS											WEIGHT = 16500 LBS											VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
TEMP DEG C	TAILWIND 10 KTS			ZERO WIND			HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS			ZERO WIND			HEAD WINDS								VR	V2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
							10 KTS		20 KTS		30 KTS		10 KTS											20 KTS		30 KTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1

WEIGHT = 16000 LBS											VENR = 160 KIAS											WEIGHT = 15500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2																		
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS					10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS																					
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT													
-25	99	4230	101	3100	102	2870	103	2650	103	2470	103	119	-25	99	4080	99	2910	100	2690	101	2480	101	2320	101	117																		
-20	98	4340	100	3160	101	2930	103	2700	103	2510	103	119	-20	99	4210	99	2960	100	2740	101	2530	101	2360	101	117																		
-15	99	4490	100	3220	101	2980	102	2750	103	2550	103	119	-15	99	4350	99	3030	100	2790	101	2580	101	2400	101	117																		
-10	99	4650	100	3280	101	3040	102	2810	103	2590	103	119	-10	99	4500	99	3120	99	2840	101	2630	101	2440	101	117																		
-5	99	4820	99	3340	101	3090	102	2860	103	2640	103	119	-5	99	4660	99	3210	99	2900	100	2680	101	2470	101	117																		
0	99	5000	99	3400	100	3150	101	2910	103	2690	103	119	0	99	4820	99	3300	99	2950	100	2730	101	2520	101	117																		
5	99	5190	99	3470	100	3210	101	2970	102	2740	103	119	5	99	5000	99	3400	99	3030	100	2780	101	2560	101	117																		
10	99	5380	99	3580	100	3270	101	3020	102	2790	103	119	10	99	5170	99	3490	99	3110	99	2830	101	2610	101	117																		
15	99	5590	99	3680	99	3320	101	3080	102	2850	103	119	15	99	5360	99	3590	99	3190	99	2880	100	2660	101	117																		
20	98	5670	98	3720	99	3420	101	3170	102	2930	103	119	20	98	5430	98	3630	98	3230	99	2960	100	2740	101	117																		
25	96	5340	99	3930	100	3650	101	3380	103	3120	104	119	25	96	5130	98	3670	99	3400	100	3150	101	2920	102	117																		
30	97	5720	100	4220	101	3910	102	3620	103	3350	104	118	30	96	5310	98	3930	100	3640	101	3370	102	3120	102	117																		
35	97	6170	100	4530	102	4200	103	3880	104	3590	105	118	35	97	5710	99	4210	101	3900	102	3610	103	3340	103	117																		
40	98	6670	101	4870	103	4510	104	4170	105	3850	105	118	40	97	6160	100	4510	101	4180	103	3870	103	3590	103	116																		
45	99	7250	102	5260	103	4860	105	4490	106	4160	106	118	45	98	6670	101	4860	102	4500	103	4160	104	3880	104	116																		
50	100	7930	103	5710	104	5270	106	4860	106	4530	106	118	50	99	7260	102	5250	103	4860	104	4490	104	4220	104	116																		
52	100	8240	103	5900	105	5450	106	5020	106	4700	106	118	52	100	7530	102	5430	103	5020	104	4640	104	4370	104	116																		

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2										
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS							10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT											
-25	99	3960	99	2810	99	2520	99	2340	99	2190	100	116	-25	99	3860	99	2760	99	2480	100	2280	100	2130	100	116	-25	99	3760	99	2660	99	2380	100	2180	100	116			
-20	99	4090	99	2890	99	2590	100	2380	100	2230	100	116	-20	99	3980	99	2830	99	2540	99	2320	100	2170	100	116	-20	99	3880	99	2730	99	2450	100	2150	100	116			
-15	99	4220	99	2970	99	2660	99	2430	100	2270	100	116	-15	99	4100	99	2910	99	2610	99	2380	100	2210	100	116	-15	99	4000	99	2810	99	2530	100	2190	100	116			
-10	99	4360	99	3050	99	2730	99	2490	100	2310	100	116	-10	99	4230	99	2990	99	2680	99	2430	100	2250	100	116	-10	99	4130	99	2890	99	2610	100	2210	100	116			
-5	99	4510	99	3140	99	2810	99	2540	100	2350	100	116	-5	99	4370	99	3080	99	2760	99	2480	100	2290	100	116	-5	99	4270	99	3030	99	2750	99	2470	100	116			
0	99	4660	99	3230	99	2890	99	2590	100	2390	100	116	0	99	4510	99	3160	99	2830	99	2540	100	2340	100	116	0	99	4410	99	3110	99	2800	99	2520	100	116			
5	99	4820	99	3320	99	2970	99	2660	100	2440	100	116	5	99	4660	99	3250	99	2910	99	2610	100	2390	100	116	5	99	4560	99	3200	99	2850	99	2570	100	116			
10	99	4980	99	3410	99	3050	99	2730	100	2500	100	116	10	99	4810	99	3340	99	2990	99	2680	100	2440	100	116	10	99	4710	99	3290	99	2900	99	2620	100	116			
15	99	5150	99	3510	99	3130	99	2800	100	2550	100	116	15	99	4960	99	3430	99	3060	99	2750	99	2490	100	116	15	99	4860	99	3380	99	3000	99	2670	100	116			
20	98	5210	98	3550	98	3160	98	2830	99	2580	100	116	20	99	5020	99	3460	99	3100	99	2780	99	2520	100	116	20	99	4920	99	3410	99	3050	99	2720	99	116			
25	96	4940	96	3420	97	3170	98	2940	100	2720	100	115	25	96	4770	96	3330	96	2990	97	2740	98	2540	98	114	25	96	4670	96	3280	96	2940	97	2690	97	114			
30	95	4930	97	3660	98	3390	99	3140	100	2910	100	115	30	94	4580	96	3400	97	3160	98	2930	98	2720	99	113	30	94	4480	96	3350	96	3090	97	2890	97	113			
35	96	5290	98	3920	99	3630	100	3360	101	3120	101	115	35	95	4910	97	3640	98	3370	99	3120	99	2920	99	113	35	95	4810	97	3590	97	3320	98	3070	98	113			
40	97	5690	99	4180	100	3880	101	3590	101	3350	102	115	40	96	5250	97	3880	98	3600	99	3330	99	3130	100	113	40	96	5150	97	3830	97	3560	98	3320	98	113			
45	98	6140	100	4490	101	4160	102	3850	102	3620	102	115	45	97	5650	98	4160	99	3860	100	3590	100	3380	100	113	45	97	5550	98	4110	98	3810	99	3570	99	113			
50	98	6660	101	4840	102	4480	102	4170	102	3930	102	114	50	98	6110	99	4470	100	4140	100	3890	100	3650	100	113	50	98	6010	99	4420	99	4120	100	3870	100	113			
52	99	6890	101	5000	102	4620	103	4320	103	4070	103	114	52	98	6310	100	4610	101	4270	101	4020	101	3780	101	113	52	98	6210	99	4570	99	4280	100	4000	100	113			

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
1000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS								WEIGHT = 13500 LBS							
VENR = 160 KIAS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS			TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS		
					10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS
	V1	DIST	V1	DIST	V1	V1	V1		V1	DIST	V1	DIST	V1	V1	V1
	KIAS	FT	KIAS	FT	KIAS	FT	FT		KIAS	FT	KIAS	FT	KIAS	FT	FT
-25	99	3760	99	2710	99	2440	100 2070	100 116	-25	99	3670	99	2660	99	2400
-20	99	3870	99	2780	99	2500	100 2110	100 116	-20	99	3780	99	2730	99	2460
-15	99	3990	99	2860	99	2570	100 2150	100 117	-15	99	3890	99	2810	99	2530
-10	99	4110	99	2940	99	2640	100 2190	100 117	-10	99	4000	99	2880	99	2600
-5	99	4240	99	3020	99	2710	100 2240	100 117	-5	99	4120	99	2960	99	2670
0	99	4370	99	3100	99	2780	100 2280	100 117	0	99	4240	99	3040	99	2740
5	99	4510	99	3180	99	2860	100 2330	100 117	5	99	4370	99	3120	99	2810
10	99	4650	99	3270	99	2930	101 2380	101 117	10	99	4500	99	3200	99	2880
15	99	4790	99	3350	99	3010	101 2430	101 117	15	99	4630	99	3280	99	2950
20	99	4840	99	3390	99	3040	100 2470	100 117	20	99	4680	99	3320	99	2980
25	96	4610	96	3260	96	2930	97 2450	98 114	25	96	4470	96	3190	96	2870
30	94	4380	94	3170	95	2940	96 2540	96 112	30	94	4250	94	3070	94	2770
35	94	4540	95	3380	96	3130	97 2720	97 111	35	92	4210	93	3140	94	2910
40	95	4860	96	3600	97	3340	97 2920	98 111	40	93	4490	94	3340	95	3090
45	96	5210	97	3850	98	3570	98 3140	98 111	45	94	4810	95	3560	96	3310
50	97	5610	98	4130	98	3840	98 3390	98 111	50	95	5160	96	3810	96	3570
52	97	5790	98	4250	99	3960	99 3510	99 111	52	96	5320	96	3920	97	3680

WEIGHT = 13000 LBS								WEIGHT = 12500 LBS							
VENR = 160 KIAS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS			TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS		
					10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS
	V1	DIST	V1	DIST	V1	V1	V1		V1	DIST	V1	DIST	V1	V1	V1
	KIAS	FT	KIAS	FT	KIAS	FT	FT		KIAS	FT	KIAS	FT	KIAS	FT	FT
-25	99	3580	99	2620	99	2360	99 2140	100 1960	100 117	-25	99	3510	99	2580	99 2330
-20	99	3690	99	2690	99	2430	99 2190	100 2000	100 117	-20	99	3600	99	2650	99 2390
-15	99	3790	99	2760	99	2490	99 2250	100 2050	100 117	-15	99	3700	99	2710	99 2450
-10	99	3900	99	2830	99	2560	99 2310	99 2090	100 118	-10	99	3800	99	2790	99 2520
-5	99	4010	99	2910	99	2620	99 2370	99 2140	101 118	-5	100	3910	100	2860	100 2580
0	99	4130	99	2980	99	2690	99 2430	99 2190	101 118	0	100	4020	100	2930	100 2650
5	99	4250	99	3060	99	2760	99 2490	99 2250	101 118	5	100	4130	100	3010	100 2720
10	99	4370	99	3140	99	2830	99 2550	99 2300	101 118	10	100	4240	100	3080	100 2780
15	99	4490	99	3220	99	2900	99 2610	99 2360	101 118	15	100	4360	100	3160	100 2850
20	99	4530	99	3250	99	2930	99 2640	99 2380	100 118	20	99	4400	99	3180	99 2880
25	96	4330	96	3130	96	2820	96 2550	97 2330	98 114	25	97	4210	97	3070	97 2770
30	94	4130	94	3000	94	2710	95 2500	95 2330	95 111	30	94	4010	94	2940	94 2660
35	91	3960	92	2910	92	2700	93 2520	93 2360	93 108	35	92	3850	92	2840	92 2620
40	92	4150	92	3090	93	2870	93 2690	93 2520	93 108	40	90	3840	91	2860	91 2670
45	93	4440	93	3290	94	3080	94 2890	94 2710	94 108	45	91	4090	91	3040	92 2860
50	94	4750	94	3520	94	3310	94 3110	94 2920	94 107	50	92	4390	92	3260	92 3070
52	94	4890	94	3630	94	3410	94 3210	94 3010	95 107	52	92	4530	92	3360	92 3160

WEIGHT = 12000 LBS								WEIGHT = 11500 LBS							
VENR = 160 KIAS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS			TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS		
					10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS
	V1	DIST	V1	DIST	V1	V1	V1		V1	DIST	V1	DIST	V1	V1	V1
	KIAS	FT	KIAS	FT	KIAS	FT	FT		KIAS	FT	KIAS	FT	KIAS	FT	FT
-25	100	3430	100	2540	100	2300	100 2090	100 1890	100 118	-25	100	3360	100	2510	100 2280
-20	100	3520	100	2610	100	2360	100 2140	100 1940	101 118	-20	100	3450	100	2570	100 2330
-15	100	3620	100	2670	100	2420	100 2190	100 1990	101 118	-15	100	3540	100	2640	100 2390
-10	100	3710	100	2740	100	2480	100 2250	100 2040	101 119	-10	100	3630	100	2700	100 2450
-5	100	3820	100	2810	100	2550	100 2310	100 2090	101 119	-5	100	3730	100	2770	100 2510
0	100	3920	100	2880	100	2610	100 2360	100 2140	101 119	0	100	3830	100	2840	100 2580
5	100	4020	100	2950	100	2680	100 2420	100 2190	101 119	5	100	3930	100	2910	100 2640
10	100	4130	100	3030	100	2740	100 2480	100 2250	101 119	10	100	4030	100	2980	100 2700
15	100	4240	100	3100	100	2800	100 2540	100 2300	101 119	15	100	4130	100	3050	100 2760
20	99	4280	99	3130	99	2830	99 2560	99 2320	101 119	20	99	4160	99	3070	99 2790
25	97	4090	97	3010	97	2730	97 2470	97 2240	98 115	25	97	3990	97	2960	97 2680
30	94	3910	94	2890	94	2620	94 2370	95 2200	95 112	30	94	3810	94	2840	94 2580
35	92	3750	92	2790	92	2540	93 2360	93 2200	93 108	35	92	3660	92	2730	92 2480
40	90	3650	90	2730	90	2540	90 2380	90 2230	90 105	40	89	3530	89	2650	90 2460
45	89	3780	89	2810	89	2640	89 2480	89 2310	89 104	45	88	3550	88	2640	88 2480
50	90	4060	90	3020	90	2830	90 2660	90 2480	90 104	50	87	3750	87	2780	87 2610
52	90	4190	90	3110	90	2920	90 2730	90 2560	90 103	52	88	3870	88	2860	88 2690

56FMC-00-00

Figure 4-21 (Sheet 4)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
2000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST								
	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT													
-25	99	4830	102	3550	103	3280	105	3030	106	2790	106	121	-25	99	4690	101	3400	103	3140	104	2900	105	2680	105	120														
-20	99	4990	102	3620	103	3350	104	3090	105	2850	106	121	-20	99	4870	101	3460	102	3210	103	2960	105	2730	105	120														
-15	99	5190	101	3690	103	3410	104	3160	105	2910	106	121	-15	99	5060	100	3530	102	3270	103	3020	104	2790	105	120														
-10	99	5420	101	3760	102	3480	104	3220	105	2970	106	121	-10	99	5270	100	3600	101	3330	103	3080	104	2850	105	120														
-5	99	5660	100	3830	102	3550	103	3280	105	3030	106	121	-5	99	5500	100	3670	101	3390	102	3140	104	2900	105	120														
0	99	5910	100	3900	102	3610	103	3340	104	3090	106	122	0	99	5740	99	3730	101	3460	102	3200	103	2960	105	120														
5	99	6190	100	3970	101	3680	103	3410	104	3150	106	122	5	99	5990	99	3840	100	3520	102	3260	103	3020	105	120														
10	99	6480	99	4040	101	3750	102	3470	104	3210	106	122	10	99	6260	99	3960	100	3590	102	3320	103	3080	105	120														
15	99	6600	99	4160	101	3860	102	3580	104	3310	106	121	15	99	6370	99	4020	100	3690	101	3420	103	3170	105	120														
20	96	6120	100	4460	102	4130	103	3830	104	3550	107	121	20	96	5920	99	4260	101	3950	102	3660	104	3390	106	120														
25	97	6510	101	4800	102	4450	104	4110	105	3800	107	121	25	96	6200	100	4580	102	4240	103	3930	104	3640	106	120														
30	97	7080	101	5190	103	4810	105	4440	106	4100	108	121	30	97	6730	101	4940	102	4580	104	4230	105	3910	107	120														
35	98	7710	102	5610	104	5190	105	4790	107	4420	108	121	35	98	7310	102	5330	103	4930	105	4560	106	4210	107	120														
40	99	8450	103	6100	105	5630	106	5200	107	4790	109	121	40	99	7980	102	5780	104	5340	105	4930	107	4550	107	119														
45	99	9300	104	6660	105	6140	107	5650	108	5200	109	120	45	99	8760	103	6290	105	5810	106	5350	107	4930	108	119														
50	100	10340	105	7310	106	6730	108	6180	109	5670	109	120	50	100	9710	104	6890	106	6350	107	5840	108	5370	108	119														

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	VR KTAS	V2 KTAS		V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	VR KTAS	V2 KTAS						
-25	99	4530	100	3190	101	2950	102	2720	103	2520	103	119	-25	99	4390	99	3050	100	2760	101	2550	101	2370	101	117
-20	99	4700	99	3250	101	3010	102	2780	103	2560	103	119	-20	99	4540	99	3140	99	2820	100	2600	101	2410	101	117
-15	99	4880	99	3310	100	3060	102	2830	103	2610	103	119	-15	99	4710	99	3230	99	2880	100	2650	101	2450	101	117
-10	99	5070	99	3410	100	3120	101	2890	102	2670	103	119	-10	99	4890	99	3330	99	2970	100	2700	101	2500	101	117
-5	99	5270	99	3520	100	3180	101	2940	102	2720	103	119	-5	99	5070	99	3430	99	3060	100	2750	101	2540	101	117
0	99	5490	99	3630	99	3240	101	3000	102	2770	103	119	0	99	5270	99	3540	99	3150	99	2810	100	2590	101	117
5	99	5720	99	3740	99	3310	100	3050	102	2820	103	119	5	99	5470	99	3650	99	3240	99	2890	100	2640	101	117
10	99	5960	99	3860	99	3410	100	3110	101	2880	103	119	10	99	5690	99	3760	99	3330	99	2970	100	2690	101	117
15	99	6060	99	3910	99	3460	100	3200	101	2960	103	119	15	99	5780	99	3810	99	3380	99	3010	100	2770	101	117
20	96	5660	98	3970	100	3690	101	3420	102	3160	104	119	20	96	5420	97	3710	98	3440	100	3190	101	2950	102	117
25	96	5760	99	4260	100	3950	102	3660	103	3390	104	118	25	95	5340	98	3970	99	3680	100	3410	101	3150	102	117
30	97	6230	100	4590	101	4250	103	3940	104	3640	105	118	30	96	5770	99	4260	100	3950	101	3660	102	3390	103	117
35	97	6740	101	4940	102	4570	103	4230	105	3910	105	118	35	97	6220	100	4570	101	4240	102	3920	103	3630	103	116
40	98	7330	101	5340	103	4940	104	4560	105	4210	106	118	40	98	6750	100	4930	102	4560	103	4220	104	3910	104	116
45	99	8020	102	5790	104	5350	105	4930	106	4560	106	118	45	99	7340	101	5330	103	4930	104	4550	104	4250	104	116
50	100	8830	103	6310	105	5820	106	5360	106	5000	107	118	50	99	8050	102	5790	103	5350	104	4940	105	4650	105	116

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS													
TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEAD WINDS								VR V2 KTAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEAD WINDS								VR V2 KTAS
			10 KTS		20 KTS		30 KTS		10 KTS						20 KTS		30 KTS						
			V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST					
			KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT					KTAS	FT	KTAS	FT					
-25	99 4260	99 2990	99 2670	100 2430	100 2260	100 116	-25	99 4140	99 2930	99 2630	100 2380	100 2200	100 117										
-20	99 4400	99 3070	99 2750	100 2490	100 2310	100 116	-20	99 4270	99 3010	99 2700	99 2430	100 2240	100 117										
-15	99 4560	99 3170	99 2830	99 2550	100 2350	100 117	-15	99 4410	99 3100	99 2780	99 2500	100 2290	101 117										
-10	99 4720	99 3260	99 2910	99 2610	100 2400	101 117	-10	99 4560	99 3190	99 2860	99 2570	100 2350	101 117										
-5	99 4890	99 3360	99 3000	99 2680	100 2450	101 117	-5	100 4720	100 3290	100 2940	100 2640	100 2400	101 117										
0	99 5070	99 3460	99 3080	99 2760	100 2510	101 117	0	100 4890	100 3380	100 3020	100 2710	100 2450	101 117										
5	100 5260	100 3560	100 3170	100 2840	100 2560	101 117	5	100 5060	100 3480	100 3110	100 2790	100 2500	101 118										
10	100 5450	100 3670	100 3260	100 2920	100 2620	101 117	10	100 5230	100 3580	100 3200	100 2860	100 2570	101 118										
15	99 5530	99 3710	99 3300	99 2950	99 2650	100 117	15	99 5310	99 3620	99 3230	99 2900	99 2600	101 117										
20	97 5210	97 3560	97 3210	98 2980	99 2750	100 115	20	97 5020	97 3470	97 3110	97 2790	98 2580	98 114										
25	94 4960	97 3690	98 3430	99 3180	100 2940	100 115	25	94 4750	95 3440	96 3190	97 2960	98 2740	98 113										
30	95 5340	97 3960	99 3680	100 3400	101 3150	101 115	30	94 4950	96 3680	97 3410	98 3170	99 2940	99 113										
35	96 5750	98 4240	99 3930	101 3640	101 3380	101 115	35	95 5310	97 3940	98 3650	99 3380	99 3160	99 113										
40	97 6210	99 4560	100 4220	101 3910	102 3650	102 115	40	96 5720	98 4220	99 3910	100 3620	100 3410	100 113										
45	98 6730	100 4910	101 4550	102 4210	102 3960	102 114	45	97 6180	99 4530	100 4210	100 3920	100 3690	100 113										
50	99 7340	101 5320	102 4920	103 4580	103 4320	103 114	50	98 6710	100 4890	101 4530	101 4260	101 4010	101 113										

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
2000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS					10 KTS		20 KTS		30 KTS		10 KTS					10 KTS		20 KTS		30 KTS								
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	VR	V2							
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT									
-25	99	4020	99	2880	99	2590	99	2330	100	2150	100	117	-25	100	3920	100	2820	100	2540	100	2290	100	2100	101	118	-25	100	3920	100	2820	100	2540	100	2290	100	2100	101	118	
-20	99	4150	99	2960	99	2660	99	2390	100	2190	101	117	-20	100	4040	100	2900	100	2610	100	2360	100	2140	101	118	-20	100	4040	100	2900	100	2610	100	2360	100	2140	101	118	
-15	100	4280	100	3040	100	2730	100	2460	100	2240	101	117	-15	100	4160	100	2980	100	2690	100	2420	100	2190	101	118	-15	100	4160	100	2980	100	2690	100	2420	100	2190	101	118	
-10	100	4420	100	3130	100	2810	100	2530	100	2290	101	118	-10	100	4290	100	3070	100	2760	100	2490	100	2240	101	118	-10	100	4290	100	3070	100	2760	100	2490	100	2240	101	118	
-5	100	4570	100	3220	100	2890	100	2600	100	2350	101	118	-5	100	4430	100	3150	100	2840	100	2560	100	2300	101	118	-5	100	4430	100	3150	100	2840	100	2560	100	2300	101	118	
0	100	4720	100	3310	100	2970	100	2670	100	2400	101	118	0	100	4570	100	3240	100	2910	100	2620	100	2360	101	118	0	100	4570	100	3240	100	2910	100	2620	100	2360	101	118	
5	100	4880	100	3400	100	3050	100	2740	100	2460	101	118	5	100	4710	100	3330	100	2990	100	2690	100	2430	101	118	5	100	4710	100	3330	100	2990	100	2690	100	2430	101	118	
10	100	5040	100	3500	100	3130	100	2810	100	2530	101	118	10	100	4860	100	3420	100	3070	100	2760	100	2490	101	119	10	100	4860	100	3420	100	3070	100	2760	100	2490	101	119	
15	99	5110	99	3540	99	3170	99	2840	99	2560	101	117	15	99	4920	99	3460	99	3110	99	2790	99	2520	101	118	15	99	4920	99	3460	99	3110	99	2790	99	2520	101	118	
20	97	4840	97	3400	97	3050	97	2740	97	2520	98	114	20	97	4680	97	3320	97	2990	97	2690	97	2460	98	115	20	97	4680	97	3320	97	2990	97	2690	97	2460	98	115	
25	94	4590	94	3260	95	2970	96	2750	96	2560	96	112	25	94	4450	94	3190	94	2870	95	2640	96	2450	96	111	25	94	4450	94	3190	94	2870	95	2640	96	2450	96	111	
30	93	4590	95	3420	96	3170	97	2940	97	2750	97	111	30	92	4250	93	3170	94	2940	95	2730	95	2560	95	110	30	92	4250	93	3170	94	2940	95	2730	95	2560	95	110	
35	94	4910	95	3650	96	3380	97	3140	97	2950	97	111	35	93	4540	94	3380	95	3140	95	2920	95	2740	95	110	35	93	4540	94	3380	95	3140	95	2920	95	2740	95	110	
40	95	5270	96	3900	97	3620	98	3380	98	3170	98	111	40	94	4870	95	3610	96	3350	96	3140	96	2950	96	109	40	94	4870	95	3610	96	3350	96	3140	96	2950	96	109	
45	96	5680	97	4190	98	3880	98	3640	98	3420	98	111	45	95	5220	96	3860	96	3590	96	3380	96	3180	96	109	45	95	5220	96	3860	96	3590	96	3380	96	3180	96	109	
50	97	6140	98	4500	99	4190	99	3950	99	3720	99	111	50	96	5630	96	4150	97	3890	97	3660	97	3440	97	109	50	96	5630	96	4150	97	3890	97	3660	97	3440	97	109	

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST														
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST																			
-25	100	3820	100	2780	100	2510	100	2260	100	2050	101	118	-25	100	3730	100	2730	100	2470	100	2230	100	2020	101	119														
-20	100	3930	100	2850	100	2570	100	2320	100	2100	101	118	-20	100	3830	100	2810	100	2540	100	2290	100	2070	101	119														
-15	100	4050	100	2930	100	2640	100	2390	100	2150	101	118	-15	100	3940	100	2880	100	2600	100	2350	100	2130	101	119														
-10	100	4170	100	3010	100	2720	100	2450	100	2210	101	119	-10	100	4060	100	2960	100	2670	100	2420	100	2190	101	119														
-5	100	4300	100	3090	100	2790	100	2520	100	2270	101	119	-5	100	4180	100	3040	100	2740	100	2480	100	2240	102	119														
0	100	4430	100	3180	100	2860	100	2580	100	2330	101	119	0	100	4300	100	3120	100	2820	100	2550	100	2300	102	119														
5	100	4570	100	3260	100	2940	100	2650	100	2390	101	119	5	100	4430	100	3200	100	2890	100	2610	100	2360	102	120														
10	100	4700	100	3350	100	3010	100	2720	100	2450	102	119	10	100	4560	100	3280	100	2960	100	2680	100	2420	102	120														
15	99	4760	99	3390	99	3050	99	2750	99	2480	101	118	15	100	4610	100	3320	100	2990	100	2700	100	2450	101	119														
20	97	4530	97	3250	97	2930	97	2650	97	2400	98	115	20	97	4390	97	3190	97	2880	97	2600	97	2350	99	116														
25	94	4310	94	3120	94	2820	95	2570	96	2390	96	112	25	95	4190	95	3060	95	2770	95	2500	95	2320	96	112														
30	92	4110	92	3000	92	2760	93	2570	93	2400	93	108	30	92	4000	92	2940	92	2680	93	2490	93	2330	93	109														
35	91	4200	92	3130	93	2900	93	2720	93	2550	93	108	35	90	3880	90	2900	91	2690	91	2520	91	2360	91	106														
40	92	4490	93	3340	94	3110	94	2920	94	2730	94	108	40	91	4140	91	3080	91	2880	91	2710	91	2530	92	106														
45	93	4810	94	3570	94	3340	94	3140	94	2940	94	107	45	92	4420	92	3290	92	3090	92	2910	92	2720	92	105														
50	94	5170	95	3820	95	3600	95	3390	95	3180	95	107	50	93	4760	93	3540	93	3340	93	3130	93	2940	93	105														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST							V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
3000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
-30	99	5030	101	3570	103	3310	104	3060	105	2820	106	121	-30	99	4900	101	3420	102	3170	103	2930	104	2700	105	120														
-25	99	5240	101	3650	103	3380	104	3120	105	2880	106	121	-25	99	5110	100	3490	102	3240	103	2990	104	2760	105	120														
-20	99	5470	101	3720	102	3450	104	3190	105	2940	106	122	-20	99	5330	100	3560	101	3300	103	3050	104	2820	105	120														
-15	99	5730	100	3790	102	3510	103	3250	104	3000	106	122	-15	100	5560	100	3630	101	3370	102	3110	103	2880	105	120														
-10	100	6010	100	3870	101	3580	103	3320	104	3070	106	122	-10	100	5820	100	3760	101	3430	102	3180	103	2940	105	120														
-5	100	6310	100	3960	101	3650	102	3380	104	3130	106	122	-5	100	6100	100	3890	100	3500	102	3240	103	2990	105	120														
0	100	6640	100	4100	101	3720	102	3450	103	3190	106	122	0	100	6400	100	4020	100	3560	101	3300	103	3050	105	121														
5	100	7000	100	4250	100	3790	102	3510	103	3250	106	122	5	100	6730	100	4160	100	3650	101	3360	102	3110	105	121														
10	99	7170	99	4320	100	3900	102	3620	103	3350	106	122	10	99	6880	99	4230	99	3730	101	3460	102	3200	105	120														
15	97	6570	99	4510	101	4180	102	3870	104	3590	107	121	15	97	6340	99	4310	100	4000	102	3710	103	3430	105	120														
20	96	6550	100	4850	102	4490	103	4160	105	3850	107	121	20	96	6250	99	4620	101	4290	102	3970	104	3670	106	120														
25	96	7120	101	5240	102	4850	104	4490	105	4150	108	121	25	96	6770	100	4990	102	4620	103	4280	105	3950	106	120														
30	97	7780	102	5680	103	5260	105	4860	106	4490	108	121	30	97	7370	101	5400	103	5000	104	4620	105	4270	107	120														
35	98	8520	102	6180	104	5710	106	5270	107	4860	109	121	35	98	8050	102	5860	103	5420	105	5000	106	4610	107	120														
40	98	9400	103	6760	105	6230	106	5750	108	5290	109	120	40	98	8860	103	6390	104	5900	106	5440	107	5010	108	119														
45	99	10430	104	7420	106	6830	107	6280	108	5770	109	120	45	99	9790	103	6990	105	6440	106	5930	108	5450	108	119														
48	99	11170	104	7880	106	7240	108	6650	109	6100	110	120	48	99	10460	104	7410	106	6810	107	6270	108	5750	108	119														

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS				
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST
-30	99	4730	99	3220	101	2970	102	2750	103	2530	103	119	-30	100	4580	100	3150	100	2820	100	2570	101	2380	101	117
-25	99	4920	99	3320	100	3030	101	2800	103	2590	103	119	-25	100	4750	100	3250	100	2900	100	2630	101	2420	101	117
-20	100	5120	100	3430	100	3090	101	2860	102	2640	103	119	-20	100	4930	100	3350	100	2990	100	2680	101	2470	101	117
-15	100	5340	100	3550	100	3150	101	2920	102	2700	103	119	-15	100	5130	100	3460	100	3080	100	2750	100	2520	101	117
-10	100	5570	100	3660	100	3250	101	2970	102	2750	103	119	-10	100	5340	100	3580	100	3180	100	2840	100	2570	101	117
-5	100	5820	100	3790	100	3350	100	3030	101	2800	103	119	-5	100	5570	100	3690	100	3280	100	2920	100	2630	101	117
0	100	6080	100	3910	100	3460	100	3090	101	2860	103	119	0	100	5800	100	3810	100	3380	100	3010	100	2690	101	118
5	100	6370	100	4050	100	3570	100	3160	101	2910	103	119	5	100	6060	100	3940	100	3480	100	3100	100	2770	101	118
10	99	6510	99	4110	99	3620	100	3240	101	3000	103	119	10	99	6180	99	4000	99	3540	99	3150	99	2810	101	117
15	97	6030	98	4010	99	3730	100	3460	102	3200	104	119	15	97	5750	97	3810	98	3480	99	3230	100	2990	102	117
20	95	5800	98	4310	100	4000	101	3700	102	3430	104	118	20	94	5400	97	4010	99	3720	100	3450	101	3190	102	117
25	96	6270	99	4630	101	4290	102	3980	103	3680	105	118	25	95	5800	98	4300	99	3990	101	3700	102	3420	103	117
30	97	6800	100	5000	102	4630	103	4290	104	3960	105	118	30	96	6280	99	4630	100	4290	102	3980	103	3680	103	116
35	97	7400	101	5410	102	5000	104	4630	105	4270	106	118	35	97	6810	100	4990	101	4630	102	4280	103	3960	104	116
40	98	8110	102	5880	103	5430	104	5010	106	4630	106	118	40	98	7430	101	5410	102	5010	103	4630	104	4290	104	116
45	99	8920	103	6400	104	5910	105	5440	106	5030	106	118	45	99	8130	102	5870	103	5420	104	5010	104	4680	105	116
48	99	9480	103	6760	105	6230	106	5740	107	5320	107	117	48	99	8620	102	6180	103	5710	105	5270	105	4950	105	116

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S								VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S								VR V2 KIAS												
					10 KTS		20 KTS		30 KTS		10 KTS								20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT								
-30	100	4430	100	3090	100	2770	100	2490	101	2300	101	117	-30	100	4300	100	3030	100	2720	100	2440	101	2240	101	117	-30	100	4300	100	3030	100	2720	100	2440	101	2240	101	117	
-25	100	4590	100	3180	100	2850	100	2550	101	2350	101	117	-25	100	4450	100	3120	100	2800	100	2510	100	2290	101	117	-25	100	4450	100	3120	100	2800	100	2510	100	2290	101	117	
-20	100	4760	100	3280	100	2930	100	2630	100	2400	101	117	-20	100	4600	100	3210	100	2880	100	2580	100	2350	101	118	-20	100	4600	100	3210	100	2880	100	2580	100	2350	101	118	
-15	100	4940	100	3390	100	3020	100	2700	100	2460	101	117	-15	100	4770	100	3310	100	2960	100	2660	100	2400	101	118	-15	100	4770	100	3310	100	2960	100	2660	100	2400	101	118	
-10	100	5130	100	3490	100	3110	100	2790	100	2510	101	118	-10	100	4950	100	3410	100	3050	100	2740	100	2460	101	118	-10	100	4950	100	3410	100	3050	100	2740	100	2460	101	118	
-5	100	5340	100	3600	100	3210	100	2870	100	2570	101	118	-5	100	5130	100	3520	100	3140	100	2820	100	2530	101	118	-5	100	5130	100	3520	100	3140	100	2820	100	2530	101	118	
0	100	5550	100	3720	100	3310	100	2950	100	2640	101	118	0	100	5330	100	3630	100	3240	100	2900	100	2600	102	118	0	100	5330	100	3630	100	3240	100	2900	100	2600	102	118	
5	100	5780	100	3840	100	3410	100	3040	100	2720	102	118	5	100	5530	100	3740	100	3330	100	2980	100	2670	102	118	5	100	5530	100	3740	100	3330	100	2980	100	2670	102	118	
10	100	5880	100	3890	100	3460	100	3080	100	2760	101	117	10	100	5630	100	3790	100	3380	100	3020	100	2710	101	118	10	100	5630	100	3790	100	3380	100	3020	100	2710	101	118	
15	97	5510	97	3720	97	3310	98	3010	99	2790	100	115	15	97	5290	97	3630	97	3240	97	2900	98	2650	99	115	15	97	5290	97	3630	97	3240	97	2900	98	2650	99	115	
20	95	5190	96	3730	97	3460	98	3210	99	2970	100	115	20	95	4990	95	3480	96	3220	97	2990	98	2770	98	113	20	95	4990	95	3480	96	3220	97	2990	98	2770	98	113	
25	94	5380	97	4000	98	3710	99	3440	100	3180	101	115	25	94	4980	95	3710	97	3450	98	3200	99	2960	99	113	25	94	4980	95	3710	97	3450	98	3200	99	2960	99	113	
30	95	5800	98	4290	99	3980	100	3690	101	3410	101	115	30	94	5360	96	3980	98	3700	99	3420	99	3180	99	113	30	94	5360	96	3980	98	3700	99	3420	99	3180	99	113	
35	96	6270	99	4620	100	4280	101	3970	102	3680	102	115	35	95	5780	97	4270	98	3970	99	3670	100	3400	100	113	35	95	5780	97	4270	98	3970	99	3670	100	3400	100	113	
40	97	6810	99	4990	101	4620	102	4280	102	4000	102	114	40	96	6260	98	4600	99	4260	100	3950	100	3720	100	113	40	96	6260	98	4600	99	4260	100	3950	100	3720	100	113	
45	98	7420	100	5390	102	4990	103	4620	103	4350	103	114	45	97	6790	99	4960	100	4590	101	4280	101	4040	101	113	45	97	6790	99	4960	100	4590	101	4280	101	4040	101	113	
48	98	7840	101	5670	102	5240	103	4860	103	4590	103	114	48	98	7150	100	5200	101	4820	101	4520	101	4260	101	112	48	98	7150	100	5200	101	4820	101	4520	101	4260	101	112	

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
3000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2 KIAS																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																	
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT								
-30	100	4170	100	2970	100	2670	100	2400	100	2190	101	118	-30	100	4060	100	2920	100	2630	100	2370	100	2140	101	118														
-25	100	4310	100	3060	100	2750	100	2470	100	2240	101	118	-25	100	4190	100	3000	100	2700	100	2430	100	2190	101	118														
-20	100	4460	100	3150	100	2830	100	2540	100	2290	101	118	-20	100	4330	100	3090	100	2780	100	2500	100	2260	101	119														
-15	100	4610	100	3240	100	2910	100	2610	100	2350	101	118	-15	100	4470	100	3180	100	2860	100	2570	100	2320	101	119														
-10	100	4780	100	3340	100	2990	100	2690	100	2420	101	118	-10	100	4620	100	3270	100	2940	100	2650	100	2390	102	119														
-5	100	4950	100	3440	100	3080	100	2770	100	2490	102	119	-5	100	4780	100	3370	100	3020	100	2720	100	2450	102	119														
0	100	5120	100	3540	100	3170	100	2850	100	2560	102	119	0	100	4940	100	3470	100	3110	100	2800	100	2520	102	119														
5	100	5310	100	3650	100	3260	100	2930	100	2630	102	119	5	100	5110	100	3570	100	3200	100	2870	100	2590	102	119														
10	100	5400	100	3700	100	3310	100	2970	100	2660	101	118	10	100	5190	100	3610	100	3240	100	2910	100	2620	102	119														
15	97	5090	97	3540	97	3170	97	2850	98	2590	99	115	15	97	4910	97	3460	97	3110	97	2800	97	2520	99	115														
20	95	4820	95	3400	95	3050	95	2780	96	2580	96	112	20	95	4660	95	3320	95	2990	95	2710	96	2510	96	112														
25	92	4620	94	3450	95	3200	96	2970	97	2760	97	112	25	92	4430	92	3200	93	2970	94	2760	95	2570	95	110														
30	93	4960	95	3690	96	3430	97	3180	97	2970	97	111	30	92	4580	93	3420	94	3180	95	2950	95	2770	95	110														
35	94	5320	96	3950	97	3670	98	3400	98	3200	98	111	35	93	4910	94	3650	95	3390	96	3160	96	2970	96	109														
40	95	5750	97	4240	98	3940	98	3670	98	3460	98	111	40	94	5280	95	3920	96	3640	96	3410	96	3210	96	109														
45	96	6210	98	4560	99	4230	99	3980	99	3740	99	111	45	95	5690	96	4200	97	3920	97	3690	97	3470	97	109														
48	97	6520	98	4780	99	4440	99	4190	99	3940	99	111	48	96	5960	97	4390	97	4110	97	3880	97	3650	97	109														

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT						
-30	100	3950	100	2870	100	2590	100	2340	100	2110	101	119	-30	100	3860	100	2820	100	2550	100	2310	100	2080	102	119	-30	100	3770	100	2730	100	2460	100	2230	101	119			
-25	100	4080	100	2950	100	2660	100	2400	100	2170	101	119	-25	100	3970	100	2900	100	2620	100	2370	100	2140	102	119	-25	100	3880	100	2790	100	2520	100	2290	101	119			
-20	100	4200	100	3030	100	2730	100	2470	100	2230	102	119	-20	100	4090	100	2980	100	2690	100	2430	100	2200	102	120	-20	100	4000	100	2810	100	2540	100	2310	101	120			
-15	100	4340	100	3120	100	2810	100	2540	100	2290	102	119	-15	100	4220	100	3060	100	2760	100	2500	100	2260	102	120	-15	100	4130	100	2850	100	2580	100	2350	101	120			
-10	100	4480	100	3210	100	2890	100	2610	100	2350	102	119	-10	100	4350	100	3150	100	2840	100	2570	100	2320	102	120	-10	100	4260	100	2890	100	2620	100	2390	101	120			
-5	100	4630	100	3300	100	2970	100	2680	100	2420	102	120	-5	101	4490	101	3240	101	2920	101	2640	101	2390	102	120	-5	101	4400	101	2910	101	2640	101	2410	102	120			
0	100	4780	100	3390	100	3050	100	2750	100	2480	102	120	0	101	4620	101	3330	101	3000	101	2710	101	2450	102	120	0	101	4530	101	2950	101	2680	101	2450	102	120			
5	101	4930	101	3490	101	3140	101	2830	101	2550	102	120	5	101	4770	101	3420	101	3080	101	2780	101	2510	102	120	5	101	4680	101	2990	101	2720	101	2490	102	120			
10	100	5000	100	3530	100	3180	100	2860	100	2580	102	119	10	100	4830	100	3460	100	3120	100	2820	100	2540	102	120	10	100	4740	100	3050	100	2780	100	2550	102	120			
15	97	4740	97	3380	97	3050	97	2750	97	2480	99	116	15	98	4590	98	3310	98	2990	98	2700	98	2450	99	116	15	98	4500	98	3010	98	2740	98	2510	99	116			
20	95	4510	95	3250	95	2930	95	2650	96	2450	96	112	20	95	4370	95	3180	95	2870	95	2600	96	2390	97	113	20	95	4280	95	2930	95	2660	96	2430	97	113			
25	92	4290	92	3120	92	2830	93	2620	94	2450	94	109	25	92	4170	92	3050	92	2760	93	2550	94	2370	94	110	25	92	4080	92	2830	92	2620	93	2450	94	110			
30	91	4240	92	3170	93	2940	93	2740	93	2570	93	108	30	90	3990	90	2950	91	2740	91	2560	91	2400	91	106	30	90	3900	90	2860	90	2650	91	2480	91	106			
35	92	4530	93	3380	93	3140	94	2940	94	2760	94	108	35	90	4180	91	3120	91	2900	91	2730	91	2550	91	106	35	90	4090	90	2950	90	2780	91	2610	91	106			
40	93	4860	93	3610	94	3370	94	3170	94	2970	94	107	40	91	4470	92	3330	92	3120	92	2930	92	2750	92	106	40	91	4380	91	3140	91	2940	92	2770	92	106			
45	94	5230	94	3870	95	3630	95	3410	95	3210	95	107	45	92	4790	92	3570	92	3360	92	3160	92	2960	93	105	45	92	4700	92	3400	92	3190	92	2990	93	105			
48	94	5470	95	4040	95	3810	95	3580	95	3370	95	107	48	93	5020	93	3740	93	3520	93	3310	93	3110	93	105	48	93	4930	93	3610	93	3380	93	3180	93	105			

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT								
-30	101	3770	101	2780	101	2510	101	2280	101	2060	102	120	-30	101	3680	101	2740	101	2480	101	2250	101	2040	102	120														
-25	101	3870	101	2850	101	2580	101	2340	101	2120	102	120	-25	101	3790	101	2810	101	2550	101	2310	101	2100	102	121														
-20	101	3990	101	2930	101	2650	101	2400	101	2170	102	120	-20	101	3890	101	2880	101	2620	101	2370	101	2150	102	121														
-15	101	4110	101	3010	101	2720	101	2470	101	2230	102	120	-15	101	4010	101	2960	101	2690	101	2440	101	2210	102	121														
-10	101	4230	101	3090	101	2800	101	2530	101	2290	102	120	-10	101	4120	101	3040	101	2760	101	2500	101	2270	103	121														
-5	101	4360	101	3180	101	2870	101	2600	101	2360	102	121	-5	101	4240	101	3120	101	2830	101	2570	101	2330	103	121														
0	101	4490	101	3260	101	2950	101	2670	101	2420	103	121	0	101	4360	101	3210	101	2900	101	2640	101	2390	103	121														
5	101	4620	101	3350	101	3030	101	2740	101	2480	103	121	5	101	4490	101	3290	101	2980	101	2700	101	2450	103	122														
10	100	4680	100	3390	100	3060	100	2770	100	2510	102	120	10	100	4540	100	3330	100	3010	100	2730	100	2480	102	121														
15	98	4450	98	3250	98	2940	98	2660	98	2410	99	117	15	98	4330	98	3190	98	2890	98	2620	98	2380	100	117														
20	95	4240	95	3120	95	2820	95	2560	95	2330	97	113	20	95	4130	95	3060	95	2780	95	2520	95	2290	97	114														
25	93	4050	93	2990	93	2710	93	2480	94	2300	94	110	25	93	3940	93	2940	93	2670	93	2420	93	2240	94	110														
30	90	3880	90	2880	91	2660	91	2470	91	2320	91	107	30	90	3780	90	2820	90	2580	91	2390	91	2240	91	107														
35	89	3850	89	2880	89	2690	89	2520	89	2360	89	104	35	88	3680	88	2760	89	2570	89	2410	89	2260	89	104														
40	90	4110	90	3070	90	2880	90	2710	90	2530	90	104	40	87	3800	87	2830	87	2660	87	2490	87	2330	87	102														
45	90	4420	90	3290	90	3100	90	2910	90	2730	90	103	45	88	4080	88	3030	88	2850	88	2670	88	2500	88	101														
48	90	4630	90	3450	90	3240	90	3050	90	2850	91	103	48	88	4270	88	3170	88	2980	88	2800	88	2620	88	101														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
4000 FEET**CONDITIONS:** DRY RUNWAY
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										WEIGHT = 16500 LBS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT		V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	VR	V2 KTAS				
-30	100	5560	100	3670	102	3400	103	3140	105	2900	106	122	-30	100	5400	100	3550	101	3260	102	3010	104	2780	105	121
-25	100	5830	100	3750	102	3470	103	3210	104	2970	106	122	-25	100	5650	100	3670	101	3330	102	3080	103	2840	105	121
-20	100	6120	100	3870	101	3540	103	3280	104	3030	106	122	-20	100	5930	100	3800	100	3390	102	3140	103	2910	105	121
-15	100	6450	100	4010	101	3610	102	3350	104	3090	106	122	-15	100	6230	100	3940	100	3470	101	3200	103	2960	105	121
-10	100	6810	100	4160	100	3680	102	3410	103	3160	106	122	-10	100	6560	100	4090	100	3590	101	3270	102	3020	105	121
-5	100	7210	100	4330	100	3780	102	3480	103	3220	106	122	-5	100	6920	100	4240	100	3720	101	3330	102	3080	105	121
0	100	7650	100	4490	100	3910	101	3550	103	3290	106	122	0	100	7320	100	4400	100	3840	100	3400	102	3150	105	121
5	100	7900	100	4590	100	3990	101	3650	102	3380	106	122	5	100	7540	100	4490	100	3920	100	3490	102	3230	105	121
10	97	7100	99	4560	100	4230	102	3930	103	3640	107	121	10	97	6830	98	4350	100	4040	101	3750	102	3470	105	120
15	95	6600	99	4900	101	4540	103	4210	104	3900	107	121	15	95	6300	99	4670	100	4340	102	4020	103	3720	106	120
20	96	7160	100	5290	102	4900	103	4540	105	4200	108	121	20	95	6810	99	5030	101	4670	103	4320	104	4000	106	120
25	96	7820	101	5740	103	5320	104	4920	106	4540	108	121	25	96	7420	100	5450	102	5050	103	4680	105	4320	107	120
30	97	8570	102	6250	103	5780	105	5340	106	4920	108	121	30	97	8110	101	5920	103	5480	104	5070	106	4680	107	120
35	98	9460	102	6840	104	6310	106	5820	107	5360	109	120	35	97	8930	102	6460	104	5970	105	5510	106	5080	108	119
40	98	10520	103	7520	105	6930	107	6380	108	5860	109	120	40	98	9890	103	7090	104	6540	106	6020	107	5540	108	119
45	99	11760	104	8320	106	7640	107	7020	109	6440	110	120	45	99	11030	104	7810	105	7180	107	6600	108	6060	109	119

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS											
TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS						VR	V2 KTAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS						VR	V2 KTAS
			10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS			
			V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST		
			KTAS	FT	KTAS	FT	KTAS	FT						KTAS	FT	KTAS	FT	KTAS	FT		
-30	100 5190	100 3470	100 3080	101 2820	102 2610	103 119	-30	100 5000	100 3390	100 3020	100 2700	101 2460	101 118								
-25	100 5410	100 3580	100 3180	101 2880	102 2660	103 119	-25	100 5200	100 3500	100 3110	100 2780	101 2520	101 118								
-20	100 5660	100 3710	100 3280	100 2940	102 2720	103 119	-20	100 5420	100 3620	100 3210	100 2860	100 2580	102 118								
-15	100 5930	100 3840	100 3390	100 3010	101 2780	103 119	-15	100 5660	100 3740	100 3320	100 2960	100 2640	102 118								
-10	100 6220	100 3970	100 3510	100 3110	101 2830	103 119	-10	100 5920	100 3870	100 3430	100 3050	100 2720	102 118								
-5	100 6540	100 4120	100 3620	100 3210	101 2890	103 119	-5	100 6200	100 4000	100 3540	100 3150	100 2810	102 118								
0	100 6880	100 4270	100 3750	100 3310	100 2950	103 119	0	101 6500	101 4140	101 3650	101 3240	101 2890	102 118								
5	100 7070	100 4350	100 3820	100 3380	100 3020	103 119	5	100 6670	100 4220	100 3720	100 3300	100 2940	102 118								
10	97 6460	97 4110	98 3770	100 3500	101 3240	103 119	10	97 6130	97 4000	97 3540	98 3270	100 3030	102 117								
15	95 5990	98 4350	99 4040	101 3750	102 3470	104 119	15	95 5720	97 4050	98 3760	99 3490	100 3230	102 117								
20	95 6300	99 4670	100 4340	101 4020	103 3720	105 118	20	94 5840	97 4340	99 4030	100 3740	101 3460	103 117								
25	96 6850	99 5050	101 4680	102 4340	103 4010	105 118	25	95 6320	98 4680	100 4340	101 4020	102 3730	103 117								
30	97 7460	100 5470	102 5060	103 4680	104 4330	105 118	30	96 6860	99 5050	101 4680	102 4330	103 4010	104 116								
35	97 8170	101 5940	103 5500	104 5080	105 4690	106 118	35	97 7490	100 5470	101 5070	103 4690	104 4340	104 116								
40	98 9010	102 6490	103 6000	105 5530	106 5100	106 118	40	98 8210	101 5950	102 5500	103 5080	104 4700	105 116								
45	99 9980	103 7110	104 6550	106 6040	107 5560	107 117	45	98 9050	102 6490	103 5990	104 5530	105 5160	105 116								

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS													
TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS								VR V2 KTAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS								VR V2 KTAS
			10 KTS		20 KTS		30 KTS		10 KTS						20 KTS		30 KTS						
			V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST			
			KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT					KTAS	FT	KTAS	FT	KTAS	FT			
-30	100 4820	100 3310	100 2960	100 2650	101 2410	101 118	-30	100 4660	100 3240	100 2900	100 2610	101 2350	102 118										
-25	100 5010	100 3420	100 3050	100 2730	101 2460	102 118	-25	100 4830	100 3350	100 2990	100 2680	100 2410	102 118										
-20	100 5210	100 3530	100 3150	100 2810	100 2520	102 118	-20	100 5020	100 3450	100 3080	100 2760	100 2480	102 119										
-15	100 5430	100 3650	100 3250	100 2900	100 2600	102 118	-15	101 5210	101 3560	101 3180	101 2850	101 2560	102 119										
-10	100 5660	100 3770	100 3350	100 2990	100 2680	102 119	-10	101 5430	101 3680	101 3280	101 2930	101 2630	102 119										
-5	101 5910	101 3900	101 3460	101 3080	101 2760	102 119	-5	101 5650	101 3800	101 3380	101 3020	101 2710	102 119										
0	101 6170	101 4030	101 3570	101 3180	101 2840	102 119	0	101 5890	101 3920	101 3490	101 3110	101 2790	102 119										
5	100 6320	100 4110	100 3630	100 3230	100 2890	102 118	5	100 6020	100 3990	100 3550	100 3170	100 2840	102 119										
10	98 5850	98 3890	98 3460	98 3090	98 2820	100 115	10	98 5590	98 3790	98 3380	98 3030	98 2720	99 115										
15	95 5480	95 3770	97 3500	98 3250	99 3010	100 115	15	95 5260	95 3630	95 3260	96 3020	97 2800	98 114										
20	94 5410	96 4040	98 3750	99 3480	100 3220	101 115	20	93 5020	95 3750	96 3480	97 3230	98 2990	99 113										
25	95 5840	97 4330	98 4020	100 3730	101 3450	101 115	25	94 5400	96 4020	97 3730	98 3460	99 3210	99 113										
30	95 6320	98 4670	99 4330	100 4010	101 3710	102 115	30	95 5820	97 4320	98 4010	99 3720	100 3450	100 113										
35	96 6870	99 5040	100 4670	101 4330	102 4020	102 114	35	96 6310	98 4650	99 4310	100 4000	100 3740	100 113										
40	97 7500	100 5470	101 5060	102 4680	103 4380	103 114	40	96 6860	99 5020	100 4660	101 4310	101 4070	101 113										
45	98 8220	101 5940	102 5490	103 5080	103 4790	103 114	45	97 7480	99 5440	100 5040	101 4700	101 4440	101 112										

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
4000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS																					
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	VR	V2	KIAS															
-30	101	4510	101	3180	101	2850	101	2560	101	2310	102	119	-30	101	4370	101	3120	101	2800	101	2520	101	2280	102	119														
-25	101	4670	101	3280	101	2940	101	2640	101	2370	102	119	-25	101	4520	101	3210	101	2880	101	2600	101	2340	102	119														
-20	101	4840	101	3380	101	3030	101	2720	101	2440	102	119	-20	101	4680	101	3310	101	2970	101	2670	101	2410	102	120														
-15	101	5020	101	3480	101	3130	101	2800	101	2520	102	119	-15	101	4850	101	3410	101	3060	101	2750	101	2480	102	120														
-10	101	5210	101	3590	101	3210	101	2880	101	2590	102	119	-10	101	5020	101	3510	101	3150	101	2830	101	2550	102	120														
-5	101	5420	101	3710	101	3310	101	2970	101	2670	102	120	-5	101	5210	101	3620	101	3240	101	2920	101	2620	103	120														
0	101	5630	101	3820	101	3410	101	3060	101	2740	102	120	0	101	5400	101	3730	101	3340	101	3000	101	2700	103	120														
5	100	5750	100	3890	100	3470	100	3110	100	2790	102	119	5	101	5510	101	3790	101	3390	101	3050	101	2740	102	120														
10	98	5370	98	3700	98	3310	98	2970	98	2670	99	116	10	98	5160	98	3610	98	3240	98	2910	98	2620	99	116														
15	95	5070	95	3540	95	3170	95	2860	96	2650	97	112	15	95	4890	95	3460	95	3110	95	2800	96	2580	97	113														
20	93	4800	93	3480	95	3230	96	3000	97	2780	97	112	20	93	4640	93	3320	93	3000	94	2780	94	2590	95	110														
25	93	4990	94	3730	95	3460	96	3210	97	2990	97	111	25	92	4620	93	3450	94	3210	95	2980	95	2780	95	110														
30	94	5370	95	4000	96	3710	97	3440	98	3220	98	111	30	93	4960	94	3690	95	3430	96	3180	96	2990	96	109														
35	95	5800	96	4290	97	3990	98	3690	98	3480	98	111	35	94	5330	95	3960	96	3680	96	3440	96	3230	96	109														
40	96	6280	97	4620	98	4290	99	4010	99	3770	99	111	40	94	5750	96	4260	96	3950	97	3720	97	3500	97	109														
45	96	6820	98	4990	99	4630	99	4360	99	4110	99	111	45	95	6220	96	4580	97	4280	97	4030	97	3800	97	109														

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S								VR V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S								VR V2												
					10 KTS		20 KTS		30 KTS		10 KTS								20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT										
-30	101	4250	101	3060	101	2760	101	2490	101	2250	102	120	-30	101	4130	101	3010	101	2710	101	2450	101	2220	102	120														
-25	101	4390	101	3150	101	2840	101	2560	101	2310	102	120	-25	101	4260	101	3090	101	2790	101	2520	101	2280	102	120														
-20	101	4530	101	3240	101	2920	101	2630	101	2380	102	120	-20	101	4400	101	3180	101	2870	101	2590	101	2350	103	121														
-15	101	4690	101	3340	101	3000	101	2710	101	2440	102	120	-15	101	4550	101	3270	101	2950	101	2670	101	2410	103	121														
-10	101	4850	101	3440	101	3090	101	2790	101	2510	103	120	-10	101	4700	101	3370	101	3040	101	2740	101	2480	103	121														
-5	101	5020	101	3540	101	3180	101	2870	101	2590	103	121	-5	101	4850	101	3470	101	3120	101	2820	101	2550	103	121														
0	101	5200	101	3650	101	3270	101	2950	101	2660	103	121	0	101	5020	101	3570	101	3210	101	2900	101	2620	103	121														
5	101	5300	101	3710	101	3330	101	2990	101	2700	102	120	5	101	5100	101	3620	101	3260	101	2940	101	2660	103	121														
10	98	4980	98	3530	98	3170	98	2860	98	2580	100	117	10	98	4810	98	3450	98	3110	98	2810	98	2540	100	117														
15	95	4720	95	3380	95	3050	95	2750	96	2510	97	113	15	96	4570	96	3310	96	2990	96	2700	96	2450	97	114														
20	93	4490	93	3250	93	2930	93	2700	94	2500	94	110	20	93	4350	93	3180	93	2870	93	2620	94	2430	95	110														
25	90	4280	91	3200	92	2970	93	2760	93	2590	93	108	25	90	4160	90	3050	91	2810	92	2610	92	2450	92	107														
30	91	4570	92	3410	93	3170	93	2960	93	2780	94	108	30	90	4210	90	3150	91	2930	91	2750	91	2570	91	106														
35	92	4910	93	3650	94	3390	94	3190	94	2990	94	107	35	91	4510	91	3370	92	3140	92	2950	92	2770	92	106														
40	93	5270	94	3920	95	3660	95	3440	95	3230	95	107	40	92	4840	92	3610	92	3380	92	3180	92	2990	92	105														
45	94	5690	95	4210	95	3960	95	3730	95	3500	95	107	45	93	5200	93	3890	93	3660	93	3440	93	3230	93	105														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR V2																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT														
-30	101	4030	101	2960	101	2680	101	2420	101	2190	103	121	-30	101	3930	101	2910	101	2640	101	2400	101	2170	103	122														
-25	101	4150	101	3040	101	2750	101	2490	101	2260	103	121	-25	101	4050	101	2990	101	2710	101	2460	101	2230	103	122														
-20	101	4280	101	3120	101	2830	101	2560	101	2320	103	121	-20	101	4170	101	3070	101	2790	101	2530	101	2290	103	122														
-15	101	4420	101	3210	101	2910	101	2630	101	2380	103	121	-15	101	4300	101	3160	101	2860	101	2600	101	2360	103	122														
-10	101	4560	101	3310	101	2990	101	2700	101	2450	103	122	-10	101	4430	101	3250	101	2940	101	2670	101	2420	103	122														
-5	101	4700	101	3400	101	3070	101	2780	101	2520	103	122	-5	101	4560	101	3340	101	3020	101	2740	101	2490	104	122														
0	101	4850	101	3500	101	3160	101	2850	101	2580	103	122	0	102	4700	102	3430	102	3100	102	2810	102	2550	104	123														
5	101	4930	101	3550	101	3200	101	2900	101	2620	103	121	5	101	4780	101	3480	101	3150	101	2850	101	2590	103	122														
10	98	4650	98	3380	98	3060	98	2770	98	2510	100	118	10	98	4520	98	3310	98	3000	98	2720	98	2470	100	118														
15	96	4430	96	3240	96	2930	96	2660	96	2410	97	114	15	96	4300	96	3180	96	2880	96	2620	96	2370	97	115														
20	93	4230	93	3110	93	2820	93	2560	94	2370	95	111	20	93	4110	93	3050	93	2770	93	2520	94	2300	95	111														
25	91	4040	91	2990	91	2730	92	2530	92	2370	92	107	25	91	3930	91	2930	91	2660	91	2460	92	2290	92	108														
30	88	3900	89	2930	89	2720	89	2550	89	2390	89	104	30	88	3770	88	2830	89	2630	89	2460	89	2310	89	104														
35	89	4150	89	3100	90	2900	90	2730	90	2550	90	104	35	87	3810	87	2850	87	2680	87	2510	87	2350	87	102														
40	90	4440	90	3320	90	3120	90	2930	90	2750	90	103	40	88	4100	88	3060	88	2870	88	2700	88	2520	88	101														
45	91	4790	91	3590	91	3370	91	3160	91	2970	91	103	45	88	4420	88	3300	88	3130	88	2900	88	2720	88	101														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
5000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR V2 KIAS												
					10 KTS		20 KTS		30 KTS		10 KTS								20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT								
-35	100	5870	100	3750	101	3430	103	3170	104	2930	106	122	-35	100	5700	100	3690	101	3290	102	3040	103	2810	105	121														
-30	100	6180	100	3890	101	3510	103	3240	104	3000	106	122	-30	100	5980	100	3820	100	3370	102	3110	103	2880	105	121														
-25	100	6530	100	4040	101	3580	102	3310	103	3060	106	122	-25	101	6300	101	3970	101	3490	101	3180	103	2940	105	121														
-20	101	6920	101	4200	101	3680	102	3380	103	3130	106	122	-20	101	6660	101	4120	101	3620	101	3240	102	3000	105	121														
-15	101	7360	101	4380	101	3820	101	3450	103	3190	106	122	-15	101	7050	101	4290	101	3750	101	3310	102	3060	105	121														
-10	101	7850	101	4560	101	3970	101	3520	102	3260	106	122	-10	101	7490	101	4460	101	3900	101	3430	102	3120	105	121														
-5	101	8410	101	4760	101	4120	101	3610	102	3320	106	122	-5	101	8000	101	4650	101	4050	101	3550	101	3180	105	121														
0	100	8580	100	4820	100	4180	101	3710	102	3440	106	122	0	100	8140	100	4710	100	4100	100	3600	101	3290	105	121														
5	98	7720	98	4610	100	4280	101	3980	103	3680	106	121	5	98	7380	98	4460	99	4090	101	3800	102	3520	105	120														
10	95	6960	99	4970	100	4620	102	4280	103	3960	107	121	10	95	6700	98	4740	100	4400	101	4080	103	3780	106	120														
15	95	7240	99	5370	101	4980	103	4610	104	4270	107	121	15	95	6890	99	5110	101	4740	102	4390	103	4070	106	120														
20	95	7890	100	5810	102	5390	103	4990	105	4610	108	121	20	95	7490	100	5530	101	5120	103	4740	104	4390	107	120														
25	96	8670	101	6340	103	5870	104	5420	106	5010	108	121	25	96	8200	100	6010	102	5570	104	5150	105	4760	107	120														
30	97	9550	102	6930	103	6400	105	5910	106	5450	109	120	30	97	9010	101	6550	103	6060	104	5600	106	5160	108	119														
35	97	10630	102	7640	104	7050	106	6490	107	5970	109	120	35	97	10000	102	7200	104	6650	105	6130	107	5640	108	119														
40	98	11870	103	8430	105	7760	107	7130	108	6540	110	120	40	98	11120	103	7920	104	7290	106	6710	107	6160	109	119														
42	98	12440	103	8790	105	8080	107	7410	108	6800	110	120	42	98	11630	103	8240	105	7580	106	6960	108	6400	109	119														

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
					V1 DIST KIAS FT	VR V2 KIAS	V1 DIST KIAS FT	VR V2 KIAS	V1 DIST KIAS FT	VR V2 KIAS						V1 DIST KIAS FT	VR V2 KIAS	V1 DIST KIAS FT	VR V2 KIAS	V1 DIST KIAS FT	VR V2 KIAS				
-35	101	5450	101	3600	101	3190	101	2850	102	2630	103	119	-35	101	5240	101	3510	101	3130	101	2790	101	2520	102	118
-30	101	5710	101	3730	101	3300	101	2930	101	2690	103	119	-30	101	5470	101	3640	101	3230	101	2880	101	2580	102	118
-25	101	5990	101	3860	101	3410	101	3030	101	2750	103	119	-25	101	5720	101	3770	101	3340	101	2970	101	2660	102	118
-20	101	6310	101	4010	101	3530	101	3140	101	2810	103	119	-20	101	6000	101	3900	101	3450	101	3070	101	2740	102	119
-15	101	6650	101	4170	101	3660	101	3240	101	2890	103	119	-15	101	6300	101	4050	101	3580	101	3180	101	2830	102	119
-10	101	7030	101	4330	101	3800	101	3350	101	2980	103	119	-10	101	6630	101	4200	101	3700	101	3280	101	2930	103	119
-5	101	7460	101	4500	101	3940	101	3470	101	3080	103	119	-5	101	7000	101	4360	101	3830	101	3390	101	3020	103	119
0	100	7580	100	4560	100	3980	100	3510	100	3120	103	119	0	100	7110	100	4420	100	3880	100	3430	100	3060	102	118
5	98	6940	98	4320	98	3820	99	3540	101	3280	103	119	5	98	6550	98	4190	98	3700	98	3300	99	3070	101	117
10	95	6350	97	4410	99	4100	100	3810	101	3530	104	119	10	95	6040	96	4110	98	3820	99	3540	100	3280	102	117
15	94	5380	98	4740	100	4400	101	4080	102	3780	104	118	15	94	5910	97	4410	98	4090	100	3800	101	3520	103	117
20	95	6920	99	5120	100	4750	102	4400	103	4070	105	118	20	95	6390	98	4740	99	4400	100	4080	102	3780	103	117
25	96	7550	100	5550	101	5140	103	4760	104	4400	105	118	25	95	6950	99	5120	100	4750	101	4400	102	4070	104	116
30	96	8250	100	6020	102	5580	103	5160	105	4760	106	118	30	96	7570	99	5550	101	5140	102	4760	103	4400	104	116
35	97	9110	101	6590	103	6090	104	5630	105	5190	106	118	35	97	8310	100	6040	102	5590	103	5170	104	4770	104	116
40	98	10070	102	7210	104	6650	105	6130	106	5640	107	117	40	98	9140	101	6580	103	6080	104	5610	105	5180	105	116
42	98	10510	102	7490	104	6900	105	6350	106	5840	107	117	42	98	9510	101	6820	103	6300	104	5810	105	5380	105	116

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS									
					10 KTS		20 KTS		30 KTS							30 KTS									
					V1 DIST KIAS FT	VR V2 KIAS	V1 DIST KIAS FT	VR V2 KIAS	V1 DIST KIAS FT	VR V2 KIAS						V1 DIST KIAS FT	VR V2 KIAS								
	-35	101	5040	101	3440	101	3060	101	2740	101		2460	102	119	-35	101	4860	101	3360	101	3000	101	2690	101	2420
-30	101	5250	101	3550	101	3160	101	2830	101	2530	102	119	-30	101	5050	101	3470	101	3100	101	2780	101	2490	102	119
-25	101	5480	101	3670	101	3270	101	2920	101	2610	102	119	-25	101	5260	101	3590	101	3200	101	2860	101	2570	102	119
-20	101	5730	101	3800	101	3380	101	3010	101	2700	102	119	-20	101	5490	101	3710	101	3310	101	2960	101	2650	102	119
-15	101	6000	101	3940	101	3490	101	3110	101	2780	102	119	-15	101	5730	101	3840	101	3420	101	3050	101	2740	103	120
-10	101	6290	101	4080	101	3610	101	3210	101	2870	103	119	-10	101	5990	101	3970	101	3530	101	3150	101	2820	103	120
-5	101	6610	101	4230	101	3740	101	3320	101	2960	103	120	-5	101	6270	101	4120	101	3650	101	3250	101	2910	103	120
0	100	6710	100	4280	100	3780	100	3360	100	3000	102	119	0	101	6350	101	4160	101	3690	101	3290	101	2940	102	119
5	98	6220	98	4080	98	3610	98	3220	98	2880	100	116	5	98	5930	98	3970	98	3530	98	3150	98	2830	100	116
10	95	5770	95	3870	96	3560	97	3300	99	3060	100	115	10	95	5520	95	3770	95	3370	96	3070	97	2850	98	114
15	93	5480	96	4090	97	3800	98	3530	99	3270	101	115	15	93	5210	94	3800	96	3530	97	3280	98	3040	99	113
20	94	5900	97	4390	98	4080	99	3790	100	3510	101	115	20	93	5460	95	4070	97	3780	98	3510	99	3250	99	113
25	95	6400	97	4730	99	4390	100	4070	101	3770	102	115	25	94	5890	96	4380	97	4060	99	3770	99	3490	100	113
30	96	6940	98	5110	100	4740	101	4390	102	4060	102	115	30	95	6380	97	4710	98	4370	99	4060	100	3770	100	113
35	96	7590	99	5550	101	5140	102	4760	102	4410	103	114	35	96	6940	98	5100	99	4730	100	4390	101	4100	101	113
40	97	8300	100	6020	101	5570	102	5150	103	4810	103	114	40	97	7560	99	5510	100	5110	101	4730	101	4460	101	112
42	98	8620	100	6230	102	5760	103	5320	103	4990	103	114	42	97	7830	99	5690	100	5270	101	4900	101	4620	101	111

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
5000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS								WEIGHT = 13500 LBS							
VENR = 160 KIAS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS			VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS			VR	V2
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT						V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		
-35	101 4700	101 3290	101 2950	101 2650	101 2380	102 119		-35	101 4550	101 3220	101 2900	101 2610	101 2350	102 120	
-30	101 4870	101 3400	101 3040	101 2730	101 2460	102 120		-30	101 4710	101 3320	101 2990	101 2690	101 2420	103 120	
-25	101 5060	101 3510	101 3140	101 2820	101 2530	102 120		-25	101 4890	101 3430	101 3080	101 2770	101 2490	103 120	
-20	101 5270	101 3620	101 3240	101 2900	101 2610	103 120		-20	101 5080	101 3540	101 3180	101 2850	101 2570	103 120	
-15	101 5490	101 3750	101 3340	101 3000	101 2690	103 120		-15	101 5280	101 3660	101 3280	101 2940	101 2650	103 121	
-10	101 5720	101 3870	101 3450	101 3090	101 2770	103 120		-10	101 5490	101 3780	101 3380	101 3030	101 2730	103 121	
-5	101 5980	101 4010	101 3570	101 3190	101 2860	103 120		-5	101 5710	101 3900	101 3490	101 3130	101 2810	103 121	
0	101 6050	101 4050	101 3600	101 3220	101 2890	102 120		0	101 5780	101 3940	101 3520	101 3160	101 2840	103 120	
5	98 5670	98 3860	98 3450	98 3090	98 2780	100 116		5	98 5430	98 3770	98 3370	98 3030	98 2730	100 117	
10	95 5300	95 3680	95 3290	95 2960	96 2710	97 113		10	96 5100	96 3590	96 3220	96 2900	96 2640	97 113	
15	93 5020	93 3530	94 3280	95 3050	96 2820	97 112		15	93 4840	93 3440	93 3100	94 2840	95 2630	95 110	
20	92 5040	94 3770	95 3510	96 3250	97 3020	97 111		20	91 4660	92 3490	93 3250	94 3020	95 2810	95 110	
25	93 5430	95 4050	96 3760	97 3490	98 3250	98 111		25	92 5010	93 3740	94 3480	95 3230	95 3020	96 109	
30	94 5860	96 4350	97 4040	98 3750	98 3510	98 111		30	93 5390	94 4010	95 3730	96 3460	96 3260	96 109	
35	95 6360	97 4690	98 4350	99 4040	99 3810	99 111		35	94 5820	95 4320	96 4010	97 3750	97 3530	97 109	
40	96 6890	97 5060	99 4690	99 4380	99 4130	99 111		40	95 6290	96 4640	97 4310	97 4060	97 3820	97 109	
42	96 7130	98 5210	99 4840	99 4530	99 4280	99 111		42	95 6490	96 4780	97 4440	97 4190	97 3950	97 109	

WEIGHT = 13000 LBS								WEIGHT = 12500 LBS							
VENR = 160 KIAS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS			VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS			VR	V2
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT						V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		
-35	101 4410	101 3160	101 2850	101 2570	101 2320	103 120		-35	101 4290	101 3110	101 2800	101 2530	101 2290	103 121	
-30	101 4560	101 3260	101 2930	101 2650	101 2390	103 121		-30	101 4430	101 3200	101 2890	101 2610	101 2360	103 121	
-25	101 4730	101 3360	101 3020	101 2720	101 2460	103 121		-25	101 4580	101 3290	101 2970	101 2680	101 2430	103 121	
-20	101 4900	101 3470	101 3120	101 2810	101 2530	103 121		-20	101 4740	101 3400	101 3060	101 2760	101 2500	103 122	
-15	101 5080	101 3580	101 3210	101 2890	101 2610	103 121		-15	102 4910	102 3500	102 3150	102 2850	102 2570	103 122	
-10	101 5280	101 3690	101 3310	101 2980	101 2690	103 121		-10	102 5090	102 3610	102 3250	102 2930	102 2650	104 122	
-5	102 5480	102 3810	102 3420	102 3070	102 2770	104 122		-5	102 5270	102 3720	102 3350	102 3020	102 2730	104 122	
0	101 5540	101 3850	101 3450	101 3100	101 2790	103 121		0	101 5330	101 3760	101 3380	101 3050	101 2750	103 121	
5	98 5230	98 3680	98 3300	98 2970	98 2680	100 117		5	99 5040	99 3590	99 3240	99 2920	99 2640	100 118	
10	96 4920	96 3500	96 3150	96 2850	96 2580	97 114		10	96 4750	96 3430	96 3090	96 2800	96 2530	98 114	
15	93 4680	93 3360	93 3030	93 2760	94 2560	95 110		15	93 4530	93 3290	93 2970	93 2690	94 2500	95 111	
20	91 4460	91 3240	92 3010	93 2790	93 2610	93 108		20	91 4320	91 3160	91 2880	92 2680	92 2500	92 108	
25	91 4620	92 3460	93 3220	93 2990	93 2810	93 108		25	89 4260	90 3200	91 2970	91 2770	91 2600	91 106	
30	92 4960	93 3700	93 3440	94 3210	94 3020	94 107		30	90 4560	91 3410	92 3170	92 2980	92 2800	92 106	
35	93 5340	94 3980	94 3700	94 3480	94 3270	95 107		35	91 4900	92 3660	92 3420	92 3210	92 3020	92 105	
40	94 5750	94 4260	95 3990	95 3750	95 3530	95 107		40	92 5260	93 3920	93 3690	93 3470	93 3260	93 105	
42	94 5920	95 4390	95 4120	95 3870	95 3650	95 107		42	93 5420	93 4050	93 3810	93 3580	93 3360	93 105	

WEIGHT = 12000 LBS								WEIGHT = 11500 LBS							
VENR = 160 KIAS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS			VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS			VR	V2
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT						V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		
-35	102 4170	102 3050	102 2760	102 2500	102 2270	103 122		-35	102 4070	102 3000	102 2720	102 2470	102 2240	103 122	
-30	102 4310	102 3140	102 2840	102 2570	102 2330	103 122		-30	102 4200	102 3090	102 2800	102 2540	102 2310	104 122	
-25	102 4450	102 3230	102 2920	102 2650	102 2400	103 122		-25	102 4330	102 3180	102 2880	102 2610	102 2370	104 123	
-20	102 4600	102 3330	102 3010	102 2720	102 2470	104 122		-20	102 4470	102 3270	102 2960	102 2690	102 2440	104 123	
-15	102 4750	102 3430	102 3100	102 2800	102 2540	104 122		-15	102 4610	102 3370	102 3050	102 2770	102 2510	104 123	
-10	102 4920	102 3540	102 3190	102 2890	102 2610	104 123		-10	102 4760	102 3470	102 3140	102 2840	102 2580	104 123	
-5	102 5090	102 3640	102 3290	102 2970	102 2690	104 123		-5	102 4920	102 3570	102 3230	102 2930	102 2650	104 123	
0	101 5140	101 3670	101 3310	101 3000	101 2710	103 122		0	101 4970	101 3600	101 3260	101 2950	101 2680	104 123	
5	99 4870	99 3510	99 3180	99 2870	99 2600	101 118		5	99 4710	99 3440	99 3120	99 2830	99 2570	101 119	
10	96 4600	96 3350	96 3030	96 2750	96 2490	98 115		10	96 4460	96 3290	96 2980	96 2700	96 2450	98 115	
15	93 4390	93 3220	93 2920	93 2640	94 2430	95 111		15	94 4260	94 3150	94 2860	94 2600	94 2370	95 112	
20	91 4190	91 3100	91 2810	92 2600	92 2410	92 108		20	91 4080	91 3030	91 2760	91 2520	92 2340	92 108	
25	88 4020	89 3000	89 2780	90 2600	90 2440	90 105		25	88 3910	88 2920	89 2700	90 2510	90 2350	90 105	
30	89 4190	89 3140	89 2930	89 2750	89 2580	90 104		30	87 3860	87 2890	87 2710	87 2540	87 2380	87 102	
35	90 4490	90 3360	90 3150	90 2960	90 2780	90 103		35	88 4120	88 3090	88 2900	88 2730	88 2550	88 101	
40	91 4810	91 3620	91 3400	91 3190	91 2990	91 103		40	88 4430	88 3330	88 3130	88 2930	88 2740	88 101	
42	91 4960	91 3730	91 3510	91 3290	91 3090	91 103		42	88 4570	88 3430	88 3220	88 3020	88 2830	88 101	

56FMC-00-00

Figure 4-21 (Sheet 12)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
6000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS												WEIGHT = 16500 LBS											
TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS								VR V2 KTAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS								VR V2 KTAS
			10 KTS		20 KTS		30 KTS		10 KTS						20 KTS		30 KTS						
			V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST					
			KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT					KTAS	FT	KTAS	FT					
-35	101 6510	101 4040	101 3550	102 3290	103 3040	106 122	-35	101 6290	101 3960	101 3490	101 3150	103 2920	105 121										
-30	101 6910	101 4200	101 3680	102 3360	103 3110	106 122	-30	101 6650	101 4120	101 3620	101 3220	102 2980	105 121										
-25	101 7350	101 4380	101 3820	101 3440	103 3180	106 122	-25	101 7050	101 4290	101 3750	101 3310	102 3050	105 121										
-20	101 7850	101 4560	101 3970	101 3510	102 3250	106 122	-20	101 7500	101 4470	101 3900	101 3430	101 3110	105 121										
-15	101 8410	101 4760	101 4120	101 3610	102 3320	106 122	-15	101 7990	101 4650	101 4050	101 3560	101 3180	105 121										
-10	101 9030	101 4960	101 4280	101 3740	102 3390	106 122	-10	101 8540	101 4850	101 4200	101 3680	101 3250	105 121										
-5	100 9270	100 5050	100 4350	100 3800	102 3500	106 122	-5	100 8750	100 4920	100 4260	100 3730	101 3350	105 121										
0	98 8360	98 4790	99 4350	101 4040	102 3740	106 121	0	98 7970	98 4680	99 4150	100 3860	101 3580	105 120										
5	96 7560	98 5030	100 4670	101 4330	103 4020	107 121	5	96 7240	98 4800	99 4460	101 4140	102 3830	106 120										
10	94 7330	99 5450	101 5060	102 4690	104 4340	107 121	10	94 6970	98 5180	100 4810	102 4460	103 4130	106 120										
15	95 7970	99 5900	101 5470	103 5070	104 4690	108 121	15	95 7570	99 5600	101 5200	102 4820	104 4460	107 120										
20	95 8740	100 6420	102 5950	104 5500	105 5080	108 121	20	95 8270	100 6090	101 5640	103 5220	104 4830	107 120										
25	96 9640	101 7030	103 6500	104 6000	106 5540	109 120	25	96 9110	100 6650	102 6150	104 5680	105 5250	108 119										
30	96 10720	102 7740	104 7150	105 6590	107 6070	109 120	30	96 10080	101 7300	103 6740	105 6220	106 5730	108 119										
35	97 12020	102 8590	104 7910	106 7270	107 6680	110 120	35	97 11270	102 8070	104 7430	105 6840	107 6290	108 119										
39	97 13190	103 9330	105 8560	107 7860	108 7210	110 120	39	97 12310	103 8730	104 8030	106 7370	107 6770	109 119										

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
					V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST				
					KTAS	FT	KTAS	FT	KTAS	FT						KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT		
-35	101	5980	101	3860	101	3410	101	3030	101	2730	103	119	-35	101	5710	101	3760	101	3330	101	2970	101	2650	102	119
-30	101	6300	101	4010	101	3530	101	3130	101	2790	103	119	-30	101	6000	101	3900	101	3450	101	3070	101	2740	102	119
-25	101	6650	101	4170	101	3660	101	3240	101	2890	103	119	-25	101	6300	101	4050	101	3580	101	3180	101	2830	102	119
-20	101	7040	101	4330	101	3800	101	3360	101	2980	103	119	-20	101	6640	101	4200	101	3700	101	3290	101	2930	103	119
-15	101	7460	101	4500	101	3940	101	3470	101	3080	103	119	-15	101	7000	101	4360	101	3840	101	3400	101	3020	103	119
-10	101	7920	101	4680	101	4080	101	3590	101	3180	103	119	-10	101	7390	101	4530	101	3970	101	3510	101	3120	103	119
-5	100	8090	100	4750	100	4140	100	3640	100	3230	103	119	-5	100	7540	100	4600	100	4030	100	3560	100	3160	102	119
0	98	7440	98	4530	98	3970	99	3600	100	3340	103	119	0	98	6990	98	4390	98	3860	98	3420	99	3110	101	117
5	96	6820	97	4460	98	4150	100	3860	101	3570	104	119	5	96	6450	96	4170	97	3860	98	3590	100	3330	102	117
10	94	6460	97	4810	99	4470	100	4150	102	3840	104	118	10	93	5980	96	4470	98	4160	99	3860	100	3580	102	117
15	94	6990	98	5190	100	4820	101	4470	102	4130	105	118	15	94	6460	97	4800	99	4460	100	4140	101	3840	103	117
20	95	7620	99	5620	101	5210	102	4830	103	4470	105	118	20	95	7010	98	5190	99	4820	101	4460	102	4130	103	116
25	96	8340	100	6110	101	5660	103	5240	104	4840	106	118	25	95	7650	99	5630	100	5220	102	4830	103	4470	104	116
30	96	9200	101	6680	102	6180	104	5710	105	5270	106	118	30	96	8400	100	6130	101	5670	102	5250	104	4850	104	116
35	97	10210	101	7340	103	6780	104	6250	106	5760	107	118	35	97	9270	101	6700	102	6190	103	5720	104	5280	105	116
39	97	11110	102	7910	104	7290	105	6710	106	6170	107	117	39	97	10030	101	7190	103	6630	104	6120	105	5640	105	116

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2										
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT								
-35	101	5470	101	3670	101	3260	101	2910	101	2610	102	119	-35	101	5250	101	3580	101	3200	101	2860	101	2570	102	119														
-30	101	5730	101	3800	101	3380	101	3010	101	2690	102	119	-30	101	5490	101	3710	101	3300	101	2960	101	2650	103	120														
-25	101	6000	101	3940	101	3490	101	3110	101	2780	103	119	-25	101	5730	101	3840	101	3420	101	3050	101	2740	103	120														
-20	101	6300	101	4090	101	3620	101	3220	101	2870	103	120	-20	101	6000	101	3980	101	3530	101	3150	101	2820	103	120														
-15	101	6610	101	4240	101	3740	101	3320	101	2970	103	120	-15	101	6270	101	4120	101	3650	101	3250	101	2910	103	120														
-10	101	6950	101	4390	101	3870	101	3430	101	3060	103	120	-10	101	6570	101	4260	101	3770	101	3360	101	3000	103	120														
-5	101	7080	101	4450	101	3920	101	3480	101	3100	102	119	-5	101	6680	101	4320	101	3820	101	3400	101	3040	102	119														
0	98	6600	98	4260	98	3760	98	3350	98	2990	100	116	0	98	6260	98	4130	98	3670	98	3270	98	2930	100	116														
5	96	6130	96	4050	96	3600	97	3340	98	3100	100	115	5	96	5850	96	3940	96	3510	96	3140	97	2880	98	114														
10	93	5700	95	4150	97	3860	98	3580	99	3320	101	115	10	93	5470	94	3850	95	3580	96	3330	97	3090	99	113														
15	93	5970	96	4450	97	4140	99	3840	100	3560	101	115	15	92	5520	95	4130	96	3840	97	3560	98	3300	99	113														
20	94	6460	97	4790	98	4450	99	4130	101	3830	102	115	20	93	5950	96	4430	97	4120	98	3830	99	3540	100	113														
25	95	7020	98	5180	99	4810	100	4460	101	4130	102	115	25	94	6450	97	4780	98	4440	99	4110	100	3810	100	113														
30	96	7670	99	5620	100	5210	101	4830	102	4470	103	114	30	95	7010	97	5170	99	4790	100	4440	100	4130	101	113														
35	96	8430	99	6130	101	5670	102	5240	103	4860	103	114	35	96	7670	98	5610	100	5200	101	4810	101	4510	101	113														
39	97	9070	100	6550	101	6060	103	5590	103	5220	103	114	39	97	8220	99	5980	100	5530	101	5120	101	4830	101	112														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
6000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS																					
					10 KTS		20 KTS		30 KTS		10 KTS							20 KTS		30 KTS																			
					V1	DIST	V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT														
-35	101	5060	101	3500	101	3130	101	2810	101	2530	103	120	-35	101	4880	101	3430	101	3070	101	2770	101	2490	103	120														
-30	101	5270	101	3620	101	3240	101	2900	101	2610	103	120	-30	101	5070	101	3540	101	3170	101	2850	101	2570	103	121														
-25	101	5490	101	3750	101	3340	101	3000	101	2690	103	120	-25	101	5280	101	3660	101	3280	101	2940	101	2650	103	121														
-20	101	5730	101	3880	101	3450	101	3090	101	2780	103	120	-20	101	5490	101	3780	101	3380	101	3040	101	2730	103	121														
-15	101	5980	101	4010	101	3570	101	3190	101	2860	103	121	-15	101	5720	101	3910	101	3490	101	3130	101	2810	103	121														
-10	101	6240	101	4140	101	3680	101	3290	101	2950	103	121	-10	101	5950	101	4030	101	3600	101	3220	101	2900	103	121														
-5	101	6340	101	4200	101	3730	101	3330	101	2980	103	120	-5	101	6030	101	4080	101	3640	101	3260	101	2930	103	120														
0	98	5970	98	4020	98	3580	98	3210	98	2880	100	117	0	99	5700	99	3920	99	3500	99	3140	99	2830	100	117														
5	96	5600	96	3840	96	3430	96	3080	96	2790	98	114	5	96	5370	96	3740	96	3360	96	3020	96	2720	98	114														
10	93	5250	93	3660	94	3330	95	3090	96	2870	97	112	10	93	5050	93	3570	93	3210	94	2910	95	2700	95	111														
15	92	5100	93	3820	95	3560	96	3300	97	3060	97	111	15	91	4800	92	3540	93	3300	94	3060	95	2840	95	110														
20	92	5490	94	4100	95	3810	96	3540	97	3280	98	111	20	91	5060	93	3790	94	3520	95	3270	95	3050	96	110														
25	93	5920	95	4410	96	4090	97	3800	98	3540	98	111	25	92	5450	94	4070	95	3780	96	3510	96	3290	96	109														
30	94	6420	96	4750	97	4410	98	4100	98	3840	99	111	30	93	5880	95	4370	96	4070	96	3780	96	3560	97	109														
35	95	6990	97	5140	98	4770	99	4430	99	4180	99	111	35	94	6380	96	4720	97	4380	97	4100	97	3870	97	109														
39	96	7470	98	5460	99	5070	99	4730	99	4470	99	111	39	95	6790	96	5000	97	4650	97	4370	97	4120	97	109														

WEIGHT = 13000 LBS										WEIGHT = 12500 LBS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
					V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST				
	KIAS FT		KIAS FT		KIAS	FT	KIAS	FT	KIAS	FT		KIAS FT		KIAS FT		KIAS	FT	KIAS	FT						
	-35	101	4720	101	3360	101	3020	101	2720	101		2460	103	121	-35	102	4580	102	3290	102	2970	102	2680	102	2420
-30	101	4900	101	3470	101	3120	101	2810	101	2530	103	121	-30	102	4740	102	3400	102	3060	102	2760	102	2500	103	122
-25	102	5080	102	3580	102	3210	102	2890	102	2610	103	121	-25	102	4910	102	3500	102	3150	102	2850	102	2570	104	122
-20	102	5280	102	3690	102	3310	102	2980	102	2690	104	122	-20	102	5090	102	3610	102	3250	102	2930	102	2650	104	122
-15	102	5480	102	3810	102	3420	102	3070	102	2770	104	122	-15	102	5280	102	3720	102	3350	102	3020	102	2730	104	122
-10	102	5690	102	3930	102	3520	102	3160	102	2850	104	122	-10	102	5470	102	3840	102	3450	102	3110	102	2810	104	122
-5	101	5770	101	3980	101	3560	101	3200	101	2880	103	121	-5	101	5530	101	3880	101	3490	101	3140	101	2830	103	122
0	99	5470	99	3820	99	3430	99	3080	99	2780	101	118	0	99	5260	99	3730	99	3350	99	3030	99	2730	101	118
5	96	5170	96	3650	96	3280	96	2960	96	2670	98	114	5	96	4980	96	3570	96	3220	96	2910	96	2630	98	115
10	93	4870	93	3490	93	3140	93	2840	94	2630	95	111	10	94	4710	94	3410	94	3080	94	2780	94	2560	95	111
15	91	4640	91	3350	91	3050	92	2830	93	2640	93	108	15	91	4490	91	3280	91	2960	92	2740	93	2550	93	108
20	90	4660	91	3500	92	3260	93	3020	93	2830	93	108	20	89	4300	89	3230	90	3010	91	2800	91	2630	91	106
25	91	5010	92	3750	93	3490	94	3240	94	3050	94	108	25	90	4610	90	3460	91	3210	92	3010	92	2820	92	106
30	92	5390	93	4030	94	3740	94	3500	94	3290	94	107	30	91	4950	91	3700	92	3440	92	3240	92	3050	92	105
35	93	5830	94	4340	95	4040	95	3800	95	3570	95	107	35	92	5330	92	3980	93	3740	93	3510	93	3300	93	105
39	94	6190	95	4590	95	4300	95	4050	95	3800	95	107	39	92	5640	93	4220	93	3980	93	3740	93	3510	93	105

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST																	
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT																	
-35	102	4440	102	3230	102	2920	102	2640	102	2390	104	122	-35	102	4320	102	3180	102	2880	102	2610	102	2370	104	123														
-30	102	4600	102	3330	102	3010	102	2720	102	2470	104	122	-30	102	4470	102	3270	102	2960	102	2690	102	2440	104	123														
-25	102	4750	102	3430	102	3100	102	2800	102	2540	104	123	-25	102	4610	102	3370	102	3050	102	2770	102	2510	104	123														
-20	102	4920	102	3540	102	3190	102	2890	102	2610	104	123	-20	102	4770	102	3470	102	3140	102	2850	102	2580	104	123														
-15	102	5090	102	3650	102	3290	102	2970	102	2690	104	123	-15	102	4930	102	3570	102	3230	102	2930	102	2660	104	124														
-10	102	5270	102	3750	102	3380	102	3060	102	2760	104	123	-10	102	5090	102	3680	102	3320	102	3010	102	2730	105	124														
-5	101	5330	101	3790	101	3420	101	3090	101	2790	104	122	-5	101	5140	101	3710	101	3350	101	3040	101	2750	104	123														
0	99	5070	99	3640	99	3290	99	2970	99	2690	101	119	0	99	4900	99	3570	99	3230	99	2930	99	2650	101	119														
5	96	4810	96	3490	96	3150	96	2860	96	2590	98	115	5	97	4660	97	3420	97	3100	97	2810	97	2550	98	116														
10	94	4560	94	3330	94	3020	94	2730	94	2490	95	112	10	94	4420	94	3260	94	2960	94	2690	94	2440	96	112														
15	91	4360	91	3210	91	2910	92	2660	92	2470	93	108	15	91	4230	91	3140	91	2850	91	2590	92	2400	93	109														
20	89	4170	89	3090	89	2850	90	2650	90	2490	90	105	20	89	4050	89	3020	89	2770	90	2570	90	2400	90	106														
25	88	4230	88	3180	89	2960	89	2780	89	2600	89	104	25	87	3940	87	2960	88	2760	88	2590	88	2430	88	102														
30	89	4540	89	3400	90	3180	90	2990	90	2800	90	104	30	87	4150	87	3120	88	2930	88	2750	88	2580	88	101														
35	90	4870	90	3660	90	3440	90	3230	90	3030	91	103	35	88	4470	88	3370	88	3170	88	2970	88	2780	88	101														
39	91	5150	91	3890	91	3660	91	3440	91	3220	91	103	39	88	4740	88	3580	88	3360	88	3160	88	2950	89	101														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
7000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2										
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS							10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT														
-35	100	7100	100	4280	100	3740	102	3450	103	3190	106	122	-35	100	6820	100	4200	100	3680	101	3300	102	3060	105	121														
-30	100	7560	100	4460	100	3890	101	3530	103	3270	106	122	-30	100	7240	100	4370	100	3820	100	3380	102	3130	105	121														
-25	100	8100	100	4660	100	4040	101	3610	102	3340	106	122	-25	100	7720	100	4560	100	3970	100	3490	101	3200	105	121														
-20	100	8720	100	4870	100	4210	100	3680	102	3410	106	122	-20	100	8270	100	4760	100	4130	100	3630	101	3270	105	121														
-15	100	9410	100	5090	100	4380	100	3820	101	3490	106	122	-15	101	8870	101	4960	101	4290	101	3760	101	3340	105	121														
-10	99	9380	99	5090	99	4390	100	3920	102	3630	106	122	-10	100	8850	100	4970	100	4300	100	3770	101	3470	105	121														
-5	98	9040	98	5010	99	4430	100	4120	102	3820	106	121	-5	98	8560	98	4890	98	4240	100	3930	101	3650	105	120														
0	96	8200	97	5110	99	4740	101	4400	102	4080	107	121	0	96	7820	97	4870	99	4530	100	4200	102	3890	106	120														
5	93	7410	98	5510	100	5120	102	4750	103	4400	107	121	5	93	7110	98	5250	99	4870	101	4520	102	4190	106	120														
10	94	8070	99	5990	101	5560	102	5150	104	4770	108	121	10	94	7660	98	5690	100	5280	102	4900	103	4530	107	120														
15	94	8820	99	6510	101	6030	103	5590	105	5170	108	121	15	94	8360	99	6170	101	5720	102	5300	104	4900	107	120														
20	95	9740	100	7130	102	6600	104	6100	105	5630	109	121	20	95	9190	100	6740	102	6240	103	5770	105	5340	108	119														
25	95	10600	101	7850	103	7250	104	6690	106	6160	109	120	25	95	10170	101	7390	102	6840	104	6310	105	5820	108	119														
30	96	12130	102	8720	104	8040	105	7390	107	6800	110	120	30	96	11370	101	8190	103	7550	105	6960	106	6400	108	119														
35	96	13670	102	9700	104	8920	106	8190	108	7500	110	120	35	97	12760	102	9070	104	8350	105	7670	107	7040	109	119														
36	96	14010	102	9920	104	9110	106	8360	108	7650	110	120	36	97	13060	102	9260	104	8520	106	7820	107	7170	109	119														

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND		ZERO WIND	HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO WIND	HEAD WINDS						VR	V2		
	10 KTS			20 KTS		30 KTS		10 KTS					20 KTS			30 KTS									
	V1	DIST		V1	DIST	V1	DIST	V1	DIST				V1	DIST		V1	DIST	V1	DIST	V1	DIST				
	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT
-35	100	6450	100	4080	100	3590	100	3190	101	2860	103	119	-35	101	6130	101	3970	101	3510	101	2790	102	118		
-30	100	6820	100	4240	100	3730	100	3300	100	2930	103	119	-30	101	6450	101	4120	101	3630	101	3230	101	2880	102	119
-25	101	7220	101	4410	101	3870	101	3410	101	3030	103	119	-25	101	6800	101	4280	101	3770	101	3340	101	2980	102	119
-20	101	7690	101	4600	101	4020	101	3540	101	3140	103	119	-20	101	7200	101	4450	101	3910	101	3460	101	3080	102	119
-15	101	8190	101	4790	101	4170	101	3670	101	3250	103	119	-15	101	7620	101	4630	101	4050	101	3580	101	3180	102	119
-10	100	8170	100	4790	100	4180	100	3670	100	3260	103	119	-10	100	7610	100	4630	100	4060	100	3590	100	3190	102	118
-5	98	7930	98	4720	98	4120	98	3670	100	3400	103	119	-5	98	7410	98	4570	98	4010	98	3550	98	3170	101	117
0	96	7310	96	4530	98	4210	99	3910	100	3630	104	119	0	96	6880	96	4360	97	3920	98	3640	99	3380	102	117
5	93	6710	97	4870	98	4530	100	4200	101	3900	104	118	5	94	6360	96	4520	97	4210	99	3910	100	3630	102	117
10	94	7080	98	5270	99	4890	101	4540	102	4200	105	118	10	93	6540	97	4880	98	4530	99	4210	101	3900	103	117
15	94	7690	98	5700	100	5290	101	4900	103	4540	105	118	15	94	7090	97	5260	99	4890	100	4530	101	4200	103	116
20	95	8430	99	6200	101	5740	102	5320	103	4920	106	118	20	95	7730	98	5710	100	5290	101	4900	102	4540	104	116
25	95	9280	100	6770	101	6270	103	5800	104	5350	106	118	25	95	8480	99	6210	100	5750	102	5320	103	4920	104	116
30	96	10320	101	7450	102	6890	104	6350	105	5860	107	118	30	96	9370	100	6800	101	6290	103	5810	104	5370	105	116
35	97	11500	101	8210	103	7570	105	6970	106	6410	107	117	35	97	10380	101	7450	102	6880	103	6350	105	5850	105	116
36	97	11750	102	8370	103	7710	105	7100	106	6530	107	117	36	97	10590	101	7590	102	7000	104	6460	105	5950	105	116

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2										
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS							10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT														
-35	101	5840	101	3870	101	3430	101	3060	101	2740	102	119	-35	101	5590	101	3770	101	3360	101	3000	101	2690	102	119														
-30	101	6130	101	4010	101	3550	101	3160	101	2830	102	119	-30	101	5840	101	3900	101	3470	101	3100	101	2780	102	119														
-25	101	6440	101	4160	101	3680	101	3270	101	2920	102	119	-25	101	6120	101	4040	101	3590	101	3200	101	2870	103	120														
-20	101	6780	101	4320	101	3810	101	3380	101	3020	103	119	-20	101	6420	101	4190	101	3720	101	3310	101	2960	103	120														
-15	101	7150	101	4480	101	3940	101	3500	101	3120	103	119	-15	101	6740	101	4350	101	3840	101	3420	101	3060	103	120														
-10	100	7140	100	4490	100	3950	100	3500	100	3120	102	118	-10	100	6730	100	4350	100	3850	100	3430	100	3060	102	119														
-5	98	6960	98	4420	98	3900	98	3460	98	3090	100	116	-5	98	6580	98	4290	98	3800	98	3390	98	3030	100	117														
0	96	6510	96	4230	96	3750	97	3390	98	3150	100	115	0	96	6180	96	4110	96	3660	96	3270	96	2940	98	114														
5	94	6050	95	4200	96	3910	97	3630	98	3370	100	115	5	94	5780	94	3920	95	3630	96	3370	97	3130	98	113														
10	93	6050	96	4520	97	4200	98	3910	99	3620	101	115	10	92	5590	94	4190	96	3900	97	3620	98	3360	99	113														
15	93	6530	96	4860	98	4520	99	4190	100	3890	101	115	15	93	6020	95	4490	96	4180	98	3880	99	3600	100	113														
20	94	7100	97	5260	99	4880	100	4520	101	4190	102	115	20	93	6520	96	4840	97	4500	98	4180	99	3870	100	113														
25	95	7750	98	5700	99	5290	101	4900	102	4530	102	114	25	94	7090	97	5240	98	4860	99	4510	100	4180	100	113														
30	96	8520	99	6220	100	5760	101	5330	103	4930	103	114	30	95	7760	98	5690	99	5280	100	4890	101	4540	101	113														
35	96	9390	100	6780	101	6270	102	5790	103	5360	103	114	35	96	8490	99	6180	100	5720	101	5300	101	4960	101	112														
36	97	9560	100	6900	101	6380	102	5890	103	5460	103	114	36	96	8650	99	6280	100	5820	101	5380	101	5050	101	112														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
7000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2										
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST	V1	DIST												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT						
-35	101	5360	101	3680	101	3290	101	2950	101	2650	102	120	-35	101	5160	101	3590	101	3220	101	2890	101	2610	103	120														
-30	101	5590	101	3800	101	3390	101	3040	101	2730	103	120	-30	101	5370	101	3710	101	3320	101	2990	101	2690	103	120														
-25	101	5840	101	3940	101	3510	101	3140	101	2820	103	120	-25	101	5590	101	3840	101	3430	101	3080	101	2770	103	120														
-20	101	6110	101	4080	101	3630	101	3240	101	2910	103	120	-20	101	5830	101	3970	101	3550	101	3180	101	2860	103	121														
-15	101	6390	101	4220	101	3750	101	3350	101	3000	103	120	-15	101	6080	101	4110	101	3660	101	3280	101	2950	103	121														
-10	100	6380	100	4230	100	3750	100	3350	100	3000	102	119	-10	100	6070	100	4110	100	3660	100	3280	100	2950	102	119														
-5	99	6250	99	4170	99	3710	99	3310	99	2970	100	117	-5	99	5960	99	4050	99	3620	99	3250	99	2920	101	118														
0	96	5900	96	4000	96	3570	96	3200	96	2870	98	114	0	96	5640	96	3890	96	3490	96	3130	96	2820	98	114														
5	94	5530	94	3820	94	3420	94	3130	95	2900	96	112	5	94	5310	94	3720	94	3340	94	3010	95	2770	96	111														
10	91	5210	93	3880	94	3610	95	3350	96	3110	97	112	10	91	5010	91	3590	93	3340	94	3110	94	2880	95	110														
15	92	5550	94	4160	95	3870	96	3590	97	3330	98	111	15	91	5120	92	3840	93	3570	94	3320	95	3080	95	110														
20	93	5990	95	4470	96	4150	97	3860	98	3570	98	111	20	92	5510	93	4120	94	3830	95	3560	96	3320	96	109														
25	94	6490	96	4810	97	4470	98	4160	98	3860	99	111	25	93	5950	94	4430	95	4120	96	3830	96	3590	96	109														
30	94	7070	97	5220	98	4840	99	4490	99	4210	99	111	30	94	6460	95	4780	96	4440	97	4140	97	3900	97	109														
35	95	7700	97	5640	98	5230	99	4860	99	4590	99	111	35	94	7000	96	5160	97	4800	97	4500	97	4240	97	109														
36	95	7840	98	5730	99	5310	99	4940	99	4670	99	111	36	95	7120	96	5240	97	4870	97	4570	97	4310	97	109														

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST																			
-35	101	4980	101	3520	101	3160	101	2850	101	2570	103	121	-35	101	4810	101	3440	101	3100	101	2800	101	2530	103	121														
-30	101	5170	101	3630	101	3260	101	2930	101	2650	103	121	-30	101	4990	101	3550	101	3200	101	2890	101	2610	103	121														
-25	101	5370	101	3750	101	3360	101	3020	101	2730	103	121	-25	101	5170	101	3660	101	3300	101	2970	101	2690	103	122														
-20	101	5590	101	3880	101	3470	101	3120	101	2810	103	121	-20	101	5370	101	3780	101	3400	101	3070	101	2770	104	122														
-15	101	5810	101	4000	101	3580	101	3220	101	2900	103	121	-15	101	5570	101	3900	101	3500	101	3160	101	2850	104	122														
-10	100	5800	100	4000	100	3580	100	3220	100	2900	102	120	-10	100	5570	100	3900	100	3510	100	3160	100	2850	103	121														
-5	99	5700	99	3950	99	3540	99	3180	99	2870	101	118	-5	99	5470	99	3850	99	3460	99	3120	99	2820	101	119														
0	96	5410	96	3800	96	3410	96	3070	96	2770	98	115	0	97	5210	97	3700	97	3340	97	3010	97	2720	98	115														
5	94	5110	94	3630	94	3270	94	2950	94	2700	96	112	5	94	4930	94	3550	94	3200	94	2890	94	2630	96	112														
10	91	4840	91	3480	91	3140	92	2900	93	2690	93	108	10	91	4670	91	3390	91	3070	92	2810	93	2610	93	109														
15	89	4720	91	3550	92	3300	93	3070	93	2860	93	108	15	89	4470	89	3280	90	3050	91	2830	91	2650	91	106														
20	91	5070	92	3800	93	3530	94	3280	94	3080	94	108	20	89	4660	90	3500	91	3260	92	3030	92	2850	92	106														
25	91	5450	93	4080	94	3790	94	3530	94	3320	94	107	25	90	5000	91	3750	92	3490	92	3270	92	3070	92	106														
30	92	5900	94	4390	94	4080	95	3840	95	3610	95	107	30	91	5390	92	4030	93	3770	93	3550	93	3330	93	105														
35	93	6370	94	4720	95	4420	95	4160	95	3910	95	107	35	92	5810	93	4330	93	4090	93	3840	93	3610	93	105														
36	94	6470	95	4790	95	4490	95	4230	95	3980	95	107	36	92	5890	93	4400	93	4150	93	3910	93	3670	93	105														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST														
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST																			
-35	101	4660	101	3380	101	3050	101	2760	101	2500	103	122	-35	102	4530	102	3310	102	3000	102	2720	102	2470	104	123														
-30	101	4820	101	3480	101	3140	101	2840	101	2570	103	122	-30	102	4680	102	3410	102	3090	102	2800	102	2540	104	123														
-25	101	5000	101	3590	101	3240	101	2930	101	2650	104	122	-25	102	4840	102	3520	102	3180	102	2880	102	2620	104	123														
-20	101	5180	101	3700	101	3340	101	3020	101	2730	104	122	-20	102	5010	102	3630	102	3280	102	2970	102	2690	104	123														
-15	101	5360	101	3810	101	3440	101	3100	101	2810	104	123	-15	102	5170	102	3730	102	3370	102	3050	102	2770	104	123														
-10	100	5350	100	3810	100	3440	100	3100	100	2810	103	121	-10	101	5160	101	3730	101	3370	101	3050	101	2770	103	122														
-5	99	5260	99	3760	99	3390	99	3070	99	2780	101	119	-5	99	5080	99	3680	99	3330	99	3010	99	2730	101	120														
0	97	5020	97	3620	97	3270	97	2960	97	2680	99	116	0	97	4850	97	3540	97	3210	97	2910	97	2640	99	116														
5	94	4760	94	3470	94	3140	94	2840	94	2570	96	112	5	94	4610	94	3390	94	3070	94	2790	94	2530	96	113														
10	92	4520	92	3320	92	3010	92	2730	92	2540	93	109	10	92	4390	92	3250	92	2950	92	2680	92	2470	93	109														
15	89	4330	89	3200	89	2930	90	2720	91	2540	91	106	15	89	4200	89	3130	89	2840	90	2640	91	2450	91	106														
20	88	4280	88	3220	89	3000	89	2800	89	2630	89	104	20	87	4030	87	3030	88	2820	88	2640	88	2480	88	103														
25	89	4580	89	3440	90	3200	90	3010	90	2830	90	104	25	87	4190	87	3160	87	2950	87	2770	87	2600	88	102														
30	90	4930	90	3690	90	3480	90	3270	90	3060	90	103	30	88	4500	88	3400	88	3200	88	3000	88	2810	88	101														
35	91	5290	91	4000	91	3760	91	3540	91	3320	91	103	35	89	4840	89	3670	89	3460	89	3240	89	3040	89	101														
36	91	5360	91	4060	91	3820	91	3590	91	3370	91	103	36	89	4910	89	3730	89	3510	89	3300	89	3090	89	101														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
8000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT				KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT			KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT						
-35	101	8220	101	4690	101	4070	101	3570	102	3300	106	122	-35	101	7830	101	4590	101	4000	101	3520	101	3160	105	121	-35	101	7440	101	4200	101	3780	101	3420	105	121			
-30	101	8870	101	4910	101	4240	101	3710	102	3380	106	122	-30	101	8400	101	4800	101	4160	101	3650	101	3240	105	121	-30	101	8010	101	4410	101	3890	101	3480	105	121			
-25	101	9630	101	5150	101	4430	101	3860	101	3460	106	122	-25	101	9070	101	5020	101	4340	101	3790	101	3350	105	121	-25	101	8680	101	4630	101	4010	101	3590	105	121			
-20	100	9890	100	5240	100	4500	100	3920	101	3580	106	122	-20	100	9290	100	5100	100	4400	100	3850	100	3430	105	121	-20	100	8900	100	4710	100	4090	100	3670	105	121			
-15	99	9550	99	5160	99	4440	100	4050	101	3760	106	122	-15	99	9000	99	5030	99	4350	99	3870	101	3590	105	120	-15	99	8610	99	4640	99	4020	101	3700	105	120			
-10	97	9260	97	5090	98	4580	100	4260	102	3950	106	121	-10	98	8750	98	4970	98	4370	99	4060	101	3770	105	120	-10	98	8360	98	4580	99	3960	101	3680	105	120			
-5	96	8900	97	5190	99	4830	100	4480	102	4160	107	121	-5	96	8430	96	4950	98	4610	100	4280	101	3970	106	120	-5	96	8040	96	4560	98	4170	100	3850	106	120			
0	94	8050	97	5580	99	5190	101	4820	103	4470	107	121	0	94	7680	97	5320	99	4940	100	4590	102	4260	106	120	0	94	7290	97	5710	99	5320	102	4430	106	120			
5	93	8120	98	6050	100	5620	102	5210	103	4830	108	121	5	93	7710	98	5750	99	5340	101	4960	103	4590	107	120	5	93	7320	98	5880	99	5470	103	4720	107	120			
10	94	8910	99	6600	101	6130	102	5670	104	5250	108	121	10	93	8440	98	6260	100	5810	102	5390	103	4980	107	120	10	93	8050	98	6390	99	5900	103	5030	107	120			
15	94	9810	99	7220	101	6690	103	6190	105	5720	109	121	15	94	9270	99	6830	101	6330	103	5860	104	5420	107	120	15	94	8880	99	6980	101	6480	104	5570	107	120			
20	94	10890	100	7950	102	7360	104	6790	105	6260	109	120	20	95	10260	100	7500	102	6940	103	6410	105	5920	108	119	20	95	9870	100	7650	102	7090	104	6560	108	119			
25	95	12190	101	8810	103	8130	105	7500	106	6900	109	120	25	95	11440	100	8280	102	7650	104	7050	106	6500	108	119	25	95	11050	100	8380	102	7750	104	7150	108	119			
30	95	13830	101	9880	103	9100	105	8360	107	7670	110	120	30	96	12920	101	9240	103	8520	105	7830	106	7190	109	119	30	96	12530	101	9380	103	8690	105	7300	109	119			
33	96	14880	102	10560	104	9700	106	8890	107	8140	110	120	33	96	13850	102	9840	103	9050	105	8310	107	7620	109	119	33	96	13460	102	9980	103	9150	105	7410	109	119			

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		
-35	101	7310	101	4450	101	3890	101	3440	101	3050	103	119	-35	101	6880	101	4310	101	3790	101	3360	101	2990	103	119	-35	101	6880	101	4310	101	3790	101	3360	101	2990	103	119	
-30	101	7800	101	4640	101	4050	101	3560	101	3160	103	119	-30	101	7290	101	4490	101	3940	101	3480	101	3100	103	119	-30	101	7290	101	4490	101	3940	101	3480	101	3100	103	119	
-25	101	8350	101	4840	101	4210	101	3700	101	3270	103	119	-25	101	7760	101	4680	101	4090	101	3610	101	3210	103	119	-25	101	7760	101	4680	101	4090	101	3610	101	3210	103	119	
-20	100	8530	100	4920	100	4270	100	3750	100	3320	103	119	-20	100	7910	100	4750	100	4150	100	3660	100	3250	102	119	-20	100	7910	100	4750	100	4150	100	3660	100	3250	102	119	
-15	99	8300	99	4850	99	4220	99	3710	99	3360	103	119	-15	99	7710	99	4680	99	4100	99	3620	99	3220	101	117	-15	99	7710	99	4680	99	4100	99	3620	99	3220	101	117	
-10	98	8090	98	4790	98	4180	98	3790	100	3520	103	119	-10	98	7540	98	4630	98	4060	98	3590	98	3280	101	117	-10	98	7540	98	4630	98	4060	98	3590	98	3280	101	117	
-5	96	7830	96	4710	97	4280	99	3980	100	3700	104	119	-5	96	7330	96	4560	96	4010	97	3710	99	3440	102	117	-5	96	7330	96	4560	96	4010	97	3710	99	3440	102	117	
0	94	7200	96	4940	98	4590	99	4260	101	3960	104	118	0	94	6790	95	4580	97	4270	98	3970	99	3680	102	117	0	94	6790	95	4580	97	4270	98	3970	99	3680	102	117	
5	93	7130	97	5320	99	4950	100	4590	101	4260	105	118	5	92	6590	96	4930	98	4580	99	4260	100	3950	103	117	5	92	6590	96	4930	98	4580	99	4260	100	3950	103	117	
10	93	7760	98	5780	99	5370	101	4980	102	4610	105	118	10	93	7170	97	5330	98	4960	100	4600	101	4260	103	116	10	93	7170	97	5330	98	4960	100	4600	101	4260	103	116	
15	94	8510	98	6280	100	5820	102	5400	103	4990	106	118	15	94	7810	98	5780	99	5370	100	4980	102	4610	104	116	15	94	7810	98	5780	99	5370	100	4980	102	4610	104	116	
20	95	9370	99	6870	101	6360	102	5880	104	5440	106	118	20	94	8560	98	6290	100	5840	101	5410	102	5000	104	116	20	94	8560	98	6290	100	5840	101	5410	102	5000	104	116	
25	95	10390	100	7540	102	6980	103	6440	104	5940	107	118	25	95	9440	99	6880	101	6370	102	5890	103	5440	105	116	25	95	9440	99	6880	101	6370	102	5890	103	5440	105	116	
30	96	11660	101	8370	102	7710	104	7110	105	6540	107	117	30	96	10530	100	7590	102	7010	103	6470	104	5970	105	116	30	96	10530	100	7590	102	7010	103	6470	104	5970	105	116	
33	96	12450	101	8870	103	8170	104	7510	106	6910	107	117	33	96	11200	100	8020	102	7400	103	6820	105	6280	105	116	33	96	11200	100	8020	102	7400	103	6820	105	6280	105	116	

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST								
	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT				KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT			KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT						
-35	101	6500	101	4190	101	3700	101	3290	101	2940	103	120	-35	101	6180	101	4070	101	3610	101	3220	101	2880	103	120	-35	101	6180	101	4070	101	3610	101	3220	101	2880	103	120	
-30	101	6860	101	4350	101	3840	101	3400	101	3040	103	120	-30	101	6490	101	4230	101	3740	101	3330	101	2980	103	120	-30	101	6490	101	4230	101	3740	101	3330	101	2980	103	120	
-25	101	7260	101	4530	101	3980	101	3530	101	3140	103	120	-25	101	6840	101	4390	101	3880	101	3450	101	3080	103	120	-25	101	6840	101	4390	101	3880	101	3450	101	3080	103	120	
-20	100	7390	100	4590	100	4040	100	3570	100	3180	102	119	-20	101	6950	101	4450	101	3930	101	3490	101	3120	102	119	-20	101	6950	101	4450	101	3930	101	3490	101	3120	102	119	
-15	99	7230	99	4530	99	3990	99	3540	99	3150	101	117	-15	99	6810	99	4390	99	3890	99	3460	99	3090	101	118	-15	99	6810	99	4390	99	3890	99	3460	99	3090	101	118	
-10	98	7080	98	4480	98	3950	98	3510	98	3130	100	116	-10	98	6680	98	4350	98	3850	98	3430	98	3070	100	116	-10	98	6680	98	4350	98	3850	98	3430	98	3070	100	116	
-5	96	6890	96	4410	96	3900	96	3470	97	3200	100	115	-5	96	6520	96	4280	96	3800	96	3390	96	3030	98	114	-5	96	6520	96	4280	96	3800	96	3390	96	3030	98	114	
0	94	6430	94	4260	96	3960	97	3680	98	3420	100	115	0	94	6110	94	4100	94	3680	95	3420	96	3180	98	113	0	94	6110	94	4100	94	3680	95	3420	96	3180	98	113	
5	92	6090	95	4570	96	4260	98	3950	99	3670	101	115	5	92	5740	94	4230	95	3940	96	3660	97	3400	99	113	5	92	5740	94	4230	95	3940	96	3660	97	3400	99	113	
10	93	6600	96	4930	97	4580	98	4250	100	3950	101	115	10	92	6090	95	4550	96	4240	97	3940	98	3650	99	113	10	92	6090	95	4550	96	4240	97	3940	98	3650	99	113	
15	93	7170	97	5320	98	4950	99	4590	100	4250	102	115	15	93	6590	95	4910	97	4560	98	4230	99	3930	100	113	15	93	6590	95	4910	97	4560	98	4230	99	3930	100	113	
20	94	7830	97	5780	99	5360	100	4970	101	4600	102	114	20	94	7160	96	5310	98	4930	99	4570	100	4250	100	113	20	94	7160	96	5310	98	4930	99	4570	100	4250	100	113	
25	95	8590	98	6290	100	5830	101	5400	102	5000	103	114	25	94	7830	97	5760	98	5350	100	4950	101	4590	101	113	25	94	7830	97	5760	98	5350	100	4950	101	4590	101	113	
30	96	9520	99	6900	100	6390	102	5900	103	5450	103	114	30	95	8620	98	6290	99	5830	100	5400	101	5010	101	112	30	95	8620	98	6290	99	5830	100	5400	101	5010	101	112	
33	96	10090	100	7270	101	6720	102	6210	103	5730	103	114	33	96	9100	99	6610	100	6120	101	5660	101	5280	102	111	33	96	9100	99	6610	100	6120	101	5660	101	5280	102	111	

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
8000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS								
	10 KTS				10 KTS		20 KTS		30 KTS										
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT									
-35	101	5890	101	3960	101	3530	101	3160	101	2830	103	120							
-30	101	6170	101	4110	101	3650	101	3260	101	2930	103	121							
-25	101	6480	101	4260	101	3780	101	3380	101	3020	103	121							
-20	101	6570	101	4320	101	3830	101	3420	101	3060	103	120							
-15	99	6450	99	4260	99	3790	99	3380	99	3030	101	118							
-10	98	6340	98	4220	98	3750	98	3360	98	3010	100	116							
-5	96	6200	96	4160	96	3700	96	3310	96	2980	98	114							
0	94	5830	94	3980	94	3560	94	3190	95	2950	96	112							
5	92	5500	92	3920	94	3650	95	3390	96	3150	97	112							
10	91	5610	93	4210	95	3920	96	3640	97	3380	97	111							
15	92	6050	94	4520	95	4210	96	3910	97	3630	98	111							
20	93	6560	95	4860	96	4540	97	4210	98	3910	98	111							
25	94	7140	96	5280	97	4900	98	4550	99	4240	99	111							
30	95	7820	97	5740	98	5330	99	4940	99	4640	99	111							
33	95	8230	97	6020	98	5580	99	5170	99	4880	100	111							

WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS								
	10 KTS				10 KTS		20 KTS		30 KTS										
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT									
-35	101	5640	101	3860	101	3450	101	3100	101	2790	103	121							
-30	101	5890	101	4000	101	3570	101	3200	101	2880	103	121							
-25	101	6160	101	4150	101	3690	101	3310	101	2970	103	121							
-20	101	6250	101	4200	101	3740	101	3350	101	3000	103	120							
-15	99	6130	99	4150	99	3700	99	3310	99	2980	101	119							
-10	98	6040	98	4100	98	3660	98	3280	98	2950	100	117							
-5	97	5910	97	4040	97	3610	97	3240	97	2920	98	115							
0	94	5590	94	3880	94	3480	94	3130	95	2850	96	112							
5	92	5280	92	3720	92	3380	93	3140	94	2920	95	110							
10	90	5170	92	3890	93	3620	94	3370	95	3120	95	110							
15	91	5560	93	4180	94	3880	95	3610	96	3350	96	109							
20	92	6010	94	4490	95	4180	96	3880	96	3620	96	109							
25	93	6520	95	4840	96	4500	97	4180	97	3930	97	109							
30	94	7110	95	5250	96	4870	97	4550	97	4290	97	109							
33	94	7460	96	5490	97	5100	97	4780	97	4500	98	109							

WEIGHT = 13000 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR V2 KIAS				
	10 KTS		WIND		10 KTS		20 KTS		30 KTS						
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					
-35	102	5410	102	3770	102	3380	102	3040	102	2740	103	122			
-30	102	5640	102	3900	102	3490	102	3140	102	2830	104	122			
-25	102	5880	102	4040	102	3610	102	3240	102	2920	104	122			
-20	101	5960	101	4080	101	3650	101	3280	101	2950	103	121			
-15	99	5860	99	4040	99	3610	99	3250	99	2920	102	119			
-10	98	5770	98	3990	98	3580	98	3220	98	2900	100	117			
-5	97	5650	97	3940	97	3530	97	3180	97	2870	99	115			
0	94	5360	94	3780	94	3400	94	3060	94	2770	96	112			
5	92	5080	92	3630	92	3270	92	2970	93	2760	94	109			
10	89	4820	90	3600	91	3350	92	3110	93	2890	93	108			
15	90	5120	91	3850	92	3580	93	3330	94	3110	94	108			
20	91	5510	92	4130	93	3840	94	3570	94	3350	94	107			
25	92	5950	93	4440	94	4130	95	3870	95	3640	95	107			
30	93	6470	94	4800	95	4470	95	4220	95	3970	95	107			
33	93	6770	94	5010	95	4690	95	4420	95	4160	96	107			

WEIGHT = 12500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR V2 KIAS				
	10 KTS		WIND		10 KTS		20 KTS		30 KTS						
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					
-35	102	5210	102	3690	102	3320	102	2990	102	2700	104	122			
-30	102	5420	102	3810	102	3420	102	3090	102	2790	104	122			
-25	102	5640	102	3940	102	3540	102	3180	102	2870	104	122			
-20	101	5710	101	3980	101	3570	101	3220	101	2900	103	122			
-15	100	5610	100	3930	100	3530	100	3180	100	2870	102	120			
-10	98	5530	98	3890	98	3500	98	3160	98	2850	100	118			
-5	97	5430	97	3840	97	3450	97	3120	97	2820	99	116			
0	94	5160	94	3690	94	3320	94	3000	94	2720	96	113			
5	92	4900	92	3540	92	3200	92	2890	93	2690	94	109			
10	89	4650	89	3390	90	3100	91	2880	91	2690	91	106			
15	89	4700	90	3540	90	3300	91	3070	91	2880	92	106			
20	90	5060	90	3800	91	3530	92	3300	92	3100	92	106			
25	91	5440	91	4080	92	3800	93	3570	93	3360	93	105			
30	92	5890	92	4400	93	4140	93	3890	93	3660	93	105			
33	92	6150	93	4590	93	4330	93	4080	93	3840	93	105			

WEIGHT = 12000 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS								
					10 KTS	20 KTS	30 KTS												
	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT											
-35	102	5030	102	3610	102	3260	102	2940	102	2660	104	123							
-30	102	5220	102	3730	102	3360	102	3030	102	2750	104	123							
-25	102	5420	102	3850	102	3470	102	3130	102	2830	104	123							
-20	101	5480	101	3890	101	3500	101	3160	101	2860	104	122							
-15	100	5400	100	3840	100	3460	100	3130	100	2830	102	120							
-10	98	5320	98	3800	98	3430	98	3100	98	2800	101	118							
-5	97	5220	97	3750	97	3380	97	3060	97	2770	99	116							
0	95	4970	95	3600	95	3250	95	2950	95	2670	96	113							
5	92	4730	92	3460	92	3130	92	2840	93	2610	94	110							
10	89	4500	89	3310	89	3000	90	2790	91	2590	91	106							
15	87	4320	88	3260	89	3030	89	2830	89	2660	89	104							
20	88	4630	89	3490	89	3250	90	3040	90	2860	90	104							
25	89	4970	90	3730	90	3500	90	3290	90	3090	90	103							
30	90	5370	90	4040	91	3810	91	3580	91	3360	91	103							
33	91	5600	91	4230	91	3990	91	3750	91	3520	91	103							

WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS								
					10 KTS	20 KTS	30 KTS												
	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT											
-35	102	4870	102	3540	102	3200	102	2900	102	2630	104	123							
-30	102	5050	102	3650	102	3300	102	2990	102	2710	104	124							
-25	102	5230	102	3760	102	3400	102	3080	102	2790	105	124							
-20	101	5280	101	3800	101	3430	101	3110	101	2820	104	123							
-15	100	5200	100	3760	100	3390	100	3070	100	2790	102	121							
-10	99	5130	99	3720	99	3360	99	3040	99	2760	101	119							
-5	97	5040	97	3660	97	3310	97	3000	97	2730	99	117							
0	95	4810	95	3520	95	3190	95	2890	95	2630	97	113							
5	92	4580	92	3380	92	3070	92	2780	92	2540	94	110							
10	90	4370	90	3240	90	2940	90	2710	91	2510	91	107							
15	87	4180	87	3120	88	2900	89	2690	89	2530	89	103							
20	86	4240	87	3200	88	2980	87	2800	87	2630	87	102							
25	87	4540	88	3420	88	3220	88	3020	88	2830	88	101							
30	88	4890	88	3720	88	3500	88	3290	88	3080	89	101							
33	89	5100	89	3890	89	3660	89	3440	89	3230	89	101							

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
9000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS																					
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT										
-35	100	8980	100	4960	100	4280	100	3770	102	3490	106	122	-35	100	8500	100	4840	100	4200	100	3680	101	3340	105	121														
-30	100	9760	100	5200	100	4470	100	3900	101	3570	106	122	-30	100	9190	100	5070	100	4380	100	3830	101	3420	105	121														
-25	100	10190	100	5330	100	4570	100	3980	101	3690	106	122	-25	100	9550	100	5190	100	4480	100	3910	100	3530	105	121														
-20	98	9890	98	5260	98	4530	100	4180	101	3880	106	121	-20	98	9290	98	5130	98	4430	99	3990	101	3710	105	120														
-15	97	9390	97	5140	98	4760	100	4420	102	4100	107	121	-15	97	8860	97	5010	98	4540	99	4220	101	3920	105	120														
-10	95	9130	97	5370	98	4990	100	4640	102	4300	107	121	-10	95	8640	96	5120	98	4770	100	4420	101	4100	106	120														
-5	94	8720	97	5680	99	5280	100	4910	102	4550	107	121	-5	94	8280	96	5410	98	5030	100	4670	101	4340	106	120														
0	92	8220	97	6140	99	5710	101	5300	103	4910	108	121	0	92	7800	97	5830	99	5430	100	5040	102	4670	106	120														
5	93	8990	98	6690	100	6210	102	5760	103	5330	108	121	5	93	8520	98	6340	100	5890	101	5460	103	5060	107	120														
10	93	9890	99	7310	101	6780	102	6280	104	5810	109	121	10	93	9350	98	6920	100	6420	102	5940	103	5500	107	120														
15	94	10980	99	8050	101	7460	103	6890	105	6360	109	120	15	94	10340	99	7590	101	7030	103	6510	104	6010	108	119														
20	94	12260	100	8920	102	8240	104	7600	105	7010	109	120	20	94	11510	100	8380	102	7750	103	7150	105	6600	108	119														
25	94	13660	100	9980	103	9200	104	8460	106	7770	110	120	25	95	12960	100	9340	102	8610	104	7930	106	7290	109	119														
29			101	10990	103	10110	105	9280	107	8500	110	120	30	95	14710	101	10470	103	9630	105	8840	106	8100	109	119														
30			101	11250	103	10340	105	9480	107	8680	110	120	31			101	10710	103	9840	105	9030	107	8270	109	119														
31			101	11520	103	10560	105	9700	107	8870	110	120																											

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2										
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT								
-35	100	7860	100	4680	100	4080	100	3600	100	3190	103	119	-35	100	7370	100	4530	100	3970	100	3510	100	3120	102	119														
-30	100	8450	100	4890	100	4250	100	3730	100	3300	103	119	-30	100	7840	100	4720	100	4130	100	3640	100	3230	102	119														
-25	100	8740	100	5000	100	4340	100	3810	100	3370	103	119	-25	100	8090	100	4820	100	4210	100	3710	100	3300	102	118														
-20	98	8530	98	4940	98	4300	98	3780	99	3460	103	119	-20	99	7910	99	4770	99	4170	99	3680	99	3270	101	117														
-15	97	8180	97	4840	97	4220	98	3930	100	3650	104	119	-15	97	7620	97	4670	97	4100	97	3660	98	3390	102	117														
-10	96	8000	96	4790	97	4430	99	4120	100	3820	104	119	-10	96	7470	96	4630	96	4120	97	3830	99	3560	102	117														
-5	94	7700	96	5020	97	4670	99	4340	100	4030	104	118	-5	94	7220	95	4660	96	4340	98	4040	99	3750	102	117														
0	92	7210	96	5400	98	5020	99	4670	101	4330	105	118	0	92	6700	95	5000	97	4650	98	4320	100	4010	103	117														
5	93	7850	97	5850	99	5440	100	5050	102	4680	105	118	5	92	7240	96	5410	98	5030	99	4670	100	4330	103	116														
10	93	8580	98	6360	99	5900	101	5480	102	5070	106	118	10	93	7880	97	5850	98	5440	100	5050	101	4680	104	116														
15	94	9450	98	6960	100	6450	102	5970	103	5520	106	118	15	94	8640	98	6380	99	5920	101	5480	102	5080	104	116														
20	94	10470	99	7640	101	7070	102	6530	104	6030	106	118	20	94	9520	98	6970	100	6460	101	5980	103	5530	105	116														
25	95	11710	100	8460	102	7810	103	7200	105	6630	107	117	25	95	10590	99	7680	101	7100	102	6560	104	6050	105	116														
30	95	13190	101	9410	102	8670	104	7970	105	7320	107	117	30	95	11840	100	8480	102	7830	103	7210	104	6640	105	116														
31	95	13510	101	9610	103	8850	104	8130	106	7460	107	117	31	96	12110	100	8650	102	7980	103	7350	104	6760	105	116														

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2										
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT						
-35	100	6930	100	4390	100	3870	100	3430	100	3060	102	119	-35	101	6550	101	4260	101	3770	101	3360	101	3000	102	119	-35	101	6550	101	4260	101	3770	101	3360	101	3000	102	119	
-30	100	7340	100	4570	100	4020	100	3560	100	3170	102	119	-30	101	6900	101	4430	101	3910	101	3480	101	3110	102	119	-30	101	6900	101	4430	101	3910	101	3480	101	3110	102	119	
-25	100	7540	100	4660	100	4090	100	3620	100	3230	102	118	-25	100	7080	100	4510	100	3980	100	3540	100	3160	102	119	-25	100	7080	100	4510	100	3980	100	3540	100	3160	102	119	
-20	99	7390	99	4610	99	4060	99	3600	99	3200	100	117	-20	99	6950	99	4470	99	3950	99	3510	99	3140	101	117	-20	99	6950	99	4470	99	3950	99	3510	99	3140	101	117	
-15	97	7150	97	4520	97	3990	97	3540	97	3160	100	115	-15	97	6740	97	4380	97	3880	97	3460	97	3090	99	115	-15	97	6740	97	4380	97	3880	97	3460	97	3090	99	115	
-10	96	7020	96	4480	96	3960	96	3560	97	3310	100	115	-10	96	6630	96	4340	96	3850	96	3440	96	3080	98	114	-10	96	6630	96	4340	96	3850	96	3440	96	3080	98	114	
-5	94	6800	94	4400	95	4030	96	3750	98	3480	100	115	-5	94	6440	94	4260	94	3790	95	3480	96	3230	98	113	-5	94	6440	94	4260	94	3790	95	3480	96	3230	98	113	
0	92	6360	94	4640	96	4320	97	4010	98	3730	101	115	0	92	6050	93	4290	95	4000	96	3720	97	3450	99	113	0	92	6050	93	4290	95	4000	96	3720	97	3450	99	113	
5	92	6670	95	4990	97	4650	98	4320	99	4000	101	115	5	91	6160	94	4610	95	4290	97	4000	98	3710	99	113	5	91	6160	94	4610	95	4290	97	4000	98	3710	99	113	
10	93	7240	96	5390	97	5010	99	4650	100	4320	102	115	10	92	6650	95	4970	96	4620	97	4290	98	3980	100	113	10	92	6650	95	4970	96	4620	97	4290	98	3980	100	113	
15	93	7900	97	5850	98	5440	99	5040	101	4670	102	114	15	93	7230	96	5380	97	5000	98	4640	99	4300	101	113	15	93	7230	96	5380	97	5000	98	4640	99	4300	101	113	
20	94	8670	98	6370	99	5910	100	5480	101	5070	103	114	20	94	7900	97	5840	98	5420	99	5020	100	4660	101	113	20	94	7900	97	5840	98	5420	99	5020	100	4660	101	113	
25	95	9590	98	6980	100	6470	101	5980	102	5530	103	114	25	94	8890	97	6360	99	5900	100	5470	101	5060	101	112	25	94	8890	97	6360	99	5900	100	5470	101	5060	101	112	
30	95	10650	99	7670	101	7090	102	6550	103	6040	104	114	30	95	9590	98	6960	100	6440	101	5960	102	5520	102	112	30	95	9590	98	6960	100	6440	101	5960	102	5520	102	112	
31	96	10870	99	7820	101	7220	102	6660	103	6150	104	114	31	95	9780	98	7080	100	6550	101	6060	102	5630	102	112	31	95	9780	98	7080	100	6550	101	6060	102	5630	102	112	

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
9000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																	
-35	101	6220	101	4140	101	3680	101	3290	101	2950	103	120	-35	101	5930	101	4030	101	3600	101	3220	101	2900	103	120														
-30	101	6530	101	4300	101	3810	101	3400	101	3050	103	120	-30	101	6210	101	4180	101	3720	101	3330	101	2990	103	120														
-25	100	6690	100	4380	100	3880	100	3460	100	3100	102	119	-25	100	6350	100	4250	100	3790	100	3390	100	3040	102	120														
-20	99	6580	99	4330	99	3850	99	3430	99	3080	101	117	-20	99	6250	99	4210	99	3750	99	3360	99	3020	101	118														
-15	97	6390	97	4250	97	3780	97	3380	97	3030	99	115	-15	97	6080	97	4130	97	3690	97	3310	97	2970	99	116														
-10	96	6300	96	4220	96	3750	96	3360	96	3010	98	114	-10	96	6000	96	4100	96	3660	96	3290	96	2960	98	114														
-5	94	6130	94	4140	94	3690	94	3310	95	3000	96	112	-5	94	5850	94	4030	94	3600	94	3240	94	2920	96	112														
0	92	5780	92	3970	93	3700	94	3440	95	3200	97	112	0	92	5540	92	3870	92	3470	93	3190	94	2960	95	110														
5	91	5670	93	4270	94	3970	95	3690	96	3430	97	111	5	90	5230	91	3940	92	3670	94	3410	94	3170	95	110														
10	91	6110	94	4580	95	4260	96	3970	97	3680	98	111	10	90	5620	92	4230	93	3930	94	3660	95	3400	96	109														
15	92	6630	95	4940	96	4600	97	4270	98	3960	98	111	15	91	6070	93	4550	94	4230	95	3930	96	3650	96	109														
20	93	7210	95	5350	97	4970	98	4610	99	4280	99	111	20	92	6580	94	4900	95	4560	96	4240	97	3960	97	109														
25	94	7890	96	5810	97	5390	98	5000	99	4660	99	111	25	93	7170	95	5310	96	4930	97	4580	97	4320	97	109														
30	95	8660	97	6320	98	5860	99	5430	100	5100	100	111	30	94	7820	96	5760	97	5350	98	4990	98	4710	98	109														
31	95	8810	97	6430	98	5960	99	5520	100	5190	100	111	31	94	7960	96	5850	97	5430	98	5080	98	4790	98	109														

WEIGHT = 13000 LBS							VENR = 160 KIAS							WEIGHT = 12500 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2		TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2			
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS					
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2		
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT
-35	101	5680	101	3930	101	3520	101	3160	101	2850	103	121	-35	101	5450	101	3830	101	3440	101	3100	101	2800	103	121		
-30	101	5930	101	4070	101	3640	101	3270	101	2940	103	121	-30	101	5680	101	3960	101	3560	101	3200	101	2890	103	122		
-25	100	6050	100	4140	100	3700	100	3320	100	2990	103	120	-25	100	5780	100	4030	100	3620	100	3250	100	2940	103	121		
-20	99	5960	99	4090	99	3660	99	3290	99	2960	101	118	-20	99	5700	99	3990	99	3580	99	3230	99	2910	101	119		
-15	97	5810	97	4020	97	3600	97	3240	97	2920	99	116	-15	97	5570	97	3920	97	3520	97	3180	97	2870	100	117		
-10	96	5730	96	3990	96	3580	96	3220	96	2900	98	115	-10	96	5500	96	3880	96	3490	96	3150	96	2850	98	115		
-5	95	5600	95	3920	95	3520	95	3170	95	2860	96	112	-5	95	5380	95	3820	95	3440	95	3110	95	2810	97	113		
0	92	5320	92	3770	92	3390	92	3060	93	2830	94	109	0	92	5120	92	3670	92	3310	92	3000	93	2760	94	110		
5	90	5040	90	3640	91	3390	92	3150	93	2930	93	108	5	90	4860	90	3520	90	3190	91	2950	91	2750	92	107		
10	89	5170	91	3890	92	3630	93	3370	94	3130	94	108	10	88	4750	89	3590	90	3340	91	3110	91	2900	91	106		
15	90	5570	92	4180	93	3890	94	3620	94	3380	94	107	15	89	5110	90	3850	91	3580	92	3330	92	3130	92	106		
20	91	6010	93	4500	94	4190	94	3900	95	3670	95	107	20	90	5500	91	4130	92	3840	92	3600	92	3390	93	105		
25	92	6520	93	4860	94	4520	95	4240	95	4000	95	107	25	91	5940	92	4450	93	4160	93	3920	93	3690	93	105		
30	93	7090	94	5250	95	4900	96	4620	96	4350	96	107	30	92	6430	93	4790	93	4520	93	4270	93	4010	94	105		
31	93	7200	94	5330	95	4980	96	4700	96	4420	96	107	31	92	6530	93	4870	94	4600	94	4330	94	4080	94	105		

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																													
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S								VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S								VR V2 KIAS																																																																																																																																																																																																																																																																																																																																																																																																
					10 KTS		20 KTS		30 KTS		10 KTS								20 KTS		30 KTS																																																																																																																																																																																																																																																																																																																																																																																																						
	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
10,000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS												VENR = 160 KIAS												WEIGHT = 16500 LBS												VENR = 160 KIAS											
TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEAD WINDS								VR	V2																		
					10 KTS V1 DIST		20 KTS V1 DIST		30 KTS V1 DIST		10 KTS V1 DIST									20 KTS V1 DIST		30 KTS V1 DIST																									
																								10 KTS		20 KTS				30 KTS		10 KTS		20 KTS		30 KTS											
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT																
-35	99	9900	99	5250	99	4510	100	3990	101	3700	106	122	-35	99	9300	99	5120	99	4420	99	3860	101	3530	105	121																						
-30	99	10210	99	5350	99	4590	100	4130	101	3840	106	122	-30	99	9560	99	5210	99	4490	99	3950	100	3660	105	120																						
-25	98	10040	98	5320	98	4660	100	4340	101	4030	106	121	-25	98	9420	98	5180	98	4480	99	4140	101	3840	105	120																						
-20	96	9740	96	5270	98	4910	100	4560	101	4230	107	121	-20	96	9160	96	5120	98	4680	99	4350	101	4040	105	120																						
-15	95	9230	97	5580	98	5190	100	4830	102	4480	107	121	-15	95	8730	96	5320	98	4950	99	4600	101	4270	106	120																						
-10	93	9010	97	5870	98	5460	100	5080	102	4710	107	121	-10	93	8540	96	5590	98	5200	100	4830	101	4480	106	120																						
-5	92	8560	97	6240	99	5800	100	5390	102	5000	108	121	-5	92	8150	96	5930	98	5520	100	5130	101	4750	106	120																						
0	92	9070	97	6770	99	6290	101	5840	103	5410	108	121	0	92	8600	97	6420	99	5970	101	5540	102	5140	107	120																						
5	92	9960	98	7400	100	6870	102	6370	103	5890	108	121	5	92	9420	98	7000	99	6500	101	6030	103	5580	107	120																						
10	93	11030	98	8140	100	7550	102	6980	104	6450	109	120	10	93	10400	98	7680	100	7120	102	6590	103	6090	108	119																						
15	93	12350	99	9040	101	8360	103	7730	105	7120	109	120	15	93	11600	99	8500	101	7870	103	7270	104	6710	108	119																						
20	93	13900	100	10080	102	9310	104	8580	105	7890	110	120	20	94	13010	99	9440	101	8720	103	8040	105	7400	109	119																						
25			100	11410	102	10510	104	9650	106	8850	110	120	25	94	14630	100	10630	102	9790	104	9000	106	8260	109	119																						
27			100	12000	103	11040	105	10120	106	9260	110	120	27			100	11150	102	10260	104	9410	106	8620	109	119																						
													29			101	11690	103	10740	105	9850	106	9010	109	119																						

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1 DIST		V1 DIST		V1 DIST									V1 DIST		V1 DIST		V1 DIST																	
-35	100	8540	100	4930	100	4290	100	3770	100	3330	103	119	-35	100	7920	100	4760	100	4160	100	3670	100	3260	102	118														
-30	99	8760	99	5020	99	4360	99	3820	99	3420	103	119	-30	99	8100	99	4840	99	4230	99	3730	99	3310	101	117														
-25	98	8640	98	4990	98	4340	98	3860	99	3580	103	119	-25	98	8000	98	4820	98	4210	98	3720	98	3340	101	117														
-20	96	8430	96	4940	97	4350	98	4050	100	3760	104	119	-20	96	7830	96	4760	96	4180	97	3770	98	3500	102	117														
-15	95	8080	95	4940	97	4600	99	4280	100	3970	104	119	-15	95	7540	95	4670	96	4270	97	3970	99	3690	102	117														
-10	94	7920	95	5190	97	4820	99	4480	100	4160	104	118	-10	94	7410	95	4810	96	4480	98	4170	99	3870	102	117														
-5	92	7600	96	5490	97	5110	99	4750	100	4410	105	118	-5	92	7130	95	5080	96	4730	98	4400	99	4090	103	117														
0	92	7930	96	5930	98	5510	100	5120	101	4750	105	118	0	92	7310	96	5470	97	5090	99	4730	100	4390	103	117														
5	92	8660	97	6440	99	5980	100	5550	102	5140	105	118	5	92	7950	96	5930	98	5510	99	5120	101	4740	104	116														
10	93	9520	98	7040	99	6530	101	6050	102	5600	106	118	10	93	8710	97	6450	99	5990	100	5560	101	5150	104	116														
15	93	10560	98	7750	100	7170	102	6640	103	6130	106	118	15	93	9620	98	7070	99	6560	101	6070	102	5620	105	116														
20	94	11780	99	8550	101	7910	102	7300	104	6730	107	117	20	94	10660	98	7770	100	7190	102	6650	103	6140	105	116														
25	94	13320	100	9560	102	8820	103	8110	105	7460	107	117	25	95	11970	99	8620	101	7960	102	7340	104	6770	105	116														
29	95	14700	100	10440	102	9600	104	8820	105	8090	107	117	29	95	13130	100	9360	102	8620	103	7940	104	7300	106	116														

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST																	
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT															
-35	100	7400	100	4600	100	4050	100	3590	100	3190	102	118	-35	100	6960	100	4460	100	3940	100	3500	100	3130	102	119														
-30	99	7550	99	4680	99	4110	99	3640	99	3240	101	117	-30	99	7090	99	4530	99	4000	99	3550	99	3170	101	118														
-25	98	7470	98	4650	98	4090	98	3630	98	3230	100	116	-25	98	7020	98	4510	98	3980	98	3540	98	3170	100	116														
-20	97	7330	97	4610	97	4060	97	3600	97	3260	100	115	-20	97	6900	97	4460	97	3950	97	3520	97	3150	99	114														
-15	95	7080	95	4510	95	3990	96	3690	97	3430	100	115	-15	95	6680	95	4370	95	3880	95	3460	96	3190	98	114														
-10	94	6970	94	4480	95	4160	96	3870	98	3590	100	115	-10	94	6590	94	4340	94	3860	95	3590	96	3330	98	113														
-5	92	6730	94	4710	95	4390	97	4080	98	3790	101	115	-5	92	6390	93	4360	94	4060	95	3780	97	3510	99	113														
0	91	6740	95	5060	96	4710	97	4380	99	4060	101	115	0	91	6210	94	4680	95	4360	96	4050	97	3760	99	113														
5	92	7310	95	5460	97	5080	98	4720	99	4380	102	115	5	91	6710	94	5030	96	4680	97	4350	98	4040	100	113														
10	92	7970	96	5920	98	5510	99	5110	100	4740	102	115	10	92	7300	95	5440	96	5060	98	4700	99	4360	100	113														
15	93	8760	97	6460	98	6000	100	5560	101	5150	103	114	15	93	7990	96	5920	97	5500	98	5100	100	4730	101	113														
20	94	9660	98	7070	99	6550	100	6070	102	5610	103	114	20	94	8760	97	6440	98	5980	99	5540	100	5130	101	112														
25	95	10770	99	7800	100	7210	101	6670	103	6150	103	114	25	94	9710	98	7070	99	6550	100	6060	101	5610	102	112														
29	95	11740	99	8420	101	7770	102	7170	103	6610	104	114	29	95	10520	98	7600	100	7030	101	6500	102	6000	102	111														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
10,000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS								VENR = 160 KIAS								WEIGHT = 13500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2								
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS				10 KTS		20 KTS		30 KTS														
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST													
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS								
-35	100	6580	100	4330	100	3840	100	3430	100	3070	102	119	-35	100	6250	100	4200	100	3750	100	3350	100	3010	102	119						
-30	99	6690	99	4390	99	3890	99	3470	99	3110	101	118	-30	99	6350	99	4260	99	3800	99	3400	99	3050	101	119						
-25	98	6630	98	4370	98	3880	98	3460	98	3100	100	117	-25	98	6300	98	4240	98	3780	98	3390	98	3040	100	117						
-20	97	6530	97	4330	97	3850	97	3440	97	3080	99	115	-20	97	6200	97	4200	97	3750	97	3360	97	3020	99	115						
-15	95	6340	95	4250	95	3780	95	3380	95	3040	97	113	-15	95	6040	95	4120	95	3690	95	3310	95	2980	97	113						
-10	94	6260	94	4220	94	3760	94	3370	95	3090	96	112	-10	94	5960	94	4100	94	3660	94	3290	94	2980	96	112						
-5	92	6080	92	4130	93	3760	94	3500	95	3250	97	112	-5	92	5800	92	4020	92	3600	92	3240	93	3010	95	110						
0	90	5740	92	4320	94	4020	95	3740	96	3480	97	111	0	90	5500	91	3990	92	3720	93	3460	94	3220	95	110						
5	91	6170	93	4640	94	4320	95	4020	96	3730	98	111	5	90	5680	92	4280	93	3990	94	3710	95	3440	96	110						
10	91	6690	94	5000	95	4650	96	4330	97	4020	98	111	10	91	6130	93	4600	94	4280	95	3990	96	3700	96	109						
15	92	7290	95	5420	96	5040	97	4680	98	4350	99	111	15	91	6650	94	4970	95	4620	96	4300	96	4000	97	109						
20	93	7960	96	5880	97	5460	98	5070	99	4700	99	111	20	92	7230	94	5380	95	5000	96	4640	97	4350	97	109						
25	94	8760	97	6430	98	5960	99	5520	100	5140	100	111	25	93	7930	95	5850	96	5430	97	5050	98	4760	98	109						
29	94	9450	97	6880	98	6370	99	5900	100	5530	100	110	29	94	8510	96	6240	97	5790	98	5400	98	5090	98	109						

WEIGHT = 13000 LBS								VENR = 160 KIAS								WEIGHT = 12500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2								
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS				10 KTS		20 KTS		30 KTS														
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST													
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS								
-35	100	5960	100	4090	100	3660	100	3290	100	2960	102	120	-35	100	5710	100	3990	100	3580	100	3220	100	2910	103	121						
-30	99	6050	99	4140	99	3710	99	3330	99	3000	102	119	-30	100	5790	100	4040	100	3620	100	3260	100	2940	102	120						
-25	98	6000	98	4120	98	3690	98	3320	98	2990	100	117	-25	98	5740	98	4020	98	3610	98	3250	98	2930	101	118						
-20	97	5920	97	4090	97	3660	97	3290	97	2960	99	116	-20	97	5660	97	3980	97	3580	97	3220	97	2910	99	116						
-15	95	5770	95	4010	95	3600	95	3240	95	2920	97	114	-15	95	5530	95	3910	95	3520	95	3170	95	2870	97	114						
-10	94	5700	94	3980	94	3580	94	3220	94	2910	96	112	-10	94	5470	94	3880	94	3490	94	3150	94	2850	96	112						
-5	92	5560	92	3910	92	3510	92	3170	93	2910	94	110	-5	92	5340	92	3810	92	3430	92	3100	93	2830	94	110						
0	90	5280	90	3760	90	3440	91	3200	92	2970	93	108	0	90	5090	90	3670	90	3310	91	3030	91	2820	92	107						
5	89	5220	90	3940	91	3670	92	3420	93	3180	94	108	5	88	4850	89	3630	90	3390	90	3150	91	2930	91	106						
10	90	5620	91	4230	92	3940	93	3670	94	3410	94	108	10	88	5150	90	3890	90	3620	91	3370	92	3150	92	106						
15	91	6080	92	4560	93	4250	94	3950	94	3700	95	107	15	89	5560	90	4190	91	3900	92	3640	92	3420	92	105						
20	91	6580	93	4920	94	4570	95	4270	95	4030	95	107	20	90	6000	91	4500	92	4190	93	3950	93	3720	93	105						
25	92	7180	94	5330	95	4960	95	4670	95	4400	96	107	25	91	6510	92	4860	93	4570	93	4310	93	4060	93	105						
29	93	7680	94	5670	95	5290	96	4990	96	4710	96	107	29	92	6940	93	5160	94	4880	94	4610	94	4340	94	105						

WEIGHT = 12000 LBS								VENR = 160 KIAS								WEIGHT = 11500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2								
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS				10 KTS		20 KTS		30 KTS														
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST													
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS								
-35	100	5480	100	3890	100	3500	100	3170	100	2860	103	121	-35	101	5280	101	3800	101	3440	101	3110	101	2820	103	122						
-30	100	5550	100	3940	100	3550	100	3200	100	2900	102	120	-30	100	5350	100	3850	100	3470	100	3150	100	2850	102	121						
-25	98	5510	98	3920	98	3530	98	3190	98	2880	101	119	-25	99	5310	99	3830	99	3460	99	3130	99	2840	101	119						
-20	97	5440	97	3880	97	3500	97	3160	97	2860	99	117	-20	97	5240	97	3790	97	3430	97	3100	97	2820	99	117						
-15	95	5310	95	3810	95	3440	95	3110	95	2820	98	114	-15	96	5120	96	3720	96	3370	96	3050	96	2770	98	115						
-10	94	5260	94	3780	94	3420	94	3090	94	2800	96	113	-10	94	5070	94	3690	94	3340	94	3030	94	2750	96	113						
-5	93	5140	93	3710	93	3360	93	3040	93	2750	95	111	-5	93	4960	93	3620	93	3280	93	2980	93	2710	95	111						
0	90	4900	90	3580	90	3240	90	2940	91	2740	92	107	0	90	4740	90	3490	90	3170	90	2880	91	2650	92	108						
5	88	4680	88	3440	88	3150	89	2930	89	2730	90	104	5	88	4530	88	3360	88	3050	89	2840	89	2640	90	105						
10	87	4720	88	3570	89	3330	89	3090	89	2910	90	104	10	85	4340	86	3270	87	3050	87	2840	87	2670	87	102						
15	88	5080	89	3830	89	3570	90	3350	90	3150	90	104	15	86	4630	87	3510	88	3280	88	3080	88	2890	88	102						
20	89	5460	90	4110	90	3860	91	3640	91	3420	91	103	20	87	4970	88	3760	88	3550	88	3340	88	3130	88	101						
25	90	5910	91	4460	91	4210	91	3970	91	3730	91	103	25	88	5360	89	4100	89	3860	89	3640	89	3410	89	101						
29	91	6270	91	4760	91	4490	91	4230	91	3980	92	103	29	89	5680	89	4370	89	4120	89	3880	89	3640	89	101						

56FMC-00-00

Figure 4-21 (Sheet 22)

TAKEOFF FIELD LENGTH - FEET, FLAPS 7° (DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE ON)

Determine takeoff field length, V_1 , V_R , V_2 and V_{ENR} from Figure 4-23. If the runway has a gradient, adjust V_1 and takeoff field length using Figure 4-22.

If the required distance is greater than the available distance, the airplane weight must be reduced until distance required is less than or equal to the distance available.

TAKEOFF FIELD LENGTH AND V_1 ADJUSTED FOR RUNWAY GRADIENT - FLAPS 7°, ANTI-ICE - ON

TAKEOFF FIELD LENGTH (ZERO GRADIENT) FROM FIG. 4-23	UPHILL GRADIENT FOR BOTH SHADED AND NON-SHADED				DOWNHILL GRADIENT			
					SHADED		NON-SHADED	
	2%	1.5%	1%	0.5%	-1%	-2%	-1%	-2%
1600	1800	1750	1700	1650	1600	1600	1650	1700
1800	2000	1950	1900	1900	1800	1800	1850	1900
2000	2300	2200	2150	2100	2000	2000	2100	2100
2200	2500	2450	2350	2300	2200	2200	2300	2300
2400	2800	2700	2600	2500	2400	2400	2500	2550
2600	3050	2950	2800	2700	2600	2600	2700	2750
2800	3300	3150	3050	2900	2800	2800	2950	2950
3000	3500	3350	3250	3150	3000	3000	3150	3200
3200	3800	3600	3500	3350	3200	3150	3350	3400
3400	4050	3850	3700	3550	3400	3350	3550	3600
3600	4300	4100	3950	3750	3600	3550	3800	3850
3800	4600	4400	4150	4000	3750	3700	4000	4100
4000	4900	4650	4400	4200	3950	3850	4250	4300
4200	5200	4850	4650	4400	4150	4050	4450	4550
4400	5550	5150	4900	4650	4350	4250	4700	4800
4600	5900	5450	5100	4850	4500	4400	4900	5000
4800	6200	5700	5350	5050	4700	4550	5100	5250
5000	6600	6000	5600	5300	4900	4750	5350	5500
5200	6950	6300	5850	5500	5100	4950	5550	5750
5400	7300	6550	6150	5750	5250	5100	5800	6000
5600	7700	6850	6400	5950	5450	5250	6050	6250
5800	8100	7200	6700	6200	5650	5450	6300	6500
6000	8500	7500	6950	6400	5800	5600	6550	6800
6200	8900	7850	7200	6650	6000	5750	6750	7050
6400	9350	8150	7450	6900	6200	5950	7000	7300
6600	9750	8500	7700	7100	6350	6100	7250	7600
6800	10150	8850	8000	7350	6550	6250	7500	7900
7000	10600	9200	8250	7550	6700	6400	7750	8150
7200	11050	9550	8550	7800	6900	6550	8000	8450
7400	11550	9900	8800	8050	7050	6750	8250	8700
7600	12000	10250	9100	8250	7250	6900	8500	9050
7800	12400	10600	9400	8500	7400	7050	8750	9300
8000	12900	10900	9650	8700	7600	7150	9000	9600
8200	13350	11250	9900	8950	7800	7350	9250	9900
8400	13850	11600	10150	9150	7950	7500	9500	10200
8600	14350	11950	10450	9400	8150	7650	9750	10500
8800	14800	12300	10750	9650	8300	7800	10050	10800
9000	15300	12650	11000	9900	8450	7950	10300	11100
9500		13550	11700	10450	8900	8350	10950	11900
10000		14400	12400	11050	9300	8700	11600	12650
10500		15300	13100	11600	9700	9100	12300	13450
11000			13750	12200	10150	9450	12950	14250
12000			15150	13400	11000	10150	14350	15850
13000				14550	11800	10800	15750	
14000				15700	12550	11450		
15000					13300	12050		
V_1 ADJUSTMENT*	$V_1 + 4$ Knots	$V_1 + 3$ Knots	$V_1 + 2$ Knots	$V_1 + 1$ Knot	$V_1 - 3$ Knots	$V_1 - 6$ Knots	$V_1 + 1$ Knot	$V_1 + 1$ Knot

* If the adjusted V_1 is greater than V_R , the value of V_R must be used for V_1 .

† Takeoffs in shaded area are prohibited from runways with a downhill gradient if all three limits (Altitude, Gross Weight and Wind) in a row are exceeded:

Altitude	Gross Weight	Wind
Greater than 4,000 ft	Greater than 16,000 lbs	Any Tailwind
Greater than 9,000 ft	Greater than 15,500 lbs	Any Tailwind
Greater than 12,000 ft	Greater than 15,000 lbs	Any Tailwind

Figure 4-22

**TAKEOFF FIELD LENGTH - FEET, FLAPS 7°
(DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE ON)**

EXAMPLE:

Pressure Altitude = 9000 FEET
Gross Weight = 16,830 POUNDS
Ambient Temperature = 8° C

Wind = 10 KNOTS (HEADWIND)
Runway Gradient = -2% (DOWNHILL)
Anti-Ice = ON

For Zero Runway Gradient from Figure 4-23:

Takeoff Field Length is 8200 FEET
V₁ is 104 KNOTS
V_R is 110 KNOTS
V₂ is 120 KNOTS
V_{ENR} is 160 KNOTS
V₁ and Distance are SHADED

Adjustments for -2% (Downhill) Runway Gradient from Figure 4-22:

Takeoff Field Length is 7350 FEET
V₁ is 98 KNOTS

EXAMPLE:

Pressure Altitude = 1000 FEET
Gross Weight = 16,500 POUNDS
Ambient Temperature = -5° C

Wind = 0 KNOTS (CALM)
Runway Gradient = 2% (UPHILL)
Anti-Ice = ON

For Zero Runway Gradient from Figure 4-23:

Takeoff Field Length is 3600 FEET
V₁ is 101 KNOTS
V_R is 105 KNOTS
V₂ is 120 KNOTS
V_{ENR} is 160 KNOTS
V₁ and Distance are NON-SHADED

Adjustments for 2% (Uphill) Runway Gradient from Figure 4-22:

Takeoff Field Length is 4300 FEET
V₁ is 105 KNOTS

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
SEA LEVEL

CONDITIONS: DRY RUNWAY

RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT

ANTI-ICE - ON

INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS																																																																																																																																																																																																											
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2 KIAS																																																																																																																																																																																																												
					10 KTS		20 KTS		30 KTS											10 KTS		20 KTS		30 KTS																																																																																																																																																																																																																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST																																																																																																																																																																																																						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT																																																																																																																																																																																																				
-30	102	4610	104	3340	106	3080	107	2850	107	2660	107	121	-30	102	4410	104	3200	105	2960	105	2740	105	2560	105	120	-25	102	4690	104	3410	105	3150	107	2900	107	2710	107	121	-25	101	4490	103	3270	104	3020	105	2790	105	2610	105	120	-20	101	4770	104	3480	105	3210	106	2960	107	2760	107	121	-20	101	4570	103	3330	104	3080	105	2830	105	2650	105	120	-15	101	4860	103	3540	105	3270	106	3020	107	2800	107	121	-15	100	4650	102	3390	104	3130	105	2890	105	2690	105	120	-10	100	4940	103	3610	104	3340	106	3080	106	2840	107	121	-10	100	4720	102	3460	103	3190	105	2950	105	2730	105	120	-5	100	5020	103	3680	104	3400	105	3140	106	2890	107	121	-5	99	4800	102	3520	103	3250	104	3000	105	2770	105	120	0	99	5100	102	3740	104	3460	105	3200	106	2950	107	121	0	99	4880	101	3580	103	3310	104	3060	105	2820	105	120	5	99	5190	102	3810	103	3530	105	3260	106	3000	107	121	5	98	4960	101	3640	102	3370	104	3120	105	2880	105	120	10	98	5290	102	3890	103	3600	104	3330	106	3070	107	121	10	98	5050	101	3720	102	3450	104	3190	105	2940	105	120

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT										
-30	101	4130	102	3000	103	2770	104	2580	104	2410	104	119	-30	99	3860	100	2820	102	2600	102	2430	102	2270	102	117	-30	99	3860	100	2820	102	2600	102	2430	102	2270	102	117	
-25	100	4200	102	3060	103	2830	103	2630	103	2450	104	119	-25	99	3930	100	2870	101	2650	102	2470	102	2310	102	117	-25	99	3930	100	2870	101	2650	102	2470	102	2310	102	117	
-20	100	4270	101	3120	103	2880	103	2670	103	2490	104	119	-20	99	3990	100	2930	101	2700	102	2510	102	2350	102	117	-20	99	3990	100	2930	101	2700	102	2510	102	2350	102	117	
-15	99	4340	101	3180	102	2940	103	2710	103	2530	104	119	-15	98	4060	100	2980	101	2750	102	2550	102	2380	102	117	-15	98	4060	100	2980	101	2750	102	2550	102	2380	102	117	
-10	99	4410	101	3240	102	2990	103	2760	103	2570	104	119	-10	98	4120	99	3030	100	2800	102	2590	102	2420	102	117	-10	98	4120	99	3030	100	2800	102	2590	102	2420	102	117	
-5	98	4480	100	3290	102	3050	103	2810	103	2610	104	119	-5	98	4230	99	3080	100	2850	101	2630	101	2460	102	117	-5	98	4230	99	3080	100	2850	101	2630	101	2460	102	117	
0	98	4550	100	3350	101	3100	103	2870	103	2650	104	119	0	98	4370	99	3140	100	2900	101	2680	101	2490	102	117	0	98	4370	99	3140	100	2900	101	2680	101	2490	102	117	
5	98	4660	100	3410	101	3160	102	2920	103	2690	104	119	5	98	4500	98	3190	100	2960	101	2730	101	2530	102	117	5	98	4500	98	3190	100	2960	101	2730	101	2530	102	117	
10	97	4780	100	3480	101	3220	102	2980	103	2750	104	119	10	98	4620	98	3260	99	3020	101	2790	101	2580	102	117	10	98	4620	98	3260	99	3020	101	2790	101	2580	102	117	

WEIGHT = 15000 LBS											WEIGHT = 14500 LBS																
VENR = 160 KIAS											VENR = 160 KIAS																
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2		
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS					
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2		
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT
-30	98	3610	99	2640	100	2450	100	2280	100	2130	100	115	-30	98	3460	98	2490	98	2310	98	2160	98	2010	98	114	98	114
-25	98	3670	99	2690	100	2480	100	2320	100	2170	100	115	-25	98	3560	98	2560	98	2360	98	2200	98	2050	98	114	98	114
-20	98	3750	98	2740	99	2530	100	2360	100	2200	100	115	-20	98	3660	98	2630	98	2410	98	2240	98	2090	98	114	98	114
-15	98	3870	98	2790	99	2580	100	2400	100	2240	100	115	-15	98	3770	98	2700	98	2450	98	2280	98	2130	99	114	98	114
-10	98	3990	98	2840	99	2620	100	2430	100	2270	100	115	-10	98	3880	98	2770	98	2500	99	2320	99	2170	99	115	98	115
-5	98	4110	98	2900	99	2670	100	2470	100	2310	100	115	-5	98	3990	98	2850	98	2560	99	2360	99	2210	99	115	98	115
0	98	4230	98	2980	98	2720	99	2510	100	2340	100	115	0	98	4110	98	2920	98	2620	99	2410	99	2240	99	115	98	115
5	98	4360	98	3060	98	2760	99	2550	99	2380	100	115	5	98	4230	98	3000	98	2690	98	2460	99	2280	99	115	98	115
10	98	4480	98	3130	98	2820	99	2610	100	2420	100	115	10	98	4340	98	3060	98	2750	98	2500	99	2320	99	115	98	115

WEIGHT = 14000 LBS										WEIGHT = 13500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS			
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		
-30	98	3380	98	2450	98	2250	98	2100	98	1950	98	114	-30	98	3310	98	2420	98	2190	98	2040	98	1900	98	115
-25	98	3470	98	2520	98	2290	98	2140	98	1990	98	114	-25	98	3400	98	2480	98	2240	98	2080	98	1940	98	115
-20	98	3570	98	2580	98	2340	98	2180	98	2030	98	115	-20	98	3490	98	2540	98	2290	98	2110	98	1970	99	115
-15	98	3670	98	2650	98	2390	98	2220	98	2070	99	115	-15	98	3590	98	2610	98	2350	99	2160	99	2010	99	115
-10	98	3780	98	2720	98	2450	99	2250	99	2110	99	115	-10	98	3690	98	2680	98	2410	98	2200	99	2050	99	115
-5	98	3890	98	2790	98	2510	99	2300	99	2140	99	115	-5	98	3790	98	2740	98	2470	98	2250	99	2080	99	115
0	98	4000	98	2870	98	2580	98	2350	99	2180	99	115	0	98	3890	98	2810	98	2540	98	2290	99	2120	99	116
5	98	4110	98	2940	98	2640	98	2400	99	2220	99	115	5	98	4000	98	2890	98	2600	98	2340	99	2160	99	116
10	98	4210	98	3000	98	2700	98	2440	99	2260	99	115	10	98	4090	98	2950	98	2650	98	2390	99	2200	99	116

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
1000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS											VENR = 160 KIAS											WEIGHT = 16500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS																
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS						10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS																				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT														
-30	101	4700	103	3420	105	3160	106	2910	106	2710	107	121	-30	100	4490	103	3280	104	3020	105	2790	105	2600	105	120																		
-25	101	4780	103	3490	104	3220	106	2970	106	2750	107	121	-25	100	4570	102	3340	104	3090	105	2850	105	2650	105	120																		
-20	100	4860	103	3560	104	3290	105	3030	106	2800	107	121	-20	99	4650	102	3400	103	3150	104	2910	105	2690	105	120																		
-15	99	4950	102	3620	104	3350	105	3090	106	2850	106	121	-15	99	4730	102	3470	103	3210	104	2960	105	2730	105	120																		
-10	99	5030	102	3690	103	3410	105	3150	106	2910	106	121	-10	98	4810	101	3530	103	3270	104	3020	105	2780	105	120																		
-5	98	5110	102	3760	103	3480	104	3210	106	2960	106	121	-5	98	4930	101	3600	102	3330	103	3080	105	2840	105	120																		
0	98	5250	101	3820	103	3540	104	3270	105	3020	106	121	0	98	5120	100	3660	102	3390	103	3130	104	2900	105	120																		
5	98	5450	101	3900	102	3610	104	3340	105	3080	106	121	5	98	5300	100	3730	102	3460	103	3200	104	2950	105	120																		
10	98	5590	101	4110	103	3810	104	3530	105	3250	107	121	10	97	5330	101	3940	102	3650	103	3370	105	3110	106	120																		

WEIGHT = 16000 LBS											VENR = 160 KIAS											WEIGHT = 15500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS																
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS						10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS																				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT														
-30	99	4200	101	3070	102	2840	103	2620	103	2450	103	119	-30	98	3930	100	2880	101	2660	101	2470	101	2300	102	117																		
-25	99	4270	101	3130	102	2900	103	2670	103	2490	103	119	-25	98	4020	99	2930	101	2710	101	2510	101	2340	102	117																		
-20	98	4350	101	3190	102	2950	103	2720	103	2530	103	119	-20	98	4150	99	2990	100	2760	101	2550	101	2380	102	117																		
-15	98	4430	100	3250	101	3010	103	2780	103	2570	103	119	-15	98	4290	99	3040	100	2820	101	2600	101	2420	102	117																		
-10	98	4590	100	3310	101	3060	102	2830	103	2610	103	119	-10	98	4440	98	3100	100	2870	101	2650	101	2460	101	117																		
-5	98	4750	99	3360	101	3120	102	2880	103	2660	103	119	-5	98	4590	98	3170	99	2920	100	2700	101	2500	101	117																		
0	98	4930	99	3430	100	3170	102	2940	103	2710	103	119	0	98	4750	98	3260	99	2970	100	2750	101	2540	101	117																		
5	98	5100	99	3490	100	3230	101	2990	103	2760	103	119	5	98	4910	98	3350	99	3020	100	2800	101	2590	101	117																		
10	97	4970	99	3670	101	3400	102	3150	103	2910	104	119	10	97	4790	98	3430	99	3180	100	2950	102	2720	102	117																		

WEIGHT = 15000 LBS											VENR = 160 KIAS											WEIGHT = 14500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS																
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS						10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS																				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT														
-30	98	3790	98	2700	99	2490	99	2320	99	2160	100	115	-30	98	3700	98	2650	99	2400	99	2230	99	2080	99	115																		
-25	98	3910	98	2770	99	2540	99	2360	99	2200	100	115	-25	98	3810	98	2720	99	2460	99	2270	99	2120	99	115																		
-20	98	4040	98	2850	99	2590	99	2400	99	2240	100	115	-20	98	3930	98	2800	99	2520	99	2320	99	2160	99	115																		
-15	98	4170	98	2930	99	2640	99	2430	99	2270	100	115	-15	98	4050	98	2880	99	2580	99	2360	99	2200	99	115																		
-10	98	4300	98	3020	99	2700	99	2480	99	2310	100	115	-10	98	4180	98	2960	99	2660	99	2420	99	2240	100	116																		
-5	98	4450	98	3110	99	2780	99	2530	99	2350	100	115	-5	99	4310	99	3040	99	2730	99	2470	100	2290	100	116																		
0	99	4600	99	3190	99	2860	99	2580	100	2390	100	116	0	99	4450	99	3130	99	2800	99	2520	100	2330	100	116																		
5	99	4740	99	3280	99	2930	99	2630	100	2430	100	116	5	99	4590	99	3210	99	2880	99	2580	99	2380	100	116																		
10	97	4630	97	3220	98	2970	99	2750	100	2550	100	115	10	97	4480	97	3150	97	2830	97	2580	98	2400	98	114																		

WEIGHT = 14000 LBS											VENR = 160 KIAS											WEIGHT = 13500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS																
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS						10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS																				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT														
-30	98	3610	98	2610	98	2350	99	2170	99	2020	99	115	-30	99	3520	99	2560	99	2310	99	2120	99	1970	99	116																		
-25	98	3710	98	2680	98	2410	99	2210	99	2060	99	116	-25	99	3620	99	2630	99	2370	99	2160	99	2010	99	116																		
-20	98	3820	98	2750	98	2470	99	2260	99	2100	99	116	-20	99	3730	99	2700	99	2440	99	2210	99	2040	99	116																		
-15	99	3940	99	2830	99	2540	99	2310	99	2140	99	116	-15	99	3840	99	2780	99	2500	99	2260	100	2080	100	116																		
-10	99	4060	99	2900	99	2610	99	2380	100	2180	100	116	-10	99	3950	99	2850	99	2570	99	2320	99	2130	100	116																		
-5	99	4190	99	2980	99	2680	99	2410	100	2230	100	116	-5	99	4070	99	2930	99	2640	99	2380	99	2180	100	117																		
0	99	4320	99	3070	99	2750	99	2480	99	2270	100	116	0	99	4190	99	3010	99	2710	99	2440	99	2220	100	117																		
5	99	4440	99	3140	99	2820	99	2540	99	2320	100	116	5	99	4310	99	3080	99	2770	99	2500	99	2250	100	117																		
10	97	4340	97	3090	97	2780	97	2520	98	2330	98	114	10	97	4210	97	3030	97	2730	97	2460	98	2270	98	115																		

WEIGHT = 12500 LBS											VENR = 160 KIAS											WEIGHT = 11500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS																
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS						10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS																				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT														
-30	99	3370	99	2490	99	2250	99	2030	100	1870	100	117	-30	99	3240	99	2420	99	2190	99	1990	99	1800	100	118																		
-25	99	3460	99	2550	99	2310	99	2090	99	1910	100	117	-25	99	3320	99	2480	99	2250	99	2040	99	1850	100	118																		
-20	99	3560	99	2620	99	2370	99	2140	99	1950	100	117	-20	99	3410	99	2540	99	2310	99	2090	99	1900	100	118																		
-15	99	3660	99	2680	99	2430	99	2200	99	1990	100	117	-15	99	3500	99	2610	99	2370	99	2150	99	1950	100	118																		
-10	99	3760	99	2760	99	2490	99	2250	99	2040	100	117	-10	99	3590	99	2670	99	2430	99	2200	99	2000	101	119																		
-5	99	3860	99	2830	99	2560	99	2310	99	2090	100	118	-5	99	3690	99	2740	99	2490	99	2260	99	2050	101	119																		
0	99	3970	99	2900	99	2620	99	2370	99	2140	100	118	0	99	3780	99	2810	99	2550	99	2310	99	2100	101	119																		
5	99	4080	99	2970	99	2680	99	2430	99	2200	100	118	5	99	3880	99	2870	99	2610	99	2370	99	2150	101	119																		
10	97	3990	97	2920	97	2640	97	2380	98	2170	99	116	10	98	3790	98	2820	98	2560	98	2320	98	2110	99	117																		

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
2000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO		HEAD WINDS						VR	V2														
	10 KTS		WIND		10 KTS		20 KTS		30 KTS					10 KTS		WIND		10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT												
-30	100	4790	103	3500	104	3240	105	2990	106	2750	106	121	-30	99	4580	102	3360	103	3100	104	2870	105	2650	105	120	-30	99	4580	102	3360	103	3100	104	2870	105	2650	105	120	
-25	99	4870	102	3570	104	3300	105	3050	106	2810	106	121	-25	99	4660	101	3420	103	3170	104	2920	105	2690	105	120	-25	99	4660	101	3420	103	3170	104	2920	105	2690	105	120	
-20	99	4960	102	3640	103	3370	105	3110	106	2870	106	121	-20	99	4810	101	3490	102	3230	104	2980	105	2750	105	120	-20	99	4810	101	3490	102	3230	104	2980	105	2750	105	120	
-15	99	5130	101	3710	103	3440	104	3180	105	2930	106	121	-15	99	5000	101	3550	102	3290	103	3040	104	2810	105	120	-15	99	5000	101	3550	102	3290	103	3040	104	2810	105	120	
-10	99	5350	101	3780	102	3500	104	3240	105	2990	106	121	-10	99	5210	100	3620	102	3350	103	3100	104	2860	105	120	-10	99	5210	100	3620	102	3350	103	3100	104	2860	105	120	
-5	99	5590	101	3850	102	3570	103	3300	105	3050	106	121	-5	99	5430	100	3680	101	3410	103	3160	104	2920	105	120	-5	99	5430	100	3680	101	3410	103	3160	104	2920	105	120	
0	99	5840	100	3920	102	3630	103	3360	104	3110	106	121	0	99	5660	99	3750	101	3480	102	3220	103	2980	105	120	0	99	5660	99	3750	101	3480	102	3220	103	2980	105	120	
5	97	5640	101	4140	102	3840	104	3550	105	3280	107	121	5	97	5490	100	3960	101	3670	103	3390	104	3140	105	120	5	97	5490	100	3960	101	3670	103	3390	104	3140	105	120	
10	98	6090	101	4470	103	4140	104	3830	106	3540	107	121	10	97	5800	101	4270	102	3960	104	3670	105	3380	106	120	10	97	5800	101	4270	102	3960	104	3670	105	3380	106	120	

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO		HEAD WINDS						VR	V2														
	10 KTS		WIND		10 KTS		20 KTS		30 KTS					10 KTS		WIND		10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT											
-30	99	4320	100	3150	102	2910	103	2690	103	2500	103	119	-30	99	4190	99	2950	100	2730	101	2520	101	2350	101	117	-30	99	4190	99	2950	100	2730	101	2520	101	2350	101	117	
-25	99	4470	100	3210	101	2970	102	2740	103	2540	103	119	-25	99	4340	99	3020	100	2780	101	2570	101	2390	101	117	-25	99	4340	99	3020	100	2780	101	2570	101	2390	101	117	
-20	99	4640	100	3270	101	3030	102	2800	103	2580	103	119	-20	99	4490	99	3110	99	2830	101	2620	101	2430	101	117	-20	99	4490	99	3110	99	2830	101	2620	101	2430	101	117	
-15	99	4820	99	3330	101	3080	102	2850	103	2630	103	119	-15	99	4660	99	3200	99	2890	100	2670	101	2470	101	117	-15	99	4660	99	3200	99	2890	100	2670	101	2470	101	117	
-10	99	5010	99	3390	100	3140	101	2910	103	2680	103	119	-10	99	4830	99	3300	99	2950	100	2720	101	2510	101	117	-10	99	4830	99	3300	99	2950	100	2720	101	2510	101	117	
-5	99	5210	99	3490	100	3200	101	2960	102	2730	103	119	-5	99	5020	99	3410	99	3040	100	2770	101	2560	101	117	-5	99	5020	99	3410	99	3040	100	2770	101	2560	101	117	
0	99	5430	99	3600	100	3260	101	3020	102	2790	103	119	0	99	5210	99	3510	99	3120	99	2820	100	2610	101	117	0	99	5210	99	3510	99	3120	99	2820	100	2610	101	117	
5	97	5260	99	3690	100	3430	101	3170	102	2930	104	119	5	97	5060	97	3450	99	3200	100	2970	101	2740	102	117	5	97	5060	97	3450	99	3200	100	2970	101	2740	102	117	
10	97	5400	100	3990	101	3690	102	3420	103	3160	104	118	10	96	5020	98	3710	100	3440	101	3190	102	2940	102	117	10	96	5020	98	3710	100	3440	101	3190	102	2940	102	117	

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1			DIST	VR	V2											
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS			FT	KIAS	FT	KIAS	FT	KIAS	FT							
-30	99	4070	99	2870	99	2580	100	2370	100	2220	100	116	-30	99	3960	99	2820	99	2530	100	2310	100	2160	100	116	-30	99	3960	99	2820	99	2530	100	2310	100	2160	100	116	
-25	99	4210	99	2960	99	2650	100	2430	100	2260	100	116	-25	99	4090	99	2900	99	2600	99	2370	100	2200	100	116	-25	99	4090	99	2900	99	2600	99	2370	100	2200	100	116	
-20	99	4350	99	3050	99	2730	99	2480	100	2300	100	116	-20	99	4220	99	2990	99	2680	99	2420	100	2240	100	116	-20	99	4220	99	2990	99	2680	99	2420	100	2240	100	116	
-15	99	4510	99	3140	99	2810	99	2540	100	2350	100	116	-15	99	4370	99	3080	99	2760	99	2480	100	2290	100	117	-15	99	4370	99	3080	99	2760	99	2480	100	2290	100	117	
-10	99	4670	99	3230	99	2890	99	2590	100	2400	100	116	-10	99	4520	99	3170	99	2840	99	2550	100	2340	100	117	-10	99	4520	99	3170	99	2840	99	2550	100	2340	100	117	
-5	99	4840	99	3330	99	2980	99	2670	100	2450	100	117	-5	99	4680	99	3260	99	2920	99	2620	100	2390	100	117	-5	99	4680	99	3260	99	2920	99	2620	100	2390	100	117	
0	99	5010	99	3430	99	3060	99	2740	100	2500	100	117	0	99	4840	99	3360	99	3000	99	2690	100	2440	101	117	0	99	4840	99	3360	99	3000	99	2690	100	2440	101	117	
5	97	4880	97	3370	97	3010	98	2770	99	2560	100	115	5	98	4710	98	3290	98	2950	98	2650	99	2450	99	115	5	98	4710	98	3290	98	2950	98	2650	99	2450	99	115	
10	95	4670	97	3460	98	3210	99	2970	100	2750	100	115	10	95	4450	96	3230	97	2990	98	2770	98	2580	98	113	10	95	4450	96	3230	97	2990	98	2770	98	2580	98	113	

WEIGHT = 14000 LBS										WEIGHT = 13500 LBS													
VENR = 160 KIAS										VENR = 160 KIAS													
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR V2 KIAS		TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR V2 KIAS					
	10 KTS				10 KTS	20 KTS	30 KTS				10 KTS				10 KTS	20 KTS	30 KTS						
	V1 DIST KIAS	FT	V1 DIST KIAS	FT	V1 DIST KIAS	FT	V1 DIST KIAS				FT	V1 DIST KIAS	FT	V1 DIST KIAS	FT	V1 DIST KIAS	FT			V1 DIST KIAS	FT		
-30	99	3860	99	2770	99	2490	99	2260	100	116	-30	99	3760	99	2720	99	2450	99	2210	100	2040	100	117
-25	99	3980	99	2850	99	2560	99	2310	100	117	-25	99	3870	99	2800	99	2520	99	2270	100	2090	100	117
-20	99	4110	99	2930	99	2630	99	2370	100	117	-20	99	3990	99	2880	99	2590	99	2340	100	2130	100	117
-15	99	4240	99	3020	99	2710	99	2440	100	117	-15	99	4120	99	2960	99	2660	99	2400	100	2180	100	117
-10	99	4380	99	3100	99	2790	99	2510	100	117	-10	99	4250	99	3040	99	2740	99	2470	100	2230	101	118
-5	99	4530	99	3190	99	2870	99	2580	100	117	-5	99	4390	99	3130	99	2820	99	2540	99	2290	101	118
0	99	4680	99	3280	99	2950	99	2650	99	117	0	100	4530	100	3220	100	2890	100	2600	100	2350	101	118
5	98	4560	98	3220	98	2890	98	2600	98	115	5	98	4420	98	3160	98	2840	98	2560	98	2340	99	116
10	95	4310	95	3080	95	2790	96	2580	96	112	10	95	4180	95	3020	95	2720	96	2510	96	2330	96	112

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND			ZERO WIND			HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND			ZERO WIND			HEAD WINDS						VR	V2										
	10 KTS						10 KTS		20 KTS		30 KTS					10 KTS						10 KTS		20 KTS		30 KTS													
	V1	DIST		V1	DIST		V1	DIST	V1	DIST	V1	DIST				V1	DIST		V1	DIST		V1	DIST	V1	DIST	V1	DIST			V1	DIST								
	KIAS	FT		KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS												
-30	99	3590	99	2640	99	2380	99	2160	99	1950	100	118			-30	100	3440	100	2560	100	2320	100	2110	100	1910	100	119												
-25	99	3690	99	2710	99	2450	99	2210	99	2000	101	118			-25	100	3530	100	2630	100	2390	100	2160	100	1960	100	119												
-20	100	3800	100	2780	100	2510	100	2270	100	2060	101	118			-20	100	3630	100	2700	100	2450	100	2220	100	2010	100	119												
-15	100	3910	100	2860	100	2580	100	2340	100	2110	101	118			-15	100	3730	100	2770	100	2510	100	2280	100	2070	100	119												
-10	100	4020	100	2930	100	2650	100	2400	100	2170	101	119			-10	100	3830	100	2840	100	2580	100	2340	100	2120	100	120												
-5	100	4140	100	3020	100	2720	100	2460	100	2230	101	119			-5	100	3940	100	2920	100	2650	100	2400	100	2180	100	120												
0	100	4270	100	3100	100	2800	100	2530	100	2290	101	119			0	100	4050	100	2990	100	2710	100	2460	100	2230	100	120												
5	98	4170	98	3040	98	2740	98	2480	98	2240	99	117			5	98	3960	98	2930	98	2660	98	2410	98	2190	100	118												
10	95	3960	95	2900	95	2630	95	2380	96	2210	96	113			10	95	3760	95	2800	95	2540	95	2310	95	2100	97	111												

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
3000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2		KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2		KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1		DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	D

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2		KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2														
					10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2													
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS										
-30	99	4390	99	3060	99	2740	100	2480	100	2300	100	117	-30	99	4260	99	3000	99	2690	99	2420	100	2240	100	117	-30	99	4260	99	3000	99	2690	99	2420	100	2240	100	117	
-25	99	4550	99	3160	99	2830	99	2540	100	2340	101	117	-25	100	4400	100	3100	100	2780	100	2490	100	2290	101	117	-25	100	4400	100	3100	100	2780	100	2490	100	2290	101	117	
-20	99	4720	99	3260	99	2910	99	2610	100	2400	101	117	-20	100	4560	100	3190	100	2860	100	2570	100	2340	101	117	-20	100	4560	100	3190	100	2860	100	2570	100	2340	101	117	
-15	100	4900	100	3360	100	3000	100	2690	100	2450	101	117	-15	100	4730	100	3290	100	2950	100	2640	100	2390	101	117	-15	100	4730	100	3290	100	2950	100	2640	100	2390	101	117	
-10	100	5090	100	3470	100	3090	100	2770	100	2510	101	117	-10	100	4910	100	3390	100	3030	100	2720	100	2450	101	118	-10	100	4910	100	3390	100	3030	100	2720	100	2450	101	118	
-5	100	5300	100	3580	100	3190	100	2850	100	2560	101	117	-5	100	5100	100	3500	100	3130	100	2800	100	2500	101	118	-5	100	5100	100	3500	100	3130	100	2800	100	2500	101	118	
0	98	5170	98	3530	98	3140	98	2810	99	2580	100	115	0	98	4980	98	3440	98	3080	98	2760	99	2520	100	116	0	98	4980	98	3440	98	3080	98	2760	99	2520	100	116	
5	95	4850	96	3480	98	3230	99	2990	100	2760	100	115	5	95	4690	95	3290	96	3010	97	2790	98	2580	98	114	5	95	4690	95	3290	96	3010	97	2790	98	2580	98	114	
10	95	5070	97	3750	99	3480	100	3220	101	2980	101	115	10	94	4700	96	3490	97	3230	98	3000	99	2790	99	114	10	94	4700	96	3490	97	3230	98	3000	99	2790	99	114	

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS			ZERO WIND			H E A D W I N D S						VR V2		KIAS	TEMP DEG C	TAILWIND 10 KTS			ZERO WIND			H E A D W I N D S						VR V2										
							10 KTS		20 KTS		30 KTS												10 KTS		20 KTS		30 KTS												
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT							
-30	100	4130	100	2950	100	2650	100	2380	100	2180	101	117	-30	100	4020	100	2890	100	2610	100	2350	100	2140	101	118	-30	100	4020	100	2890	100	2610	100	2350	100	2140	101	118	
-25	100	4270	100	3040	100	2730	100	2450	100	2240	101	117	-25	100	4150	100	2980	100	2680	100	2420	100	2190	101	118	-25	100	4150	100	2980	100	2680	100	2420	100	2190	101	118	
-20	100	4420	100	3130	100	2810	100	2530	100	2290	101	118	-20	100	4290	100	3070	100	2760	100	2490	100	2240	101	118	-20	100	4290	100	3070	100	2760	100	2490	100	2240	101	118	
-15	100	4580	100	3220	100	2890	100	2600	100	2340	101	118	-15	100	4440	100	3160	100	2840	100	2560	100	2310	101	118	-15	100	4440	100	3160	100	2840	100	2560	100	2310	101	118	
-10	100	4740	100	3320	100	2980	100	2670	100	2410	101	118	-10	100	4590	100	3250	100	2920	100	2630	100	2370	101	119	-10	100	4590	100	3250	100	2920	100	2630	100	2370	101	119	
-5	100	4920	100	3420	100	3070	100	2750	100	2480	101	118	-5	100	4750	100	3350	100	3010	100	2710	100	2440	102	119	-5	100	4750	100	3350	100	3010	100	2710	100	2440	102	119	
0	98	4810	98	3370	98	3020	98	2710	99	2460	100	116	0	98	4650	98	3300	98	2960	98	2670	98	2410	100	117	0	98	4650	98	3300	98	2960	98	2670	98	2410	100	117	
5	96	4540	96	3220	96	2890	96	2640	97	2450	97	113	5	96	4390	96	3150	96	2840	96	2570	97	2390	97	113	5	96	4390	96	3150	96	2840	96	2570	97	2390	97	113	
10	93	4360	94	3240	95	3010	96	2790	97	2610	97	112	10	93	4160	93	3010	94	2800	94	2600	94	2430	95	111	10	93	4160	93	3010	94	2800	94	2600	94	2430	95	111	

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2		KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		H E A D W I N D S						VR V2														
					10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2													
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT									
-30	100	3820	100	2800	100	2530	100	2290	100	2070	101	119	-30	100	3650	100	2710	100	2460	100	2230	100	2030	102	120	-30	100	3480	100	2540	100	2300	100	2080	102	120			
-25	100	3940	100	2880	100	2600	100	2350	100	2130	101	119	-25	100	3760	100	2790	100	2530	100	2300	100	2080	102	120	-25	100	3590	100	2650	100	2410	100	2100	102	120			
-20	100	4060	100	2960	100	2670	100	2420	100	2190	101	119	-20	100	3870	100	2860	100	2600	100	2360	100	2140	102	120	-20	100	3700	100	2760	100	2520	100	2190	102	120			
-15	100	4190	100	3040	100	2750	100	2480	100	2250	102	119	-15	101	3980	101	2940	101	2670	101	2420	101	2200	102	121	-15	101	3810	101	2870	101	2630	101	2300	102	121			
-10	100	4320	100	3130	100	2830	100	2550	100	2310	102	120	-10	101	4100	101	3020	101	2740	101	2490	101	2260	102	121	-10	101	3930	101	2890	101	2650	101	2320	102	121			
-5	100	4460	100	3220	100	2910	100	2630	100	2370	102	120	-5	101	4220	101	3110	101	2820	101	2560	101	2320	102	121	-5	101	4050	101	2910	101	2670	101	2340	102	121			
0	99	4370	99	3170	99	2860	99	2590	99	2340	100	118	0	99	4140	99	3050	99	2770	99	2510	99	2280	101	119	0	99	3970	99	2830	99	2590	99	2360	101	119			
5	96	4140	96	3030	96	2740	96	2480	96	2270	97	114	5	96	3930	96	2920	96	2650	96	2400	96	2180	98	115	5	96	3760	96	2720	96	2480	96	2250	98	115			
10	93	3930	93	2890	93	2620	94	2430	94	2260	94	110	10	93	3740	93	2790	93	2530	93	2300	94	2130	94	111	10	93	3570	93	2530	93	2290	94	2110	94	111			

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
4000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	10 KTS				10 KTS		20 KTS		30 KTS						10 KTS				10 KTS		20 KTS		30 KTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS						10 KTS				10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT										
-30	100	5120	100	3430	100	3070	101	2840	102	2620	103	119	-30	100	4930	100	3360	100	2990	100	2670	101	2460	101	117														
-25	100	5350	100	3550	100	3150	101	2900	102	2680	103	119	-25	100	5140	100	3470	100	3090	100	2760	101	2510	101	117														
-20	100	5590	100	3670	100	3260	101	2960	102	2730	103	119	-20	100	5360	100	3590	100	3190	100	2840	100	2570	101	117														
-15	100	5860	100	3810	100	3370	100	3010	101	2790	103	119	-15	100	5600	100	3710	100	3290	100	2940	100	2630	101	118														
-10	100	6150	100	3940	100	3480	100	3090	101	2840	103	119	-10	100	5860	100	3840	100	3400	100	3030	100	2710	102	118														
-5	99	6050	99	3910	99	3470	100	3210	101	2980	103	119	-5	99	5770	99	3810	99	3380	99	3010	100	2780	101	117														
0	96	5580	98	4020	100	3730	101	3460	102	3200	104	119	0	96	5360	97	3750	98	3480	100	3230	101	2990	102	117														
5	96	5870	99	4340	101	4030	102	3730	103	3450	104	118	5	95	5460	98	4040	99	3750	101	3470	102	3210	102	117														
10	97	6430	100	4720	102	4380	103	4050	104	3750	105	118	10	96	5950	99	4380	100	4060	102	3770	103	3480	103	117														

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		H E A D W I N D S						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		H E A D W I N D S						VR	V2	KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS						10 KTS				10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT							
-30	100	4760	100	3280	100	2930	100	2630	101	2400	101	117	-30	100	4600	100	3210	100	2880	100	2580	100	2340	101	118	-30	100	4760	100	3380	100	3030	100	2730	100	2430	101	118	
-25	100	4950	100	3390	100	3030	100	2710	100	2450	101	118	-25	100	4780	100	3320	100	2970	100	2660	100	2400	101	118	-25	100	4950	100	3490	100	3140	100	2840	100	2540	101	118	
-20	100	5150	100	3500	100	3120	100	2790	100	2510	101	118	-20	100	4970	100	3420	100	3060	100	2740	100	2460	102	118	-20	100	5150	100	3600	100	3250	100	2950	100	2650	102	118	
-15	100	5370	100	3620	100	3220	100	2880	100	2580	102	118	-15	100	5170	100	3540	100	3160	100	2830	100	2540	102	118	-15	100	5370	100	3740	100	3340	100	3040	100	2740	102	118	
-10	100	5610	100	3740	100	3330	100	2970	100	2660	102	118	-10	100	5380	100	3650	100	3260	100	2920	100	2620	102	119	-10	100	5610	100	3860	100	3460	100	3160	100	2860	102	119	
-5	99	5520	99	3710	99	3300	99	2950	99	2660	100	116	-5	99	5300	99	3620	99	3230	99	2890	99	2600	100	117	-5	99	5520	99	3710	99	3300	99	2950	99	2660	100	116	
0	96	5150	96	3530	97	3250	98	3010	99	2780	100	115	0	96	4960	96	3440	96	3080	97	2800	98	2590	98	114	0	96	5150	96	3530	97	3250	98	3010	99	2780	100	115	
5	95	5060	97	3760	98	3490	99	3230	100	2990	101	115	5	94	4700	95	3500	97	3250	98	3010	98	2790	99	113	5	95	5060	97	3760	98	3490	99	3230	100	2990	101	115	
10	96	5500	98	4070	99	3780	100	3500	101	3240	101	115	10	95	5090	96	3780	98	3510	99	3250	99	3030	99	111	10	96	5500	98	4070	99	3780	100	3500	101	3240	101	115	

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
5000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	VR	V2										
-30	100	6080	100	3850	101	3530	103	3270	104	3020	106	122	-30	100	5890	100	3780	100	3380	102	3130	103	2890	105	121														
-25	100	6420	100	4000	101	3600	102	3330	104	3080	106	122	-25	100	6200	100	3930	100	3460	101	3200	103	2950	105	121														
-20	100	6800	100	4160	100	3670	102	3400	103	3150	106	122	-20	100	6550	100	4080	100	3590	101	3260	102	3010	105	121														
-15	100	7240	100	4340	100	3790	102	3470	103	3210	106	122	-15	100	6950	100	4250	100	3720	101	3320	102	3080	105	121														
-10	99	7020	99	4270	100	3930	102	3650	103	3380	106	121	-10	99	6750	99	4180	100	3760	101	3490	102	3230	105	120														
-5	96	6430	99	4560	101	4240	103	3920	104	3640	107	121	-5	96	6210	99	4360	100	4050	102	3750	103	3470	106	120														
0	96	6710	100	4950	102	4590	103	4250	105	3930	107	121	0	96	6390	100	4720	101	4380	103	4050	104	3750	106	120														
5	97	7380	101	5400	103	5000	104	4620	106	4270	108	121	5	97	6990	101	5140	102	4760	104	4400	105	4070	107	120														
10	98	8160	102	5940	104	5490	105	5070	107	4680	108	121	10	98	7730	102	5630	103	5210	105	4820	106	4450	107	120														

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS			ZERO WIND			HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS			ZERO WIND			HEAD WINDS						VR V2											
							10 KTS		20 KTS		30 KTS											10 KTS		20 KTS		30 KTS													
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2										
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS									
-30	100	5620	100	3690	100	3270	100	2930	102	2710	103	119		-30	100	5390	100	3600	100	3200	100	2850	101	2570	102	118													
-25	100	5910	100	3830	100	3380	100	3000	101	2770	103	119		-25	100	5640	100	3730	100	3310	100	2950	100	2630	102	118													
-20	100	6220	100	3970	100	3500	100	3110	101	2820	103	119		-20	100	5920	100	3870	100	3420	100	3050	100	2720	102	118													
-15	100	6560	100	4130	100	3630	100	3220	101	2880	103	119		-15	101	6220	101	4010	101	3550	101	3150	101	2810	102	118													
-10	99	6390	99	4060	99	3580	100	3260	101	3020	103	119		-10	99	6070	99	3950	99	3500	99	3110	100	2820	101	117													
-5	96	5920	98	4070	99	3780	101	3500	102	3240	104	119		-5	96	5650	97	3790	98	3520	99	3260	100	3020	102	117													
0	95	5920	99	4390	100	4070	102	3780	103	3500	104	118		0	95	5500	98	4090	99	3800	100	3520	101	3250	102	117													
5	96	6460	100	4760	101	4420	102	4090	104	3780	105	118		5	96	5980	98	4420	100	4100	101	3800	102	3510	103	117													
10	97	7120	101	5210	102	4820	103	4460	105	4120	105	118		10	97	6560	100	4820	101	4460	102	4130	103	3820	104	116													

WEIGHT = 15000 LBS								VENR = 160 KIAS								WEIGHT = 14500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2							
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS									
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS			
-30	100	5180	100	3510	100	3130	100	2800	100	2510	102	118	-30	100	4990	100	3440	100	3070	100	2750	100	2470	102	119						
-25	100	5410	100	3640	100	3240	100	2890	100	2590	102	118	-25	101	5200	101	3550	101	3170	101	2840	101	2550	102	119						
-20	101	5660	101	3770	101	3350	101	2990	101	2670	102	119	-20	101	5420	101	3680	101	3280	101	2930	101	2630	102	119						
-15	101	5930	101	3910	101	3470	101	3090	101	2760	102	119	-15	101	5670	101	3810	101	3390	101	3030	101	2720	102	119						
-10	99	5790	99	3850	99	3420	99	3050	99	2730	101	117	-10	99	5550	99	3750	99	3350	99	2990	99	2680	101	117						
-5	97	5420	97	3670	97	3280	98	3050	99	2820	100	115	-5	97	5210	97	3580	97	3200	97	2870	97	2640	98	114						
0	94	5110	96	3800	98	3530	99	3270	100	3030	100	115	0	94	4890	95	3540	96	3280	97	3050	98	2820	98	113						
5	95	5530	97	4110	99	3810	100	3530	101	3270	101	115	5	94	5120	96	3810	97	3540	98	3280	99	3040	99	113						
10	96	6050	98	4460	100	4130	101	3830	101	3550	102	115	10	95	5580	97	4130	98	3830	99	3550	100	3310	100	115						

WEIGHT = 14000 LBS								VENR = 160 KIAS								WEIGHT = 13500 LBS								VENR = 160 KIAS														
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2													
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS										
-30	101	4810	101	3360	101	3010	101	2710	101	2430	102	119	-30	101	4660	101	3290	101	2960	101	2660	101	2400	102	120	-30	101	4660	101	3290	101	2960	101	2660	101	2400	102	120
-25	101	5010	101	3470	101	3110	101	2790	101	2510	102	119	-25	101	4830	101	3400	101	3050	101	2740	101	2470	102	120	-25	101	4830	101	3400	101	3050	101	2740	101	2470	102	120
-20	101	5210	101	3590	101	3210	101	2880	101	2590	102	119	-20	101	5020	101	3510	101	3150	101	2830	101	2550	102	120	-20	101	5020	101	3510	101	3150	101	2830	101	2550	102	120
-15	101	5430	101	3720	101	3320	101	2970	101	2670	102	120	-15	101	5220	101	3630	101	3250	101	2920	101	2630	103	120	-15	101	5220	101	3630	101	3250	101	2920	101	2630	103	120
-10	99	5320	99	3660	99	3270	99	2940	99	2640	101	118	-10	99	5120	99	3580	99	3210	99	2880	99	2600	101	118	-10	99	5120	99	3580	99	3210	99	2880	99	2600	101	118
-5	97	5010	97	3500	97	3140	97	2820	97	2580	98	114	-5	97	4840	97	3420	97	3070	97	2770	97	2510	98	115	-5	97	4840	97	3420	97	3070	97	2770	97	2510	98	115
0	94	4720	94	3340	94	3050	95	2830	96	2630	96	112	0	94	4560	94	3270	94	2940	95	2700	95	2500	95	111	0	94	4560	94	3270	94	2940	95	2700	95	2500	95	111
5	93	4740	94	3530	95	3280	96	3040	97	2840	97	111	5	92	4390	93	3280	94	3050	95	2820	95	2640	95	110	5	92	4390	93	3280	94	3050	95	2820	95	2640	95	110
10	94	5150	96	3820	97	3550	98	3290	98	3090	98	111	10	93	4750	94	3540	95	3290	95	3060	95	2870	96	109	10	93	4750	94	3540	95	3290	95	3060	95	2870	96	109

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR V2											
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2										
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT								
-30	101	4380	101	3170	101	2860	101	2580	101	2340	103	121	-30	101	4150	101	3060	101	2770	101	2520	101	2280	103	122	-30	101	4150	101	3060	101	2770	101	2520	101	2280	103	122	
-25	101	4530	101	3270	101	2950	101	2660	101	2410	103	121	-25	101	4290	101	3150	101	2860	101	2590	101	2350	103	122	-25	101	4290	101	3150	101	2860	101	2590	101	2350	103	122	
-20	101	4690	101	3370	101	3040	101	2740	101	2480	103	121	-20	101	4430	101	3250	101	2940	101	2670	101	2420	103	122	-20	101	4430	101	3250	101	2940	101	2670	101	2420	103	122	
-15	101	4870	101	3470	101	3130	101	2830	101	2550	103	121	-15	102	4570	102	3340	102	3030	102	2750	102	2490	104	123	-15	102	4570	102	3340	102	3030	102	2750	102	2490	104	123	
-10	100	4780	100	3420	100	3090	100	2790	100	2520	101	119	-10	100	4490	100	3290	100	2980	100	2710	100	2460	102	120	-10	100	4490	100	3290	100	2980	100	2710	100	2460	102	120	
-5	97	4530	97	3280	97	2960	97	2680	97	2420	99	116	-5	97	4270	97	3150	97	2860	97	2590	97	2350	99	117	-5	97	4270	97	3150	97	2860	97	2590	97	2350	99	117	
0	94	4290	94	3130	94	2830	94	2560	95	2370	96	112	0	94	4050	94	3010	94	2730	94	2480	94	2250	96	113	0	94	4050	94	3010	94	2730	94	2480	94	2250	96	113	
5	91	4080	91	3000	92	2740	93	2540	93	2380	93	108	5	92	3860	92	2880	92	2620	92	2400	93	2230	93	109	5	92	3860	92	2880	92	2620	92	2400	93	2230	93	109	
10	90	4050	90	3030	91	2810	91	2640	91	2470	91	106	10	89	3680	89	2750	90	2560	90	2390	90	2240	90	105	10	89	3680	89	2750	90	2560	90	2390	90	2240	90	105	

56FMC-00-00

Figure 4-23 (Sheet 6)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
6000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
-30	100	6740	100	4140	100	3660	102	3390	103	3140	106	122	-30	100	6500	100	4060	100	3570	101	3250	102	3000	105	121														
-25	100	7150	100	4300	100	3760	102	3470	103	3210	106	122	-25	100	6870	100	4220	100	3700	101	3320	102	3070	105	121														
-20	100	7610	100	4480	100	3900	101	3540	103	3280	106	122	-20	100	7280	100	4390	100	3840	100	3390	102	3140	105	121														
-15	99	7470	99	4440	100	4000	101	3710	103	3440	106	122	-15	99	7150	99	4350	99	3830	101	3550	102	3290	105	120														
-10	97	6870	99	4630	101	4290	102	3980	104	3690	107	121	-10	97	6620	98	4410	100	4100	101	3800	103	3520	105	120														
-5	95	6750	100	5000	101	4640	103	4300	104	3980	107	121	-5	95	6440	99	4770	101	4420	102	4100	103	3790	106	120														
0	96	7400	100	5450	102	5050	104	4680	105	4320	108	121	0	96	7030	100	5190	102	4810	103	4450	104	4120	107	120														
5	97	8180	101	5980	103	5530	105	5110	106	4720	108	121	5	97	7750	101	5670	102	5250	104	4860	105	4490	107	120														
10	98	9150	102	6620	104	6120	106	5640	107	5200	109	120	10	98	8640	102	6270	103	5790	105	5350	106	4930	108	119														

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
-30	100	6170	100	3950	100	3490	100	3090	101	2810	103	119	-30	100	5880	100	3850	100	3410	100	3030	100	2710	102	118														
-25	100	6500	100	4100	100	3610	100	3200	101	2880	103	119	-25	100	6170	100	3990	100	3530	100	3130	100	2800	102	118														
-20	100	6850	100	4260	100	3740	100	3310	100	2940	103	119	-20	101	6480	101	4130	101	3650	101	3240	101	2890	102	119														
-15	99	6740	99	4220	99	3710	99	3320	101	3070	103	119	-15	99	6380	99	4100	99	3620	99	3220	99	2870	101	117														
-10	97	6270	97	4110	99	3820	100	3550	101	3280	104	119	-10	97	5970	97	3930	97	3570	99	3310	100	3060	102	117														
-5	95	5970	98	4440	100	4120	101	3820	102	3540	104	118	-5	94	5560	97	4130	98	3840	100	3560	101	3290	102	117														
0	95	6510	99	4810	100	4460	102	4130	103	3830	105	118	0	95	6020	98	4470	99	4140	101	3840	102	3560	103	117														
5	96	7140	100	5250	101	4860	103	4500	104	4160	105	118	5	96	6580	99	4850	100	4500	101	4170	103	3860	103	116														
10	97	7920	101	5770	102	5340	104	4930	105	4560	106	118	10	97	7270	100	5320	101	4920	103	4560	104	4210	104	116														

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT								V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT																		
-30	101	5620	101	3750	101	3330	101	2980	101	2660	102	119	-30	101	5390	101	3660	101	3260	101	2920	101	2620	102	119														
-25	101	5880	101	3880	101	3450	101	3070	101	2750	102	119	-25	101	5620	101	3790	101	3370	101	3010	101	2700	102	119														
-20	101	6150	101	4020	101	3560	101	3170	101	2830	102	119	-20	101	5870	101	3920	101	3480	101	3110	101	2790	102	119														
-15	99	6070	99	3990	99	3540	99	3150	99	2820	101	117	-15	99	5790	99	3880	99	3460	99	3090	99	2770	101	118														
-10	97	5710	97	3820	97	3400	97	3080	98	2860	100	115	-10	97	5470	97	3730	97	3330	97	2980	97	2710	99	114														
-5	94	5340	96	3840	97	3570	98	3310	99	3070	100	115	-5	94	5130	94	3570	96	3320	97	3080	98	2850	98	113														
0	94	5570	97	4150	98	3850	99	3570	100	3300	101	115	0	93	5160	95	3850	97	3570	98	3310	99	3070	99	113														
5	95	6070	98	4490	99	4170	100	3870	101	3580	102	115	5	94	5600	96	4160	98	3860	99	3580	99	3320	100	113														
10	96	6670	99	4910	100	4550	101	4210	102	3910	102	115	10	95	6140	97	4530	99	4200	100	3890	100	3640	100	113														

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT								V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT																
-30	101	5180	101	3580	101	3200	101	2870	101	2580	102	120	-30	101	4990	101	3500	101	3140	101	2820	101	2540	103	120														
-25	101	5390	101	3690	101	3300	101	2960	101	2660	102	120	-25	101	5190	101	3610	101	3230	101	2910	101	2620	103	120														
-20	101	5610	101	3820	101	3400	101	3050	101	2740	103	120	-20	101	5390	101	3720	101	3330	101	2990	101	2690	103	120														
-15	100	5550	100	3790	100	3380	100	3030	100	2720	101	118	-15	100	5320	100	3690	100	3310	100	2970	100	2680	101	118														
-10	97	5250	97	3640	97	3250	97	2920	97	2640	99	115	-10	97	5050	97	3550	97	3190	97	2870	97	2580	99	115														
-5	94	4950	94	3470	94	3120	95	2860	96	2650	96	112	-5	94	4770	94	3390	94	3050	95	2760	96	2560	96	112														
0	92	4780	94	3570	95	3320	96	3080	97	2860	97	112	0	92	4510	92	3310	93	3080	94	2850	95	2660	95	110														
5	93	5170	95	3850	96	3580	97	3320	97	3100	98	111	5	92	4780	93	3560	94	3310	95	3070	95	2880	95	110														
10	94	5640	96	4180	97	3880	98	3600	98	3380	98	111	10	93	5190	95	3860	95	3590	96	3350	96	3150	96	109														

WEIGHT = 12500 LBS										WEIGHT = 11500 LBS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS			
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST		
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST						
-30	101	4670	101	3350	101	3020	101	2730	101	2470	103	121	-30	101	4410	101	3230	101	2930	101	2660	101	2410	104	122
-25	101	4830	101	3460	101	3110	101	2810	101	2540	103	121	-25	101	4550	101	3330	101	3010	101	2730	101	2480	104	123
-20	101	5000	101	3560	101	3210	101	2890	101	2610	103	121	-20	102	4690	102	3420	102	3100	102	2810	102	2550	104	123
-15	100	4950	100	3530	100	3180	100	2870	100	2600	102	120	-15	100	4640	100	3390	100	3070	100	2790	100	2530	102	121
-10	97	4720	97	3390	97	3060	97	2770	97	2500	99	116	-10	98	4440	98	3260	98	2960	98	2680	98	2430	99	117
-5	95	4470	95	3250	95	2940	95	2660	95	2430	96	112	-5	95	4220	95	3120	95	2830	95	2570	95	2330	96	113
0	92	4240	92	3110	92	2810	93	2610	93	2420	93	109	0	92	4010	92	2980	92	2710	92	2460	93	2280	93	110
5	89	4070	90	3050	91	2830	91	2650	91	2480	91	106	5	89	3820	89	2860	90	2630	90	2440	90	2290	91	106
10	91	4400	91	3290	92	3060	92	2880	92	2700	92	106	10	87	3750	87	2810	87	2630	87	2470	87	2310	88	105

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
7000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2		VR	V2	
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1 DIST		V1 DIST		V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS
-30	100	7310	100	4370	100	3850	101	3570	103	3300	106	122	
-25	99	7650	99	4500	100	3950	101	3670	103	3400	106	122	
-20	99	7660	99	4520	100	4120	101	3820	103	3540	106	121	
-15	97	7320	98	4700	100	4370	102	4040	103	3750	107	121	
-10	95	6810	99	5060	101	4700	102	4350	104	4030	107	121	
-5	95	7450	100	5510	102	5100	103	4730	105	4370	108	121	
0	96	8200	101	6020	102	5580	104	5160	105	4770	108	121	
5	97	9140	101	6650	103	6150	105	5680	106	5240	109	121	
10	97	10320	102	7430	104	6850	106	6310	107	5810	109	120	

WEIGHT = 16500 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2		VR	V2	
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1 DIST		V1 DIST		V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS
-30	100	7010	100	4280	100	3750	101	3410	102	3160	105	121	
-25	100	7320	100	4410	100	3860	101	3510	102	3250	105	121	
-20	99	7330	99	4430	99	3940	100	3650	102	3380	105	120	
-15	97	7020	98	4480	99	4170	101	3870	102	3580	105	120	
-10	94	6500	98	4820	100	4480	102	4150	103	3840	106	120	
-5	95	7080	99	5240	101	4860	102	4500	104	4160	106	120	
0	96	7770	100	5720	102	5300	103	4900	105	4530	107	120	
5	97	8640	101	6290	103	5820	104	5380	106	4970	108	119	
10	97	9720	102	7010	104	6470	105	5960	107	5490	108	119	

WEIGHT = 16000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2		VR	V2	
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1 DIST		V1 DIST		V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS
-30	100	6620	100	4160	100	3660	100	3240	101	2960	103	119	
-25	100	6880	100	4280	100	3760	100	3330	100	3040	103	119	
-20	99	6890	99	4290	99	3770	99	3410	101	3160	103	119	
-15	97	6630	97	4200	98	3880	100	3600	101	3340	104	119	
-10	94	6170	98	4490	99	4170	100	3870	102	3580	104	119	
-5	95	6550	98	4860	100	4510	101	4180	103	3870	105	118	
0	95	7170	99	5290	101	4900	102	4540	103	4200	105	118	
5	96	7920	100	5800	102	5370	103	4970	104	4590	106	118	
10	97	8870	101	6420	103	5930	104	5480	105	5060	106	118	

WEIGHT = 15500 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2		VR	V2	
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1 DIST		V1 DIST		V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS
-30	100	6270	100	4040	100	3570	100	3180	100	2830	102	118	
-25	100	6500	100	4150	100	3670	100	3250	100	2900	101	118	
-20	99	6520	99	4170	99	3680	99	3270	99	2950	101	117	
-15	97	6290	97	4080	97	3620	98	3360	100	3110	102	117	
-10	95	5880	96	4170	98	3880	99	3600	100	3340	102	117	
-5	94	6060	97	4510	99	4190	100	3880	101	3600	103	117	
0	95	6610	98	4890	100	4540	101	4210	102	3890	103	116	
5	96	7280	99	5350	101	4950	102	4590	103	4240	104	116	
10	97	8100	100	5900	102	5450	103	5040	104	4660	104	116	

WEIGHT = 15000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2		VR	V2	
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1 DIST		V1 DIST		V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS
-30	100	5970	100	3940	100	3490	100	3110	100	2780	102	118	
-25	100	6180	100	4040	100	3580	100	3190	100	2850	101	118	
-20	99	6190	99	4050	99	3590	99	3200	99	2860	101	117	
-15	97	5990	97	3970	97	3520	97	3140	98	2900	100	115	
-10	95	5620	95	3880	97	3610	98	3350	99	3100	100	115	
-5	93	5610	96	4190	97	3890	99	3610	100	3340	101	115	
0	94	6100	97	4530	98	4200	100	3900	101	3610	101	115	
5	95	6690	98	4930	99	4570	101	4240	102	3920	102	115	
10	96	7400	99	5420	100	5020	102	4640	102	4310	103	114	

WEIGHT = 14500 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2		VR	V2	
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1 DIST		V1 DIST		V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS
-30	100	5710	100	3830	100	3410	100	3050	100	2730	102	119	
-25	100	5890	100	3930	100	3500	100	3120	100	2800	102	118	
-20	99	5900	99	3940	99	3510	99	3140	99	2810	101	117	
-15	97	5720	97	3860	97	3440	97	3080	97	2770	99	115	
-10	95	5390	95	3700	95	3360	96	3120	97	2890	98	113	
-5	93	5200	95	3880	96	3610	97	3350	98	3110	99	113	
0	94	5630	96	4190	97	3900	98	3610	99	3350	99	113	
5	95	6150	97	4550	98	4230	99	3920	100	3640	100	113	
10	96	6780	98	4980	99	4620	100	4280	100	4010	101	113	

WEIGHT = 14000 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2							
	10 KTS				10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT									
-30	100	5470	100	3740	100	3340	100	2990	100	2690	102	119							
-25	100	5630	100	3830	100	3420	100	3060	100	2750	102	119							
-20	99	5640	99	3840	99	3430	99	3070	99	2760	101	117							
-15	97	5480	97	3760	97	3360	97	3020	97	2710	99	115							
-10	95	5180	95	3610	95	3240	95	2910	96	2700	96	112							
-5	92	4890	93	3600	95	3350	96	3110	96	2880	97	112							
0	93	5210	94	3880	96	3610	97	3350	97	3110	97	111							
5	94	5660	95	4200	97	3910	97	3620	98	3390	98	111							
10	95	6210	97	4590	98	4260	98	3950	98	3720	99	111							

WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2							
	10 KTS				10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT									
-30	100	5260	100	3650	100	3270	100	2940	100	2650	102	119							
-25	100	5400	100	3740	100	3350	100	3010	100	2710	102	119							
-20	99	5410	99	3750	99	3360	99	3020	99	2710	101	118							
-15	97	5260	97	3670	97	3290	97	2960	97	2670	99	116							
-10	95	4990	95	3530	95	3170	95	2850	96	2630	96	112							
-5	92	4720	92	3370	93	3110	94	2880	95	2680	95	110							
0	91	4800	93	3590	94	3340	95	3100	95	2890	95	110							
5	93	5210	94	3890	95	3610	96	3350	96	3150	96	109							
10	94	5690	95	4220	96	3920	96	3670	96	3450	97	109							

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
8000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2				
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1	DIST	V1	DIST	V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS
-30	99	7770	99	4560	100	4080	101	3780	103	3510	106	122	105 120
-25	98	7640	98	4600	100	4280	101	3970	103	3680	106	121	105 120
-20	96	7570	98	4820	100	4480	101	4160	103	3850	107	121	105 120
-15	95	7200	98	5130	100	4760	102	4420	103	4090	107	121	106 120
-10	94	7490	99	5560	101	5160	102	4780	104	4420	108	121	106 120
-5	95	8240	100	6070	102	5630	103	5210	105	4820	108	121	107 120
0	96	9150	101	6690	102	6190	104	5720	106	5280	109	121	107 120
5	96	10280	102	7440	103	6870	105	6340	107	5840	109	120	108 119
10	97	11760	103	8400	104	7740	106	7110	108	6530	110	120	108 119

WEIGHT = 16000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2				
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1	DIST	V1	DIST	V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS
-30	99	6970	99	4320	99	3800	99	3380	100	3140	103	119	101 117
-25	98	6880	98	4300	98	3820	99	3540	101	3280	103	119	101 117
-20	97	6830	97	4290	98	3990	100	3700	101	3430	104	119	102 117
-15	95	6540	97	4550	99	4230	100	3930	101	3640	104	119	102 117
-10	94	6590	98	4900	99	4560	101	4230	102	3910	105	118	103 117
-5	95	7200	99	5330	100	4950	102	4590	103	4240	105	118	103 117
0	95	7940	99	5840	101	5410	102	5010	104	4630	106	118	104 116
5	96	8850	100	6440	102	5960	103	5510	105	5090	106	118	104 116
10	97	10000	101	7190	103	6640	104	6120	106	5640	107	118	105 116

WEIGHT = 15000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2				
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1	DIST	V1	DIST	V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS
-30	99	6250	99	4080	99	3610	99	3220	99	2880	101	117	101 118
-25	98	6180	98	4060	98	3600	98	3210	98	2870	100	116	100 116
-20	97	6140	97	4050	97	3590	97	3220	98	2980	100	115	99 114
-15	95	5920	95	3950	96	3660	97	3400	98	3150	100	115	98 114
-10	93	5650	96	4230	97	3930	98	3650	99	3380	101	115	99 113
-5	94	6140	96	4570	98	4240	99	3940	100	3650	101	115	99 113
0	95	6710	97	4970	99	4610	100	4270	101	3960	102	115	100 113
5	96	7400	98	5440	100	5040	101	4670	102	4320	102	114	100 113
10	97	8270	100	6010	101	5560	102	5150	103	4780	103	114	101 113

WEIGHT = 14000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2				
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1	DIST	V1	DIST	V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS
-30	99	5690	99	3870	99	3450	99	3090	99	2780	101	118	101 118
-25	98	5630	98	3850	98	3430	98	3080	98	2770	100	116	100 117
-20	97	5600	97	3840	97	3430	97	3070	97	2760	99	115	99 115
-15	95	5430	95	3750	95	3360	95	3010	96	2770	97	112	97 112
-10	93	5130	93	3640	94	3390	95	3140	96	2910	97	112	95 110
-5	92	5230	94	3920	95	3640	96	3380	97	3130	97	111	95 110
0	93	5680	95	4240	96	3940	97	3650	98	3400	98	111	96 109
5	94	6220	96	4610	97	4280	98	3970	98	3710	98	111	96 109
10	95	6870	97	5050	98	4690	99	4360	99	4110	99	111	97 109

WEIGHT = 12500 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS			VR	V2				
	10 KTS		V1 DIST		10 KTS	20 KTS	30 KTS						
	V1	DIST	V1	DIST	V1 DIST	V1 DIST	V1 DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS
-30	100	5060	100	3600	100	3240	100	2930	100	2640	102	119	102 121
-25	98	5010	98	3580	98	3220	98	2910	98	2630	100	118	101 119
-20	97	4990	97	3570	97	3220	97	2900	97	2630	99	116	99 117
-15	95	4850	95	3490	95	3150	95	2850	95	2570	97	114	97 115
-10	93	4620	93	3350	93	3030	93	2740	94	2550	94	110	95 111
-5	90	4390	90	3210	90	2940	91	2730	92	2550	92	107	92 107
0	89	4440	90	3340	91	3100	91	2890	91	2710	92	106	89 104
5	90	4810	91	3600	92	3350	92	3140	92	2950	92	106	87 102
10	92	5250	92	3910	93	3670	93	3450	93	3240	93	105	88 101

56FMC-00-00

Figure 4-23 (Sheet 9)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
9000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								
	10 KTS				10 KTS		20 KTS		30 KTS		VR V2			10 KTS				10 KTS		20 KTS		30 KTS		VR V2			10 KTS				10 KTS		20 KTS		30 KTS		VR V2		
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			
-30	97	7740	98	4760	100	4430	101	4110	103	3810	107	121	-30	97	7400	97	4540	99	4230	101	3920	102	3640	105	120	-30	97	7400	97	4540	99	4230	101	3920	102	3640	105	120	
-25	96	7580	98	5010	100	4660	101	4320	103	4000	107	121	-25	96	7260	98	4780	99	4440	101	4120	102	3820	106	120	-25	96	7260	98	4780	99	4440	101	4120	102	3820	106	120	
-20	95	7550	98	5240	100	4870	101	4520	103	4190	107	121	-20	95	7240	97	5000	99	4640	101	4310	102	3990	106	120	-20	95	7240	97	5000	99	4640	101	4310	102	3990	106	120	
-15	94	7520	98	5600	100	5200	102	4820	103	4460	107	121	-15	93	7150	98	5330	100	4950	101	4590	103	4250	106	120	-15	93	7150	98	5330	100	4950	101	4590	103	4250	106	120	
-10	94	8200	99	6080	101	5640	102	5230	104	4840	108	121	-10	94	7780	99	5770	100	5360	102	4970	103	4600	107	120	-10	94	7780	99	5770	100	5360	102	4970	103	4600	107	120	
-5	95	9050	100	6670	102	6180	103	5720	105	5280	108	121	-5	95	8570	99	6320	101	5860	103	5420	104	5010	107	120	-5	95	8570	99	6320	101	5860	103	5420	104	5010	107	120	
0	95	10100	100	7380	102	6820	104	6300	106	5810	109	120	0	95	9540	100	6970	102	6450	103	5960	105	5510	108	119	0	95	9540	100	6970	102	6450	103	5960	105	5510	108	119	
5	96	11430	101	8250	103	7620	105	7020	106	6460	109	120	5	96	10740	101	7770	103	7170	104	6620	106	6090	108	119	5	96	10740	101	7770	103	7170	104	6620	106	6090	108	119	
8	96	12430	102	8900	104	8200	106	7540	107	6930	110	120	8	97	12300	102	8770	104	8080	105	7430	107	6820	109	119	8	97	12300	102	8770	104	8080	105	7430	107	6820	109	119	
10	96	13160	102	9370	104	8620	106	7910	107	7260	110	120	10													10													

WEIGHT = 16000 LBS								WEIGHT = 15500 LBS																	
VENR = 160 KIAS								VENR = 160 KIAS																	
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS				TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS											
	10 KTS				10 KTS		20 KTS			30 KTS		10 KTS		20 KTS		30 KTS									
	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST								
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT								
-30	97	6960	97	4340	98	3940	99	3660	101	3390	104	119	-30	97	6570	97	4210	97	3720	98	3410	99	3160	102	117
-25	96	6840	97	4450	98	4140	100	3840	101	3560	104	119	-25	96	6470	96	4180	97	3850	98	3580	100	3320	102	117
-20	95	6820	97	4650	98	4330	100	4020	101	3720	104	119	-20	95	6460	96	4320	97	4020	98	3730	100	3460	102	117
-15	93	6620	97	4940	99	4590	100	4260	101	3950	104	118	-15	93	6210	96	4590	98	4270	99	3970	100	3680	103	117
-10	94	7190	98	5340	99	4960	101	4600	102	4260	105	118	-10	93	6640	97	4940	98	4600	100	4260	101	3950	103	117
-5	94	7880	99	5820	100	5400	102	5010	103	4630	105	118	-5	94	7250	98	5370	99	4990	100	4630	102	4280	104	116
0	95	8730	99	6400	101	5930	102	5490	104	5070	106	118	0	95	7990	99	5880	100	5450	101	5050	103	4670	104	116
5	96	9780	100	7100	102	6560	103	6060	105	5590	106	118	5	96	8910	100	6490	101	6010	102	5560	103	5130	105	116
10	97	11110	101	7950	103	7330	104	6750	106	6220	107	117	10	97	10050	101	7230	102	6680	103	6160	105	5680	105	116

WEIGHT = 15000 LBS								VENR = 160 KIAS								WEIGHT = 14500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR V2 KIAS								
	10 KTS				10 KTS		20 KTS		30 KTS				10 KTS				10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT						
-30	97	6240	97	4090	97	3630	97	3240	98	2950	100	115	-30	97	5940	97	3980	97	3540	97	3170	97	2840	99	115						
-25	96	6150	96	4060	96	3610	97	3330	98	3090	100	115	-25	96	5860	96	3950	96	3520	96	3150	96	2880	98	114						
-20	95	6140	95	4070	96	3740	97	3470	98	3220	100	115	-20	95	5850	95	3960	95	3530	96	3230	97	3000	98	114						
-15	93	5920	95	4260	96	3960	98	3680	99	3410	101	115	-15	93	5660	94	3950	95	3680	96	3420	97	3170	99	113						
-10	93	6130	96	4580	97	4260	98	3950	99	3670	101	115	-10	92	5670	95	4240	96	3950	97	3670	98	3400	99	113						
-5	94	6680	97	4960	98	4610	99	4280	100	3960	102	115	-5	93	6150	95	4580	97	4260	98	3960	99	3670	100	113						
0	94	7330	98	5410	99	5020	100	4650	101	4310	102	115	0	94	6720	96	4980	98	4630	99	4290	100	3980	100	113						
5	95	8120	99	5950	100	5510	101	5100	102	4720	103	114	5	95	7410	97	5450	99	5060	100	4690	101	4350	101	113						
10	96	9100	100	6590	101	6090	102	5630	103	5210	103	114	10	96	8250	98	6010	100	5570	101	5160	101	4830	101	112						

WEIGHT = 14000 LBS								WEIGHT = 13500 LBS																	
VENR = 160 KIAS								VENR = 160 KIAS																	
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS				TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS											
	10 KTS				10 KTS		20 KTS			30 KTS		10 KTS		20 KTS		30 KTS									
	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST								
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT								
-30	97	5680	97	3880	97	3460	97	3100	97	2790	99	115	-30	97	5450	97	3780	97	3380	97	3040	97	2740	99	116
-25	96	5610	96	3850	96	3440	96	3080	96	2790	98	114	-25	96	5380	96	3750	96	3360	96	3020	96	2720	98	114
-20	95	5600	95	3850	95	3440	95	3090	96	2830	97	112	-20	95	5380	95	3750	95	3370	95	3030	95	2750	97	113
-15	93	5430	93	3760	93	3410	95	3170	96	2940	97	112	-15	93	5210	93	3670	93	3300	93	2980	94	2760	95	110
-10	91	5230	93	3930	94	3650	95	3390	96	3150	97	111	-10	91	4960	92	3640	93	3380	94	3150	95	2920	95	110
-5	92	5660	94	4240	95	3940	96	3660	97	3390	98	111	-5	91	5220	93	3910	94	3640	95	3380	95	3140	96	110
0	93	6170	95	4590	96	4270	97	3960	98	3670	98	111	0	92	5660	94	4240	95	3940	96	3650	96	3410	96	109
5	94	6770	96	5010	97	4650	98	4320	99	4030	99	111	5	93	6190	95	4600	96	4280	97	3970	97	3740	97	109
10	95	7490	97	5500	98	5100	99	4730	99	4470	99	111	10	94	6820	96	5030	97	4680	97	4380	97	4130	97	109

WEIGHT = 12500 LBS								WEIGHT = 11500 LBS																	
VENR = 160 KIAS								VENR = 160 KIAS																	
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2 KIAS														
					10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT															
-30	98	5050	98	3600	98	3250	98	2930	98	2650	100	117	-30	98	4720	98	3450	98	3130	98	2840	98	2570	100	118
-25	96	4990	96	3570	96	3220	96	2910	96	2630	98	115	-25	97	4670	97	3420	97	3100	97	2810	97	2550	99	116
-20	95	4980	95	3570	95	3220	95	2910	95	2640	97	114	-20	96	4660	96	3420	96	3100	96	2810	96	2550	97	115
-15	93	4850	93	3500	93	3160	93	2850	94	2620	95	111	-15	94	4540	94	3340	94	3030	94	2750	94	2500	95	112
-10	91	4630	91	3370	91	3040	92	2810	92	2610	93	108	-10	91	4340	91	3220	91	2920	91	2650	92	2460	93	109
-5	88	4430	89	3340	90	3100	91	2890	91	2700	91	106	-5	88	4150	88	3090	89	2830	90	2630	90	2460	90	105
0	90	4780	90	3590	91	3340	92	3120	92	2930	92	106	0	86	4020	86	3030	87	2820	87	2650	87	2490	87	102
5	91	5190	91	3880	92	3620	92	3400	92	3190	92	105	5	87	4340	88	3260	88	3070	88	2880	88	2700	88	101
10	92	5670	93	4230	93	3980	93	3750	93	3520	93	105	10	88	4730	88	3580	88	3370	88	3160	88	2960	88	101

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 7°**
10,000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2														
	10 KTS		WIND		10 KTS		20 KTS		30 KTS					10 KTS		WIND		10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT												
-30	95	7710	98	5180	100	4820	101	4470	103	4140	107	121	-30	95	7370	97	4950	99	4590	101	4260	102	3950	106	120														
-25	94	7560	98	5460	100	5080	101	4710	103	4360	107	121	-25	94	7240	97	5200	99	4840	101	4490	102	4160	106	120														
-20	93	7670	98	5730	100	5320	101	4940	103	4570	107	121	-20	93	7290	97	5450	99	5060	101	4700	102	4360	106	120														
-15	93	8230	98	6130	100	5690	102	5280	103	4890	108	121	-15	93	7810	98	5820	100	5410	101	5020	103	4650	107	120														
-10	94	9020	99	6680	101	6200	102	5740	104	5310	108	121	-10	94	8540	98	6330	100	5870	102	5440	103	5040	107	120														
-5	94	10010	99	7360	101	6810	103	6300	105	5820	109	121	-5	94	9450	99	6950	101	6440	103	5960	104	5510	108	119														
0	95	11210	100	8170	102	7550	104	6970	106	6430	109	120	0	95	10550	100	7700	102	7120	103	6580	105	6070	108	119														
5	95	12780	101	9200	103	8490	105	7810	106	7180	110	120	5	95	11970	101	8630	103	7970	104	7340	106	6750	108	119														
7	95	13540	101	9690	103	8930	105	8210	107	7530	110	120	7	95	12660	101	9070	103	8360	105	7690	106	7070	109	119														
													9	96	13410	101	9550	103	8790	105	8080	107	7410	109	119														

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2		TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2													
	10 KTS		WIND		10 KTS		20 KTS		30 KTS						10 KTS		WIND		10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST										
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS														
-30	95	6940	96	4600	98	4280	100	3970	101	3680	104	119		-30	95	6560	95	4280	97	3980	98	3700	99	3430	102	117													
-25	94	6830	97	4830	98	4490	100	4170	101	3870	104	118		-25	94	6460	96	4490	97	4180	99	3880	100	3600	102	117													
-20	93	6810	97	5050	98	4700	100	4360	101	4050	104	118		-20	93	6450	96	4690	97	4360	99	4050	100	3760	102	117													
-15	93	7220	97	5390	99	5010	100	4650	102	4310	105	118		-15	93	6670	96	4990	98	4640	99	4310	100	3990	103	117													
-10	93	7870	98	5840	99	5420	101	5030	102	4660	105	118		-10	93	7250	97	5390	98	5010	100	4650	101	4310	103	116													
-5	94	8670	98	6390	100	5930	102	5490	103	5080	106	118		-5	94	7950	98	5880	99	5460	101	5060	102	4680	104	116													
0	95	9630	99	7040	101	6520	102	6030	104	5570	106	118		0	95	8790	99	6450	100	5980	101	5530	103	5120	104	116													
5	95	10850	100	7850	102	7250	103	6690	105	6170	107	118		5	95	9840	99	7150	101	6610	102	6110	104	5640	105	116													
9	96	12070	101	8630	103	7950	104	7320	106	6730	107	117		10	96	11170	100	8000	102	7380	103	6800	105	6270	105	116													
10	96	12420	101	8850	103	8150	104	7490	106	6890	107	117																											

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR	V2										
	10 KTS		WIND		10 KTS		20 KTS		30 KTS		10 KTS					WIND		10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT														
-30	95	6230	95	4110	96	3700	97	3440	98	3190	100	115	-30	95	5930	95	3990	95	3560	95	3200	97	2970	98	114														
-25	94	6140	95	4170	96	3880	97	3610	98	3350	100	115	-25	94	5860	94	3970	95	3610	96	3350	97	3110	98	113														
-20	93	6140	95	4350	96	4050	97	3760	98	3490	101	115	-20	93	5850	93	4040	95	3760	96	3490	97	3240	99	113														
-15	92	6170	95	4620	97	4300	98	4000	99	3710	101	115	-15	91	5700	94	4280	95	3980	96	3700	97	3430	99	113														
-10	93	6670	96	4980	97	4630	99	4300	100	3990	101	115	-10	92	6150	95	4600	96	4280	97	3980	98	3690	99	113														
-5	93	7290	97	5410	98	5030	99	4660	100	4320	102	115	-5	93	6700	96	4980	97	4630	98	4300	99	3990	100	113														
0	94	8030	98	5910	99	5490	100	5080	101	4710	102	114	0	94	7340	97	5430	98	5040	99	4670	100	4340	101	113														
5	95	8940	99	6520	100	6040	101	5590	102	5170	103	114	5	95	8120	97	5960	99	5530	100	5120	101	4740	101	113														
10	96	10070	100	7250	101	6700	102	6190	103	5720	103	114	10	96	8090	99	6590	100	6100	101	5650	101	5270	102	111														

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR	V2										
	10 KTS		WIND		10 KTS		20 KTS		30 KTS		10 KTS					WIND		10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT														
-30	95	5670	95	3890	95	3470	95	3120	96	2830	97	113	-30	95	5440	95	3790	95	3390	95	3050	95	2760	97	113														
-25	94	5610	94	3860	94	3450	94	3110	95	2890	96	112	-25	94	5380	94	3760	94	3370	94	3040	95	2790	96	112														
-20	93	5600	93	3870	93	3490	94	3240	95	3010	97	112	-20	93	5370	93	3770	93	3380	93	3040	94	2820	95	110														
-15	91	5430	93	3960	94	3690	95	3430	96	3180	97	112	-15	91	5220	91	3690	92	3420	93	3180	94	2950	95	110														
-10	91	5670	93	4250	95	3960	96	3680	97	3410	97	111	-10	90	5220	92	3930	93	3660	94	3400	95	3150	95	110														
-5	92	6150	94	4590	95	4270	97	3970	98	3680	98	111	-5	91	5650	93	4240	94	3940	95	3660	96	3400	96	109														
0	93	6710	95	4990	96	4630	97	4300	98	3990	99	111	0	92	6140	94	4580	95	4260	96	3960	96	3700	97	109														
5	94	7390	96	5450	97	5060	98	4700	99	4380	99	111	5	93	6740	95	4990	96	4640	97	4310	97	4060	97	109														
10	95	8220	97	6010	98	5570	99	5160	99	4870	100	111	10	94	7440	96	5480	97	5090	97	4770	97	4490	98	109														

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2										
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS							10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					
-30	96	5040	96	3610	96	3250	96	2940	96	2660	98	114	-30	96	4710	96	3450	96	3130	96	2840	96	2570	98	115	-30	96	4710	96	3450	96	3130	96	2840	96	2570	98	115	
-25	94	4990	94	3580	94	3230	94	2920	94	2640	96	112	-25	95	4660	95	3420	95	3100	95	2820	95	2560	96	113	-25	95	4660	95	3420	95	3100	95	2820	95	2560	96	113	
-20	93	4980	93	3580	93	3230	93	2920	94	2680	95	111	-20	94	4660	94	3420	94	3100	94	2820	94	2560	95	112	-20	94	4660	94	3420	94	3100	94	2820	94	2560	95	112	
-15	91	4850	91	3510	91	3170	92	2880	93	2680	93	109	-15	92	4540	92	3350	92	3040	92	2760	92	2530	93	109	-15	92	4540	92	3350	92	3040	92	2760	92	2530	93	109	
-10	89	4640	89	3380	90	3120	91	2900	91	2710	91	106	-10	89	4350	89	3230	89	2930	90	2710	91	2510	91	106	-10	89	4350	89	3230	89	2930	90	2710	91	2510	91	106	
-5	89	4770	90	3590	91	3350	91	3110	92	2920	92	106	-5	87	4160	87	3110	87	2900	88	2700	88	2540	88	103	-5	87	4160	87	3110	87	2900	88	2700	88	2540	88	103	
0	90	5160	91	3870	92	3600	92	3370	92	3160	92	106	0	87	4320	87	3260	87	3040	87	2850	87	2680	88	102	0	87	4320	87	3260	87	3040	87	2850	87	2680	88	102	
5	91	5610	92	4200	93	3920	93	3690	93	3470	93	105	5	88	4670	88	3530	88	3320	88	3120	88	2930	88	101	5	88	4670	88	3530	88	3320	88	3120	88	2930	88	101	
10	92	6140	93	4580	93	4320	93	4070	93	3830	93	105	10	89	5090	89	3880	89	3660	89	3440	89	3220	89	101	10	89	5090	89	3880	89	3660	89	3440	89	3220	89	101	

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Figure 4-23 (Sheet 11)

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TAKEOFF FIELD LENGTH - FEET, FLAPS 15° (DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE OFF)

Determine takeoff field length, V_1 , V_R , V_2 and V_{ENR} from Figure 4-25 and correct for runway gradient, adjust V_1 and takeoff field length using Figure 4-24.

If the required distance is greater than the available distance, the airplane weight must be reduced until distance required is less than or equal to distance available.

TAKEOFF FIELD LENGTH AND V_1 ADJUSTED FOR RUNWAY GRADIENT - FLAPS 15°, ANTI-ICE - OFF

TAKEOFF FIELD LENGTH (ZERO GRADIENT) FROM FIG. 4-25	UPHILL GRADIENT FOR BOTH SHADED AND NON-SHADED				DOWNHILL GRADIENT			
					SHADED		NON-SHADED	
	2%	1.5%	1%	0.5%	-1%	-2%	-1%	-2%
1600	1800	1750	1700	1700	1600	1600	1700	1700
1800	2050	1950	1900	1900	1800	1800	1900	1900
2000	2250	2200	2150	2150	2000	2000	2100	2100
2200	2500	2400	2350	2350	2200	2200	2300	2350
2400	2750	2650	2550	2550	2400	2400	2500	2550
2600	3000	2900	2800	2750	2600	2600	2750	2750
2800	3300	3150	3000	2950	2800	2750	2950	3000
3000	3550	3400	3250	3200	3000	2950	3150	3200
3200	3850	3650	3450	3400	3200	3150	3350	3450
3400	4150	3900	3700	3600	3400	3350	3600	3650
3600	4450	4150	3950	3800	3550	3500	3800	3850
3800	4800	4450	4200	4000	3750	3650	4050	4100
4000	5100	4700	4400	4200	3950	3850	4250	4350
4200	5400	4950	4650	4400	4150	4050	4450	4550
4400	5750	5250	4850	4600	4350	4200	4700	4800
4600	6050	5500	5100	4800	4500	4400	4900	5050
4800	6350	5750	5300	5050	4700	4550	5150	5250
5000	6700	6050	5550	5250	4900	4750	5350	5500
5200	7050	6300	5750	5450	5050	4900	5600	5750
5400	7450	6600	6000	5650	5250	5100	5800	6000
5600	7800	6850	6200	5900	5450	5250	6050	6250
5800	8200	7150	6450	6100	5650	5450	6300	6550
6000	8550	7500	6700	6350	5800	5600	6550	6800
6200	8950	7800	6950	6550	6000	5750	6750	7050
6400	9300	8100	7200	6800	6150	5900	7050	7350
6600	9650	8400	7500	7000	6350	6050	7300	7650
6800	10050	8700	7750	7250	6500	6250	7500	7900
7000	10450	9000	8000	7450	6700	6400	7750	8200
7200	10850	9300	8250	7650	6900	6550	8000	8450
7400	11250	9650	8550	7900	7050	6700	8300	8750
7600	11650	9950	8800	8150	7250	6900	8550	9050
7800	12050	10250	9050	8350	7400	7050	8800	9350
8000	12500	10600	9300	8600	7550	7200	9050	9600
8200	12900	10900	9600	8850	7750	7350	9300	9950
8400	13300	11250	9850	9100	7900	7500	9600	10250
8600	13750	11550	10100	9300	8100	7650	9850	10550
8800	14150	11850	10400	9550	8250	7800	10100	10900
9000	14600	12200	10650	9800	8450	7950	10400	11200
9500	15700	13000	11300	10350	8850	8350	11100	12000
10000		13800	11950	10900	9300	8700	11750	12850
10500		14600	12600	11450	9750	9100	12400	13650
11000		15400	13300	12050	10150	9450	13100	14550
12000			14750	13200	10950	10150	14450	16350
13000			16300	14400	11750	10800	15800	
14000				15500	12500	11400		
15000					13250	11950		
V_1 ADJUSTMENT*	$V_1 + 5$ Knots	$V_1 + 3$ Knots	$V_1 + 2$ Knots	$V_1 + 1$ Knot	$V_1 - 3$ Knots	$V_1 - 6$ Knots	$V_1 + 1$ Knot	$V_1 + 1$ Knot

* If the adjusted V_1 is greater than V_R , the value of V_R must be used for V_1 .

† Takeoffs in shaded area are prohibited from runways with a downhill gradient if all three limits (Altitude, Gross Weight and Wind) in a row are exceeded:

Altitude	Gross Weight	Wind
Greater than 4,000 ft	Greater than 16,000 lbs	Any Tailwind
Greater than 8,000 ft	Greater than 15,500 lbs	Any Tailwind
Greater than 11,000 ft	Greater than 15,000 lbs	Any Tailwind

Figure 4-24

**TAKEOFF FIELD LENGTH - FEET, FLAPS 15°
(DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE OFF)**

EXAMPLE:

Pressure Altitude = 2000 FEET
Gross Weight = 16,000 POUNDS
Ambient Temperature = 50° C

Wind = -10 KNOTS (TAILWIND)
Runway Gradient = -2% (DOWNHILL)
Anti-Ice = OFF

For Zero Runway Gradient from Figure 4-25:

Takeoff Field Length is 8200 FEET
 V_1 is 98 KNOTS
 V_R is 106 KNOTS
 V_2 is 114 KNOTS
 V_{ENR} is 160 KNOTS
 V_1 and Distance are SHADED

Adjustments for -2% (Downhill) Runway Gradient from Figure 4-24:

Takeoff Field Length is 7350 FEET
 V_1 is 92 KNOTS

EXAMPLE:

Pressure Altitude = 1000 FEET
Gross Weight = 16,830 POUNDS
Ambient Temperature = 20° C

Wind = 20 KNOTS (HEADWIND)
Runway Gradient = 2% (UPHILL)
Anti-Ice = OFF

For Zero Runway Gradient from Figure 4-25:

Takeoff Field Length is 3200 FEET
 V_1 is 99 KNOTS
 V_R is 104 KNOTS
 V_2 is 115 KNOTS
 V_{ENR} is 160 KNOTS
 V_1 and Distance are NON-SHADED

Adjustments for 2% (Uphill) Runway Gradient from Figure 4-24:

Takeoff Field Length is 3850 FEET
 V_1 is 104 KNOTS

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
SEA LEVEL

CONDITIONS: DRY RUNWAY

ANTI-ICE - OFF

RUNWAY GRADIENT - ZERO

INOPERATIVE ENGINE - WINDMILLING AFTER V1

LANDING GEAR - DOWN

OPERATIVE ENGINE - TAKEOFF THRUST

SPEED BRAKES - RETRACT

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR	V2 KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT											
-25	98	4180	100	3070	101	2840	102	2620	103	2410	105	115	-25	97	4000	99	2930	100	2710	101	2510	102	2310	103	114														
-20	97	4250	99	3120	101	2890	102	2670	103	2460	104	115	-20	96	4060	98	2990	99	2760	101	2550	102	2350	103	114														
-15	97	4320	99	3180	100	2940	101	2720	103	2510	104	115	-15	96	4130	98	3040	99	2820	100	2600	101	2400	103	114														
-10	96	4390	99	3240	100	3000	101	2770	102	2560	104	115	-10	95	4190	98	3090	99	2870	100	2650	101	2450	103	114														
-5	96	4450	98	3290	100	3050	101	2820	102	2600	104	115	-5	95	4250	97	3150	99	2920	100	2700	101	2490	103	114														
0	95	4520	98	3350	99	3100	101	2870	102	2650	104	115	0	95	4330	97	3200	98	2970	99	2740	101	2540	103	114														
5	95	4590	98	3400	99	3160	100	2920	101	2700	104	115	5	95	4470	97	3250	98	3020	99	2790	100	2580	103	114														
10	95	4710	97	3460	99	3210	100	2980	101	2750	104	115	10	95	4610	96	3310	98	3070	99	2840	100	2630	103	114														
15	95	4860	97	3520	98	3270	100	3030	101	2800	104	115	15	95	4750	96	3360	97	3120	99	2890	100	2680	103	114														
20	95	5020	97	3580	98	3330	99	3080	101	2850	104	115	20	95	4910	96	3420	97	3180	98	2940	100	2730	103	114														
25	94	5050	97	3710	98	3440	100	3190	101	2960	104	115	25	94	4930	96	3540	97	3290	99	3050	100	2820	103	114														
30	95	5370	98	3980	99	3690	101	3420	102	3170	105	116	30	94	5120	97	3800	98	3520	100	3270	101	3030	104	114														
35	96	5820	99	4290	100	3980	102	3690	103	3410	106	116	35	95	5530	98	4090	99	3790	101	3520	102	3250	105	115														
40	96	6320	100	4640	101	4300	102	3980	104	3680	106	116	40	96	5990	99	4410	100	4090	102	3790	103	3500	105	115														
45	97	6910	101	5030	102	4660	104	4310	105	3990	107	116	45	97	6530	100	4780	101	4430	103	4100	104	3790	106	115														
50	98	7600	102	5490	103	5080	105	4700	106	4340	108	116	50	98	7170	101	5200	102	4820	104	4460	105	4120	107	115														
54	99	8270	103	5920	104	5470	105	5050	107	4660	108	116	54	99	7790	102	5600	103	5180	105	4790	106	4420	107	115														

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS			
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	VR V2 KIAS	V1 DIST KIAS FT	V1 DIST KIAS FT		V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	VR V2 KIAS								
-25	95	3730	97	2740	98	2540	99	2340	100	2160	101	112	-25	95	3540	95	2570	96	2370	97	2190	98	2020	99	111
-20	95	3790	97	2790	98	2580	99	2390	100	2200	101	112	-20	95	3650	95	2610	96	2420	97	2230	98	2060	99	111
-15	95	3850	96	2840	98	2630	99	2430	100	2250	101	112	-15	95	3750	95	2660	96	2460	97	2270	98	2100	99	111
-10	95	3960	96	2890	97	2680	98	2480	99	2280	101	112	-10	95	3860	95	2730	95	2500	97	2310	98	2130	99	111
-5	95	4080	96	2940	97	2720	98	2520	99	2330	101	112	-5	95	3980	95	2810	95	2550	96	2360	97	2180	99	111
0	95	4210	95	2990	97	2770	98	2560	99	2370	101	112	0	95	4100	95	2880	95	2600	96	2400	97	2220	99	111
5	95	4340	95	3040	96	2820	98	2610	99	2410	101	112	5	95	4220	95	2960	95	2650	96	2450	97	2270	99	111
10	95	4470	95	3090	96	2860	97	2650	98	2450	101	112	10	95	4340	95	3030	95	2710	96	2500	97	2310	99	111
15	95	4600	95	3170	96	2920	97	2700	98	2500	101	112	15	95	4470	95	3110	95	2780	96	2550	97	2360	99	111
20	95	4750	95	3250	96	2960	97	2750	98	2540	101	112	20	95	4600	95	3190	95	2850	96	2590	97	2400	99	111
25	94	4770	94	3300	96	3060	97	2840	98	2630	101	112	25	94	4620	94	3200	94	2860	95	2650	96	2450	99	111
30	93	4740	95	3540	97	3280	98	3040	99	2820	102	113	30	92	4420	94	3290	95	3050	96	2830	97	2620	100	111
35	94	5120	97	3800	98	3530	99	3270	100	3030	103	113	35	93	4750	95	3530	96	3280	97	3040	98	2810	101	111
40	95	5530	98	4090	99	3790	100	3520	101	3250	103	113	40	94	5110	96	3790	97	3520	98	3260	99	3020	101	111
45	96	6010	99	4420	100	4100	101	3800	102	3510	104	113	45	95	5540	97	4090	98	3790	99	3510	100	3250	102	112
50	97	6580	100	4800	101	4450	102	4120	103	3810	105	113	50	96	6030	98	4430	99	4110	101	3800	101	3520	103	112
54	98	7110	101	5150	102	4770	103	4410	104	4070	105	114	54	97	6500	99	4740	100	4390	101	4070	102	3760	103	112

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS									
					10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT							VR V2 KIAS		10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT		VR V2 KIAS	
	-25	95	3470	95	2490	96	2290	97	2110	98		1950	98	110	-25	95	3400	95	2450	95	2230	96	2060	97	1890
-20	95	3570	95	2550	95	2340	96	2160	97	1990	98	111	-20	95	3490	95	2520	95	2270	96	2100	97	1940	98	111
-15	95	3670	95	2620	95	2380	96	2200	97	2030	98	111	-15	95	3590	95	2580	95	2320	96	2140	97	1980	98	111
-10	95	3770	95	2690	95	2430	96	2250	97	2070	99	111	-10	95	3690	95	2650	95	2380	96	2190	97	2020	98	111
-5	95	3880	95	2760	95	2480	96	2290	97	2120	99	111	-5	95	3790	95	2720	95	2440	96	2230	97	2060	98	111
0	95	3990	95	2830	95	2540	96	2340	97	2160	99	111	0	95	3900	95	2790	95	2510	95	2280	96	2100	98	111
5	95	4110	95	2910	95	2610	96	2380	97	2200	99	111	5	95	4010	95	2860	95	2570	95	2320	96	2150	98	111
10	95	4220	95	2980	95	2670	96	2430	96	2250	99	111	10	95	4120	95	2930	95	2630	95	2370	96	2190	98	111
15	95	4340	95	3050	95	2730	95	2480	96	2290	99	111	15	95	4230	95	3000	95	2690	95	2420	96	2230	98	111
20	95	4470	95	3130	95	2800	95	2520	96	2340	99	111	20	95	4340	95	3070	95	2760	95	2480	96	2270	98	112
25	94	4490	94	3140	94	2820	95	2560	96	2370	98	111	25	94	4360	94	3090	94	2770	94	2490	95	2300	98	111
30	92	4290	92	3060	94	2840	95	2630	96	2440	98	109	30	92	4180	92	2980	92	2690	93	2500	94	2310	96	108
35	92	4390	93	3280	95	3040	96	2820	97	2610	99	109	35	90	4070	92	3040	93	2820	94	2620	95	2420	96	107
40	93	4720	95	3520	96	3270	97	3030	98	2800	99	109	40	92	4370	93	3260	94	3030	95	2800	96	2600	97	108
45	94	5110	96	3780	97	3510	98	3250	99	3020	100	110	45	93	4710	94	3500	95	3250	96	3010	97	2790	98	108
50	95	5540	97	4090	98	3790	99	3510	100	3260	101	110	50	94	5100	95	3770	96	3500	97	3250	98	3030	99	108
54	96	5950	98	4360	99	4050	100	3750	101	3500	101	110	54	95	5460	96	4020	97	3730	98	3470	99	3250	99	108

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
SEA LEVEL**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																	
-25	95	3330	95	2420	95	2180	96	2000	97	1840	97	111	-25	95	3270	95	2390	95	2160	95	1950	96	1800	97	111														
-20	95	3420	95	2480	95	2240	96	2040	96	1880	97	111	-20	95	3360	95	2450	95	2210	95	1990	96	1840	97	111														
-15	95	3510	95	2550	95	2290	95	2090	96	1930	97	111	-15	95	3440	95	2510	95	2270	95	2040	96	1880	97	111														
-10	95	3610	95	2610	95	2350	95	2130	96	1970	98	111	-10	95	3530	95	2580	95	2320	95	2090	96	1910	97	111														
-5	95	3710	95	2680	95	2410	95	2170	96	2010	98	111	-5	95	3630	95	2640	95	2380	95	2150	96	1950	97	112														
0	95	3810	95	2750	95	2470	95	2230	96	2050	98	111	0	95	3730	95	2710	95	2440	95	2200	96	1990	97	112														
5	95	3910	95	2810	95	2530	95	2280	96	2090	98	112	5	95	3820	95	2770	95	2500	95	2260	95	2040	97	112														
10	95	4020	95	2880	95	2590	95	2340	96	2130	98	112	10	95	3920	95	2840	95	2560	95	2310	95	2080	97	112														
15	95	4120	95	2950	95	2650	95	2390	96	2170	98	112	15	95	4020	95	2910	95	2620	95	2360	95	2130	97	112														
20	95	4230	95	3020	95	2720	95	2450	95	2210	98	112	20	95	4120	95	2970	95	2680	95	2420	95	2180	97	112														
25	95	4240	95	3030	95	2730	95	2460	95	2240	97	111	25	95	4140	95	2980	95	2690	95	2430	95	2190	97	111														
30	92	4070	92	2930	92	2640	93	2430	94	2250	96	108	30	92	3970	92	2880	92	2600	93	2360	94	2180	95	109														
35	90	3910	90	2830	91	2630	92	2440	93	2250	94	106	35	90	3820	90	2780	91	2550	92	2370	92	2190	94	106														
40	90	4040	91	3020	92	2800	93	2600	94	2400	95	106	40	88	3730	89	2790	90	2590	91	2400	92	2220	93	104														
45	91	4350	92	3240	93	3010	94	2790	95	2580	96	106	45	90	4010	90	2990	91	2780	92	2570	93	2390	94	104														
50	92	4690	93	3480	94	3240	95	3000	96	2810	96	106	50	91	4320	91	3220	92	2990	93	2780	94	2600	94	104														
54	94	5010	94	3710	95	3440	96	3220	97	3010	97	106	54	92	4600	92	3420	93	3180	94	2980	95	2780	95	104														

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST																	
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT											
-25	95	3210	95	2360	95	2130	95	1930	96	1750	96 111	-25	95	3160	95	2340	95	2120	95	1910	95	1720	96 112	-25	95	3160	95	2340	95	2120	95	1910	95	1720	96 112				
-20	95	3300	95	2420	95	2190	95	1970	96	1790	96 111	-20	95	3240	95	2400	95	2170	95	1960	95	1770	96 112	-20	95	3240	95	2400	95	2170	95	1960	95	1770	96 112				
-15	95	3380	95	2480	95	2240	95	2020	95	1830	96 112	-15	96	3320	96	2460	96	2220	96	2010	96	1810	96 112	-15	96	3320	96	2460	96	2220	96	2010	96	1810	96 112				
-10	95	3470	95	2540	95	2300	95	2070	95	1870	97 112	-10	96	3410	96	2520	96	2280	96	2060	96	1860	97 112	-10	96	3410	96	2520	96	2280	96	2060	96	1860	97 112				
-5	95	3560	95	2610	95	2360	95	2130	95	1920	97 112	-5	96	3490	96	2580	96	2330	96	2110	96	1900	97 112	-5	96	3490	96	2580	96	2330	96	2110	96	1900	97 112				
0	96	3650	96	2670	96	2410	96	2180	96	1970	97 112	0	96	3580	96	2640	96	2390	96	2160	96	1950	97 113	0	96	3580	96	2640	96	2390	96	2160	96	1950	97 113				
5	96	3740	96	2740	96	2470	96	2230	96	2010	97 112	5	96	3670	96	2700	96	2440	96	2210	96	2000	97 113	5	96	3670	96	2700	96	2440	96	2210	96	2000	97 113				
10	96	3840	96	2800	96	2530	96	2280	96	2060	97 112	10	96	3760	96	2760	96	2500	96	2260	96	2050	97 113	10	96	3760	96	2760	96	2500	96	2260	96	2050	97 113				
15	96	3930	96	2860	96	2590	96	2340	96	2110	97 112	15	96	3850	96	2830	96	2560	96	2310	96	2090	97 113	15	96	3850	96	2830	96	2560	96	2310	96	2090	97 113				
20	96	4030	96	2930	96	2640	96	2390	96	2160	97 112	20	96	3940	96	2890	96	2610	96	2360	96	2140	97 113	20	96	3940	96	2890	96	2610	96	2360	96	2140	97 113				
25	95	4040	95	2940	95	2650	95	2400	95	2160	96 111	25	95	3950	95	2900	95	2620	95	2370	95	2140	96 112	25	95	3950	95	2900	95	2620	95	2370	95	2140	96 112				
30	93	3880	93	2840	93	2560	93	2310	93	2120	95 109	30	93	3790	93	2790	93	2530	93	2290	93	2070	94 109	30	93	3790	93	2790	93	2530	93	2290	93	2070	94 109				
35	90	3730	90	2740	90	2470	91	2300	92	2120	93 106	35	90	3650	90	2700	90	2440	91	2230	91	2060	93 106	35	90	3650	90	2700	90	2440	91	2230	91	2060	93 106				
40	88	3600	88	2670	89	2480	90	2300	91	2130	92 103	40	88	3520	88	2610	89	2410	90	2230	90	2060	91 104	40	88	3520	88	2610	89	2410	90	2230	90	2060	91 104				
45	88	3700	88	2760	89	2570	90	2380	91	2210	91 102	45	87	3480	87	2600	88	2420	89	2240	89	2070	90 101	45	87	3480	87	2600	88	2420	89	2240	89	2070	90 101				
50	89	3970	89	2960	90	2750	91	2570	92	2400	92 102	50	87	3660	87	2730	88	2540	89	2370	90	2210	90 100	50	87	3660	87	2730	88	2540	89	2370	90	2210	90 100				
54	90	4230	90	3150	91	2940	92	2750	93	2570	93 102	54	88	3880	88	2900	89	2710	90	2530	90	2360	90 100	54	88	3880	88	2900	89	2710	90	2530	90	2360	90 100				

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS																
	10 KTS				10 KTS		20 KTS		30 KTS				10 KTS				10 KTS		20 KTS		30 KTS																		
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																	
-25	96	3120	96	2320	96	2100	96	1900	96	1720	96	112	-25	96	3070	96	2300	96	2090	96	1890	96	1710	97	113														
-20	96	3190	96	2370	96	2150	96	1950	96	1760	97	112	-20	96	3150	96	2360	96	2140	96	1940	96	1750	97	113														
-15	96	3270	96	2430	96	2200	96	1990	96	1800	97	113	-15	96	3220	96	2410	96	2190	96	1980	96	1800	97	113														
-10	96	3350	96	2490	96	2260	96	2040	96	1850	97	113	-10	96	3300	96	2470	96	2240	96	2030	96	1840	97	113														
-5	96	3430	96	2550	96	2310	96	2090	96	1890	97	113	-5	96	3380	96	2530	96	2300	96	2080	96	1890	97	114														
0	96	3520	96	2610	96	2370	96	2140	96	1940	97	113	0	96	3460	96	2590	96	2350	96	2130	96	1930	97	114														
5	96	3600	96	2670	96	2420	96	2190	96	1990	97	113	5	96	3550	96	2650	96	2400	96	2180	96	1980	97	114														
10	96	3690	96	2730	96	2480	96	2240	96	2030	97	113	10	96	3630	96	2710	96	2460	96	2230	96	2070	97	114														
15	96	3770	96	2790	96	2530	96	2290	96	2080	97	113	15	96	3710	96	2760	96	2510	96	2280	96	2070	97	114														
20	96	3860	96	2850	96	2590	96	2340	96	2120	97	114	20	96	3790	96	2820	96	2560	96	2330	96	2110	98	114														
25	95	3870	95	2860	95	2590	95	2350	95	2130	97	113	25	95	3800	95	2830	95	2570	95	2330	95	2120	97	113														
30	93	3720	93	2760	93	2500	93	2260	93	2050	94	109	30	93	3650	93	2720	93	2470	93	2240	93	2040	94	110														
35	90	3570	90	2660	90	2410	90	2180	91	2000	92	106	35	91	3500	91	2620	91	2380	91	2160	91	1960	92	107														
40	88	3450	88	2570	88	2330	89	2160	90	2000	91	104	40	88	3380	88	2530	88	2300	89	2090	89	1940	90	104														
45	86	3360	86	2520	87	2340	88	2160	89	2000	89	101	45	86	3260	86	2450	87	2260	87	2090	88	1930	88	101														
50	85	3380	85	2530	86	2350	87	2190	87	2030	88	98	50	85	3260	85	2440	86	2260	86	2090	87	1950	87	98														
54	86	3560	86	2660	87	2490	88	2320	88	2160	88	98	54	84	3280	84	2450	85	2290	85	2140	85	1980	86	96														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
1000 FEET

CONDITIONS: DRY RUNWAY

ANTI-ICE - OFF

RUNWAY GRADIENT - ZERO

INOPERATIVE ENGINE - WINDMILLING AFTER V1

LANDING GEAR - DOWN

OPERATIVE ENGINE - TAKEOFF THRUST

SPEED BRAKES - RETRACT

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR	V2 KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
-25	96	4250	99	3130	100	2900	101	2680	102	2470	104	115	-25	96	4060	98	2990	99	2770	100	2560	101	2360	103	114														
-20	96	4320	98	3190	100	2950	101	2730	102	2520	104	115	-20	95	4130	97	3050	99	2830	100	2610	101	2410	103	114														
-15	96	4390	98	3250	99	3010	101	2780	102	2570	104	115	-15	95	4240	97	3100	98	2880	100	2660	101	2460	103	114														
-10	95	4470	98	3300	99	3060	100	2840	101	2620	104	115	-10	95	4380	97	3160	98	2930	99	2710	100	2500	103	114														
-5	95	4630	97	3360	99	3120	100	2890	101	2670	104	115	-5	95	4530	96	3210	98	2980	99	2760	100	2550	103	114														
0	95	4790	97	3420	98	3170	100	2940	101	2720	104	115	0	95	4690	96	3270	97	3030	99	2810	100	2600	103	114														
5	95	4970	97	3480	98	3230	99	2990	101	2770	104	115	5	95	4860	96	3320	97	3080	98	2860	100	2640	103	114														
10	95	5140	96	3540	98	3280	99	3050	100	2820	104	115	10	95	5020	95	3380	97	3140	98	2910	99	2690	103	114														
15	95	5330	96	3600	97	3340	99	3100	100	2870	104	115	15	95	5200	95	3470	97	3190	98	2960	99	2740	103	114														
20	95	5400	96	3710	97	3450	99	3200	100	2960	104	115	20	95	5270	95	3540	97	3290	98	3050	99	2830	103	114														
25	94	5360	97	3990	98	3710	100	3440	101	3180	105	116	25	93	5110	96	3810	98	3540	99	3280	100	3040	104	114														
30	95	5840	98	4330	100	4020	101	3720	102	3450	106	116	30	94	5550	97	4120	99	3830	100	3550	101	3290	104	115														
35	96	6380	99	4700	101	4360	102	4040	103	3730	106	116	35	95	6050	98	4470	100	4140	101	3840	102	3560	105	115														
40	97	6980	100	5100	102	4730	103	4380	104	4050	107	116	40	96	6600	99	4840	101	4490	102	4160	103	3850	106	115														
45	98	7690	101	5570	103	5160	104	4770	105	4410	108	116	45	97	7250	100	5280	102	4890	103	4520	104	4180	106	115														
50	99	8530	102	6120	104	5650	105	5220	106	4820	108	116	50	98	8030	102	5780	103	5340	104	4940	105	4560	107	115														
52	99	8930	103	6360	104	5880	106	5430	107	5000	109	117	52	99	8390	102	6000	103	5550	105	5130	106	4730	107	115														

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS			
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
					V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST		V1	DIST	
-25	95	3880	96	2800	97	2590	98	2400	99	2210	101	112	-25	95	3790	95	2680	96	2450	97	2260	98	2090	99	111
-20	95	4000	96	2850	97	2640	98	2440	99	2260	101	112	-20	95	3900	95	2760	96	2500	97	2310	98	2130	99	111
-15	95	4130	95	2900	97	2690	98	2490	99	2300	101	112	-15	95	4020	95	2830	95	2550	97	2360	98	2180	99	111
-10	95	4260	95	2960	96	2740	98	2530	99	2340	101	112	-10	95	4150	95	2910	95	2610	96	2410	97	2220	100	111
-5	95	4400	95	3050	96	2780	97	2580	98	2380	101	112	-5	95	4280	95	2990	95	2680	96	2460	97	2270	100	112
0	95	4550	95	3130	96	2830	97	2620	98	2420	101	112	0	95	4420	95	3080	95	2750	96	2510	97	2320	100	112
5	95	4700	95	3220	96	2880	97	2670	98	2470	101	112	5	96	4560	96	3160	96	2820	96	2560	97	2370	100	112
10	95	4860	95	3310	95	2950	96	2720	98	2510	101	112	10	96	4700	96	3240	96	2900	96	2610	97	2410	100	112
15	95	5020	95	3400	95	3020	96	2760	97	2560	101	112	15	96	4850	96	3330	96	2970	96	2660	97	2460	100	112
20	95	5080	95	3440	95	3070	96	2850	97	2640	101	112	20	95	4910	95	3370	95	3000	95	2700	96	2500	100	111
25	93	4820	95	3540	96	3290	97	3060	98	2830	102	113	25	93	4670	93	3300	95	3060	96	2840	97	2630	100	111
30	93	5140	96	3830	97	3560	98	3300	100	3060	102	113	30	92	4770	94	3560	96	3310	97	3070	98	2840	100	111
35	94	5590	97	4140	98	3840	100	3560	101	3300	103	113	35	93	5160	96	3840	97	3560	98	3300	99	3070	101	111
40	95	6080	98	4480	99	4150	101	3850	102	3560	104	113	40	95	5600	97	4140	98	3840	99	3560	100	3300	102	111
45	97	6650	99	4860	100	4510	102	4180	103	3860	105	113	45	96	6100	98	4490	99	4160	100	3860	101	3570	103	112
50	98	7320	100	5310	102	4920	103	4550	104	4210	105	114	50	97	6690	99	4880	100	4520	101	4190	102	3880	103	112
52	98	7630	101	5510	102	5100	103	4710	104	4360	105	114	52	97	6950	99	5060	101	4690	102	4340	103	4010	103	111

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR V2 KIAS																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST														
-25	95	3700	95	2640	95	2380	97	2200	97	2030	99	111	-25	95	3620	95	2600	95	2340	96	2140	97	1980	98	111														
-20	95	3810	95	2710	95	2430	96	2250	97	2070	99	111	-20	95	3720	95	2670	95	2400	96	2190	97	2020	98	112														
-15	95	3920	95	2790	95	2500	96	2300	97	2120	99	111	-15	96	3830	96	2740	96	2470	96	2230	97	2060	98	112														
-10	95	4040	95	2860	95	2570	96	2340	97	2170	99	112	-10	96	3940	96	2820	96	2530	96	2280	97	2110	99	112														
-5	96	4170	96	2940	96	2640	96	2390	97	2210	99	112	-5	96	4060	96	2890	96	2600	96	2340	96	2150	99	112														
0	96	4290	96	3020	96	2710	96	2440	97	2260	99	112	0	96	4180	96	2970	96	2670	96	2400	96	2200	99	112														
5	96	4430	96	3100	96	2780	96	2490	97	2300	99	112	5	96	4310	96	3050	96	2740	96	2460	96	2240	99	112														
10	96	4560	96	3180	96	2850	96	2550	96	2350	99	112	10	96	4430	96	3130	96	2800	96	2520	96	2290	99	112														
15	96	4700	96	3270	96	2920	96	2620	96	2390	99	112	15	96	4560	96	3210	96	2870	96	2580	96	2330	99	112														
20	95	4750	95	3300	95	2950	95	2640	96	2430	99	112	20	95	4610	95	3240	95	2900	95	2610	96	2370	99	112														
25	93	4530	93	3180	93	2850	94	2640	95	2450	98	109	25	93	4400	93	3120	93	2800	93	2560	94	2370	97	109														
30	91	4420	93	3300	94	3070	95	2850	96	2640	98	109	30	90	4180	91	3070	92	2850	93	2640	94	2450	96	107														
35	92	4770	94	3560	95	3310	96	3070	97	2840	99	109	35	91	4410	92	3300	93	3060	94	2840	95	2630	97	108														
40	93	5160	95	3830	96	3560	97	3300	98	3060	100	110	40	92	4760	94	3550	95	3300	96	3060	96	2830	98	108														
45	95	5610	96	4140	97	3840	98	3560	99	3300	101	110	45	93	5150	95	3820	96	3550	97	3290	98	3060	98	108														
50	96	6120	97	4490	99	4170	100	3860	100	3600	101	110	50	95	5600	96	4140	97	3840	98	3560	99	3340	99	108														
52	96	6350	98	4650	99	4310	100	4000	101	3730	101	110	52	95	5810	96	4270	97	3970	98	3700	99	3460	99	108														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
1000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR V2 KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																	
-25	96	3540	96	2570	96	2310	96	2090	97	1930	98	112	-25	96	3470	96	2530	96	2280	96	2060	96	1880	97	112														
-20	96	3640	96	2630	96	2370	96	2130	96	1970	98	112	-20	96	3570	96	2600	96	2340	96	2110	96	1920	97	112														
-15	96	3750	96	2700	96	2430	96	2190	96	2010	98	112	-15	96	3670	96	2670	96	2400	96	2170	96	1960	97	112														
-10	96	3850	96	2770	96	2500	96	2250	96	2050	98	112	-10	96	3770	96	2740	96	2470	96	2220	96	2000	98	112														
-5	96	3960	96	2850	96	2560	96	2310	96	2100	98	112	-5	96	3870	96	2810	96	2530	96	2280	96	2060	98	112														
0	96	4080	96	2920	96	2630	96	2370	96	2140	98	112	0	96	3980	96	2880	96	2590	96	2340	96	2110	98	113														
5	96	4190	96	3000	96	2700	96	2430	96	2180	98	112	5	96	4090	96	2950	96	2660	96	2400	96	2160	98	113														
10	96	4310	96	3070	96	2760	96	2490	96	2240	98	113	10	96	4200	96	3020	96	2720	96	2460	96	2210	98	113														
15	96	4430	96	3150	96	2830	96	2550	96	2290	98	113	15	96	4320	96	3100	96	2790	96	2510	96	2270	98	113														
20	95	4480	95	3180	95	2860	95	2570	95	2310	98	112	20	95	4360	95	3130	95	2810	95	2540	95	2290	98	112														
25	93	4280	93	3060	93	2750	93	2490	94	2310	96	109	25	93	4170	93	3010	93	2710	93	2450	94	2240	96	109														
30	90	4070	90	2940	91	2690	92	2500	93	2310	95	106	30	91	3970	91	2890	91	2610	92	2420	92	2240	94	106														
35	90	4080	91	3050	92	2840	93	2630	93	2430	95	106	35	88	3810	89	2820	90	2620	91	2430	91	2250	93	104														
40	91	4390	92	3280	93	3040	94	2820	95	2610	96	106	40	89	4050	90	3030	91	2810	92	2610	92	2420	93	104														
45	92	4740	93	3530	94	3280	95	3040	96	2840	96	106	45	90	4360	91	3260	92	3020	93	2810	94	2630	94	104														
50	93	5140	94	3810	95	3540	96	3310	97	3100	97	106	50	92	4720	92	3510	93	3270	94	3060	95	2860	95	104														
52	94	5320	95	3930	96	3650	96	3430	97	3210	97	106	52	92	4870	93	3620	94	3380	94	3170	95	2970	95	104														

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR V2												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	KIAS	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST																	
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT									
-25	96	3410	96	2500	96	2260	96	2040	96	1840	97	112	-25	96	3350	96	2480	96	2240	96	2020	96	1830	97	113	-25	96	3350	96	2480	96	2240	96	2020	96	1830	97	113	
-20	96	3500	96	2570	96	2320	96	2090	96	1890	97	112	-20	96	3440	96	2540	96	2300	96	2080	96	1870	97	113	-20	96	3440	96	2540	96	2300	96	2080	96	1870	97	113	
-15	96	3590	96	2630	96	2380	96	2150	96	1940	97	112	-15	96	3530	96	2600	96	2350	96	2130	96	1920	97	113	-15	96	3530	96	2600	96	2350	96	2130	96	1920	97	113	
-10	96	3690	96	2700	96	2440	96	2200	96	1990	97	113	-10	96	3620	96	2670	96	2410	96	2180	96	1970	97	113	-10	96	3620	96	2670	96	2410	96	2180	96	1970	97	113	
-5	96	3790	96	2770	96	2500	96	2260	96	2040	97	113	-5	96	3720	96	2730	96	2470	96	2240	96	2020	97	113	-5	96	3720	96	2730	96	2470	96	2240	96	2020	97	113	
0	96	3890	96	2840	96	2560	96	2310	96	2090	97	113	0	96	3820	96	2800	96	2540	96	2290	96	2070	98	114	0	96	3820	96	2800	96	2540	96	2290	96	2070	98	114	
5	96	4000	96	2910	96	2630	96	2370	96	2140	97	113	5	96	3920	96	2870	96	2600	96	2350	96	2120	98	114	5	96	3920	96	2870	96	2600	96	2350	96	2120	98	114	
10	96	4100	96	2980	96	2690	96	2430	96	2190	98	113	10	96	4010	96	2940	96	2660	96	2400	96	2170	98	114	10	96	4010	96	2940	96	2660	96	2400	96	2170	98	114	
15	96	4210	96	3050	96	2750	96	2490	96	2240	98	113	15	96	4120	96	3010	96	2720	96	2460	96	2230	98	114	15	96	4120	96	3010	96	2720	96	2460	96	2230	98	114	
20	96	4250	96	3080	96	2780	96	2510	96	2260	97	113	20	96	4150	96	3030	96	2740	96	2480	96	2240	97	113	20	96	4150	96	3030	96	2740	96	2480	96	2240	97	113	
25	93	4060	93	2960	93	2670	93	2410	93	2180	95	110	25	93	3970	93	2910	93	2640	93	2390	93	2160	95	110	25	93	3970	93	2910	93	2640	93	2390	93	2160	95	110	
30	91	3880	91	2840	91	2560	91	2350	92	2180	94	107	30	91	3790	91	2790	91	2530	91	2290	92	2120	93	107	30	91	3790	91	2790	91	2530	91	2290	92	2120	93	107	
35	88	3720	88	2730	89	2540	90	2360	91	2180	92	104	35	88	3630	88	2690	89	2460	90	2280	90	2110	92	104	35	88	3630	88	2690	89	2460	90	2280	90	2110	92	104	
40	87	3730	88	2800	89	2600	90	2410	90	2230	91	102	40	87	3550	87	2660	88	2470	89	2290	89	2120	90	101	40	87	3550	87	2660	88	2470	89	2290	89	2120	90	101	
45	89	4020	89	3000	90	2790	91	2600	91	2420	92	102	45	87	3690	87	2760	88	2570	89	2390	89	2230	90	100	45	87	3690	87	2760	88	2570	89	2390	89	2230	90	100	
50	90	4340	90	3230	91	3020	92	2830	93	2640	93	102	50	88	3980	88	2970	89	2780	90	2600	90	2430	90	100	50	88	3980	88	2970	89	2780	90	2600	90	2430	90	100	
52	90	4470	91	3330	92	3130	92	2930	93	2730	93	103	52	89	4100	89	3070	90	2880	90	2690	91	2510	91	100	52	89	4100	89	3070	90	2880	90	2690	91	2510	91	100	

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
TEMP DEG C	TAILWIND			ZERO WIND			HEAD WINDS						VR V2		TEMP DEG C	TAILWIND			ZERO WIND			HEAD WINDS						VR V2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	10 KTS						10 KTS			20 KTS						10 KTS						10 KTS			20 KTS					30 KTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	V1	DIST		V1	DIST		V1	DIST		V1	DIST					V1	DIST		V1	DIST		V1	DIST		V1	DIST				V1	DIST		V1	DIST		V1	DIST																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS	FT		KIAS</

56FMC-00-00

Figure 4-25 (Sheet 4)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
2000 FEET

CONDITIONS: DRY RUNWAY

RUNWAY GRADIENT - ZERO

LANDING GEAR - DOWN

SPEED BRAKES - RETRACT

ANTI-ICE - OFF

INOPERATIVE ENGINE - WINDMILLING AFTER V1

OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEADWINDS						VR V2 KIAS																				
			10 KTS		20 KTS		30 KTS						10 KTS		20 KTS		30 KTS																						
			V1 DIST	V2 DIST	V1 DIST	V2 DIST	V1 DIST	V2 DIST					V1 DIST	V2 DIST	V1 DIST	V2 DIST	V1 DIST	V2 DIST																					
			KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT														
-25	95 4360	98 3200	99 2970	100 2750	102 2540	104 115	-25	96 4280	97 3060	98 2840	99 2630	100 2430	103 114																										
-20	96 4510	97 3260	99 3030	100 2800	101 2590	104 115	-20	96 4420	96 3120	98 2890	99 2680	100 2480	103 114																										
-15	96 4680	97 3320	98 3080	100 2860	101 2640	104 115	-15	96 4580	96 3180	97 2950	99 2730	100 2520	103 114																										
-10	96 4850	97 3380	98 3140	99 2910	101 2690	104 115	-10	96 4750	96 3230	97 3000	98 2780	100 2570	103 114																										
-5	96 5040	96 3440	98 3190	99 2960	100 2740	104 115	-5	96 4930	96 3320	97 3050	98 2830	99 2620	103 114																										
0	96 5240	96 3500	97 3250	99 3020	100 2790	104 115	0	96 5110	96 3420	96 3110	98 2880	99 2670	103 114																										
5	96 5450	96 3580	97 3310	99 3070	100 2840	104 115	5	96 5310	96 3520	96 3160	98 2930	99 2720	103 114																										
10	96 5660	96 3680	97 3370	98 3130	99 2900	104 115	10	96 5510	96 3630	96 3220	97 2990	98 2770	103 114																										
15	95 5750	95 3730	97 3470	98 3220	100 2990	104 115	15	95 5600	95 3670	96 3310	97 3080	98 2850	103 114																										
20	93 5400	96 4030	98 3740	99 3470	101 3210	105 115	20	93 5260	96 3840	97 3570	98 3310	100 3070	103 114																										
25	94 5860	97 4360	99 4050	100 3750	102 3480	106 116	25	93 5580	97 4150	98 3860	99 3580	101 3310	104 115																										
30	95 6430	99 4750	100 4410	101 4080	103 3780	106 116	30	95 6100	98 4510	99 4190	101 3890	102 3600	105 115																										
35	96 7030	100 5160	101 4790	102 4430	104 4100	107 116	35	95 6660	99 4900	100 4540	102 4210	103 3900	106 115																										
40	97 7760	101 5640	102 5230	103 4840	105 4470	108 116	40	96 7320	100 5340	101 4950	103 4590	104 4240	106 115																										
45	98 8610	102 6190	103 5730	105 5290	106 4890	108 116	45	97 8100	101 5850	102 5420	104 5010	105 4630	107 115																										
50	99 9650	103 6850	104 6320	106 5830	107 5370	109 117	50	98 9040	102 6450	104 5960	105 5500	106 5080	108 116																										

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1 DIST KIAS	FT	V1 DIST KIAS	FT	V1 DIST KIAS	FT							V1 DIST KIAS	FT	V1 DIST KIAS	FT	V1 DIST KIAS	FT																	
-25	96	4160	96	2900	96	2660	98	2460	99	2270	101	112	-25	96	4050	96	2850	96	2550	97	2360	98	2180	100	112														
-20	96	4300	96	2980	96	2710	97	2510	98	2310	101	112	-20	96	4180	96	2930	96	2620	97	2410	98	2220	100	112														
-15	96	4450	96	3070	96	2750	97	2550	98	2360	101	112	-15	96	4320	96	3020	96	2700	96	2460	97	2270	100	112														
-10	96	4600	96	3160	96	2820	97	2600	98	2400	101	112	-10	96	4470	96	3100	96	2770	96	2510	97	2320	100	112														
-5	96	4770	96	3250	96	2900	96	2640	98	2450	101	112	-5	96	4620	96	3190	96	2850	96	2560	97	2370	100	112														
0	96	4940	96	3350	96	2980	96	2690	97	2490	101	112	0	96	4780	96	3290	96	2930	96	2620	97	2420	100	112														
5	96	5120	96	3450	96	3070	96	2740	97	2540	101	112	5	96	4940	96	3380	96	3010	96	2690	97	2470	100	113														
10	96	5300	96	3550	96	3150	96	2810	97	2590	101	112	10	96	5110	96	3470	96	3090	96	2770	97	2520	100	113														
15	95	5380	95	3590	95	3190	96	2870	97	2660	101	112	15	96	5180	96	3520	96	3130	96	2800	96	2560	100	112														
20	93	5070	94	3570	96	3320	97	3080	98	2860	102	113	20	93	4900	93	3370	94	3090	95	2870	96	2660	99	111														
25	93	5170	95	3860	97	3580	98	3330	99	3090	102	113	25	92	4790	94	3580	95	3330	96	3090	97	2860	100	111														
30	94	5630	96	4180	98	3880	99	3600	100	3340	103	113	30	93	5200	95	3870	96	3600	97	3340	99	3100	101	111														
35	95	6130	98	4530	99	4200	100	3900	101	3610	104	113	35	94	5650	96	4190	97	3890	99	3610	100	3340	102	111														
40	96	6710	99	4930	100	4570	101	4230	102	3920	104	113	40	95	6160	97	4540	98	4220	100	3910	101	3620	102	112														
45	97	7390	100	5370	101	4980	102	4610	103	4260	105	114	45	96	6750	98	4940	100	4580	101	4250	102	3930	103	112														
50	98	8200	101	5900	102	5460	103	5050	104	4660	106	114	50	97	7450	100	5400	101	5010	102	4630	103	4290	104	112														

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	H E A D W I N D S						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	H E A D W I N D S						VR V2 KIAS																				
			10 KTS		20 KTS		30 KTS						10 KTS		20 KTS		30 KTS																						
			V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST																					
			V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST																					
-25	96 3950	96 2800	96 2520	96 2290	97 2120	99 112	-25	96 3860	96 2760	96 2480	96 2230	97 2060	99 112																										
-20	96 4080	96 2880	96 2580	96 2340	97 2170	99 112	-20	96 3980	96 2840	96 2550	96 2290	97 2110	99 112																										
-15	96 4210	96 2960	96 2660	96 2390	97 2210	99 112	-15	96 4100	96 2920	96 2620	96 2350	97 2150	99 112																										
-10	96 4340	96 3050	96 2730	96 2450	97 2260	99 112	-10	96 4230	96 3000	96 2690	96 2420	97 2200	99 113																										
-5	96 4480	96 3130	96 2810	96 2520	97 2310	100 113	-5	96 4360	96 3080	96 2760	96 2480	96 2250	99 113																										
0	96 4630	96 3220	96 2880	96 2580	97 2360	100 113	0	96 4500	96 3170	96 2840	96 2550	96 2300	99 113																										
5	96 4780	96 3310	96 2960	96 2650	96 2400	100 113	5	96 4640	96 3250	96 2910	96 2620	96 2350	99 113																										
10	96 4940	96 3400	96 3040	96 2720	96 2450	100 113	10	96 4790	96 3340	96 2990	96 2680	96 2410	99 113																										
15	96 5010	96 3440	96 3080	96 2750	96 2490	99 112	15	96 4840	96 3380	96 3020	96 2710	96 2440	99 112																										
20	93 4740	93 3300	93 2960	94 2700	95 2500	98 109	20	93 4600	93 3240	93 2910	93 2620	94 2430	97 110																										
25	91 4500	92 3320	94 3090	95 2870	96 2660	98 109	25	91 4370	91 3110	92 2870	93 2670	94 2470	96 107																										
30	92 4810	94 3600	95 3340	96 3100	97 2870	99 109	30	90 4450	92 3330	93 3090	94 2870	95 2660	97 108																										
35	93 5200	95 3870	96 3600	97 3340	98 3100	100 110	35	92 4800	93 3590	94 3330	95 3090	96 2860	98 108																										
40	94 5660	96 4190	97 3890	98 3610	99 3340	100 110	40	93 5200	94 3870	95 3590	96 3330	97 3090	98 108																										
45	95 6180	97 4550	98 4220	99 3910	100 3630	101 110	45	94 5660	95 4180	96 3890	97 3610	98 3370	99 108																										
50	96 6780	98 4950	99 4600	100 4260	101 3980	102 110	50	95 6190	96 4550	98 4220	98 3930	99 3690	100 109																										

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
2000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS								VENR = 160 KIAS								WEIGHT = 13500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS								
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS										
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST				
-25	96	3770	96	2720	96	2450	96	2200	97	2010	98	112	-25	96	3690	96	2680	96	2420	96	2180	96	1970	98	113						
-20	96	3880	96	2790	96	2510	96	2260	96	2050	98	113	-20	96	3800	96	2760	96	2480	96	2240	96	2020	98	113						
-15	96	4000	96	2870	96	2580	96	2320	96	2100	98	113	-15	96	3910	96	2830	96	2550	96	2300	96	2070	98	113						
-10	96	4120	96	2950	96	2650	96	2390	96	2150	98	113	-10	96	4020	96	2900	96	2620	96	2360	96	2130	98	113						
-5	96	4250	96	3030	96	2720	96	2450	96	2210	99	113	-5	96	4140	96	2980	96	2690	96	2420	96	2180	98	113						
0	96	4380	96	3110	96	2800	96	2520	96	2260	99	113	0	96	4260	96	3060	96	2760	96	2490	96	2240	98	113						
5	96	4510	96	3200	96	2870	96	2580	96	2320	99	113	5	96	4390	96	3140	96	2830	96	2550	96	2300	98	114						
10	96	4640	96	3280	96	2940	96	2650	96	2380	99	113	10	96	4510	96	3220	96	2900	96	2610	96	2360	98	114						
15	96	4700	96	3310	96	2970	96	2670	96	2410	98	113	15	96	4560	96	3260	96	2930	96	2640	96	2380	98	113						
20	93	4470	93	3180	93	2860	93	2570	94	2360	97	110	20	94	4350	94	3120	94	2810	94	2540	94	2300	96	110						
25	91	4250	91	3050	91	2750	92	2560	93	2370	95	107	25	91	4140	91	3000	91	2700	92	2480	93	2300	95	107						
30	89	4110	90	3080	91	2860	92	2660	93	2460	95	106	30	89	3950	89	2880	90	2680	90	2490	91	2300	93	104						
35	90	4430	91	3310	92	3080	93	2860	94	2650	96	106	35	89	4080	89	3060	90	2840	91	2640	92	2450	93	104						
40	91	4780	92	3570	94	3320	94	3080	95	2870	96	106	40	90	4410	91	3290	92	3060	92	2840	93	2650	94	104						
45	93	5190	94	3850	95	3580	96	3340	96	3120	97	106	45	91	4760	92	3550	93	3300	94	3090	94	2890	95	104						
50	94	5650	95	4180	96	3880	97	3650	97	3420	98	107	50	92	5170	93	3840	94	3590	95	3370	95	3160	95	105						

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST							V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST

WEIGHT = 12000 LBS								VENR = 160 KIAS								WEIGHT = 11500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS				VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS				VR V2 KIAS												
					10 KTS		20 KTS								30 KTS		10 KTS			20 KTS		30 KTS									
					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT							V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		V1 DIST KIAS FT	V1 DIST KIAS FT										
-25	97	3500	97	2590	97	2350	97	2130	97	1930	98	114	-25	97	3440	97	2570	97	2340	97	2120	97	1920	98	115						
-20	97	3590	97	2660	97	2410	97	2180	97	1980	98	114	-20	97	3530	97	2640	97	2390	97	2170	97	1970	98	115						
-15	97	3680	97	2730	97	2470	97	2240	97	2030	98	115	-15	97	3620	97	2700	97	2450	97	2230	97	2020	98	115						
-10	97	3780	97	2800	97	2530	97	2300	97	2080	98	115	-10	97	3720	97	2770	97	2520	97	2280	97	2070	98	115						
-5	97	3880	97	2870	97	2600	97	2350	97	2130	98	115	-5	97	3810	97	2840	97	2580	97	2340	97	2120	98	116						
0	97	3990	97	2940	97	2660	97	2410	97	2190	99	115	0	97	3910	97	2910	97	2640	97	2400	97	2180	99	116						
5	97	4090	97	3010	97	2730	97	2470	97	2240	99	115	5	97	4010	97	2980	97	2710	97	2460	97	2230	99	116						
10	97	4200	97	3090	97	2790	97	2530	97	2290	99	115	10	97	4110	97	3050	97	2770	97	2510	97	2280	99	116						
15	96	4240	96	3110	96	2820	96	2550	96	2310	98	115	15	97	4150	97	3080	97	2790	97	2530	97	2300	98	115						
20	94	4040	94	2980	94	2700	94	2450	94	2220	96	111	20	94	3960	94	2940	94	2670	94	2430	94	2200	96	112						
25	91	3860	91	2860	91	2590	91	2350	91	2130	93	108	25	92	3780	92	2820	92	2560	92	2320	92	2110	93	108						
30	89	3680	89	2740	89	2480	89	2270	90	2100	91	105	30	89	3610	89	2700	89	2450	89	2230	89	2030	91	105						
35	87	3540	87	2640	87	2440	88	2270	89	2100	90	102	35	87	3470	87	2600	87	2360	87	2190	88	2030	89	102						
40	85	3510	85	2640	86	2450	87	2270	88	2120	88	99	40	85	3390	85	2540	86	2360	86	2190	87	2030	87	99						
45	86	3670	86	2750	86	2580	87	2410	88	2240	88	98	45	84	3410	84	2550	84	2390	85	2230	86	2070	86	97						
50	87	3960	87	3000	88	2810	88	2620	88	2450	89	98	50	85	3610	84	2740	85	2570	86	2400	86	2230	86	96						

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
3000 FEET

CONDITIONS: DRY RUNWAY

RUNWAY GRADIENT - ZERO

LANDING GEAR - DOWN

SPEED BRAKES - RETRACT

ANTI-ICE - OFF

INOPERATIVE ENGINE - WINDMILLING AFTER V1

OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										WEIGHT = 16500 LBS																						
VENR = 160 KIAS										VENR = 160 KIAS																						
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS					
					10 KTS V1 DIST KIAS FT	20 KTS V1 DIST KIAS FT	30 KTS V1 DIST KIAS FT	VR V2 KIAS	10 KTS V1 DIST KIAS FT	20 KTS V1 DIST KIAS FT						30 KTS V1 DIST KIAS FT	VR V2 KIAS	10 KTS V1 DIST KIAS FT	20 KTS V1 DIST KIAS FT	30 KTS V1 DIST KIAS FT	VR V2 KIAS											
-30	96	4540	97	3220	99	2990	100	2770	101	2550	104	115	-30	96	4450	96	3080	98	2860	99	2650	100	2440	103	114							
-25	96	4710	97	3280	98	3050	100	2820	101	2610	104	115	-25	96	4620	96	3150	97	2910	99	2700	100	2490	103	114							
-20	96	4900	97	3350	98	3110	99	2880	100	2660	104	115	-20	96	4790	96	3240	97	2970	98	2750	99	2540	103	114							
-15	96	5100	96	3410	98	3160	99	2930	100	2710	104	115	-15	96	4980	96	3350	97	3030	98	2800	99	2590	103	114							
-10	96	5310	96	3500	97	3220	99	2990	100	2770	104	115	-10	96	5180	96	3450	96	3080	98	2850	99	2640	103	114							
-5	96	5530	96	3620	97	3280	98	3040	100	2820	104	115	-5	96	5390	96	3560	96	3160	97	2910	99	2690	102	114							
0	96	5770	96	3730	97	3340	98	3100	99	2870	104	115	0	96	5620	96	3680	96	3250	97	2960	98	2740	102	114							
5	96	6030	96	3860	96	3400	98	3150	99	2920	104	115	5	96	5860	96	3800	96	3350	97	3010	98	2790	102	114							
10	96	6150	96	3920	96	3500	98	3250	99	3010	104	115	10	96	5970	96	3850	96	3400	97	3100	98	2880	103	114							
15	93	5730	96	4060	97	3780	99	3510	100	3250	105	115	15	93	5570	95	3870	96	3600	98	3340	99	3100	103	114							
20	93	5890	97	4390	98	4080	100	3790	101	3510	105	116	20	93	5610	96	4180	97	3890	99	3610	100	3350	104	115							
25	94	6440	98	4780	99	4440	101	4110	102	3810	106	116	25	94	6120	97	4540	99	4220	100	3920	101	3630	105	115							
30	95	7090	99	5210	100	4840	102	4490	103	4150	107	116	30	95	6710	98	4950	100	4600	101	4260	102	3950	106	115							
35	96	7810	100	5700	101	5280	103	4900	104	4530	107	116	35	96	7370	99	5400	101	5010	102	4640	103	4290	106	115							
40	97	8690	101	6280	103	5810	104	5370	105	4960	108	116	40	97	8180	100	5930	102	5490	103	5080	104	4700	107	115							
45	98	9710	102	6930	104	6400	105	5910	106	5450	109	117	45	98	9100	101	6520	103	6030	104	5570	105	5150	107	115							
48	98	10460	103	7390	104	6820	106	6280	107	5790	109	117	48	98	9770	102	6940	104	6410	105	5910	106	5450	108	116							

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
VENR = 160 KIAS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
					10 KTS V1 DIST KIAS FT	20 KTS V1 DIST KIAS FT	30 KTS V1 DIST KIAS FT	VR V2 KIAS	10 KTS V1 DIST KIAS FT	20 KTS V1 DIST KIAS FT						30 KTS V1 DIST KIAS FT	VR V2 KIAS	10 KTS V1 DIST KIAS FT	20 KTS V1 DIST KIAS FT	30 KTS V1 DIST KIAS FT	VR V2 KIAS						10 KTS V1 DIST KIAS FT	20 KTS V1 DIST KIAS FT	30 KTS V1 DIST KIAS FT	VR V2 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR	V2 KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
-30	96	4100	96	2900	96	2600	96	2340	97	2160	100	113	-30	96	4000	96	2850	96	2560	96	2300	97	2110	99	113														
-25	96	4230	96	2980	96	2670	96	2400	97	2210	100	113	-25	96	4130	96	2930	96	2630	96	2370	97	2150	99	113														
-20	96	4380	96	3070	96	2750	96	2460	97	2260	100	113	-20	96	4260	96	3020	96	2710	96	2430	97	2200	99	113														
-15	96	4530	96	3160	96	2830	96	2530	97	2310	100	113	-15	97	4400	97	3100	97	2780	97	2500	97	2250	99	113														
-10	96	4680	96	3250	96	2910	96	2610	97	2360	100	113	-10	97	4550	97	3190	97	2860	97	2570	97	2310	99	113														
-5	97	4850	97	3350	97	2990	97	2680	97	2410	100	113	-5	97	4700	97	3290	97	2940	97	2640	97	2380	99	113														
0	97	5020	97	3450	97	3080	97	2760	97	2470	100	113	0	97	4860	97	3380	97	3030	97	2720	97	2440	100	114														
5	97	5200	97	3550	97	3170	97	2830	97	2540	100	113	5	97	5030	97	3480	97	3110	97	2790	97	2510	100	114														
10	96	5290	96	3600	96	3210	96	2870	96	2570	100	113	10	96	5100	96	3530	96	3150	96	2830	96	2540	99	113														
15	94	4980	94	3440	94	3080	94	2770	95	2570	98	110	15	94	4820	94	3370	94	3020	94	2710	94	2490	98	110														
20	91	4720	92	3350	93	3120	94	2890	95	2680	98	109	20	91	4580	91	3240	91	2910	92	2700	93	2500	96	107														
25	91	4830	93	3620	94	3360	95	3120	96	2900	99	109	25	90	4460	91	3350	92	3120	93	2890	94	2680	97	108														
30	92	5240	94	3910	95	3640	96	3380	97	3140	100	110	30	91	4830	93	3620	94	3370	95	3130	96	2900	98	108														
35	93	5700	95	4230	96	3930	97	3650	98	3380	100	110	35	92	5240	94	3900	95	3630	96	3370	97	3130	98	108														
40	94	6240	96	4600	98	4280	99	3970	100	3680	101	110	40	93	5710	95	4240	96	3940	97	3650	98	3410	99	108														
45	96	6840	98	5010	99	4650	100	4310	101	4010	102	110	45	94	6240	96	4600	97	4270	98	3960	99	3720	100	108														
48	96	7260	98	5290	99	4900	100	4540	101	4240	102	110	48	95	6600	97	4840	98	4500	99	4190	99	3930	100	108														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
3000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS												VENR = 160 KIAS												WEIGHT = 13500 LBS												VENR = 160 KIAS											
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS																				
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																										
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																									
-30	97	3910	97	2810	97	2530	97	2270	97	2050	99	113	-30	97	3820	97	2770	97	2500	97	2250	97	2030	98	113																						
-25	97	4030	97	2890	97	2600	97	2340	97	2100	99	113	-25	97	3930	97	2840	97	2560	97	2310	97	2080	98	113																						
-20	97	4150	97	2970	97	2670	97	2400	97	2160	99	113	-20	97	4050	97	2920	97	2630	97	2370	97	2140	98	114																						
-15	97	4280	97	3050	97	2740	97	2470	97	2220	99	113	-15	97	4180	97	3010	97	2710	97	2440	97	2200	98	114																						
-10	97	4420	97	3140	97	2820	97	2540	97	2280	99	114	-10	97	4310	97	3090	97	2780	97	2510	97	2260	98	114																						
-5	97	4570	97	3230	97	2900	97	2610	97	2350	99	114	-5	97	4440	97	3180	97	2860	97	2580	97	2320	98	114																						
0	97	4710	97	3320	97	2980	97	2680	97	2410	99	114	0	97	4580	97	3260	97	2940	97	2640	97	2380	99	114																						
5	97	4870	97	3410	97	3060	97	2750	97	2480	99	114	5	97	4730	97	3350	97	3010	97	2710	97	2450	99	114																						
10	96	4940	96	3460	96	3100	96	2780	96	2510	99	113	10	96	4790	96	3390	96	3050	96	2750	96	2480	98	114																						
15	94	4680	94	3310	94	2970	94	2670	94	2420	97	110	15	94	4540	94	3250	94	2920	94	2640	94	2380	97	111																						
20	91	4450	91	3170	91	2860	92	2620	93	2430	96	108	20	92	4320	92	3120	92	2810	92	2540	93	2360	95	108																						
25	89	4230	90	3100	91	2880	92	2680	93	2480	95	106	25	89	4120	89	2990	90	2740	91	2550	91	2360	93	105																						
30	90	4460	91	3340	92	3110	93	2890	94	2680	95	106	30	88	4110	89	3090	90	2870	91	2670	92	2470	93	104																						
35	91	4820	92	3610	93	3360	94	3110	95	2890	96	106	35	89	4440	90	3320	91	3090	92	2870	93	2670	94	104																						
40	92	5240	93	3900	94	3630	95	3370	96	3160	97	106	40	91	4810	91	3590	92	3340	93	3120	94	2920	95	104																						
45	93	5700	94	4220	95	3920	96	3670	97	3450	98	106	45	92	5210	93	3880	93	3620	94	3400	95	3180	95	105																						
48	94	6010	95	4440	96	4130	97	3880	98	3640	98	107	48	93	5490	93	4070	94	3820	95	3590	96	3360	96	105																						

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR V2 KIAS												
					10 KTS		20 KTS		30 KTS		10 KTS								20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT										
-30	97	3740	97	2730	97	2470	97	2230	97	2010	98	114	-30	97	3670	97	2700	97	2440	97	2210	97	2000	98	114														
-25	97	3850	97	2810	97	2530	97	2290	97	2070	98	114	-25	97	3770	97	2770	97	2510	97	2270	97	2050	98	115														
-20	97	3960	97	2880	97	2600	97	2350	97	2120	98	114	-20	97	3880	97	2850	97	2570	97	2330	97	2110	98	115														
-15	97	4080	97	2960	97	2670	97	2410	97	2180	98	114	-15	97	3990	97	2920	97	2640	97	2390	97	2160	99	115														
-10	97	4200	97	3040	97	2750	97	2480	97	2240	98	114	-10	97	4110	97	3000	97	2710	97	2460	97	2220	99	115														
-5	97	4330	97	3130	97	2820	97	2550	97	2300	99	115	-5	97	4230	97	3080	97	2790	97	2520	97	2280	99	115														
0	97	4460	97	3210	97	2900	97	2610	97	2360	99	115	0	97	4350	97	3170	97	2860	97	2590	97	2340	99	115														
5	97	4600	97	3300	97	2970	97	2680	97	2420	99	115	5	97	4480	97	3250	97	2930	97	2650	97	2400	99	115														
10	97	4650	97	3340	97	3010	97	2710	97	2450	98	114	10	97	4530	97	3280	97	2970	97	2680	97	2430	99	115														
15	94	4420	94	3190	94	2880	94	2600	94	2350	96	111	15	94	4310	94	3140	94	2840	94	2570	94	2330	96	111														
20	92	4210	92	3060	92	2770	92	2500	92	2290	94	108	20	92	4110	92	3010	92	2730	92	2470	92	2230	94	108														
25	89	4020	89	2940	89	2660	90	2470	91	2290	93	105	25	89	3920	89	2890	89	2620	90	2400	91	2220	92	105														
30	87	3840	87	2870	88	2670	89	2480	90	2290	91	102	30	87	3750	87	2780	88	2580	89	2400	89	2220	91	102														
35	88	4080	88	3060	89	2850	90	2640	91	2470	92	102	35	86	3750	86	2820	87	2620	88	2430	89	2270	89	100														
40	89	4420	89	3300	90	3070	91	2880	92	2690	92	102	40	87	4050	87	3040	88	2830	89	2650	90	2480	90	100														
45	90	4770	91	3560	91	3340	92	3140	93	2930	93	103	45	88	4370	89	3280	89	3080	90	2890	91	2700	91	101														
48	91	5010	91	3750	92	3530	93	3310	93	3100	94	103	48	89	4580	89	3460	90	3250	91	3040	91	2850	91	101														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	VR	V2						
KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT										
-30	97	3610	97	2670	97	2420	97	2200	97	1990	98	115	-30	97	3550	97	2650	97	2410	97	2180	97	1980	99	116	-30	97	3550	97	2650	97	2410	97	2180	97	1980	99	116	
-25	97	3710	97	2740	97	2490	97	2250	97	2040	99	115	-25	97	3650	97	2720	97	2470	97	2240	97	2030	99	116	-25	97	3650	97	2720	97	2470	97	2240	97	2030	99	116	
-20	97	3810	97	2820	97	2550	97	2310	97	2090	99	115	-20	97	3740	97	2790	97	2530	97	2300	97	2080	99	116	-20	97	3740	97	2790	97	2530	97	2300	97	2080	99	116	
-15	97	3920	97	2890	97	2620	97	2370	97	2150	99	115	-15	97	3850	97	2860	97	2600	97	2360	97	2140	99	116	-15	97	3850	97	2860	97	2600	97	2360	97	2140	99	116	
-10	97	4030	97	2970	97	2690	97	2440	97	2210	99	116	-10	97	3950	97	2940	97	2670	97	2420	97	2200	99	116	-10	97	3950	97	2940	97	2670	97	2420	97	2200	99	116	
-5	97	4140	97	3050	97	2760	97	2500	97	2260	99	116	-5	97	4060	97	3010	97	2730	97	2480	97	2250	99	116	-5	97	4060	97	3010	97	2730	97	2480	97	2250	99	116	
0	97	4260	97	3120	97	2830	97	2560	97	2320	99	116	0	98	4170	98	3090	98	2800	98	2550	98	2310	99	117	0	98	4170	98	3090	98	2800	98	2550	98	2310	99	117	
5	97	4380	97	3200	97	2900	97	2630	97	2380	99	116	5	98	4280	98	3170	98	2870	98	2610	98	2370	100	117	5	98	4280	98	3170	98	2870	98	2610	98	2370	100	117	
10	97	4420	97	3240	97	2930	97	2660	97	2410	99	115	10	97	4330	97	3200	97	2900	97	2630	97	2390	99	116	10	97	4330	97	3200	97	2900	97	2630	97	2390	99	116	
15	94	4210	94	3100	94	2800	94	2540	94	2300	96	112	15	95	4120	95	3060	95	2770	95	2520	95	2290	96	113	15	95	4120	95	3060	95	2770	95	2520	95	2290	96	113	
20	92	4010	92	2970	92	2690	92	2440	92	2210	93	109	20	92	3930	92	2920	92	2660	92	2410	92	2190	94	109	20	92	3930	92	2920	92	2660	92	2410	92	2190	94	109	
25	89	3830	89	2840	89	2580	89	2340	90	2150	92	105	25	90	3750	90	2800	90	2540	90	2310	90	2100	91	106	25	90	3750	90	2800	90	2540	90	2310	90	2100	91	106	
30	87	3670	87	2730	87	2500	88	2320	89	2150	90	102	30	87	3590	87	2690	87	2440	87	2250	88	2080	89	103	30	87	3590	87	2690	87	2440	87	2250	88	2080	89	103	
35	85	3580	85	2690	86	2510	87	2320	88	2160	88	100	35	85	3450	85	2600	86	2420	86	2240	87	2080	88	100	35	85	3450	85	2600	86	2420	86	2240	87	2080	88	100	
40	85	3710	85	2780	86	2600	87	2430	87	2270	88	98	40	84	3470	84	2610	84	2430	85	2270	86	2110	86	97	40	84	3470	84	2610	84	2430	85	2270	86	2110	86	97	
45	86	3990	86	3020	87	2830	88	2650	88	2470	88	98	45	84	3640	84	2760	85	2590	85	2420	86	2250	86	96	45	84	3640	84	2760	85	2590	85	2420	86	2250	86	96	
48	87	4180	87	3180	88	2980	89	2790	89	2600	89	99	48	85	3810	85	2910	85	2720	86	2550	86	2370	86	96	48	85	3810	85	2910	85	2720	86	2550	86	2370	86	96	

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
4000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS		TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST								V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT										
-30	97	4960	97	3320	98	3060	99	2830	100	2620	104	115	-30	97	4850	97	3280	97	2930	98	2710	99	2510	102	114	102	114												
-25	97	5170	97	3430	97	3120	99	2890	100	2680	104	115	-25	97	5050	97	3380	97	3000	98	2770	99	2560	102	114	102	114												
-20	97	5390	97	3540	97	3180	98	2950	100	2730	104	115	-20	97	5260	97	3490	97	3100	97	2820	99	2610	102	114	102	114												
-15	97	5640	97	3660	97	3240	98	3010	99	2780	104	115	-15	97	5490	97	3610	97	3200	97	2870	98	2660	102	114	102	114												
-10	97	5900	97	3790	97	3340	98	3060	99	2840	104	115	-10	97	5730	97	3730	97	3300	97	2930	98	2710	102	114	102	114												
-5	97	6180	97	3920	97	3450	97	3120	99	2890	104	115	-5	97	6000	97	3860	97	3410	97	3020	98	2760	102	114	102	114												
0	97	6480	97	4060	97	3570	97	3180	98	2950	104	115	0	97	6280	97	3990	97	3520	97	3120	97	2820	102	114	102	114												
5	96	6650	96	4140	96	3630	97	3270	98	3030	104	115	5	97	6430	97	4070	97	3580	97	3170	97	2900	102	114	102	114												
10	94	6110	95	4090	97	3810	98	3540	99	3290	104	115	10	94	5930	94	3900	96	3630	97	3380	98	3130	103	114	103	114												
15	92	5920	96	4430	98	4120	99	3820	100	3550	105	116	15	92	5630	95	4210	97	3920	98	3640	99	3380	104	114	104	114												
20	93	6460	97	4810	99	4470	100	4150	101	3840	106	116	20	93	6130	96	4570	98	4250	99	3950	100	3660	105	115	105	115												
25	94	7110	98	5250	100	4880	101	4520	102	4190	107	116	25	94	6730	97	4990	99	4630	100	4300	102	3980	105	115	105	115												
30	95	7850	99	5750	101	5340	102	4950	104	4580	107	116	30	95	7410	98	5450	100	5060	101	4690	103	4340	106	115	106	115												
35	96	8730	100	6340	102	5870	103	5430	105	5020	108	116	35	96	8220	100	5980	101	5550	102	5130	104	4750	107	115	107	115												
40	97	9780	101	7010	103	6480	104	5990	106	5520	109	117	40	97	9170	101	6600	102	6110	104	5650	105	5220	107	115	107	115												
45	98	11060	102	7810	104	7200	105	6630	107	6100	109	117	45	98	10310	102	7320	103	6760	105	6230	106	5750	108	115	108	115												

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS		TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST								V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT										
-30	97	4700	97	3210	97	2860	97	2580	98	2380	101	113	-30	97	4560	97	3150	97	2820	97	2520	98	2320	101	113	-30	97	4420	97	3010	97	2680	97	2380	101	113			
-25	97	4880	97	3310	97	2950	97	2630	98	2440	101	113	-25	97	4720	97	3250	97	2900	97	2590	97	2370	101	113	-25	97	4580	97	3110	97	2800	97	2480	101	113			
-20	97	5070	97	3420	97	3040	97	2710	98	2490	101	113	-20	97	4900	97	3350	97	2990	97	2670	97	2430	101	113	-20	97	4760	97	3220	97	2910	97	2590	101	113			
-15	97	5280	97	3530	97	3140	97	2800	97	2550	101	113	-15	97	5090	97	3460	97	3080	97	2750	97	2480	101	114	-15	97	4950	97	3290	97	2980	97	2660	101	114			
-10	97	5500	97	3650	97	3240	97	2880	97	2610	101	114	-10	97	5300	97	3570	97	3180	97	2840	97	2540	101	114	-10	97	5160	97	3400	97	3090	97	2770	101	114			
-5	97	5740	97	3770	97	3340	97	2970	97	2660	101	114	-5	97	5510	97	3690	97	3270	97	2920	97	2610	101	114	-5	97	5370	97	3520	97	3210	97	2890	101	114			
0	97	5990	97	3890	97	3440	97	3060	97	2730	101	114	0	97	5740	97	3800	97	3370	97	3010	97	2690	101	114	0	97	5600	97	3730	97	3320	97	3000	101	114			
5	97	6130	97	3960	97	3500	97	3110	97	2780	101	113	5	97	5860	97	3870	97	3430	97	3060	97	2730	101	114	5	97	5720	97	3800	97	3390	97	3070	101	114			
10	94	5680	94	3760	94	3380	96	3140	97	2910	101	112	10	94	5450	94	3670	94	3270	94	2920	95	2710	99	111	10	94	5310	94	3600	94	3240	94	2880	99	111			
15	92	5330	94	3920	95	3650	97	3390	98	3140	102	113	15	92	5140	93	3640	94	3380	95	3150	96	2920	100	111	15	92	4990	93	3590	94	3330	95	3100	99	111			
20	92	5670	95	4240	97	3940	98	3660	99	3390	103	113	20	91	5250	94	3930	95	3660	96	3400	97	3150	101	111	20	91	5110	93	3880	94	3620	95	3390	99	111			
25	93	6200	96	4610	98	4280	99	3980	100	3690	103	113	25	92	5710	95	4260	96	3960	97	3680	99	3410	101	111	25	92	5570	94	4210	96	3910	97	3630	99	111			
30	94	6800	97	5020	99	4660	100	4330	101	4010	104	113	30	93	6240	96	4630	97	4300	99	3990	100	3700	102	112	30	93	6100	95	4580	96	4270	97	4000	100	112			
35	95	7500	98	5490	100	5100	101	4730	102	4380	105	114	35	95	6860	97	5050	98	4690	100	4350	101	4030	103	112	35	95	6720	96	5000	97	4940	99	4650	100	112			
40	96	8330	100	6040	101	5590	102	5180	103	4790	105	114	40	96	7570	98	5530	100	5130	101	4750	102	4400	104	112	40	96	7430	97	5480	99	5090	100	4700	100	112			
45	97	9300	101	6660	102	6150	103	5690	104	5260	106	114	45	97	8400	99	6070	101	5620	102	5200	103	4810	104	112	45	97	8260	98	6020	100	5540	101	5110	100	112			

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		H E A D W I N D S						VR	V2 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
					10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT									10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

56FMC-00-00

Figure 4-25 (Sheet 9)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
4000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS								VENR = 160 KIAS								WEIGHT = 13500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2				
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS		
-30	97	4200	97	3000	97	2690	97	2420	97	2180	99	114	-30	97	4100	97	2950	97	2660	97	2400	97	2160	99	114						
-25	97	4330	97	3080	97	2770	97	2490	97	2240	99	114	-25	97	4230	97	3040	97	2730	97	2460	97	2220	99	114						
-20	97	4480	97	3170	97	2850	97	2560	97	2310	99	114	-20	97	4360	97	3120	97	2810	97	2530	97	2280	99	114						
-15	97	4630	97	3270	97	2930	97	2640	97	2370	99	114	-15	97	4500	97	3210	97	2890	97	2600	97	2350	99	115						
-10	97	4790	97	3370	97	3020	97	2710	97	2440	99	114	-10	97	4650	97	3310	97	2970	97	2680	97	2410	99	115						
-5	97	4960	97	3470	97	3110	97	2790	97	2510	99	115	-5	97	4810	97	3400	97	3060	97	2750	97	2480	99	115						
0	97	5130	97	3570	97	3200	97	2870	97	2580	100	115	0	98	4970	98	3500	98	3140	98	2830	98	2550	99	115						
5	97	5230	97	3620	97	3240	97	2910	97	2620	99	114	5	97	5060	97	3560	97	3190	97	2870	97	2590	99	115						
10	94	4910	94	3450	94	3090	94	2780	94	2500	98	111	10	94	4760	94	3380	94	3040	94	2740	94	2470	97	111						
15	92	4650	92	3300	92	2970	92	2680	93	2490	96	108	15	92	4520	92	3240	92	2920	92	2630	93	2420	95	108						
20	90	4430	90	3170	90	2910	91	2700	92	2500	94	106	20	90	4300	90	3110	90	2810	91	2610	91	2420	94	106						
25	89	4480	90	3370	91	3130	92	2910	93	2700	95	106	25	87	4130	88	3110	89	2890	90	2690	91	2490	93	104						
30	90	4850	91	3640	93	3390	93	3140	94	2920	96	106	30	89	4460	90	3350	91	3120	92	2900	92	2690	94	104						
35	91	5270	93	3930	94	3660	95	3400	95	3180	97	106	35	90	4840	91	3620	92	3370	93	3140	93	2940	95	104						
40	93	5750	94	4270	95	3970	96	3700	97	3470	97	106	40	91	5260	92	3920	93	3650	94	3430	95	3210	95	105						
45	94	6290	95	4640	96	4310	97	4050	98	3800	98	107	45	92	5720	93	4250	94	3980	95	3750	96	3510	96	105						

WEIGHT = 13000 LBS								VENR = 160 KIAS								WEIGHT = 12500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR V2								
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST		
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT
-30	97	4010	97	2910	97	2630	97	2370	97	2140	99 115	-30	98	3920	98	2880	98	2600	98	2350	98	2130	99 115								
-25	97	4130	97	2990	97	2700	97	2440	97	2200	99 115	-25	98	4040	98	2950	98	2670	98	2420	98	2180	99 116								
-20	97	4260	97	3080	97	2780	97	2510	97	2260	99 115	-20	98	4160	98	3040	98	2740	98	2480	98	2240	99 116								
-15	97	4390	97	3160	97	2850	97	2580	97	2330	99 115	-15	98	4290	98	3120	98	2820	98	2550	98	2310	99 116								
-10	98	4530	98	3250	98	2930	98	2650	98	2390	99 115	-10	98	4420	98	3210	98	2900	98	2620	98	2370	100 116								
-5	98	4680	98	3350	98	3020	98	2720	98	2460	99 116	-5	98	4550	98	3300	98	2980	98	2690	98	2430	100 116								
0	98	4820	98	3440	98	3100	98	2790	98	2520	100 116	0	98	4690	98	3390	98	3060	98	2760	98	2500	100 116								
5	97	4900	97	3490	97	3140	97	2830	97	2560	99 115	5	97	4770	97	3430	97	3100	97	2800	97	2530	99 116								
10	95	4620	95	3320	95	2990	95	2700	95	2440	97 112	10	95	4500	95	3270	95	2950	95	2670	95	2420	97 112								
15	92	4390	92	3180	92	2870	92	2590	92	2350	95 109	15	92	4280	92	3130	92	2830	92	2560	92	2320	94 109								
20	90	4190	90	3060	90	2760	90	2530	91	2350	93 106	20	90	4080	90	3000	90	2720	90	2460	91	2280	93 106								
25	87	4000	87	2930	88	2730	89	2540	90	2350	92 103	25	87	3900	87	2880	88	2650	89	2460	89	2280	91 103								
30	87	4100	88	3090	89	2870	90	2670	90	2480	92 102	30	85	3790	86	2850	87	2660	87	2470	88	2290	89 100								
35	88	4440	89	3330	90	3100	91	2900	91	2710	92 102	35	87	4070	87	3060	88	2850	89	2670	89	2490	90 100								
40	90	4810	90	3600	91	3370	92	3160	92	2960	93 103	40	88	4410	88	3310	89	3110	90	2910	90	2720	91 101								
45	91	5220	91	3910	92	3680	93	3450	94	3240	94 103	45	89	4760	89	3610	90	3390	91	3180	91	2970	91 101								

WEIGHT = 12000 LBS								VENR = 160 KIAS								WEIGHT = 11500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEADWINDS						VR V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEADWINDS						VR V2								
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS										
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT									
-30	98	3850	98	2840	98	2580	98	2330	98	2110	99	116	-30	98	3790	98	2820	98	2560	98	2320	98	2110	100	117						
-25	98	3960	98	2920	98	2650	98	2400	98	2170	99	116	-25	98	3890	98	2890	98	2630	98	2380	98	2160	100	117						
-20	98	4070	98	3000	98	2720	98	2460	98	2230	100	116	-20	98	4000	98	2970	98	2700	98	2450	98	2220	100	117						
-15	98	4190	98	3080	98	2790	98	2530	98	2290	100	117	-15	98	4110	98	3050	98	2770	98	2510	98	2280	100	117						
-10	98	4320	98	3170	98	2870	98	2600	98	2350	100	117	-10	98	4230	98	3130	98	2840	98	2580	98	2340	100	117						
-5	98	4450	98	3250	98	2940	98	2670	98	2420	100	117	-5	98	4350	98	3210	98	2920	98	2650	98	2400	100	118						
0	98	4580	98	3340	98	3020	98	2740	98	2480	100	117	0	98	4480	98	3300	98	2990	98	2720	98	2470	100	118						
5	98	4640	98	3380	98	3060	98	2770	98	2510	100	117	5	98	4540	98	3340	98	3030	98	2750	98	2500	100	117						
10	95	4390	95	3220	95	2910	95	2640	95	2390	97	113	10	95	4290	95	3170	95	2880	95	2620	95	2370	97	113						
15	92	4180	92	3080	92	2790	92	2530	92	2290	94	109	15	93	4080	93	3040	93	2760	93	2500	93	2270	94	110						
20	90	3990	90	2950	90	2680	90	2430	90	2210	92	106	20	90	3900	90	2910	90	2640	90	2400	90	2180	92	106						
25	87	3810	87	2830	87	2570	88	2380	89	2210	90	103	25	88	3730	88	2790	88	2530	88	2300	88	2140	90	103						
30	85	3660	85	2760	86	2560	87	2380	88	2210	89	100	30	85	3580	85	2680	86	2480	86	2300	87	2130	88	100						
35	85	3730	85	2810	85	2620	86	2450	87	2280	88	98	35	84	3540	84	2670	84	2480	85	2310	86	2160	86	98						
40	86	4020	86	3040	87	2850	87	2670	88	2490	88	98	40	84	3670	84	2780	84	2610	85	2440	86	2270	86	96						
45	87	4350	87	3310	88	3110	89	2910	89	2720	89	99	45	85	3960	85	3030	86	2840	86	2660	86	2480	87	96						

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Figure 4-25 (Sheet 10)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
5000 FEET**CONDITIONS:** DRY RUNWAY
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS								WEIGHT = 16500 LBS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT						V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		
-35	97 5200	97 3440	97 3080	99 2860	100 2840	104 115		-35	97 5080	97 3400	97 3010	97 2730	99 2530	102 114	
-30	97 5440	97 3560	97 3150	98 2920	99 2700	104 115		-30	97 5300	97 3510	97 3110	97 2790	98 2580	102 114	
-25	97 5690	97 3690	97 3260	98 2970	99 2750	104 115		-25	97 5540	97 3630	97 3220	97 2860	98 2640	102 114	
-20	97 5970	97 3820	97 3370	97 3030	99 2810	103 115		-20	97 5800	97 3760	97 3330	97 2950	98 2690	102 114	
-15	97 6280	97 3970	97 3490	97 3090	98 2860	103 115		-15	97 6090	97 3900	97 3440	97 3050	97 2740	102 114	
-10	97 6620	97 4110	97 3610	97 3190	98 2920	103 115		-10	97 6400	97 4040	97 3560	97 3150	97 2800	102 114	
-5	97 6990	97 4270	97 3740	97 3300	98 2970	103 115		-5	97 6740	97 4200	97 3680	97 3260	97 2890	102 114	
0	97 7100	97 4320	97 3780	97 3340	98 3080	104 115		0	97 6840	97 4240	97 3730	97 3290	97 2940	102 114	
5	94 6530	94 4130	96 3840	98 3580	99 3320	104 115		5	94 6320	94 4040	95 3670	97 3410	98 3170	103 114	
10	92 6010	96 4490	97 4170	99 3880	100 3600	105 116		10	92 5840	95 4280	96 3980	98 3690	99 3430	104 114	
15	93 6530	96 4870	98 4530	100 4210	101 3900	106 116		15	92 6200	96 4630	97 4310	99 4000	100 3710	105 115	
20	93 7160	97 5310	99 4940	101 4580	102 4240	107 116		20	93 6780	97 5040	98 4690	100 4350	101 4030	105 115	
25	94 7920	99 5830	100 5410	102 5010	103 4640	107 116		25	94 7480	98 5520	99 5120	101 4750	102 4400	106 115	
30	95 8790	99 6410	101 5940	103 5500	104 5090	108 116		30	95 8280	99 6050	100 5610	102 5200	103 4820	107 115	
35	96 9670	101 7110	102 6580	104 6080	105 5610	108 117		35	96 9260	100 6690	102 6200	103 5730	104 5300	107 115	
40	97 11110	102 7900	103 7290	105 6720	106 6190	109 117		40	97 10370	101 7400	103 6840	104 6310	105 5830	108 116	
42	97 11700	102 8250	104 7610	105 7010	107 6450	109 117		42	97 10900	101 7730	103 7130	104 6580	106 6060	108 116	

WEIGHT = 16000 LBS								WEIGHT = 15500 LBS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT						V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		
-35	97 4910	97 3330	97 2960	97 2640	98 2430	101 114		-35	97 4750	97 3260	97 2910	97 2610	98 2370	101 114	
-30	97 5110	97 3440	97 3060	97 2730	98 2490	101 114		-30	97 4940	97 3370	97 3000	97 2690	97 2420	101 114	
-25	97 5330	97 3560	97 3160	97 2810	98 2550	101 114		-25	97 5140	97 3480	97 3100	97 2770	97 2480	101 114	
-20	97 5570	97 3680	97 3260	97 2900	97 2610	102 114		-20	97 5360	97 3600	97 3200	97 2860	97 2560	101 114	
-15	97 5820	97 3810	97 3370	97 3000	97 2680	102 114		-15	97 5590	97 3720	97 3310	97 2950	97 2640	101 114	
-10	97 6100	97 3940	97 3480	97 3100	97 2760	102 114		-10	97 5840	97 3850	97 3410	97 3040	97 2720	101 115	
-5	97 6400	97 4090	97 3600	97 3200	97 2850	102 114		-5	98 6110	98 3990	98 3530	98 3140	98 2800	101 115	
0	97 6490	97 4130	97 3640	97 3230	97 2880	101 114		0	97 6190	97 4030	97 3570	97 3170	97 2830	101 114	
5	94 6030	94 3930	94 3480	95 3170	96 2950	101 112		5	95 5770	95 3840	95 3410	95 3040	95 2770	99 111	
10	92 5600	94 3970	95 3690	96 3440	98 3190	102 113		10	92 5380	92 3680	94 3430	95 3190	96 2960	100 111	
15	91 5730	95 4290	96 3990	97 3710	99 3440	103 113		15	91 5300	93 3980	95 3710	96 3450	97 3200	101 111	
20	92 6250	96 4660	97 4330	98 4020	100 3730	103 113		20	92 5760	94 4310	96 4010	97 3720	98 3450	101 111	
25	93 6860	97 5090	98 4730	99 4390	101 4070	104 113		25	93 6300	96 4690	97 4360	98 4050	99 3750	102 112	
30	94 7560	98 5560	99 5160	101 4790	102 4430	105 114		30	94 6910	97 5110	98 4750	99 4400	100 4080	103 112	
35	95 8410	99 6120	100 5670	102 5260	103 4860	105 114		35	95 7650	98 5600	99 5200	100 4820	101 4470	103 112	
40	96 9360	100 6730	101 6230	103 5760	104 5330	106 114		40	96 8470	99 6140	100 5690	101 5270	102 4880	104 112	
42	97 9800	100 7010	102 6480	103 5990	104 5530	106 114		42	96 8840	99 6370	101 5900	102 5470	103 5060	104 112	

WEIGHT = 15000 LBS								WEIGHT = 14500 LBS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT						V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		
-35	97 4610	97 3210	97 2870	97 2570	97 2310	100 114		-35	97 4480	97 3150	97 2820	97 2530	97 2280	100 114	
-30	97 4780	97 3310	97 2950	97 2650	97 2370	100 114		-30	97 4640	97 3250	97 2910	97 2610	97 2350	100 114	
-25	97 4970	97 3410	97 3050	97 2730	97 2450	101 114		-25	97 4810	97 3350	97 3000	97 2690	97 2420	100 114	
-20	97 5170	97 3530	97 3140	97 2810	97 2520	101 114		-20	98 4990	98 3460	98 3090	98 2770	98 2490	100 115	
-15	98 5380	98 3640	98 3250	98 2900	98 2600	101 115		-15	98 5190	98 3570	98 3190	98 2860	98 2560	100 115	
-10	98 5600	98 3770	98 3350	98 2990	98 2680	101 115		-10	98 5400	98 3690	98 3290	98 2940	98 2640	100 115	
-5	98 5850	98 3890	98 3460	98 3090	98 2760	101 115		-5	98 5620	98 3810	98 3390	98 3040	98 2720	100 115	
0	97 5920	97 3930	97 3490	97 3120	97 2790	100 114		0	97 5680	97 3840	97 3430	97 3060	97 2750	100 114	
5	95 5540	95 3750	95 3340	95 2990	95 2690	99 111		5	95 5340	95 3670	95 3280	95 2940	95 2640	98 112	
10	92 5190	92 3570	92 3190	93 2960	94 2750	98 109		10	92 5010	92 3490	92 3130	92 2830	93 2620	97 108	
15	90 4910	92 3680	93 3430	94 3190	95 2960	99 109		15	90 4750	90 3410	91 3180	93 2950	93 2740	96 107	
20	91 5310	93 3980	94 3710	95 3440	96 3200	99 110		20	90 4900	91 3680	93 3430	94 3190	95 2960	97 108	
25	92 5790	94 4320	95 4020	96 3740	97 3470	100 110		25	91 5320	93 3990	94 3710	95 3450	96 3210	98 108	
30	93 6330	95 4700	96 4370	98 4060	99 3760	101 110		30	92 5800	94 4320	95 4020	96 3740	97 3470	99 108	
35	94 6970	96 5140	98 4770	99 4430	100 4110	101 110		35	93 6360	95 4710	96 4380	97 4070	98 3790	99 108	
40	95 7670	97 5600	99 5200	100 4820	101 4470	102 110		40	94 6970	96 5130	97 4760	98 4420	99 4140	100 108	
42	96 7990	98 5810	99 5390	100 5000	101 4630	102 110		42	95 7240	96 5310	98 4930	99 4570	99 4300	100 109	

56FMC-00-00

Figure 4-25 (Sheet 11)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
5000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								
					10 KTS		20 KTS		30 KTS		VR V2							10 KTS		20 KTS		30 KTS		VR V2															
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	VR	V2					
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT							
-35	98	4360	98	3100	98	2780	98	2500	98	2250	99	115	-35	98	4250	98	3050	98	2750	98	2470	98	2230	99	115	-35	98	4250	98	3050	98	2750	98	2470	98	2230	99	115	
-30	98	4510	98	3190	98	2870	98	2580	98	2320	99	115	-30	98	4390	98	3140	98	2830	98	2550	98	2300	99	115	-30	98	4390	98	3140	98	2830	98	2550	98	2300	99	115	
-25	98	4670	98	3290	98	2950	98	2650	98	2390	100	115	-25	98	4540	98	3240	98	2910	98	2620	98	2360	99	115	-25	98	4540	98	3240	98	2910	98	2620	98	2360	99	115	
-20	98	4840	98	3390	98	3040	98	2730	98	2460	100	115	-20	98	4700	98	3330	98	3000	98	2700	98	2430	99	115	-20	98	4700	98	3330	98	3000	98	2700	98	2430	99	115	
-15	98	5020	98	3500	98	3140	98	2820	98	2530	100	115	-15	98	4870	98	3440	98	3090	98	2780	98	2500	100	116	-15	98	4870	98	3440	98	3090	98	2780	98	2500	100	116	
-10	98	5210	98	3610	98	3230	98	2900	98	2610	100	115	-10	98	5040	98	3540	98	3180	98	2860	98	2580	100	116	-10	98	5040	98	3540	98	3180	98	2860	98	2580	100	116	
-5	98	5410	98	3730	98	3330	98	2990	98	2690	100	115	-5	98	5230	98	3650	98	3280	98	2950	98	2650	100	116	-5	98	5230	98	3650	98	3280	98	2950	98	2650	100	116	
0	97	5470	97	3760	97	3360	97	3020	97	2710	100	115	0	97	5280	97	3690	97	3310	97	2970	97	2680	99	115	0	97	5280	97	3690	97	3310	97	2970	97	2680	99	115	
5	95	5150	95	3590	95	3220	95	2890	95	2600	98	112	5	95	4980	95	3520	95	3160	95	2850	95	2570	97	112	5	95	4980	95	3520	95	3160	95	2850	95	2570	97	112	
10	92	4850	92	3420	92	3070	92	2760	93	2550	96	109	10	92	4700	92	3360	92	3020	92	2720	93	2480	96	109	10	92	4700	92	3360	92	3020	92	2720	93	2480	96	109	
15	90	4610	90	3290	90	2960	91	2760	92	2560	95	106	15	90	4470	90	3220	90	2900	91	2670	91	2480	94	106	15	90	4470	90	3220	90	2900	91	2670	91	2480	94	106	
20	88	4510	90	3400	91	3170	92	2940	93	2730	95	106	20	87	4270	88	3140	89	2920	90	2720	91	2520	93	104	20	87	4270	88	3140	89	2920	90	2720	91	2520	93	104	
25	89	4900	91	3680	92	3430	93	3180	94	2950	96	106	25	88	4510	89	3390	90	3160	91	2930	92	2720	94	104	25	88	4510	89	3390	90	3160	91	2930	92	2720	94	104	
30	91	5320	92	3980	93	3700	94	3440	95	3200	97	106	30	89	4880	90	3660	91	3410	92	3170	93	2960	94	104	30	89	4880	90	3660	91	3410	92	3170	93	2960	94	104	
35	92	5810	93	4320	94	4020	95	3740	96	3510	97	106	35	91	5310	92	3970	93	3690	93	3460	94	3240	95	104	35	91	5310	92	3970	93	3690	93	3460	94	3240	95	104	
40	93	6340	94	4690	95	4360	96	4080	97	3830	98	107	40	92	5770	93	4290	94	4010	94	3770	95	3540	96	105	40	92	5770	93	4290	94	4010	94	3770	95	3540	96	105	
42	94	6570	95	4850	96	4510	97	4230	98	3980	98	107	42	92	5980	93	4440	94	4160	95	3910	96	3670	96	105	42	92	5980	93	4440	94	4160	95	3910	96	3670	96	105	

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR	V2										
	10 KTS		WIND		10 KTS		20 KTS		30 KTS		10 KTS					WIND		10 KTS		20 KTS		30 KTS																	
	KIAS	DIST	KIAS	DIST	KIAS	DIST	KIAS	DIST	KIAS	DIST	KIAS	DIST				KIAS	DIST	KIAS	DIST	KIAS	DIST	KIAS	DIST	KIAS	DIST														
-35	98	4150	98	3010	98	2710	98	2450	98	2210	99	115	-35	98	4060	98	2970	98	2680	98	2430	98	2200	100	116														
-30	98	4280	98	3090	98	2790	98	2520	98	2270	99	116	-30	98	4190	98	3050	98	2760	98	2500	98	2260	100	116														
-25	98	4420	98	3190	98	2870	98	2590	98	2340	100	116	-25	98	4320	98	3140	98	2840	98	2570	98	2320	100	116														
-20	98	4570	98	3280	98	2960	98	2670	98	2410	100	116	-20	98	4460	98	3230	98	2920	98	2640	98	2390	100	117														
-15	98	4730	98	3380	98	3040	98	2750	98	2480	100	116	-15	98	4610	98	3330	98	3010	98	2720	98	2460	100	117														
-10	98	4890	98	3480	98	3130	98	2830	98	2550	100	116	-10	98	4760	98	3430	98	3090	98	2790	98	2530	100	117														
-5	98	5060	98	3590	98	3230	98	2910	98	2620	100	117	-5	98	4920	98	3530	98	3180	98	2870	98	2600	100	117														
0	97	5110	97	3620	97	3250	97	2930	97	2650	99	116	0	98	4960	98	3560	98	3210	98	2900	98	2620	100	116														
5	95	4830	95	3460	95	3110	95	2810	95	2540	97	112	5	95	4700	95	3400	95	3070	95	2770	95	2510	97	113														
10	92	4560	92	3290	92	2970	92	2680	92	2420	95	109	10	93	4440	93	3240	93	2920	93	2650	93	2390	95	109														
15	90	4350	90	3160	90	2850	90	2590	91	2410	93	106	15	90	4230	90	3100	90	2810	90	2540	91	2340	93	106														
20	88	4150	88	3040	88	2800	89	2600	90	2410	92	103	20	88	4050	88	2980	88	2710	89	2520	89	2340	91	104														
25	86	4140	87	3120	88	2910	89	2700	90	2510	91	102	25	85	3880	86	2920	87	2720	87	2520	88	2340	90	101														
30	88	4480	89	3370	89	3130	90	2920	91	2730	92	102	30	86	4100	87	3090	87	2880	88	2690	89	2510	90	100														
35	89	4860	90	3640	91	3400	91	3190	92	2990	93	103	35	87	4450	88	3340	89	3130	89	2940	90	2750	91	100														
40	90	5260	91	3940	92	3700	93	3480	93	3260	94	103	40	89	4800	89	3630	90	3410	90	3200	91	3000	91	101														
42	91	5440	91	4070	92	3840	93	3600	94	3380	94	103	42	89	4960	89	3760	90	3530	91	3310	92	3100	92	101														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2										
					10 KTS		20 KTS		30 KTS											10 KTS		20 KTS		30 KTS															
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	VR	V2						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT											
-35	98	3980	98	2940	98	2660	98	2410	98	2180	100	117	-35	98	3910	98	2910	98	2640	98	2400	98	2170	100	117	-35	98	3910	98	2910	98	2640	98	2400	98	2170	100	117	
-30	98	4100	98	3020	98	2730	98	2480	98	2240	100	117	-30	98	4030	98	2990	98	2710	98	2460	98	2230	100	118	-30	98	4030	98	2990	98	2710	98	2460	98	2230	100	118	
-25	98	4230	98	3100	98	2810	98	2550	98	2310	100	117	-25	98	4140	98	3070	98	2790	98	2530	98	2300	100	118	-25	98	4140	98	3070	98	2790	98	2530	98	2300	100	118	
-20	98	4360	98	3190	98	2890	98	2620	98	2370	100	117	-20	98	4270	98	3160	98	2860	98	2600	98	2360	101	118	-20	98	4270	98	3160	98	2860	98	2600	98	2360	101	118	
-15	98	4500	98	3280	98	2970	98	2690	98	2440	100	117	-15	98	4400	98	3250	98	2940	98	2670	98	2430	101	118	-15	98	4400	98	3250	98	2940	98	2670	98	2430	101	118	
-10	98	4640	98	3380	98	3060	98	2770	98	2510	101	118	-10	98	4530	98	3340	98	3030	98	2750	98	2490	101	118	-10	98	4530	98	3340	98	3030	98	2750	98	2490	101	118	
-5	98	4790	98	3480	98	3140	98	2850	98	2580	101	118	-5	99	4670	99	3430	99	3110	99	2820	99	2560	101	119	-5	99	4670	99	3430	99	3110	99	2820	99	2560	101	119	
0	98	4820	98	3500	98	3170	98	2870	98	2600	100	117	0	98	4710	98	3450	98	3130	98	2840	98	2580	100	118	0	98	4710	98	3450	98	3130	98	2840	98	2580	100	118	
5	95	4570	95	3340	95	3020	95	2740	95	2480	97	113	5	95	4470	95	3300	95	2990	95	2710	95	2460	98	114	5	95	4470	95	3300	95	2990	95	2710	95	2460	98	114	
10	93	4330	93	3180	93	2880	93	2610	93	2370	94	110	10	93	4230	93	3140	93	2850	93	2590	93	2350	95	110	10	93	4230	93	3140	93	2850	93	2590	93	2350	95	110	
15	90	4130	90	3050	90	2770	90	2510	90	2270	92	107	15	90	4040	90	3010	90	2730	90	2480	90	2250	92	107	15	90	4040	90	3010	90	2730	90	2480	90	2250	92	107	
20	88	3950	88	2930	88	2660	88	2440	89	2260	91	104	20	88	3860	88	2880	88	2620	88	2380	88	2190	90	104	20	88	3860	88	2880	88	2620	88	2380	88	2190	90	104	
25	85	3780	85	2820	86	2620	87	2440	88	2260	89	101	25	85	3700	85	2770	86	2530	86	2350	87	2180	88	101	25	85	3700	85	2770	86	2530	86	2350	87	2180	88	101	
30	84	3760	84	2840	85	2640	86	2470	87	2300	87	98	30	84	3610	84	2730	85	2540	85	2360	86	2200	87	98	30	84	3610	84	2730	85	2540	85	2360	86	2200	87	98	
35	85	4060	86	3070	86	2880	87	2690	88	2520	88	98	35	83	3710	83	2810	84	2630	85	2460	85	2300	86	96	35	83	3710	83	2810	84	2630	85	2460	85	2300	86	96	
40	87	4380	87	3330	88	3130	88	2930	89	2740	89	99	40	85	3990	84	3050	85	2860	86	2680	86	2500	86	96	40	85	3990	84	3050	85	2860	86	2680	86	2500	86	96	
42	87	4510	87	3450	88	3240	89	3040	89	2840	89	99	42	85	4110	85	3160	86	2960	86	2770	87	2590	87	96	42	85	4110	85	3160	86	2960	86	2770	87	2590	87	96	

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
6000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS								VENR = 160 KIAS								WEIGHT = 16500 LBS								VENR = 160 KIAS											
TEMP DEG C	TAILWIND		ZERO WIND		H E A D W I N D S						VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		H E A D W I N D S						VR V2 KIAS												
	10 KTS				10 KTS	DIST	20 KTS	DIST	30 KTS	DIST			10 KTS	DIST	10 KTS	DIST	10 KTS	DIST	20 KTS	DIST	30 KTS	DIST													
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST		
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT		
-35	97	5680	97	3680	97	3250	98	2960	99	2740	103 115	-35	97	5530	97	3630	97	3210	97	2860	98	2620	102 114	-35	97	5530	97	3630	97	3210	97	2860	98	2620	102 114
-30	97	5970	97	3820	97	3370	97	3020	99	2790	103 115	-30	97	5800	97	3760	97	3320	97	2950	98	2670	102 114	-30	97	5800	97	3760	97	3320	97	2950	98	2670	102 114
-25	97	6280	97	3960	97	3490	97	3090	98	2850	103 115	-25	97	6090	97	3900	97	3440	97	3050	98	2740	102 114	-25	97	6090	97	3900	97	3440	97	3050	98	2740	102 114
-20	97	6620	97	4110	97	3610	97	3190	98	2910	103 115	-20	97	6400	97	4050	97	3560	97	3150	97	2810	102 114	-20	97	6400	97	4050	97	3560	97	3150	97	2810	102 114
-15	97	6980	97	4270	97	3740	97	3300	98	2970	103 115	-15	97	6740	97	4190	97	3680	97	3260	97	2890	102 114	-15	97	6740	97	4190	97	3680	97	3260	97	2890	102 114
-10	97	7380	97	4430	97	3870	97	3410	97	3030	103 115	-10	97	7100	97	4350	97	3810	97	3360	97	2990	102 115	-10	97	7100	97	4350	97	3810	97	3360	97	2990	102 115
-5	97	7540	97	4500	97	3930	97	3460	97	3130	103 115	-5	97	7240	97	4410	97	3860	97	3410	97	3030	102 114	-5	97	7240	97	4410	97	3860	97	3410	97	3030	102 114
0	95	6970	95	4290	96	3900	97	3630	98	3370	104 115	0	95	6730	95	4220	95	3720	96	3460	97	3210	103 114	0	95	6730	95	4220	95	3720	96	3460	97	3210	103 114
5	92	6430	95	4530	96	4210	98	3920	99	3640	105 116	5	92	6230	94	4310	96	4020	97	3730	98	3470	104 114	5	92	6230	94	4310	96	4020	97	3730	98	3470	104 114
10	92	6600	96	4940	98	4590	99	4270	100	3960	106 116	10	91	6260	95	4690	97	4370	98	4060	100	3770	104 115	10	91	6260	95	4690	97	4370	98	4060	100	3770	104 115
15	93	7230	97	5380	98	5000	100	4640	101	4300	106 116	15	92	6840	96	5100	98	4750	99	4410	101	4090	105 115	15	92	6840	96	5100	98	4750	99	4410	101	4090	105 115
20	93	7970	98	5890	99	5470	101	5070	102	4700	107 116	20	93	7530	97	5580	99	5180	100	4810	102	4460	106 115	20	93	7530	97	5580	99	5180	100	4810	102	4460	106 115
25	94	8660	99	6490	101	6020	102	5570	103	5160	108 116	25	94	8350	98	6130	100	5690	101	5270	103	4880	106 115	25	94	8350	98	6130	100	5690	101	5270	103	4880	106 115
30	95	9930	100	7190	102	6660	103	6160	104	5690	108 117	30	95	9320	99	6770	101	6270	102	5810	104	5370	107 115	30	95	9320	99	6770	101	6270	102	5810	104	5370	107 115
35	96	11240	101	8030	103	7420	104	6840	106	6310	109 117	35	96	10500	100	7530	102	6960	103	6430	105	5930	108 116	35	96	10500	100	7530	102	6960	103	6430	105	5930	108 116
37	96	11810	101	8380	103	7730	105	7130	106	6560	109 117	39	96	11560	101	8190	103	7550	104	6970	106	6420	108 116	39	96	11560	101	8190	103	7550	104	6970	106	6420	108 116
39	96	12430	102	8760	103	8080	105	7430	106	6840	109 117																								

WEIGHT = 16000 LBS								VENR = 160 KIAS								WEIGHT = 15500 LBS								VENR = 160 KIAS							
TEMP	TAILWIND		ZERO		H E A D W I N D S								TEMP	TAILWIND		ZERO		H E A D W I N D S													
DEG	10 KTS		WIND		10 KTS		20 KTS		30 KTS				DEG	10 KTS		WIND		10 KTS		20 KTS		30 KTS									
C	V1 DIST		V1 DIST		V1 DIST		V1 DIST		V1 DIST		VR V2		C	V1 DIST		V1 DIST		V1 DIST		V1 DIST		V1 DIST		VR V2							
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT						
-35	97	5320	97	3550	97	3150	97	2810	98	2540	102	114	-35	97	5130	97	3480	97	3100	97	2770	97	2480	101	114						
-30	97	5570	97	3680	97	3260	97	2900	97	2600	102	114	-30	97	5350	97	3600	97	3200	97	2860	97	2560	101	114						
-25	97	5820	97	3810	97	3370	97	3000	97	2680	102	114	-25	98	5590	98	3720	98	3310	98	2950	98	2640	101	114						
-20	97	6100	97	3950	97	3490	97	3100	97	2760	102	114	-20	98	5840	98	3850	98	3420	98	3040	98	2720	101	115						
-15	97	6400	97	4090	97	3600	97	3200	97	2850	102	115	-15	98	6100	98	3990	98	3530	98	3140	98	2800	101	115						
-10	98	6720	98	4230	98	3720	98	3300	98	2940	102	115	-10	98	6390	98	4120	98	3640	98	3240	98	2890	101	115						
-5	97	6840	97	4290	97	3770	97	3340	97	2970	102	114	-5	97	6500	97	4180	97	3690	97	3280	97	2920	101	114						
0	95	6390	95	4100	95	3620	95	3220	96	2990	101	112	0	95	6090	95	4000	95	3540	95	3160	95	2840	100	112						
5	92	5950	93	4000	94	3730	96	3470	97	3220	102	113	5	92	5700	92	3820	93	3460	94	3220	95	2990	100	111						
10	91	5790	94	4350	96	4050	97	3760	98	3490	102	113	10	90	5530	93	4030	94	3750	95	3490	97	3240	100	111						
15	92	6310	95	4710	97	4390	98	4080	99	3780	103	113	15	91	5810	94	4360	95	4060	96	3770	98	3500	101	111						
20	93	6910	96	5140	98	4780	99	4440	100	4120	104	113	20	92	6350	95	4740	96	4410	97	4100	99	3800	102	111						
25	94	7620	97	5620	99	5220	100	4850	101	4490	105	113	25	93	6970	96	5170	97	4810	99	4460	100	4140	103	112						
30	95	8480	98	6190	100	5740	101	5320	102	4930	105	114	30	94	7710	97	5660	98	5260	100	4880	101	4520	103	112						
35	96	9480	99	6850	101	6340	102	5860	103	5420	106	114	35	95	8580	98	6240	100	5780	101	5360	102	4960	104	112						
39	96	10370	100	7410	102	6850	103	6330	104	5840	106	114	39	96	9330	99	6720	100	6230	102	5770	103	5330	104	112						

WEIGHT = 15000 LBS								VENR = 160 KIAS								WEIGHT = 14500 LBS								VENR = 160 KIAS							
TEMP	TAILWIND		ZERO		HEADWINDS								TEMP	TAILWIND		ZERO		HEADWINDS													
DEG	10 KTS		WIND		10 KTS		20 KTS		30 KTS				DEG	10 KTS		WIND		10 KTS		20 KTS		30 KTS									
C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2	C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS							
-35	98	4960	98	3410	98	3040	98	2720	98	2440	101	114	-35	98	4810	98	3350	98	2990	98	2690	98	2410	100	115						
-30	98	5170	98	3530	98	3140	98	2810	98	2520	101	115	-30	98	4990	98	3460	98	3090	98	2770	98	2490	100	115						
-25	98	5380	98	3640	98	3250	98	2900	98	2600	101	115	-25	98	5190	98	3570	98	3190	98	2860	98	2560	100	115						
-20	98	5610	98	3770	98	3350	98	2990	98	2680	101	115	-20	98	5400	98	3690	98	3290	98	2950	98	2640	100	115						
-15	98	5840	98	3890	98	3460	98	3090	98	2760	101	115	-15	98	5610	98	3810	98	3390	98	3040	98	2720	100	115						
-10	98	6100	98	4020	98	3570	98	3180	98	2840	101	115	-10	98	5840	98	3930	98	3500	98	3130	98	2800	101	115						
-5	97	6190	97	4070	97	3610	97	3220	97	2880	101	114	-5	97	5930	97	3980	97	3540	97	3160	97	2830	100	115						
0	95	5830	95	3900	95	3470	95	3100	95	2780	99	112	0	95	5600	95	3810	95	3400	95	3050	95	2730	99	112						
5	92	5470	92	3730	92	3330	93	2990	94	2780	98	109	5	93	5270	93	3640	93	3260	93	2920	93	2690	97	109						
10	90	5140	91	3730	93	3480	94	3230	95	3000	98	109	10	90	4960	90	3480	91	3220	92	2990	93	2780	96	107						
15	90	5360	92	4030	94	3750	95	3490	96	3240	99	109	15	89	4940	91	3720	92	3470	93	3230	94	3000	97	108						
20	91	5840	94	4370	95	4070	96	3780	97	3510	100	110	20	90	5360	92	4030	93	3750	94	3490	95	3240	98	108						
25	92	6380	95	4750	96	4420	97	4110	98	3810	101	110	25	91	5850	93	4370	94	4070	95	3780	96	3510	99	108						
30	93	7020	96	5190	97	4830	98	4480	99	4160	101	110	30	92	6410	94	4760	96	4430	97	4120	97	3820	99	108						
35	94	7770	97	5690	98	5290	99	4910	100	4550	102	110	35	94	7060	96	5210	97	4840	98	4490	99	4190	100	108						
39	95	8410	98	6110	99	5680	100	5260	101	4870	102	110	39	94	7610	96	5570	97	5180	98	4800	99	4500	100	109						

56FMC-00-00

Figure 4-25 (Sheet 13)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
6000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2	KIAS								
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS								10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					
-35	98	4660	98	3290	98	2950	98	2650	98	2390	100	115		-35	98	4540	98	3230	98	2910	98	2620	98	2360	99	115													
-30	98	4840	98	3390	98	3040	98	2730	98	2460	100	115		-30	98	4700	98	3330	98	3000	98	2700	98	2430	100	115													
-25	98	5020	98	3500	98	3140	98	2820	98	2530	100	115		-25	98	4870	98	3440	98	3090	98	2780	98	2500	100	116													
-20	98	5210	98	3610	98	3230	98	2900	98	2610	100	115		-20	98	5040	98	3550	98	3180	98	2860	98	2580	100	116													
-15	98	5410	98	3730	98	3330	98	2990	98	2690	100	116		-15	98	5230	98	3650	98	3280	98	2950	98	2650	100	116													
-10	98	5620	98	3840	98	3430	98	3080	98	2760	100	116		-10	98	5420	98	3770	98	3370	98	3030	98	2730	100	116													
-5	97	5690	97	3890	97	3470	97	3110	97	2790	100	115		-5	97	5480	97	3810	97	3410	97	3060	97	2760	99	115													
0	95	5390	95	3730	95	3340	95	3000	95	2690	98	112		0	95	5210	95	3650	95	3280	95	2950	95	2660	98	112													
5	93	5090	93	3570	93	3200	93	2880	93	2610	96	109		5	93	4920	93	3490	93	3140	93	2830	93	2550	96	109													
10	90	4800	90	3400	90	3060	91	2820	92	2620	95	106		10	90	4650	90	3340	90	3000	90	2730	91	2540	94	106													
15	88	4570	89	3440	90	3200	91	2980	92	2770	95	106		15	88	4440	88	3210	88	2960	89	2750	90	2560	93	104													
20	89	4940	90	3720	92	3460	93	3220	93	2990	96	106		20	87	4540	89	3420	90	3190	91	2970	92	2750	94	104													
25	90	5360	92	4020	93	3750	94	3480	95	3240	96	106		25	89	4920	90	3710	91	3450	92	3210	93	2990	94	104													
30	91	5860	93	4370	94	4070	95	3780	96	3540	97	106		30	90	5350	91	4010	92	3730	93	3480	94	3270	95	104													
35	92	6420	94	4760	95	4430	96	4130	97	3880	98	107		35	91	5850	92	4360	93	4060	94	3820	95	3590	96	105													
39	93	6890	95	5090	96	4730	97	4430	98	4170	98	107		39	92	6260	93	4650	94	4350	95	4090	96	3840	96	105													

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2														
	10 KTS		WIND		10 KTS		20 KTS		30 KTS					10 KTS		WIND		10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT												
-35	98	4420	98	3180	98	2870	98	2590	98	2340	100	116	-35	98	4320	98	3140	98	2840	98	2570	98	2320	100	117														
-30	98	4570	98	3280	98	2960	98	2670	98	2410	100	116	-30	98	4460	98	3230	98	2920	98	2640	98	2390	100	117														
-25	98	4730	98	3380	98	3040	98	2750	98	2480	100	116	-25	98	4610	98	3330	98	3010	98	2720	98	2460	100	117														
-20	98	4890	98	3480	98	3140	98	2830	98	2550	100	117	-20	98	4760	98	3430	98	3090	98	2800	98	2530	100	117														
-15	98	5060	98	3590	98	3230	98	2910	98	2620	100	117	-15	98	4920	98	3530	98	3180	98	2870	98	2600	101	117														
-10	98	5240	98	3690	98	3320	98	2990	98	2700	100	117	-10	98	5080	98	3630	98	3270	98	2950	98	2670	101	117														
-5	98	5300	98	3730	98	3350	98	3020	98	2730	100	116	-5	98	5130	98	3670	98	3300	98	2980	98	2700	100	117														
0	95	5040	95	3580	95	3220	95	2910	95	2620	97	113	0	95	4890	95	3520	95	3170	95	2870	95	2590	97	113														
5	93	4770	93	3430	93	3090	93	2790	93	2520	95	110	5	93	4640	93	3360	93	3040	93	2750	93	2490	95	110														
10	90	4520	90	3270	90	2950	90	2670	91	2470	94	107	10	90	4390	90	3210	90	2900	90	2630	91	2390	93	107														
15	88	4310	88	3150	88	2860	89	2660	90	2470	92	104	15	88	4200	88	3090	88	2790	89	2580	89	2390	91	104														
20	86	4180	87	3150	88	2940	89	2730	89	2530	91	102	20	86	4020	86	2980	87	2780	87	2580	88	2400	90	101														
25	87	4520	88	3400	89	3170	90	2950	91	2760	92	102	25	85	4140	86	3130	87	2910	88	2710	88	2540	90	100														
30	88	4900	89	3680	90	3430	91	3220	92	3020	93	102	30	87	4490	87	3380	88	3160	89	2960	90	2770	91	100														
35	90	5330	90	3990	91	3750	92	3520	93	3300	94	103	35	88	4860	89	3670	89	3450	90	3240	91	3040	91	101														
39	91	5690	91	4260	92	4010	93	3770	94	3540	94	103	39	89	5170	89	3920	90	3690	91	3470	92	3250	92	101														

WEIGHT = 12000 LBS										VENR = 160 KIAS																	
TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR	V2	KIAS
	10 KTS		WIND		10 KTS		20 KTS		30 KTS						10 KTS		WIND		10 KTS		20 KTS		30 KTS				
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			
-35	98	4220	98	3100	98	2810	98	2540	98	2310	100	117	-35	98	4140	98	3070	98	2780	98	2530	98	2290	101	118		
-30	98	4360	98	3190	98	2890	98	2620	98	2370	100	117	-30	99	4270	99	3160	99	2870	99	2600	99	2360	101	118		
-25	98	4500	98	3290	98	2970	98	2690	98	2440	101	118	-25	99	4400	99	3250	99	2950	99	2670	99	2430	101	118		
-20	98	4640	98	3380	98	3060	98	2770	98	2510	101	118	-20	99	4540	99	3340	99	3030	99	2750	99	2490	101	119		
-15	98	4790	98	3480	98	3140	98	2850	98	2580	101	118	-15	99	4670	99	3430	99	3110	99	2820	99	2560	101	119		
-10	98	4940	98	3570	98	3230	98	2920	98	2650	101	118	-10	99	4810	99	3530	99	3190	99	2900	99	2630	101	119		
-5	98	4990	98	3610	98	3260	98	2950	98	2670	100	117	-5	98	4860	98	3560	98	3220	98	2920	98	2650	101	118		
0	96	4750	96	3460	96	3130	96	2830	96	2570	98	114	0	96	4630	96	3410	96	3090	96	2810	96	2550	98	115		
5	93	4520	93	3310	93	2990	93	2710	93	2460	95	111	5	93	4400	93	3260	93	2960	93	2680	93	2440	95	111		
10	91	4280	91	3160	91	2860	91	2590	91	2350	93	107	10	91	4180	91	3110	91	2820	91	2560	91	2330	92	107		
15	88	4090	88	3030	88	2750	88	2500	89	2320	91	104	15	88	4000	88	2980	88	2710	88	2460	88	2240	90	104		
20	86	3920	86	2920	86	2680	87	2500	88	2320	89	101	20	86	3830	86	2870	86	2600	86	2410	86	2240	89	101		
25	84	3830	84	2890	85	2690	86	2510	87	2340	88	98	25	83	3690	84	2790	85	2600	85	2410	86	2240	87	99		
30	85	4090	85	3090	86	2900	87	2720	87	2540	88	98	30	83	3740	83	2830	84	2650	84	2480	85	2320	86	96		
35	86	4430	86	3370	87	3170	88	2970	89	2780	89	99	35	84	4030	84	3080	85	2890	86	2710	86	2530	86	96		
39	87	4700	87	3600	88	3380	89	3170	89	2970	89	99	39	85	4280	85	3290	86	3090	86	2900	87	2710	87	97		

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
7000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS												
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS																			
	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT		V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT		V1 KTAS	DIST FT	V1 KTAS	DIST FT	V1 KTAS	DIST FT	VR	V2									
-35	97	6100	97	3890	97	3420	97	3090	99	2870	104	115	-35	97	5920	97	3820	97	3380	97	3000	98	2740	102	114	-35	97	5920	97	3820	97	3380	97	3000	98	2740	102	114	
-30	97	6420	97	4030	97	3540	97	3160	98	2930	103	115	-30	97	6220	97	3970	97	3490	97	3100	97	2800	102	114	-30	97	6220	97	3970	97	3490	97	3100	97	2800	102	114	
-25	97	6780	97	4190	97	3670	97	3250	98	2990	103	115	-25	97	6550	97	4120	97	3620	97	3200	97	2860	102	114	-25	97	6550	97	4120	97	3620	97	3200	97	2860	102	114	
-20	97	7190	97	4360	97	3810	97	3360	98	3050	103	115	-20	97	6920	97	4280	97	3750	97	3320	97	2950	102	114	-20	97	6920	97	4280	97	3750	97	3320	97	2950	102	114	
-15	97	7620	97	4530	97	3950	97	3480	97	3120	103	115	-15	97	7310	97	4440	97	3890	97	3430	97	3040	102	114	-15	97	7310	97	4440	97	3890	97	3430	97	3040	102	114	
-10	96	7600	96	4530	96	3960	96	3500	98	3250	104	115	-10	96	7300	96	4450	96	3890	96	3440	97	3110	102	114	-10	96	7300	96	4450	96	3890	96	3440	97	3110	102	114	
-5	95	7400	95	4470	95	3960	97	3690	98	3430	104	115	-5	95	7110	95	4380	95	3840	96	3520	97	3270	103	114	-5	95	7110	95	4380	95	3840	96	3520	97	3270	103	114	
0	93	6860	94	4590	96	4270	97	3970	99	3690	105	116	0	93	6630	94	4370	95	4070	97	3790	98	3520	104	114	0	93	6630	94	4370	95	4070	97	3790	98	3520	104	114	
5	91	6650	95	4980	97	4640	98	4310	100	4010	106	116	5	91	6310	95	4740	96	4410	98	4100	99	3810	104	115	5	91	6310	95	4740	96	4410	98	4100	99	3810	104	115	
10	92	7300	96	5450	98	5070	99	4710	101	4370	106	116	10	92	6920	96	5170	97	4810	99	4470	100	4150	105	115	10	92	6920	96	5170	97	4810	99	4470	100	4150	105	115	
15	93	8040	97	5960	99	5540	100	5140	102	4770	107	116	15	92	7600	97	5640	98	5250	100	4880	101	4520	106	115	15	92	7600	97	5640	98	5250	100	4880	101	4520	106	115	
20	93	8930	98	6570	100	6100	101	5650	103	5230	108	116	20	93	8420	98	6200	99	5760	101	5340	102	4950	106	115	20	93	8420	98	6200	99	5760	101	5340	102	4950	106	115	
25	94	9990	99	7270	101	6740	102	6240	104	5760	108	116	25	94	9380	99	6850	100	6350	102	5880	103	5440	107	115	25	94	9380	99	6850	100	6350	102	5880	103	5440	107	115	
30	95	11320	100	8130	102	7520	103	6940	105	6410	109	117	30	95	10580	100	7630	101	7060	103	6530	104	6030	108	116	30	95	10580	100	7630	101	7060	103	6530	104	6030	108	116	
33	95	12250	101	8720	102	8050	104	7410	106	6830	109	117	33	95	11980	101	8500	102	7850	104	7240	105	6670	108	116	33	95	11980	101	8500	102	7850	104	7240	105	6670	108	116	
35	96	12890	101	9110	103	8400	104	7730	106	7120	109	117	35	96	12290	101	8690	102	8020	104	7390	105	6810	108	116	35	96	12290	101	8690	102	8020	104	7390	105	6810	108	116	

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEADWINDS								VR	V2
			10 KTS		20 KTS		30 KTS		10 KTS							20 KTS		30 KTS							
			V1	DIST	V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST				
			KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT						KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT		
-35	97 5670	97 3740	97 3310	97 2950	97 2650	101 114					-35	97 5450	97 3650	97 3250	97 2900	97 2590	101 114								
-30	97 5940	97 3870	97 3420	97 3040	97 2720	102 114					-30	97 5690	97 3780	97 3360	97 2990	97 2670	101 114								
-25	97 6240	97 4010	97 3540	97 3150	97 2800	102 114					-25	97 5960	97 3920	97 3470	97 3090	97 2760	101 114								
-20	97 6560	97 4160	97 3670	97 3250	97 2900	102 114					-20	97 6250	97 4060	97 3590	97 3190	97 2850	101 114								
-15	97 6900	97 4320	97 3800	97 3360	97 2990	102 114					-15	97 6550	97 4200	97 3710	97 3300	97 2940	101 114								
-10	96 6890	96 4320	96 3800	96 3370	96 3000	101 113					-10	96 6540	96 4210	96 3710	96 3300	96 2940	101 113								
-5	95 6730	95 4260	95 3750	95 3330	96 3040	101 112					-5	95 6400	95 4150	95 3670	95 3260	95 2910	100 112								
0	93 6300	93 4080	94 3780	95 3520	97 3270	102 113					0	93 6020	93 3980	93 3530	94 3260	95 3030	100 111								
5	90 5870	93 4390	95 4090	96 3800	98 3530	102 113					5	90 5630	92 4070	94 3790	95 3530	96 3280	100 111								
10	91 6370	95 4780	96 4450	97 4140	99 3840	103 113					10	90 5870	93 4410	95 4110	96 3830	97 3550	101 111								
15	92 6970	95 5200	97 4840	98 4500	100 4170	104 113					15	91 6410	94 4790	96 4460	97 4150	98 3850	102 111								
20	93 7690	97 5690	98 5290	99 4920	101 4560	104 113					20	92 7040	95 5230	97 4870	98 4520	99 4200	103 112								
25	94 8530	98 6260	99 5810	100 5390	102 4990	105 114					25	93 7770	96 5730	98 5320	99 4940	100 4580	103 112								
30	95 9560	99 6930	100 6430	102 5950	103 5510	106 114					30	94 8660	98 6320	99 5860	100 5440	101 5040	104 112								
35	96 10740	100 7680	101 7110	103 6560	104 6060	106 114					35	95 9650	99 6960	100 6450	101 5970	102 5520	104 112								
36	96 11000	100 7840	101 7250	103 6690	104 6180	106 114					36	95 9870	99 7100	100 6570	101 6080	103 5630	105 112								

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS																					
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST						V1	DIST	V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	VR	V2																
-35	97	5250	97	3580	97	3190	97	2850	97	2560	101	114	-35	97	5070	97	3510	97	3130	97	2810	97	2520	100	114														
-30	97	5470	97	3700	97	3290	97	2940	97	2640	101	114	-30	97	5280	97	3620	97	3230	97	2900	97	2600	100	115														
-25	97	5710	97	3830	97	3400	97	3040	97	2720	101	114	-25	97	5500	97	3740	97	3340	97	2990	97	2680	100	115														
-20	97	5970	97	3960	97	3520	97	3140	97	2810	101	115	-20	97	5730	97	3870	97	3450	97	3080	97	2770	100	115														
-15	97	6240	97	4100	97	3630	97	3240	97	2890	101	115	-15	97	5970	97	4000	97	3560	97	3180	97	2850	100	115														
-10	96	6230	96	4100	96	3630	96	3240	96	2900	100	114	-10	96	5960	96	4000	96	3560	96	3180	96	2850	100	114														
-5	95	6100	95	4040	95	3590	95	3200	95	2870	99	112	-5	95	5840	95	3950	95	3520	95	3150	95	2820	99	112														
0	93	5760	93	3880	93	3460	93	3090	93	2840	98	109	0	93	5540	93	3790	93	3390	93	3030	93	2760	97	109														
5	90	5410	91	3760	92	3510	93	3270	94	3040	98	109	5	90	5210	90	3620	90	3250	92	3020	93	2810	96	107														
10	89	5420	92	4090	93	3810	94	3540	96	3290	99	109	10	88	4990	90	3770	92	3520	93	3270	94	3040	97	108														
15	90	5890	93	4420	94	4110	95	3830	97	3560	100	110	15	89	5410	92	4070	93	3800	94	3530	95	3290	98	108														
20	92	6440	94	4810	95	4480	97	4160	98	3860	101	110	20	91	5900	93	4420	94	4120	95	3830	96	3560	98	108														
25	93	7080	95	5250	96	4880	98	4540	99	4210	101	110	25	92	6460	94	4810	95	4480	96	4170	97	3870	99	108														
30	94	7840	96	5770	98	5360	99	4970	100	4610	102	110	30	93	7120	95	5270	96	4900	97	4550	98	4230	100	108														
35	95	8700	97	6320	99	5870	100	5440	101	5040	102	110	35	94	7850	96	5760	97	5350	98	4970	99	4640	100	109														
36	95	8860	98	6440	99	5970	100	5540	101	5130	103	110	36	94	8000	96	5860	97	5440	98	5050	99	4720	101	109														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
7000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS																					
					10 KTS		20 KTS		30 KTS		10 KTS							20 KTS		30 KTS																			
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS															
-35	97	4910	97	3440	97	3080	97	2770	97	2490	100	115	-35	98	4770	98	3380	98	3040	98	2730	98	2460	99	115														
-30	97	5100	97	3550	97	3180	97	2850	97	2570	100	115	-30	98	4940	98	3480	98	3130	98	2820	98	2540	99	115														
-25	97	5300	97	3670	97	3280	97	2940	97	2650	100	115	-25	98	5120	98	3600	98	3230	98	2900	98	2610	99	115														
-20	98	5510	98	3790	98	3390	98	3040	98	2730	100	115	-20	98	5320	98	3710	98	3330	98	2990	98	2690	100	116														
-15	98	5730	98	3910	98	3490	98	3130	98	2810	100	115	-15	98	5520	98	3830	98	3430	98	3080	98	2770	100	116														
-10	97	5720	97	3910	97	3490	97	3130	97	2810	99	114	-10	97	5510	97	3830	97	3430	97	3080	97	2770	99	114														
-5	95	5610	95	3860	95	3450	95	3090	95	2780	98	112	-5	95	5410	95	3770	95	3380	95	3040	95	2740	98	113														
0	93	5330	93	3710	93	3320	93	2980	93	2680	97	110	0	93	5150	93	3630	93	3260	93	2930	93	2640	96	110														
5	91	5030	91	3550	91	3180	91	2890	92	2690	95	107	5	91	4870	91	3470	91	3120	91	2820	91	2600	95	107														
10	88	4760	89	3480	90	3250	91	3020	92	2810	95	106	10	88	4620	88	3320	88	3020	89	2810	90	2610	93	104														
15	88	4980	90	3760	91	3500	92	3260	93	3030	96	106	15	87	4580	88	3460	89	3230	90	3000	91	2790	93	104														
20	89	5410	91	4070	92	3790	93	3530	94	3280	96	106	20	88	4960	89	3750	90	3490	91	3250	92	3020	94	104														
25	91	5900	92	4420	93	4110	94	3830	95	3560	97	106	25	89	5400	91	4050	92	3770	92	3510	93	3300	95	104														
30	92	6480	93	4820	95	4490	95	4170	96	3920	98	107	30	91	5900	92	4410	93	4110	94	3850	94	3620	96	105														
35	93	7100	95	5250	96	4880	97	4560	97	4290	98	107	35	92	6440	93	4790	94	4470	95	4210	96	3960	96	105														
36	93	7240	95	5340	96	4960	97	4640	98	4370	99	107	36	92	6560	93	4870	94	4550	95	4280	96	4030	96	105														

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS																
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS																		
					V1	DIST	V1	DIST	V1	DIST							V1	DIST	V1	DIST	V1	DIST		V1	DIST														
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST														
-35	98	4640	98	3320	98	2990	98	2700	98	2440	99	116	-35	98	4520	98	3270	98	2960	98	2670	98	2420	100	116														
-30	98	4800	98	3420	98	3080	98	2780	98	2510	100	116	-30	98	4670	98	3370	98	3040	98	2750	98	2490	100	116														
-25	98	4970	98	3530	98	3180	98	2860	98	2590	100	116	-25	98	4830	98	3470	98	3130	98	2830	98	2560	100	117														
-20	98	5150	98	3640	98	3280	98	2950	98	2660	100	116	-20	98	5000	98	3580	98	3230	98	2920	98	2640	100	117														
-15	98	5330	98	3750	98	3370	98	3040	98	2740	100	116	-15	98	5170	98	3690	98	3320	98	3000	98	2710	100	117														
-10	97	5320	97	3750	97	3370	97	3030	97	2740	99	115	-10	97	5150	97	3680	97	3320	97	2990	97	2710	99	116														
-5	95	5230	95	3700	95	3320	95	3000	95	2700	97	113	-5	96	5060	96	3630	96	3270	96	2960	96	2670	98	114														
0	93	4980	93	3550	93	3200	93	2890	93	2610	96	110	0	93	4830	93	3490	93	3150	93	2850	93	2580	95	110														
5	91	4720	91	3400	91	3070	91	2770	91	2530	94	107	5	91	4590	91	3340	91	3020	91	2730	91	2470	93	107														
10	88	4480	88	3250	88	2940	89	2720	90	2530	92	104	10	88	4360	88	3190	88	2890	89	2640	89	2450	92	104														
15	86	4290	86	3190	87	2970	88	2760	89	2570	91	102	15	86	4170	86	3070	87	2840	87	2650	88	2460	90	102														
20	87	4560	88	3440	89	3210	89	2980	90	2780	92	102	20	85	4180	86	3160	87	2940	87	2740	88	2560	90	100														
25	88	4930	89	3720	90	3470	91	3240	91	3040	93	102	25	86	4520	87	3410	88	3180	89	2980	89	2800	90	100														
30	89	5380	90	4040	91	3780	92	3550	93	3330	93	103	30	88	4910	88	3700	89	3480	90	3270	90	3060	91	101														
35	90	5850	91	4370	92	4120	93	3880	94	3640	94	103	35	89	5320	89	4030	90	3800	91	3570	91	3350	92	101														
36	91	5950	91	4450	92	4190	93	3950	94	3710	94	103	36	89	5400	89	4100	90	3860	91	3630	92	3400	92	101														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEADWINDS						VR V2	KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEADWINDS						VR V2	KIAS														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT										
-35	98	4410	98	3230	98	2920	98	2650	98	2400	100	117	-35	98	4320	98	3190	98	2900	98	2630	98	2390	100	118														
-30	98	4550	98	3320	98	3010	98	2720	98	2470	100	117	-30	98	4450	98	3280	98	2980	98	2700	98	2450	100	118														
-25	98	4700	98	3420	98	3100	98	2800	98	2540	100	117	-25	98	4590	98	3380	98	3060	98	2780	98	2520	101	118														
-20	98	4860	98	3530	98	3190	98	2880	98	2610	100	117	-20	98	4740	98	3480	98	3150	98	2860	98	2600	101	118														
-15	98	5020	98	3630	98	3280	98	2970	98	2690	100	118	-15	98	4890	98	3580	98	3240	98	2940	98	2670	101	118														
-10	97	5000	97	3620	97	3270	97	2960	97	2680	99	116	-10	97	4870	97	3570	97	3230	97	2930	97	2660	100	117														
-5	96	4920	96	3570	96	3220	96	2920	96	2640	98	114	-5	96	4790	96	3510	96	3180	96	2890	96	2620	98	115														
0	93	4700	93	3430	93	3100	93	2810	93	2550	95	111	0	94	4570	94	3370	94	3060	94	2780	94	2520	96	112														
5	91	4460	91	3280	91	2970	91	2690	91	2440	93	108	5	91	4350	91	3220	91	2930	91	2660	91	2410	93	108														
10	88	4240	88	3130	88	2840	88	2580	89	2370	91	105	10	89	4140	89	3080	89	2800	89	2540	89	2310	90	105														
15	86	4060	86	3020	86	2750	87	2560	88	2380	90	102	15	86	3960	86	2960	86	2690	86	2470	87	2300	89	102														
20	84	3910	84	2960	85	2760	86	2560	87	2390	88	99	20	84	3800	84	2850	85	2660	85	2470	86	2300	87	99														
25	84	4120	85	3120	86	2920	86	2740	87	2560	88	98	25	82	3790	83	2860	83	2680	84	2510	85	2350	86	96														
30	86	4470	86	3390	87	3190	88	2990	88	2800	89	99	30	84	4070	84	3110	85	2920	85	2730	86	2560	86	96														
35	87	4830	87	3700	88	3480	89	3270	89	3060	89	99	35	85	4390	85	3380	86	3180	86	2980	87	2790	87	97														
36	87	4900	87	3760	88	3540	89	3320	89	3110	90	99	36	85	4460	85	3440	86	3230	87	3030	87	2830	87	97														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
8000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2							
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS										
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT			
-35	97	6870	97	4220	97	3700	97	3270	98	2960	103	115							
-30	97	7290	97	4390	97	3840	97	3380	98	3020	103	115							
-25	97	7760	97	4580	97	3990	97	3510	97	3100	103	115							
-20	97	7920	97	4650	97	4040	97	3550	97	3200	103	115							
-15	95	7710	95	4580	95	4000	96	3630	98	3370	104	115							
-10	94	7540	94	4530	95	4110	97	3820	98	3560	104	115							
-5	93	7320	94	4660	95	4350	97	4040	98	3750	105	115							
0	90	6770	95	5040	96	4700	98	4370	99	4060	105	116							
5	91	7330	96	5490	97	5120	99	4760	100	4420	106	116							
10	92	8110	96	6030	98	5610	100	5210	101	4840	107	116							
15	93	8990	97	6640	99	6170	101	5720	102	5300	107	116							
20	93	10050	98	7360	100	6820	102	6320	103	5850	108	116							
25	94	11350	99	8210	101	7600	103	7020	104	6480	109	117							
29	95	12660	100	9040	102	8350	104	7700	105	7090	109	117							
30	95	13020	100	9270	102	8550	104	7880	105	7250	109	117							
31			100	9480	102	8740	104	8050	105	7410	109	117							

WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2							
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS										
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT			
-35	97	6630	97	4150	97	3640	97	3220	97	2870	102	114							
-30	97	7010	97	4310	97	3780	97	3340	97	2970	102	114							
-25	97	7440	97	4490	97	3920	97	3460	97	3070	102	114							
-20	97	7580	97	4550	97	3980	97	3500	97	3110	102	114							
-15	95	7400	95	4490	95	3930	95	3470	97	3220	103	114							
-10	94	7240	94	4440	94	3910	96	3640	97	3390	103	114							
-5	93	7040	93	4430	95	4140	96	3850	98	3580	103	114							
0	91	6540	94	4790	96	4470	97	4150	98	3860	104	115							
5	91	6950	95	5210	97	4860	98	4520	99	4190	105	115							
10	92	7660	96	5710	98	5320	99	4940	100	4590	106	115							
15	92	8470	97	6270	98	5830	100	5410	101	5020	106	115							
20	93	9450	98	6930	99	6430	101	5960	102	5520	107	115							
25	94	10620	99	7700	100	7130	102	6600	103	6100	108	116							
30	95	12120	100	8650	102	7990	103	7370	105	6800	108	116							
31	95	12420	100	8840	102	8170	103	7530	105	6940	108	116							
33	95	13070	100	9240	102	8530	104	7850	105	7230	108	116							

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR	V2														
	10 KTS				10 KTS		20 KTS		30 KTS					10 KTS				10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT												
-35	97	6300	97	4040	97	3570	97	3160	97	2820	102	114	-35	98	6020	98	3940	98	3490	98	3110	98	2780	101	115														
-30	97	6640	97	4200	97	3700	97	3280	97	2920	102	115	-30	98	6320	98	4090	98	3620	98	3210	98	2870	101	115														
-25	98	7010	98	4360	98	3830	98	3390	98	3010	102	115	-25	98	6650	98	4250	98	3750	98	3320	98	2960	101	115														
-20	97	7140	97	4420	97	3880	97	3430	97	3050	102	114	-20	97	6750	97	4300	97	3790	97	3360	97	3000	101	114														
-15	96	6980	96	4360	96	3840	96	3400	96	3020	101	112	-15	96	6610	96	4250	96	3750	96	3330	96	2970	100	113														
-10	94	6840	94	4320	94	3800	94	3390	96	3150	101	112	-10	94	6490	94	4200	94	3710	94	3300	94	2960	99	111														
-5	93	6670	93	4250	93	3840	95	3570	96	3320	101	113	-5	93	6340	93	4140	93	3670	93	3320	95	3080	99	111														
0	91	6230	93	4440	94	4140	96	3850	97	3580	102	113	0	91	5950	92	4110	93	3840	94	3570	96	3320	100	111														
5	90	6410	94	4820	95	4490	97	4180	98	3880	103	113	5	90	5910	93	4450	94	4150	95	3860	97	3590	101	111														
10	91	7040	95	5260	96	4900	98	4560	99	4230	104	113	10	91	6470	94	4850	95	4520	96	4200	98	3900	102	111														
15	92	7750	96	5760	97	5350	99	4980	100	4620	104	113	15	91	7090	95	5290	96	4920	97	4580	99	4250	102	112														
20	93	8600	97	6330	98	5880	100	5460	101	5060	105	114	20	92	7830	96	5800	97	5390	99	5010	100	4650	103	112														
25	94	9610	98	7000	99	6490	101	6020	102	5570	106	114	25	93	8700	97	6380	98	5920	100	5500	101	5100	104	112														
30	95	10670	99	7820	101	7230	102	6690	103	6180	106	114	30	94	9780	98	7080	99	6560	101	6080	102	5630	104	112														
33	95	11670	100	8320	101	7680	103	7090	104	6540	107	114	33	95	10450	99	7500	100	6950	101	6430	102	5950	105	112														

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR	V2										
	10 KTS		V1 DIST		10 KTS		20 KTS		30 KTS		10 KTS					V1 DIST		20 KTS		30 KTS																			
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST																		
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT																
-35	98	5770	98	3850	98	3420	98	3060	98	2740	101	115	-35	98	5540	98	3770	98	3360	98	3010	98	2700	100	115														
-30	98	6040	98	3990	98	3540	98	3160	98	2820	101	115	-30	98	5790	98	3900	98	3470	98	3110	98	2780	100	115														
-25	98	6330	98	4140	98	3670	98	3260	98	2920	101	115	-25	98	6050	98	4040	98	3590	98	3210	98	2870	101	115														
-20	97	6420	97	4190	97	3710	97	3300	97	2950	101	114	-20	97	6130	97	4090	97	3630	97	3240	97	2900	100	115														
-15	96	6300	96	4140	96	3670	96	3270	96	2920	100	113	-15	96	6020	96	4040	96	3590	96	3210	96	2880	99	113														
-10	94	6190	94	4090	94	3630	94	3240	94	2900	99	111	-10	94	5920	94	3990	94	3560	94	3180	94	2850	98	111														
-5	93	6050	93	4030	93	3580	93	3200	93	2910	98	110	-5	93	5800	93	3930	93	3510	93	3140	93	2820	97	110														
0	91	5700	91	3870	92	3550	93	3310	94	3070	98	109	0	91	5480	91	3770	91	3370	91	3060	92	2850	96	107														
5	89	5450	91	4120	93	3840	94	3580	95	3320	99	109	5	88	5180	90	3800	91	3550	92	3300	93	3070	97	108														
10	90	5940	92	4470	94	4170	95	3880	96	3600	100	110	10	89	5460	91	4120	92	3840	93	3580	94	3330	98	108														
15	91	6490	94	4860	95	4530	96	4210	97	3910	100	110	15	90	5950	92	4470	93	4170	94	3880	95	3600	98	108														
20	92	7140	95	5310	96	4940	97	4590	98	4270	101	110	20	91	6520	93	4870	94	4540	96	4220	97	3920	99	108														
25	93	7890	96	5820	97	5410	98	5030	99	4660	102	110	25	92	7170	94	5320	96	4950	97	4600	98	4270	100	108														
30	94	8810	97	6430	98	5970	99	5540	100	5130	102	110	30	93	7950	96	5850	97	5440	98	5050	99	4690	100	109														
33	94	9370	97	6790	99	6300	100	5840	101	5410	103	111	33	94	8430	96	6170	97	5730	98	5320	99	4950	101	109														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
8000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS								VENR = 160 KIAS								WEIGHT = 13500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS				
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	
-35	98	5350	98	3690	98	3300	98	2960	98	2660	100	115	-35	98	5170	98	3620	98	3250	98	2920	98	2630	100	116						
-30	98	5570	98	3820	98	3410	98	3060	98	2750	100	116	-30	98	5370	98	3740	98	3350	98	3010	98	2710	100	116						
-25	98	5800	98	3950	98	3520	98	3150	98	2830	100	116	-25	98	5590	98	3860	98	3460	98	3110	98	2800	100	116						
-20	97	5880	97	3990	97	3560	97	3190	97	2860	100	115	-20	97	5650	97	3900	97	3490	97	3140	97	2820	99	115						
-15	96	5770	96	3940	96	3520	96	3150	96	2830	99	113	-15	96	5550	96	3850	96	3450	96	3100	96	2790	98	114						
-10	95	5680	95	3900	95	3480	95	3120	95	2810	98	112	-10	95	5470	95	3810	95	3420	95	3070	95	2770	97	112						
-5	93	5570	93	3840	93	3440	93	3090	93	2780	97	110	-5	93	5370	93	3760	93	3370	93	3030	93	2730	96	110						
0	91	5280	91	3690	91	3310	91	2970	92	2750	95	107	0	91	5100	91	3610	91	3240	91	2920	91	2670	95	107						
5	88	5000	88	3540	89	3270	90	3050	91	2830	95	106	5	89	4840	89	3460	89	3120	89	2880	90	2680	93	105						
10	88	5030	89	3800	91	3550	92	3300	93	3070	95	106	10	86	4620	88	3500	89	3260	90	3040	91	2820	93	104						
15	89	5460	91	4110	92	3830	93	3570	94	3320	96	106	15	87	5010	89	3780	90	3530	91	3280	92	3050	94	104						
20	90	5960	92	4470	93	4160	94	3870	95	3600	97	106	20	89	5440	90	4100	91	3820	92	3560	93	3320	95	104						
25	91	6520	93	4870	94	4530	95	4210	96	3940	98	107	25	90	5940	91	4450	92	4150	93	3870	94	3640	95	105						
30	92	7200	94	5330	95	4960	96	4610	97	4340	98	107	30	91	6530	92	4860	93	4530	94	4260	95	4010	96	105						
33	93	7610	95	5610	96	5210	97	4860	98	4580	99	107	33	92	6880	93	5100	94	4760	95	4490	96	4220	97	105						

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																	
-35	98	5010	98	3560	98	3200	98	2880	98	2600	100	116	-35	98	4870	98	3500	98	3150	98	2850	98	2580	100	117														
-30	98	5200	98	3670	98	3300	98	2970	98	2680	100	117	-30	98	5040	98	3610	98	3250	98	2940	98	2650	100	117														
-25	98	5390	98	3790	98	3400	98	3060	98	2760	100	117	-25	98	5220	98	3720	98	3350	98	3020	98	2730	101	117														
-20	97	5450	97	3830	97	3430	97	3090	97	2790	100	116	-20	98	5270	98	3750	98	3380	98	3050	98	2760	100	117														
-15	96	5360	96	3780	96	3390	96	3060	96	2760	98	114	-15	96	5190	96	3700	96	3340	96	3010	96	2730	98	115														
-10	95	5280	95	3730	95	3360	95	3030	95	2730	97	112	-10	95	5110	95	3660	95	3300	95	2980	95	2700	97	113														
-5	93	5180	93	3680	93	3310	93	2990	93	2700	96	110	-5	93	5020	93	3610	93	3250	93	2940	93	2660	95	111														
0	91	4930	91	3530	91	3180	91	2870	91	2600	94	108	0	91	4780	91	3460	91	3130	91	2830	91	2560	94	108														
5	89	4690	89	3390	89	3060	89	2790	90	2600	93	105	5	89	4550	89	3320	89	3000	89	2720	89	2520	92	105														
10	86	4460	86	3250	87	3010	88	2800	89	2600	91	102	10	86	4330	86	3180	87	2910	87	2710	88	2520	90	102														
15	86	4590	87	3480	88	3240	89	3020	90	2810	92	102	15	84	4210	85	3190	86	2980	87	2770	88	2580	89	100														
20	87	4980	88	3760	89	3510	90	3270	91	3070	93	102	20	86	4560	86	3450	87	3210	88	3010	89	2820	90	100														
25	88	5410	89	4070	90	3800	91	3570	92	3360	93	103	25	87	4940	88	3730	88	3500	89	3290	90	3080	91	101														
30	90	5930	91	4440	92	4170	92	3930	93	3690	94	103	30	88	5380	89	4070	90	3840	90	3610	91	3390	92	101														
33	90	6230	91	4650	92	4390	93	4130	94	3890	94	103	33	89	5650	89	4280	90	4040	91	3800	92	3570	92	101														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT			ZERO WIND V1 DIST KIAS FT			H E A D W I N D S						VR V2 KIAS		TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT			ZERO WIND V1 DIST KIAS FT			H E A D W I N D S						VR V2 KIAS											
							10 KTS		20 KTS		30 KTS											10 KTS		20 KTS		30 KTS													
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST												
	-35	98	4740	98	3450	98	3120	98	2820	98	2560	101	118	-35		99	4630	99	3400	99	3080	99	2800	99	2540	101	119	-30	99	4780	99	3500	99	3170	99	2880	99	2610	101
-25	98	5070	98	3660	98	3310	98	2990	98	2710	101	118	-25	99	4940	99	3610	99	3270	99	2960	99	2690	101	119	-20	98	4980	98	3640	98	3290	98	2990	98	2710	100	118	
-15	96	5030	96	3640	96	3290	96	2980	96	2700	99	115	-15	96	4900	96	3580	96	3250	96	2950	96	2670	99	116	-10	95	4830	95	3540	95	3210	95	2910	95	2640	98	114	
-5	94	4870	94	3540	94	3200	94	2900	94	2630	96	111	-5	94	4740	94	3480	94	3160	94	2870	94	2600	96	112	0	91	4520	91	3340	91	3030	91	2750	91	2500	93	109	
5	89	4430	89	3260	89	2950	89	2680	89	2440	91	105	5	89	4310	89	3200	89	2910	89	2640	89	2400	91	105	10	86	4110	86	3070	86	2790	86	2530	87	2350	89	102	
15	84	4040	84	3030	85	2820	86	2630	87	2440	88	99	15	84	3940	84	2950	85	2720	85	2530	86	2350	88	100	20	82	3860	83	2930	83	2730	84	2560	85	2390	86	97	
20	84	4160	84	3150	85	2940	86	2760	87	2580	88	98	20	82	3860	83	2930	83	2730	84	2560	85	2390	86	97	25	83	4100	83	3120	84	2940	85	2750	85	2570	86	96	
25	85	4500	86	3410	86	3210	87	3010	88	2820	89	98	25	83	4100	83	3120	84	2940	85	2750	85	2570	86	96	30	84	4440	85	3420	85	3220	86	3020	87	2820	87	97	
30	86	4890	87	3740	88	3520	88	3310	89	3100	89	99	30	84	4440	85	3420	85	3220	86	3020	87	2820	87	97	33	87	5120	87	3930	88	3700	89	3480	89	3260	90	99	
33	87	5120	87	3930	88	3700	89	3480	89	3260	90	99	33	85	4640	85	3590	86	3380	87	3170	87	2970	87	97														

56FMC-00-00

Figure 4-25 (Sheet 18)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
9000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS										TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS																			
					10 KTS		20 KTS		30 KTS											10 KTS		20 KTS		30 KTS															
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2										
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT								
-35	97	7360	97	4430	97	3870	97	3410	98	3130	104	115	-35	97	7070	97	4350	97	3810	97	3370	97	2990	102	114														
-30	97	7850	97	4620	97	4020	97	3540	97	3190	103	115	-30	97	7520	97	4530	97	3960	97	3490	97	3090	102	114														
-25	96	8100	96	4720	96	4100	96	3610	97	3300	104	115	-25	96	7740	96	4620	96	4030	96	3550	96	3160	102	114														
-20	95	7920	95	4670	95	4070	96	3750	98	3480	104	115	-20	95	7580	95	4570	95	4000	95	3570	97	3320	103	114														
-15	93	7620	93	4580	95	4270	97	3980	98	3690	105	115	-15	93	7310	93	4480	94	4060	96	3790	97	3520	103	114														
-10	92	7460	94	4830	95	4490	97	4180	98	3890	105	116	-10	92	7170	93	4590	95	4280	96	3980	97	3700	104	114														
-5	91	7210	94	5120	96	4770	97	4440	99	4130	105	116	-5	91	6940	93	4870	95	4540	97	4220	98	3930	104	115														
0	90	7410	95	5560	97	5190	98	4820	100	4480	106	116	0	90	7020	94	5280	96	4920	97	4580	99	4260	105	115														
5	91	8170	96	6100	98	5680	99	5280	101	4900	107	116	5	91	7720	95	5780	97	5380	98	5000	100	4650	105	115														
10	92	9040	97	6710	98	6240	100	5790	102	5370	107	116	10	92	8530	96	6340	98	5890	99	5480	101	5080	106	115														
15	92	10110	97	7440	99	6900	101	6400	103	5920	108	116	15	92	9500	97	7000	99	6500	100	6030	102	5590	107	115														
20	93	11390	98	8290	100	7690	102	7100	103	6570	109	117	20	93	10670	98	7780	100	7210	101	6680	103	6180	107	115														
25	94	13020	99	9340	101	8630	103	7970	105	7340	109	117	25	94	12130	99	8720	101	8070	102	7450	104	6880	108	116														
27			100	9840	102	9080	103	8370	105	7700	109	117	27	94	12830	99	9170	101	8470	103	7810	104	7200	108	116														
													29			100	9620	102	8870	103	8180	105	7520	108	116														

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2										
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT				
-35	97	6700	97	4230	97	3720	97	3300	97	2940	101	114	-35	97	6370	97	4120	97	3640	97	3240	97	2890	101	114	-35	97	6370	97	4120	97	3640	97	3240	97	2890	101	114	
-30	97	7080	97	4400	97	3860	97	3420	97	3040	102	114	-30	97	6700	97	4280	97	3770	97	3350	97	2990	101	114	-30	97	6700	97	4280	97	3770	97	3350	97	2990	101	114	
-25	96	7270	96	4490	96	3940	96	3480	96	3090	101	113	-25	96	6870	96	4360	96	3840	96	3410	96	3040	101	114	-25	96	6870	96	4360	96	3840	96	3410	96	3040	101	114	
-20	95	7140	95	4440	95	3900	95	3450	95	3090	101	112	-20	95	6750	95	4320	95	3810	95	3380	95	3020	100	112	-20	95	6750	95	4320	95	3810	95	3380	95	3020	100	112	
-15	93	6900	93	4350	93	3830	94	3520	96	3270	101	113	-15	94	6550	94	4230	94	3740	94	3330	94	3040	99	111	-15	94	6550	94	4230	94	3740	94	3330	94	3040	99	111	
-10	92	6780	92	4310	93	3970	95	3700	96	3440	102	113	-10	92	6440	92	4190	92	3710	93	3430	95	3190	100	111	-10	92	6440	92	4190	92	3710	93	3430	95	3190	100	111	
-5	91	6580	92	4510	94	4210	95	3910	97	3640	102	113	-5	91	6260	91	4170	93	3890	94	3630	95	3380	100	111	-5	91	6260	91	4170	93	3890	94	3630	95	3380	100	111	
0	90	6480	93	4880	95	4550	96	4230	98	3940	103	113	0	89	5970	92	4510	94	4200	95	3910	96	3640	101	111	0	89	5970	92	4510	94	4200	95	3910	96	3640	101	111	
5	90	7090	94	5320	96	4960	97	4610	99	4290	104	113	5	90	6520	93	4900	95	4570	96	4250	97	3950	102	111	5	90	6520	93	4900	95	4570	96	4250	97	3950	102	111	
10	91	7800	95	5820	97	5410	98	5040	99	4670	104	113	10	91	7150	94	5350	96	4980	97	4630	98	4300	102	112	10	91	7150	94	5350	96	4980	97	4630	98	4300	102	112	
15	92	8660	96	6400	98	5950	99	5520	100	5130	105	114	15	92	7890	95	5860	97	5450	98	5070	99	4700	103	112	15	92	7890	95	5860	97	5450	98	5070	99	4700	103	112	
20	93	9660	97	7080	99	6570	100	6090	102	5640	106	114	20	93	8760	96	6450	98	5990	99	5560	100	5160	104	112	20	93	8760	96	6450	98	5990	99	5560	100	5160	104	112	
25	94	10900	98	7890	100	7300	101	6760	103	6250	106	114	25	93	9820	97	7140	99	6630	100	6140	101	5690	104	112	25	93	9820	97	7140	99	6630	100	6140	101	5690	104	112	
29	94	12100	99	8640	101	7980	102	7370	103	6800	107	114	30	94	11070	98	7940	100	7350	101	6800	102	6280	105	112	30	94	11070	98	7940	100	7350	101	6800	102	6280	105	112	
30	94	12400	99	8830	101	8150	102	7520	104	6940	107	114	31	95	11340	98	8110	100	7500	101	6940	103	6410	105	112	31	95	11340	98	8110	100	7500	101	6940	103	6410	105	112	
31	95	12720	99	9020	101	8330	103	7680	104	7080	107	114																											

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						VR	V2
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS			
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST				
	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT				KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT		
-35	97	6080	97	4020	97	3570	97	3180	97	2840	101	114	-35	97	5830	97	3920	97	3490	97	3120	97	2800	100	114
-30	97	6380	97	4170	97	3690	97	3290	97	2940	101	114	-30	97	6090	97	4070	97	3620	97	3230	97	2890	100	115
-25	96	6530	96	4240	96	3760	96	3340	96	2990	100	114	-25	97	6220	97	4140	97	3680	97	3280	97	2940	100	114
-20	95	6420	95	4200	95	3720	95	3320	95	2970	99	112	-20	95	6130	95	4100	95	3640	95	3250	95	2920	99	112
-15	94	6240	94	4120	94	3660	94	3260	94	2920	98	110	-15	94	5960	94	4020	94	3580	94	3200	94	2870	98	111
-10	92	6140	92	4090	92	3630	92	3240	93	2960	98	109	-10	92	5880	92	3980	92	3550	92	3180	93	2880	97	109
-5	91	5980	91	4020	91	3610	92	3360	94	3130	98	109	-5	91	5740	91	3920	91	3500	91	3130	92	2910	96	107
0	89	5650	91	4170	92	3890	93	3620	95	3370	99	109	0	89	5430	89	3850	91	3590	92	3350	93	3110	97	107
5	89	5990	92	4520	93	4210	94	3920	96	3650	100	110	5	88	5510	91	4170	92	3890	93	3630	94	3370	97	108
10	90	6540	93	4910	94	4580	95	4260	97	3960	100	110	10	89	6000	92	4520	93	4210	94	3920	95	3650	98	108
15	91	7190	94	5370	95	5000	97	4650	98	4320	101	110	15	90	6570	93	4920	94	4590	95	4270	96	3970	99	108
20	92	7950	95	5880	96	5470	98	5090	99	4720	102	110	20	91	7220	94	5380	95	5010	96	4660	97	4330	100	108
25	93	8860	96	6490	98	6030	99	5600	100	5190	102	110	25	92	8000	95	5900	96	5490	97	5100	98	4740	100	109
30	94	9910	97	7170	99	6650	100	6160	101	5710	103	111	30	93	8890	96	6490	97	6030	98	5600	99	5190	101	109
31	94	10130	97	7320	99	6780	100	6280	101	5810	103	111	31	94	9080	96	6610	97	6140	98	5700	99	5280	101	109

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Figure 4-25 (Sheet 19)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
9000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS								VR V2 KIAS												
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS						10 KTS		20 KTS		30 KTS																		
	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT			V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT	V1 KIAS	DIST FT																	
-35	97	5600	97	3840	97	3430	97	3070	97	2760	100	115	-35	97	5400	97	3760	97	3370	97	3030	97	2730	99	115														
-30	97	5840	97	3970	97	3540	97	3170	97	2850	100	115	-30	97	5620	97	3890	97	3480	97	3120	97	2810	99	115														
-25	97	5960	97	4040	97	3600	97	3220	97	2900	99	114	-25	97	5730	97	3950	97	3530	97	3170	97	2850	99	115														
-20	95	5870	95	4000	95	3570	95	3200	95	2870	98	113	-20	95	5640	95	3910	95	3500	95	3140	95	2830	98	113														
-15	94	5720	94	3920	94	3510	94	3150	94	2830	97	111	-15	94	5500	94	3840	94	3440	94	3090	94	2790	97	111														
-10	93	5640	93	3890	93	3480	93	3120	93	2810	97	109	-10	93	5430	93	3800	93	3410	93	3070	93	2760	96	110														
-5	91	5510	91	3820	91	3420	91	3080	92	2820	96	108	-5	91	5310	91	3740	91	3360	91	3020	91	2730	95	108														
0	89	5230	89	3670	89	3320	90	3090	91	2870	95	106	0	89	5050	89	3590	89	3230	89	2950	90	2750	93	105														
5	87	5070	89	3840	90	3580	91	3340	92	3110	95	106	5	86	4800	87	3540	88	3300	89	3070	90	2860	93	104														
10	88	5500	90	4150	91	3870	92	3610	93	3360	96	106	10	87	5050	88	3820	89	3570	90	3320	91	3090	94	104														
15	89	6000	91	4510	92	4210	93	3920	94	3640	97	106	15	88	5490	90	4140	91	3860	92	3600	93	3350	95	104														
20	90	6570	92	4920	93	4580	94	4260	95	3970	97	106	20	89	5990	91	4500	92	4190	93	3900	94	3670	95	105														
25	91	7240	93	5380	95	5010	96	4660	96	4360	98	107	25	90	6570	92	4910	93	4570	94	4280	95	4030	96	105														
30	93	8000	95	5900	96	5480	97	5090	98	4800	99	107	30	92	7220	93	5360	94	4990	95	4700	96	4430	97	105														
31	93	8160	95	6000	96	5580	97	5180	98	4880	99	107	31	92	7350	93	5450	94	5070	95	4780	96	4500	97	105														

WEIGHT = 13000 LBS										VENR = 160 KIAS										WEIGHT = 12500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO		HEADWINDS								VR V2 KIAS												
	10 KTS		WIND		10 KTS		20 KTS		30 KTS		10 KTS				WIND		10 KTS		20 KTS		30 KTS																		
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST																	
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT															
-35	97	5220	97	3690	97	3310	97	2990	97	2690	100	116	-35	98	5060	98	3620	98	3260	98	2950	98	2670	100	116														
-30	97	5420	97	3810	97	3420	97	3080	97	2780	100	116	-30	98	5250	98	3740	98	3370	98	3040	98	2750	100	117														
-25	97	5520	97	3870	97	3470	97	3120	97	2820	99	115	-25	97	5330	97	3790	97	3410	97	3080	97	2790	99	116														
-20	96	5440	96	3830	96	3440	96	3090	96	2790	98	113	-20	96	5260	96	3750	96	3380	96	3050	96	2760	98	114														
-15	94	5310	94	3750	94	3380	94	3040	94	2750	96	111	-15	94	5140	94	3680	94	3320	94	3000	94	2710	96	112														
-10	93	5240	93	3720	93	3350	93	3020	93	2720	96	110	-10	93	5070	93	3640	93	3290	93	2970	93	2690	95	110														
-5	91	5130	91	3660	91	3290	91	2970	91	2680	94	108	-5	91	4960	91	3580	91	3230	91	2920	91	2650	94	108														
0	89	4890	89	3510	89	3170	89	2860	90	2660	93	105	0	89	4740	89	3440	89	3110	89	2820	89	2580	92	106														
5	87	4650	87	3370	87	3080	88	2870	89	2670	91	102	5	87	4510	87	3300	87	2990	87	2780	88	2580	91	103														
10	85	4630	87	3510	88	3270	89	3050	89	2840	92	102	10	84	4320	85	3220	86	3010	87	2800	87	2610	89	100														
15	87	5020	88	3800	89	3550	90	3300	91	3090	92	102	15	85	4590	86	3480	87	3250	88	3030	88	2840	90	100														
20	88	5460	89	4110	90	3840	91	3600	92	3380	93	103	20	86	4980	87	3770	88	3520	89	3310	90	3110	91	101														
25	89	5960	90	4480	91	4190	92	3950	93	3710	94	103	25	88	5420	88	4090	89	3860	90	3630	91	3410	92	101														
30	90	6530	91	4870	92	4590	93	4330	94	4070	95	103	30	89	5910	89	4480	90	4220	91	3980	92	3740	92	101														
31	90	6640	92	4950	92	4670	93	4400	94	4140	95	103	31	89	6010	90	4550	90	4300	91	4050	92	3800	92	101														

WEIGHT = 12000 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT				ZERO WIND V1 DIST KIAS FT				H E A D W I N D S								VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT				ZERO WIND V1 DIST KIAS FT				H E A D W I N D S								VR V2 KIAS				
									10 KTS				20 KTS														30 KTS				10 KTS					20 KTS			
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT							
-35	98	4920	98	3560	98	3220	98	2920	98	2640	100	117		-35	98	4800	98	3510	98	3180	98	2890	98	2620	100	118													
-30	98	5090	98	3680	98	3320	98	3000	98	2720	100	117		-30	98	4960	98	3620	98	3280	98	2970	98	2700	100	118													
-25	97	5170	97	3730	97	3360	97	3040	97	2760	100	116		-25	97	5030	97	3670	97	3320	97	3010	97	2730	100	117													
-20	96	5100	96	3680	96	3330	96	3010	96	2730	98	115		-20	96	4960	96	3620	96	3280	96	2980	96	2700	98	115													
-15	94	4980	94	3610	94	3270	94	2960	94	2680	96	112		-15	94	4850	94	3550	94	3220	94	2920	94	2650	97	113													
-10	93	4920	93	3580	93	3230	93	2930	93	2650	95	111		-10	93	4780	93	3510	93	3190	93	2890	93	2630	95	111													
-5	91	4820	91	3510	91	3180	91	2880	91	2610	93	109		-5	92	4680	92	3450	92	3130	92	2840	92	2580	94	109													
0	89	4600	89	3380	89	3060	89	2770	89	2520	92	106		0	89	4480	89	3320	89	3010	89	2730	89	2480	91	106													
5	87	4380	87	3240	87	2940	87	2680	88	2500	90	103		5	87	4270	87	3180	87	2890	87	2620	87	2410	89	103													
10	84	4200	84	3120	85	2890	86	2690	87	2500	88	100		10	84	4090	84	3060	84	2790	85	2600	86	2410	88	100													
15	83	4190	84	3180	85	2970	86	2780	86	2600	88	98		15	82	3940	83	3000	83	2800	84	2610	85	2440	86	97													
20	85	4540	85	3440	86	3230	87	3030	87	2840	88	98		20	83	4130	83	3140	84	2950	84	2770	85	2600	86	96													
25	86	4920	86	3750	87	3540	88	3320	89	3120	89	99		25	84	4470	84	3440	85	3230	86	3030	86	2840	87	96													
30	87	5340	87	4100	88	3870	89	3640	90	3410	90	99		30	85	4840	85	3750	86	3530	87	3320	87	3110	87	97													
31	87	5430	88	4180	88	3930	89	3700	90	3470	90	99		31	85	4910	86	3820	86	3590	87	3370	87	3160	88	97													

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Figure 4-25 (Sheet 20)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
10,000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS								VR	V2										
					10 KTS		20 KTS		30 KTS											10 KTS		20 KTS		30 KTS															
					V1	DIST	V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST	V1	DIST												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT														
-35	96	7920	96	4660	96	4050	96	3570	97	3310	104	115	-35	96	7580	96	4560	96	3990	96	3510	96	3160	102	114														
-30	95	8100	95	4730	95	4120	96	3700	97	3440	104	115	-30	95	7750	95	4640	95	4050	95	3570	96	3280	103	114														
-25	94	8010	94	4710	95	4170	96	3890	98	3620	104	115	-25	94	7660	94	4610	94	4030	95	3700	97	3450	103	114														
-20	93	7840	93	4720	95	4410	96	4100	98	3810	105	115	-20	93	7510	93	4570	94	4190	96	3910	97	3640	103	114														
-15	91	7530	94	5020	95	4680	97	4360	98	4050	105	116	-15	91	7230	93	4780	95	4450	96	4150	98	3860	104	114														
-10	90	7400	94	5290	96	4940	97	4600	99	4270	105	116	-10	90	7110	93	5030	95	4690	96	4370	98	4060	104	115														
-5	90	7490	94	5650	96	5270	98	4900	99	4560	106	116	-5	89	7110	94	5360	95	5000	97	4650	98	4330	105	115														
0	90	8220	95	6170	97	5740	98	5340	100	4960	107	116	0	90	7770	95	5840	96	5440	98	5060	99	4700	105	115														
5	91	9090	96	6780	98	6310	99	5860	101	5440	107	116	5	91	8580	95	6400	97	5960	99	5540	100	5140	106	115														
10	91	10150	97	7510	99	6970	100	6470	102	5990	108	116	10	91	9540	96	7070	98	6570	100	6100	101	5650	107	115														
15	92	11460	98	8360	99	7770	101	7200	103	6660	109	117	15	92	10730	97	7870	99	7300	101	6770	102	6270	107	115														
20	93	13020	98	9420	100	8710	102	8050	104	7430	109	117	20	93	12150	98	8800	100	8150	102	7530	103	6960	108	116														
21			99	9650	101	8930	102	8240	104	7600	109	117	23	93	13190	99	9470	100	8750	102	8080	104	7450	108	116														
23			99	10170	101	9390	103	8660	104	7970	109	117	25			99	9980	101	9210	103	8490	104	7820	108	116														

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEAD WINDS						VR V2 KTAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KTAS FT	ZERO WIND V1 DIST KTAS FT	HEAD WINDS						VR V2 KTAS
			10 KTS		20 KTS		30 KTS						10 KTS		20 KTS		30 KTS		
			V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	
			KTAS	FT	KTAS	FT	KTAS	FT					KTAS	FT	KTAS	FT	KTAS	FT	
-35	96 7140	96 4430	96 3890	96 3440	96 3060	101 113		-35	96 6750	96 4310	96 3800	96 3370	96 3010	101 113					
-30	95 7280	95 4500	95 3950	95 3490	95 3100	101 112		-30	96 6880	96 4370	96 3850	96 3420	96 3050	100 113					
-25	94 7210	94 4480	94 3930	94 3480	95 3200	101 112		-25	94 6810	94 4350	94 3840	94 3410	94 3040	99 111					
-20	93 7070	93 4430	93 3900	94 3630	96 3370	101 113		-20	93 6700	93 4310	93 3810	93 3390	94 3130	99 111					
-15	91 6830	92 4430	93 4130	95 3850	96 3580	102 113		-15	92 6490	92 4230	92 3830	93 3570	95 3320	100 111					
-10	90 6730	92 4660	94 4340	95 4050	96 3760	102 113		-10	90 6400	91 4310	93 4020	94 3750	95 3490	100 111					
-5	89 6550	93 4950	94 4620	96 4300	97 4000	103 113		-5	89 6210	92 4580	93 4270	94 3980	96 3700	101 111					
0	90 7150	94 5380	95 5010	97 4670	98 4340	103 113		0	89 6570	93 4960	94 4620	95 4300	97 4000	101 111					
5	90 7860	95 5880	96 5470	98 5090	99 4730	104 113		5	90 7190	93 5400	95 5030	96 4680	98 4350	102 112					
10	91 8700	95 6460	97 6010	99 5590	100 5180	105 114		10	91 7930	94 5920	96 5510	97 5120	99 4760	103 112					
15	92 9730	96 7160	98 6650	100 6170	101 5720	105 114		15	92 8830	96 6530	97 6070	98 5640	100 5230	103 112					
20	93 10940	97 7960	99 7380	101 6830	102 6320	106 114		20	93 9860	97 7210	98 6700	99 6210	101 5760	104 112					
25	94 12500	98 8950	100 8280	102 7640	103 7060	107 114		25	93 11170	98 8060	99 7460	101 6910	102 6390	105 112					
28		99 9600	101 8860	102 8170	104 7530	107 114		28	94 12040	98 8600	100 7950	101 7350	102 6790	105 112					
								29	94 12340	98 8790	100 8120	101 7510	103 6930	105 111					

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	VR	V2						
	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT		KTAS	FT	KTAS	FT	KTAS	FT	KTAS	FT	KTAS					
	-35	96	6420	96	4200	96	3720	96	3310	96		2960	100	114	-35	96	6130	96	4090	96	3640	96	3250	96	2910
-30	96	6530	96	4250	96	3770	96	3350	96	3000	100	113	-30	96	6230	96	4150	96	3680	96	3290	96	2950	99	113
-25	94	6470	94	4230	94	3750	94	3340	94	2990	99	111	-25	95	6180	95	4130	95	3670	95	3280	95	2940	98	112
-20	93	6370	93	4190	93	3720	93	3320	93	2970	98	110	-20	93	6080	93	4090	93	3640	93	3250	93	2920	98	110
-15	92	6190	92	4110	92	3660	92	3310	93	3070	98	109	-15	92	5920	92	4010	92	3580	92	3200	92	2920	97	108
-10	90	6110	90	4080	91	3720	92	3470	93	3230	98	109	-10	90	5840	90	3980	90	3550	91	3210	92	2990	96	107
-5	89	5930	90	4230	92	3950	93	3680	94	3420	99	109	-5	89	5690	89	3910	90	3640	91	3400	92	3160	97	107
0	88	6040	91	4570	93	4260	94	3970	95	3690	99	110	0	87	5550	90	4220	91	3930	92	3670	93	3410	97	108
5	89	6590	92	4960	94	4630	95	4310	96	4010	100	110	5	88	6040	91	4560	92	4260	93	3970	94	3690	98	108
10	90	7240	93	5420	95	5050	96	4700	97	4370	101	110	10	89	6610	92	4970	93	4630	94	4310	95	4010	99	108
15	91	8020	94	5950	96	5540	97	5160	98	4790	101	110	15	91	7290	93	5440	94	5070	96	4720	97	4380	99	108
20	92	8910	95	6550	97	6090	98	5660	99	5250	102	110	20	92	8050	94	5960	95	5550	97	5160	98	4790	100	109
25	93	10010	97	7280	98	6750	99	6260	100	5800	103	111	25	93	8990	95	6590	97	6120	98	5690	99	5270	101	109
29	94	10980	97	7890	99	7310	100	6770	101	6270	103	111	29	93	9800	96	7110	97	6600	99	6130	100	5680	101	109

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
10,000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - OFF**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 14000 LBS								VENR = 160 KIAS								WEIGHT = 13500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS								
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS										
					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT							V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT											
-35	96	5880	96	4000	96	3560	96	3190	96	2870	99	114	-35	97	5650	97	3910	97	3500	97	3140	97	2830	99	114						
-30	96	5960	96	4050	96	3610	96	3230	96	2900	99	113	-30	96	5720	96	3950	96	3540	96	3180	96	2860	98	114						
-25	95	5910	95	4030	95	3590	95	3220	95	2890	98	112	-25	95	5680	95	3930	95	3520	95	3160	95	2850	97	112						
-20	93	5830	93	3990	93	3560	93	3190	93	2870	97	110	-20	93	5600	93	3890	93	3490	93	3140	93	2830	97	111						
-15	92	5680	92	3910	92	3500	92	3140	92	2830	96	109	-15	92	5460	92	3820	92	3430	92	3090	92	2780	96	109						
-10	91	5610	91	3880	91	3480	91	3120	91	2880	95	107	-10	91	5400	91	3790	91	3410	91	3070	91	2790	95	107						
-5	89	5470	89	3810	89	3420	90	3140	91	2920	94	106	-5	89	5270	89	3720	89	3350	89	3020	90	2810	94	105						
0	87	5200	88	3880	90	3620	91	3380	92	3140	95	106	0	87	5020	87	3580	88	3340	89	3110	90	2890	93	104						
5	87	5540	90	4200	91	3920	92	3650	93	3400	96	106	5	86	5080	88	3860	89	3600	90	3360	91	3120	94	104						
10	88	6040	91	4560	92	4250	93	3960	94	3680	97	106	10	87	5520	89	4180	90	3900	91	3630	92	3390	94	104						
15	90	6630	92	4970	93	4640	94	4320	95	4020	97	106	15	89	6040	90	4550	91	4240	92	3950	93	3700	95	105						
20	91	7290	93	5430	94	5060	95	4710	96	4390	98	107	20	90	6610	91	4950	92	4620	93	4300	94	4050	96	105						
25	92	8090	94	5970	95	5560	96	5170	97	4840	99	107	25	91	7300	92	5430	94	5060	94	4740	95	4470	97	105						
29	93	8770	95	6430	96	5980	97	5550	98	5220	99	107	29	92	7880	93	5820	94	5420	95	5100	96	4810	97	105						

WEIGHT = 13000 LBS								VENR = 160 KIAS								WEIGHT = 12500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS								
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS										
					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT							V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT											
-35	97	5450	97	3830	97	3440	97	3090	97	2790	99	115	-35	97	5270	97	3750	97	3380	97	3050	97	2760	99	116						
-30	96	5520	96	3870	96	3470	96	3130	96	2820	98	114	-30	96	5330	96	3790	96	3420	96	3080	96	2790	99	115						
-25	95	5470	95	3850	95	3460	95	3110	95	2810	97	112	-25	95	5290	95	3770	95	3400	95	3070	95	2770	97	113						
-20	94	5400	94	3810	94	3420	94	3090	94	2790	96	111	-20	94	5220	94	3730	94	3360	94	3040	94	2750	96	111						
-15	92	5270	92	3740	92	3360	92	3030	92	2740	95	109	-15	92	5100	92	3660	92	3300	92	2990	92	2700	94	109						
-10	91	5210	91	3710	91	3340	91	3010	91	2720	94	108	-10	91	5040	91	3630	91	3280	91	2960	91	2680	94	108						
-5	89	5090	89	3640	89	3280	89	2960	90	2720	93	106	-5	89	4920	89	3560	89	3220	89	2910	89	2640	93	106						
0	87	4860	87	3500	87	3160	88	2940	89	2740	92	103	0	87	4700	87	3430	87	3100	87	2850	88	2650	91	103						
5	85	4660	86	3550	87	3310	88	3080	89	2870	91	102	5	85	4500	85	3300	85	3070	86	2860	87	2660	89	100						
10	86	5060	87	3840	88	3580	89	3340	90	3110	92	102	10	84	4620	85	3510	86	3280	87	3050	88	2860	90	100						
15	87	5500	88	4160	89	3880	90	3630	91	3410	93	103	15	86	5020	87	3810	88	3560	88	3340	89	3140	91	101						
20	88	6000	90	4520	91	4210	91	3970	92	3730	94	103	20	87	5460	88	4120	89	3880	89	3650	90	3430	91	101						
25	90	6600	91	4940	92	4630	93	4370	93	4110	94	103	25	88	5970	89	4510	90	4260	91	4010	91	3770	92	101						
29	91	7090	92	5280	93	4970	93	4690	94	4420	95	103	29	89	6390	90	4840	91	4570	91	4310	92	4060	93	101						

WEIGHT = 12000 LBS								VENR = 160 KIAS								WEIGHT = 11500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEADWINDS						VR V2 KIAS								
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS										
					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT							V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT											
-35	97	5110	97	3690	97	3330	97	3010	97	2730	99	116	-35	97	4970	97	3630	97	3290	97	2980	97	2710	100	117						
-30	96	5170	96	3730	96	3360	96	3040	96	2760	99	115	-30	96	5020	96	3670	96	3320	96	3010	96	2730	99	116						
-25	95	5120	95	3700	95	3340	95	3030	95	2740	97	114	-25	95	4980	95	3640	95	3300	95	2990	95	2720	98	114						
-20	94	5060	94	3660	94	3310	94	3000	94	2710	96	112	-20	94	4910	94	3600	94	3260	94	2960	94	2690	96	112						
-15	92	4940	92	3590	92	3250	92	2940	92	2670	94	110	-15	92	4800	92	3530	92	3200	92	2900	92	2640	94	110						
-10	91	4890	91	3560	91	3220	91	2920	91	2650	93	108	-10	91	4750	91	3500	91	3170	91	2880	91	2610	93	109						
-5	89	4780	89	3490	89	3160	89	2870	89	2600	92	106	-5	90	4640	90	3430	90	3110	90	2830	90	2570	91	106						
0	87	4570	87	3360	87	3050	87	2760	88	2560	90	103	0	87	4440	87	3300	87	2990	87	2720	87	2480	90	103						
5	85	4370	85	3230	85	2960	86	2760	87	2570	89	101	5	85	4250	85	3170	85	2880	85	2660	86	2480	88	101						
10	83	4220	83	3210	84	3000	85	2800	86	2620	88	98	10	83	4080	83	3070	83	2860	84	2670	85	2490	87	98						
15	84	4570	85	3470	85	3260	86	3060	87	2870	88	98	15	82	4160	82	3170	83	2980	84	2800	85	2620	86	96						
20	85	4950	86	3770	87	3560	87	3340	88	3140	89	99	20	83	4500	84	3450	84	3250	85	3050	86	2860	87	96						
25	87	5400	87	4140	88	3900	89	3670	89	3450	90	99	25	85	4890	85	3790	86	3560	86	3350	87	3140	87	97						
29	87	5770	88	4440	89	4190	89	3940	90	3700	90	99	29	86	5210	86	4060	86	3820	87	3590	88	3370	88	97						

56FMC-00-00

Figure 4-25 (Sheet 22)

TAKEOFF FIELD LENGTH - FEET, FLAPS 15° (DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE ON)

Determine takeoff field length, V_1 , V_R , V_2 and V_{ENR} from Figure 4-27. If the runway has a gradient, adjust V_1 and takeoff field length using Figure 4-26.

If the required distance is greater than the available distance, the airplane weight must be reduced until distance required is less than or equal to distance available.

TAKEOFF FIELD LENGTH AND V_1 ADJUSTED FOR RUNWAY GRADIENT - FLAPS 15°, ANTI-ICE - ON

TAKEOFF FIELD LENGTH (ZERO GRADIENT) FROM FIG. 4-27	UPHILL GRADIENT FOR BOTH SHADED AND NON-SHADED				DOWNHILL GRADIENT			
					SHADED		NON-SHADED	
	2%	1.5%	1%	0.5%	-1%	-2%	-1%	-2%
1600	1800	1750	1700	1650	1650	1600	1650	1650
1800	2050	2000	1900	1850	1850	1800	1900	1900
2000	2300	2200	2150	2100	2050	2000	2100	2100
2200	2500	2450	2350	2300	2250	2200	2300	2350
2400	2800	2650	2550	2500	2450	2400	2500	2550
2600	3000	2850	2800	2700	2650	2600	2750	2750
2800	3200	3100	3000	2900	2850	2800	2950	3000
3000	3450	3350	3200	3100	3050	3000	3150	3200
3200	3700	3550	3450	3350	3250	3150	3350	3400
3400	4000	3800	3650	3550	3450	3350	3600	3650
3600	4250	4000	3900	3750	3600	3550	3800	3850
3800	4550	4300	4100	4000	3800	3750	4000	4100
4000	4850	4550	4300	4200	4000	3900	4250	4350
4200	5150	4800	4550	4400	4200	4100	4450	4550
4400	5450	5100	4750	4650	4400	4250	4650	4750
4600	5800	5450	5000	4850	4600	4450	4900	5000
4800	6150	5750	5200	5050	4750	4600	5150	5250
5000	6500	6050	5500	5300	4950	4800	5350	5500
5200	6900	6400	5700	5500	5150	4950	5600	5750
5400	7350	6800	6000	5750	5350	5100	5800	6000
5600	7750	7150	6250	5950	5500	5300	6050	6300
5800	8200	7500	6550	6200	5700	5450	6300	6550
6000	8700	7850	6850	6400	5900	5600	6550	6800
6200	9250	8200	7150	6650	6050	5800	6800	7050
6400	9900	8650	7450	6900	6250	5950	7050	7350
6600	10650	9100	7800	7150	6450	6100	7250	7600
6800	11450	9500	8150	7400	6600	6300	7450	7850
7000	12200	9900	8450	7600	6750	6450	7700	8150
7200	13000	10300	8800	7850	6950	6650	7900	8450
7400	14000	10750	9100	8100	7150	6800	8200	8700
7600	15200	11250	9450	8350	7300	6950	8400	9000
7800		11800	9800	8600	7500	7100	8650	9250
8000		12400	10150	8850	7650	7250	8950	9550
8200		12850	10400	9100	7850	7400	9200	9850
8400		13300	10600	9350	8000	7550	9450	10150
8600		13750	10800	9550	8200	7700	9700	10450
8800		14200	11050	9800	8350	7850	10000	10750
9000		14700	11250	10050	8550	8000	10250	11050
9500		15950	11850	10650	9000	8350	10900	11800
10000			12450	11250	9450	8700	11550	12550
10500			13100	11850	9850	9050	12300	13300
11000			13800	12450	10250	9400	13000	14050
12000			15100	13650	11050	10100	14500	15550
13000				14850	11800	10750	16300	
14000				16050	12600	11300		
15000					13350	12050		
V_1 ADJUSTMENT*	$V_1 + 4$ Knots	$V_1 + 3$ Knots	$V_1 + 2$ Knots	$V_1 + 1$ Knot	$V_1 - 4$ Knots	$V_1 - 7$ Knots	$V_1 + 1$ Knot	$V_1 + 1$ Knot

* If the adjusted V_1 is greater than V_R , the value of V_R must be used for V_1 .

† Takeoffs in shaded area are prohibited from runways with a downhill gradient if all three limits (Altitude, Gross Weight and Wind) in a row are exceeded:

Altitude	Gross Weight	Wind
Greater than 7,000 ft	Greater than 16,500 lbs	Any Tailwind
Greater than 9,000 ft	Greater than 16,000 lbs	Any Tailwind
Greater than 12,000 ft	Greater than 15,500 lbs	Any Tailwind

Figure 4-26

**TAKEOFF FIELD LENGTH - FEET, FLAPS 15°
(DRY RUNWAY OVER A 35 FOOT SCREEN HEIGHT - ANTI-ICE ON)**

EXAMPLE:

Pressure Altitude = 8000 FEET
Gross Weight = 15,500 POUNDS
Ambient Temperature = 10° C

Wind = -10 KNOTS (TAILWIND)
Runway Gradient = -2% (DOWNHILL)
Anti-Ice = ON

For Zero Runway Gradient from Figure 4-27:

Takeoff Field Length is 8400 FEET
 V_1 is 95 KNOTS
 V_R is 104 KNOTS
 V_2 is 112 KNOTS
 V_{ENR} is 160 KNOTS
 V_1 and Distance are SHADED

Adjustments for -2% (Downhill) Runway Gradient from Figure 4-26:

Takeoff Field Length is 7550 FEET
 V_1 is 88 KNOTS

EXAMPLE:

Pressure Altitude = 1000 FEET
Gross Weight = 16,830 POUNDS
Ambient Temperature = 0° C

Wind = 10 KNOTS (HEADWIND)
Runway Gradient = 2% (UPHILL)
Anti-Ice = ON

For Zero Runway Gradient from Figure 4-27:

Takeoff Field Length is 3200 FEET
 V_1 is 99 KNOTS
 V_R is 104 KNOTS
 V_2 is 115 KNOTS
 V_{ENR} is 160 KNOTS
 V_1 and Distance are NON-SHADED

Adjustments for 2% (Uphill) Runway Gradient from Figure 4-26:

Takeoff Field Length is 3700 FEET
 V_1 is 103 KNOTS

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
SEA LEVEL**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS											WEIGHT = 16500 LBS														
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR	V2 KIAS
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS			
					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT								V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT		
	-30	98	4170	100	3050	102	2820	103	2600	104	2390	105		115	-30	98	3990	99	2920	100	2700	102	2490	102	2290
-25	98	4250	100	3110	101	2870	102	2650	103	2440	105	115	-25	97	4050	99	2970	100	2750	101	2540	102	2340	103	114
-20	98	4320	100	3170	101	2930	102	2700	103	2490	105	115	-20	97	4120	99	3030	100	2800	101	2590	102	2380	103	114
-15	97	4380	99	3220	101	2980	102	2760	103	2540	105	115	-15	96	4180	98	3080	100	2850	101	2640	102	2430	103	114
-10	97	4450	99	3280	100	3040	101	2810	103	2590	105	115	-10	96	4250	98	3130	99	2900	100	2680	101	2480	103	114
-5	96	4520	99	3330	100	3090	101	2860	102	2640	105	115	-5	95	4310	98	3190	99	2950	100	2730	101	2520	103	114
0	96	4590	98	3390	100	3140	101	2910	102	2690	105	115	0	95	4380	97	3240	99	3000	100	2780	101	2570	103	114
5	95	4650	98	3450	99	3200	101	2960	102	2730	105	115	5	95	4440	97	3290	98	3050	100	2830	101	2610	103	114
10	95	4750	98	3520	99	3270	100	3020	102	2800	105	115	10	94	4530	97	3360	98	3120	99	2890	100	2670	103	114

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS V1 DIST		ZERO WIND V1 DIST		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT										
-30	96	3720	98	2730	99	2520	100	2330	101	2140	101	113	-30	95	3470	96	2550	97	2360	98	2180	99	2000	99	111	-30	95	3470	96	2550	97	2360	98	2180	99	2000	99	111	
-25	96	3780	97	2780	98	2570	99	2370	100	2190	101	113	-25	94	3530	95	2600	97	2400	98	2220	99	2040	99	111	-25	94	3530	95	2600	97	2400	98	2220	99	2040	99	111	
-20	95	3840	97	2830	98	2620	99	2420	100	2230	101	113	-20	94	3590	95	2640	96	2450	97	2260	98	2080	99	111	-20	94	3590	95	2640	96	2450	97	2260	98	2080	99	111	
-15	95	3900	97	2880	98	2660	99	2460	100	2270	101	113	-15	94	3700	95	2690	96	2490	97	2300	98	2120	99	111	-15	94	3700	95	2690	96	2490	97	2300	98	2120	99	111	
-10	95	3960	96	2930	98	2710	99	2510	100	2310	101	113	-10	94	3800	95	2730	96	2530	97	2340	98	2160	99	111	-10	94	3800	95	2730	96	2530	97	2340	98	2160	99	111	
-5	94	4020	96	2970	97	2760	98	2550	99	2350	101	113	-5	94	3920	94	2780	95	2570	97	2380	98	2200	99	111	-5	94	3920	94	2780	95	2570	97	2380	98	2200	99	111	
0	94	4140	96	3020	97	2800	98	2590	99	2400	101	113	0	94	4030	94	2840	95	2620	96	2420	97	2240	99	111	0	94	4030	94	2840	95	2620	96	2420	97	2240	99	111	
5	94	4260	95	3070	97	2850	98	2640	99	2440	101	112	5	94	4150	94	2920	95	2660	96	2460	97	2280	99	111	5	94	4150	94	2920	95	2660	96	2460	97	2280	99	111	
10	94	4370	95	3140	97	2910	98	2690	99	2490	101	113	10	94	4250	94	2980	95	2710	96	2520	97	2330	99	111	10	94	4250	94	2980	95	2710	96	2520	97	2330	99	111	

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST			V1	DIST												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT												
-30	94	3330	94	2420	96	2240	97	2060	97	1900	98	110	-30	94	3260	94	2360	95	2170	96	2010	97	1850	97	110														
-25	94	3420	94	2470	95	2280	96	2110	97	1940	98	110	-25	94	3350	94	2420	95	2220	96	2050	97	1890	97	110														
-20	94	3510	94	2520	95	2330	96	2150	97	1980	98	110	-20	94	3440	94	2490	95	2260	96	2090	97	1930	98	110														
-15	94	3610	94	2590	95	2380	96	2200	97	2020	98	110	-15	94	3530	94	2550	95	2310	96	2140	97	1970	98	110														
-10	94	3720	94	2660	95	2420	96	2240	97	2070	98	110	-10	94	3630	94	2620	94	2360	95	2180	96	2010	98	110														
-5	94	3820	94	2730	95	2470	96	2290	97	2110	98	110	-5	95	3730	95	2680	95	2410	95	2220	96	2050	98	110														
0	94	3930	94	2800	95	2520	96	2330	97	2150	98	110	0	95	3840	95	2750	95	2470	95	2270	96	2090	98	111														
5	94	4040	94	2870	94	2570	95	2380	96	2200	98	110	5	95	3940	95	2820	95	2530	95	2310	96	2140	98	111														
10	94	4140	94	2930	94	2620	95	2420	96	2240	98	110	10	94	4030	94	2880	94	2590	95	2350	96	2180	98	111														

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
					V1	DIST	V1	DIST	V1	DIST								V1	DIST	V1	DIST	V1	DIST																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT												
-30	94	3200	94	2330	95	2120	96	1950	97	1800	97	110	-30	95	3140	95	2300	95	2080	95	1900	96	1750	96	110														
-25	94	3280	94	2390	95	2160	95	1990	96	1840	97	110	-25	95	3220	95	2360	95	2130	95	1940	96	1790	96	110														
-20	94	3370	94	2450	94	2210	95	2040	96	1880	97	110	-20	95	3310	95	2420	95	2180	95	1980	96	1830	96	110														
-15	95	3460	95	2510	95	2260	95	2080	96	1920	97	110	-15	95	3390	95	2480	95	2240	95	2020	96	1870	97	111														
-10	95	3560	95	2580	95	2320	95	2120	96	1960	97	110	-10	95	3480	95	2540	95	2290	95	2070	96	1910	97	111														
-5	95	3650	95	2640	95	2380	95	2160	96	2000	97	111	-5	95	3580	95	2610	95	2350	95	2120	95	1950	97	111														
0	95	3750	95	2710	95	2440	95	2210	96	2040	97	111	0	95	3670	95	2670	95	2410	95	2170	95	1990	97	111														
5	95	3850	95	2780	95	2500	95	2250	96	2080	97	111	5	95	3770	95	2740	95	2470	95	2220	95	2030	97	111														
10	95	3930	95	2830	95	2550	95	2300	95	2120	97	111	10	95	3840	95	2790	95	2520	95	2270	95	2060	97	111														

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS																					
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT												
-30	95	3040	95	2250	95	2040	95	1840	95	1660	95	111	-30	95	2960	95	2220	95	2010	95	1820	95	1660	96	112														
-25	95	3120	95	2310	95	2090	95	1890	95	1700	96	111	-25	95	3030	95	2270	95	2060	95	1860	95	1690	96	112														
-20	95	3200	95	2360	95	2140	95	1930	95	1740	96	111	-20	95	3100	95	2320	95	2110	95	1910	95	1730	96	112														
-15	95	3280	95	2420	95	2190	95	1980	95	1790	96	111	-15	95	3180	95	2380	95	2160	95	1960	95	1770	96	112														
-10	95	3360	95	2480	95	2250	95	2030	95	1830	96	111	-10	95	3260	95	2440	95	2210	95	2000	95	1810	96	113														
-5	95	3440	95	2540	95	2300	95	2080	95	1880	96	112	-5	95	3330	95	2490	95	2260	95	2050	95	1860	96	113														
0	95	3530	95	2600	95	2360	95	2130	95	1920	96	112	0	95	3410	95	2550	95	2320	95	2100	95	1900	97	113														
5	95	3620	95	2660	95	2410	95	2180	95	1970	96	112	5	95	3490	95	2610	95	2370	95	2150	95	1950	97	113														
10	95	3690	95	2710	95	2460	95	2220	95	2010	96	112	10	95	3560	95	2660	95	2410	95	2190	95	1980	97	113														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
1000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS												WEIGHT = 16500 LBS													
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS				
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST							V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST			
					KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT							KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT			
-30	97	4230	99	3110	101	2870	102	2650	103	2450	104	115	-30	96	4040	98	2970	100	2750	101	2540	102	2340	103	114
-25	97	4300	99	3160	100	2930	101	2710	103	2500	104	115	-25	96	4110	98	3030	99	2800	100	2590	101	2390	103	114
-20	96	4370	99	3220	100	2990	101	2760	102	2550	104	115	-20	96	4170	98	3080	99	2850	100	2640	101	2440	103	114
-15	96	4440	98	3280	100	3040	101	2810	102	2600	104	115	-15	95	4240	97	3140	99	2910	100	2690	101	2480	103	114
-10	95	4510	98	3340	99	3090	101	2860	102	2640	104	115	-10	95	4330	97	3190	98	2960	99	2740	101	2530	103	114
-5	95	4580	98	3390	99	3150	100	2910	101	2690	104	115	-5	95	4470	97	3240	98	3010	99	2790	100	2570	103	114
0	95	4720	97	3450	99	3200	100	2970	101	2740	104	115	0	95	4630	96	3300	98	3060	99	2830	100	2620	103	114
5	95	4880	97	3510	98	3260	100	3020	101	2800	104	115	5	95	4780	96	3360	97	3120	99	2890	100	2670	103	114
10	95	5020	98	3730	99	3460	100	3210	102	2970	105	115	10	94	4780	97	3550	98	3300	99	3060	100	2830	103	114

WEIGHT = 16000 LBS												WEIGHT = 15500 LBS													
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS				
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST							V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST			
					KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT							KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT			
-30	95	3770	97	2780	98	2570	99	2370	100	2190	101	112	-30	95	3630	95	2600	96	2400	97	2220	98	2040	99	111
-25	95	3830	96	2830	98	2620	99	2420	100	2230	101	112	-25	95	3740	95	2650	96	2450	97	2260	98	2090	99	111
-20	95	3950	96	2880	97	2670	98	2470	99	2280	101	112	-20	95	3850	95	2730	96	2490	97	2300	98	2130	99	111
-15	95	4070	96	2930	97	2710	98	2510	99	2320	101	112	-15	95	3970	95	2800	96	2540	96	2350	97	2170	99	111
-10	95	4210	95	2980	97	2760	98	2560	99	2360	101	112	-10	95	4090	95	2880	96	2590	96	2400	97	2220	99	111
-5	95	4340	95	3030	96	2810	98	2600	99	2400	101	112	-5	95	4220	95	2960	96	2650	96	2450	97	2270	99	111
0	95	4490	95	3100	96	2860	97	2650	98	2450	101	112	0	95	4360	95	3040	96	2720	96	2500	97	2310	99	111
5	95	4630	95	3180	96	2910	97	2690	98	2490	101	112	5	95	4490	95	3120	96	2790	96	2550	97	2360	99	111
10	93	4510	95	3310	96	3070	98	2850	99	2640	102	113	10	93	4380	94	3090	95	2860	96	2650	97	2460	99	111

WEIGHT = 15000 LBS												WEIGHT = 14500 LBS													
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS				
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST							V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST			
					KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT							KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT			
-30	95	3550	95	2540	95	2330	96	2150	97	1980	98	111	-30	95	3470	95	2510	95	2260	96	2090	97	1930	98	111
-25	95	3650	95	2610	95	2370	96	2190	97	2020	98	111	-25	95	3570	95	2570	95	2310	96	2140	97	1970	98	111
-20	95	3760	95	2680	95	2420	96	2240	97	2070	99	111	-20	95	3680	95	2640	95	2380	96	2180	97	2010	98	111
-15	95	3870	95	2760	95	2470	96	2290	97	2110	99	111	-15	95	3780	95	2710	95	2440	96	2230	97	2060	98	111
-10	95	3990	95	2830	95	2540	96	2340	97	2160	99	111	-10	95	3900	95	2790	95	2500	96	2270	96	2100	98	111
-5	95	4110	95	2910	95	2610	96	2380	97	2200	99	111	-5	95	4010	95	2860	95	2570	96	2320	96	2150	98	111
0	95	4240	95	2990	95	2680	96	2430	97	2250	99	111	0	95	4130	95	2940	95	2640	96	2370	96	2190	98	112
5	95	4360	95	3060	95	2750	95	2480	96	2290	99	111	5	95	4250	95	3010	95	2700	96	2430	96	2230	98	112
10	94	4260	94	3010	94	2700	95	2500	96	2320	98	110	10	94	4150	94	2960	94	2660	94	2430	95	2250	97	110

WEIGHT = 14000 LBS												WEIGHT = 13500 LBS													
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS				
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST							V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST			
					KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT							KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT			
-30	95	3410	95	2470	95	2230	96	2040	97	1880	97	111	-30	95	3340	95	2440	95	2200	95	1980	96	1830	97	111
-25	95	3500	95	2540	95	2290	96	2080	96	1920	97	111	-25	95	3430	95	2500	95	2260	95	2040	96	1870	97	111
-20	95	3600	95	2600	95	2350	95	2120	96	1960	98	111	-20	95	3530	95	2570	95	2320	95	2090	96	1910	97	111
-15	95	3700	95	2670	95	2410	95	2170	96	2000	98	111	-15	95	3620	95	2640	95	2380	95	2140	96	1950	97	112
-10	95	3810	95	2750	95	2470	95	2220	96	2050	98	112	-10	95	3720	95	2710	95	2440	95	2200	96	1990	97	112
-5	95	3920	95	2820	95	2540	95	2280	96	2090	98	112	-5	95	3830	95	2780	95	2500	95	2260	96	2030	97	112
0	95	4030	95	2890	95	2600	95	2340	96	2130	98	112	0	96	3940	96	2850	96	2570	96	2320	96	2090	97	112
5	95	4140	95	2960	95	2660	95	2400	96	2170	98	112	5	96	4040	96	2920	96	2630	96	2370	96	2140	97	112
10	94	4040	94	2910	94	2620	94	2370	95	2190	97	110	10	94	3950	94	2860	94	2580	94	2330	94	2130	96	110

WEIGHT = 12500 LBS												WEIGHT = 11500 LBS													
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		
					10 KTS		20 KTS		30 KTS								10 KTS		20 KTS		30 KTS				
					V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST							V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST			
					KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT							KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT	KIAS FT			
-30	96	3230	96	2390	96	2160	96	1950	96	1760	96	112	-30	96	3140	96	2350	96	2130	96	1930	96	1750	97	113
-25	96	3310	96	2450	96	2210	96	2000	96	1810	96	112	-25	96	3210	96	2400	96	2180	96	1980	96	1790	97	113
-20	96	3400	96	2510	96	2270	96	2050	96	1850	97	112	-20	96	3290	96	2460	96	2240	96	2030	96	1840	97	113
-15	96	3490	96	2570	96	2330	96	2110	96	1900	97	112	-15	96	3380	96	2520	96	2290	96	2080	96	1880	97	114
-10	96	3580	96	2640	96	2390	96	2160	96	1950	97	113	-10	96	3460	96	2590	96	2350	96	2130	96	1930	97	114
-5	96	3680	96	2710	96	2450	96	2210	96	2000	97	113	-5	96	3550	96	2650	96	2410	96	2180	96	1980	97	114
0	96	3770	96	2770	96	2510	96	2270	96	2050	97	113	0	96	3640	96	2710	96	2460	96	2240	96	2030	98	114
5	96	3860	96	2840	96	2570	96	2320	96	2100	97	113	5	96	3720	96	2780	96	2520	96	2290	96	2070	98	114
10	94	3780	94	2780	94	2520	94	2280	94	2060	95	111	10	94	3640	94	2710	94	2470	94	2240	94	2020	96	114

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
2000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS											VENR = 160 KIAS											WEIGHT = 16500 LBS											VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
TEMP DEG C	TAILWIND		ZERO		HEAD WINDS								VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO		HEAD WINDS								VR	V2	KIAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	10 KTS		WIND		10 KTS		20 KTS		30 KTS								10 KTS		WIND		10 KTS		20 KTS		30 KTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	VR	V2	KIAS											
-30	95	3790	95	2700	95	2420	96	2240	97	2070	99	111	-30	96	3710	96	2660	96	2390	96	2180	97	2010	98	112	98	112												
-25	95	3910	95	2780	95	2490	96	2290	97	2110	99	112	-25	96	3820	96	2740	96	2460	96	2230	97	2060	98	112	98	112												
-20	96	4030	96	2860	96	2560	96	2340	97	2160	99	112	-20	96	3940	96	2810	96	2530	96	2280	97	2100	99	112	99	112												
-15	96	4160	96	2940	96	2630	96	2390	97	2210	99	112	-15	96	4060	96	2890	96	2600	96	2330	97	2150	99	112	99	112												
-10	96	4300	96	3020	96	2710	96	2440	97	2250	99	112	-10	96	4190	96	2970	96	2670	96	2400	96	2200	99	112	99	112												
-5	96	4440	96	3110	96	2790	96	2500	97	2300	99	112	-5	96	4320	96	3060	96	2740	96	2460	96	2240	99	112	99	112												
0	96	4590	96	3200	96	2860	96	2570	96	2350	99	112	0	96	4460	96	3140	96	2820	96	2530	96	2290	99	112	99	112												
5	94	4480	94	3140	94	2810	95	2560	96	2370	98	110	5	94	4350	94	3080	94	2770	94	2490	95	2310	98	111	98	111												
10	91	4230	93	3120	94	2900	95	2690	96	2490	98	109	10	92	4120	92	2950	92	2700	93	2500	94	2310	96	107	96	107												

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2		TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR V2															
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2														
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT												
-30	96	3630	96	2620	96	2360	96	2130	97	1960	98	112	-30	96	3550	96	2590	96	2330	96	2100	96	1910	97	112														
-25	96	3730	96	2700	96	2430	96	2180	96	2000	98	112	-25	96	3660	96	2660	96	2400	96	2160	96	1950	97	112														
-20	96	3850	96	2770	96	2490	96	2240	96	2050	98	112	-20	96	3760	96	2730	96	2460	96	2220	96	2000	98	112														
-15	96	3960	96	2850	96	2560	96	2310	96	2090	98	112	-15	96	3870	96	2810	96	2530	96	2280	96	2060	98	113														
-10	96	4080	96	2930	96	2630	96	2370	96	2140	98	112	-10	96	3990	96	2880	96	2600	96	2340	96	2110	98	113														
-5	96	4210	96	3010	96	2700	96	2430	96	2190	98	113	-5	96	4110	96	2960	96	2670	96	2400	96	2170	98	113														
0	96	4340	96	3090	96	2780	96	2500	96	2250	98	113	0	96	4230	96	3040	96	2740	96	2470	96	2220	98	113														
5	94	4230	94	3030	94	2720	94	2450	95	2240	97	111	5	94	4130	94	2980	94	2680	94	2420	94	2190	97	111														
10	92	4010	92	2890	92	2620	93	2430	94	2250	95	107	10	92	3920	92	2850	92	2570	92	2360	93	2180	95	108														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
3000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										WEIGHT = 16500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS		V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	VR	V2				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS			
-30	96	4490	97	3250	99	3010	100	2790	101	2570	104	115	-30	96	4410	96	3100	98	2880	99	2660	100	2460	103	114
-25	96	4670	97	3310	98	3070	100	2840	101	2630	104	115	-25	96	4570	96	3160	97	2930	99	2720	100	2510	103	114
-20	96	4850	97	3370	98	3120	99	2890	101	2680	104	115	-20	96	4750	96	3220	97	2990	98	2770	100	2560	103	114
-15	96	5050	96	3420	98	3180	99	2950	100	2730	104	115	-15	96	4940	96	3320	97	3040	98	2820	99	2610	103	114
-10	96	5260	96	3480	97	3240	99	3000	100	2780	104	115	-10	96	5140	96	3430	96	3090	98	2870	99	2650	103	114
-5	96	5490	96	3600	97	3290	98	3050	100	2830	104	115	-5	96	5350	96	3550	96	3140	97	2920	99	2700	103	114
0	94	5350	96	3740	98	3480	99	3230	100	2990	104	115	0	95	5220	95	3570	97	3320	98	3080	99	2860	103	114
5	94	5480	97	4070	99	3780	100	3510	101	3250	105	116	5	94	5220	96	3880	98	3610	99	3350	100	3100	104	114
10	95	6040	99	4460	100	4140	101	3840	103	3550	106	116	10	95	5740	98	4250	99	3940	100	3650	102	3380	105	115

WEIGHT = 16000 LBS										WEIGHT = 15500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS		V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	VR	V2				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS			
-30	96	4280	96	2970	96	2690	97	2490	98	2300	101	112	-30	96	4170	96	2920	96	2610	97	2400	98	2220	100	112
-25	96	4440	96	3060	96	2740	97	2540	98	2350	101	112	-25	96	4310	96	3010	96	2690	96	2450	97	2270	100	112
-20	96	4600	96	3160	96	2820	97	2590	98	2390	101	112	-20	96	4470	96	3100	96	2770	96	2500	97	2320	100	112
-15	96	4770	96	3260	96	2900	96	2630	97	2440	101	112	-15	96	4630	96	3200	96	2850	96	2560	97	2370	100	112
-10	96	4960	96	3360	96	2990	96	2690	97	2490	101	112	-10	96	4800	96	3300	96	2940	96	2630	97	2420	100	113
-5	96	5160	96	3470	96	3080	96	2750	97	2540	101	113	-5	96	4980	96	3400	96	3030	96	2710	97	2470	100	113
0	95	5040	95	3410	95	3100	96	2870	98	2660	101	112	0	95	4870	95	3340	95	2980	95	2700	96	2500	99	111
5	93	4840	95	3610	96	3360	98	3120	99	2890	102	113	5	92	4590	94	3360	95	3120	96	2900	97	2680	100	111
10	94	5310	96	3940	98	3660	99	3390	100	3140	103	113	10	93	4910	95	3660	96	3400	97	3160	98	2920	101	111

WEIGHT = 15000 LBS										WEIGHT = 14500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS		V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	VR	V2				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS			
-30	96	4060	96	2870	96	2580	96	2330	97	2160	99	112	-30	96	3960	96	2830	96	2540	96	2280	97	2100	99	112
-25	96	4200	96	2960	96	2650	96	2390	97	2210	99	112	-25	96	4090	96	2910	96	2610	96	2350	97	2150	99	113
-20	96	4340	96	3050	96	2730	96	2450	97	2260	100	112	-20	96	4230	96	3000	96	2690	96	2420	97	2200	99	113
-15	96	4490	96	3140	96	2810	96	2520	97	2310	100	113	-15	96	4370	96	3080	96	2770	96	2490	96	2240	99	113
-10	96	4650	96	3230	96	2890	96	2590	97	2360	100	113	-10	96	4510	96	3180	96	2850	96	2560	96	2300	99	113
-5	96	4820	96	3330	96	2980	96	2670	97	2410	100	113	-5	96	4670	96	3270	96	2930	96	2630	96	2360	99	113
0	95	4710	95	3280	95	2930	95	2630	96	2430	99	111	0	95	4570	95	3220	95	2880	95	2590	95	2370	98	111
5	92	4450	92	3130	93	2910	94	2690	95	2490	98	109	5	92	4320	92	3070	92	2760	93	2560	94	2370	96	108
10	92	4550	93	3400	95	3160	96	2930	97	2710	99	109	10	90	4210	92	3150	93	2930	94	2710	95	2510	97	107

WEIGHT = 14000 LBS										WEIGHT = 13500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS		V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	VR	V2				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS			
-30	96	3870	96	2790	96	2510	96	2260	96	2050	98	113	-30	96	3790	96	2750	96	2480	96	2230	96	2010	98	113
-25	96	3990	96	2870	96	2580	96	2320	96	2090	98	113	-25	96	3900	96	2820	96	2550	96	2290	96	2070	98	113
-20	96	4120	96	2950	96	2650	96	2390	96	2150	99	113	-20	96	4020	96	2900	96	2620	96	2360	96	2130	98	113
-15	96	4250	96	3030	96	2730	96	2450	96	2210	99	113	-15	97	4150	97	2990	97	2690	97	2430	97	2190	98	113
-10	96	4390	96	3120	96	2800	96	2520	96	2270	99	113	-10	97	4280	97	3070	97	2770	97	2490	97	2250	98	114
-5	97	4540	97	3210	97	2890	97	2600	97	2340	99	113	-5	97	4420	97	3160	97	2840	97	2560	97	2310	98	114
0	95	4440	95	3160	95	2840	95	2560	95	2300	98	112	0	95	4330	95	3110	95	2800	95	2520	95	2270	97	112
5	92	4210	92	3020	92	2720	93	2490	94	2300	96	108	5	92	4100	92	2970	92	2680	92	2420	93	2240	95	109
10	90	3990	90	2920	91	2710	92	2520	93	2330	94	106	10	90	3890	90	2830	90	2610	91	2420	92	2240	94	105

WEIGHT = 12500 LBS										WEIGHT = 11500 LBS															
VENR = 160 KIAS										VENR = 160 KIAS															
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS						TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEADWINDS									
					10 KTS		20 KTS		30 KTS							10 KTS		20 KTS		30 KTS					
	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS		V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	V1 DIST	KIAS	VR	V2				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS			
-30	97	3640	97	2680	97	2420	97	2190	97	1980	98	114	-30	97	3520	97	2630	97	2390	97	2170	97	1960	98	115
-25	97	3740	97	2750	97	2490	97	2250	97	2040	98	114	-25	97	3620	97	2700	97	2450	97	2220	97	2020	98	115
-20	97	3850	97	2830	97	2560	97	2310	97	2090	98	114	-20	97	3720	97	2770	97	2520	97	2280	97	2070	99	116
-15	97	3970	97	2910	97	2630	97	2380	97	2150	98	114	-15	97	3820	97	2840	97	2580	97	2340	97	2130	99	116
-10	97	4080	97	2990	97	2700	97	2440	97	2210	98	115	-10	97	3930	97	2920	97	2650	97	2410	97	2180	99	116
-5	97	4210	97	3070	97	2770	97	2510	97	2270	99	115	-5	97	4040	97	3000	97	2720	97	2470	97	2240	99	116
0	95	4120	95	3010	95	2720	95	2460	95	2230	97	113	0	96	3950	96	2940	96	2670	96	2420	96	2200	97	114
5	93	3910	93	2880	93	2600	93	2350	93	2130	94	109	5	93	3750	93	2800	93	2540	93	2310	93	2090	94	110
10	90	3710	90	2740	90	2480	90	2280	91	2110	92	106	10	90	3560	90	2670	90	2420	90	2200	90	1990	91	106

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
4000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS								WEIGHT = 16500 LBS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST	V1 DIST	V1 DIST						V1 DIST	V1 DIST	V1 DIST		
			KIAS FT	KIAS FT	KIAS FT						KIAS FT	KIAS FT	KIAS FT		
-30	96 4900	96 3320	98 3080	99 2850	100 2640	104	115	-30	96 4790	96 3240	97 2950	98 2730	99 2520	103	114
-25	96 5110	96 3400	98 3140	99 2910	100 2690	104	115	-25	96 4990	96 3350	97 3000	98 2780	99 2580	102	114
-20	96 5330	96 3510	97 3200	99 2970	100 2750	104	115	-20	96 5200	96 3460	96 3070	98 2840	99 2630	102	114
-15	96 5580	96 3640	97 3260	98 3020	99 2800	104	115	-15	96 5430	96 3580	96 3170	97 2890	98 2670	102	114
-10	97 5840	97 3760	97 3320	98 3080	99 2850	104	115	-10	97 5670	97 3710	97 3280	97 2940	98 2720	102	114
-5	95 5740	95 3750	97 3480	98 3240	100 3000	104	115	-5	95 5590	95 3670	96 3330	97 3090	99 2860	103	114
0	93 5470	97 4080	98 3790	99 3520	101 3260	105	116	0	93 5210	96 3890	97 3620	99 3360	100 3110	104	114
5	94 6010	98 4460	99 4140	101 3840	102 3550	106	116	5	94 5710	97 4240	98 3940	100 3660	101 3390	104	115
10	95 6670	99 4910	101 4550	102 4220	103 3910	107	116	10	95 6320	98 4660	100 4330	101 4010	102 3720	105	115

WEIGHT = 16000 LBS								WEIGHT = 15500 LBS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST	V1 DIST	V1 DIST						V1 DIST	V1 DIST	V1 DIST		
			KIAS FT	KIAS FT	KIAS FT						KIAS FT	KIAS FT	KIAS FT		
-30	96 4640	96 3180	96 2840	97 2570	98 2380	101	113	-30	96 4510	96 3120	96 2790	96 2500	98 2320	100	113
-25	96 4820	96 3290	96 2930	97 2630	98 2430	101	113	-25	96 4670	96 3220	96 2880	96 2570	97 2370	100	113
-20	96 5020	96 3390	96 3020	96 2690	97 2490	101	113	-20	97 4850	97 3330	97 2970	97 2650	97 2420	100	113
-15	97 5230	97 3510	97 3110	97 2780	97 2550	101	113	-15	97 5050	97 3430	97 3060	97 2730	97 2480	101	113
-10	97 5450	97 3620	97 3210	97 2860	97 2600	101	113	-10	97 5250	97 3550	97 3160	97 2820	97 2530	101	113
-5	95 5370	95 3590	95 3190	96 2880	97 2670	101	112	-5	95 5180	95 3510	95 3130	95 2800	96 2560	100	112
0	93 5010	94 3620	96 3370	97 3130	98 2900	102	113	0	93 4840	93 3370	94 3130	95 2910	96 2690	100	111
5	93 5280	96 3940	97 3660	98 3400	99 3150	103	113	5	92 4890	94 3660	95 3400	97 3160	98 2930	100	111
10	94 5830	97 4320	98 4010	100 3720	101 3440	103	113	10	93 5380	96 4000	97 3710	98 3450	99 3190	101	111

WEIGHT = 15000 LBS								WEIGHT = 14500 LBS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST	V1 DIST	V1 DIST						V1 DIST	V1 DIST	V1 DIST		
			KIAS FT	KIAS FT	KIAS FT						KIAS FT	KIAS FT	KIAS FT		
-30	97 4380	97 3070	97 2750	97 2460	97 2250	100	113	-30	97 4260	97 3020	97 2710	97 2430	97 2200	99	113
-25	97 4540	97 3160	97 2830	97 2540	97 2310	100	113	-25	97 4410	97 3110	97 2790	97 2500	97 2250	99	113
-20	97 4700	97 3260	97 2920	97 2610	97 2360	100	113	-20	97 4560	97 3200	97 2870	97 2580	97 2320	100	114
-15	97 4880	97 3370	97 3010	97 2690	97 2420	100	113	-15	97 4730	97 3300	97 2960	97 2660	97 2390	100	114
-10	97 5070	97 3470	97 3100	97 2770	97 2490	100	114	-10	97 4900	97 3410	97 3050	97 2730	97 2460	100	114
-5	96 5000	96 3440	96 3070	96 2750	96 2490	99	112	-5	96 4840	96 3370	96 3020	96 2710	96 2440	99	112
0	93 4690	93 3280	93 2930	94 2700	95 2510	98	109	0	93 4550	93 3210	93 2880	93 2620	94 2430	97	109
5	91 4530	93 3390	94 3150	95 2930	96 2710	98	109	5	90 4310	91 3150	92 2930	93 2720	94 2520	96	107
10	92 4960	94 3700	95 3440	96 3200	97 2960	99	110	10	91 4590	92 3430	94 3190	95 2960	95 2740	97	108

WEIGHT = 14000 LBS								WEIGHT = 13500 LBS							
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR	V2 KIAS
			10 KTS	20 KTS	30 KTS						10 KTS	20 KTS	30 KTS		
			V1 DIST	V1 DIST	V1 DIST						V1 DIST	V1 DIST	V1 DIST		
			KIAS FT	KIAS FT	KIAS FT						KIAS FT	KIAS FT	KIAS FT		
-30	97 4150	97 2970	97 2670	97 2400	97 2160	99	114	-30	97 4060	97 2930	97 2640	97 2380	97 2140	98	114
-25	97 4290	97 3060	97 2750	97 2470	97 2230	99	114	-25	97 4190	97 3010	97 2710	97 2440	97 2200	98	114
-20	97 4440	97 3150	97 2830	97 2540	97 2290	99	114	-20	97 4320	97 3100	97 2790	97 2510	97 2270	99	114
-15	97 4590	97 3250	97 2910	97 2620	97 2360	99	114	-15	97 4470	97 3190	97 2870	97 2590	97 2330	99	114
-10	97 4750	97 3340	97 3000	97 2700	97 2430	99	114	-10	97 4620	97 3290	97 2960	97 2660	97 2400	99	114
-5	96 4690	96 3310	96 2970	96 2670	96 2410	98	113	-5	96 4560	96 3250	96 2930	96 2640	96 2380	98	113
0	93 4420	93 3150	93 2830	93 2550	94 2360	96	109	0	93 4300	93 3100	93 2790	93 2520	93 2300	96	110
5	90 4190	90 3010	91 2750	92 2560	93 2370	95	106	5	90 4080	90 2960	90 2670	91 2480	92 2300	94	106
10	89 4230	91 3170	92 2950	93 2740	94 2530	95	106	10	88 3910	89 2930	90 2730	91 2530	91 2340	93	104

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS						VR	V2														
					10 KTS		20 KTS		30 KTS									10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST		V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2																
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT												
-30	97	3890	97	2850	97	2580	97	2330	97	2110	99	115	-30	98	3750	98	2790	98	2530	98	2300	98	2090	99	116														
-25	97	4000	97	2930	97	2650	97	2400	97	2170	99	115	-25	98	3860	98	2870	98	2600	98	2360	98	2140	99	116														
-20	97	4120	97	3010	97	2720	97	2460	97	2230	99	115	-20	98	3970	98	2950	98	2670	98	2430	98	2200	99	117														
-15	97	4250	97	3100	97	2800	97	2530	97	2290	99	115	-15	98	4080	98	3030	98	2750	98	2490	98	2260	100	117														
-10	97	4390	97	3190	97	2880	97	2600	97	2360	99	116	-10	98	4200	98	3110	98	2820	98	2560	98	2330	100	117														
-5	96	4330	96	3150	96	2850	96	2580	96	2330	98	114	-5	96	4140	96	3070	96	2790	96	2530	96	2300	98	115														
0	93	4090	93	3000	93	2710	93	2450	93	2220	95	110	0	94	3920	94	2920	94	2650	94	2410	94	2180	95	111														
5	91	3890	91	2860	91	2590	91	2350	91	2170	93	107	5	91	3720	91	2780	91	2530	91	2290	91	2080	92	107														
10	88	3690	88	2730	88	2510	89	2330	90	2160	91	103	10	88	3530	88	2650	88	2410	88	2190	89	2030	90	104														

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
5000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS												WEIGHT = 16500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS			
						V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST									V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST		
						KIAS	FT	KIAS	FT	KIAS	FT									KIAS	FT	KIAS	FT	KIAS	FT		
-30	97	5360	97	3530	97	3170	98	2940	100	2720	104	115	-30	97	5230	97	3480	97	3080	97	2810	99	2600	102	114		
-25	97	5610	97	3650	97	3230	98	3000	99	2770	104	115	-25	97	5470	97	3600	97	3190	97	2860	98	2650	102	114		
-20	97	5890	97	3790	97	3340	98	3050	99	2830	104	115	-20	97	5730	97	3730	97	3300	97	2930	98	2710	102	114		
-15	97	6200	97	3930	97	3460	97	3110	99	2880	104	115	-15	97	6010	97	3870	97	3410	97	3030	98	2750	102	114		
-10	95	6050	95	3870	96	3530	98	3280	99	3040	104	115	-10	96	5870	96	3810	96	3370	97	3130	98	2900	103	114		
-5	93	5620	96	4120	97	3830	99	3550	100	3290	105	115	-5	93	5470	95	3930	97	3650	98	3390	99	3150	103	114		
0	93	6050	97	4500	99	4180	100	3880	101	3590	106	116	0	93	5740	96	4280	98	3980	99	3690	100	3420	104	115		
5	95	6680	98	4940	100	4580	101	4250	103	3930	106	116	5	94	6330	98	4690	99	4350	100	4040	102	3740	105	115		
10	96	7470	100	5470	101	5070	103	4700	104	4350	107	116	10	95	7060	99	5180	100	4810	102	4460	103	4130	106	115		

WEIGHT = 16000 LBS												WEIGHT = 15500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS			
						V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST									V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST		
						KIAS	FT	KIAS	FT	KIAS	FT									KIAS	FT	KIAS	FT	KIAS	FT		
-30	97	5040	97	3400	97	3030	97	2700	98	2480	101	113	-30	97	4880	97	3340	97	2980	97	2660	97	2420	101	113		
-25	97	5260	97	3520	97	3130	97	2790	97	2540	101	113	-25	97	5080	97	3450	97	3070	97	2750	97	2470	101	114		
-20	97	5500	97	3650	97	3230	97	2880	97	2600	101	114	-20	97	5290	97	3570	97	3170	97	2830	97	2540	101	114		
-15	97	5760	97	3780	97	3340	97	2980	97	2660	101	114	-15	97	5530	97	3690	97	3280	97	2930	97	2620	101	114		
-10	96	5630	96	3720	96	3300	96	2940	96	2710	101	112	-10	96	5410	96	3640	96	3240	96	2890	96	2620	100	112		
-5	93	5270	94	3650	95	3400	96	3160	98	2930	102	113	-5	93	5080	93	3480	94	3160	95	2930	96	2720	99	111		
0	92	5320	95	3970	96	3690	98	3430	99	3190	102	113	0	91	4930	94	3690	95	3430	96	3190	97	2960	100	111		
5	93	5840	96	4340	98	4030	99	3740	100	3470	103	113	5	93	5390	95	4020	96	3740	97	3470	98	3220	101	111		
10	95	6480	98	4780	99	4440	100	4120	101	3820	104	113	10	94	5960	96	4420	98	4100	99	3810	100	3530	102	112		

WEIGHT = 15000 LBS												WEIGHT = 14500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS			
						V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST									V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST		
						KIAS	FT	KIAS	FT	KIAS	FT									KIAS	FT	KIAS	FT	KIAS	FT		
-30	97	4720	97	3270	97	2930	97	2620	97	2360	100	114	-30	97	4580	97	3220	97	2880	97	2590	97	2320	100	114		
-25	97	4910	97	3380	97	3020	97	2700	97	2430	100	114	-25	97	4760	97	3320	97	2970	97	2670	97	2400	100	114		
-20	97	5110	97	3490	97	3120	97	2790	97	2500	100	114	-20	97	4940	97	3430	97	3070	97	2750	97	2470	100	114		
-15	97	5320	97	3610	97	3220	97	2880	97	2580	101	114	-15	97	5140	97	3540	97	3160	97	2840	97	2550	100	114		
-10	96	5210	96	3560	96	3180	96	2840	96	2550	100	112	-10	96	5040	96	3490	96	3120	96	2800	96	2510	99	113		
-5	93	4910	93	3400	93	3040	94	2760	95	2560	98	109	-5	93	4750	93	3330	93	2990	93	2680	94	2490	97	110		
0	90	4620	92	3420	93	3180	94	2960	95	2740	98	109	0	91	4490	91	3180	92	2960	93	2740	94	2540	96	107		
5	91	4980	93	3730	95	3470	96	3220	97	2980	99	109	5	90	4600	92	3450	93	3210	94	2980	95	2760	97	108		
10	93	5480	95	4080	96	3790	97	3520	98	3260	100	110	10	92	5050	93	3770	94	3500	95	3260	96	3020	98	108		

WEIGHT = 14000 LBS												WEIGHT = 13500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS			
						V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST									V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST		
						KIAS	FT	KIAS	FT	KIAS	FT									KIAS	FT	KIAS	FT	KIAS	FT		
-30	97	4460	97	3160	97	2840	97	2550	97	2300	99	114	-30	97	4340	97	3110	97	2800	97	2520	97	2270	99	114		
-25	97	4620	97	3260	97	2930	97	2630	97	2370	99	114	-25	97	4490	97	3210	97	2880	97	2600	97	2340	99	115		
-20	97	4790	97	3360	97	3020	97	2710	97	2440	99	115	-20	97	4650	97	3310	97	2970	97	2680	97	2410	99	115		
-15	97	4970	97	3470	97	3110	97	2800	97	2510	100	115	-15	98	4820	98	3410	98	3060	98	2760	98	2490	99	115		
-10	96	4880	96	3420	96	3070	96	2760	96	2480	99	113	-10	96	4730	96	3360	96	3020	96	2720	96	2450	98	113		
-5	93	4610	93	3270	93	2940	93	2640	94	2420	97	110	-5	93	4480	93	3210	93	2890	93	2610	93	2350	96	110		
0	91	4360	91	3120	91	2810	92	2610	93	2420	95	107	0	91	4240	91	3060	91	2760	91	2540	92	2350	94	107		
5	89	4250	90	3190	91	2970	92	2750	93	2550	95	106	5	88	4030	88	2950	89	2740	90	2550	91	2360	93	104		
10	90	4650	92	3480	93	3240	94	3010	94	2780	96	106	10	89	4280	90	3210	91	2990	92	2770	92	2570	94	104		

WEIGHT = 12500 LBS												WEIGHT = 11500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS		20 KTS		30 KTS										10 KTS		20 KTS		30 KTS			
						V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST									V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST	V1 DIST		
						KIAS	FT	KIAS	FT	KIAS	FT									KIAS	FT	KIAS	FT	KIAS	FT		
-30	98	4140	98	3020	98	2730	98	2470	98	2240	99	116	-30	98	3980	98	2960	98	2680	98	2440	98	2210	100	117		
-25	98	4280	98	3110	98	2810	98	2540	98	2300	99	116	-25	98	4100	98	3040	98	2760	98	2510	98	2280	100	117		
-20	98	4420	98	3210	98	2900	98	2620	98	2370	100	116	-20	98	4230	98	3130	98	2840	98	2580	98	2340	100	117		
-15	98	4570	98	3300	98	2980	98	2700	98	2440	100	116	-15	98	4360	98	3220	98	2920	98	2650	98	2410	100	118		
-10	96	4480	96	3250	96	2940	96	2660	96	2400	98	114	-10	97	4280	97	3170	97	2870	97	2610	97	2370	99	116		
-5	94	4250	94	3110	94	2810	94	2540	94	2300	95	111	-5	94	4060	94	3020	94	2740	94	2490	94	2260	96	112		
0	91	4030	91	2960	91	2680	91	2430	91	2220	93	107	0	91	3850	91	2880	91	2610	91	2370	91	2150	93	108		
5	88	3840	88	2830	88	2570	89	2390	90	2220	92	104	5	89	3670	89	2750	89	2490	89	2260	89	2080	90	104		
10	86	3690	86	2770	87	2580	88	2390	89	2220	90	101	10	86	3490	86	2620	86	2410	87	2230	88	2070	88	101		

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
6000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS								VENR = 160 KIAS								WEIGHT = 16500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS								
	10 KTS				10 KTS		20 KTS		30 KTS				10 KTS				10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT						
-30	97	5850	97	3770	97	3320	98	3040	99	2820	104	115	-30	97	5680	97	3710	97	3280	97	2920	98	2700	102	114						
-25	97	6140	97	3900	97	3440	97	3110	99	2880	104	115	-25	97	5960	97	3840	97	3390	97	3010	98	2750	102	114						
-20	97	6450	97	4050	97	3560	97	3170	98	2940	103	115	-20	97	6250	97	3980	97	3510	97	3110	97	2810	102	114						
-15	96	6360	96	4010	96	3580	97	3330	99	3090	104	115	-15	96	6160	96	3950	96	3480	97	3180	98	2950	103	114						
-10	93	5950	95	4160	97	3870	98	3590	100	3330	105	115	-10	93	5780	95	3970	96	3690	98	3430	99	3180	103	114						
-5	93	6070	96	4530	98	4210	99	3910	101	3630	105	116	-5	92	5770	96	4310	97	4010	99	3730	100	3460	104	115						
0	94	6710	98	4980	99	4620	101	4290	102	3970	106	116	0	93	6360	97	4730	98	4390	100	4080	101	3780	105	115						
5	95	7460	99	5490	100	5100	102	4730	103	4370	107	116	5	94	7060	98	5210	100	4840	101	4480	102	4150	106	115						
10	96	8420	100	6130	102	5680	103	5250	104	4860	108	116	10	96	7940	99	5790	101	5370	102	4980	104	4600	107	115						

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND			ZERO WIND			HEAD WINDS						VR V2 KIAS	TEMP DEG C	TAILWIND			ZERO WIND			HEAD WINDS						VR V2 KIAS												
	10 KTS						10 KTS		20 KTS		30 KTS				10 KTS						10 KTS		20 KTS		30 KTS														
	V1	DIST		V1	DIST		V1	DIST	V1	DIST	V1	DIST			V1	DIST		V1	DIST		V1	DIST	V1	DIST	V1	DIST													
	KIAS	FT		KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT		KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT													
-30	97	5460		97	3630		97	3220		97	2870		97	2600	101	114	-30	97	5260		97	3550		97	3160		97	2820		97	2530	101	114						
-25	97	5700		97	3750		97	3320		97	2960		97	2660	101	114	-25	97	5480		97	3670		97	3260		97	2910		97	2600	101	114						
-20	97	5970		97	3880		97	3430		97	3050		97	2720	102	114	-20	97	5720		97	3790		97	3370		97	3000		97	2680	101	114						
-15	96	5890		96	3850		96	3410		96	3030		96	2760	101	112	-15	96	5650		96	3760		96	3340		96	2980		96	2680	100	113						
-10	93	5540		93	3700		95	3430		96	3190		97	2960	101	113	-10	93	5330		93	3610		93	3220		94	2970		96	2750	99	111						
-5	92	5350		95	4010		96	3730		97	3470		98	3220	102	113	-5	91	5010		93	3720		94	3460		96	3220		97	2980	100	111						
0	93	5870		96	4380		97	4070		98	3780		100	3500	103	113	0	92	5420		94	4050		96	3770		97	3500		98	3250	101	111						
5	94	6490		97	4810		98	4460		100	4140		101	3840	104	113	5	93	5970		96	4440		97	4120		98	3830		99	3550	102	111						
10	95	7260		98	5320		100	4940		101	4580		102	4240	105	113	10	94	6470		97	4900		98	4550		99	4220		100	3910	103	112						

WEIGHT = 15000 LBS								VENR = 160 KIAS								WEIGHT = 14500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR V2	TEMP DEG C	TAILWIND		ZERO		HEADWINDS						VR V2								
	10 KTS		WIND		10 KTS		20 KTS		30 KTS				10 KTS		WIND		10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT						
-30	97	5080	97	3480	97	3100	97	2780	97	2490	100	114	-30	97	4910	97	3410	97	3050	97	2740	97	2460	100	114						
-25	97	5280	97	3590	97	3200	97	2860	97	2570	100	114	-25	97	5100	97	3520	97	3150	97	2820	97	2530	100	114						
-20	97	5490	97	3710	97	3300	97	2950	97	2640	101	114	-20	97	5300	97	3630	97	3240	97	2900	97	2610	100	115						
-15	96	5430	96	3680	96	3280	96	2930	96	2630	100	113	-15	96	5230	96	3600	96	3220	96	2880	96	2590	99	113						
-10	94	5140	94	3530	94	3160	94	2830	95	2620	98	110	-10	94	4970	94	3460	94	3100	94	2780	94	2550	98	110						
-5	91	4840	92	3450	93	3210	94	2980	95	2770	98	109	-5	91	4690	91	3310	91	2980	92	2770	93	2570	96	107						
0	91	5010	93	3760	94	3490	95	3250	96	3010	99	109	0	90	4620	91	3470	92	3230	93	3000	94	2790	97	108						
5	92	5490	94	4100	95	3810	96	3540	97	3280	100	110	5	91	5060	93	3780	94	3520	95	3280	96	3040	98	108						
10	93	6090	96	4510	97	4190	98	3890	99	3610	101	110	10	92	5580	94	4150	95	3860	96	3590	97	3330	99	108						

WEIGHT = 14000 LBS								VENR = 160 KIAS								WEIGHT = 13500 LBS								VENR = 160 KIAS							
TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND		ZERO WIND		HEADWINDS						VR V2 KIAS								
	10 KTS				10 KTS		20 KTS		30 KTS				10 KTS				10 KTS		20 KTS		30 KTS										
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST									
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT						
-30	97	4760	97	3350	97	3000	97	2700	97	2430	99	115	-30	97	4630	97	3290	97	2960	97	2670	97	2400	99	115						
-25	97	4940	97	3450	97	3090	97	2780	97	2500	100	115	-25	97	4790	97	3390	97	3050	97	2740	97	2470	99	115						
-20	97	5120	97	3560	97	3190	97	2860	97	2570	100	115	-20	97	4960	97	3490	97	3140	97	2820	97	2540	99	115						
-15	96	5060	96	3530	96	3160	96	2840	96	2560	99	113	-15	96	4900	96	3460	96	3110	96	2800	96	2520	98	114						
-10	94	4810	94	3390	94	3040	94	2740	94	2470	97	110	-10	94	4670	94	3330	94	2990	94	2700	94	2430	97	111						
-5	91	4550	91	3240	91	2920	92	2670	93	2480	95	107	-5	91	4420	91	3180	91	2870	91	2590	92	2410	95	107						
0	88	4310	90	3210	91	2990	92	2780	93	2580	95	106	0	89	4190	89	3040	89	2800	90	2600	91	2410	93	104						
5	90	4660	91	3500	92	3250	93	3020	94	2800	96	106	5	88	4290	89	3230	90	3000	91	2790	92	2580	93	104						
10	91	5120	92	3830	93	3560	94	3310	95	3080	97	106	10	90	4700	91	3530	92	3280	92	3050	93	2850	94	104						

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND			ZERO WIND			HEADWINDS						VR V2 KIAS	TEMP DEG C	TAILWIND			ZERO WIND			HEADWINDS						VR V2 KIAS												
	10 KTS						10 KTS		20 KTS		30 KTS				10 KTS						10 KTS		20 KTS		30 KTS														
	V1	DIST		V1	DIST		V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST													
	KIAS	FT		KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT										
-30	98	4390		98	3190		98	2880		98	2610		98	2360	100	116	-30	98	4210		98	3120		98	2830		98	2570		98	2330	100	118						
-25	98	4540		98	3290		98	2970		98	2680		98	2430	100	116	-25	98	4340		98	3200		98	2910		98	2640		98	2390	100	118						
-20	98	4680		98	3380		98	3050		98	2760		98	2490	100	116	-20	98	4470		98	3290		98	2990		98	2710		98	2480	100	118						
-15	96	4630		96	3350		96	3020		96	2730		96	2470	98	115	-15	97	4410		97	3260		97	2950		97	2680		97	2430	99	116						
-10	94	4420		94	3210		94	2910		94	2630		94	2380	96	111	-10	94	4210		94	3120		94	2830		94	2570		94	2340	96	112						
-5	91	4190		91	3070		91	2780		91	2510		91	2280	94	108	-5	92	4000		92	2980		92	2710		92	2460		92	2230	93	109						
0	89	3980		89	2930		89	2660		89	2450		90	2270	92	105	0	89	3800		89	2840		89	2580		89	2340		89	2130	91	105						
5	86	3790		86	2830		87	2640		88	2450		89	2270	90	101	5	86	3620		86	2720		86	2470		87	2290		88	2120	89	102						
10	86	3970		87	2980		88	2770		88	2590		89	2420	90	100	10	84	3520		84	2650		85	2460		86	2290		86	2130	87	99						

56FMC-00-00

Figure 4-27 (Sheet 7)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
7000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS												WEIGHT = 16500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT										10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT			
-30	96	6250	96	3960	96	3480	97	3200	99	2970	104	115	-30	96	6060	96	3890	96	3440	96	3060	98	2830	102	114		
-25	96	6480	96	4070	96	3570	97	3290	99	3050	104	115	-25	96	6270	96	4000	96	3520	96	3140	98	2910	102	114		
-20	95	6490	95	4080	96	3690	97	3430	99	3190	104	115	-20	95	6280	95	4010	95	3540	96	3280	98	3040	103	114		
-15	93	6260	95	4220	97	3930	98	3650	99	3390	105	115	-15	93	6070	94	4020	96	3740	97	3480	98	3230	103	114		
-10	92	6120	96	4570	97	4260	99	3950	100	3670	105	116	-10	92	5810	95	4350	97	4050	98	3770	99	3490	104	115		
-5	93	6730	97	5010	99	4660	100	4320	101	4010	106	116	-5	93	6390	96	4760	98	4430	99	4110	100	3810	105	115		
0	94	7470	98	5520	100	5120	101	4760	102	4400	107	116	0	94	7070	97	5230	99	4860	100	4510	102	4180	106	115		
5	95	8390	99	6140	101	5690	102	5270	104	4880	108	116	5	95	7910	99	5800	100	5380	102	4990	103	4620	106	115		
10	96	9570	101	6910	102	6390	104	5910	105	5460	108	117	10	96	8980	100	6510	101	6030	103	5580	104	5160	107	115		

WEIGHT = 16000 LBS												WEIGHT = 15500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT										10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT			
-30	96	5800	96	3800	96	3370	96	3000	97	2700	101	113	-30	97	5560	97	3720	97	3300	97	2940	97	2630	101	113		
-25	96	5990	96	3900	96	3450	96	3070	96	2760	101	113	-25	96	5740	96	3810	96	3380	96	3010	96	2690	101	113		
-20	95	6000	95	3910	95	3480	95	3080	96	2840	101	112	-20	95	5740	95	3820	95	3390	95	3020	96	2730	100	112		
-15	94	5810	94	3830	94	3460	96	3240	97	3010	101	113	-15	94	5570	94	3740	94	3330	94	3010	95	2790	99	111		
-10	91	5460	94	4040	95	3770	97	3500	98	3250	102	113	-10	91	5260	93	3750	94	3490	95	3250	96	3010	100	111		
-5	92	5900	95	4410	96	4100	98	3810	99	3530	103	113	-5	91	5440	94	4080	95	3800	96	3530	97	3280	101	111		
0	93	6500	96	4830	98	4490	99	4170	100	3870	104	113	0	92	5980	95	4460	96	4150	97	3850	99	3580	102	111		
5	94	7240	98	5340	99	4960	100	4600	101	4260	104	113	5	93	6630	96	4910	98	4560	99	4240	100	3930	102	112		
10	95	8170	99	5950	100	5520	102	5120	103	4730	105	114	10	95	7440	98	5460	99	5070	100	4700	101	4350	103	112		

WEIGHT = 15000 LBS												WEIGHT = 14500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT										10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT			
-30	97	5350	97	3640	97	3240	97	2900	97	2600	100	114	-30	97	5170	97	3560	97	3180	97	2850	97	2560	100	114		
-25	96	5510	96	3720	96	3320	96	2960	96	2650	100	113	-25	96	5310	96	3640	96	3250	96	2920	96	2620	100	114		
-20	95	5520	95	3730	95	3320	95	2970	95	2660	99	112	-20	96	5310	96	3650	96	3260	96	2920	96	2620	99	113		
-15	94	5360	94	3660	94	3260	94	2920	94	2680	98	110	-15	94	5170	94	3580	94	3200	94	2870	94	2600	98	110		
-10	91	5070	91	3510	92	3240	93	3010	95	2800	98	109	-10	91	4900	91	3440	91	3080	92	2820	93	2620	96	108		
-5	90	5030	92	3780	94	3520	95	3270	96	3040	99	109	-5	89	4640	91	3500	92	3260	93	3030	94	2810	97	108		
0	91	5510	94	4120	95	3830	96	3560	97	3310	100	110	0	90	5070	92	3810	93	3550	94	3300	95	3060	98	108		
5	93	6080	95	4520	96	4210	97	3910	98	3620	100	110	5	92	5580	93	4160	94	3880	96	3600	96	3340	98	108		
10	94	6790	96	5010	97	4650	99	4320	100	4000	101	110	10	93	6200	95	4600	96	4270	97	3970	98	3690	99	108		

WEIGHT = 14000 LBS												WEIGHT = 13500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT										10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT			
-30	97	5000	97	3490	97	3130	97	2810	97	2530	99	114	-30	97	4840	97	3430	97	3080	97	2770	97	2500	99	114		
-25	97	5130	97	3570	97	3200	97	2870	97	2580	99	114	-25	97	4970	97	3500	97	3150	97	2830	97	2550	99	114		
-20	96	5130	96	3580	96	3200	96	2880	96	2590	98	113	-20	96	4970	96	3510	96	3150	96	2840	96	2560	98	113		
-15	94	5000	94	3500	94	3140	94	2820	94	2540	97	111	-15	94	4840	94	3440	94	3090	94	2780	94	2510	97	111		
-10	92	4750	92	3370	92	3020	92	2740	93	2540	96	108	-10	92	4610	92	3300	92	2970	92	2680	92	2470	95	108		
-5	89	4500	89	3240	90	3010	91	2800	92	2600	95	106	-5	89	4370	89	3160	89	2870	90	2670	91	2470	93	105		
0	89	4670	90	3510	91	3270	92	3040	93	2820	95	106	0	87	4300	89	3240	90	3020	91	2810	91	2600	93	104		
5	90	5120	92	3840	93	3570	94	3320	95	3080	96	106	5	89	4700	90	3540	91	3290	92	3060	93	2850	94	104		
10	92	5670	93	4220	94	3930	95	3650	96	3420	97	106	10	90	5190	91	3880	92	3610	93	3370	94	3160	95	104		

WEIGHT = 12500 LBS												WEIGHT = 11500 LBS															
TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS		TEMP DEG C		TAILWIND 10 KTS V1 DIST KIAS FT		ZERO WIND V1 DIST KIAS FT		HEAD WINDS						VR V2 KIAS	
						10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT										10 KTS V1 DIST KIAS FT		20 KTS V1 DIST KIAS FT		30 KTS V1 DIST KIAS FT			
-30	97	4580	97	3320	97	2990	97	2710	97	2450	99	116	-30	98	4380	98	3230	98	2930	98	2660	98	2420	100	117		
-25	97	4690	97	3390	97	3060	97	2760	97	2500	99	115	-25	97	4470	97	3290	97	2990	97	2710	97	2460	100	117		
-20	96	4680	96	3390	96	3060	96	2760	96	2500	98	114	-20	96	4460	96	3290	96	2980	96	2710	96	2460	98	115		
-15	94	4570	94	3310	94	2990	94	2710	94	2450	96	112	-15	95	4350	95	3220	95	2920	95	2650	95	2410	97	113		
-10	92	4360	92	3180	92	2880	92	2600	92	2360	94	108	-10	92	4150	92	3080	92	2800	92	2540	92	2310	94	109		
-5	89	4140	89	3040	89	2750	89	2510	90	2330	92	105	-5	89	3950	89	2940	89	2670	89	2430	89	2210	91	106		
0	87	3940	87	2910	87	2700	88	2510	89	2330	90	102	0	87	3760	87	2820	87	2560	87	2350	88	2180	89	102		
5	86	3970	86	2990	87	2780	88	2590	88	2420	90	100	5	84	3590	84	2710	85	2520	86	2340	86	2170	87	99		
10	87	4350	88	3270	88	3060	89	2870	90	2680	90	100	10	83	3630	83	2740	84	2570	85	2400	85	2240	86	96		

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
8000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS
			10 KTS	20 KTS	30 KTS					10 KTS	20 KTS	30 KTS	
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	
-30	95 6560	95 4110	96 3660	97 3400	99 3150	104 115	-30	95 6350	95 4040	95 3560	96 3240	98 3010	103 114
-25	94 6480	95 4130	96 3850	98 3580	99 3320	104 115	-25	94 6270	94 4020	95 3670	97 3410	98 3170	103 114
-20	93 6430	95 4340	96 4040	98 3750	99 3480	105 115	-20	93 6230	94 4130	96 3850	97 3580	98 3330	103 114
-15	91 6190	95 4630	97 4310	98 4010	100 3720	105 116	-15	91 6000	95 4410	96 4100	98 3810	99 3540	104 114
-10	92 6760	96 5050	98 4690	99 4360	101 4050	106 116	-10	92 6410	96 4800	97 4460	99 4150	100 3850	105 115
-5	93 7490	97 5550	99 5160	100 4790	102 4440	107 116	-5	93 7080	97 5260	98 4900	100 4550	101 4220	105 115
0	94 8360	98 6160	100 5720	102 5300	103 4910	107 116	0	94 7910	98 5830	99 5410	101 5020	102 4650	106 115
5	95 9500	100 6900	101 6400	103 5920	104 5470	108 116	5	95 8930	99 6510	101 6030	102 5590	103 5170	107 115
10	96 10990	101 7860	103 7250	104 6690	106 6170	109 117	10	96 10270	100 7370	102 6810	103 6290	105 5810	108 116

WEIGHT = 16000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS
			10 KTS	20 KTS	30 KTS					10 KTS	20 KTS	30 KTS	
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	
-30	96 6060	96 3940	96 3480	96 3100	96 2810	101 112	-30	96 5800	96 3840	96 3410	96 3040	96 2730	100 112
-25	94 5990	94 3920	94 3470	95 3170	96 2950	101 112	-25	94 5740	94 3820	94 3390	94 3030	95 2770	99 111
-20	93 5950	93 3910	94 3580	96 3330	97 3090	101 113	-20	93 5700	93 3810	93 3390	94 3090	95 2870	99 111
-15	91 5740	93 4090	95 3810	96 3550	97 3290	102 113	-15	92 5510	92 3790	93 3540	95 3290	96 3050	100 111
-10	91 5920	94 4440	96 4130	97 3840	98 3570	103 113	-10	90 5470	93 4120	95 3830	96 3560	97 3310	101 111
-5	92 6520	96 4860	97 4520	98 4200	100 3900	103 113	-5	91 6000	94 4490	96 4180	97 3880	98 3600	102 111
0	93 7240	97 5360	98 4980	100 4620	101 4290	104 113	0	93 6640	96 4930	97 4590	98 4260	99 3950	102 112
5	94 8130	98 5960	99 5530	101 5130	102 4750	105 114	5	94 7410	97 5460	98 5080	99 4710	101 4370	103 112
10	96 9280	99 6710	101 6210	102 5750	103 5310	106 114	10	95 8400	98 6110	100 5670	101 5260	102 4870	104 112

WEIGHT = 15000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS
			10 KTS	20 KTS	30 KTS					10 KTS	20 KTS	30 KTS	
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	
-30	96 5570	96 3760	96 3340	96 2990	96 2680	100 113	-30	96 5360	96 3680	96 3280	96 2940	96 2640	99 113
-25	95 5510	95 3730	95 3330	95 2980	95 2690	99 111	-25	95 5310	95 3650	95 3260	95 2930	95 2630	98 111
-20	93 5480	93 3720	93 3320	93 2970	94 2730	98 110	-20	93 5280	93 3640	93 3260	93 2920	94 2650	98 110
-15	92 5310	92 3640	92 3280	93 3050	94 2830	98 109	-15	92 5120	92 3560	92 3190	92 2880	93 2680	96 108
-10	89 5050	92 3810	93 3550	94 3300	95 3060	99 109	-10	89 4860	90 3520	91 3280	92 3050	93 2830	97 107
-5	91 5520	93 4140	94 3860	95 3590	96 3330	99 110	-5	89 5090	91 3830	93 3570	94 3320	95 3080	97 108
0	92 6090	94 4540	95 4230	97 3930	98 3650	100 110	0	91 5590	93 4180	94 3900	95 3620	96 3360	98 108
5	93 6770	96 5010	97 4660	98 4330	99 4010	101 110	5	92 6180	94 4600	95 4280	96 3980	97 3690	99 108
10	94 7620	97 5580	98 5190	99 4810	100 4460	102 110	10	94 6920	96 5110	97 4750	98 4410	99 4120	100 108

WEIGHT = 14000 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS
			10 KTS	20 KTS	30 KTS					10 KTS	20 KTS	30 KTS	
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	
-30	96 5170	96 3600	96 3220	96 2890	96 2600	99 113	-30	96 5010	96 3530	96 3170	96 2850	96 2570	98 113
-25	95 5120	95 3580	95 3200	95 2880	95 2590	98 112	-25	95 4960	95 3510	95 3150	95 2840	95 2560	97 112
-20	94 5090	94 3560	94 3200	94 2870	94 2590	97 110	-20	94 4930	94 3490	94 3140	94 2830	94 2550	97 111
-15	92 4950	92 3490	92 3130	92 2810	93 2600	96 108	-15	92 4790	92 3420	92 3070	92 2770	92 2520	95 108
-10	89 4700	89 3350	90 3040	91 2830	92 2620	94 106	-10	89 4560	89 3280	89 2960	90 2730	91 2530	94 106
-5	88 4690	90 3540	91 3290	92 3060	93 2840	95 106	-5	87 4330	88 3260	89 3040	90 2820	91 2620	93 104
0	90 5130	91 3850	92 3590	93 3340	94 3100	96 106	0	88 4720	89 3550	90 3310	91 3080	92 2860	94 104
5	91 5660	92 4230	94 3940	94 3660	95 3410	97 106	5	90 5180	91 3880	92 3620	93 3370	93 3160	95 104
10	92 6300	94 4680	95 4350	96 4050	97 3810	98 107	10	91 5740	92 4280	93 3990	94 3750	95 3520	96 105

WEIGHT = 12500 LBS							VENR = 160 KIAS						
TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS	TEMP DEG C	TAILWIND 10 KTS V1 DIST KIAS FT	ZERO WIND V1 DIST KIAS FT	HEAD WINDS			VR V2 KIAS
			10 KTS	20 KTS	30 KTS					10 KTS	20 KTS	30 KTS	
			V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT					V1 DIST KIAS FT	V1 DIST KIAS FT	V1 DIST KIAS FT	
-30	96 4720	96 3410	96 3080	96 2780	96 2520	98 115	-30	97 4490	97 3310	97 3000	97 2730	97 2470	99 116
-25	95 4670	95 3380	95 3050	95 2760	95 2500	97 113	-25	95 4450	95 3280	95 2980	95 2700	95 2450	97 114
-20	94 4650	94 3370	94 3040	94 2750	94 2490	96 111	-20	94 4410	94 3260	94 2960	94 2690	94 2440	96 112
-15	92 4520	92 3290	92 2970	92 2690	92 2430	94 109	-15	92 4300	92 3180	92 2890	92 2630	92 2380	94 110
-10	90 4310	90 3160	90 2860	90 2590	90 2380	93 106	-10	90 4100	90 3050	90 2770	90 2520	90 2290	92 106
-5	87 4100	87 3020	87 2760	88 2570	89 2390	91 103	-5	87 3910	87 2920	87 2650	87 2410	88 2230	90 103
0	85 3980	85 3010	86 2800	87 2600	88 2430	89 100	0	85 3730	85 2790	85 2580	86 2400	87 2230	88 100
5	86 4350	87 3270	88 3050	89 2860	89 2680	90 100	5	83 3680	83 2780	84 2600	85 2430	85 2270	86 97
10	88 4780	89 3610	89 3390	90 3180	91 2980	91 101	10	84 3970	84 3030	85 2840	85 2660	86 2490	86 96

56FMC-00-00

Figure 4-27 (Sheet 9)

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
9000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS											VENR = 160 KIAS											WEIGHT = 16500 LBS											VENR = 160 KIAS										
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS								VR	V2														
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS							10 KTS		20 KTS		30 KTS																					
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST																				
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT																
-30	94	6550	95	4280	96	3980	98	3710	99	3440	104	115	-30	94	6340	94	4080	95	3800	97	3530	98	3280	103	114																		
-25	92	6440	95	4520	96	4200	98	3910	99	3630	105	116	-25	92	6240	94	4300	96	4010	97	3720	98	3460	104	114																		
-20	91	6430	95	4730	97	4410	98	4100	99	3800	105	116	-20	91	6220	94	4500	96	4190	97	3900	99	3620	104	114																		
-15	91	6760	96	5070	97	4720	99	4390	100	4070	106	116	-15	91	6420	95	4820	96	4490	98	4170	99	3870	104	115																		
-10	92	7430	96	5540	98	5150	100	4790	101	4440	106	116	-10	92	7040	96	5260	97	4890	99	4540	100	4220	105	115																		
-5	93	8260	97	6120	99	5680	101	5270	102	4890	107	116	-5	93	7800	97	5790	98	5380	100	4990	101	4630	106	115																		
0	94	9300	98	6810	100	6320	102	5860	103	5420	108	116	0	94	8760	98	6430	100	5970	101	5530	102	5120	107	115																		
5	95	10620	100	7690	101	7110	103	6570	104	6070	109	117	5	95	9950	99	7220	101	6690	102	6190	104	5720	107	115																		
10	96	12360	101	8790	103	8110	104	7470	106	6880	109	117	10	96	11530	100	8210	102	7590	104	7000	105	6450	108	116																		

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		H E A D W I N D S								VR	V2	KIAS	TEMP DEG C	TAILWIND		ZERO WIND		H E A D W I N D S								VR	V2	KIAS								
	10 KTS				10 KTS		20 KTS		30 KTS		10 KTS								10 KTS		20 KTS		30 KTS																
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST															
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT					KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT													
-30	94	6050	94	3950	94	3530	95	3280	97	3050	101	113	-30	94	5790	94	3850	94	3420	94	3050	95	2840	99	111														
-25	92	5960	93	3990	94	3720	96	3460	97	3220	102	113	-25	92	5710	92	3820	93	3460	94	3210	95	2990	100	111														
-20	91	5950	93	4180	95	3900	96	3630	97	3370	102	113	-20	91	5700	92	3880	93	3610	94	3360	96	3120	100	111														
-15	90	5930	94	4460	95	4150	97	3860	98	3590	103	113	-15	90	5510	93	4130	94	3850	95	3590	96	3330	101	111														
-10	91	6480	95	4850	96	4520	98	4200	99	3900	103	113	-10	91	5970	94	4480	95	4180	96	3880	97	3610	101	111														
-5	92	7160	96	5330	97	4960	99	4600	100	4270	104	113	-5	92	6570	95	4910	96	4570	97	4240	98	3940	102	112														
0	93	7990	97	5890	98	5470	100	5080	101	4710	105	114	0	93	7300	96	5410	97	5030	98	4670	100	4330	103	112														
5	94	9020	98	6580	100	6100	101	5660	102	5240	105	114	5	94	8190	97	6010	99	5580	100	5180	101	4800	104	112														
10	95	10360	100	7430	101	6880	102	6360	104	5870	106	114	10	95	9330	98	6750	100	6250	101	5790	102	5360	104	112														

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS										
TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND 10 KTS		ZERO WIND		HEAD WINDS								VR	V2											
					10 KTS		20 KTS		30 KTS		10 KTS									20 KTS		30 KTS																		
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST	V1	DIST	V1	DIST	VR	V2			
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	VR	V2	
-30	94	5560	94	3760	94	3350	94	3300	94	3000	94	2730	98	110	-30	94	5350	94	3680	94	3290	94	2950	94	2660	98	111	-30	94	5350	94	3680	94	3290	94	2950	94	2660	98	111
-25	93	5480	93	3730	93	3330	93	3290	94	2780	98	109	-25	93	5280	93	3650	93	3260	93	2930	93	2690	93	2690	97	109	-25	93	5280	93	3650	93	3260	93	2930	93	2690	97	109
-20	92	5470	92	3740	92	3350	93	3120	94	2900	98	109	-20	92	5270	92	3650	92	3270	92	2950	93	2740	96	108	-20	92	5270	92	3650	92	3270	92	2950	93	2740	96	108		
-15	90	5310	91	3820	92	3570	94	3320	95	3080	98	109	-15	90	5120	90	3570	91	3300	92	3070	93	2850	96	107	-15	90	5120	90	3570	91	3300	92	3070	93	2850	96	107		
-10	90	5500	92	4140	93	3860	95	3590	96	3340	99	109	-10	89	5070	91	3830	92	3570	93	3320	94	3080	97	108	-10	89	5070	91	3830	92	3570	93	3320	94	3080	97	108		
-5	91	6030	93	4520	95	4210	96	3910	97	3640	100	110	-5	90	5540	92	4160	93	3880	94	3610	95	3350	98	108	-5	90	5540	92	4160	93	3880	94	3610	95	3350	98	108		
0	92	6670	95	4970	96	4620	97	4300	98	3990	101	110	0	91	6100	93	4560	94	4250	95	3950	96	3670	99	108	0	91	6100	93	4560	94	4250	95	3950	96	3670	99	108		
5	93	7450	96	5500	97	5110	98	4750	99	4400	102	110	5	92	6780	94	5030	96	4680	97	4350	98	4040	100	108	5	92	6780	94	5030	96	4680	97	4350	98	4040	100	108		
10	95	8420	97	6140	99	5700	100	5290	101	4900	102	110	10	94	7620	96	5600	97	5200	98	4830	99	4500	100	109	10	94	7620	96	5600	97	5200	98	4830	99	4500	100	109		

TAKEOFF FIELD LENGTH - FEET
(OVER 35 FOOT SCREEN HEIGHT)**FLAPS - 15°**
10,000 FEET**CONDITIONS: DRY RUNWAY**
RUNWAY GRADIENT - ZERO
LANDING GEAR - DOWN
SPEED BRAKES - RETRACT**ANTI-ICE - ON**
INOPERATIVE ENGINE - WINDMILLING AFTER V1
OPERATIVE ENGINE - TAKEOFF THRUST

SOME CONDITIONS DO NOT MEET CLIMB REQUIREMENTS. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM TAKEOFF WEIGHT TABLES.

WEIGHT = 16830 LBS										VENR = 160 KIAS										WEIGHT = 16500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND				ZERO WIND				HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND				ZERO WIND				HEAD WINDS						VR	V2						
	10 KTS		V1 DIST		V1 DIST		10 KTS		20 KTS		30 KTS		10 KTS					V1 DIST		V1 DIST		20 KTS		30 KTS		10 KTS		V1 DIST		V1 DIST				20 KTS		30 KTS			
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT				KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT			KIAS	FT	KIAS	FT		
-30	92	6530	95	4670	96	4350	98	4050	99	3760	105	116			-30	92	6320	94	4450	96	4140	97	3850	98	3580	104	114												
-25	91	6570	95	4940	97	4600	98	4280	100	3970	105	116			-25	90	6240	94	4700	96	4370	97	4070	99	3780	104	115												
-20	91	6900	95	5190	97	4830	98	4490	100	4170	106	116			-20	90	6550	94	4930	96	4590	98	4270	99	3960	104	115												
-15	91	7440	96	5570	97	5180	99	4820	100	4470	106	116			-15	91	7050	95	5290	97	4920	98	4580	100	4250	105	115												
-10	92	8210	97	6110	98	5680	100	5270	101	4890	107	116			-10	92	7760	96	5780	98	5380	99	5000	100	4640	106	115												
-5	93	9180	97	6770	99	6290	101	5830	102	5400	108	116			-5	93	8650	97	6390	99	5940	100	5510	102	5110	106	115												
0	93	10370	98	7580	100	7020	102	6500	103	6010	108	117			0	93	9740	98	7120	100	6610	101	6120	103	5670	107	115												
5	94	11950	100	8590	101	7940	103	7330	105	6770	109	117			5	94	11160	99	8050	101	7450	102	6880	104	6360	108	116												
10			101	9910	103	9130	104	8400	106	7710	110	117			10	95	13040	100	9220	102	8500	104	7830	105	7210	108	116												

WEIGHT = 16000 LBS										VENR = 160 KIAS										WEIGHT = 15500 LBS										VENR = 160 KIAS									
TEMP	TAILWIND				ZERO WIND				HEAD WINDS						VR	V2	TEMP	TAILWIND				ZERO WIND				HEAD WINDS						VR	V2						
DEG	10 KTS				V1 DIST				10 KTS		20 KTS		30 KTS					DEG	10 KTS				V1 DIST				10 KTS		20 KTS		30 KTS								
C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1			DIST					
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT									
-30	92	6030	93	4130	94	3850	96	3580	97	3330	102	113			-30	92	5770	92	3860	93	3570	94	3320	95	3090	100	111												
-25	91	5950	93	4360	95	4060	96	3770	97	3510	102	113			-25	91	5700	92	4040	93	3760	95	3500	96	3250	100	111												
-20	90	6050	93	4560	95	4250	96	3950	98	3670	102	113			-20	90	5700	92	4230	94	3940	95	3670	96	3410	100	111												
-15	90	6500	94	4880	96	4550	97	4230	98	3930	103	113			-15	90	5990	93	4510	94	4200	96	3910	97	3630	101	111												
-10	91	7130	95	5330	96	4960	98	4610	99	4280	104	113			-10	91	6540	94	4910	95	4570	97	4250	98	3950	102	111												
-5	92	7900	96	5860	98	5450	99	5070	100	4700	104	113			-5	92	7230	95	5380	96	5010	98	4660	99	4330	103	112												
0	93	8850	97	6500	99	6040	100	5600	101	5190	105	114			0	93	8050	96	5950	98	5530	99	5130	100	4760	103	112												
5	94	10070	98	7300	100	6770	101	6260	103	5790	106	114			5	94	9090	97	6640	99	6160	100	5710	101	5290	104	112												
10	95	11650	100	8300	101	7660	103	7080	104	6530	107	114			10	95	10430	99	7490	100	6930	101	6410	102	5930	105	111												

WEIGHT = 15000 LBS										VENR = 160 KIAS										WEIGHT = 14500 LBS										VENR = 160 KIAS																																																																																																																																																																																																											
TEMP DEG C	TAILWIND				ZERO WIND				HEAD WINDS								VR	V2	TEMP DEG C	TAILWIND				ZERO WIND				HEAD WINDS								VR	V2																																																																																																																																																																																																				
	10 KTS				10 KTS				20 KTS				30 KTS							10 KTS				10 KTS				20 KTS				30 KTS																																																																																																																																																																																																									
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST																																																																																																																																																																																																						
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT																																																																																																																																																																																																							
-30	92	5540	92	3770	92	3360	93	3080	94	2860	98	109	-30	92	5340	92	3690	92	3300	92	2960	93	2740	97	108	-25	91	5480	91	3750	92	3490	93	3240	94	3010	98	109	-25	91	5280	91	3660	91	3280	91	3010	92	2790	96	107	-20	90	5470	91	3910	92	3640	93	3390	94	3150	98	109	-20	90	5270	90	3660	91	3370	92	3140	93	2920	96	107	-15	89	5520	92	4170	93	3890	94	3620	95	3370	99	109	-15	88	5120	90	3850	91	3590	92	3340	93	3110	97	108	-10	90	6010	93	4520	94	4210	95	3920	96	3640	100	110	-10	89	5530	91	4170	92	3880	93	3620	94	3360	98	108	-5	91	6620	94	4950	95	4610	96	4290	97	3980	101	110	-5	90	6060	92	4550	94	4240	95	3940	96	3660	98	108	0	92	7330	95	5450	96	5070	97	4710	98	4370	101	110	0	91	6690	94	4990	95	4640	96	4320	97	4010	99	108	5	93	8230	96	6050	97	5620	99	5220	100	4840	102	110	5	92	7460	95	5520	96	5130	97	4770	98	4430	100	108	10	95	9360	97	6780	99	6290	100	5830	101	5400	103	111	10	94	8420	96	6150	97	5720	98	5300	99	4940	101	108

WEIGHT = 14000 LBS										VENR = 160 KIAS										WEIGHT = 13500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND				ZERO WIND				HEAD WINDS								VR	V2	KIAS	TEMP DEG C	TAILWIND				ZERO WIND				HEAD WINDS								VR	V2	KIAS
	10 KTS		DIST		V1 DIST		DIST		10 KTS		DIST		V1 DIST		DIST						10 KTS		DIST		V1 DIST		DIST		10 KTS		DIST		V1 DIST		DIST				
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST					V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			
-30	92	5150	92	3600	92	3230	92	2910	93	2660	96	109	-30	92	4980	92	3530	92	3170	92	2860	92	2580	96	109	-30	92	4980	92	3530	92	3170	92	2860	92	2580	96	109	
-25	91	5090	91	3580	91	3210	91	2900	92	2700	95	107	-25	91	4920	91	3500	91	3150	91	2840	92	2610	95	107	-25	91	4920	91	3500	91	3150	91	2840	92	2610	95	107	
-20	90	5090	90	3580	90	3220	90	2950	91	2740	95	106	-20	90	4920	90	3500	90	3150	90	2860	91	2660	94	106	-20	90	4920	90	3500	90	3150	90	2860	91	2660	94	106	
-15	88	4950	88	3560	90	3310	91	3090	92	2870	95	106	-15	88	4790	88	3430	88	3090	89	2880	90	2680	93	104	-15	88	4790	88	3430	88	3090	89	2880	90	2680	93	104	
-10	88	5080	90	3840	91	3580	92	3340	93	3100	96	106	-10	88	4670	88	3540	89	3300	90	3070	91	2850	93	104	-10	88	4670	88	3540	89	3300	90	3070	91	2850	93	104	
-5	89	5550	91	4180	92	3900	93	3630	94	3370	96	106	-5	88	5090	89	3850	90	3590	91	3340	92	3100	94	104	-5	88	5090	89	3850	90	3590	91	3340	92	3100	94	104	
0	90	6100	92	4570	93	4260	94	3960	95	3680	97	106	0	89	5570	90	4190	91	3910	92	3640	93	3410	95	104	0	89	5570	90	4190	91	3910	92	3640	93	3410	95	104	
5	92	6770	93	5040	94	4690	95	4360	96	4090	98	107	5	90	6160	92	4610	93	4290	94	4020	94	3780	96	105	5	90	6160	92	4610	93	4290	94	4020	94	3780	96	105	
10	93	7590	95	5600	96	5200	97	4850	98	4570	99	107	10	92	6860	93	5090	94	4750	95	4480	96	4210	97	105	10	92	6860	93	5090	94	4750	95	4480	96	4210	97	105	

WEIGHT = 12500 LBS										VENR = 160 KIAS										WEIGHT = 11500 LBS										VENR = 160 KIAS									
TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2	TEMP DEG C	TAILWIND		ZERO WIND		HEAD WINDS						VR	V2														
	10 KTS				10 KTS		20 KTS		30 KTS					10 KTS				10 KTS		20 KTS		30 KTS																	
	V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST				V1	DIST	V1	DIST	V1	DIST	V1	DIST	V1	DIST			V1	DIST												
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT		KIAS	FT	KIAS	FT						
-30	92	4680	92	3390	92	3070	92	2770	92	2510	95	109	-30	93	4440	93	3280	93	2980	93	2710	93	2460	95	110	-30	93	4440	93	3280	93	2980	93	2710	93	2460	95	110	
-25	91	4630	91	3370	91	3040	91	2750	91	2490	94	108	-25	91	4390	91	3250	91	2950	91	2680	91	2440	93	109	-25	91	4390	91	3250	91	2950	91	2680	91	2440	93	109	
-20	90	4620	90	3370	90	3040	90	2750	90	2500	93	107	-20	90	4380	90	3250	90	2950	90	2680	90	2430	92	107	-20	90	4380	90	3250	90	2950	90	2680	90	2430	92	107	
-15	88	4510	88	3290	88	2980	88	2700	89	2510	92	105	-15	89	4270	89	3170	89	2880	89	2620	89	2380	91	105	-15	89	4270	89	3170	89	2880	89	2620	89	2380	91	105	
-10	86	4320	86	3170	86	2910	87	2710	88	2520	90	102	-10	86	4090	86	3060	86	2780	86	2530	87	2360	89	102	-10	86	4090	86	3060	86	2780	86	2530	87	2360	89	102	
-5	85	4280	85	3240	86	3020	87	2810	88	2630	90	100	-5	84	3920	84	2940	84	2730	85	2540	86	2360	87	99	-5	84	3920	84	2940	84	2730	85	2540	86	2360	87	99	
0	86	4660	87	3520	88	3280	88	3080	89	2890	90	100	0	82	3880	82	2940	83	2760	84	2580	85	2410	86	96	0	82	3880	82	2940	83	2760	84	2580	85	2410	86	96	
5	87	5110	88	3850	89	3620	90	3410	90	3200	91	101	5	84	4230	84	3240	85	3040	85	2850	86	2670	86	97	5	84	4230	84	3240	85	3040	85	2850	86	2670	86	97	
10	89	5640	89	4270	90	4030	91	3790	92	3560	92	101	10	85	4630	85	3590	86	3370	87	3160	87	2960	87	98	10	85	4630	85	3590	86	3370	87	3160	87	2960	87	98	

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Figure 4-27 (Sheet 11)

SINGLE-ENGINE TAKEOFF FLIGHT PATH - FLAPS 7°

FIRST AND SECOND SEGMENTS

Knowing weight, altitude, temperature, wind, obstacle height above runway surface and the obstacle distance from "reference zero", at the airport pressure altitude plus the takeoff climb increment from Figure 4-30 or 4-31, determine the available climb gradient from Figure 4-40 or 4-41. Using this climb gradient, the required horizontal distance can be determined from Figure 4-28. If this required horizontal distance is less than the horizontal distance to the obstacle, the takeoff weight determined by other limitations is satisfactory; otherwise, the weight must be reduced to correspond with the required horizontal distance.

EXAMPLE:

Flaps = 7°

Anti-Ice Systems = OFF

Pressure Altitude at Airport = 4000 FEET

Gross Weight at Brake Release = 16,000 POUNDS

Ambient Temperature at Airport = -10°C

Wind = 30 KNOTS (HEADWIND)

- A. Obstacle Height = 250 feet above runway surface
- B. Obstacle Horizontal Distance from Reference Zero = 4000 FEET

From Figure 4-30, the takeoff climb increment (TCI) above the runway surface is 1700 feet. The pressure altitude at airport plus the takeoff climb increment (TCI) is 5700 feet.

From Figure 4-40, the available climb gradient at a pressure altitude of 5700 feet under the specified conditions is 12.0%.

From Figure 4-28, for 12.0% gradient, the required horizontal distance to clear the obstacle is 2180 feet.

The obstacle can be cleared since the horizontal distance to the obstacle (4000 feet) is greater than the required horizontal distance to clear the obstacle (2180 feet).

SINGLE-ENGINE TAKEOFF FLIGHT PATH
FIRST AND SECOND SEGMENT

FLAPS - 7°

CONDITIONS: Landing Gear - DOWN/UP Inoperative Engine - WINDMILLING
Speedbrakes - RETRACT Operative Engine - TAKEOFF THRUST
Airspeed - V_2

SECOND SEGMENT GRADIENT AT PRESSURE ALTITUDE AT AIRPORT PLUS TAKEOFF CLIMB INCREMENT - PERCENT													
HEIGHT ABOVE RUNWAY FT													
	20	18	16	14	12	10	8	7	6	5	4	3	2
REQUIRED HORIZONTAL DISTANCE FROM REFERENCE ZERO - FEET													
50	90	100	110	130	150	190	240	290	350	440	610	970	2280
100	380	420	480	550	660	810	1050	1240	1500	1910	2470	3240	4780
150	670	750	850	980	1160	1430	1860	2190	2540	3010	3720	4910	7280
200	950	1070	1210	1410	1670	2050	2570	2910	3370	4010	4970	6580	9780
250	1240	1390	1580	1830	2180	2590	3190	3630	4200	5010	6220	8240	12280
300	1530	1720	1950	2250	2600	3090	3820	4340	5040	6010	7470	9910	14780
350	1820	2040	2300	2610	3020	3590	4440	5060	5870	7010	8720	11580	17280
400	2110	2340	2610	2970	3430	4090	5070	5770	6700	8010	9970	13240	19780
450	2370	2620	2930	3320	3850	4590	5690	6480	7540	9010	11220	14910	22280
500	2620	2900	3240	3680	4270	5090	6320	7200	8370	10010	12470	16580	24780
550	2870	3170	3550	4040	4680	5590	6940	7910	9200	11010	13720	18240	27280
600	3120	3450	3860	4390	5100	6090	7570	8630	10040	12010	14970	19910	29780
650	3370	3730	4180	4750	5520	6590	8190	9340	10870	13010	16220	21580	32280
700	3620	4010	4490	5110	5930	7090	8820	10060	11700	14010	17470	23240	34780
750	3870	4290	4800	5470	6350	7590	9440	10770	12540	15010	18720	24910	37280
800	4120	4560	5110	5820	6770	8090	10070	11480	13370	16010	19970	26580	39780
850	4370	4840	5430	6180	7180	8590	10690	12200	14200	17010	21220	28240	42280
900	4620	5120	5740	6540	7600	9090	11320	12910	15040	18010	22470	29910	44780
950	4870	5400	6050	6890	8020	9590	11940	13630	15870	19010	23720	31580	47280
1000	5120	5670	6360	7250	8430	10090	12570	14340	16700	20010	24970	33240	49780
1050	5370	5950	6680	7610	8850	10590	13190	15060	17540	21010	26220	34910	52280
1100	5620	6230	6990	7970	9270	11090	13820	15770	18370	22010	27470	36580	54780
1150	5870	6510	7300	8320	9680	11590	14440	16480	19200	23010	28720	38240	57280
1200	6120	6790	7610	8680	10100	12090	15070	17200	20040	24010	29970	39910	59780
1250	6370	7060	7930	9040	10520	12590	15690	17910	20870	25010	31220	41580	62280
1300	6620	7340	8240	9390	10930	13090	16320	18630	21700	26010	32470	43240	64780
1350	6870	7620	8550	9750	11350	13590	16940	19340	22540	27010	33720	44910	67280
1400	7120	7900	8860	10110	11770	14090	17570	20060	23370	28010	34970	46580	69780
1450	7370	8170	9180	10470	12180	14590	18190	20770	24200	29010	36220	48240	72280
1500	7620	8450	9490	10820	12600	15090	18820	21480	25040	30010	37470	49910	74780

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Figure 4-28

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES - FLAPS 7°

The data presented in Figure 4-30 (anti-ice off) and Figure 4-31 (anti-ice on) is for the purpose of determining the takeoff climb increment and the horizontal distances along the net takeoff flight path. The net takeoff flight path is used to plan obstacle clearance.

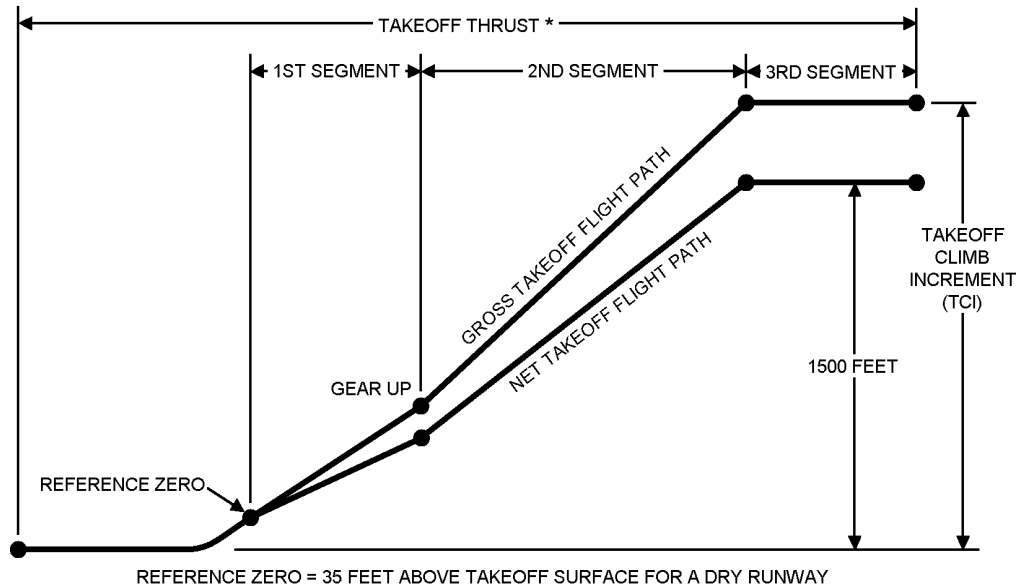


Figure 4-29

SINGLE ENGINE FLIGHT PATH CONDITIONS:			
	FIRST SEGMENT	SECOND SEGMENT	THIRD SEGMENT
LANDING GEAR	DOWN TRANSITIONING TO UP	UP	UP
WING FLAP DEGREES	7	7	7 TRANSITIONING TO 0
SPEEDBRAKES	RETRACT	RETRACT	RETRACT
INOPERATIVE ENGINE	WINDMILLING	WINDMILLING	WINDMILLING
OPERATIVE ENGINE	T.O. THRUST	T.O. THRUST *	T.O. THRUST *
AIRSPEED	V_2	V_2	V_2 TRANSITIONING TO V_{ENR}

***TAKEOFF THRUST IS LIMITED TO TEN MINUTES MAXIMUM AND THEREAFTER TO MAXIMUM CONTINUOUS THRUST.**

EXAMPLE:

Flaps = 7°

Anti-Ice Systems = OFF

Pressure Altitude at Airport = 4000 FEET

Gross Weight at Brake Release = 12,500 POUNDS

Ambient Temperature at Airport = 10°C

Wind = 10 KNOTS (HEADWIND)

Airport Barometric Altitude = 3925 FEET MSL

Horizontal Distances and Takeoff Climb Increment from Figure 4-30

Reference Zero to End of First Segment = 1688 FEET

Reference Zero to End of Second Segment = 10,758 FEET

Reference Zero To End of Third Segment = 15,285 FEET

Takeoff Climb Increment (TCI) = 1570 FEET

Calculate the level off altitude by adding the takeoff climb increment to the airport barometric altitude.
 $3925 + 1570 = 5495$ FEET.

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
SEA LEVEL****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1704	20549	25839	2190	1494	17812	21998	2160	1424	16915	20771	2160	1284	15144	18373	2140
	-30	1784	20459	26301	1970	1574	17851	22523	1950	1504	16996	21316	1940	1364	15307	18958	1930
	-20	1817	20263	26268	1890	1606	17726	22548	1870	1536	16894	21359	1860	1396	15250	19037	1850
	-10	1850	20042	26197	1820	1640	17577	22537	1800	1570	16768	21369	1790	1430	15169	19083	1780
	0	1879	19809	26104	1750	1669	17415	22518	1730	1599	16628	21357	1720	1459	15073	19109	1710
	10	1910	19623	26063	1690	1700	17289	22528	1670	1630	16523	21384	1660	1490	15006	19167	1650
	20	1940	20041	27189	1630	1730	17681	23506	1610	1660	16907	22316	1610	1520	15376	20014	1600
	30	1963	24993	34454	1620	1753	22015	29716	1590	1683	21043	28198	1590	1543	19125	25253	1570
	40	1983	33064	46128	1620	1773	29024	39631	1590	1703	27712	37566	1580	1563	25137	33581	1560
	50	2002	47017	66377	1670	1792	40974	56591	1630	1722	39033	53504	1610	1582	35256	47616	1590
1 5 6 0 0	54	2010	56521	80182	1720	1800	48987	67956	1670	1730	46587	64147	1650	1590	41943	56891	1620
	-54	1692	19697	24916	2180	1482	17063	21191	2160	1412	16199	19990	2150	1272	14492	17666	2130
	-30	1771	19610	25361	1970	1561	17101	21707	1940	1491	16277	20525	1930	1351	14650	18238	1920
	-20	1803	19427	25339	1890	1593	16984	21738	1860	1523	16182	20574	1860	1383	14598	18320	1840
	-10	1834	19217	25277	1810	1624	16844	21736	1790	1554	16065	20590	1780	1414	14523	18371	1770
	0	1865	18998	25209	1740	1655	16692	21714	1720	1585	15934	20597	1720	1445	14435	18414	1700
	10	1896	18822	25178	1680	1686	16574	21731	1660	1616	15836	20630	1660	1476	14374	18476	1640
	20	1925	19198	26239	1620	1715	16933	22657	1610	1645	16188	21513	1600	1505	14714	19279	1590
	30	1948	23803	33059	1610	1738	20962	28493	1580	1668	20032	27028	1580	1528	18199	24202	1560
	40	1966	31198	43862	1610	1756	27388	37670	1580	1686	26149	35701	1570	1546	23715	31914	1550
1 6 0 0 0	50	1987	43654	62156	1650	1777	38081	53015	1610	1707	36286	50149	1600	1567	32787	44631	1570
	54	1997	51899	74254	1690	1787	45062	63057	1640	1716	42876	59542	1620	1576	38635	52830	1590
	-54	1672	18475	23573	2170	1462	15988	20016	2150	1392	15172	18879	2140	1252	13558	16659	2120
	-30	1751	18394	24010	1950	1541	16024	20518	1930	1471	15246	19389	1920	1331	13707	17213	1910
	-20	1782	18224	24011	1880	1572	15918	20558	1850	1502	15161	19455	1850	1362	13663	17300	1830
	-10	1813	18034	23967	1800	1603	15792	20567	1780	1533	15055	19481	1780	1393	13597	17358	1760
	0	1844	17834	23904	1730	1634	15654	20558	1720	1564	14938	19489	1710	1424	13519	17399	1700
	10	1874	17673	23886	1670	1664	15548	20584	1650	1594	14849	19529	1650	1454	13464	17465	1640
	20	1903	18003	24867	1620	1693	15862	21437	1600	1623	15158	20344	1590	1483	13767	18210	1580
	30	1925	22125	31083	1590	1715	19473	26759	1570	1645	18604	25371	1570	1505	16890	22693	1550
1 5 0 0 0	40	1945	28627	40738	1590	1735	25130	34961	1560	1665	23990	33138	1560	1525	21749	29584	1540
	50	1964	39196	56535	1620	1754	34229	48256	1580	1684	32624	45627	1570	1544	29487	40615	1550
	54	1971	45933	66618	1640	1761	39963	56638	1600	1691	38046	53495	1590	1551	34313	47500	1560
	-54	1653	17331	22305	2160	1443	14981	18916	2130	1373	14209	17821	2130	1233	12682	15700	2110
	-30	1730	17254	22745	1940	1520	15016	19395	1920	1450	14280	18326	1920	1310	12824	16236	1900
	-20	1761	17099	22745	1860	1551	14920	19442	1840	1481	14203	18387	1840	1341	12785	16326	1830
	-10	1792	16925	22715	1790	1582	14805	19471	1770	1512	14108	18422	1770	1372	12728	16390	1760
	0	1822	16742	22668	1720	1612	14680	19473	1710	1542	14002	18439	1700	1402	12659	16437	1690
	10	1852	16594	22660	1660	1641	14584	19507	1650	1571	13922	18486	1640	1431	12612	16510	1630
	20	1880	16880	23565	1610	1670	14856	20293	1590	1600	14193	19239	1590	1460	12877	17196	1580
1 4 5 0 0	30	1902	20581	29234	1580	1692	18102	25147	1560	1622	17288	23831	1560	1482	15682	21290	1540
	40	1921	26320	37909	1570	1711	23098	32520	1550	1641	22047	30797	1540	1501	19977	27469	1530
	50	1940	35361	51658	1590	1730	30901	44108	1560	1660	29455	41719	1550	1520	26624	37104	1530
	54	1947	40942	60171	1610	1737	35670	51208	1570	1667	33970	48391	1560	1527	30651	42967	1540
	-54	1633	16257	21105	2150	1423	14035	17866	2120	1353	13304	16828	2120	1213	11859	14800	2100
	-30	1709	16185	21536	1930	1499	14068	18342	1910	1429	13372	17309	1910	1289	11994	15310	1890
	-20	1740	16042	21546	1860	1530	13981	18395	1840	1460	13303	17376	1830	1320	11961	15412	1820
	-10	1772	15883	21509	1780	1562	13880	18410	1770	1492	13219	17415	1760	1352	11915	15476	1750
	0	1806	15715	21442	1720	1596	13771	18400	1700	1526	13131	17425	1690	1386	11863	15518	1680
	10	1838	15581	21421	1650	1628	13686	18423	1640	1558	13063	17463	1630	1418	11827	15585	1620
1 3 0 0 0	20	1869	15832	22239	1600	1659	13933	19142	1580	1589	13308	18141	1580	1449	12069	16215	1570
	30	1879	19156	27524	1570	1669	16834	23643	1550	1599	16072	22393	1550	1459	14565	19981	1540
	40	1898	24238	35349	1560	1688	21262	30278	1540	1618	20289	28676	1530	1478	18372	25549	1510
	50	1916	32026	47417	1570	1706	27994	40455	1540	1636	26685	38254	1530	1496	24115	34018	1510
	54	1923	36701	54688	1580	1713	32003	46549	1550	1643	30483	43984	1530	1503	27508	39041	1510
	-54	1630	15249	19856	2140	1420	13169	16811	2120	1350	12485	15826	2110	1210	11130	13919	2090
	-30	1710	15182	20229	1920	1500	13205	17237	1910	1430	12555	16278	1900	1290	11265	14403	1890
	-20	1744	15053	20231	1850	1534	13131	17277	1830	1464	12498	16333	1820	1324	11244	14488	1810
	-10	1778	14909	20192	1770	1568	13042	17289	1760	1498	12427	16362	1750	1358	11208	14549	1740
	0	1812	14758	20136	1710	1602	12945	17295	1690	1532	12347	16375	1690	1391	11163	14593	1680
1 2 0 0 0	10	1844	14636	20119	1650	1634	12869	17321	1630	1564	12287	16414	1630	1424	11133	14658	1620
	20	1875	14868	20874	1590	1665	13097	17975	1580	1595	12513	17050	1570	1455	11357	15242	1560
	30	1855	17835	25923	1560	1645	15659	22236	1540	1575	14943	21048	1540	1435	13531	18757	1530
	40	1873	22350	32988	1540	1663	19593	28236	1520	1593	18691	26715	1520	1453	16911	23787	1500
	50	1891	29098	43639	1540	1681	25434	37225	1520	1611	24242	35189	1510	1471	21898	31266	1490
	54	1898	33050	49922	1550	1688	28832	42482	1520	1618	27463	40134	1510	1478	24780	35621	1490

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Figure 4-30 (Sheet 1 of 22)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 7°

AND TAKEOFF CLIMB INCREMENT (TCI) SEA LEVEL

ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1635	14315	18630	2130	1425	12376	15789	2110	1355	11738	14878	2100	1215	10473	13096	2090
	-30	1715	14255	18988	1920	1505	12411	16197	1900	1435	11804	15292	1890	1295	10600	13550	1880
	-20	1749	14138	18985	1840	1539	12345	16238	1820	1469	11754	15347	1820	1329	10583	13632	1810
	-10	1784	14008	18954	1770	1574	12266	16254	1750	1504	11692	15388	1750	1363	10553	13692	1740
	0	1818	13872	18906	1700	1608	12179	16254	1690	1538	11621	15403	1680	1398	10514	13737	1670
	10	1850	13761	18894	1640	1640	12112	16281	1630	1570	11568	15443	1620	1430	10489	13801	1610
	20	1881	13975	19590	1580	1671	12323	16896	1570	1601	11778	16022	1570	1461	10697	14343	1560
	30	1837	16614	24367	1550	1627	14578	20880	1540	1557	13908	19756	1530	1417	12583	17587	1520
	40	1849	20629	30829	1530	1639	18071	26353	1510	1569	17232	24921	1510	1428	15576	22162	1490
	50	1866	26505	40278	1530	1656	23161	34328	1500	1586	22071	32439	1490	1446	19925	28809	1480
1 3 5 0 0	54	1873	29872	45732	1530	1663	26062	38913	1500	1593	24822	36753	1500	1453	22389	32595	1480
	-54	1641	13449	17494	2120	1431	11640	14842	2100	1361	11044	13983	2090	1221	9862	12326	2080
	-30	1721	13394	17820	1910	1511	11674	15215	1890	1441	11107	14380	1890	1301	9982	12743	1870
	-20	1756	13289	17820	1830	1546	11615	15256	1810	1476	11064	14434	1810	1336	9969	12823	1800
	-10	1790	13171	17794	1760	1580	11545	15274	1740	1510	11008	14466	1740	1370	9943	12881	1730
	0	1824	13048	17764	1690	1614	11467	15278	1680	1544	10946	14483	1680	1404	9910	12926	1670
	10	1857	12948	17756	1630	1647	11407	15316	1620	1577	10898	14523	1620	1437	9889	12998	1610
	20	1888	13147	18388	1580	1678	11603	15875	1570	1608	11094	15070	1560	1468	10084	13492	1550
	30	1843	15509	22737	1540	1633	13623	19503	1530	1563	13002	18471	1520	1423	11773	16456	1510
	40	1823	19054	28817	1520	1613	16675	24610	1500	1543	15894	23259	1500	1403	14352	20656	1490
1 3 0 0 0	50	1842	24192	37249	1510	1632	21129	31728	1490	1562	20129	29969	1480	1422	18158	26574	1470
	54	1847	27081	42030	1510	1637	23620	35736	1490	1567	22493	33740	1480	1427	20275	29895	1460
	-54	1647	12644	16420	2110	1437	10955	13946	2090	1367	10398	13152	2090	1227	9292	11596	2070
	-30	1728	12594	16734	1900	1518	10988	14304	1880	1448	10458	13515	1880	1308	9406	11995	1870
	-20	1763	12498	16737	1820	1552	10935	14345	1810	1482	10420	13577	1800	1342	9396	12072	1790
	-10	1797	12392	16716	1750	1587	10872	14364	1740	1517	10371	13610	1730	1377	9375	12129	1730
	0	1832	12280	16681	1690	1622	10803	14370	1670	1552	10315	13629	1670	1412	9346	12173	1660
	10	1865	12190	16676	1630	1655	10749	14399	1610	1585	10273	13668	1610	1445	9326	12230	1600
	20	1896	12375	17271	1570	1686	10932	14927	1560	1616	10456	14165	1560	1476	9511	12702	1550
	30	1849	14495	21239	1540	1639	12746	18228	1520	1569	12171	17269	1520	1429	11029	15398	1510
1 2 5 0 0	40	1797	17606	26961	1510	1587	15391	22989	1490	1517	14663	21713	1490	1377	13224	19255	1480
	50	1814	22115	34499	1490	1604	19301	29351	1470	1534	18381	27708	1470	1394	16565	24551	1450
	54	1821	24607	38699	1490	1611	21453	32885	1470	1541	20423	31034	1460	1400	18394	27481	1450
	-54	1654	11892	15420	2100	1444	10314	13112	2090	1374	9793	12371	2080	1234	8760	10918	2070
	-30	1735	11846	15703	1890	1525	10346	13437	1880	1455	9851	12710	1870	1315	8868	11282	1860
	-20	1770	11759	15707	1820	1560	10299	13477	1800	1490	9817	12761	1800	1350	8860	11365	1790
	-10	1804	11663	15690	1750	1594	10243	13507	1730	1524	9774	12793	1730	1385	8843	11420	1720
	0	1840	11562	15671	1680	1630	10181	13515	1670	1560	9725	12812	1660	1420	8818	11463	1660
	10	1873	11480	15668	1620	1663	10133	13543	1610	1593	9688	12850	1610	1453	8803	11520	1600
	20	1904	11653	16208	1570	1694	10305	14023	1560	1624	9860	13323	1550	1484	8975	11947	1540
1 2 0 0 0	30	1857	13561	19836	1530	1647	11938	17052	1520	1577	11403	16151	1510	1437	10342	14423	1500
	40	1787	16288	25104	1500	1577	14239	21401	1480	1507	13566	20211	1480	1367	12232	17917	1470
	50	1787	20240	32002	1480	1577	17648	27189	1460	1507	16799	25654	1460	1367	15123	22700	1440
	54	1794	22400	35723	1480	1584	19514	30308	1460	1514	18570	28601	1450	1373	16709	25283	1440
	-54	1661	11185	14469	2090	1451	9711	12327	2080	1381	9224	11626	2070	1241	8257	10277	2060
	-30	1743	11144	14743	1890	1532	9742	12630	1870	1462	9279	11952	1870	1322	8360	10618	1860
	-20	1777	11065	14749	1810	1567	9701	12668	1800	1497	9248	11999	1790	1357	8354	10687	1790
	-10	1812	10978	14734	1740	1602	9650	12689	1730	1532	9211	12032	1720	1392	8340	10740	1720
	0	1847	10886	14708	1670	1637	9595	12697	1660	1567	9168	12052	1660	1427	8319	10782	1650
	10	1881	10811	14706	1610	1671	9551	12725	1600	1601	9135	12089	1600	1461	8307	10836	1590
1 1 5 0 0	20	1912	10974	15218	1560	1702	9713	13182	1550	1632	9297	12517	1550	1492	8469	11244	1540
	30	1864	12695	18530	1520	1654	11187	15946	1510	1584	10689	15120	1510	1444	9702	13503	1500
	40	1793	15101	23285	1490	1583	13217	19872	1480	1513	12597	18773	1470	1373	11369	16665	1460
	50	1759	18538	29703	1470	1549	16144	25196	1450	1479	15359	23768	1450	1339	13807	20999	1440
	54	1765	20417	33013	1460	1555	17767	27981	1450	1485	16900	26377	1440	1345	15187	23295	1430
	-54	1666	10519	13580	2090	1456	9142	11574	2070	1387	8687	10930	2070	1247	7784	9662	2060
	-30	1750	10482	13824	1880	1540	9173	11866	1870	1470	8740	11224	1860	1330	7881	9990	1850
	-20	1785	10411	13831	1800	1575	9136	11903	1790	1505	8715	11270	1790	1365	7877	10055	1780
	-10	1821	10332	13830	1730	1611	9091	11923	1720	1541	8681	11300	1720	1401	7865	10106	1710
	0	1856	10249	13807	1670	1646	9041	11933	1660	1576	8642	11331	1660	1436	7848	10146	1650
	10	1889	10181	13806	1610	1679	9003	11959	1600	1609	8614	11368	1600	1469	7838	10197	1590
1 1 0 0 0	20	1921	10334	14269	1560	1711	9155	12373	1550	1641	8766	11765	1540	1501	7991	10567	1540
	30	1871	11889	17318	1520	1661	10487	14920	1510	1591	10024	14142	1500	1451	9106	12650	1490
	40	1799	14018	21609	1480	1589	12283	18461	1470	1519	11712	17457	1470	1379	10579	15500	1460
	50	1731	16986	27585	1460	1520	14772	23360	1440	1450	14045	22021	1440	1310	12607	19425	1430
	54	1735	18630	30540	1450	1525	16187	25850	1430	1455	15387	24352	1430	1315	13808	21473	1420

561MC-00-00

Figure 4-30 (Sheet 2)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
1000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1733	20026	25379	2170	1523	17406	21658	2150	1453	16547	20469	2140	1312	14849	18145	2120
	-30	1814	19833	25690	1950	1604	17352	22054	1930	1534	16538	20892	1920	1394	14928	18611	1910
	-20	1847	19649	25670	1870	1637	17235	22088	1850	1567	16443	20944	1850	1427	14875	18706	1830
	-10	1879	19433	25601	1800	1669	17088	22078	1780	1599	16318	20952	1770	1459	14794	18750	1760
	0	1909	19210	25512	1730	1699	16931	22048	1710	1629	16183	20941	1710	1489	14701	18775	1700
	10	1942	19028	25505	1670	1732	16808	22096	1650	1662	16078	20991	1650	1522	14633	18852	1630
	20	1970	21486	29559	1630	1760	18976	25559	1610	1690	18153	24286	1610	1550	16528	21788	1590
	30	1991	27832	38761	1630	1781	24523	33437	1600	1711	23443	31732	1590	1571	21318	28433	1580
	40	2011	37804	53283	1650	1801	33156	45741	1610	1731	31651	43331	1600	1591	28706	38730	1580
1 6 5 0 0	50	2031	57110	81419	1730	1821	49565	69130	1680	1751	47161	65290	1660	1611	42508	57972	1630
	52	2035	63571	90869	1770	1825	54962	76821	1710	1755	52235	72476	1690	1615	46976	64193	1650
	-54	1720	19206	24489	2160	1510	16683	20878	2140	1440	15855	19723	2130	1300	14218	17468	2110
	-30	1801	19022	24791	1950	1591	16633	21271	1920	1521	15848	20132	1920	1381	14297	17927	1900
	-20	1833	18848	24780	1870	1623	16523	21311	1850	1553	15759	20189	1840	1413	14249	18015	1830
	-10	1865	18645	24722	1790	1655	16385	21309	1770	1585	15643	20204	1770	1445	14173	18065	1760
	0	1897	18435	24645	1730	1687	16239	21289	1710	1617	15517	20202	1700	1477	14088	18096	1690
	10	1928	18263	24657	1660	1718	16122	21330	1650	1648	15419	20267	1640	1508	14025	18186	1630
	20	1955	20546	28470	1620	1745	18138	24610	1610	1675	17348	23363	1600	1535	15787	20956	1590
1 6 0 0 0	30	1976	26420	37083	1610	1766	23275	31970	1590	1696	22248	30333	1580	1556	20224	27177	1570
	40	1996	35475	50418	1630	1786	31125	43276	1600	1716	29714	41010	1590	1576	26949	36644	1570
	50	2016	52400	75395	1700	1806	45560	64090	1650	1736	43373	60549	1630	1596	39127	53810	1600
	52	2019	57885	83491	1730	1809	50170	70764	1670	1739	47714	66793	1650	1599	42964	59232	1620
	-54	1700	18029	23193	2150	1490	15644	19740	2130	1420	14861	18637	2120	1280	13312	16481	2100
	-30	1780	17859	23497	1940	1570	15600	20129	1910	1500	14858	19039	1910	1360	13389	16930	1890
	-20	1812	17699	23497	1860	1602	15501	20177	1840	1532	14778	19112	1830	1392	13348	17031	1820
	-10	1844	17513	23466	1780	1634	15376	20186	1770	1564	14673	19137	1760	1424	13284	17090	1750
	0	1875	17321	23406	1720	1665	15243	20177	1700	1595	14559	19146	1690	1455	13205	17127	1680
1 5 5 0 0	10	1905	17163	23416	1650	1695	15137	20225	1640	1625	14471	19206	1630	1485	13150	17211	1620
	20	1933	19206	26913	1610	1723	16943	23233	1600	1653	16200	22045	1590	1513	14730	19749	1580
	30	1953	24444	34728	1600	1743	21526	29909	1580	1673	20571	28365	1570	1533	18689	25375	1560
	40	1973	32309	46515	1610	1763	28354	39909	1580	1693	27069	37811	1570	1553	24547	33764	1550
	50	1992	46332	67605	1660	1782	40367	57559	1610	1712	38450	54393	1600	1572	34718	48355	1570
	52	1996	50694	74175	1680	1786	44059	62982	1630	1716	41934	59475	1610	1576	37809	52801	1590
	-54	1680	16925	21966	2140	1470	14670	18673	2120	1400	13929	17609	2110	1260	12462	15547	2090
	-30	1759	16767	22282	1930	1549	14630	19047	1910	1479	13928	18014	1900	1339	12537	15994	1890
	-20	1791	16620	22293	1850	1581	14540	19102	1830	1511	13856	18082	1820	1371	12499	16087	1810
1 5 0 0 0	-10	1822	16450	22264	1780	1612	14427	19130	1760	1542	13761	18116	1750	1402	12443	16152	1740
	0	1853	16273	22218	1710	1643	14306	19132	1690	1573	13658	18133	1690	1432	12375	16198	1680
	10	1883	16128	22237	1650	1673	14210	19186	1630	1603	13579	18198	1630	1463	12327	16285	1620
	20	1910	17960	25449	1600	1700	15830	21938	1590	1630	15130	20805	1580	1490	13745	18614	1570
	30	1929	22643	32544	1590	1719	19929	27996	1570	1649	19040	26551	1560	1509	17286	23727	1550
	40	1949	29509	43014	1590	1739	25898	36898	1560	1669	24722	34947	1550	1529	22410	31183	1530
	50	1968	41264	61036	1620	1758	36001	52018	1580	1688	34303	49160	1570	1548	30989	43721	1550
	52	1971	44796	66459	1630	1761	39007	56535	1590	1691	37145	53400	1580	1551	33517	47419	1560
	-54	1664	15887	20773	2130	1454	13758	17635	2110	1384	13058	16629	2100	1244	11675	14668	2090
1 5 0 0 0	-30	1745	15740	21060	1920	1535	13726	17994	1900	1465	13064	17002	1890	1325	11752	15082	1880
	-20	1780	15605	21053	1840	1570	13644	18032	1820	1500	13004	17060	1810	1359	11728	15179	1800
	-10	1814	15453	21007	1770	1604	13550	18042	1750	1534	12924	17082	1740	1394	11684	15234	1730
	0	1849	15289	20937	1700	1639	13445	18030	1680	1569	12837	17098	1680	1429	11632	15273	1670
	10	1882	15157	20935	1640	1672	13361	18069	1620	1602	12769	17150	1620	1462	11596	15350	1610
	20	1887	16799	24065	1600	1677	14792	20714	1580	1607	14132	19632	1570	1467	12826	17543	1560
	30	1906	20994	30539	1570	1696	18464	26239	1550	1626	17635	24859	1550	1486	15997	22200	1540
	40	1925	27014	39883	1570	1715	23703	34184	1540	1645	22624	32365	1540	1505	20498	28853	1520
	50	1943	36963	55431	1590	1733	32276	47246	1560	1663	30760	44668	1550	1523	27792	39713	1520
1 4 5 0 0	52	1947	39865	59994	1600	1737	34756	51060	1560	1667	33107	48231	1550	1527	29886	42843	1530
	-54	1669	14917	19506	2120	1459	12932	16577	2100	1389	12278	15628	2090	1249	10983	13800	2080
	-30	1750	14783	19768	1910	1540	12905	16906	1890	1470	12286	15989	1880	1330	11061	14193	1870
	-20	1785	14662	19766	1830	1575	12836	16950	1810	1505	12234	16047	1810	1365	11041	14279	1800
	-10	1820	14521	19736	1760	1610	12748	16959	1740	1540	12163	16072	1740	1400	11004	14335	1730
	0	1855	14376	19679	1690	1645	12654	16953	1680	1575	12086	16082	1670	1435	10960	14375	1660
	10	1888	14257	19683	1630	1678	12579	17003	1620	1608	12026	16134	1610	1468	10928	14450	1600
	20	1893	15740	22543	1590	1683	13875	19414	1570	1613	13261	18417	1570	1473	12044	16469	1560
	30	1881	19478	28678	1560	1671	17116	24605	1540	1601	16342	23299	1540	1461	14810	20780	1530
1 4 0 0 0	40	1900	24777	37048	1550	1690	21732	31723	1530	1620	20737	30021	1520	1480	18776	26749	1510
	50	1918	33264	50585	1560	1708	29059	43125	1530	1638	27695	40764	1520	1498	25020	36207	1500
	52	1921	35677	54449	1570	1711	31129	46363	1540	1641	29656	43789	1530	1501	26772	38883	1510
	-54	1669	14917	19506	2120	14594											

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 1000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 4 0 0 0	-54	1674	14019	18315	2110	1464	12165	15580	2090	1394	11555	14702	2080	1254	10345	12984	2070
	-30	1756	13897	18573	1900	1546	12143	15900	1880	1476	11565	15034	1880	1336	10419	13364	1870
	-20	1791	13787	18575	1820	1581	12082	15945	1810	1511	11519	15091	1800	1371	10404	13447	1790
	-10	1826	13660	18541	1750	1616	12003	15957	1740	1546	11457	15128	1730	1406	10373	13502	1720
	0	1861	13529	18493	1690	1651	11919	15955	1670	1581	11388	15140	1670	1441	10334	13544	1660
	10	1895	13421	18499	1620	1685	11853	15995	1610	1615	11335	15192	1610	1475	10307	13616	1600
	20	1899	14766	21121	1580	1689	13029	18218	1570	1619	12457	17278	1560	1479	11323	15462	1550
	30	1856	18079	26941	1550	1646	15872	23081	1540	1576	15147	21843	1530	1436	13713	19455	1520
	40	1875	22760	34480	1540	1665	19950	29490	1520	1595	19031	27895	1510	1455	17217	24814	1500
	50	1892	30048	46328	1540	1682	26253	39475	1510	1612	25018	37304	1500	1472	22593	33124	1490
52	1896	32075	49650	1540	1686	27995	42264	1520	1616	26673	39929	1510	1476	24071	35432	1490	
1 3 5 0 0	-54	1680	13184	17210	2100	1470	11453	14656	2080	1400	10882	13827	2080	1260	9750	12230	2070
	-30	1763	13073	17443	1890	1553	11435	14948	1880	1483	10894	14148	1870	1342	9823	12578	1860
	-20	1798	12973	17448	1810	1588	11380	14992	1800	1518	10854	14204	1800	1378	9811	12658	1790
	-10	1833	12859	17420	1740	1623	11310	15006	1730	1553	10798	14232	1730	1413	9784	12712	1720
	0	1868	12740	17378	1680	1658	11235	15008	1670	1588	10738	14247	1660	1448	9751	12753	1650
	10	1902	12642	17398	1620	1692	11175	15058	1610	1622	10690	14297	1600	1482	9728	12833	1590
	20	1904	13865	19794	1570	1694	12247	17091	1560	1624	11713	16226	1560	1484	10655	14532	1550
	30	1833	16786	25299	1540	1623	14722	21644	1530	1553	14044	20482	1520	1413	12701	18220	1510
	40	1849	20931	32111	1520	1639	18332	27428	1500	1569	17481	25944	1500	1429	15799	23049	1490
	50	1866	27224	42566	1520	1656	23782	36245	1500	1586	22659	34239	1490	1446	20451	30375	1470
52	1870	28942	45432	1520	1660	25260	38650	1500	1590	24061	36501	1490	1450	21706	32381	1470	
1 3 0 0 0	-54	1687	12406	16162	2090	1477	10788	13778	2080	1407	10254	13013	2070	1267	9195	11512	2060
	-30	1768	12304	16392	1880	1558	10773	14063	1870	1488	10268	13306	1860	1348	9265	11848	1850
	-20	1805	12214	16399	1810	1595	10724	14106	1790	1525	10233	13370	1790	1385	9256	11925	1780
	-10	1840	12110	16376	1740	1630	10662	14122	1720	1560	10183	13398	1720	1420	9233	11977	1710
	0	1876	12003	16339	1670	1666	10594	14125	1680	1596	10129	13415	1660	1456	9205	12018	1650
	10	1910	11914	16349	1610	1700	10541	14165	1600	1630	10087	13464	1600	1490	9186	12085	1590
	20	1913	13030	18566	1570	1703	11521	16037	1550	1633	11023	15231	1550	1493	10031	13648	1540
	30	1839	15621	23545	1530	1629	13717	20164	1520	1559	13090	19089	1510	1419	11849	16994	1510
	40	1823	19264	29942	1510	1613	16856	25539	1490	1543	16066	24131	1490	1403	14505	21420	1480
	50	1840	24727	39204	1500	1630	21589	33348	1480	1560	20564	31489	1470	1420	18546	27918	1460
52	1843	26191	41704	1500	1633	22851	35449	1480	1563	21762	33480	1470	1423	19619	29659	1460	
1 2 5 0 0	-54	1694	11678	15186	2090	1484	10166	12962	2070	1414	9667	12247	2060	1274	8676	10844	2050
	-30	1777	11585	15392	1880	1567	10154	13219	1860	1497	9681	12521	1860	1357	8743	11151	1850
	-20	1813	11504	15400	1800	1603	10110	13260	1790	1533	9650	12573	1780	1393	8736	11233	1780
	-10	1850	11409	15379	1730	1639	10054	13288	1720	1569	9607	12602	1720	1429	8717	11284	1710
	0	1884	11312	15347	1670	1674	9994	13293	1660	1604	9559	12618	1650	1464	8693	11324	1640
	10	1918	11231	15370	1610	1708	9946	13331	1600	1638	9521	12665	1590	1498	8677	11387	1590
	20	1922	12253	17401	1560	1711	10844	15058	1550	1641	10379	14307	1550	1501	9455	12834	1540
	30	1846	14557	21925	1530	1636	12797	18808	1510	1566	12215	17799	1510	1426	11069	15861	1500
	40	1796	17739	27932	1500	1586	15503	23788	1480	1516	14769	22463	1480	1376	13318	19911	1470
	50	1814	22500	36170	1490	1604	19630	30745	1470	1534	18691	29016	1460	1394	16840	25683	1450
52	1815	23755	38364	1490	1605	20713	32590	1470	1535	19720	30753	1460	1395	17761	27212	1440	
1 2 0 0 0	-54	1701	10993	14256	2080	1491	9579	12191	2060	1421	9112	11514	2060	1281	8184	10213	2050
	-30	1785	10908	14459	1870	1575	9571	12433	1860	1505	9128	11781	1850	1365	8249	10500	1850
	-20	1821	10834	14468	1800	1611	9531	12472	1780	1541	9100	11831	1780	1401	8244	10569	1770
	-10	1857	10749	14451	1730	1647	9481	12489	1710	1577	9062	11859	1710	1437	8229	10618	1700
	0	1893	10660	14423	1660	1683	9427	12495	1650	1613	9019	11876	1650	1473	8208	10656	1640
	10	1927	10587	14434	1600	1717	9383	12531	1590	1647	8985	11921	1590	1507	8194	10717	1580
	20	1929	11523	16307	1550	1719	10208	14126	1540	1649	9773	13427	1540	1509	8910	12054	1530
	30	1852	13579	20429	1520	1642	11950	17542	1510	1572	11413	16609	1500	1432	10347	14819	1490
	40	1782	16352	25958	1490	1572	14288	22096	1470	1502	13610	20860	1470	1362	12267	18480	1460
	50	1783	20500	33423	1470	1573	17866	28369	1450	1503	17003	26758	1450	1363	15301	23662	1440
52	1786	21582	35360	1470	1576	18801	29998	1450	1506	17891	28291	1450	1366	16095	25012	1430	
1 1 5 0 0	-54	1709	10347	13386	2070	1499	9025	11451	2060	1429	8588	10829	2050	1289	7720	9606	2040
	-30	1793	10270	13565	1860	1583	9019	11687	1850	1513	8605	11069	1850	1373	7783	9884	1840
	-20	1829	10203	13574	1790	1619	8984	11724	1780	1549	8581	11116	1770	1409	7780	9949	1770
	-10	1865	10125	13571	1720	1655	8939	11741	1710	1585	8547	11143	1710	1445	7767	9995	1700
	0	1902	10045	13546	1660	1692	8891	11748	1650	1622	8509	11171	1640	1482	7749	10032	1640
	10	1936	9978	13557	1600	1726	8852	11783	1590	1656	8479	11213	1580	1516	7738	10089	1580
	20	1938	10838	15287	1550	1728	9610	13257	1540	1658	9204	12607	1540	1518	8397	11327	1530
	30	1859	12675	19035	1510	1649	11166	16362	1500	1579	10668	15508	1500	1439	9680	13838	1490
	40	1788	15109	24009	1480	1578	13218	20458	1470	1508	12596	19331	1460	1368	11364	17139	1450
	50	1754	18694	30925	1460	1544	16271	26207	1440	1474	15477	24703	1440	1333	13906	21811	1430
52	1757	19631	32642	1460	1547	17080	27652	1440	1477	16244	26061	1430	1336	14594	23006	1420	

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
2000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1761	19476	24855	2150	1551	16974	21265	2130	1481	16153	20117	2120	1341	14530	17873	2100
	-40	1810	19379	25044	2020	1600	16955	21512	2000	1530	16160	20369	1990	1390	14587	18155	1970
	-30	1844	19250	25099	1940	1634	16887	21611	1910	1564	16111	20482	1910	1424	14576	18294	1890
	-20	1878	19077	25103	1860	1668	16777	21654	1840	1598	16022	20551	1830	1458	14527	18394	1820
	-10	1911	18863	25036	1780	1701	16629	21643	1760	1631	15895	20558	1760	1491	14442	18435	1750
	0	1943	18638	24951	1720	1733	16468	21613	1700	1663	15755	20547	1690	1523	14343	18458	1680
	10	1975	19047	26074	1660	1765	16854	22592	1640	1695	16134	21482	1640	1555	14708	19310	1620
	20	1999	23583	32790	1640	1789	20843	28369	1620	1719	19946	26950	1610	1579	18175	24209	1590
	30	2020	31303	44077	1640	1810	27579	38001	1610	1740	26366	36066	1600	1600	23984	32327	1590
	40	2041	44062	62760	1680	1830	38577	53768	1640	1760	36810	50915	1630	1620	33362	45481	1600
1 6 5 0	50	2061	71992	103764	1820	1851	62032	87427	1750	1781	58898	82380	1730	1641	52882	72865	1690
	-54	1748	18689	23989	2140	1538	16278	20512	2120	1468	15487	19387	2110	1328	13921	17209	2090
	-40	1797	18596	24189	2010	1587	16261	20747	1990	1517	15494	19647	1980	1377	13976	17496	1970
	-30	1831	18474	24250	1930	1621	16197	20849	1910	1551	15449	19762	1900	1411	13968	17636	1890
	-20	1864	18310	24250	1850	1654	16094	20907	1830	1584	15365	19825	1820	1444	13923	17728	1810
	-10	1897	18109	24194	1780	1687	15955	20904	1760	1617	15246	19839	1750	1477	13844	17774	1740
	0	1929	17896	24120	1710	1719	15807	20888	1690	1649	15116	19835	1690	1509	13753	17804	1680
	10	1960	18271	25186	1650	1750	16159	21815	1640	1680	15465	20724	1630	1540	14090	18613	1620
	20	1984	22497	31516	1630	1774	19876	27246	1610	1704	19017	25888	1600	1564	17321	23227	1590
	30	2004	29596	42001	1630	1794	26074	36211	1600	1724	24927	34360	1590	1584	22669	30782	1580
1 6 0 0	40	2025	41049	58999	1660	1815	35966	50557	1620	1745	34325	47875	1610	1605	31117	42762	1590
	50	2045	64903	94451	1770	1835	56112	79815	1710	1765	53329	75292	1690	1625	47966	66679	1660
	-54	1728	17558	22752	2130	1518	15278	19414	2110	1448	14528	18347	2100	1308	13045	16261	2090
	-40	1776	17471	22941	2000	1566	15262	19655	1980	1496	14536	18592	1970	1356	13098	16532	1960
	-30	1809	17359	23008	1920	1599	15204	19760	1900	1529	14496	18709	1890	1389	13093	16672	1880
	-20	1843	17209	23020	1840	1632	15111	19815	1820	1562	14421	18778	1810	1422	13054	16777	1800
	-10	1875	17024	22978	1770	1665	14984	19823	1750	1595	14313	18811	1740	1455	12984	16831	1730
	0	1907	16832	22935	1700	1697	14847	19815	1680	1627	14195	18819	1680	1487	12902	16868	1670
	10	1937	17157	23908	1640	1727	15160	20677	1630	1657	14503	19643	1620	1517	13203	17620	1610
	20	1961	20958	29706	1620	1751	18504	25650	1600	1681	17700	24346	1590	1541	16109	21830	1580
1 5 5 0	30	1981	27231	39123	1610	1771	23986	33702	1590	1701	22927	31967	1580	1561	20842	28614	1560
	40	2001	37022	53913	1630	1791	32464	46220	1600	1721	30987	43763	1590	1581	28096	39076	1560
	50	2021	56147	82899	1710	1811	48724	70295	1660	1741	46357	66360	1640	1601	41774	58863	1610
	-54	1708	16496	21569	2120	1498	14337	18382	2100	1428	13627	17351	2090	1288	12222	15355	2080
	-40	1755	16415	21758	1990	1545	14323	18610	1970	1475	13635	17601	1960	1335	12273	15628	1950
	-30	1788	16311	21831	1910	1578	14271	18717	1890	1508	13599	17719	1880	1368	12271	15768	1870
	-20	1821	16173	21862	1830	1611	14186	18778	1810	1541	13532	17793	1810	1401	12236	15866	1800
	-10	1852	16003	21834	1760	1642	14071	18796	1740	1572	13435	17825	1740	1432	12174	15925	1730
	0	1886	15824	21770	1690	1676	13948	18794	1680	1606	13330	17830	1670	1466	12105	15962	1660
	10	1919	16113	22662	1630	1709	14229	19568	1620	1639	13609	18582	1610	1499	12380	16652	1600
1 5 0 0	20	1937	19536	28016	1610	1727	17236	24158	1590	1657	16481	22919	1580	1517	14988	20525	1570
	30	1957	25098	36520	1590	1747	22099	31413	1570	1677	21119	29799	1560	1537	19187	26647	1550
	40	1977	33528	49480	1600	1767	29412	42407	1570	1697	28075	40164	1560	1557	25453	35843	1550
	50	1996	49130	73631	1660	1786	42745	62540	1620	1716	40698	59087	1600	1576	36719	52444	1580
	-54	1702	15495	20340	2110	1492	13467	17330	2090	1422	12800	16364	2080	1281	11479	14477	2070
	-40	1750	15420	20522	1980	1540	13457	17542	1960	1470	12811	16589	1960	1330	11531	14726	1940
	-30	1785	15325	20578	1900	1575	13416	17650	1880	1505	12782	16696	1870	1365	11534	14856	1860
	-20	1821	15199	20579	1820	1611	13339	17692	1810	1541	12726	16757	1800	1400	11512	14954	1790
	-10	1856	15045	20528	1750	1646	13239	17694	1740	1576	12644	16775	1730	1436	11465	15004	1720
	0	1890	14883	20462	1680	1680	13130	17679	1670	1610	12553	16787	1670	1470	11407	15038	1660
1 4 5 0	10	1925	15149	21283	1630	1715	13390	18405	1610	1645	12810	17472	1610	1505	11662	15668	1600
	20	1913	18218	26432	1600	1703	16059	22761	1580	1633	15349	21592	1570	1493	13946	19313	1560
	30	1933	23163	34120	1580	1723	20385	29330	1560	1653	19476	27797	1550	1513	17682	24842	1540
	40	1952	30466	45578	1580	1742	26729	39042	1550	1672	25512	36967	1550	1532	23123	32966	1530
	50	1971	43373	65972	1620	1761	37802	56109	1580	1691	36008	52999	1570	1551	32509	47068	1550
	-54	1707	14565	19115	2100	1497	12672	16303	2080	1427	12049	15392	2070	1287	10813	13635	2060
	-40	1756	14497	19278	1970	1545	12664	16503	1950	1475	12057	15610	1950	1335	10863	13870	1940
	-30	1791	14411	19333	1890	1581	12624	16594	1870	1511	12036	15715	1870	1371	10868	13993	1860
	-20	1826	14297	19338	1810	1616	12559	16641	1800	1546	11986	15775	1790	1406	10850	14080	1780
	-10	1862	14157	19295	1740	1652	12470	16646	1730	1582	11913	15796	1720	1442	10809	14130	1710
1 0 0	0	1898	14011	19250	1680	1688	12372	16637	1660	1618	11832	15803	1660	1478	10759	14166	1650
	10	1932	14256	19996	1620	1722	12613	17308	1610	1652	12071	16447	1600	1512	10996	14760	1590
	20	1889	16992	24944	1590	1679	14963	21446	1570	1609	14296	20333	1560	1469	12976	18162	1550
	30	1908	21401	31925	1570	1698	18821	27410	1550	1628	17976	25964	1540	1488	16306	23177	1530
	40	1927	27759	42076	1560	1717	24350	36031	1540	1647	23239	34104	1530	1507	21053	30387	1510
	50	1945	38558	59500	1590	1735	33642	50643	1550	1665	32054	47858	1540	1525	28948	42494	1520

56FMC-00-00

Figure 4-30 (Sheet 5)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

**FLAPS - 7°
2000 FEET**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1711	13703	17961	2090	1501	11933	15334	2070	1431	11350	14491	2070	1291	10194	12839	2060
	-40	1762	13640	18126	1960	1552	11927	15523	1950	1482	11362	14691	1940	1341	10242	13060	1930
	-30	1797	13562	18180	1880	1587	11892	15619	1870	1517	11341	14788	1860	1377	10249	13186	1850
	-20	1833	13459	18187	1810	1623	11834	15666	1790	1553	11298	14847	1790	1413	10234	13270	1780
	-10	1869	13332	18151	1740	1659	11754	15675	1720	1589	11233	14869	1720	1449	10199	13320	1710
	0	1905	13199	18102	1670	1695	11666	15670	1660	1625	11160	14889	1650	1485	10158	13359	1650
	10	1939	13427	18803	1610	1729	11890	16292	1600	1659	11383	15476	1600	1519	10377	13898	1590
	20	1891	15875	23335	1580	1681	13990	20076	1560	1611	13370	19038	1560	1471	12141	17013	1550
	30	1883	19788	29882	1550	1673	17388	25620	1540	1603	16601	24267	1530	1463	15045	21635	1520
	40	1903	25349	38942	1540	1693	22228	33316	1520	1623	21208	31521	1510	1483	19200	28057	1500
1 3 5 0 0	50	1919	34468	53988	1560	1709	30092	45950	1530	1639	28674	43417	1520	1499	25895	38552	1500
	-54	1721	12900	16890	2080	1511	11246	14435	2070	1440	10700	13637	2060	1300	9618	12101	2050
	-40	1768	12842	17034	1960	1558	11240	14612	1940	1488	10712	13834	1940	1348	9666	12311	1930
	-30	1806	12771	17087	1870	1595	11210	14694	1860	1525	10694	13927	1860	1385	9671	12420	1850
	-20	1840	12678	17096	1800	1630	11157	14740	1790	1560	10656	13984	1780	1420	9660	12499	1770
	-10	1878	12563	17066	1730	1667	11086	14751	1720	1597	10601	14011	1710	1457	9630	12548	1700
	0	1912	12442	17022	1660	1702	11007	14749	1650	1632	10533	14019	1650	1492	9591	12585	1640
	10	1946	12654	17671	1610	1736	11216	15326	1600	1666	10741	14575	1590	1526	9798	13099	1580
	20	1897	14853	21812	1570	1687	13104	18795	1560	1617	12527	17819	1550	1477	11385	15935	1540
	30	1857	18307	27996	1540	1647	16071	23969	1530	1577	15336	22690	1520	1437	13884	20201	1510
1 3 0 0 0	40	1875	23188	36101	1530	1665	20321	30851	1510	1595	19383	29175	1500	1455	17533	25953	1490
	50	1893	30949	49173	1540	1683	27026	41853	1510	1613	25750	39536	1500	1473	23247	35082	1480
	-54	1725	12149	15871	2080	1515	10602	13579	2060	1445	10091	12843	2050	1305	9078	11397	2040
	-40	1775	12097	16018	1950	1565	10598	13755	1930	1495	10104	13018	1930	1355	9122	11601	1920
	-30	1811	12032	16068	1870	1601	10571	13833	1850	1531	10088	13106	1850	1391	9130	11706	1840
	-20	1847	11947	16078	1790	1637	10525	13878	1780	1567	10055	13171	1780	1427	9122	11782	1770
	-10	1884	11843	16052	1720	1674	10460	13890	1710	1604	10003	13195	1710	1464	9096	11830	1700
	0	1920	11733	16015	1660	1710	10389	13890	1650	1640	9945	13208	1640	1500	9063	11866	1640
	10	1954	11931	16616	1600	1744	10585	14427	1590	1674	10140	13714	1590	1534	9257	12345	1580
	20	1904	13912	20395	1560	1694	12286	17592	1550	1624	11750	16696	1550	1484	10687	14943	1540
1 2 5 0 0	30	1831	16941	26237	1530	1621	14855	22427	1520	1551	14169	21217	1510	1411	12812	18863	1500
	40	1849	21239	33525	1510	1639	18598	28614	1500	1569	17733	27046	1490	1429	16025	24029	1480
	50	1866	27888	44973	1510	1656	24349	38253	1490	1586	23196	36125	1480	1446	20929	32028	1470
	-54	1734	11446	14921	2070	1524	9999	12781	2050	1454	9521	12093	2050	1314	8572	10742	2040
	-40	1783	11398	15048	1940	1573	9996	12936	1930	1503	9533	12258	1920	1363	8613	10924	1920
	-30	1818	11339	15095	1860	1608	9972	13010	1850	1538	9520	12340	1840	1398	8623	11023	1840
	-20	1856	11262	15106	1790	1646	9931	13053	1770	1576	9491	12393	1770	1436	8616	11105	1760
	-10	1892	11168	15084	1720	1682	9873	13076	1710	1612	9445	12417	1700	1472	8595	11151	1690
	0	1929	11068	15050	1650	1719	9809	13078	1640	1649	9393	12430	1640	1509	8565	11186	1630
	10	1963	11254	15607	1600	1753	9993	13566	1590	1683	9577	12911	1580	1543	8749	11623	1580
1 2 0 0 0	20	1912	13041	19085	1560	1702	11529	16481	1540	1632	11030	15636	1540	1492	10040	14005	1530
	30	1833	15713	24364	1520	1623	13793	20856	1510	1553	13161	19727	1500	1414	11910	17550	1490
	40	1821	19473	31148	1500	1611	17035	26547	1480	1541	16235	25089	1480	1401	14655	22261	1470
	50	1838	25199	41241	1500	1628	21992	35048	1470	1558	20945	33084	1470	1418	18883	29302	1450
	-54	1741	10783	14014	2060	1531	9429	12027	2050	1461	8981	11375	2040	1321	8092	10122	2030
	-40	1791	10739	14144	1940	1581	9427	12173	1920	1511	8994	11539	1920	1371	8132	10293	1910
	-30	1827	10686	14188	1860	1617	9406	12242	1840	1547	8983	11617	1840	1407	8142	10385	1830
	-20	1864	10616	14200	1780	1654	9369	12283	1770	1584	8957	11667	1770	1444	8138	10454	1760
	-10	1901	10529	14180	1710	1691	9317	12296	1700	1621	8916	11691	1700	1481	8119	10498	1690
	0	1937	10438	14150	1650	1727	9259	12299	1640	1657	8869	11704	1630	1517	8094	10532	1630
1 1 5 0 0	10	1972	10613	14667	1590	1762	9433	12763	1580	1692	9043	12141	1580	1552	8267	10949	1570
	20	1920	12230	17850	1550	1710	10822	15430	1540	1640	10358	14656	1530	1500	9435	13137	1530
	30	1841	14597	22633	1520	1631	12827	19394	1500	1561	12245	18350	1500	1421	11089	16337	1490
	40	1792	17863	28976	1490	1582	15607	24656	1470	1512	14866	23287	1470	1372	13400	20630	1460
	50	1808	22818	37891	1480	1598	19897	32176	1460	1528	18942	30357	1450	1388	17060	26865	1440
	-54	1749	10157	13164	2060	1539	8890	11302	2040	1469	8471	10703	2040	1329	7639	9524	2030
	-40	1799	10117	13275	1930	1589	8890	11437	1920	1519	8484	10847	1910	1379	7677	9693	1910
	-30	1835	10069	13316	1850	1625	8871	11513	1840	1555	8475	10919	1830	1415	7688	9780	1830
	-20	1872	10005	13327	1780	1662	8838	11552	1760	1592	8452	10966	1760	1452	7685	9844	1750
	-10	1910	9926	13322	1710	1700	8791	11565	1700	1630	8416	10989	1690	1490	7669	9886	1690
1 1 0 0 0	0	1947	9844	13294	1640	1737	8739	11568	1630	1667	8374	11014	1630	1527	7647	9919	1620
	10	1982	10009	13762	1590	1771	8904	11989	1580	1701	8538	11420	1570	1561	7811	10297	1570
	20	1927	11473	16689	1540	1717	10162	14441	1530	1647	9729	13722	1530	1507	8869	12321	1520
	30	1847	13574	21031	1510	1637	11941	18041	1500	1567	11403	17086	1490	1427	10336	15223	1480
	40	1776	16404	26860	1480	1566	14326	22841	1460	1496	13643	21567	1460	1356	12292	19093	1450
	50	1778	20693	34894	1460	1568	18025	29590	1450	1498	17151	27901	1440	1358	15426	24646	1430

56FMC-00

Figure 4-30 (Sheet 6)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 3000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1791	18891	24311	2130	1581	16509	20848	2110	1511	15727	19741	2100	1371	14180	17576	2080
	-40	1841	18829	24539	2000	1631	16518	21128	1980	1561	15758	20023	1970	1421	14257	17884	1960
	-30	1876	18691	24575	1920	1665	16439	21209	1900	1595	15699	20119	1890	1455	14234	18006	1880
	-20	1909	18514	24557	1840	1699	16324	21241	1820	1629	15604	20167	1810	1489	14179	18095	1800
	-10	1943	18299	24495	1770	1733	16172	21223	1750	1663	15473	20177	1740	1523	14088	18129	1730
	0	1976	18105	24509	1700	1766	16037	21273	1680	1696	15356	20239	1680	1556	14008	18214	1670
	10	2006	20449	28414	1660	1796	18114	24635	1640	1726	17347	23418	1630	1586	15831	21068	1620
	20	2028	26080	36718	1640	1818	23058	31757	1620	1748	22070	30173	1610	1608	20124	27118	1600
	30	2049	35475	50557	1660	1839	31236	43558	1630	1769	29861	41317	1620	1629	27164	37032	1600
	40	2071	52663	75867	1730	1860	45960	64752	1680	1790	43814	61291	1670	1650	39649	54625	1640
1 5 0 0	48	2087	82380	119481	1900	1877	70663	100226	1810	1807	67021	94360	1790	1667	60047	83256	1740
	-54	1779	18140	23481	2120	1568	15843	20126	2100	1498	15088	19040	2090	1358	13595	16936	2080
	-40	1825	18081	23721	1990	1615	15851	20392	1970	1545	15118	19329	1960	1405	13668	17247	1950
	-30	1862	17950	23763	1910	1652	15777	20477	1890	1582	15063	19427	1880	1442	13649	17372	1870
	-20	1895	17783	23753	1830	1685	15670	20526	1810	1615	14975	19480	1810	1475	13599	17454	1790
	-10	1929	17579	23690	1760	1719	15527	20516	1740	1649	14852	19487	1740	1509	13514	17493	1730
	0	1962	17395	23708	1690	1752	15398	20569	1680	1682	14741	19551	1670	1542	13439	17580	1660
	10	1991	19577	27401	1650	1781	17333	23737	1630	1711	16596	22569	1630	1571	15138	20277	1620
	20	2013	24806	35185	1630	1803	21926	30426	1610	1733	20984	28900	1610	1593	19127	25957	1590
	30	2034	33377	47966	1640	1824	29396	41316	1610	1754	28102	39202	1610	1614	25562	35124	1590
1 6 0 0	40	2055	48571	70615	1700	1845	42448	60342	1660	1775	40482	57104	1640	1635	36656	50927	1620
	48	2071	73371	107518	1830	1861	63234	90561	1760	1791	60044	85370	1740	1651	53926	75489	1700
	-54	1757	17056	22292	2110	1547	14880	19067	2090	1477	14165	18036	2080	1337	12750	16020	2070
	-40	1806	17002	22521	1980	1596	14890	19340	1960	1526	14196	18310	1960	1386	12821	16315	1940
	-30	1840	16880	22570	1900	1630	14823	19428	1880	1560	14146	18411	1870	1420	12805	16440	1860
	-20	1874	16727	22571	1820	1664	14725	19474	1800	1594	14066	18470	1800	1454	12761	16536	1790
	-10	1907	16540	22524	1750	1697	14595	19475	1730	1627	13954	18497	1730	1486	12685	16583	1720
	0	1939	16369	22549	1690	1729	14476	19533	1670	1659	13853	18566	1660	1519	12618	16672	1650
	10	1968	18329	25948	1640	1758	16215	22447	1620	1688	15620	21332	1620	1548	14145	19153	1610
	20	1990	23015	33045	1620	1780	20333	28545	1600	1710	19455	27101	1590	1569	17722	24317	1580
1 5 5 0	30	2010	30506	44415	1620	1800	26869	38235	1600	1730	25685	36269	1590	1590	23358	32474	1570
	40	2031	43232	63739	1660	1820	37842	54528	1620	1750	36104	51609	1610	1610	32713	46051	1590
	48	2046	62556	93099	1760	1836	54182	78799	1700	1766	51525	74332	1680	1626	46394	65900	1640
	-54	1737	16035	21152	2100	1527	13974	18070	2080	1457	13296	17072	2070	1317	11953	15140	2060
	-40	1785	15985	21379	1970	1575	13984	18329	1950	1505	13326	17351	1950	1365	12021	15437	1930
	-30	1820	15873	21417	1890	1610	13925	18409	1870	1540	13284	17444	1870	1400	12013	15557	1850
	-20	1857	15731	21412	1810	1647	13839	18443	1800	1577	13216	17494	1790	1437	11981	15637	1780
	-10	1894	15559	21339	1740	1684	13725	18427	1730	1614	13120	17497	1720	1474	11922	15675	1710
	0	1931	15403	21329	1680	1721	13622	18471	1660	1651	13035	17545	1660	1511	11871	15750	1650
	10	1944	17163	24578	1630	1734	15171	21231	1620	1664	14515	20165	1610	1524	13221	18086	1600
1 6 5 0	20	1966	21373	31064	1610	1756	18871	26802	1590	1686	18051	25434	1580	1546	16430	22796	1570
	30	1986	27948	41204	1600	1776	24620	35467	1580	1706	23527	33626	1570	1566	21386	30082	1560
	40	2006	38716	57889	1630	1796	33923	49537	1600	1726	32373	46904	1580	1586	29340	41845	1560
	48	2021	54122	81814	1700	1811	47037	69436	1650	1741	44774	65567	1630	1601	40383	58189	1600
	-54	1740	15077	19888	2090	1530	13150	17003	2070	1460	12516	16078	2060	1320	11259	14267	2050
	-40	1790	15030	20102	1960	1580	13162	17240	1950	1510	12546	16326	1940	1370	11326	14535	1930
	-30	1826	14929	20140	1880	1616	13109	17328	1860	1546	12510	16416	1860	1406	11321	14649	1850
	-20	1862	14801	20130	1810	1652	13033	17363	1790	1582	12450	16466	1780	1442	11294	14737	1770
	-10	1900	14646	20068	1740	1690	12931	17354	1720	1620	12365	16474	1720	1480	11243	14777	1710
	0	1937	14505	20063	1670	1727	12839	17390	1660	1657	12289	16532	1650	1517	11199	14851	1640
1 4 5 0	10	1940	16091	23118	1620	1730	14228	19984	1610	1660	13615	18970	1600	1520	12400	17011	1590
	20	1941	19861	29208	1600	1731	17523	25180	1580	1661	16756	23883	1570	1521	15239	21380	1560
	30	1961	25657	38334	1590	1751	22589	32945	1560	1681	21587	31229	1560	1541	19612	27925	1540
	40	1980	34842	52845	1600	1770	30547	45215	1570	1700	29154	42806	1560	1560	26423	38172	1540
	48	1996	47347	72698	1650	1786	41244	61786	1610	1716	39284	58386	1590	1576	35469	51862	1570
	-54	1744	14189	18707	2080	1535	12388	16010	2060	1465	11794	15135	2060	1325	10618	13449	2050
	-40	1796	14146	18899	1960	1586	12399	16232	1940	1516	11823	15377	1930	1376	10681	13700	1920
	-30	1832	14054	18937	1870	1622	12352	16307	1860	1552	11791	15463	1850	1412	10679	13809	1840
	-20	1869	13937	18930	1800	1659	12284	16344	1780	1588	11738	15514	1780	1448	10656	13886	1770
	-10	1906	13798	18878	1730	1696	12192	16340	1710	1626	11663	15525	1710	1486	10612	13927	1700
1 4 0 0	0	1943	13671	18889	1660	1733	12111	16376	1650	1663	11596	15574	1650	1523	10575	13999	1640
	10	1946	15110	21679	1620	1736	13373	18758	1600	1666	12801	17824	1600	1526	11667	15995	1590
	20	1917	18466	27490	1590	1707	16278	23665	1570	1637	15559	22433	1560	1496	14137	20057	1550
	30	1936	23590	35703	1570	1726	20759	30666	1550	1656	19833	29055	1540	1516	18006	25941	1530
	40	1955	31481	48423	1580	1745	27607	41433	1550	1675	26347	39217	1540	1535	23874	34949	1520
	48	1970	41776	65144	1610	1760	36447	55429	1570	1690	34728	52385	1560	1550	31374	46535	1540

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Figure 4-30 (Sheet 7)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 3000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1752	13363	17592	2070	1542	11678	15070	2060	1472	11123	14260	2050	1332	10021	12673	2040
	-40	1802	13323	17781	1950	1592	11689	15278	1930	1522	11150	14478	1930	1382	10080	12909	1920
	-30	1838	13239	17820	1870	1628	11647	15360	1850	1558	11122	14561	1850	1418	10080	13022	1840
	-20	1875	13135	17817	1790	1665	11586	15398	1780	1595	11075	14611	1770	1455	10061	13096	1760
	-10	1912	13007	17771	1720	1702	11501	15393	1710	1632	11008	14624	1700	1492	10023	13137	1700
	0	1951	12893	17774	1660	1740	11432	15434	1640	1670	10949	14683	1640	1530	9991	13207	1630
	10	1953	14203	20351	1610	1743	12582	17616	1600	1673	12048	16744	1590	1533	10989	15036	1580
	20	1891	17173	25879	1580	1681	15123	22246	1560	1611	14449	21075	1550	1471	13115	18817	1540
	30	1909	21717	33292	1560	1699	19098	28560	1540	1629	18240	27047	1530	1489	16546	24132	1520
	40	1929	28536	44508	1560	1719	25022	38075	1530	1649	23878	36027	1520	1509	21627	32081	1510
1 3 5 0 0	48	1944	37111	58745	1580	1734	32407	50015	1540	1664	30885	47268	1530	1524	27906	41995	1510
	-54	1759	12593	16554	2070	1549	11016	14196	2050	1479	10497	13430	2040	1339	9463	11953	2030
	-40	1809	12556	16721	1940	1599	11026	14391	1930	1529	10521	13642	1920	1389	9519	12173	1910
	-30	1845	12480	16758	1860	1635	10989	14460	1840	1565	10497	13722	1840	1425	9520	12272	1830
	-20	1882	12384	16759	1780	1672	10934	14497	1770	1602	10455	13770	1770	1462	9505	12343	1760
	-10	1920	12269	16718	1710	1710	10861	14498	1700	1640	10396	13785	1700	1500	9472	12384	1690
	0	1958	12165	16723	1650	1748	10796	14535	1640	1678	10344	13833	1640	1538	9445	12461	1630
	10	1960	13361	19096	1600	1750	11848	16557	1590	1680	11349	15733	1590	1540	10358	14150	1580
	20	1889	15994	24183	1570	1679	14092	20794	1550	1608	13466	19702	1550	1468	12226	17593	1540
	30	1884	20012	31086	1540	1674	17583	26633	1530	1604	16787	25208	1520	1464	15213	22463	1510
1 3 0 0 0	40	1902	25933	41027	1540	1692	22733	35067	1510	1622	21688	33168	1510	1482	19631	29507	1490
	48	1917	33144	53284	1550	1707	28956	45358	1520	1637	27597	42860	1510	1497	24931	38059	1490
	-54	1766	11871	15565	2060	1556	10395	13362	2040	1486	9908	12655	2040	1346	8940	11264	2030
	-40	1816	11837	15732	1930	1606	10405	13554	1920	1536	9932	12845	1910	1396	8993	11480	1910
	-30	1853	11768	15768	1850	1643	10372	13620	1840	1573	9911	12920	1830	1433	8995	11573	1830
	-20	1890	11681	15770	1780	1680	10323	13656	1770	1610	9874	12977	1760	1470	8983	11641	1750
	-10	1929	11576	15734	1710	1719	10257	13659	1700	1649	9821	12993	1690	1509	8954	11680	1690
	0	1967	11482	15741	1640	1757	10199	13696	1630	1687	9775	13039	1630	1547	8932	11746	1620
	10	1968	12577	17919	1600	1758	11164	15553	1580	1688	10697	14794	1580	1548	9770	13306	1570
	20	1895	14923	22547	1560	1685	13163	19408	1550	1615	12583	18406	1540	1475	11434	16449	1530
1 2 5 0 0	30	1857	18451	29044	1530	1647	16196	24848	1520	1577	15455	23504	1510	1437	13990	20917	1500
	40	1873	23616	37892	1520	1663	20689	32353	1500	1593	19732	30587	1490	1454	17846	27194	1480
	48	1889	29727	48525	1530	1679	25973	41305	1500	1609	24751	39019	1490	1469	22351	34623	1470
	-54	1774	11194	14641	2050	1564	9812	12583	2040	1494	9355	11923	2030	1354	8448	10622	2020
	-40	1825	11162	14785	1930	1615	9821	12753	1910	1545	9378	12100	1910	1405	8498	10814	1900
	-30	1862	11099	14820	1850	1652	9792	12815	1830	1582	9360	12171	1830	1442	8502	10903	1820
	-20	1899	11020	14823	1770	1689	9748	12849	1760	1619	9327	12215	1760	1479	8491	10977	1750
	-10	1938	10924	14791	1700	1728	9688	12854	1690	1658	9280	12231	1690	1517	8467	11016	1680
	0	1976	10840	14797	1640	1766	9637	12900	1630	1696	9239	12275	1630	1556	8468	11077	1620
	10	1976	11845	16823	1590	1766	10524	14618	1580	1696	10084	13896	1570	1556	9220	12522	1570
1 2 0 0 0	20	1902	13940	21043	1550	1692	12309	18122	1540	1622	11771	17192	1530	1482	10705	15377	1530
	30	1830	17018	27132	1520	1620	14920	23186	1510	1550	14231	21919	1500	1410	12866	19478	1490
	40	1847	21539	35048	1510	1637	18855	29888	1490	1567	17976	28255	1480	1427	16241	25078	1470
	48	1861	26753	44332	1510	1651	23368	37706	1480	1581	22264	35607	1470	1441	20092	31580	1460
	-54	1783	10556	13759	2050	1573	9259	11847	2030	1503	8832	11219	2030	1362	7981	10014	2020
	-40	1833	10524	13902	1920	1623	9269	12004	1910	1553	8854	11394	1900	1413	8028	10193	1900
	-30	1870	10466	13935	1840	1660	9242	12063	1830	1590	8838	11461	1820	1450	8033	10276	1820
	-20	1908	10394	13938	1770	1698	9203	12096	1760	1628	8809	11504	1750	1487	8025	10336	1740
	-10	1946	10307	13909	1700	1736	9149	12101	1690	1666	8766	11520	1680	1526	8004	10373	1680
	0	1985	10231	13917	1630	1775	9103	12134	1630	1705	8730	11562	1620	1565	7988	10432	1620
1 1 5 0 0	10	1986	11157	15779	1580	1775	9921	13725	1570	1705	9513	13067	1570	1565	8701	11771	1560
	20	1909	13030	19635	1540	1699	11517	16938	1530	1629	11018	16064	1530	1489	10027	14388	1520
	30	1832	15732	25143	1510	1622	13806	21503	1500	1552	13172	20333	1490	1412	11916	18078	1480
	40	1818	19665	32474	1490	1608	17196	27653	1470	1538	16386	26115	1470	1398	14786	23157	1460
	48	1831	24139	40629	1490	1621	21070	34520	1470	1551	20068	32597	1460	1411	18092	28865	1440
	-54	1790	9948	12927	2040	1580	8736	11136	2030	1510	8335	10560	2020	1370	7541	9437	2010
	-40	1840	9921	13051	1910	1630	8745	11281	1900	1560	8356	10713	1900	1420	7583	9602	1890
	-30	1877	9868	13081	1830	1667	8722	11348	1820	1597	8343	10775	1820	1457	7589	9679	1810
	-20	1917	9802	13085	1760	1707	8686	11379	1750	1637	8317	10815	1750	1497	7582	9736	1740
	-10	1956	9723	13058	1690	1746	8638	11384	1680	1676	8279	10831	1680	1535	7564	9771	1670
1 1 0 0 0	0	1994	9654	13078	1630	1784	8597	11416	1620	1714	8248	10882	1620	1574	7552	9827	1610
	10	1995	10508	14803	1580	1785	9352	12891	1570	1715	8970	12278	1570	1575	8211	11070	1560
	20	1917	12187	18319	1540	1707	10783	15819	1530	1637	10319	15019	1520	1497	9398	13453	1520
	30	1838	14568	23292	1500	1627	12799	19941	1490	1557	12216	18873	1490	1417	11061	16792	1480
	40	1787	17967	30098	1480	1577	15690	25599	1460	1507	14942	24159	1460	1367	13464	21389	1450
	48	1800	21823	37305	1470	1590	19030	31669	1450	1520	18116	29876	1440	1380	16313	26420	1430

561MC-00-00

Figure 4-30 (Sheet 8)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
4000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1821	18442	23960	2110	1611	16158	20591	2090	1541	15407	19515	2080	1401	13922	17408	2060
	-40	1872	18403	24224	1980	1662	16183	20900	1960	1592	15454	19823	1950	1452	14010	17737	1940
	-30	1908	18250	24249	1900	1698	16090	20970	1880	1628	15380	19907	1870	1488	13972	17847	1860
	-20	1942	18062	24238	1820	1732	15963	20995	1800	1662	15273	19959	1800	1522	13906	17930	1780
	-10	1977	17851	24180	1750	1767	15813	20988	1730	1697	15142	19969	1730	1557	13814	17971	1720
	0	2010	18218	25223	1690	1800	16163	21905	1670	1730	15488	20847	1670	1590	14150	18776	1660
	10	2036	22528	31681	1660	1826	19968	27480	1640	1756	19129	26130	1640	1616	17472	23523	1620
	20	2058	29266	41696	1660	1848	25876	36063	1630	1778	24770	34266	1620	1638	22595	30791	1610
	30	2080	40989	59113	1690	1870	36045	50824	1650	1800	34447	48217	1640	1660	31323	43181	1620
	40	2101	64688	94226	1800	1891	56159	79980	1740	1821	53455	75570	1720	1681	48239	67159	1690
1 5 6 0	45	2112	88405	129307	1940	1902	75676	108174	1850	1832	71723	101736	1830	1692	64205	89694	1770
	-54	1808	17719	23158	2100	1598	15514	19892	2080	1528	14789	18834	2070	1388	13355	16795	2060
	-40	1858	17682	23433	1980	1648	15540	20187	1960	1578	14836	19150	1950	1438	13441	17120	1930
	-30	1893	17537	23464	1890	1683	15452	20261	1870	1613	14766	19237	1870	1473	13408	17233	1850
	-20	1928	17360	23450	1820	1718	15333	20303	1800	1648	14666	19283	1790	1508	13345	17308	1780
	-10	1962	17160	23402	1740	1752	15192	20304	1730	1682	14544	19300	1720	1542	13261	17354	1710
	0	1995	17492	24390	1680	1785	15511	21174	1670	1715	14859	20132	1660	1575	13569	18118	1650
	10	2020	21518	30492	1650	1810	19066	26429	1640	1740	18261	25122	1630	1600	16672	22600	1620
	20	2043	27737	39829	1650	1833	24521	34446	1620	1763	23472	32722	1610	1623	21405	29388	1600
	30	2064	38323	55743	1670	1854	33718	47949	1640	1784	32227	45487	1620	1644	29308	40747	1600
1 6 0 0	40	2085	58830	86527	1760	1875	51201	73603	1710	1805	48771	69579	1690	1665	44068	61911	1660
	45	2096	78170	115514	1870	1886	67277	97131	1790	1816	63865	91502	1770	1676	57334	80881	1720
	-54	1787	16673	22008	2090	1577	14583	18864	2070	1507	13896	17859	2060	1367	12535	15894	2050
	-40	1837	16641	22270	1970	1627	14610	19164	1950	1557	13942	18159	1940	1417	12619	16211	1930
	-30	1872	16507	22310	1880	1662	14530	19243	1860	1592	13879	18250	1860	1452	12590	16336	1850
	-20	1906	16343	22306	1810	1696	14421	19283	1790	1626	13788	18314	1780	1486	12535	16416	1770
	-10	1939	16160	22273	1740	1729	14292	19294	1720	1659	13677	18339	1710	1519	12459	16469	1700
	0	1972	16447	23187	1670	1762	14571	20100	1660	1692	13954	19101	1650	1552	12730	17167	1640
	10	1997	20081	28795	1640	1787	17781	24927	1630	1717	17025	23683	1620	1577	15532	21281	1610
	20	2019	25603	37240	1630	1809	22628	32162	1610	1739	21656	30541	1600	1599	19739	27418	1580
1 5 0 0	30	2040	34723	51196	1640	1830	30572	44035	1610	1760	29218	41762	1600	1620	26572	37393	1580
	40	2061	51434	76788	1710	1851	44890	65465	1660	1781	42793	61915	1650	1641	38720	55156	1620
	45	2071	66085	99191	1790	1861	57209	83880	1720	1791	54399	79150	1700	1651	48986	70148	1670
	-54	1776	15685	20819	2080	1566	13715	17842	2060	1496	13066	16878	2060	1356	11782	15020	2040
	-40	1827	15655	21061	1960	1617	13742	18115	1940	1547	13112	17170	1930	1407	11864	15320	1920
	-30	1866	15532	21084	1870	1656	13671	18181	1860	1586	13059	17250	1850	1445	11845	15427	1840
	-20	1902	15381	21069	1800	1692	13573	18201	1780	1622	12981	17289	1780	1482	11801	15496	1770
	-10	1940	15213	21007	1730	1730	13462	18195	1710	1660	12885	17297	1710	1519	11741	15537	1700
	0	1976	15477	21819	1670	1766	13723	18919	1650	1696	13145	17994	1650	1556	11999	16182	1640
	10	1973	18746	27202	1630	1763	16586	23516	1620	1693	15876	22331	1610	1553	14471	20042	1600
1 6 0 0	20	1995	23664	34849	1610	1785	20906	30080	1590	1715	20003	28552	1590	1575	18221	25607	1570
	30	2015	31566	47172	1620	1805	27798	40572	1590	1735	26571	38474	1580	1595	24160	34428	1560
	40	2035	45386	68769	1670	1825	39688	58714	1630	1755	37855	55567	1610	1615	34281	49516	1590
	45	2045	56812	86644	1720	1835	49375	73534	1670	1765	47003	69442	1650	1625	42411	61651	1620
	-54	1782	14762	19577	2070	1572	12920	16793	2050	1502	12314	15900	2050	1361	11111	14152	2040
	-40	1832	14734	19814	1950	1622	12946	17059	1930	1552	12357	16165	1920	1412	11188	14433	1910
	-30	1870	14622	19839	1870	1660	12883	17124	1850	1590	12310	16242	1840	1450	11173	14545	1830
	-20	1908	14486	19820	1790	1698	12797	17150	1770	1628	12240	16283	1770	1488	11136	14614	1760
	-10	1946	14334	19766	1720	1736	12695	17145	1710	1666	12155	16304	1700	1526	11083	14655	1690
	0	1983	14579	20518	1660	1773	12938	17818	1650	1703	12397	16941	1640	1563	11324	15246	1630
1 4 5 0 0	10	1949	17504	25705	1620	1739	15473	22190	1610	1669	14805	21060	1600	1529	13483	18877	1590
	20	1970	21897	32647	1600	1760	19332	28146	1580	1690	18492	26717	1570	1550	16833	23922	1560
	30	1990	28786	43611	1600	1780	25346	37482	1570	1710	24224	35532	1570	1570	22018	31770	1550
	40	2010	40343	62062	1630	1800	35324	53016	1590	1730	33703	50177	1580	1590	30534	44709	1560
	45	2020	49452	76626	1670	1810	43094	65171	1620	1740	41055	61572	1610	1600	37091	54699	1580
	-54	1787	13906	18425	2060	1577	12182	15822	2050	1507	11614	14976	2040	1367	10488	13348	2030
	-40	1839	13879	18638	1940	1629	12206	16061	1920	1559	11654	15234	1920	1419	10560	13612	1910
	-30	1874	13777	18663	1860	1664	12150	16124	1840	1594	11613	15309	1840	1454	10547	13710	1830
	-20	1914	13654	18649	1780	1704	12073	16151	1770	1634	11551	15349	1760	1494	10515	13776	1750
	-10	1952	13516	18602	1710	1742	11981	16150	1700	1672	11475	15363	1700	1532	10470	13818	1690
1 3 0 0	0	1989	13744	19299	1650	1779	12208	16775	1640	1709	11702	15966	1640	1569	10696	14378	1630
	10	1939	16360	24166	1610	1729	14462	20855	1600	1659	13837	19802	1590	1519	12599	17744	1580
	20	1945	20278	30623	1590	1735	17890	26368	1570	1665	17107	25017	1560	1525	15559	22373	1550
	30	1964	26309	40406	1580	1754	23158	34697	1560	1684	22129	32880	1550	1544	20103	29387	1530
	40	1984	36071	56318	1600	1774	31607	48132	1570	1704	30161	45552	1560	1564	27328	40574	1540
	45	1993	43459	68426	1630	1783	37939	58254	1590	1713	36160	55048	1570	1573	32692	48933	1550

56FMC-00-00

Figure 4-30 (Sheet 9)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 4000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1794	13107	17335	2060	1584	11494	14900	2040	1514	10962	14118	2030	1374	9906	12584	2020
	-40	1845	13083	17544	1930	1635	11516	15134	1920	1565	10999	14350	1910	1425	9974	12841	1900
	-30	1883	12990	17570	1850	1673	11466	15195	1840	1603	10963	14422	1830	1463	9964	12934	1820
	-20	1921	12877	17559	1780	1711	11396	15222	1760	1641	10907	14462	1760	1501	9936	12999	1750
	-10	1960	12751	17519	1710	1750	11314	15224	1690	1679	10839	14488	1690	1539	9896	13040	1680
	0	1997	12967	18167	1650	1787	11528	15807	1630	1717	11053	15039	1630	1577	10110	13553	1620
	10	1945	15318	22606	1610	1735	13555	19528	1590	1665	12974	18548	1590	1525	11822	16632	1580
	20	1919	18795	28748	1580	1709	16563	24714	1560	1639	15831	23435	1550	1499	14385	20932	1540
	30	1938	24089	37503	1560	1728	21195	32172	1540	1658	20248	30488	1540	1518	18381	27208	1520
	40	1957	32401	51331	1570	1747	28402	43876	1540	1677	27102	41516	1540	1537	24552	36976	1520
1 3 5 0 0	45	1967	38478	61532	1590	1756	33628	52427	1560	1686	32067	49571	1550	1546	28993	44052	1520
	-54	1801	12361	16319	2050	1591	10850	14042	2030	1521	10351	13310	2030	1381	9361	11874	2020
	-40	1852	12338	16503	1920	1642	10871	14250	1910	1572	10386	13527	1910	1432	9425	12105	1900
	-30	1890	12253	16529	1840	1680	10825	14308	1830	1610	10354	13595	1830	1470	9417	12193	1820
	-20	1929	12150	16521	1770	1719	10762	14336	1760	1649	10304	13635	1750	1509	9393	12255	1740
	-10	1967	12036	16485	1700	1757	10688	14340	1690	1687	10243	13651	1690	1547	9358	12296	1680
	0	2003	12239	17087	1640	1793	10891	14883	1630	1723	10446	14176	1620	1583	9561	12785	1620
	10	1952	14359	21157	1600	1742	12719	18305	1590	1672	12178	17382	1580	1532	11106	15598	1570
	20	1893	17417	26986	1570	1683	15337	23169	1550	1613	14653	21957	1550	1472	13300	19586	1540
	30	1912	22089	34857	1550	1702	19422	29880	1530	1632	18548	28290	1520	1492	16824	25230	1510
1 3 0 0 0	40	1930	29214	46990	1550	1720	25608	40145	1520	1650	24434	37975	1520	1510	22126	33796	1500
	45	1939	34269	55661	1560	1729	29967	47442	1530	1659	28572	44827	1520	1519	25838	39842	1500
	-54	1808	11661	15349	2040	1598	10245	13221	2030	1528	9778	12538	2020	1388	8849	11203	2010
	-40	1860	11639	15532	1920	1650	10265	13426	1900	1580	9811	12739	1900	1440	8909	11419	1890
	-30	1898	11562	15557	1840	1688	10224	13481	1820	1618	9782	12804	1820	1478	8903	11503	1810
	-20	1937	11468	15550	1760	1727	10167	13508	1750	1657	9737	12853	1750	1517	8883	11561	1740
	-10	1976	11364	15518	1690	1766	10100	13513	1680	1696	9682	12869	1680	1556	8852	11601	1670
	0	2014	11557	16068	1630	1804	10293	14021	1620	1734	9876	13349	1620	1594	9046	12060	1610
	10	1959	13473	19805	1590	1749	11946	17153	1580	1679	11442	16305	1580	1539	10442	14643	1570
	20	1886	16168	25176	1560	1676	14241	21617	1540	1606	13607	20486	1540	1466	12352	18283	1530
1 2 5 0 0	30	1884	20277	32431	1540	1674	17813	27765	1520	1604	17005	26286	1510	1464	15409	23401	1500
	40	1902	26419	43121	1530	1692	23152	36809	1510	1622	22085	34806	1500	1482	19987	30962	1480
	45	1911	30663	50591	1540	1701	26819	43105	1510	1631	25569	40737	1500	1491	23114	36183	1480
	-54	1817	11003	14441	2030	1607	9677	12454	2020	1537	9238	11816	2020	1397	8368	10558	2010
	-40	1870	10982	14600	1910	1660	9695	12635	1900	1590	9269	12003	1890	1449	8424	10759	1890
	-30	1907	10912	14624	1830	1697	9658	12687	1820	1627	9243	12064	1820	1487	8420	10848	1810
	-20	1946	10826	14619	1760	1736	9607	12713	1750	1666	9204	12101	1740	1526	8402	10904	1740
	-10	1987	10731	14590	1690	1777	9546	12730	1680	1707	9155	12117	1680	1567	8376	10942	1670
	0	2023	10916	15114	1630	1813	9731	13193	1620	1743	9339	12577	1620	1603	8560	11362	1610
	10	1968	12650	18552	1580	1758	11227	16086	1570	1688	10758	15285	1570	1548	9825	13738	1560
1 2 0 0 0	20	1893	15038	23410	1550	1683	13262	20121	1530	1613	12676	19076	1530	1473	11517	17037	1520
	30	1856	18627	30209	1520	1646	16347	25825	1510	1576	15598	24435	1500	1436	14118	21725	1490
	40	1874	23948	39673	1510	1664	20974	33833	1490	1594	19996	31985	1480	1454	18086	28415	1470
	45	1883	27539	46143	1510	1673	24082	39289	1490	1603	22955	37118	1480	1463	20739	32956	1470
	-54	1825	10380	13572	2030	1615	9137	11728	2020	1545	8726	11121	2010	1405	7910	9956	2000
	-40	1877	10361	13731	1910	1667	9154	11896	1890	1597	8755	11306	1890	1457	7962	10143	1880
	-30	1916	10296	13754	1830	1706	9121	11945	1810	1636	8733	11364	1810	1496	7960	10217	1800
	-20	1957	10218	13750	1750	1747	9075	11970	1740	1676	8697	11399	1740	1536	7945	10270	1730
	-10	1994	10131	13723	1680	1784	9021	11976	1670	1714	8653	11415	1670	1574	7922	10306	1670
	0	2033	10306	14210	1620	1823	9197	12421	1610	1753	8830	11833	1610	1613	8099	10710	1610
1 1 5 0 0	10	1976	11881	17367	1580	1766	10555	15074	1570	1696	10116	14340	1560	1556	9246	12898	1560
	20	1900	14004	21783	1540	1689	12362	18753	1530	1619	11821	17774	1520	1479	10748	15886	1520
	30	1827	17117	28157	1510	1617	15002	24032	1500	1547	14307	22713	1490	1407	12932	20173	1480
	40	1844	21745	36573	1500	1634	19028	31163	1480	1564	18138	29439	1470	1424	16383	26127	1460
	45	1852	24803	42229	1490	1642	21677	35922	1470	1572	20656	33922	1470	1432	18645	30086	1450
	-54	1833	9790	12757	2020	1623	8626	11027	2010	1553	8241	10471	2010	1413	7476	9383	2000
	-40	1886	9772	12892	1900	1676	8642	11193	1890	1606	8269	10632	1880	1466	7525	9557	1880
	-30	1925	9713	12914	1820	1715	8613	11239	1810	1645	8248	10686	1810	1505	7524	9626	1800
	-20	1964	9642	12910	1750	1754	8571	11263	1740	1684	8217	10718	1730	1544	7512	9676	1730
	-10	2003	9563	12898	1680	1793	8522	11269	1670	1723	8177	10745	1670	1583	7491	9710	1660
1 1 0 0 0	0	2041	9733	13342	1620	1831	8691	11673	1610	1761	8347	11137	1610	1621	7661	10078	1600
	10	1984	11161	16249	1570	1774	9924	14119	1560	1704	9515	13436	1560	1564	8703	12107	1550
	20	1907	13052	20272	1530	1696	11534	17470	1520	1626	11033	16575	1520	1486	10039	14826	1510
	30	1828	15768	26020	1500	1618	13832	22224	1490	1548	13196	21020	1480	1408	11935	18678	1470
	40	1813	19769	33756	1480	1603	17279	28721	1470	1533	16462	27128	1460	1393	14850	24030	1450
	45	1821	22388	38728	1480	1611	19548	32904	1460	1541	18619	31069	1450	1401	16787	27509	1440

561MC-00-00

Figure 4-30 (Sheet 10)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
5000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1852	18245	23939	2090	1642	16022	20627	2070	1572	15292	19555	2060	1432	13847	17477	2050
	-40	1904	18222	24284	1970	1694	16060	20977	1950	1624	15349	19921	1940	1484	13942	17854	1930
	-30	1941	18059	24290	1880	1731	15957	21031	1860	1661	15265	19990	1860	1521	13897	17953	1850
	-20	1976	17872	24255	1810	1766	15829	21048	1790	1696	15158	20024	1780	1556	13827	18018	1770
	-10	2011	17767	24465	1740	1801	15770	21273	1720	1731	15113	20239	1710	1591	13811	18237	1700
	0	2042	19671	27594	1690	1832	17470	23995	1670	1762	16748	22832	1660	1622	15318	20582	1650
	10	2066	25006	35564	1670	1856	22174	30860	1650	1786	21248	29350	1640	1646	19420	26437	1630
	20	2089	33299	47998	1680	1879	29430	41477	1650	1809	28172	39409	1640	1669	25701	35417	1620
	30	2111	48509	70742	1730	1901	42554	60689	1690	1831	40640	57515	1670	1691	36913	51458	1650
	40	2133	83158	122558	1920	1923	71513	102980	1840	1853	67903	97006	1810	1713	60937	85751	1760
1 5 6 0	42	2137	96021	141803	2000	1927	81912	118195	1900	1857	77561	111024	1870	1717	69326	97706	1810
	-54	1839	17532	23158	2090	1629	15387	19925	2060	1559	14682	18891	2060	1419	13286	16869	2040
	-40	1890	17511	23487	1960	1680	15424	20279	1940	1610	14738	19240	1930	1470	13379	17229	1920
	-30	1926	17357	23500	1880	1716	15327	20338	1860	1646	14659	19313	1850	1506	13337	17330	1840
	-20	1961	17180	23475	1800	1751	15207	20362	1780	1681	14558	19353	1780	1541	13273	17399	1770
	-10	1996	17078	23692	1730	1786	15147	20568	1710	1716	14515	19575	1710	1576	13258	17624	1700
	0	2027	18851	26656	1680	1817	16735	23147	1660	1747	16039	22017	1660	1607	14663	19833	1650
	10	2050	23819	34147	1660	1840	21115	29610	1640	1770	20230	28153	1630	1630	18483	25343	1620
	20	2073	31415	45663	1660	1863	27768	39464	1630	1793	26587	37497	1630	1653	24246	33678	1610
	30	2095	44967	66194	1710	1885	39488	56815	1670	1815	37723	53873	1650	1675	34278	48203	1630
1 6 0 0	40	2117	74000	110164	1860	1907	63937	92987	1790	1837	60772	87698	1760	1697	54700	77700	1720
	42	2121	84127	125521	1920	1911	72245	105286	1830	1841	68541	99092	1810	1701	61478	87485	1760
	-54	1818	16506	22013	2080	1608	14472	18919	2060	1538	13802	17917	2050	1398	12477	15977	2040
	-40	1868	16486	22334	1950	1658	14507	19254	1930	1588	13856	18256	1930	1448	12566	16335	1910
	-30	1902	16344	22357	1870	1692	14418	19319	1850	1622	13785	18345	1840	1483	12529	16439	1830
	-20	1939	16180	22346	1790	1729	14310	19345	1780	1659	13694	18387	1770	1519	12474	16510	1760
	-10	1979	16082	22498	1720	1769	14258	19526	1710	1699	13658	18562	1700	1558	12467	16698	1690
	0	2003	17678	25286	1670	1793	15686	21933	1660	1723	15024	20858	1650	1583	13723	18767	1640
	10	2026	22143	32140	1650	1816	19620	27838	1630	1746	18792	26457	1620	1606	17159	23792	1610
	20	2049	28818	42439	1640	1839	25471	36652	1620	1769	24379	34808	1610	1629	22231	31245	1590
1 5 0 0	30	2070	40283	60150	1670	1860	35415	51646	1640	1790	33842	48973	1620	1650	30755	43804	1600
	40	2091	63024	95280	1780	1881	54732	80831	1720	1811	52099	76317	1700	1671	47019	67800	1670
	42	2096	70392	106701	1820	1886	60871	90102	1750	1816	57868	84970	1730	1676	52096	75287	1690
	-54	1816	15532	20753	2070	1606	13624	17842	2050	1536	12996	16908	2040	1396	11751	15079	2030
	-40	1867	15512	21062	1940	1657	13657	18153	1920	1587	13046	17224	1920	1447	11835	15406	1910
	-30	1906	15382	21061	1860	1696	13579	18200	1840	1626	12985	17287	1840	1486	11808	15497	1830
	-20	1944	15232	21017	1780	1734	13484	18221	1770	1664	12908	17313	1760	1524	11765	15556	1750
	-10	1984	15144	21160	1710	1774	13439	18381	1700	1704	12877	17479	1700	1564	11759	15740	1690
	0	1988	16583	23908	1660	1778	14705	20718	1650	1708	14086	19701	1640	1568	12862	17713	1630
	10	2002	20598	30255	1640	1792	18238	26173	1620	1722	17464	24875	1610	1582	15934	22344	1600
1 4 5 0 0	20	2024	26484	39515	1620	1814	23403	34098	1600	1744	22396	32372	1590	1604	20413	29047	1580
	30	2045	36264	54916	1640	1835	31905	47172	1610	1765	30491	44726	1600	1625	27221	40018	1580
	40	2066	54471	83681	1720	1856	47469	71165	1670	1786	45231	67263	1650	1646	40892	59846	1620
	42	2070	60043	92486	1750	1860	52163	78431	1690	1790	49657	74065	1670	1650	44811	65735	1640
	-54	1822	14626	19532	2060	1612	12841	16798	2040	1542	12254	15924	2030	1402	11088	14211	2020
	-40	1873	14607	19807	1930	1663	12871	17098	1920	1593	12299	16218	1910	1453	11165	14526	1900
	-30	1912	14488	19810	1850	1702	12802	17145	1840	1632	12246	16290	1830	1492	11144	14614	1820
	-20	1951	14353	19775	1780	1741	12717	17159	1760	1671	12177	16319	1760	1531	11107	14673	1750
	-10	1991	14275	19909	1710	1781	12678	17310	1690	1711	12152	16476	1690	1571	11107	14841	1680
	0	1994	15579	22433	1660	1784	13828	19469	1640	1714	13251	18509	1640	1574	12107	16653	1630
1 5 0 0	10	1977	19168	28507	1620	1767	16959	24629	1610	1697	16234	23395	1600	1557	14799	20990	1590
	20	1999	24377	36850	1610	1789	21532	31782	1590	1719	20601	30160	1580	1579	18766	27023	1570
	30	2019	32779	50355	1620	1809	28849	43241	1590	1739	27572	40991	1580	1599	25065	36657	1560
	40	2040	47614	74303	1670	1830	41592	63335	1630	1760	39658	59884	1610	1620	35889	53306	1590
	42	2044	51950	81328	1690	1834	45275	69146	1640	1764	43138	65361	1630	1624	38988	58087	1600
	-54	1828	13784	18378	2050	1618	12114	15830	2030	1548	11563	15012	2030	1408	10470	13408	2010
	-40	1879	13765	18632	1920	1669	12141	16099	1910	1599	11605	15286	1900	1459	10543	13692	1890
	-30	1918	13658	18639	1840	1708	12079	16147	1830	1638	11558	15347	1820	1498	10525	13777	1810
	-20	1958	13536	18621	1770	1748	12003	16163	1760	1678	11497	15377	1750	1538	10494	13835	1740
	-10	1998	13465	18747	1700	1788	11970	16315	1690	1718	11476	15524	1680	1578	10496	14003	1680
1 4 5 0 0	0	2001	14652	21059	1650	1791	13017	18294	1630	1721	12478	17409	1630	1581	11408	15674	1620
	10	1952	17843	26870	1610	1742	15773	23181	1600	1672	15092	22008	1590	1532	13745	19720	1580
	20	1973	22467	34409	1590	1763	19834	29643	1570	1693	18971	28117	1570	1553	17268	25178	1550
	30	1993	29730	46322	1590	1783	26168	39773	1570	1713	25007	37693	1560	1573	22726	33684	1540
	40	2013	41986	66572	1630	1803	36734	56790	1590	1733	35040	53725	1580	1593	31731	47832	1560
	42	2017	45435	72295	1640	1807	39680	61568	1600	1737	37829	58192	1590	1597	34221	51757	1570

56FMC-00-00

Figure 4-30 (Sheet 11)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 5000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1835	12999	17305	2040	1625	11434	14911	2020	1555	10918	14145	2020	1415	9894	12643	2010
	-40	1886	12980	17540	1920	1676	11459	15171	1900	1606	10957	14400	1900	1466	9958	12914	1890
	-30	1926	12883	17549	1840	1716	11404	15218	1820	1646	10916	14470	1820	1505	9947	12999	1810
	-20	1965	12772	17525	1760	1755	11336	15236	1750	1685	10862	14501	1750	1545	9920	13056	1740
	-10	2005	12709	17643	1690	1795	11307	15369	1680	1725	10845	14639	1680	1585	9925	13205	1670
	0	2008	13792	19787	1640	1798	12264	17195	1630	1728	11760	16369	1620	1588	10759	14748	1620
	10	1934	16619	25264	1600	1724	14683	21788	1590	1654	14047	20667	1580	1514	12785	18503	1570
	20	1947	20728	32175	1580	1737	18285	27685	1560	1667	17484	26247	1560	1527	15901	23476	1540
	30	1967	27039	42742	1570	1757	23794	36671	1550	1687	22735	34742	1540	1547	20650	31019	1530
	42	1986	37279	60031	1600	1776	32647	51244	1560	1706	31148	48479	1550	1566	28213	43170	1530
1 3 5 0 0	-54	1842	12264	16284	2030	1632	10798	14055	2020	1562	10312	13336	2010	1422	9354	11932	2000
	-40	1894	12246	16501	1910	1684	10821	14287	1900	1614	10351	13575	1890	1474	9416	12178	1880
	-30	1933	12158	16511	1830	1723	10772	14332	1820	1653	10314	13632	1810	1513	9405	12256	1800
	-20	1973	12057	16490	1760	1763	10711	14362	1740	1693	10266	13663	1740	1553	9383	12322	1730
	-10	2014	12001	16612	1690	1804	10687	14487	1680	1734	10253	13793	1670	1594	9390	12461	1670
	0	2016	12991	18582	1630	1806	11563	16175	1620	1736	11091	15392	1620	1596	10155	13890	1610
	10	1940	15512	23570	1600	1730	13720	20348	1580	1660	13130	19307	1580	1520	11961	17299	1570
	20	1920	19137	30094	1570	1710	16867	25871	1550	1640	16121	24514	1550	1500	14647	21899	1530
	30	1940	24645	39521	1560	1729	21678	33875	1540	1659	20708	32079	1530	1519	18796	28628	1510
	42	1958	33280	54452	1570	1748	29160	46478	1540	1678	27822	43963	1530	1538	25198	39131	1510
1 3 0 0 0	-54	1850	11575	15330	2030	1640	10201	13246	2010	1570	9748	12566	2010	1430	8846	11260	2000
	-40	1902	11558	15530	1900	1692	10223	13461	1890	1622	9781	12797	1890	1482	8905	11489	1880
	-30	1942	11477	15541	1820	1732	10178	13505	1810	1662	9749	12851	1810	1522	8896	11563	1800
	-20	1982	11386	15524	1750	1772	10124	13524	1740	1702	9707	12881	1740	1562	8877	11616	1730
	-10	2023	11336	15625	1680	1813	10103	13640	1670	1743	9696	13003	1670	1603	8886	11747	1660
	0	2026	12244	17448	1630	1816	10908	15204	1620	1746	10466	14485	1610	1605	9590	13071	1610
	10	1947	14498	22002	1590	1737	12837	19014	1570	1667	12289	18058	1570	1527	11203	16192	1560
	20	1893	17676	28173	1560	1683	15563	24172	1540	1613	14868	22902	1540	1473	13494	20431	1530
	30	1914	22501	36602	1540	1704	19779	31338	1520	1634	18888	29676	1510	1493	17130	26441	1500
	42	1930	29840	49594	1540	1720	26148	42313	1520	1650	24946	40013	1510	1510	22584	35591	1490
1 2 5 0 0	-54	1859	10927	14415	2020	1649	9639	12470	2010	1579	9214	11845	2000	1439	8368	10613	1990
	-40	1911	10910	14599	1900	1701	9659	12668	1880	1631	9245	12048	1880	1491	8423	10836	1870
	-30	1952	10837	14610	1820	1742	9619	12721	1810	1672	9217	12099	1800	1532	8417	10906	1800
	-20	1992	10754	14607	1740	1782	9571	12740	1730	1712	9179	12129	1730	1572	8401	10957	1720
	-10	2032	10710	14702	1680	1822	9554	12849	1670	1752	9172	12254	1660	1612	8411	11080	1660
	0	2033	11544	16390	1620	1823	10294	14299	1610	1753	9881	13616	1610	1613	9059	12308	1600
	10	1955	13564	20556	1580	1745	12022	17772	1570	1675	11513	16885	1560	1535	10504	15152	1560
	20	1880	16345	26253	1550	1670	14390	22528	1530	1600	13747	21330	1530	1460	12473	19021	1520
	30	1883	20570	33938	1530	1673	18066	29034	1510	1603	17245	27467	1500	1463	15624	24454	1490
	42	1901	26847	45315	1520	1691	23519	38650	1500	1621	22433	36538	1490	1481	20297	32471	1480
1 2 0 0 0	-54	1867	10313	13561	2010	1657	9106	11744	2000	1587	8707	11161	2000	1447	7914	10008	1990
	-40	1920	10297	13730	1890	1710	9124	11928	1880	1640	8737	11349	1880	1500	7965	10206	1870
	-30	1960	10230	13741	1810	1750	9089	11967	1800	1680	8711	11397	1800	1540	7961	10272	1790
	-20	2001	10155	13728	1740	1791	9045	11986	1730	1721	8678	11426	1730	1581	7948	10320	1720
	-10	2042	10116	13815	1670	1832	9032	12086	1660	1762	8673	11531	1660	1622	7960	10446	1650
	0	2042	10884	15381	1620	1832	9714	13432	1610	1762	9327	12807	1600	1622	8557	11575	1600
	10	1962	12697	19199	1570	1752	11265	16626	1560	1682	10792	15791	1560	1542	9853	14191	1550
	20	1886	15149	24346	1540	1676	13352	20913	1520	1606	12760	19807	1520	1466	11587	17676	1510
	30	1853	18819	31504	1510	1643	16509	26923	1500	1573	15751	25455	1490	1433	14253	22631	1480
	42	1871	24218	41522	1500	1661	21202	35393	1480	1591	20216	33444	1480	1451	18274	29702	1460
1 1 5 0 0	-54	1876	9732	12736	2010	1666	8601	11043	2000	1596	8227	10498	1990	1456	7483	9433	1980
	-40	1929	9717	12892	1890	1719	8618	11224	1870	1649	8254	10672	1870	1509	7531	9617	1860
	-30	1970	9656	12915	1810	1759	8586	11261	1800	1689	8232	10729	1790	1549	7528	9679	1790
	-20	2011	9588	12902	1730	1801	8547	11278	1720	1731	8203	10756	1720	1591	7518	9724	1720
	-10	2051	9553	12982	1670	1841	8536	11371	1660	1771	8200	10854	1660	1631	7530	9830	1650
	0	2052	10262	14437	1610	1842	9166	12622	1600	1772	8804	12040	1600	1632	8083	10891	1590
	10	1970	11892	17927	1570	1760	10560	15540	1560	1690	10121	14777	1550	1550	9247	13279	1550
	20	1893	14059	22589	1530	1683	12405	19423	1520	1612	11860	18402	1510	1472	10778	16444	1510
	30	1822	17226	29271	1500	1612	15091	24962	1490	1542	14390	23597	1480	1402	13002	20947	1470
	42	1839	21889	38134	1490	1629	19145	32465	1470	1559	18247	30660	1460	1419	16475	27196	1450
1 1 0 0 0	-54	1843	23031	40342	1490	1633	20135	34329	1470	1563	19188	32417	1460	1423	17321	28747	1450

56FMC-00

Figure 4-30 (Sheet 12)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
6000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1884	18176	23977	2080	1674	16000	20706	2060	1604	15285	19646	2050	1464	13869	17593	2030
	-50	1899	18243	24161	2040	1689	16075	20883	2020	1619	15363	19821	2010	1479	13952	17764	2000
	-40	1936	18131	24243	1950	1726	16019	21008	1930	1656	15324	19970	1930	1516	13949	17938	1910
	-30	1973	17981	24293	1870	1763	15926	21088	1850	1693	15249	20064	1840	1553	13910	18057	1830
	-20	2009	17816	24362	1790	1799	15816	21188	1780	1729	15158	20173	1770	1589	13854	18186	1760
	-10	2045	18548	25997	1730	1835	16486	22622	1710	1765	15808	21530	1710	1625	14466	19417	1700
	0	2072	21599	30656	1690	1862	19198	26662	1670	1792	18410	25390	1670	1652	16853	22893	1650
	10	2097	27975	40261	1680	1886	24812	34923	1660	1816	23780	33236	1650	1676	21745	29936	1630
	20	2120	38422	56034	1700	1910	33924	48379	1670	1840	32467	45959	1660	1700	29612	41276	1640
	30	2143	59228	87405	1800	1933	51731	74629	1740	1863	49341	70647	1730	1723	44715	63026	1690
39	2163	106109	165918	2080	1953	90041	131180	1960	1883	85135	123008	1930	1743	75907	107965	1860	
1 6 5 0 0	-54	1870	17468	23200	2070	1660	15368	20005	2050	1590	14677	18983	2040	1450	13310	16985	2030
	-50	1883	17532	23378	2030	1673	15439	20176	2010	1603	14751	19153	2010	1463	13389	17152	1990
	-40	1922	17426	23466	1950	1712	15387	20315	1930	1642	14716	19294	1920	1502	13387	17315	1910
	-30	1958	17284	23510	1860	1748	15299	20399	1850	1678	14646	19390	1840	1538	13352	17436	1830
	-20	1994	17127	23582	1790	1784	15195	20501	1770	1714	14559	19502	1770	1574	13299	17576	1750
	-10	2029	17807	25153	1720	1819	15819	21856	1710	1749	15165	20805	1700	1609	13870	18750	1690
	0	2057	20653	29543	1680	1847	18350	25686	1670	1777	17594	24440	1660	1637	16099	22034	1650
	10	2081	26556	38541	1670	1871	23547	33409	1650	1801	22568	31791	1640	1661	20631	28618	1620
	20	2104	36034	53026	1680	1894	31827	45778	1650	1824	30462	43483	1640	1684	27785	39061	1620
	30	2126	54222	80801	1760	1916	47450	69107	1710	1846	45284	65442	1700	1706	41077	58440	1670
39	2146	91798	138344	1980	1936	78565	115584	1880	1866	74469	108691	1850	1726	66693	95788	1800	
1 6 0 0 0	-54	1848	16448	22060	2060	1638	14456	19001	2040	1568	13801	18011	2030	1428	12502	16092	2020
	-50	1864	16507	22230	2020	1654	14523	19166	2000	1584	13870	18173	2000	1443	12576	16253	1990
	-40	1900	16409	22325	1940	1690	14475	19297	1920	1620	13838	18316	1910	1480	12576	16425	1900
	-30	1936	16278	22377	1850	1726	14395	19386	1840	1656	13774	18427	1830	1516	12545	16548	1820
	-20	1974	16130	22434	1780	1764	14300	19468	1760	1694	13697	18520	1760	1554	12503	16664	1750
	-10	2010	16740	23866	1720	1800	14863	20729	1700	1730	14245	19713	1690	1590	13021	17749	1680
	0	2033	19307	27952	1670	1823	17142	24272	1660	1753	16431	23083	1650	1613	15024	20786	1640
	10	2056	24564	36101	1650	1846	21782	31288	1630	1776	20869	29743	1630	1636	19068	26763	1610
	20	2079	32790	48911	1660	1869	28972	42229	1630	1799	27730	40086	1620	1659	25290	35988	1600
	30	2101	47808	72287	1710	1891	41929	61930	1670	1821	40038	58688	1660	1681	36356	52432	1630
39	2121	75791	116046	1860	1911	65426	97793	1790	1841	62171	92185	1770	1701	55934	81600	1720	
1 5 5 0 0	-54	1850	15480	20774	2050	1640	13614	17904	2030	1570	13000	16983	2030	1430	11782	15180	2010
	-50	1864	15533	20936	2010	1654	13674	18060	2000	1584	13062	17139	1990	1444	11849	15333	1980
	-40	1903	15443	21027	1930	1693	13632	18178	1910	1623	13036	17267	1900	1483	11853	15482	1890
	-30	1941	15324	21060	1850	1731	13562	18249	1830	1661	12982	17351	1820	1521	11831	15591	1810
	-20	1980	15189	21104	1770	1770	13477	18339	1760	1700	12913	17442	1750	1560	11794	15704	1740
	-10	2016	15745	22417	1710	1806	13992	19488	1690	1736	13415	18539	1690	1596	12271	16704	1680
	0	2009	18055	26454	1660	1799	16017	22940	1650	1729	15347	21805	1640	1589	14021	19612	1630
	10	2032	22760	33884	1640	1822	20166	29315	1620	1752	19317	27869	1610	1612	17638	25038	1600
	20	2054	29925	45242	1640	1844	26442	39037	1610	1774	25306	37063	1600	1634	23074	33251	1590
	30	2076	42473	65189	1680	1866	37305	55910	1640	1796	35637	52968	1630	1655	32379	47345	1600
39	2095	64041	99654	1780	1885	55592	84411	1720	1815	52911	79699	1700	1675	47742	70727	1660	
1 5 0 0 0	-54	1856	14580	19553	2040	1646	12835	16858	2020	1576	12259	15996	2020	1436	11119	14308	2010
	-50	1870	14628	19703	2010	1660	12889	17014	1990	1590	12317	16141	1980	1450	11180	14450	1970
	-40	1909	14546	19782	1920	1699	12852	17126	1900	1629	12294	16263	1900	1489	11186	14601	1890
	-30	1948	14436	19813	1840	1738	12789	17195	1820	1668	12246	16355	1820	1528	11168	14706	1810
	-20	1987	14315	19860	1760	1777	12713	17273	1750	1707	12185	16443	1740	1567	11136	14814	1740
	-10	2023	14825	21066	1700	1813	13186	18331	1690	1743	12647	17455	1680	1603	11576	15738	1670
	0	1984	16885	25039	1650	1774	14966	21682	1640	1704	14334	20598	1630	1564	13084	18503	1620
	10	2006	21100	31807	1630	1796	18683	27498	1610	1726	17890	26129	1600	1586	16323	23450	1590
	20	2028	27371	41958	1620	1818	24181	36176	1600	1748	23140	34335	1590	1608	21089	30794	1570
	30	2049	37957	59147	1640	1839	33370	50739	1610	1769	31885	48088	1600	1629	28977	42974	1580
39	2068	55000	87024	1720	1858	47922	73970	1670	1788	45661	69894	1650	1648	41277	62129	1620	
1 4 5 0 0	-54	1862	13743	18398	2030	1652	12109	15887	2020	1582	11570	15081	2010	1442	10501	13499	2000
	-50	1876	13787	18538	2000	1666	12159	16024	1980	1596	11623	15216	1980	1456	10558	13632	1960
	-40	1915	13712	18614	1910	1705	12126	16130	1890	1635	11603	15332	1890	1495	10565	13766	1880
	-30	1954	13612	18647	1830	1744	12069	16197	1820	1674	11560	15411	1810	1534	10550	13866	1800
	-20	1994	13502	18704	1760	1784	12002	16283	1740	1714	11506	15495	1740	1574	10523	13980	1730
	-10	2030	13970	19815	1690	1820	12438	17260	1680	1750	11933	16430	1680	1610	10930	14824	1670
	0	1990	15816	23436	1650	1780	14033	20314	1630	1710	13445	19315	1630	1570	12281	17363	1620
	10	1981	19570	29888	1620	1771	17315	25806	1600	1701	16574	24496	1590	1561	15110	21969	1580
	20	2002	25082	38984	1600	1792	22151	33581	1580	1722	21192	31874	1570	1582	19303	28546	1560
	30	2023	34087	53936	1610	1813	29984	46263	1580	1743	28652	43840	1580	1603	26038	39178	1560
39	2041	47820	76930	1660	1831	41771	65525	1620	1761	39828	61940	1610	1621	36047	55115	1580	

56FMC-00-00

Figure 4-30 (Sheet 13)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

**FLAPS - 7°
6000 FEET**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1869	12963	17325	2030	1659	11432	14976	2010	1589	10927	14211	2000	1449	9924	12740	1990
	-50	1883	13002	17455	1990	1673	11478	15103	1970	1603	10975	14337	1970	1463	9977	12864	1960
	-40	1922	12934	17528	1900	1712	11448	15204	1890	1642	10958	14447	1880	1502	9984	12990	1870
	-30	1962	12843	17560	1820	1752	11397	15269	1810	1682	10920	14532	1810	1542	9972	13085	1800
	-20	2001	12743	17605	1750	1791	11337	15341	1740	1721	10872	14613	1730	1581	9949	13184	1720
	-10	2038	13175	18628	1690	1828	11741	16243	1670	1758	11267	15479	1670	1618	10327	13976	1660
	0	1999	14833	21961	1640	1788	13173	19042	1620	1718	12626	18113	1620	1578	11541	16293	1610
	10	1954	18158	28097	1610	1744	16051	24225	1590	1674	15359	22983	1580	1534	13988	20586	1570
	20	1976	23020	36275	1590	1765	20318	31228	1570	1695	19434	29614	1560	1555	17688	26507	1550
	30	1996	30735	49352	1590	1786	27041	42331	1560	1716	25838	40104	1550	1576	23475	35816	1540
	39	2014	41974	68638	1620	1804	36725	58538	1590	1734	35031	55345	1570	1594	31725	49255	1550
	1	1876	12233	16303	2020	1666	10798	14107	2000	1596	10325	13401	2000	1456	9384	12015	1990
1 3 5 0 0	-54	1890	12269	16424	1980	1680	10840	14225	1970	1610	10370	13520	1960	1470	9432	12130	1950
	-50	1930	12206	16493	1900	1720	10814	14320	1880	1650	10354	13622	1880	1510	9441	12249	1870
	-40	1970	12123	16525	1820	1760	10768	14382	1800	1690	10320	13693	1800	1550	9431	12349	1790
	-30	2009	12032	16580	1740	1799	10714	14462	1730	1729	10278	13770	1730	1589	9412	12443	1720
	-20	2046	12432	17525	1680	1836	11088	15285	1670	1766	10645	14571	1660	1626	9763	13167	1660
	-10	2004	13924	20573	1630	1794	12378	17868	1620	1724	11868	16990	1610	1584	10856	15295	1610
	0	1930	16854	26395	1590	1720	14884	22737	1580	1650	14236	21559	1570	1510	12953	19287	1560
	10	1948	21153	33794	1570	1738	18657	29056	1550	1668	17839	27554	1550	1528	16222	24623	1540
	20	1969	27804	45333	1570	1759	24458	38858	1540	1689	23367	36803	1540	1549	21220	32842	1520
	30	1986	37115	61710	1590	1776	32506	52649	1560	1706	31014	49778	1550	1566	28092	44312	1530
	39	1885	11548	15348	2010	1675	10203	13296	2000	1605	9759	12626	1990	1465	8876	11338	1980
	-50	1899	11580	15461	1980	1689	10242	13406	1960	1619	9800	12735	1960	1479	8921	11445	1950
	-40	1939	11523	15526	1890	1729	10218	13495	1880	1659	9787	12843	1870	1519	8930	11557	1860
	-30	1978	11447	15556	1810	1768	10177	13554	1800	1698	9757	12910	1790	1558	8922	11642	1790
1 3 0 0 0	-20	2018	11365	15597	1740	1808	10128	13619	1730	1738	9719	12983	1720	1598	8906	11730	1720
	-10	2055	11736	16470	1670	1845	10477	14392	1660	1775	10061	13726	1660	1635	9234	12413	1650
	0	2012	13082	19275	1620	1802	11641	16757	1610	1732	11165	15951	1610	1592	10220	14371	1600
	10	1935	15680	24570	1590	1725	13863	21176	1570	1655	13265	20097	1570	1515	12079	17992	1560
	20	1920	19454	31522	1560	1710	17143	27067	1540	1640	16385	25642	1540	1500	14885	22896	1530
	30	1940	25216	41725	1550	1730	22173	35749	1530	1660	21179	33845	1520	1520	19219	30174	1510
	39	1957	33010	55785	1560	1747	28924	47590	1530	1677	27598	45007	1520	1537	24995	40047	1500
	-54	1893	10903	14432	2000	1683	9643	12517	1990	1613	9226	11901	1990	1473	8398	10688	1980
	-50	1910	10933	14537	1970	1700	9678	12619	1960	1630	9264	12002	1950	1490	8439	10797	1940
	-40	1948	10880	14598	1880	1738	9657	12702	1870	1668	9253	12093	1870	1528	8448	10902	1860
	-30	1989	10811	14627	1800	1779	9620	12769	1790	1709	9226	12156	1790	1569	8443	10982	1780
	-20	2028	10736	14677	1730	1818	9576	12830	1720	1748	9192	12225	1720	1608	8429	11065	1710
	-10	2065	11082	15471	1670	1855	9902	13534	1660	1785	9512	12913	1660	1645	8737	11700	1650
1 2 5 0 0	0	2021	12298	18069	1620	1811	10953	15714	1610	1741	10509	14964	1600	1601	9627	13492	1600
	10	1942	14609	22874	1580	1732	12930	19734	1560	1662	12377	18735	1560	1522	11280	16786	1550
	20	1892	17902	29418	1550	1682	15758	25225	1530	1612	15054	23882	1530	1472	13661	21296	1520
	30	1911	22915	38493	1530	1701	20136	32945	1510	1631	19227	31176	1510	1491	17433	27777	1490
	39	1928	29493	50663	1540	1718	25844	43221	1510	1648	24656	40866	1500	1508	22322	36338	1480
	-54	1902	10292	13577	2000	1692	9111	11789	1990	1622	8720	11214	1980	1482	7943	10080	1970
	-50	1917	10319	13675	1960	1707	9144	11883	1950	1637	8755	11308	1950	1497	7981	10171	1940
	-40	1957	10272	13731	1880	1747	9125	11961	1870	1677	8745	11392	1860	1537	7991	10269	1860
	-30	1997	10208	13758	1800	1787	9091	12013	1790	1717	8722	11452	1790	1577	7986	10344	1780
	-20	2037	10140	13794	1730	1827	9052	12070	1720	1757	8692	11516	1710	1617	7976	10433	1710
	-10	2075	10463	14541	1660	1865	9357	12735	1650	1795	8991	12156	1650	1655	8264	11012	1640
	0	2029	11564	16926	1610	1819	10308	14746	1600	1749	9894	14048	1600	1609	9069	12676	1590
	10	1949	13624	21307	1570	1739	12071	18411	1560	1669	11558	17475	1550	1529	10542	15667	1550
	20	1873	16487	27363	1540	1663	14507	23455	1520	1593	13855	22200	1520	1453	12565	19781	1510
1 1 5 0 0	30	1880	20853	35586	1520	1670	18307	30405	1500	1600	17473	28770	1490	1460	15825	25588	1480
	39	1897	26445	46181	1510	1686	23164	39367	1490	1616	22094	37208	1480	1476	19987	33054	1470
	-54	1911	9714	12752	1990	1701	8606	11097	1980	1631	8240	10549	1980	1491	7511	9500	1970
	-50	1926	9739	12842	1960	1716	8637	11184	1950	1646	8272	10635	1940	1506	7547	9585	1940
	-40	1966	9695	12894	1870	1756	8620	11256	1860	1686	8264	10714	1860	1546	7557	9676	1850
	-30	2007	9637	12932	1790	1797	8590	11304	1780	1727	8243	10781	1780	1587	7554	9746	1770
	-20	2048	9575	12965	1720	1838	8555	11358	1710	1767	8217	10841	1710	1627	7545	9819	1700
	-10	2085	9877	13642	1660	1875	8841	11975	1650	1805	8498	11423	1650	1665	7816	10369	1640
	0	2038	10874	15846	1610	1828	9703	13820	1600	1758	9315	13170	1590	1618	8545	11905	1590
	10	1957	12715	19848	1560	1747	11277	17167	1550	1677	10802	16311	1550	1537	9859	14635	1540
	20	1879	15225	25298	1530	1669	13412	21707	1510	1599	12814	20551	1510	1459	11631	18326	1500
	30	1849	18996	32917	1500	1639	16657	28095	1490	1568	15889	26556	1480	1428	14372	23597	1470
	39	1864	23777	42206	1490	1654	20812	35955	1470	1584	19842	33968	1470	1444	17932	30142	1450

561MC-00-00

Figure 4-30 (Sheet 14)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
7000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1915	18216	24389	2060	1705	16066	21079	2040	1635	15360	20022	2040	1495	13961	17955	2020
	-50	1931	18163	24413	2030	1721	16036	21121	2000	1651	15337	20070	2000	1511	13954	18013	1980
	-40	1969	18016	24451	1940	1758	15949	21205	1920	1688	15269	20168	1910	1548	13922	18139	1900
	-30	2006	17838	24439	1850	1796	15830	21255	1840	1726	15170	20223	1830	1586	13863	18226	1820
	-20	2043	18076	25263	1780	1833	16070	21981	1770	1763	15411	20934	1760	1623	14105	18886	1750
	-10	2076	20095	28523	1730	1866	17878	24826	1710	1796	17150	23649	1710	1656	15710	21347	1690
	0	2104	23853	34266	1700	1894	21214	29815	1680	1824	20350	28400	1670	1684	18643	25624	1660
	10	2128	31605	46043	1700	1918	28028	39933	1670	1848	26862	37966	1660	1708	24571	34224	1640
	20	2152	45141	66609	1740	1942	39783	57392	1700	1872	38055	54497	1690	1732	34682	48914	1660
	30	2175	75730	113075	1900	1965	65629	95755	1830	1895	62452	90419	1810	1755	56357	80330	1760
36	2189	119066	192380	2170	1979	100343	152465	2040	1909	94698	140527	2000	1769	84159	120785	1930	
1 6 5 0 0	-54	1901	17506	23590	2060	1690	15430	20379	2040	1620	14748	19340	2030	1480	13397	17327	2020
	-50	1916	17455	23616	2020	1706	15402	20423	2000	1636	14727	19388	1990	1496	13391	17386	1980
	-40	1954	17316	23660	1930	1744	15320	20510	1910	1674	14663	19490	1910	1534	13363	17524	1890
	-30	1991	17148	23657	1850	1781	15209	20555	1830	1711	14570	19559	1820	1571	13307	17613	1810
	-20	2028	17363	24443	1780	1818	15429	21260	1760	1748	14792	20229	1750	1608	13531	18235	1740
	-10	2061	19256	27541	1720	1851	17124	23964	1710	1781	16424	22808	1700	1641	15038	20573	1690
	0	2088	22750	32965	1690	1878	20227	28648	1670	1808	19400	27280	1660	1668	17766	24598	1650
	10	2112	29877	43895	1680	1902	26495	38053	1660	1832	25393	36191	1650	1692	23222	32607	1630
	20	2136	42006	62569	1720	1926	37049	53924	1680	1856	35447	51206	1670	1716	32315	45957	1640
	30	2159	67994	102581	1850	1949	59141	87149	1780	1879	56339	82393	1760	1739	50940	73303	1720
36	2172	101341	157255	2050	1962	86363	128268	1940	1892	81746	120423	1910	1752	73082	105912	1850	
1 6 0 0 0	-54	1879	16482	22435	2050	1669	14513	19351	2030	1599	13866	18364	2020	1459	12583	16431	2010
	-50	1894	16434	22475	2010	1684	14488	19396	1990	1614	13847	18413	1980	1474	12578	16490	1970
	-40	1931	16306	22528	1920	1721	14413	19489	1900	1651	13790	18518	1900	1511	12555	16619	1890
	-30	1968	16152	22537	1840	1758	14312	19542	1820	1688	13706	18585	1820	1548	12505	16713	1810
	-20	2005	16337	23267	1770	1795	14504	20197	1750	1724	13901	19218	1750	1584	12705	17303	1740
	-10	2037	18057	26130	1710	1827	16045	22706	1700	1757	15383	21599	1690	1617	14074	19460	1680
	0	2064	21190	31077	1680	1854	18828	26989	1660	1784	18054	25688	1650	1644	16522	23138	1640
	10	2087	27484	40917	1670	1877	24370	35444	1640	1807	23353	33715	1630	1667	21349	30337	1620
	20	2110	37828	57156	1690	1900	33392	49285	1650	1830	31954	46797	1640	1690	29137	41989	1620
	30	2133	58549	89716	1780	1923	51120	76494	1730	1853	48755	72378	1710	1713	44175	64538	1680
36	2146	82281	127249	1910	1936	70875	106938	1830	1866	67311	100752	1810	1726	60503	89077	1760	
1 5 5 0 0	-54	1877	15508	21177	2040	1667	13661	18259	2020	1597	13052	17328	2010	1457	11847	15504	2000
	-50	1891	15464	21200	2000	1681	13638	18309	1980	1611	13036	17372	1980	1471	11844	15558	1960
	-40	1933	15347	21236	1910	1722	13572	18388	1890	1652	12987	17465	1890	1512	11827	15677	1880
	-30	1971	15205	21222	1830	1761	13482	18423	1820	1691	12914	17515	1810	1551	11789	15767	1800
	-20	2010	15374	21868	1760	1800	13662	19000	1740	1730	13098	18085	1740	1590	11979	16293	1730
	-10	2016	16933	24757	1710	1806	15037	21489	1690	1736	14413	20433	1680	1596	13178	18391	1670
	0	2039	19748	29328	1660	1829	17535	25438	1650	1759	16808	24201	1640	1619	15371	21774	1630
	10	2062	25327	38205	1650	1852	22450	33081	1630	1782	21509	31440	1620	1642	19653	28264	1610
	20	2085	34213	52448	1660	1875	30215	45215	1630	1805	28916	42927	1620	1665	26366	38516	1600
	30	2107	51028	79427	1730	1897	44687	67910	1680	1827	42653	64288	1660	1687	38703	57372	1640
36	2120	68746	108085	1820	1910	59614	91430	1750	1840	56728	86275	1730	1700	51171	76546	1690	
1 5 0 0 0	-54	1881	14600	19912	2030	1671	12873	17195	2010	1601	12304	16323	2000	1461	11175	14616	1990
	-50	1897	14561	19936	1990	1687	12853	17233	1970	1617	12290	16366	1970	1477	11173	14668	1960
	-40	1937	14454	19973	1900	1727	12793	17310	1890	1657	12246	16456	1880	1517	11160	14781	1870
	-30	1976	14325	19964	1820	1766	12713	17346	1810	1696	12182	16507	1800	1556	11127	14860	1790
	-20	2017	14483	20562	1750	1807	12881	17893	1740	1737	12353	17026	1730	1597	11306	15360	1720
	-10	2022	15890	23218	1700	1812	14124	20162	1680	1742	13543	19188	1680	1602	12391	17283	1670
	0	2014	18411	27689	1650	1804	16335	23985	1640	1734	15653	22806	1630	1594	14302	20506	1620
	10	2036	23371	35721	1630	1826	20706	30898	1610	1756	19834	29352	1610	1616	18111	26374	1590
	20	2059	31051	48289	1640	1849	27427	41628	1610	1779	26247	39512	1600	1639	23928	35430	1580
	30	2080	44905	71013	1680	1870	39399	60780	1640	1800	37624	57576	1630	1660	34164	51414	1600
36	2093	58558	93620	1750	1883	51004	79521	1690	1813	48597	75138	1670	1673	43937	66799	1640	
1 4 5 0 0	-54	1887	13757	18729	2020	1677	12141	16188	2000	1607	11608	15373	2000	1467	10550	13774	1990
	-50	1903	13721	18763	1980	1693	12123	16225	1970	1623	11596	15414	1960	1483	10550	13824	1950
	-40	1943	13624	18801	1900	1733	12070	16310	1880	1663	11557	15500	1880	1523	10539	13932	1870
	-30	1984	13507	18797	1820	1774	11998	16348	1800	1704	11500	15551	1800	1564	10511	14019	1790
	-20	2024	13655	19340	1740	1814	12156	16845	1730	1744	11661	16045	1730	1604	10677	14473	1720
	-10	2029	14928	21775	1690	1819	13282	18927	1670	1749	12740	18019	1670	1609	11664	16242	1660
	0	1988	17169	26147	1640	1778	15218	22617	1630	1708	14577	21493	1620	1568	13307	19302	1610
	10	2010	21587	33447	1620	1800	19113	28897	1600	1730	18302	27439	1590	1590	16700	24629	1580
	20	2032	28257	44576	1610	1822	24958	38401	1590	1752	23883	36439	1580	1612	21762	32663	1570
	30	2053	39801	63951	1640	1843	34963	54786	1610	1773	33399	51901	1600	1633	30339	46343	1580
36	2066	50576	82247	1690	1856	44181	70032	1640	1786	42131	66234	1630	1646	38145	58935	1600	

56FMC-00-00

Figure 4-30 (Sheet 15)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

**FLAPS - 7°
7000 FEET**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 4 0 0 0	-54	1894	12971	17629	2010	1684	11458	15253	2000	1614	10959	14491	1990	1474	9968	12994	1980
	-50	1910	12938	17651	1970	1700	11442	15288	1960	1630	10948	14529	1950	1490	9967	13041	1940
	-40	1951	12850	17688	1890	1741	11394	15359	1870	1671	10913	14612	1870	1530	9959	13144	1860
	-30	1991	12744	17687	1810	1781	11329	15397	1800	1711	10862	14662	1790	1571	9935	13217	1780
	-20	2031	12883	18203	1740	1821	11478	15871	1730	1751	11014	15111	1720	1611	10094	13653	1710
	-10	2036	14038	20429	1680	1826	12502	17785	1670	1756	11995	16927	1660	1616	10990	15279	1660
	0	1986	16029	24478	1640	1776	14217	21181	1620	1706	13620	20132	1620	1566	12437	18083	1610
	10	1984	19951	31324	1610	1774	17651	27041	1590	1704	16897	25663	1580	1564	15404	23008	1570
	20	2005	25772	41255	1600	1795	22755	35509	1570	1725	21769	33696	1570	1585	19826	30165	1550
1 3 5 0 0 0	30	2025	35483	57934	1610	1815	31192	49654	1580	1745	29801	47016	1570	1605	27073	41987	1550
	36	2038	44148	73035	1640	1828	38642	62287	1600	1758	36860	58892	1590	1618	33409	52451	1570
	-54	1902	12237	16582	2000	1692	10819	14362	1990	1622	10351	13649	1980	1482	9422	12248	1980
	-50	1918	12207	16603	1970	1708	10804	14394	1950	1638	10341	13686	1950	1498	9422	12292	1940
	-40	1958	12126	16651	1880	1748	10761	14474	1870	1678	10311	13764	1860	1538	9415	12400	1860
	-30	1999	12029	16653	1800	1789	10703	14511	1790	1719	10265	13813	1790	1579	9395	12471	1780
	-20	2042	12160	17119	1730	1832	10844	14941	1720	1762	10409	14242	1720	1622	9545	12868	1710
	-10	2044	13213	19169	1670	1834	11777	16704	1660	1764	11303	15915	1660	1624	10363	14366	1650
	0	1993	14989	22867	1630	1783	13307	19817	1610	1713	12753	18831	1610	1573	11654	16926	1600
1 3 0 0 0 0	10	1956	18448	29363	1600	1746	16307	25301	1580	1676	15603	24011	1570	1536	14211	21500	1560
	20	1977	23548	38248	1580	1767	20781	32902	1560	1697	19875	31195	1550	1557	18088	27897	1540
	30	1997	31785	52741	1590	1787	27951	45192	1560	1717	26704	42783	1550	1577	24254	38185	1530
	36	2009	38861	65386	1610	1799	34057	55818	1570	1729	32503	52790	1560	1589	29463	47026	1540
	-54	1910	11548	15604	2000	1700	10219	13530	1980	1630	9781	12864	1980	1490	8909	11553	1970
	-50	1926	11520	15624	1960	1716	10206	13561	1950	1646	9772	12898	1940	1506	8909	11595	1930
	-40	1967	11449	15663	1880	1757	10167	13626	1860	1687	9745	12973	1860	1547	8905	11687	1850
	-30	2008	11358	15662	1800	1798	10115	13662	1780	1728	9704	13020	1780	1588	8887	11755	1770
	-20	2049	11482	16108	1730	1839	10249	14073	1710	1769	9841	13409	1710	1629	9030	12135	1700
1 2 5 0 0 0	-10	2053	12441	17995	1670	1843	11100	15700	1660	1773	10658	14952	1650	1633	9778	13519	1650
	0	2001	14032	21369	1620	1791	12470	18538	1610	1720	11955	17621	1600	1580	10936	15865	1590
	10	1928	17064	27533	1580	1718	15067	23690	1570	1648	14410	22469	1560	1508	13110	20092	1550
	20	1949	21547	35508	1560	1739	19001	30509	1550	1669	18167	28912	1540	1529	16519	25838	1530
	30	1968	28583	48187	1560	1758	25134	41266	1540	1688	24009	39072	1530	1548	21797	34848	1510
	36	1980	34432	58920	1570	1770	30195	50303	1540	1700	28820	47590	1530	1560	26125	42362	1520
	-54	1919	10900	14666	1990	1709	9655	12742	1980	1639	9243	12109	1970	1499	8426	10895	1970
	-50	1935	10874	14685	1950	1725	9643	12771	1940	1655	9236	12142	1940	1515	8427	10934	1930
	-40	1976	10806	14731	1870	1766	9608	12833	1860	1696	9212	12212	1850	1556	8424	11021	1850
1 2 0 0 0 0	-30	2018	10726	14735	1790	1808	9561	12867	1780	1738	9176	12268	1780	1598	8409	11085	1770
	-20	2059	10845	15136	1720	1849	9688	13239	1710	1779	9306	12630	1710	1639	8545	11430	1700
	-10	2062	11721	16878	1660	1852	10467	14741	1650	1782	10053	14056	1650	1642	9230	12709	1640
	0	2009	13147	19972	1610	1799	11695	17344	1600	1729	11216	16503	1600	1589	10265	14856	1590
	10	1931	15819	25577	1580	1721	13980	22022	1560	1651	13375	20893	1560	1511	12175	18692	1550
	20	1920	19736	33010	1550	1710	17388	28327	1530	1640	16618	26830	1530	1500	15095	23948	1520
	30	1939	25782	44151	1540	1729	22662	37796	1520	1659	21643	35773	1510	1519	19636	31876	1500
	36	1951	30665	53349	1550	1741	26897	45552	1520	1671	25671	43087	1510	1531	23262	38348	1490
	-54	1928	10286	13792	1980	1718	9120	11985	1970	1648	8734	11405	1970	1508	7967	10260	1960
1 1 5 0 0 0	-50	1944	10263	13809	1950	1734	9109	12013	1940	1664	8727	11436	1930	1524	7968	10297	1930
	-40	1985	10201	13841	1860	1775	9078	12070	1850	1705	8706	11501	1850	1565	7967	10389	1840
	-30	2027	10128	13844	1780	1817	9035	12103	1780	1747	8674	11543	1770	1607	7955	10449	1770
	-20	2068	10241	14230	1710	1858	9157	12461	1710	1788	8798	11893	1700	1648	8085	10772	1700
	-10	2071	11042	15840	1660	1861	9870	13850	1650	1791	9483	13199	1640	1651	8713	11955	1640
	0	2017	12324	18682	1610	1807	10973	16240	1590	1737	10527	15446	1590	1597	9641	13926	1580
	10	1937	14688	23751	1570	1727	12995	20481	1550	1657	12437	19426	1550	1517	11331	17392	1540
	20	1889	18088	30704	1540	1679	15918	26308	1520	1609	15205	24913	1520	1469	13794	22206	1510
	30	1908	23308	40570	1530	1698	20473	34693	1500	1628	19545	32822	1500	1488	17716	29214	1480
1 1 0 0 0 0	36	1919	27419	48520	1520	1709	24043	41402	1500	1639	22942	39148	1490	1499	20776	34813	1480
	-54	1937	9706	12959	1980	1727	8613	11276	1970	1657	8251	10735	1960	1517	7532	9666	1960
	-50	1954	9684	12976	1940	1744	8603	11301	1930	1674	8245	10763	1930	1534	7534	9700	1920
	-40	1995	9628	13005	1860	1785	8575	11354	1850	1715	8227	10824	1840	1575	7533	9776	1840
	-30	2037	9561	13009	1780	1827	8537	11385	1770	1757	8198	10864	1770	1617	7524	9832	1760
	-20	2078	9669	13354	1710	1868	8653	11707	1700	1798	8317	11178	1700	1658	7648	10145	1690
	-10	2081	10403	14842	1650	1871	9308	12992	1640	1801	8945	12399	1640	1661	8224	11228	1630
	0	2026	11556	17457	1600	1816	10299	15190	1590	1746	9884	14465	1590	1606	9059	13041	1580
	10	1944	13654	22063	1560	1734	12093	19044	1550	1664	11578	18069	1540	1524	10556	16199	1530
1 1 0 0 0 0	20	1865	16591	28508	1530	1655	14590	24401	1510	1585	13931	23099	1510	1446	12628	20569	1500
	30	1876	21107	37341	1510	1666	18522	31892	1490	1596	17657	30155	1480	1456	16002	26819	1470
	36	1885	24592	44257	1500	1675	21551	37745	1480	1605	20574	35675	1480	1465	18599	31691	1460

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 8000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1948	18389	24867	2050	1738	16253	21541	2030	1668	15551	20464	2020	1528	14162	18380	2010
	-40	2003	18161	24905	1920	1793	16110	21650	1900	1723	15436	20595	1900	1583	14100	18553	1890
	-30	2042	18039	25143	1840	1832	16038	21881	1830	1762	15380	20840	1820	1622	14076	18802	1810
	-20	2077	19393	27509	1780	1867	17262	23956	1760	1797	16562	22811	1760	1657	15176	20598	1740
	-10	2108	21925	31501	1730	1898	19522	27436	1710	1828	18734	26129	1710	1688	17177	23605	1690
	0	2136	26549	38613	1710	1926	23620	33607	1680	1856	22663	32001	1680	1716	20775	28890	1660
	10	2161	36056	53151	1720	1951	31957	46076	1690	1881	30626	43827	1680	1741	28014	39469	1660
	20	2186	54069	80703	1790	1976	47505	69318	1750	1906	45402	65743	1730	1766	41315	58931	1700
	30	2209	103532	158096	2090	1999	88370	130569	1980	1929	83710	122693	1950	1789	74916	108065	1880
	32	2214	122475	195536	2210	2003	103275	157003	2070	1933	97476	145777	2030	1793	86636	125319	1960
	33	2216	135086	225660	2290	2006	112942	176145	2140	1936	106339	163098	2090	1796	94107	139480	2000
	1 6 5 0 0	-54	1934	17668	24063	2040	1724	15607	20814	2020	1654	14929	19777	2020	1514	13588	17749
-50		1949	17613	24083	2010	1739	15575	20854	1990	1669	14905	19824	1980	1529	13578	17808	1970
-40		1988	17453	24114	1920	1778	15473	20931	1900	1708	14822	19915	1890	1568	13532	17926	1880
-30		2026	17335	24335	1840	1816	15403	21169	1820	1746	14768	20144	1810	1606	13509	18160	1800
-20		2061	18597	26580	1770	1851	16546	23127	1760	1781	15871	22027	1750	1641	14536	19876	1740
-10		2092	20967	30363	1730	1882	18662	26425	1710	1812	17905	25172	1700	1672	16410	22713	1690
0		2120	25243	37029	1700	1910	22454	32209	1670	1840	21541	30662	1670	1700	19740	27680	1650
10		2144	33909	50440	1700	1934	30056	43710	1670	1864	28810	41578	1660	1724	26352	37448	1640
20		2168	49796	75076	1760	1958	43813	64566	1720	1888	41891	61249	1700	1748	38146	54918	1680
30		2192	89878	137494	1990	1982	77297	115398	1900	1912	73388	108684	1870	1772	65948	96125	1820
33		2199	112753	180343	2130	1989	95587	144931	2010	1919	90355	134438	1980	1779	80543	117846	1910
1 6 0 0 0		-54	1911	16629	22884	2030	1701	14676	19764	2010	1631	14033	18769	2010	1491	12760	16822
	-50	1927	16578	22901	2000	1717	14647	19814	1980	1647	14011	18814	1970	1507	12752	16879	1960
	-40	1968	16429	22919	1910	1758	14555	19880	1890	1688	13938	18896	1880	1548	12716	16990	1870
	-30	2009	16316	23101	1830	1799	14491	20077	1810	1729	13890	19108	1810	1589	12699	17213	1800
	-20	2037	17455	25243	1760	1827	15518	21934	1750	1757	14880	20880	1740	1617	13618	18818	1730
	-10	2068	19602	28737	1710	1858	17436	24979	1700	1788	16724	23783	1690	1648	15316	21448	1680
	0	2095	23409	34778	1680	1885	20814	30219	1660	1815	19963	28771	1650	1675	18284	25933	1640
	10	2119	30974	46728	1680	1909	27462	40477	1650	1839	26318	38487	1640	1699	24068	34643	1630
	20	2143	44241	67730	1720	1933	38988	58292	1680	1863	37293	55305	1670	1723	33983	49619	1650
	30	2165	74455	115760	1880	1955	64543	97936	1810	1885	61421	92447	1790	1745	55428	82068	1740
	33	2173	89720	140249	1970	1963	77065	117474	1880	1893	73134	110562	1850	1753	65656	97643	1800
	1 5 5 0 0	-54	1917	15642	21504	2020	1707	13817	18600	2000	1637	13216	17659	2000	1497	12026	15849
-50		1934	15595	21522	1990	1724	13791	18638	1970	1654	13200	17705	1960	1514	12020	15903	1950
-40		1974	15460	21543	1900	1764	13709	18704	1880	1694	13132	17794	1880	1554	11989	16010	1870
-30		2015	15358	21726	1820	1805	13652	18889	1800	1735	13090	17984	1800	1595	11976	16210	1790
-20		2032	16389	23787	1760	1822	14574	20682	1740	1752	13976	19677	1730	1612	12792	17734	1720
-10		2043	18333	27206	1700	1833	16294	23618	1690	1763	15624	22476	1680	1623	14297	20245	1670
0		2070	21729	32710	1670	1860	19309	28390	1650	1790	18515	27004	1640	1650	16947	24328	1630
10		2093	28361	43371	1660	1883	25145	37561	1640	1813	24095	35704	1630	1673	22027	32113	1610
20		2117	39557	61470	1690	1906	34898	52943	1650	1836	33389	50253	1640	1696	30436	45059	1620
30		2139	63074	99730	1800	1929	54960	84779	1740	1859	52382	80118	1720	1719	47400	71322	1690
33		2146	73951	117564	1860	1936	64039	99287	1790	1866	60919	93664	1770	1726	54927	83038	1720
1 5 0 0 0		-54	1921	14727	20215	2010	1711	13022	17503	2000	1641	12460	16633	1990	1501	11345	14930
	-50	1939	14685	20247	1980	1729	12999	17540	1960	1659	12443	16676	1950	1519	11341	14981	1940
	-40	1981	14562	20271	1890	1771	12925	17605	1870	1701	12385	16754	1870	1561	11314	15085	1860
	-30	2022	14469	20431	1810	1812	12874	17790	1800	1741	12348	16932	1790	1601	11304	15283	1780
	-20	2039	15405	22324	1750	1829	13711	19429	1730	1759	13154	18490	1730	1618	12047	16687	1720
	-10	2018	17148	25761	1690	1808	15228	22333	1680	1738	14596	21241	1670	1598	13345	19110	1660
	0	2044	20184	30786	1660	1834	17924	26689	1640	1764	17182	25373	1630	1624	15714	22833	1620
	10	2067	26023	40354	1640	1857	23065	34918	1620	1787	22098	33179	1610	1647	20192	29817	1600
	20	2088	35550	56083	1660	1878	31383	48321	1630	1808	30030	45861	1620	1668	27376	41106	1600
	30	2112	54291	87271	1740	1902	47471	74430	1690	1832	45289	70414	1670	1692	41054	62754	1640
	33	2119	62397	100900	1780	1909	54318	85631	1720	1839	51750	80906	1700	1699	46789	71902	1670
	1 4 5 0 0	-54	1931	13879	19021	2010	1721	12283	16487	1990	1651	11756	15663	1980	1511	10712	14079
-50		1946	13840	19042	1970	1736	12262	16522	1950	1666	11741	15703	1950	1526	10709	14128	1940
-40		1987	13728	19067	1880	1777	12195	16586	1870	1707	11690	15790	1860	1567	10686	14227	1850
-30		2029	13644	19216	1800	1819	12150	16748	1790	1749	11657	15957	1790	1609	10679	14403	1780
-20		2046	14495	20960	1740	1836	12913	18259	1730	1766	12392	17394	1720	1626	11358	15699	1710
-10		2022	16048	24111	1690	1812	14264	20931	1670	1742	13676	19902	1670	1602	12512	17916	1660
0		2018	18759	28977	1640	1808	16645	25099	1630	1738	15950	23849	1620	1598	14575	21437	1610
10		2041	23916	37605	1630	1831	21189	32507	1610	1761	20296	30875	1600	1621	18533	27733	1580
20		2063	32082	51391	1630	1853	28330	44263	1600	1783	27108	42001	1590	1643	24709	37643	1580
30		2084	47282	77299	1690	1874	41440	66050	1640	1804	39560	62510	1630	1664	35899	55764	1600
33		2091	53517	88062	1710	1881	46750	74984	1670	1811	44585	70896	1650	1671	40381	63105	1620

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 8000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1936	13087	17889	2000	1726	11593	15521	1980	1656	11100	14761	1980	1516	10121	13269	1970
	-50	1954	13052	17910	1960	1744	11575	15556	1950	1674	11087	14800	1940	1534	10119	13316	1930
	-40	1995	12950	17936	1880	1785	11515	15617	1860	1715	11041	14872	1860	1575	10099	13410	1850
	-30	2037	12874	18087	1800	1827	11474	15780	1780	1757	11012	15029	1780	1617	10095	13586	1770
	-20	2053	13650	19696	1730	1843	12172	17176	1720	1773	11684	16357	1710	1633	10716	14773	1710
	-10	2029	15038	22562	1680	1819	13379	19605	1660	1749	12833	18648	1660	1609	11749	16799	1650
	0	1991	17439	27294	1630	1781	15459	23608	1620	1711	14808	22420	1610	1571	13519	20128	1600
	10	2013	22006	35101	1610	1803	19484	30294	1590	1733	18657	28774	1590	1593	17025	25805	1570
	20	2035	29045	47237	1610	1825	25648	40661	1580	1755	24540	38572	1580	1615	22359	34560	1560
	30	2057	41544	69092	1640	1846	36465	59085	1610	1776	34821	55945	1600	1636	31620	49918	1570
33	2063	46453	77785	1660	1853	40674	66360	1620	1782	38814	62767	1610	1642	35191	55923	1580	
1 3 5 0 0	-54	1945	12348	16835	1990	1735	10948	14623	1980	1665	10486	13902	1970	1525	9568	12516	1960
	-50	1962	12316	16856	1950	1752	10932	14656	1940	1682	10475	13938	1940	1542	9567	12560	1930
	-40	2003	12223	16881	1870	1793	10877	14714	1860	1723	10433	14018	1850	1583	9550	12650	1840
	-30	2045	12153	17010	1790	1835	10842	14856	1780	1765	10408	14165	1770	1625	9548	12804	1770
	-20	2061	12864	18497	1730	1851	11481	16147	1710	1781	11025	15393	1710	1641	10118	13914	1700
	-10	2036	14106	21120	1670	1826	12563	18371	1660	1756	12054	17491	1650	1616	11043	15768	1640
	0	1983	16227	25543	1620	1773	14387	22092	1610	1703	13781	20979	1610	1563	12581	18831	1600
	10	1986	20264	32774	1600	1776	17928	28264	1580	1706	17161	26819	1570	1566	15645	24036	1560
	20	2007	26363	43543	1590	1797	23272	37452	1570	1727	22263	35515	1560	1587	20274	31794	1540
	30	2027	36757	62165	1610	1817	32294	53197	1580	1747	30847	50374	1570	1607	28014	44935	1550
33	2036	40698	69332	1620	1825	35687	59220	1590	1755	34069	56022	1580	1615	30905	49919	1550	
1 3 0 0 0	-54	1954	11655	15828	1980	1744	10343	13763	1970	1674	9910	13100	1970	1534	9049	11795	1960
	-50	1970	11625	15848	1950	1760	10328	13794	1930	1690	9900	13134	1930	1550	9048	11836	1920
	-40	2012	11540	15872	1860	1802	10279	13849	1850	1732	9862	13200	1850	1592	9034	11920	1840
	-30	2054	11477	16005	1780	1844	10248	13993	1770	1774	9841	13336	1770	1634	9034	12076	1760
	-20	2070	12129	17367	1720	1860	10835	15177	1710	1790	10408	14474	1700	1650	9559	13093	1700
	-10	2044	13244	19786	1660	1834	11806	17216	1650	1764	11331	16398	1650	1624	10389	14794	1640
	0	1990	15127	23799	1620	1780	13427	20605	1600	1710	12866	19573	1600	1570	11755	17592	1590
	10	1957	18671	30634	1590	1747	16502	26382	1570	1677	15790	25020	1560	1537	14381	22396	1550
	20	1978	23978	40218	1570	1768	21157	34559	1550	1698	20234	32773	1540	1558	18412	29297	1530
	30	1998	32708	56251	1580	1788	28748	48150	1550	1718	27461	45588	1540	1578	24935	40648	1530
33	2004	35917	62269	1590	1794	31522	53202	1560	1724	30097	50328	1550	1584	27305	44855	1530	
1 2 5 0 0	-54	1963	11003	14887	1980	1753	9774	12960	1960	1683	9369	12343	1960	1543	8561	11121	1950
	-50	1981	10976	14905	1940	1771	9761	12989	1930	1701	9359	12373	1920	1561	8560	11160	1920
	-40	2024	10898	14929	1860	1814	9716	13041	1840	1744	9325	12435	1840	1603	8549	11239	1830
	-30	2065	10840	15039	1780	1854	9688	13163	1770	1784	9307	12561	1760	1644	8549	11374	1760
	-20	2080	11440	16313	1710	1870	10230	14272	1700	1800	9829	13618	1700	1660	9034	12328	1690
	-10	2053	12442	18522	1660	1843	11102	16145	1640	1773	10659	15372	1640	1633	9780	13891	1630
	0	1997	14120	22184	1610	1787	12545	19225	1600	1717	12027	18281	1590	1577	10996	16432	1580
	10	1928	17209	28630	1570	1718	15194	24631	1560	1648	14531	23346	1550	1508	13219	20870	1540
	20	1949	21846	37206	1560	1738	19261	31948	1540	1668	18414	30270	1530	1528	16742	27028	1520
	30	1968	29235	51132	1560	1758	25696	43750	1530	1688	24544	41412	1520	1548	22276	36915	1510
33	1974	31882	56226	1560	1764	27990	48032	1530	1694	26725	45449	1520	1554	24240	40487	1510	
1 2 0 0 0	-54	1972	10386	13985	1970	1762	9235	12188	1960	1692	8854	11611	1960	1552	8096	10483	1950
	-50	1989	10361	14001	1930	1779	9222	12215	1920	1709	8845	11641	1920	1569	8096	10519	1910
	-40	2032	10290	14023	1850	1822	9182	12276	1840	1752	8815	11698	1840	1612	8087	10593	1830
	-30	2074	10238	14138	1770	1864	9159	12391	1760	1794	8800	11828	1760	1654	8089	10719	1750
	-20	2090	10790	15307	1710	1880	9657	13406	1700	1810	9282	12796	1690	1670	8537	11606	1690
	-10	2062	11692	17338	1650	1852	10442	15129	1640	1782	10029	14421	1640	1642	9208	13031	1630
	0	2005	13190	20699	1600	1795	11730	17945	1590	1725	11249	17068	1590	1585	10292	15354	1580
	10	1926	15894	26559	1560	1716	14041	22859	1550	1646	13431	21668	1550	1506	12223	19374	1540
	20	1917	19926	34468	1540	1707	17550	29557	1520	1637	16771	27988	1520	1497	15231	24971	1510
	30	1936	26222	46646	1530	1726	23038	39880	1510	1656	21999	37751	1500	1516	19952	33621	1490
33	1942	28426	50998	1540	1732	24953	43560	1510	1662	23820	41206	1500	1522	21593	36679	1490	
1 1 5 0 0	-54	1982	9802	13139	1960	1772	8723	11465	1950	1702	8366	10927	1950	1562	7656	9864	1940
	-50	1999	9779	13154	1930	1789	8712	11490	1920	1719	8359	10955	1910	1579	7656	9897	1910
	-40	2042	9714	13174	1840	1832	8676	11535	1840	1762	8332	11008	1830	1622	7648	9967	1830
	-30	2085	9667	13268	1770	1875	8654	11640	1760	1805	8319	11117	1760	1665	7652	10095	1750
	-20	2100	10177	14365	1700	1890	9116	12596	1690	1820	8765	12028	1690	1680	8066	10907	1680
	-10	2073	10989	16234	1640	1863	9823	14181	1630	1793	9437	13511	1630	1652	8671	12230	1620
	0	2013	12328	19300	1590	1803	10975	16759	1580	1733	10528	15935	1580	1593	9640	14356	1570
	10	1932	14708	24593	1560	1722	13008	21188	1540	1652	12448	20091	1540	1512	11337	17976	1530
	20	1885	18188	31955	1530	1675	16000	27372	1510	1605	15281	25904	1510	1465	13859	23079	1500
	30	1903	23581	42677	1520	1693	20703	36451	1500	1623	19762	34475	1490	1483	17906	30683	1480
33	1909	25433	46444	1510	1699	22313	39638	1490	1629	21294	37482	1480	1489	19287	33332	1470	

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - OFF****FLAPS - 7°
9000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1981	18884	25934	2040	1770	16718	22491	2020	1700	16006	21377	2010	1560	14598	19223	2000
	-50	1997	18834	25978	2000	1787	16691	22550	1980	1717	15987	21441	1980	1577	14593	19296	1960
	-40	2037	18637	25972	1910	1826	16559	22599	1890	1756	15875	21507	1890	1616	14524	19396	1880
	-30	2075	19015	26944	1840	1865	16928	23479	1820	1795	16242	22358	1810	1655	14884	20190	1800
	-20	2109	21118	30292	1780	1899	18815	26401	1760	1829	18059	25162	1760	1689	16565	22742	1740
	-10	2141	24076	35008	1740	1931	21452	30508	1720	1861	20592	29063	1710	1721	18895	26274	1700
	0	2169	29764	43744	1720	1959	26486	38087	1690	1889	25416	36274	1690	1749	23310	32766	1670
	10	2194	41550	61764	1750	1984	36797	53482	1710	1914	35259	50872	1700	1774	32247	45821	1680
	20	2219	66231	99277	1870	2009	57953	85011	1810	1939	55321	80533	1790	1799	50233	72064	1750
	27	2236	110858	171639	2150	2026	94649	139132	2030	1956	89675	130865	2000	1816	80289	115482	1930
	29	2241	134326	223843	2300	2031	113061	175791	2150	1961	106633	162860	2100	1821	94779	139614	2020
	31	2249	158884	289999	2500	2041	137663	218252	2300	1979	129775	200000	2200	1846	110884	171639	2150
1 6 5 0 0	-54	1966	18132	25086	2030	1756	16043	21724	2010	1686	15357	20641	2010	1546	13999	18546	1990
	-50	2021	17899	25137	1910	1811	15895	21841	1890	1741	15234	20788	1880	1601	13930	18734	1870
	-40	2060	18247	26063	1830	1850	16236	22680	1810	1780	15575	21589	1810	1640	14266	19482	1800
	-30	2091	20211	29220	1780	1881	17999	25460	1760	1811	17273	24245	1750	1671	15836	21897	1740
	-20	2125	22967	33673	1730	1915	20457	29324	1710	1845	19635	27942	1700	1705	18010	25232	1690
	-10	2152	28197	41819	1710	1942	25090	36374	1680	1872	24075	34653	1670	1732	22075	31285	1660
	0	2177	38834	58279	1730	1967	34409	50485	1690	1897	32974	48018	1680	1757	30157	43258	1660
	10	2202	60174	91213	1830	1992	52775	78255	1770	1922	50412	74164	1750	1782	45831	66410	1720
	20	2224	112675	179368	2150	2014	96009	144218	2030	1944	90905	134443	1990	1804	81286	118420	1920
	27	2236	179368	289999	2500	2026	139132	218252	2300	1956	130865	200000	2200	1816	115482	218252	2300
	29	2241	223843	389999	2800	2031	175791	289999	2500	1961	162860	210000	2100	1821	139614	289999	2500
	31	2249	289999	489999	3000	2041	218252	389999	2600	1979	200000	220000	2200	1846	171639	389999	2600
1 6 0 0 0	-54	1943	17050	23843	2020	1733	15073	20618	2000	1663	14422	19590	2000	1523	13135	17580	1980
	-50	1959	17007	23892	1990	1749	15051	20680	1970	1679	14407	19656	1960	1539	13130	17651	1950
	-40	1998	16837	23911	1900	1788	14939	20746	1880	1718	14314	19737	1870	1578	13076	17763	1860
	-30	2036	17143	24773	1820	1826	15241	21527	1800	1756	14616	20493	1800	1616	13377	18471	1790
	-20	2069	18916	27684	1760	1859	16834	24091	1750	1789	16150	22930	1740	1649	14795	20687	1730
	-10	2100	21397	31774	1720	1890	19048	27641	1700	1820	18278	26312	1690	1680	16755	23748	1680
	0	2127	26016	39107	1690	1917	23143	34002	1670	1847	22204	32365	1660	1707	20350	29194	1650
	10	2152	35175	53580	1700	1942	31182	46402	1670	1872	29884	44127	1660	1732	27335	39738	1640
	20	2176	52543	81013	1770	1966	46203	69610	1720	1896	44167	66024	1710	1756	40207	59184	1680
	27	2199	96507	150711	2020	1989	82892	126065	1930	1919	78667	118733	1900	1779	70635	104971	1840
	29	2202	104069	167384	2070	1992	88996	135469	1960	1922	84348	127397	1930	1782	75551	112349	1870
	31	2209	113763	182521	2140	1949	107275	168850	2090	1809	95209	144001	2010	1809	95209	144001	2010
1 5 5 0 0	-54	1938	16021	22477	2010	1728	14170	19453	1990	1658	13560	18472	1990	1518	12351	16577	1980
	-50	1955	15985	22521	1980	1745	14151	19507	1960	1675	13547	18532	1950	1535	12351	16644	1940
	-40	1997	15829	22515	1890	1787	14051	19554	1870	1717	13466	18594	1870	1577	12306	16739	1860
	-30	2038	16107	23291	1810	1828	14330	20252	1800	1758	13745	19283	1790	1617	12585	17387	1780
	-20	2044	17708	26236	1750	1834	15746	22800	1740	1764	15101	21690	1730	1624	13823	19545	1720
	-10	2075	19946	30001	1710	1864	17745	26066	1690	1794	17022	24802	1680	1654	15593	22361	1670
	0	2101	24038	36621	1670	1891	21375	31808	1650	1821	20502	30264	1650	1681	18780	27288	1630
	10	2126	31971	49422	1680	1916	28348	42799	1650	1846	27167	40691	1640	1705	24846	36622	1620
	20	2149	46311	72606	1720	1939	40797	62466	1680	1869	39019	59259	1670	1729	33548	53130	1640
	27	2172	78791	125069	1900	1962	68253	105834	1820	1892	64937	99905	1800	1752	58576	88693	1750
	29	2175	83859	133306	1930	1965	72440	112484	1850	1895	68861	106064	1820	1755	62015	94026	1770
	31	2185	91884	150000	2000	1975	79999	130000	1900	1905	75000	120000	1870	1765	68000	100000	1900
1 4 5 0 0	-54	1945	15070	21111	2000	1735	13339	18286	1990	1665	12769	17370	1980	1525	11639	15608	1970
	-50	1961	15034	21150	1970	1751	13322	18338	1950	1681	12758	17437	1940	1541	11639	15673	1930
	-40	2004	14893	21149	1880	1794	13233	18385	1860	1724	12686	17500	1860	1584	11601	15765	1850
	-30	2044	15150	21867	1800	1834	13491	19044	1790	1764	12944	18128	1780	1624	11860	16357	1770
	-20	2033	16582	24746	1740	1822	14742	21495	1730	1752	14137	20444	1720	1612	12937	18413	1710
	-10	2049	18601	28323	1690	1839	16536	24589	1680	1769	15857	23385	1670	1629	14514	21059	1660
	0	2075	22235	34347	1660	1865	19761	29799	1640	1795	18949	28341	1630	1655	17346	25528	1620
	10	2099	29142	45710	1650	1889	25839	39557	1630	1819	24760	37598	1620	1679	22638	33828	1600
	20	2122	41121	65543	1690	1912	36269	56434	1650	1842	34699	53538	1640	1702	31627	47997	1620
	27	2145	65993	106849	1810	1935	57481	90846	1750	1865	54778	85888	1730	1725	49557	76434	1690
	29	2147	69607	112890	1830	1937	60512	95782	1760	1867	57632	90506	1740	1727	52080	80431	1700
	31	2151	74186	128833	1900	1941	65169	103999	1800	1871	60369	96350	1770	1731	55978	86994	1730
1 4 0 0 0	-54	1968	14153	19882	1960	1758	12553	17244	1940	1688	12026	16403	1940	1548	10979	14754	1930
	-50	2011	14025	19885	1870	1801	12473	17292	1860	1731	11961	16465	1850	1591	10946	14843	1840
	-40	2051	14263	20539	1800	1841	12713	17904	1780	1771	12202	17060	1780	1631	11188	15405	1770
	-30	2037	15545	23186	1740	1827	13834	20148	1720	1757	13271	19180	1720	1617	12153	17287	1710
	-20	2022	17351	26759	1680	1812	15411	23200	1670	1742	14772	22051	1660	1602	13509	19834	1650
	-10	2048	20585	32225	1650	1838	18282	27925	1630	1768	17526	26558	1620	1628	16030	23883	1610
	0	2072	26626	42388	1630	1862	23602	36652	1610	1792	22613	34840	1600	1652	20664	31306	15

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - OFF

FLAPS - 7° 9000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 4 0 0 0	-54	1959	13364	18647	1990	1749	11852	16185	1970	1679	11353	15384	1970	1539	10360	13843	1960
	-50	1973	13334	18681	1950	1764	11838	16230	1930	1694	11344	15433	1930	1554	10364	13903	1920
	-40	2018	13218	18688	1860	1808	11766	16278	1850	1738	11287	15506	1850	1598	10336	13988	1840
	-30	2059	13439	19307	1790	1849	11990	16835	1780	1779	11512	16048	1770	1639	10562	14501	1760
	-20	2044	14590	21723	1730	1834	12997	18894	1710	1764	12468	17989	1710	1624	11429	16228	1700
	-10	2021	16192	25038	1670	1811	14390	21717	1660	1741	13797	20645	1650	1601	12621	18574	1640
	0	2021	19069	30266	1640	1811	16921	26193	1620	1741	16216	24898	1610	1601	14819	22364	1600
	10	2044	24373	39378	1620	1834	21594	34031	1600	1764	20685	32320	1590	1624	18890	29013	1580
	20	2066	32963	54281	1630	1856	29105	46741	1600	1786	27849	44349	1590	1646	25384	39742	1570
	30	2088	48638	81812	1680	1878	42625	69889	1640	1808	40692	66171	1630	1668	36925	59011	1600
31	2090	50701	85468	1690	1880	44387	72942	1650	1810	42360	69015	1630	1670	38416	61536	1610	
1 3 5 0 0 0	-54	1967	12598	17521	1980	1757	11183	15223	1960	1687	10716	14486	1960	1547	9788	13039	1950
	-50	1984	12570	17553	1940	1774	11170	15266	1930	1703	10708	14533	1920	1563	9790	13092	1910
	-40	2027	12464	17561	1860	1817	11105	15312	1840	1747	10656	14591	1840	1606	9765	13173	1830
	-30	2068	12671	18136	1780	1858	11315	15843	1770	1788	10867	15095	1770	1648	9978	13662	1760
	-20	2052	13707	20358	1720	1842	12222	17736	1710	1772	11731	16884	1700	1632	10759	15250	1690
	-10	2028	15132	23375	1670	1818	13462	20295	1650	1748	12912	19311	1650	1608	11820	17387	1640
	0	1996	17671	28436	1620	1785	15666	24575	1610	1715	15006	23335	1600	1575	13700	20944	1590
	10	2016	22340	36629	1600	1806	19781	31620	1580	1736	18942	30017	1580	1596	17286	26930	1560
	20	2037	29691	49698	1600	1827	26216	42770	1580	1757	25083	40570	1570	1617	22854	36329	1550
	30	2058	42453	72747	1640	1848	37264	62217	1600	1778	35588	58917	1590	1638	32314	52570	1570
31	2061	44073	75691	1650	1851	38655	64711	1610	1781	36908	61241	1590	1641	33497	54619	1570	
1 3 0 0 0 0	-54	1975	11881	16471	1970	1765	10556	14328	1960	1695	10119	13628	1950	1555	9249	12287	1940
	-50	1992	11855	16501	1930	1782	10545	14368	1920	1712	10112	13672	1920	1572	9251	12337	1910
	-40	2036	11758	16511	1850	1826	10486	14412	1840	1756	10066	13739	1830	1616	9230	12414	1830
	-30	2077	11953	17032	1780	1867	10683	14894	1760	1797	10264	14209	1760	1657	9430	12860	1750
	-20	2060	12887	19078	1710	1850	11501	16638	1700	1780	11044	15856	1700	1640	10135	14322	1690
	-10	2036	14158	21844	1660	1826	12608	18974	1640	1756	12097	18060	1640	1616	11083	16272	1630
	0	1979	16386	26596	1610	1769	14524	22972	1600	1699	13911	21820	1590	1559	12696	19575	1580
	10	1987	20496	34103	1590	1777	18133	29402	1570	1707	17358	27910	1560	1567	15825	25011	1550
	20	2008	26821	45644	1580	1798	23676	39251	1560	1728	22648	37219	1550	1588	20624	33300	1530
	30	2029	37342	65172	1600	1819	32808	55775	1570	1749	31339	52816	1560	1608	28461	47117	1540
31	2031	38638	67606	1610	1821	33926	57824	1570	1751	32401	54746	1560	1611	29415	48822	1540	
1 2 5 0 0 0	-54	1985	11208	15467	1960	1775	9968	13469	1950	1705	9558	12828	1950	1565	8743	11566	1940
	-50	2002	11184	15495	1930	1792	9957	13507	1920	1722	9552	12869	1910	1582	8744	11610	1900
	-40	2046	11096	15504	1840	1835	9904	13549	1830	1765	9510	12921	1830	1625	8727	11696	1820
	-30	2087	11279	16001	1770	1877	10090	14010	1760	1807	9697	13371	1760	1667	8916	12112	1750
	-20	2070	12123	17888	1710	1859	10829	15617	1690	1789	10402	14878	1690	1649	9553	13461	1680
	-10	2044	13259	20404	1650	1834	11819	17753	1640	1764	11344	16893	1630	1624	10401	15232	1630
	0	1986	15227	24715	1600	1776	13512	21369	1590	1706	12946	20305	1590	1566	11825	18229	1580
	10	1957	18815	31785	1580	1747	16630	27366	1560	1677	15912	25964	1550	1537	14492	23226	1540
	20	1978	24286	41997	1560	1768	21427	36094	1540	1698	20491	34212	1530	1558	18646	30579	1520
	30	1998	33051	58740	1570	1788	29051	50264	1540	1718	27751	47590	1530	1578	25199	42452	1520
31	2000	34103	60782	1570	1790	29962	51987	1550	1720	28617	49215	1540	1580	25978	43890	1520	
1 2 0 0 0 0	-54	1994	10572	14531	1960	1784	9411	12669	1950	1714	9027	12072	1940	1574	8263	10893	1940
	-50	2011	10550	14557	1920	1801	9401	12704	1910	1731	9021	12109	1910	1591	8266	10936	1900
	-40	2055	10469	14566	1840	1845	9353	12744	1830	1775	8984	12159	1820	1635	8250	11005	1820
	-30	2097	10643	15016	1760	1887	9529	13161	1750	1817	9161	12566	1750	1677	8429	11392	1740
	-20	2079	11406	16758	1700	1869	10198	14646	1690	1798	9799	13969	1690	1658	9005	12638	1680
	-10	2053	12423	19063	1640	1843	11085	16602	1630	1773	10643	15815	1630	1633	9764	14271	1620
	0	1993	14168	22985	1600	1783	12584	19891	1580	1713	12062	18907	1580	1573	11026	16985	1570
	10	1926	17279	29646	1560	1716	15254	25485	1550	1646	14588	24152	1540	1506	13269	21585	1530
	20	1946	22030	38734	1540	1736	19420	33250	1530	1666	18565	31500	1520	1526	16877	28135	1510
	30	1966	29396	53196	1550	1756	25836	45513	1520	1686	24676	43080	1510	1546	22395	38401	1500
31	1968	30261	54930	1550	1758	26586	46979	1520	1688	25390	44463	1510	1548	23038	39626	1500	
1 1 5 0 0 0	-54	2005	9971	13630	1950	1795	8884	11897	1940	1725	8524	11341	1940	1585	7809	10254	1930
	-50	2021	9951	13653	1920	1811	8875	11929	1910	1741	8519	11376	1900	1601	7811	10294	1900
	-40	2065	9877	13662	1830	1855	8832	11979	1820	1785	8486	11422	1820	1645	7798	10358	1810
	-30	2108	10041	14094	1760	1898	8999	12368	1750	1828	8654	11814	1750	1688	7967	10719	1740
	-20	2088	10732	15690	1690	1878	9604	13740	1680	1808	9231	13098	1680	1668	8489	11870	1670
	-10	2061	11645	17803	1640	1851	10400	15521	1630	1781	9988	14791	1620	1641	9171	13356	1620
	0	2000	13194	21379	1590	1790	11731	18530	1580	1720	11248	17608	1570	1580	10290	15829	1570
	10	1921	15896	27427	1550	1711	14043	23597	1540	1641	13431	22364	1530	1501	12220	19988	1520
	20	1913	20010	35770	1530	1703	17620	30663	1510	1633	16836	29045	1510	1493	15286	25897	1500
	30	1932	26244	48362	1520	1722	23055	41360	1500	1652	22013	39135	1490	1512	19962	34852	1480
31	1934	26962	49849	1520	1724	23679	42602	1500	1654	22607	40307	1490	1514	20498	35890	1480	

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 7°

AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET

ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	2014	19748	27464	2030	1804	17509	23847	2010	1734	16774	22678	2000	1594	15321	20417	1990
	-50	2030	19757	27628	2000	1820	17534	23997	1980	1750	16804	22827	1970	1610	15361	20567	1950
	-40	2071	19526	27625	1910	1861	17374	24049	1890	1791	16667	22897	1880	1651	15268	20671	1870
	-30	2108	20675	29662	1840	1898	18423	25855	1820	1828	17684	24643	1810	1688	16222	22261	1800
	-20	2142	23140	33609	1790	1932	20631	29309	1770	1862	19808	27942	1760	1722	18184	25259	1740
	-10	2174	26589	39148	1750	1964	23702	34131	1720	1894	22758	32521	1720	1754	20896	29403	1700
	0	2202	33458	49740	1740	1992	29772	43288	1710	1922	28572	41232	1700	1782	26212	37258	1680
	10	2228	48129	72254	1790	2018	42560	62491	1740	1948	40764	59423	1730	1808	37261	53505	1700
	20	2254	82640	124768	1980	2044	71830	106132	1900	1974	68432	100343	1870	1834	61916	89460	1830
	23	2261	104630	160756	2120	2051	89844	132752	2010	1981	85294	125134	1980	1841	76646	110791	1910
25	2266	127657	210836	2270	2056	108174	167981	2130	1986	102274	155664	2080	1846	91236	132991	2010	
1 6 5 0 0	-54	1999	18942	26545	2030	1789	16786	23018	2000	1719	16078	21882	2000	1579	14678	19685	1980
	-50	2015	18951	26693	1990	1805	16811	23165	1970	1735	16107	22040	1960	1595	14717	19844	1950
	-40	2055	18734	26702	1900	1845	16661	23226	1880	1775	15979	22118	1880	1635	14631	19953	1860
	-30	2092	19800	28631	1830	1882	17637	24936	1810	1812	16926	23759	1810	1672	15519	21460	1790
	-20	2126	22095	32357	1780	1916	19693	28197	1760	1846	18905	26874	1750	1706	17348	24291	1740
	-10	2158	25292	37564	1740	1948	22542	32714	1710	1878	21642	31179	1710	1738	19866	28173	1690
	0	2186	31564	47356	1720	1976	28089	41197	1690	1906	26956	39253	1690	1766	24727	35455	1670
	10	2211	44651	67733	1760	2001	39519	58624	1720	1931	37861	55725	1710	1791	34619	50174	1680
	20	2236	73699	112645	1910	2026	64308	96130	1840	1956	61335	90993	1820	1816	55614	81279	1780
	25	2249	108018	171437	2130	2039	92515	138517	2010	1969	87740	130386	1980	1829	78710	115190	1920
28	2256	144857	273250	2370	2046	120757	203655	2200	1976	113797	186611	2150	1836	100906	158390	2050	
1 6 0 0 0	-54	1976	17784	25203	2010	1766	15748	21824	1990	1696	15079	20747	1990	1556	13753	18642	1970
	-50	1992	17794	25347	1980	1782	15772	21967	1960	1712	15107	20890	1950	1572	13791	18785	1940
	-40	2032	17596	25371	1890	1822	15636	22038	1870	1752	14992	20976	1870	1611	13715	18901	1850
	-30	2067	18551	27151	1820	1857	16511	23616	1800	1787	15841	22490	1800	1647	14514	20291	1780
	-20	2101	20612	30573	1770	1891	18360	26612	1750	1821	17621	25351	1740	1681	16159	22878	1730
	-10	2132	23471	35309	1720	1922	20910	30735	1700	1852	20070	29266	1690	1712	18414	26435	1680
	0	2160	28954	44064	1700	1950	25765	38306	1680	1880	24724	36470	1670	1740	22673	32933	1650
	10	2185	40045	61708	1720	1975	35477	53417	1690	1905	33996	50774	1680	1765	31096	45728	1660
	20	2210	62913	97929	1830	2000	55134	83851	1780	1930	52653	79470	1760	1790	47851	71115	1720
	28	2229	109267	182011	2110	2019	93387	143850	2000	1949	88505	134388	1970	1809	79280	118547	1900
29	2232	119046	207013	2180	2022	101159	163648	2050	1952	95706	150860	2010	1812	85462	127884	1940	
1 5 5 0 0	-54	1961	16694	23824	2000	1751	14779	20617	1980	1681	14149	19595	1980	1541	12901	17597	1970
	-50	1979	16702	23954	1970	1769	14802	20748	1950	1699	14176	19727	1940	1559	12938	17730	1930
	-40	2022	16520	23954	1880	1812	14681	20813	1860	1742	14075	19797	1860	1602	12876	17832	1850
	-30	2043	17383	25752	1810	1833	15459	22381	1790	1763	14827	21292	1790	1623	13573	19187	1780
	-20	2076	19238	28901	1750	1866	17124	25125	1740	1796	16430	23923	1730	1655	15055	21577	1720
	-10	2107	21800	33236	1710	1897	19411	28899	1690	1827	18627	27507	1680	1687	17079	24821	1670
	0	2134	26613	41079	1680	1924	23676	35682	1660	1854	22716	33975	1650	1714	20822	30640	1640
	10	2159	36089	56474	1690	1949	31991	48879	1660	1879	30659	46475	1650	1739	28046	41839	1630
	20	2183	54468	86303	1770	1973	47875	74089	1720	1903	45760	70253	1710	1763	41649	62944	1680
	29	2204	93559	149801	2000	1994	80564	125991	1900	1924	76518	118719	1870	1784	68811	105055	1820
1 5 0 0 0	-54	1969	15675	22342	1990	1758	13891	19364	1980	1688	13303	18400	1970	1548	12139	16536	1960
	-50	1985	15682	22461	1960	1775	13911	19486	1940	1705	13328	18522	1930	1565	12173	16659	1920
	-40	2028	15518	22468	1870	1818	13803	19541	1860	1748	13238	18593	1850	1608	12118	16770	1840
	-30	2042	16292	24186	1800	1832	14498	21029	1780	1762	13907	20008	1780	1622	12736	18034	1770
	-20	2050	17961	27329	1740	1840	15975	23726	1730	1770	15321	22580	1720	1630	14028	20342	1710
	-10	2080	20262	31291	1700	1870	18030	27175	1680	1800	17297	25867	1670	1660	15847	23316	1660
	0	2107	24501	38357	1670	1897	21789	33300	1640	1827	20901	31680	1640	1687	19148	28558	1620
	10	2131	32652	51899	1670	1921	28952	44920	1640	1851	27747	42702	1630	1711	25379	38421	1610
	20	2155	47666	76897	1720	1945	41982	66085	1680	1875	40150	62705	1670	1735	36578	56200	1640
	29	2176	76382	124917	1870	1966	66298	105824	1800	1896	63117	99931	1780	1756	57005	88779	1740
1 4 5 0 0	-54	1975	14734	20962	1980	1765	13070	18187	1970	1695	12521	17298	1960	1555	11434	15558	1950
	-50	1992	14740	21072	1950	1782	13089	18299	1930	1712	12544	17411	1930	1572	11465	15672	1920
	-40	2035	14591	21096	1860	1825	12991	18355	1850	1755	12464	17481	1840	1615	11417	15769	1830
	-30	2049	15288	22660	1790	1839	13617	19722	1780	1769	13066	18782	1770	1629	11975	16942	1760
	-20	2030	16772	25779	1730	1820	14910	22360	1720	1750	14297	21272	1710	1610	13082	19148	1700
	-10	2054	18842	29487	1680	1844	16753	25576	1670	1774	16066	24333	1660	1634	14708	21897	1650
	0	2080	22585	35588	1650	1870	20074	31097	1630	1800	19251	29586	1620	1660	17625	26629	1610
	10	2104	29638	47838	1650	1894	26280	41380	1620	1824	25184	39325	1610	1684	23027	35357	1600
	20	2127	42065	69045	1680	1917	37098	59415	1640	1847	35492	56357	1630	1707	32350	50531	1610
	29	2147	63939	106724	1790	1937	55784	90818	1730	1867	53188	85854	1710	1727	48160	76465	1700

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 7°

AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET

ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1983	13863	19686	1980	1773	12309	17086	1960	1703	11796	16258	1960	1563	10779	14633	1950
	-50	2000	13868	19787	1940	1789	12326	17190	1930	1719	11817	16362	1920	1579	10808	14739	1910
	-40	2043	13733	19801	1850	1833	12238	17257	1840	1763	11745	16430	1840	1623	10766	14832	1830
	-30	2057	14361	21253	1780	1847	12804	18504	1770	1777	12290	17629	1770	1637	11271	15913	1760
	-20	2037	15680	24084	1720	1827	13953	20910	1710	1757	13384	19899	1700	1617	12256	17924	1690
	-10	2026	17526	27795	1670	1816	15569	24076	1660	1746	14925	22893	1650	1606	13650	20587	1640
	0	2052	20840	33570	1640	1842	18510	29078	1620	1772	17745	27638	1610	1632	16233	24861	1600
	10	2076	26972	44222	1630	1865	23910	38221	1600	1795	22910	36311	1590	1655	20937	32620	1580
	20	2098	37369	62421	1650	1888	32983	53720	1610	1818	31561	50974	1600	1678	28772	45672	1580
	29	2118	54481	92751	1720	1908	47694	79168	1670	1838	45519	74916	1650	1698	41294	66803	1620
1 3 5 0 0	-54	1991	13052	18478	1970	1781	11600	16065	1950	1711	11121	15281	1950	1571	10170	13775	1940
	-50	2008	13056	18571	1930	1798	11616	16161	1920	1728	11140	15389	1910	1588	10196	13873	1900
	-40	2051	12933	18587	1850	1841	11537	16215	1830	1771	11075	15455	1830	1631	10160	13963	1820
	-30	2066	13502	19925	1780	1855	12049	17377	1760	1785	11570	16549	1760	1645	10618	14961	1750
	-20	2044	14678	22512	1720	1834	13074	19576	1700	1764	12546	18625	1700	1624	11497	16788	1690
	-10	2020	16309	25996	1660	1810	14492	22519	1650	1740	13893	21413	1640	1600	12708	19255	1630
	0	2024	19243	31433	1620	1814	17077	27205	1610	1744	16366	25844	1600	1604	14957	23221	1590
	10	2047	24598	40942	1610	1837	21795	35367	1590	1767	20878	33585	1580	1627	19068	30157	1570
	20	2069	33373	56709	1620	1859	29467	48811	1590	1789	28197	46289	1580	1649	25702	41472	1560
	29	2088	47033	81657	1670	1878	41265	69794	1620	1808	39408	66092	1610	1668	35786	58963	1590
1 3 0 0 0	-54	1999	12296	17340	1960	1789	10938	15093	1950	1719	10490	14373	1940	1579	9600	12957	1930
	-50	2017	12299	17426	1920	1807	10953	15182	1910	1737	10508	14462	1910	1597	9625	13048	1900
	-40	2060	12187	17456	1840	1850	10881	15234	1830	1780	10450	14526	1820	1640	9593	13133	1820
	-30	2073	12703	18679	1770	1863	11347	16307	1760	1793	10899	15548	1750	1653	10009	14056	1740
	-20	2052	13754	21049	1710	1842	12263	18321	1690	1772	11771	17449	1690	1632	10795	15740	1680
	-10	2027	15197	24210	1650	1817	13518	20993	1640	1747	12965	19969	1640	1607	11868	17970	1630
	0	1995	17776	29458	1610	1785	15759	25447	1600	1715	15096	24173	1590	1575	13783	21692	1580
	10	2017	22466	37992	1590	1807	19894	32769	1570	1737	19051	31118	1570	1597	17385	27899	1550
	20	2038	29925	51734	1590	1828	26424	44507	1570	1758	25282	42213	1560	1618	23037	37795	1540
	29	2058	41000	72561	1620	1848	36023	62085	1590	1778	34414	58799	1580	1638	31266	52481	1550
1 2 5 0 0	-54	2009	11587	16280	1950	1799	10319	14188	1940	1729	9899	13505	1940	1589	9066	12196	1930
	-50	2026	11591	16359	1920	1816	10332	14269	1910	1746	9916	13599	1900	1606	9089	12280	1890
	-40	2070	11489	16376	1830	1860	10267	14319	1820	1790	9863	13659	1820	1650	9061	12361	1810
	-30	2083	11958	17519	1760	1873	10691	15312	1750	1803	10272	14593	1750	1663	9441	13203	1740
	-20	2060	12899	19694	1700	1850	11512	17148	1690	1780	11054	16337	1680	1640	10145	14749	1680
	-10	2035	14179	22557	1650	1825	12626	19590	1630	1755	12114	18630	1630	1615	11098	16778	1620
	0	1975	16428	27520	1600	1765	14558	23754	1590	1695	13942	22557	1580	1555	12722	20227	1570
	10	1987	20540	35274	1580	1777	18172	30400	1560	1707	17396	28841	1550	1567	15860	25840	1540
	20	2008	26918	47336	1570	1798	23762	40692	1550	1728	22731	38582	1540	1588	20700	34529	1520
	29	2027	36012	64951	1590	1817	31665	55604	1560	1747	30255	52660	1550	1607	27489	46989	1530
1 2 0 0 0	-54	2018	10921	15270	1950	1808	9733	13322	1940	1738	9341	12697	1930	1598	8561	11466	1920
	-50	2035	10923	15342	1910	1825	9746	13397	1900	1755	9356	12773	1900	1615	8582	11544	1890
	-40	2080	10830	15359	1830	1870	9687	13444	1820	1800	9309	12830	1810	1660	8558	11631	1810
	-30	2092	11257	16417	1760	1882	10074	14364	1750	1812	9683	13706	1740	1672	8905	12411	1740
	-20	2068	12102	18415	1690	1858	10810	16062	1680	1788	10384	15297	1680	1648	9536	13831	1670
	-10	2043	13241	21026	1640	1833	11802	18279	1630	1763	11327	17388	1620	1623	10385	15682	1610
	0	1981	15217	25515	1590	1771	13499	22043	1580	1701	12933	20940	1580	1561	11810	18789	1570
	10	1955	18791	32784	1560	1745	16607	28213	1550	1675	15889	26763	1540	1535	14470	23947	1530
	20	1976	24274	43445	1550	1766	21415	37310	1530	1696	20479	35360	1520	1556	18633	31613	1510
	29	1995	31823	58501	1560	1785	27987	50088	1530	1715	26739	47408	1520	1575	24286	42295	1500
1 1 5 0 0	-54	2028	10292	14325	1940	1818	9181	12513	1930	1748	8814	11931	1930	1608	8084	10784	1920
	-50	2046	10294	14391	1910	1836	9192	12582	1890	1766	8828	12001	1890	1626	8104	10856	1880
	-40	2090	10208	14406	1820	1880	9139	12625	1810	1810	8786	12054	1810	1670	8082	10926	1800
	-30	2104	10599	15374	1750	1894	9493	13466	1740	1824	9127	12854	1740	1684	8400	11661	1730
	-20	2078	11357	17212	1690	1868	10154	15028	1680	1798	9757	14329	1670	1658	8967	12955	1670
	-10	2051	12373	19597	1630	1841	11039	17052	1620	1771	10598	16239	1620	1631	9723	14645	1610
	0	1988	14115	23667	1580	1778	12534	20477	1570	1708	12013	19447	1570	1568	10978	17461	1560
	10	1924	17198	30496	1550	1713	15179	26203	1540	1643	14515	24829	1530	1503	13201	22184	1520
	20	1942	21933	39933	1530	1732	19332	34265	1510	1662	18479	32458	1510	1522	16796	28984	1500
	29	1960	28254	52939	1530	1750	24841	45299	1510	1680	23728	42879	1500	1540	21538	38225	1480

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Figure 4-30 (Sheet 22)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 7°

AND TAKEOFF CLIMB INCREMENT (TCI) SEA LEVEL

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1703	21049	26459	2200	1493	18240	22530	2170	1423	17319	21261	2160	1283	15502	18803	2140
	-40	1750	21099	26880	2070	1540	18353	22956	2040	1470	17454	21702	2030	1330	15677	19255	2010
	-35	1767	21015	26887	2020	1557	18306	22991	2000	1487	17418	21746	1990	1347	15664	19316	1970
	-30	1783	20933	26893	1980	1573	18259	23025	1950	1503	17383	21789	1940	1363	15651	19375	1930
	-25	1800	20830	26872	1940	1589	18194	23034	1910	1519	17329	21809	1900	1379	15621	19414	1890
	-20	1816	20715	26833	1900	1606	18117	23040	1870	1536	17265	21813	1870	1396	15581	19439	1850
	-15	1832	20593	26784	1860	1621	18033	23025	1840	1551	17194	21809	1830	1411	15534	19455	1810
	-10	1847	20464	26725	1820	1637	17943	23000	1800	1567	17116	21795	1790	1427	15480	19462	1780
	-5	1863	20334	26661	1790	1653	17850	22971	1770	1583	17035	21776	1760	1443	15424	19464	1750
	0	1877	20215	26611	1750	1667	17767	22952	1730	1597	16963	21768	1730	1458	15374	19475	1710
	5	1894	20219	26918	1720	1684	17786	23210	1700	1614	16987	22027	1700	1474	15409	19703	1680
	10	1909	21581	29200	1700	1699	18979	25150	1680	1629	18127	23849	1670	1489	16444	21334	1660
1 6 5 0 0	-54	1690	20164	25500	2190	1480	17462	21681	2160	1410	16576	20461	2150	1270	14826	18079	2130
	-40	1737	20210	25898	2060	1527	17570	22106	2030	1457	16704	20880	2020	1317	14994	18508	2010
	-35	1755	20132	25909	2010	1545	17525	22142	1990	1475	16672	20926	1980	1335	14984	18570	1960
	-30	1770	20053	25919	1970	1560	17482	22180	1950	1490	16639	20971	1940	1350	14972	18630	1920
	-25	1786	19957	25915	1930	1576	17421	22193	1910	1506	16589	20993	1900	1366	14945	18671	1880
	-20	1802	19849	25882	1890	1592	17350	22191	1870	1522	16529	21002	1860	1382	14908	18698	1840
	-15	1818	19734	25840	1850	1608	17271	22181	1830	1538	16463	21012	1820	1398	14865	18727	1810
	-10	1834	19613	25788	1820	1624	17187	22161	1790	1554	16390	21003	1790	1414	14815	18738	1770
	-5	1849	19490	25732	1780	1639	17100	22137	1760	1569	16315	20989	1750	1429	14763	18744	1740
	0	1865	19378	25688	1750	1655	17027	22129	1730	1584	16248	20985	1720	1444	14717	18759	1710
	5	1880	19378	25968	1710	1670	17037	22381	1700	1600	16269	21222	1690	1460	14748	18977	1680
	10	1894	20638	28115	1690	1684	18142	24195	1670	1614	17324	22935	1670	1474	15707	20501	1650
1 6 0 0 0	-54	1672	18898	24107	2180	1462	16349	20474	2150	1392	15513	19300	2140	1252	13860	17027	2120
	-40	1718	18939	24491	2040	1508	16449	20871	2020	1438	15632	19702	2010	1298	14016	17447	2000
	-35	1734	18867	24517	2000	1524	16409	20912	1980	1454	15603	19760	1970	1314	14008	17510	1950
	-30	1750	18795	24533	1960	1540	16370	20951	1940	1470	15573	19807	1930	1330	13999	17572	1910
	-25	1766	18707	24524	1920	1556	16315	20968	1900	1486	15529	19833	1890	1346	13975	17614	1870
	-20	1781	18608	24500	1880	1571	16250	20973	1860	1501	15475	19846	1850	1361	13943	17645	1840
	-15	1798	18503	24467	1840	1588	16179	20969	1820	1518	15416	19852	1810	1378	13905	17669	1800
	-10	1813	18393	24424	1800	1602	16103	20957	1780	1532	15350	19849	1780	1392	13861	17684	1760
	-5	1828	18281	24378	1770	1618	16024	20940	1750	1548	15282	19842	1740	1408	13815	17695	1730
	0	1843	18178	24343	1740	1633	15953	20933	1720	1563	15222	19844	1710	1423	13774	17714	1700
	5	1858	18174	24604	1700	1648	15965	21174	1690	1578	15238	20065	1680	1438	13801	17919	1670
	10	1872	19295	26565	1680	1662	16948	22830	1660	1592	16178	21641	1660	1452	14656	19309	1650
1 5 5 0 0	-54	1652	17717	22797	2160	1442	15308	19326	2140	1372	14518	18206	2130	1232	12959	16048	2110
	-40	1697	17750	23175	2030	1487	15400	19708	2010	1417	14628	18601	2000	1277	13101	16438	1990
	-35	1713	17684	23194	1990	1503	15364	19750	1970	1433	14602	18650	1960	1293	13095	16502	1940
	-30	1729	17619	23214	1950	1519	15329	19792	1930	1449	14576	18699	1920	1309	13087	16563	1900
	-25	1744	17538	23211	1910	1534	15279	19823	1890	1464	14537	18728	1880	1324	13068	16608	1870
	-20	1760	17448	23194	1870	1550	15220	19833	1850	1480	14488	18746	1840	1340	13039	16642	1830
	-15	1776	17352	23169	1830	1566	15156	19834	1810	1496	14434	18756	1800	1356	13006	16669	1790
	-10	1791	17251	23135	1790	1581	15087	19828	1780	1511	14375	18759	1770	1371	12967	16688	1760
	-5	1806	17148	23098	1760	1596	15016	19818	1740	1526	14314	18758	1740	1386	12926	16704	1720
	0	1821	17055	23071	1730	1611	14952	19817	1710	1541	14260	18764	1700	1401	12890	16726	1690
	5	1836	17047	23314	1700	1626	14959	20032	1680	1556	14273	18981	1670	1416	12913	16928	1660
	10	1850	18045	25109	1670	1640	15836	21547	1660	1570	15111	20413	1650	1430	13673	18197	1640
1 5 0 0 0	-54	1632	16605	21564	2150	1422	14331	18242	2130	1352	13584	17180	2120	1212	12106	15107	2100
	-40	1677	16637	21920	2020	1467	14417	18617	2000	1397	13687	17550	1990	1257	12243	15485	1980
	-35	1692	16576	21943	1980	1482	14385	18661	1960	1412	13664	17601	1950	1272	12238	15548	1940
	-30	1706	16516	21966	1940	1496	14352	18705	1920	1427	13641	17650	1910	1287	12233	15619	1900
	-25	1724	16442	21969	1900	1513	14307	18730	1880	1443	13605	17683	1870	1303	12216	15665	1860
	-20	1739	16359	21958	1860	1529	14254	18743	1840	1459	13562	17714	1830	1319	12191	15701	1820
	-15	1754	16271	21940	1820	1544	14196	18750	1800	1474	13513	17728	1800	1334	12162	15731	1780
	-10	1769	16179	21914	1790	1559	14133	18749	1770	1489	13460	17736	1760	1349	12127	15754	1750
	-5	1784	16085	21884	1750	1574	14069	18745	1730	1504	13405	17739	1730	1364	12091	15773	1720
	0	1799	15999	21864	1720	1589	14010	18748	1700	1519	13356	17750	1700	1379	12059	15798	1680
	5	1813	15989	22102	1690	1603	14015	18950	1670	1533	13366	17944	1670	1393	12079	15980	1650
	10	1827	16879	23737	1660	1617	14798	20350	1650	1547	14114	19256	1640	1407	12760	17145	1630

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Figure 4-31 (Sheet 1 of 22)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 7°

AND TAKEOFF CLIMB INCREMENT (TCI) SEA LEVEL

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1621	15563	20326	2140	1411	13426	17188	2120	1341	12723	16173	2110	1201	11332	14218	2100
	-40	1666	15591	20657	2010	1456	13505	17532	1990	1386	12819	16530	1980	1246	11461	14575	1970
	-35	1683	15535	20674	1970	1473	13478	17571	1950	1403	12801	16577	1940	1263	11461	14635	1930
	-30	1699	15480	20700	1930	1489	13450	17609	1910	1419	12782	16622	1900	1279	11459	14693	1890
	-25	1716	15413	20696	1890	1506	13411	17629	1870	1436	12753	16650	1860	1296	11448	14737	1850
	-20	1733	15338	20677	1850	1523	13366	17638	1830	1453	12717	16667	1820	1313	11430	14770	1810
	-15	1750	15258	20649	1810	1540	13315	17638	1790	1470	12676	16677	1790	1330	11409	14797	1780
	-10	1767	15174	20614	1780	1557	13261	17641	1760	1487	12631	16679	1750	1347	11383	14817	1740
	-5	1784	15089	20574	1740	1574	13205	17631	1730	1504	12585	16678	1720	1364	11355	14833	1710
	0	1801	15012	20545	1710	1591	13155	17628	1690	1521	12544	16683	1690	1381	11331	14855	1680
	5	1817	15003	20741	1680	1607	13162	17807	1660	1537	12556	16857	1660	1397	11354	15029	1650
	10	1827	15807	22264	1660	1617	13867	19097	1640	1547	13229	18073	1630	1407	11965	16097	1620
1 4 0 0 0	-54	1626	14596	19056	2130	1416	12606	16130	2110	1346	11950	15192	2100	1206	10652	13359	2090
	-40	1671	14620	19373	2000	1461	12678	16459	1980	1391	12039	15516	1980	1251	10772	13691	1960
	-35	1688	14570	19391	1960	1478	12654	16497	1940	1408	12023	15561	1930	1268	10773	13757	1920
	-30	1705	14521	19408	1920	1495	12630	16535	1900	1425	12007	15605	1890	1285	10773	13813	1880
	-25	1722	14460	19405	1880	1512	12595	16556	1860	1441	11981	15633	1860	1301	10764	13855	1840
	-20	1739	14392	19391	1840	1529	12554	16566	1820	1459	11949	15660	1820	1319	10749	13888	1810
	-15	1755	14320	19368	1800	1545	12510	16569	1790	1475	11913	15671	1780	1335	10730	13915	1770
	-10	1773	14245	19338	1770	1563	12461	16565	1750	1493	11874	15676	1750	1353	10708	13936	1740
	-5	1790	14168	19304	1730	1580	12412	16558	1720	1510	11833	15677	1710	1370	10684	13953	1700
	0	1807	14099	19279	1700	1597	12367	16557	1690	1527	11796	15684	1680	1387	10664	13975	1670
	5	1823	14091	19460	1670	1613	12374	16723	1660	1543	11808	15846	1650	1403	10686	14129	1640
	10	1833	14823	20854	1650	1623	13018	17906	1630	1553	12423	16963	1630	1413	11244	15118	1620
1 3 5 0 0	-54	1630	13701	17882	2120	1420	11845	15153	2100	1350	11234	14269	2100	1210	10022	12565	2080
	-40	1677	13722	18166	1990	1467	11912	15450	1970	1397	11316	14579	1970	1257	10133	12874	1960
	-35	1694	13675	18182	1950	1484	11891	15487	1930	1414	11302	14622	1930	1274	10135	12929	1920
	-30	1711	13632	18202	1910	1501	11869	15523	1890	1431	11288	14664	1890	1291	10136	12982	1880
	-25	1729	13577	18202	1870	1519	11839	15544	1850	1449	11266	14692	1850	1309	10129	13023	1840
	-20	1745	13516	18190	1830	1535	11802	15555	1820	1465	11237	14710	1810	1325	10116	13055	1800
	-15	1762	13451	18181	1800	1552	11762	15560	1780	1482	11206	14722	1780	1342	10101	13082	1770
	-10	1779	13383	18155	1760	1569	11719	15558	1750	1499	11171	14728	1740	1359	10082	13103	1730
	-5	1796	13314	18126	1730	1586	11675	15563	1710	1516	11134	14731	1710	1376	10061	13121	1700
	0	1813	13251	18105	1690	1603	11635	15565	1680	1533	11102	14740	1680	1393	10044	13153	1670
	5	1830	13245	18273	1660	1620	11642	15718	1650	1550	11114	14890	1650	1410	10065	13296	1640
	10	1840	13914	19552	1640	1630	12232	16806	1630	1560	11678	15917	1620	1420	10579	14198	1610
1 2 5 0 0	-54	1644	12095	15744	2100	1434	10479	13371	2090	1364	9946	12609	2080	1224	8889	11116	2070
	-40	1690	12111	15987	1980	1480	10536	13626	1960	1410	10016	12869	1960	1270	8985	11383	1950
	-35	1707	12074	16004	1930	1497	10519	13660	1920	1427	10006	12908	1910	1287	8988	11432	1900
	-30	1724	12037	16021	1890	1514	10502	13693	1880	1444	9996	12946	1870	1304	8990	11480	1870
	-25	1741	11992	16024	1860	1531	10478	13714	1840	1461	9978	12972	1840	1321	8986	11527	1830
	-20	1759	11942	16016	1820	1549	10449	13736	1800	1479	9956	12991	1800	1339	8978	11558	1790
	-15	1776	11889	16014	1780	1566	10417	13743	1770	1496	9932	13004	1760	1356	8967	11583	1760
	-10	1794	11834	15995	1750	1584	10383	13744	1730	1514	9904	13012	1730	1374	8953	11604	1720
	-5	1811	11777	15972	1710	1601	10347	13743	1700	1531	9875	13017	1700	1391	8937	11622	1690
	0	1828	11726	15957	1680	1618	10316	13747	1670	1548	9850	13027	1670	1408	8925	11644	1660
	5	1845	11721	16100	1650	1635	10323	13879	1640	1565	9862	13167	1640	1425	8945	11768	1630
	10	1855	12286	17184	1630	1645	10824	14804	1610	1575	10341	14031	1610	1435	9383	12548	1600
1 1 5 0 0	-54	1658	10685	13852	2090	1448	9278	11791	2070	1378	8811	11129	2070	1238	7888	9827	2060
	-40	1704	10698	14060	1960	1494	9326	12021	1950	1424	8872	11352	1940	1284	7971	10068	1940
	-35	1722	10667	14076	1920	1512	9312	12051	1910	1442	8865	11387	1900	1301	7975	10112	1890
	-30	1739	10637	14092	1880	1529	9299	12081	1870	1459	8857	11421	1860	1319	7979	10155	1860
	-25	1756	10600	14107	1840	1546	9280	12100	1830	1476	8843	11445	1830	1336	7976	10188	1820
	-20	1774	10559	14102	1810	1564	9257	12112	1790	1494	8826	11463	1790	1354	7971	10216	1780
	-15	1791	10515	14093	1770	1581	9231	12120	1760	1511	8807	11476	1750	1371	7963	10240	1750
	-10	1809	10470	14078	1740	1599	9204	12123	1720	1529	8785	11495	1720	1389	7953	10260	1710
	-5	1829	10424	14061	1700	1618	9175	12124	1690	1548	8763	11502	1690	1408	7942	10277	1680
	0	1844	10381	14049	1670	1634	9150	12128	1660	1564	8742	11512	1660	1424	7933	10298	1650
	5	1861	10379	14171	1640	1651	9158	12242	1630	1581	8754	11623	1630	1441	7952	10405	1620
	10	1871	10861	15095	1620	1661	9586	13034	1600	1591	9165	12362	1600	1451	8329	11075	1590

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Figure 4-31 (Sheet 2)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 1000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1732	20470	25939	2180	1522	17786	22140	2150	1452	16906	20912	2140	1312	15168	18534	2120
	-40	1780	20374	26151	2040	1570	17773	22390	2020	1500	16920	21178	2010	1360	15234	18831	1990
	-35	1797	20294	26161	2000	1586	17728	22427	1980	1516	16886	21234	1970	1376	15222	18903	1950
	-30	1813	20208	26160	1960	1603	17675	22454	1930	1533	16845	21270	1930	1393	15203	18955	1910
	-25	1829	20098	26129	1920	1619	17603	22454	1890	1549	16784	21280	1890	1409	15166	18984	1870
	-20	1846	19980	26083	1880	1636	17522	22441	1860	1566	16715	21277	1850	1426	15120	19001	1830
	-15	1862	19853	26023	1840	1652	17433	22415	1820	1582	16638	21262	1810	1442	15067	19007	1800
	-10	1879	19719	25952	1800	1668	17336	22379	1780	1598	16554	21237	1780	1458	15007	19004	1760
	-5	1895	19587	25881	1770	1684	17241	22343	1750	1614	16470	21212	1740	1474	14946	19000	1730
	0	1910	19584	26159	1740	1700	17254	22600	1720	1630	16489	21448	1710	1490	14976	19219	1700
	5	1926	20833	28291	1720	1716	18352	24405	1690	1646	17539	23167	1690	1506	15931	20751	1670
	10	1937	23753	32488	1710	1726	20903	27982	1690	1656	19970	26554	1680	1516	18132	23759	1660
1 6 5 0 0	-54	1719	19622	25017	2170	1509	17039	21321	2140	1439	16191	20141	2130	1299	14517	17834	2120
	-40	1767	19530	25217	2040	1557	17027	21580	2010	1487	16205	20404	2000	1346	14581	18127	1990
	-35	1783	19455	25231	1990	1573	16985	21619	1970	1503	16174	20451	1960	1363	14571	18189	1950
	-30	1800	19373	25234	1950	1590	16936	21648	1930	1520	16136	20488	1920	1380	14553	18242	1900
	-25	1816	19271	25209	1910	1606	16868	21652	1890	1536	16079	20502	1880	1396	14520	18274	1870
	-20	1832	19159	25169	1870	1622	16792	21644	1850	1552	16015	20503	1840	1412	14477	18294	1830
	-15	1849	19039	25116	1830	1639	16709	21623	1810	1569	15943	20493	1810	1429	14428	18303	1790
	-10	1865	18913	25053	1800	1655	16618	21593	1780	1585	15864	20473	1770	1444	14373	18304	1760
	-5	1880	18789	24990	1760	1670	16529	21563	1740	1600	15786	20453	1740	1460	14317	18314	1720
	0	1896	18782	25266	1730	1686	16539	21797	1710	1616	15802	20690	1700	1476	14343	18524	1690
	5	1911	19939	27264	1710	1701	17557	23511	1690	1631	16775	22299	1680	1491	15229	19958	1670
	10	1922	22653	31207	1700	1712	19928	26872	1680	1642	19036	25480	1670	1502	17275	22794	1660
1 6 0 0 0	-54	1699	18407	23677	2160	1489	15967	20156	2130	1419	15166	19018	2120	1279	13583	16815	2110
	-40	1746	18321	23877	2020	1536	15957	20400	2000	1466	15181	19276	1990	1326	13645	17100	1980
	-35	1763	18252	23895	1980	1553	15919	20442	1960	1483	15153	19325	1950	1343	13636	17172	1940
	-30	1781	18177	23904	1940	1570	15875	20475	1920	1500	15119	19375	1910	1360	13622	17227	1900
	-25	1795	18083	23897	1900	1585	15814	20484	1880	1515	15068	19393	1870	1375	13592	17262	1860
	-20	1811	17981	23866	1860	1601	15745	20481	1840	1531	15010	19400	1830	1391	13555	17286	1820
	-15	1827	17872	23823	1820	1617	15669	20468	1800	1547	14943	19394	1800	1407	13512	17300	1780
	-10	1843	17757	23770	1790	1633	15587	20446	1770	1563	14874	19384	1760	1423	13462	17307	1750
	-5	1859	17643	23718	1750	1649	15506	20423	1730	1579	14803	19371	1730	1439	13412	17312	1720
	0	1874	17632	23963	1720	1664	15512	20653	1700	1594	14814	19581	1700	1454	13434	17508	1680
	5	1889	18664	25793	1700	1679	16420	22212	1680	1609	15683	21055	1670	1469	14226	18821	1660
	10	1900	21097	29389	1690	1690	18547	25275	1670	1620	17711	23954	1660	1480	16061	21404	1650
1 5 5 0 0	-54	1679	17268	22410	2140	1469	14963	19046	2120	1399	14206	17958	2110	1259	12707	15862	2100
	-40	1726	17188	22620	2010	1516	14954	19286	1990	1446	14220	18220	1980	1306	12767	16139	1970
	-35	1742	17125	22643	1970	1532	14920	19329	1950	1462	14195	18271	1940	1322	12760	16202	1930
	-30	1758	17056	22656	1930	1548	14880	19364	1910	1478	14164	18313	1900	1338	12748	16258	1890
	-25	1774	16970	22645	1890	1564	14824	19378	1870	1494	14119	18335	1860	1354	12722	16295	1850
	-20	1790	16876	22622	1850	1580	14762	19391	1830	1510	14066	18346	1820	1370	12689	16323	1810
	-15	1806	16777	22587	1810	1596	14693	19384	1790	1526	14008	18348	1790	1386	12651	16341	1780
	-10	1821	16671	22543	1780	1611	14619	19369	1760	1541	13945	18343	1750	1401	12607	16352	1740
	-5	1837	16567	22500	1740	1627	14545	19353	1730	1557	13880	18335	1720	1417	12562	16362	1710
	0	1852	16553	22729	1710	1642	14547	19558	1690	1572	13887	18532	1690	1432	12580	16556	1680
	5	1867	17474	24420	1690	1657	15359	20988	1670	1587	14664	19894	1660	1447	13289	17760	1650
	10	1877	19659	27681	1680	1667	17270	23785	1660	1597	16486	22530	1650	1457	14937	20107	1640
1 5 0 0 0	-54	1659	16199	21221	2130	1449	14020	17995	2110	1379	13303	16964	2100	1239	11885	14951	2090
	-40	1705	16125	21419	2000	1495	14012	18239	1980	1425	13317	17211	1980	1285	11942	15220	1960
	-35	1721	16067	21445	1960	1511	13981	18284	1940	1441	13295	17262	1930	1301	11937	15283	1920
	-30	1737	16003	21462	1920	1527	13945	18322	1900	1457	13268	17306	1890	1317	11927	15348	1880
	-25	1753	15924	21448	1880	1543	13896	18334	1860	1473	13229	17326	1850	1333	11907	15385	1840
	-20	1771	15838	21416	1840	1561	13841	18332	1820	1491	13181	17331	1820	1351	11882	15411	1800
	-15	1789	15747	21373	1800	1578	13781	18320	1790	1508	13134	17341	1780	1368	11852	15428	1770
	-10	1806	15650	21319	1770	1596	13716	18298	1750	1526	13079	17330	1750	1386	11817	15437	1730
	-5	1824	15555	21265	1730	1614	13651	18277	1720	1544	13024	17318	1710	1404	11782	15444	1700
	0	1841	15540	21473	1700	1631	13654	18457	1690	1561	13033	17494	1680	1421	11802	15612	1670
	5	1854	16367	23029	1680	1644	14382	19779	1660	1574	13729	18743	1660	1434	12437	16722	1650
	10	1854	18328	26095	1660	1644	16086	22391	1650	1574	15350	21197	1640	1434	13894	18892	1630

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Figure 4-31 (Sheet 3)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 1000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1660	15197	19934	2120	1450	13161	16920	2100	1380	12489	15944	2090	1240	11164	14066	2080
	-40	1707	15128	20111	1990	1497	13157	17136	1970	1427	12508	16183	1970	1287	11222	14318	1950
	-35	1724	15076	20129	1950	1514	13130	17175	1930	1444	12490	16228	1930	1304	11221	14377	1910
	-30	1740	15018	20138	1910	1530	13099	17206	1890	1460	12467	16266	1890	1320	11215	14428	1870
	-25	1759	14947	20134	1870	1549	13056	17218	1850	1479	12433	16286	1850	1339	11199	14463	1830
	-20	1776	14869	20108	1830	1566	13007	17219	1810	1496	12394	16296	1810	1356	11178	14490	1800
	-15	1794	14787	20070	1800	1584	12954	17210	1780	1514	12350	16296	1770	1374	11152	14508	1760
	-10	1812	14700	20024	1760	1602	12896	17193	1740	1532	12301	16289	1740	1392	11122	14519	1730
	-5	1829	14614	19977	1730	1619	12838	17176	1710	1549	12252	16280	1710	1409	11092	14528	1700
	0	1847	14602	20159	1690	1637	12842	17354	1680	1567	12262	16444	1670	1427	11112	14684	1670
	5	1859	15355	21584	1670	1649	13507	18567	1650	1579	12899	17591	1650	1439	11693	15705	1640
	10	1831	17090	24607	1650	1621	14985	21081	1640	1551	14293	19945	1630	1411	12923	17751	1620
1 4 0 0	-54	1665	14269	18704	2110	1455	12371	15892	2090	1385	11745	14990	2090	1245	10506	13226	2070
	-40	1712	14207	18882	1980	1502	12368	16105	1970	1432	11762	15205	1960	1292	10561	13463	1950
	-35	1730	14159	18900	1940	1520	12344	16143	1920	1450	11747	15249	1920	1310	10561	13528	1910
	-30	1747	14107	18910	1900	1537	12317	16173	1880	1467	11727	15286	1880	1327	10558	13578	1870
	-25	1765	14043	18899	1860	1555	12278	16186	1840	1485	11697	15306	1840	1345	10544	13612	1830
	-20	1782	13973	18877	1820	1572	12235	16189	1810	1502	11662	15317	1800	1362	10526	13639	1790
	-15	1802	13899	18845	1790	1591	12187	16183	1770	1521	11623	15330	1770	1381	10504	13658	1760
	-10	1818	13820	18804	1750	1608	12131	16166	1740	1538	11580	15325	1730	1398	10478	13670	1720
	-5	1836	13743	18763	1720	1626	12084	16156	1700	1556	11536	15320	1700	1416	10451	13680	1690
	0	1853	13732	18932	1690	1643	12088	16312	1670	1573	11546	15472	1670	1433	10471	13827	1660
	5	1866	14421	20239	1660	1656	12698	17428	1650	1586	12131	16528	1640	1446	11005	14768	1630
	10	1831	15965	23028	1650	1621	14009	19731	1630	1551	13366	18682	1620	1411	12092	16635	1610
1 3 5 0 0	-54	1669	13409	17564	2100	1459	11637	14940	2090	1389	11053	14098	2080	1250	9895	12449	2070
	-40	1719	13352	17722	1980	1509	11635	15131	1960	1439	11070	14300	1950	1299	9947	12672	1940
	-35	1736	13309	17740	1930	1526	11615	15168	1920	1456	11056	14342	1910	1316	9948	12725	1900
	-30	1753	13262	17751	1890	1543	11590	15197	1880	1473	11039	14378	1870	1333	9946	12773	1860
	-25	1772	13203	17743	1850	1562	11556	15211	1840	1492	11013	14399	1830	1351	9935	12806	1820
	-20	1789	13140	17724	1820	1579	11517	15215	1800	1509	10982	14410	1800	1369	9919	12832	1790
	-15	1807	13073	17696	1780	1597	11474	15212	1770	1527	10947	14415	1760	1387	9900	12851	1750
	-10	1825	13002	17661	1750	1615	11428	15201	1730	1545	10908	14412	1730	1405	9877	12865	1720
	-5	1842	12932	17636	1710	1632	11382	15190	1700	1562	10870	14409	1690	1422	9854	12876	1690
	0	1860	12923	17793	1680	1650	11387	15346	1670	1580	10880	14551	1660	1440	9874	13023	1650
	5	1873	13555	18994	1660	1663	11950	16365	1640	1593	11418	15524	1640	1453	10367	13881	1630
	10	1838	14936	21523	1640	1628	13121	18461	1620	1558	12521	17484	1620	1418	11338	15582	1610
1 2 5 0 0	-54	1685	11860	15483	2090	1475	10315	13199	2070	1405	9805	12466	2070	1265	8792	11027	2060
	-40	1733	11812	15621	1960	1523	10315	13367	1950	1453	9821	12643	1940	1313	8839	11222	1930
	-35	1750	11777	15639	1920	1540	10299	13400	1900	1470	9811	12681	1900	1330	8842	11270	1890
	-30	1768	11738	15650	1880	1558	10279	13428	1860	1488	9798	12714	1860	1348	8842	11313	1850
	-25	1786	11690	15645	1840	1576	10252	13441	1830	1506	9777	12734	1820	1366	8834	11354	1810
	-20	1804	11638	15632	1800	1594	10221	13448	1790	1524	9753	12746	1790	1384	8823	11379	1780
	-15	1822	11583	15610	1770	1612	10186	13458	1750	1542	9725	12753	1750	1402	8809	11398	1740
	-10	1840	11525	15582	1730	1630	10149	13451	1720	1560	9695	12753	1720	1420	8792	11412	1710
	-5	1858	11467	15565	1700	1648	10112	13444	1690	1578	9664	12753	1680	1438	8774	11424	1680
	0	1876	11462	15700	1670	1666	10119	13570	1660	1596	9675	12876	1650	1456	8794	11543	1650
	5	1889	12000	16710	1640	1679	10598	14437	1630	1608	10136	13708	1630	1468	9217	12278	1620
	10	1852	13112	18821	1620	1642	11543	16188	1610	1572	11026	15346	1610	1432	9999	13698	1600
1 1 5 0 0	-54	1699	10495	13636	2070	1489	9146	11651	2060	1419	8700	11013	2050	1279	7815	9768	2040
	-40	1747	10456	13756	1950	1537	9148	11807	1930	1467	8716	11168	1930	1327	7857	9939	1920
	-35	1765	10426	13772	1910	1555	9135	11837	1890	1485	8709	11201	1890	1345	7861	9981	1880
	-30	1783	10394	13783	1870	1573	9120	11862	1850	1503	8699	11231	1850	1363	7862	10020	1840
	-25	1801	10354	13780	1830	1591	9098	11875	1820	1521	8683	11249	1810	1381	7857	10048	1800
	-20	1819	10312	13781	1790	1609	9073	11882	1780	1539	8663	11262	1780	1399	7849	10071	1770
	-15	1838	10266	13765	1760	1628	9045	11883	1740	1558	8642	11269	1740	1418	7839	10089	1730
	-10	1856	10218	13742	1720	1646	9017	11881	1710	1576	8617	11281	1710	1436	7826	10103	1700
	-5	1874	10171	13720	1690	1664	8985	11875	1680	1594	8593	11283	1670	1454	7813	10115	1670
	0	1890	10165	13832	1660	1680	8993	11984	1650	1610	8605	11390	1640	1470	7832	10219	1640
	5	1905	10631	14696	1630	1695	9407	12738	1620	1625	9003	12094	1620	1485	8199	10862	1610
	10	1867	11534	16471	1610	1657	10174	14198	1600	1587	9725	13471	1590	1447	8833	12043	1590

56FMC-00-00

Figure 4-31 (Sheet 4)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 2000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1761	19890	25396	2160	1551	17330	21731	2130	1481	16490	20545	2120	1341	14831	18250	2100
	-40	1810	19733	25509	2020	1600	17261	21905	2000	1530	16450	20739	1990	1389	14845	18481	1980
	-35	1827	19655	25532	1980	1617	17216	21942	1960	1547	16415	20784	1950	1407	14832	18541	1930
	-30	1844	19558	25516	1940	1634	17153	21955	1920	1564	16364	20817	1910	1424	14801	18590	1890
	-25	1861	19445	25482	1900	1651	17076	21951	1880	1581	16299	20822	1870	1441	14760	18615	1850
	-20	1877	19320	25430	1860	1667	16988	21931	1840	1597	16222	20813	1830	1457	14707	18626	1820
	-15	1894	19185	25362	1820	1684	16890	21897	1800	1614	16136	20789	1790	1474	14644	18623	1780
	-10	1910	19047	25289	1790	1700	16789	21858	1770	1630	16047	20761	1760	1490	14579	18615	1750
	-5	1929	18989	25459	1750	1718	16755	22026	1730	1648	16021	20915	1730	1508	14568	18763	1710
	0	1943	20174	27497	1730	1732	17800	23757	1710	1662	17021	22553	1700	1522	15481	20225	1690
	5	1954	22850	31354	1720	1744	20144	27065	1700	1674	19258	25686	1690	1534	17509	23026	1680
	10	1964	26426	36513	1720	1754	23264	31473	1690	1684	22231	29858	1680	1544	20197	26731	1670
1 6 5 0 0	-54	1748	19078	24512	2150	1538	16612	20942	2120	1468	15802	19802	2110	1328	14202	17572	2100
	-40	1796	18929	24629	2020	1586	16547	21118	1990	1516	15765	19997	1990	1376	14219	17804	1970
	-35	1813	18855	24644	1970	1603	16505	21168	1950	1533	15733	20043	1940	1393	14207	17865	1930
	-30	1830	18763	24633	1930	1620	16446	21184	1910	1550	15685	20068	1900	1410	14179	17906	1890
	-25	1847	18656	24604	1890	1637	16374	21184	1870	1567	15624	20077	1860	1427	14141	17933	1850
	-20	1863	18539	24559	1850	1653	16292	21170	1830	1583	15553	20072	1830	1443	14092	17946	1810
	-15	1880	18411	24498	1810	1670	16196	21138	1790	1600	15472	20054	1790	1460	14034	17948	1780
	-10	1896	18281	24433	1780	1686	16105	21108	1760	1616	15389	20030	1750	1476	13972	17944	1740
	-5	1912	18224	24608	1740	1702	16071	21259	1730	1632	15363	20189	1720	1492	13962	18097	1710
	0	1928	19322	26519	1720	1718	17040	22891	1700	1648	16290	21735	1700	1508	14809	19477	1680
	5	1939	21815	30151	1710	1729	19224	26005	1690	1659	18375	24686	1680	1519	16695	22098	1670
	10	1950	25125	34979	1710	1740	22113	30130	1680	1670	21128	28576	1680	1530	19188	25580	1660
1 6 0 0 0	-54	1728	17911	23222	2140	1518	15580	19819	2110	1448	14815	18718	2100	1308	13300	16586	2090
	-40	1776	17773	23346	2000	1566	15522	19997	1980	1496	14782	18913	1980	1356	13318	16815	1960
	-35	1792	17706	23365	1960	1582	15484	20038	1940	1512	14754	18961	1930	1372	13308	16876	1920
	-30	1809	17621	23361	1920	1599	15430	20059	1900	1529	14710	18990	1890	1389	13285	16929	1880
	-25	1826	17524	23340	1880	1616	15365	20064	1860	1546	14655	19014	1850	1405	13250	16960	1840
	-20	1842	17416	23304	1840	1632	15290	20056	1820	1562	14591	19015	1820	1422	13207	16978	1800
	-15	1858	17299	23253	1800	1648	15207	20035	1790	1578	14518	19003	1780	1438	13155	16985	1770
	-10	1874	17180	23210	1770	1664	15120	20010	1750	1594	14442	18987	1750	1454	13100	16987	1730
	-5	1890	17125	23363	1740	1680	15087	20153	1720	1610	14417	19127	1710	1470	13085	17118	1700
	0	1906	18104	25115	1710	1696	15952	21661	1690	1626	15245	20544	1690	1486	13846	18387	1680
	5	1917	20346	28438	1700	1707	17917	24497	1680	1637	17121	23242	1670	1497	15546	20795	1660
	10	1927	23297	32816	1690	1717	20494	28222	1670	1647	19577	26768	1660	1507	17767	23924	1650
1 5 5 0 0	-54	1707	16817	22002	2120	1497	14612	18745	2100	1427	13887	17692	2090	1287	12451	15660	2080
	-40	1755	16689	22141	1990	1545	14559	18924	1970	1475	13859	17896	1970	1335	12472	15887	1950
	-35	1771	16627	22164	1950	1561	14525	18967	1930	1491	13833	17946	1920	1351	12464	15949	1910
	-30	1788	16549	22166	1910	1578	14476	18992	1890	1508	13794	17978	1880	1368	12444	15995	1870
	-25	1804	16460	22152	1870	1594	14417	19002	1850	1524	13745	17996	1850	1384	12413	16028	1830
	-20	1820	16362	22124	1830	1610	14345	18996	1810	1540	13687	18002	1810	1400	12375	16050	1800
	-15	1836	16254	22082	1800	1626	14273	18986	1780	1556	13621	17996	1770	1416	12328	16061	1760
	-10	1852	16145	22037	1760	1642	14194	18977	1740	1572	13552	17987	1740	1432	12279	16068	1730
	-5	1868	16091	22181	1730	1658	14162	19113	1710	1588	13527	18119	1710	1448	12269	16197	1690
	0	1883	16965	23791	1700	1673	14934	20487	1690	1603	14267	19420	1680	1463	12945	17357	1670
	5	1894	18986	26836	1690	1684	16706	23085	1670	1614	15957	21891	1660	1474	14477	19562	1650
	10	1904	21623	30802	1680	1694	19010	26471	1660	1624	18153	25094	1650	1484	16463	22402	1640
1 5 0 0 0	-54	1693	15787	20804	2110	1483	13708	17697	2090	1413	13024	16704	2080	1273	11670	14764	2070
	-40	1742	15669	20918	1980	1532	13663	17873	1960	1462	13003	16887	1960	1322	11695	14979	1950
	-35	1760	15612	20934	1940	1550	13633	17911	1920	1480	12982	16932	1920	1340	11692	15038	1900
	-30	1778	15541	20927	1900	1568	13591	17930	1880	1498	12949	16959	1880	1357	11677	15080	1860
	-25	1796	15459	20903	1860	1586	13539	17934	1840	1516	12907	16972	1840	1376	11652	15116	1830
	-20	1813	15369	20865	1820	1603	13480	17925	1810	1533	12858	16972	1800	1393	11625	15137	1790
	-15	1832	15272	20812	1790	1622	13413	17904	1770	1552	12801	16961	1770	1412	11588	15146	1750
	-10	1850	15173	20754	1750	1640	13345	17877	1740	1570	12743	16955	1730	1430	11549	15149	1720
	-5	1869	15124	20870	1720	1659	13319	17992	1700	1589	12724	17069	1700	1449	11545	15264	1690
	0	1884	15917	22353	1690	1674	14021	19259	1680	1604	13397	18269	1670	1463	12161	16334	1660
	5	1871	17722	25333	1680	1661	15580	21760	1660	1591	14876	20622	1650	1451	13483	18404	1640
	10	1881	20084	28947	1670	1671	17643	24844	1650	1600	16843	23539	1640	1460	15261	20988	1630

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Figure 4-31 (Sheet 5)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 2000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1698	14827	19529	2100	1488	12888	16637	2080	1418	12249	15701	2080	1278	10984	13896	2060
	-40	1747	14720	19639	1970	1537	12848	16796	1960	1467	12232	15884	1950	1327	11010	14100	1940
	-35	1763	14668	19656	1930	1554	12821	16833	1910	1484	12213	15928	1910	1344	11008	14155	1900
	-30	1783	14603	19652	1890	1573	12784	16852	1870	1503	12184	15955	1870	1363	10996	14197	1860
	-25	1801	14530	19632	1850	1591	12738	16858	1840	1521	12147	15969	1830	1381	10977	14227	1820
	-20	1820	14449	19599	1820	1610	12685	16853	1800	1540	12104	15972	1790	1400	10951	14246	1780
	-15	1838	14361	19564	1780	1628	12625	16836	1760	1558	12053	15964	1760	1418	10918	14256	1750
	-10	1856	14271	19513	1740	1646	12564	16814	1730	1576	12001	15951	1720	1436	10884	14262	1710
	-5	1875	14228	19622	1710	1665	12541	16932	1700	1595	11985	16059	1690	1455	10881	14369	1680
	0	1889	14954	20983	1690	1679	13185	18087	1670	1609	12603	17163	1670	1469	11448	15356	1660
	5	1855	16552	23849	1670	1645	14545	20480	1650	1575	13885	19392	1650	1435	12578	17292	1640
	10	1857	18664	27217	1660	1647	16381	23326	1640	1577	15632	22089	1630	1437	14150	19680	1620
1 4 5 0 0	-54	1704	13937	18338	2090	1494	12127	15638	2080	1424	11531	14772	2070	1284	10348	13076	2060
	-40	1754	13840	18455	1970	1544	12092	15799	1950	1474	11516	14938	1940	1334	10374	13269	1930
	-35	1771	13793	18472	1920	1561	12069	15835	1910	1491	11500	14980	1900	1351	10373	13332	1890
	-30	1789	13735	18470	1880	1579	12035	15855	1870	1509	11475	15006	1860	1369	10363	13372	1850
	-25	1808	13668	18454	1840	1597	11994	15862	1830	1527	11442	15021	1820	1387	10347	13401	1810
	-20	1826	13595	18425	1810	1616	11946	15859	1790	1546	11403	15026	1790	1406	10324	13422	1780
	-15	1844	13515	18385	1770	1634	11893	15845	1760	1564	11358	15021	1750	1424	10296	13433	1740
	-10	1863	13434	18340	1740	1653	11838	15827	1720	1583	11311	15021	1720	1443	10266	13440	1710
	-5	1881	13396	18442	1700	1671	11818	15928	1690	1601	11298	15122	1690	1461	10266	13541	1680
	0	1896	14062	19695	1680	1686	12411	17003	1660	1616	11867	16141	1660	1476	10788	14453	1650
	5	1861	15490	22303	1660	1651	13626	19171	1640	1581	13012	18160	1640	1441	11797	16215	1630
	10	1832	17350	25599	1640	1622	15212	21906	1630	1552	14510	20731	1620	1412	13120	18444	1610
1 3 5 0 0	-54	1712	13111	17234	2090	1502	11420	14713	2070	1432	10862	13904	2060	1292	9756	12317	2050
	-40	1760	13022	17335	1960	1550	11389	14856	1940	1480	10850	14060	1940	1340	9781	12499	1930
	-35	1778	12979	17353	1920	1568	11368	14890	1900	1498	10836	14100	1900	1358	9781	12550	1890
	-30	1796	12926	17353	1880	1586	11338	14910	1860	1516	10814	14126	1860	1376	9773	12589	1850
	-25	1814	12866	17339	1840	1604	11301	14919	1820	1534	10785	14142	1820	1394	9759	12618	1810
	-20	1833	12800	17314	1800	1623	11258	14917	1790	1553	10750	14148	1780	1413	9740	12638	1770
	-15	1851	12727	17278	1760	1641	11210	14906	1750	1571	10709	14144	1750	1431	9715	12650	1740
	-10	1870	12654	17238	1730	1660	11161	14891	1720	1590	10668	14137	1710	1450	9689	12658	1700
	-5	1888	12620	17345	1700	1678	11144	14996	1680	1608	10657	14232	1680	1468	9690	12763	1670
	0	1903	13234	18488	1670	1693	11692	15978	1660	1623	11183	15174	1650	1483	10174	13598	1650
	5	1867	14513	20880	1650	1657	12780	17957	1640	1587	12209	17026	1630	1447	11077	15205	1620
	10	1827	16152	23933	1640	1617	14166	20482	1620	1547	13513	19384	1610	1407	12220	17245	1600
1 2 5 0 0	-54	1724	11618	15210	2070	1514	10140	13014	2050	1444	9652	12309	2050	1304	8684	10923	2040
	-40	1775	11544	15301	1940	1565	10117	13141	1930	1495	9645	12447	1930	1355	8709	11084	1920
	-35	1793	11509	15318	1900	1583	10100	13173	1890	1513	9635	12484	1880	1373	8710	11130	1880
	-30	1811	11465	15319	1860	1601	10076	13191	1850	1531	9617	12508	1850	1391	8705	11165	1840
	-25	1830	11416	15310	1820	1620	10047	13201	1810	1550	9594	12523	1810	1410	8695	11202	1800
	-20	1848	11361	15290	1790	1638	10012	13201	1780	1568	9566	12531	1770	1428	8681	11221	1760
	-15	1867	11301	15262	1750	1657	9976	13207	1740	1587	9534	12530	1740	1447	8662	11234	1730
	-10	1886	11241	15230	1720	1676	9933	13194	1710	1606	9501	12526	1700	1466	8642	11243	1700
	-5	1903	11214	15324	1690	1693	9921	13277	1670	1623	9494	12609	1670	1483	8645	11327	1660
	0	1919	11741	16299	1660	1709	10393	14118	1650	1639	9948	13419	1640	1499	9064	12045	1640
	5	1882	12774	18293	1640	1672	11272	15775	1620	1602	10776	14970	1620	1462	9793	13391	1610
	10	1840	14068	20807	1620	1630	12366	17855	1600	1560	11806	16912	1600	1420	10694	15069	1590
1 1 5 0 0	-54	1739	10298	13408	2060	1529	9006	11498	2040	1459	8579	10884	2040	1319	7730	9686	2030
	-40	1790	10237	13488	1930	1580	8988	11621	1920	1510	8575	11006	1910	1370	7755	9827	1910
	-35	1808	10207	13504	1890	1598	8975	11649	1880	1528	8567	11038	1870	1388	7757	9868	1870
	-30	1827	10171	13506	1850	1617	8956	11666	1840	1547	8553	11061	1840	1407	7754	9899	1830
	-25	1846	10130	13499	1810	1636	8932	11675	1800	1566	8535	11075	1800	1426	7747	9924	1790
	-20	1865	10087	13485	1780	1655	8904	11677	1770	1585	8513	11083	1760	1445	7736	9942	1750
	-15	1884	10036	13472	1740	1674	8872	11672	1730	1604	8487	11083	1730	1464	7722	9954	1720
	-10	1903	9986	13446	1710	1693	8840	11664	1700	1623	8460	11092	1690	1483	7706	9964	1690
	-5	1922	9965	13517	1670	1712	8832	11737	1670	1642	8457	11165	1660	1502	7712	10038	1660
	0	1937	10422	14353	1650	1727	9242	12460	1640	1657	8853	11853	1630	1517	8078	10669	1630
	5	1898	11261	16034	1620	1688	9956	13857	1610	1618	9525	13160	1610	1478	8668	11791	1600
	10	1854	12289	18119	1600	1644	10828	15584	1590	1574	10345	14773	1590	1434	9385	13184	1580

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Figure 4-31 (Sheet 6)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 3000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1790	19316	24876	2140	1580	16878	21339	2110	1510	16074	20191	2100	1370	14490	17972	2090
	-40	1840	19175	25008	2000	1630	16821	21529	1980	1560	16047	20402	1970	1420	14514	18217	1960
	-35	1858	19097	25013	1960	1648	16770	21556	1940	1578	16006	20436	1930	1438	14494	18268	1920
	-30	1875	18987	24991	1920	1665	16696	21552	1900	1595	15943	20453	1890	1455	14453	18303	1880
	-25	1892	18874	24951	1880	1682	16618	21543	1860	1612	15876	20454	1850	1472	14409	18322	1840
	-20	1909	18746	24890	1840	1699	16525	21514	1820	1629	15795	20436	1810	1489	14351	18324	1800
	-15	1926	18612	24820	1800	1716	16427	21478	1780	1646	15709	20410	1780	1506	14287	18319	1770
	-10	1943	18576	25045	1770	1733	16412	21679	1750	1663	15700	20605	1740	1523	14292	18502	1730
	-5	1959	19526	26758	1740	1749	17253	23157	1720	1679	16507	21993	1720	1539	15031	19744	1710
	0	1971	22090	30503	1730	1761	19503	26363	1710	1691	18656	25032	1700	1551	16983	22463	1690
	5	1982	25333	35214	1730	1772	22340	30397	1700	1702	21362	28852	1700	1562	19434	25874	1680
	10	1993	29773	41686	1730	1783	26199	35908	1700	1713	25037	34063	1690	1573	22753	30499	1680
1 6 5 0 0	-54	1777	18539	24028	2130	1567	16186	20577	2100	1497	15413	19475	2090	1357	13885	17319	2080
	-40	1826	18411	24170	2000	1616	16137	20773	1970	1546	15389	19687	1970	1406	13911	17563	1950
	-35	1844	18331	24174	1950	1634	16088	20812	1930	1564	15351	19723	1930	1424	13892	17615	1910
	-30	1861	18228	24145	1910	1651	16019	20812	1890	1581	15292	19733	1880	1441	13855	17642	1870
	-25	1878	18121	24111	1870	1668	15945	20808	1850	1598	15230	19737	1850	1458	13814	17665	1830
	-20	1895	18000	24057	1830	1685	15858	20784	1810	1615	15154	19724	1810	1475	13760	17670	1800
	-15	1912	17874	23994	1800	1702	15766	20753	1780	1632	15073	19703	1770	1492	13701	17669	1760
	-10	1929	17836	24208	1760	1719	15748	20946	1740	1649	15062	19900	1740	1509	13703	17855	1730
	-5	1945	18717	25840	1740	1735	16529	22332	1720	1665	15811	21214	1710	1525	14390	19029	1700
	0	1956	21107	29358	1720	1746	18628	25353	1700	1676	17815	24065	1700	1536	16210	21580	1680
	5	1967	24115	33776	1720	1757	21260	29135	1690	1687	20326	27661	1690	1547	18485	24777	1670
	10	1978	28188	39784	1720	1768	24808	34243	1690	1698	23706	32492	1680	1558	21538	29077	1670
1 6 0 0 0	-54	1757	17419	22785	2120	1547	15193	19482	2090	1477	14461	18426	2090	1337	13013	16363	2070
	-40	1806	17302	22934	1990	1595	15149	19689	1970	1525	14441	18639	1960	1385	13040	16605	1940
	-35	1821	17228	22943	1940	1611	15105	19721	1920	1541	14406	18678	1920	1401	13025	16658	1900
	-30	1840	17133	22922	1900	1630	15042	19727	1880	1560	14354	18692	1880	1420	12992	16698	1860
	-25	1857	17041	22902	1860	1646	14975	19728	1840	1576	14297	18712	1840	1436	12955	16724	1830
	-20	1873	16924	22851	1820	1663	14896	19712	1810	1593	14229	18705	1800	1453	12907	16735	1790
	-15	1890	16808	22799	1790	1680	14812	19689	1770	1610	14155	18691	1760	1470	12854	16739	1750
	-10	1906	16769	23010	1750	1696	14793	19869	1740	1626	14142	18866	1730	1486	12854	16904	1720
	-5	1922	17556	24501	1730	1712	15491	21144	1710	1642	14812	20074	1700	1502	13469	17984	1690
	0	1934	19709	27723	1710	1724	17382	23910	1690	1654	16618	22685	1690	1514	15109	20318	1670
	5	1945	22398	31741	1700	1735	19736	27349	1680	1665	18865	25940	1680	1525	17144	23223	1660
	10	1956	25993	37123	1700	1746	22870	31939	1680	1675	21851	30280	1670	1535	19842	27072	1650
1 5 5 0 0	-54	1736	16365	21606	2100	1526	14258	18452	2080	1456	13565	17432	2080	1316	12193	15465	2060
	-40	1784	16258	21761	1980	1574	14220	18651	1960	1504	13549	17654	1950	1364	12221	15704	1940
	-35	1801	16190	21785	1930	1591	14180	18685	1910	1521	13518	17695	1910	1381	12208	15758	1900
	-30	1818	16103	21771	1890	1608	14123	18697	1870	1538	13470	17713	1870	1398	12179	15792	1860
	-25	1834	16013	21752	1850	1624	14062	18702	1840	1554	13419	17727	1830	1414	12146	15821	1820
	-20	1852	15911	21703	1820	1642	13991	18684	1800	1572	13359	17719	1790	1432	12106	15832	1780
	-15	1872	15805	21636	1780	1662	13917	18652	1760	1592	13296	17698	1760	1452	12064	15832	1750
	-10	1891	15765	21798	1740	1681	13900	18815	1730	1611	13286	17849	1720	1471	12068	15979	1710
	-5	1907	16472	23166	1720	1697	14529	19987	1700	1627	13890	18959	1700	1487	12623	16972	1690
	0	1911	18411	26191	1700	1701	16224	22557	1680	1631	15505	21401	1680	1491	14084	19144	1670
	5	1921	20821	29854	1690	1711	18335	25692	1670	1641	17520	24356	1660	1501	15909	21779	1650
	10	1931	24004	34707	1690	1721	21112	29815	1660	1651	20166	28269	1660	1511	18301	25248	1640
1 5 0 0 0	-54	1732	15376	20366	2090	1522	13399	17385	2070	1452	12749	16433	2070	1312	11460	14570	2050
	-40	1783	15277	20498	1970	1573	13368	17574	1950	1503	12740	16627	1940	1363	11494	14793	1930
	-35	1801	15216	20503	1920	1591	13334	17603	1910	1521	12714	16663	1900	1381	11486	14843	1890
	-30	1820	15136	20478	1880	1610	13284	17606	1870	1540	12674	16675	1860	1400	11464	14881	1850
	-25	1839	15055	20448	1840	1629	13232	17604	1830	1559	12631	16682	1820	1419	11440	14905	1810
	-20	1858	14963	20396	1810	1648	13170	17584	1790	1578	12579	16672	1790	1438	11407	14915	1780
	-15	1877	14867	20337	1770	1667	13104	17557	1760	1597	12523	16655	1750	1457	11370	14918	1740
	-10	1897	14833	20488	1740	1687	13090	17700	1720	1616	12515	16806	1720	1476	11376	15056	1710
	-5	1912	15478	21742	1710	1702	13666	18777	1690	1632	13069	17827	1690	1492	11886	15971	1680
	0	1887	17202	24749	1690	1677	15144	21284	1680	1607	14468	20181	1670	1467	13129	18030	1660
	5	1898	19367	28097	1680	1688	17041	24147	1660	1618	16277	22879	1650	1478	14768	20434	1640
	10	1908	22194	32471	1670	1698	19509	27875	1650	1628	18629	26404	1640	1488	16893	23568	1630

56FMC-00-00

Figure 4-31 (Sheet 7)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 3000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1738	14458	19135	2090	1528	12612	16359	2070	1458	12004	15459	2060	1318	10799	13725	2050
	-40	1789	14368	19260	1960	1579	12585	16528	1940	1509	11997	15652	1930	1369	10832	13936	1920
	-35	1807	14312	19267	1920	1597	12554	16556	1900	1527	11975	15687	1890	1387	10826	13984	1880
	-30	1826	14241	19246	1880	1616	12510	16562	1860	1546	11939	15700	1850	1406	10807	14013	1840
	-25	1845	14167	19220	1840	1635	12463	16562	1820	1565	11901	15709	1820	1425	10786	14037	1810
	-20	1864	14084	19175	1800	1654	12408	16546	1780	1584	11855	15702	1780	1444	10758	14049	1770
	-15	1883	13998	19123	1760	1673	12349	16524	1750	1603	11806	15690	1740	1463	10726	14054	1730
	-10	1903	13968	19274	1730	1693	12338	16668	1720	1623	11800	15821	1710	1483	10734	14183	1700
	-5	1919	14560	20428	1700	1709	12868	17649	1690	1639	12310	16763	1680	1499	11204	15028	1670
	0	1885	16095	23220	1680	1675	14177	19986	1670	1605	13545	18942	1660	1464	12295	16924	1650
1 4 0 0	5	1872	18022	26453	1670	1662	15842	22702	1650	1592	15126	21498	1640	1452	13710	19174	1630
	10	1883	20540	30421	1660	1673	18041	26082	1640	1603	17221	24692	1630	1463	15601	22011	1620
	-54	1744	13606	17982	2080	1534	11881	15389	2060	1464	11312	14556	2050	1324	10184	12925	2040
	-40	1795	13524	18112	1950	1585	11857	15559	1930	1515	11307	14730	1930	1375	10217	13133	1920
	-35	1813	13473	18120	1910	1603	11829	15587	1890	1533	11287	14764	1890	1393	10212	13179	1880
	-30	1832	13409	18103	1870	1622	11790	15593	1850	1552	11256	14778	1850	1412	10196	13208	1840
	-25	1849	13342	18081	1830	1639	11748	15595	1810	1569	11223	14789	1810	1429	10178	13233	1800
	-20	1871	13267	18041	1790	1661	11698	15583	1780	1591	11181	14784	1770	1451	10153	13245	1760
	-15	1890	13189	17995	1760	1680	11646	15564	1740	1610	11137	14774	1740	1470	10126	13252	1730
	-10	1910	13163	18126	1720	1700	11637	15689	1710	1630	11134	14907	1700	1490	10134	13373	1700
1 3 5 0 0	-5	1927	13708	19188	1690	1717	12126	16605	1680	1647	11605	15766	1680	1507	10570	14156	1670
	0	1891	15083	21736	1670	1681	13299	18728	1660	1611	12712	17755	1660	1471	11547	15886	1650
	5	1852	16776	24886	1660	1642	14735	21330	1640	1572	14064	20199	1640	1432	12736	17995	1630
	10	1858	19021	28518	1650	1648	16691	24417	1630	1578	15927	23103	1620	1438	14416	20570	1610
	-54	1750	12813	16912	2070	1540	11199	14488	2050	1470	10667	13710	2050	1330	9611	12184	2030
	-40	1802	12737	17024	1940	1592	11178	14639	1930	1522	10664	13873	1920	1382	9642	12371	1910
	-35	1820	12691	17033	1900	1610	11154	14666	1890	1540	10646	13906	1880	1400	9639	12415	1870
	-30	1839	12633	17018	1860	1629	11118	14674	1850	1559	10618	13921	1840	1419	9625	12443	1830
	-25	1858	12572	16999	1820	1648	11080	14677	1810	1578	10588	13931	1800	1438	9610	12467	1790
	-20	1878	12505	16964	1790	1668	11040	14670	1770	1598	10551	13929	1770	1458	9589	12480	1760
1 2 5 0 0	-15	1898	12434	16923	1750	1687	10989	14651	1740	1617	10512	13921	1730	1477	9564	12488	1720
	-10	1917	12411	17056	1720	1707	10983	14778	1700	1637	10511	14037	1700	1497	9574	12612	1690
	-5	1934	12915	18024	1690	1724	11436	15614	1680	1654	10947	14842	1670	1514	9978	13327	1660
	0	1897	14150	20355	1670	1687	12489	17556	1650	1617	11942	16661	1650	1477	10856	14909	1640
	5	1858	15652	23210	1650	1648	13764	19914	1630	1578	13142	18865	1630	1438	11911	16820	1620
	10	1833	17621	26733	1640	1623	15447	22865	1620	1553	14733	21622	1610	1413	13321	19225	1600
	-54	1765	11375	14944	2050	1555	9963	12830	2040	1485	9496	12152	2030	1345	8570	10817	2020
	-40	1818	11312	15042	1930	1608	9947	12963	1910	1538	9496	12295	1910	1398	8600	10982	1900
	-35	1836	11274	15051	1890	1626	9927	12988	1870	1556	9482	12325	1870	1416	8598	11021	1860
	-30	1855	11226	15041	1850	1645	9898	12996	1830	1575	9460	12339	1830	1435	8588	11057	1820
1 1 5 0 0	-25	1875	11176	15026	1810	1665	9868	13001	1800	1595	9436	12350	1790	1455	8577	11080	1790
	-20	1894	11120	14998	1770	1684	9833	12994	1760	1614	9407	12350	1760	1474	8561	11094	1750
	-15	1914	11062	14964	1740	1704	9794	12993	1730	1634	9375	12346	1720	1494	8543	11102	1720
	-10	1934	11045	15081	1700	1724	9792	13095	1690	1654	9378	12447	1690	1514	8555	11203	1680
	-5	1951	11480	15907	1680	1741	10184	13812	1660	1671	9756	13140	1660	1531	8906	11818	1650
	0	1913	12483	17870	1650	1703	11040	15447	1640	1633	10564	14671	1640	1493	9619	13150	1630
	5	1872	13676	20221	1630	1662	12052	17397	1620	1592	11517	16495	1620	1452	10455	14730	1610
	10	1828	15195	23201	1620	1618	13335	19860	1600	1548	12723	18794	1600	1408	11511	16718	1590
	-54	1781	10099	13185	2040	1571	8862	11346	2030	1501	8453	10755	2020	1361	7640	9600	2010
	-40	1833	10045	13270	1920	1623	8850	11472	1900	1553	8454	10879	1900	1413	7668	9744	1890
1 0 0	-35	1852	10014	13278	1870	1642	8834	11494	1860	1572	8444	10906	1860	1432	7668	9779	1850
	-30	1872	9973	13270	1840	1662	8810	11502	1820	1592	8426	10919	1820	1452	7661	9803	1810
	-25	1893	9932	13258	1800	1683	8786	11507	1790	1612	8407	10930	1780	1472	7653	9824	1780
	-20	1912	9886	13235	1760	1702	8757	11503	1750	1632	8384	10931	1750	1492	7641	9836	1740
	-15	1932	9838	13219	1730	1722	8726	11494	1720	1652	8358	10928	1710	1512	7627	9845	1710
	-10	1952	9827	13310	1690	1742	8726	11581	1680	1672	8364	11028	1680	1532	7640	9933	1670
	-5	1969	10206	14019	1670	1759	9071	12200	1660	1689	8695	11616	1650	1549	7949	10477	1650
	0	1928	11027	15681	1640	1718	9771	13584	1630	1648	9355	12913	1630	1508	8531	11593	1620
	5	1886	11982	17643	1620	1676	10580	15211	1610	1606	10117	14422	1600	1466	9199	12910	1600
	10	1841	13175	20091	1600	1631	11586	17232	1590	1561	11065	16311	1580	1421	10027	14531	1570

56FMC-00-00

Figure 4-31 (Sheet 8)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 4000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1821	18893	24564	2120	1611	16547	21112	2090	1541	15776	19995	2080	1401	14252	17831	2070
	-40	1871	18783	24755	1990	1661	16513	21340	1960	1591	15767	20249	1960	1451	14291	18115	1940
	-35	1889	18686	24747	1940	1679	16449	21358	1920	1609	15714	20275	1920	1469	14259	18157	1900
	-30	1907	18577	24723	1900	1697	16374	21361	1880	1627	15650	20288	1870	1487	14217	18186	1860
	-25	1925	18463	24690	1860	1715	16294	21357	1840	1645	15581	20292	1840	1505	14169	18208	1820
	-20	1944	18344	24664	1820	1733	16208	21356	1810	1663	15506	20299	1800	1523	14115	18231	1790
	-15	1959	18273	24790	1790	1749	16162	21489	1770	1679	15468	20420	1760	1539	14095	18351	1750
	-10	1976	19223	26463	1760	1766	17007	22930	1740	1696	16279	21787	1740	1556	14839	19578	1720
	-5	1989	21492	29811	1750	1779	19004	25814	1730	1709	18188	24523	1720	1569	16577	22032	1710
	0	2000	24602	34380	1740	1790	21730	29720	1720	1720	20790	28224	1710	1580	18939	25342	1690
1 6 5 0 0	5	2012	28620	40293	1740	1802	25237	34758	1710	1732	24134	32993	1710	1592	21965	29581	1690
	10	2022	34344	48705	1760	1812	30204	41886	1720	1742	28860	39728	1710	1602	26224	35565	1690
	-54	1807	18142	23741	2110	1597	15879	20374	2080	1527	15136	19298	2080	1387	13665	17195	2060
	-40	1858	18039	23925	1980	1648	15849	20615	1960	1578	15130	19543	1950	1438	13705	17468	1940
	-35	1875	17948	23921	1940	1665	15790	20635	1920	1595	15080	19572	1910	1455	13676	17511	1900
	-30	1893	17845	23902	1900	1683	15719	20643	1880	1613	15020	19587	1870	1473	13637	17543	1860
	-25	1910	17737	23875	1860	1700	15644	20642	1840	1630	14955	19595	1830	1490	13592	17567	1820
	-20	1928	17624	23854	1820	1717	15562	20645	1800	1647	14884	19605	1790	1507	13542	17592	1780
	-15	1944	17554	23987	1780	1734	15518	20762	1760	1664	14846	19732	1760	1524	13521	17719	1750
	-10	1961	18428	25562	1750	1751	16300	22122	1740	1681	15599	21024	1730	1541	14212	18878	1720
1 6 0 0 0	-5	1974	20552	28730	1740	1764	18165	24844	1720	1694	17382	23595	1710	1554	15834	21182	1700
	0	1985	23442	33007	1730	1775	20699	28514	1710	1705	19801	27072	1700	1565	18030	24290	1690
	5	1996	27141	38499	1730	1786	23931	33208	1700	1716	22883	31515	1700	1576	20819	28239	1680
	10	2007	32352	46250	1740	1797	28456	39781	1710	1727	27190	37726	1700	1587	24704	33760	1680
	-54	1786	17059	22534	2100	1576	14916	19318	2070	1506	14212	18277	2070	1366	12817	16262	2050
	-40	1836	16966	22724	1970	1626	14892	19549	1950	1556	14209	18521	1940	1416	12858	16541	1930
	-35	1854	16882	22725	1930	1644	14837	19574	1910	1574	14165	18563	1900	1434	12833	16587	1890
	-30	1871	16787	22713	1890	1661	14773	19586	1870	1591	14110	18583	1860	1451	12798	16621	1850
	-25	1888	16688	22694	1850	1678	14704	19591	1830	1608	14051	18596	1820	1468	12758	16649	1810
	-20	1905	16583	22691	1810	1695	14630	19598	1790	1625	13987	18611	1790	1485	12713	16678	1770
1 5 5 0 0	-15	1922	16516	22805	1770	1712	14586	19710	1760	1642	13951	18722	1750	1502	12693	16789	1740
	-10	1939	17300	24259	1750	1729	15285	20960	1730	1659	14622	19909	1720	1519	13310	17854	1710
	-5	1951	19211	27161	1730	1741	16967	23457	1710	1671	16231	22266	1700	1531	14774	19965	1690
	0	1962	21801	31061	1720	1752	19239	26801	1700	1682	18400	25434	1690	1542	16743	22796	1680
	5	1973	25075	36011	1710	1763	22102	31017	1690	1693	21130	29439	1680	1553	19214	26354	1670
	10	1983	29613	42872	1720	1773	26048	36854	1690	1703	24888	34940	1680	1563	22605	31244	1660
	-54	1767	16036	21370	2090	1557	14008	18293	2070	1487	13341	17307	2060	1347	12020	15378	2050
	-40	1819	15951	21549	1960	1609	13991	18507	1940	1539	13346	17535	1930	1399	12068	15635	1920
	-35	1838	15874	21541	1920	1628	13943	18525	1900	1558	13308	17562	1890	1418	12048	15677	1880
	-30	1857	15786	21518	1880	1647	13886	18530	1860	1577	13261	17575	1850	1437	12021	15707	1840
1 5 0 0 0	-25	1877	15695	21486	1840	1666	13826	18526	1820	1596	13210	17581	1810	1456	11990	15731	1800
	-20	1895	15599	21455	1800	1685	13760	18533	1780	1615	13154	17586	1780	1475	11954	15753	1770
	-15	1915	15536	21539	1760	1705	13722	18623	1750	1635	13125	17678	1740	1495	11941	15850	1730
	-10	1932	16246	22872	1740	1722	14357	19772	1720	1652	13735	18769	1720	1512	12503	16830	1700
	-5	1928	17962	25686	1720	1718	15851	22152	1700	1648	15157	21016	1690	1508	13785	18820	1680
	0	1939	20287	29248	1710	1729	17892	25205	1690	1659	17106	23907	1680	1519	15553	21403	1670
	5	1949	23195	33709	1700	1739	20435	29017	1680	1669	19532	27515	1670	1529	17749	24619	1650
	10	1960	27166	39828	1700	1750	23892	34210	1670	1680	22824	32422	1670	1540	20722	28982	1650
	-54	1772	15079	20091	2080	1562	13185	17205	2060	1492	12562	16283	2050	1352	11326	14478	2040
	-40	1825	15001	20250	1950	1615	13171	17417	1930	1545	12568	16499	1930	1405	11372	14730	1910
1 5 0 0 0	-35	1846	14932	20246	1910	1636	13128	17436	1890	1566	12534	16526	1890	1425	11356	14771	1870
	-30	1863	14852	20226	1870	1653	13077	17443	1850	1583	12492	16540	1850	1443	11332	14801	1840
	-25	1882	14770	20199	1830	1672	13022	17442	1810	1602	12447	16558	1810	1462	11305	14826	1800
	-20	1902	14683	20172	1790	1692	12964	17441	1780	1622	12397	16565	1770	1482	11273	14849	1760
	-15	1921	14627	20252	1760	1711	12931	17526	1740	1641	12372	16652	1740	1501	11263	14940	1730
	-10	1938	15278	21477	1730	1728	13514	18584	1710	1658	12933	17658	1710	1518	11781	15845	1700
	-5	1910	16801	24246	1710	1700	14818	20889	1690	1630	14166	19821	1690	1490	12875	17734	1680
	0	1915	18889	27542	1690	1705	16644	23715	1680	1635	15908	22481	1670	1495	14450	20101	1660
	5	1925	21478	31601	1680	1715	18910	27171	1660	1645	18069	25751	1660	1505	16407	23015	1640
	10	1935	24967	37066	1680	1725	21951	31808	1660	1655	20965	30148	1650	1515	19023	26909	1640

56FMC-00-00

Figure 4-31 (Sheet 9)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 4000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1778	14192	18886	2070	1568	12421	16198	2050	1498	11838	15336	2040	1358	10682	13646	2030
	-40	1831	14121	19037	1940	1621	12409	16389	1920	1551	11845	15539	1920	1411	10726	13874	1910
	-35	1850	14057	19034	1900	1640	12371	16408	1880	1570	11815	15566	1880	1430	10712	13915	1870
	-30	1869	13985	19018	1860	1659	12325	16416	1840	1589	11778	15581	1840	1449	10692	13945	1830
	-25	1889	13911	19006	1820	1678	12276	16417	1810	1608	11737	15590	1800	1468	10668	13969	1790
	-20	1909	13832	18984	1780	1699	12224	16418	1770	1629	11693	15599	1770	1489	10640	13992	1760
	-15	1928	13782	19059	1750	1718	12195	16510	1740	1648	11671	15681	1730	1508	10633	14079	1720
	-10	1945	14381	20188	1720	1735	12733	17475	1710	1665	12189	16611	1700	1525	11112	14916	1690
	-5	1915	15746	22703	1700	1705	13902	19579	1680	1635	13295	18584	1680	1495	12092	16640	1670
	0	1890	17592	25957	1680	1680	15488	22317	1670	1610	14796	21145	1660	1470	13429	18883	1650
	5	1901	19904	29634	1670	1691	17510	25458	1650	1621	16725	24116	1650	1481	15174	21527	1630
	10	1911	22980	34546	1670	1701	20193	29627	1640	1630	19281	28054	1640	1490	17482	25026	1620
1 4 0 0 0	-54	1784	13366	17768	2060	1574	11710	15245	2040	1504	11164	14438	2040	1364	10081	12858	2030
	-40	1837	13302	17910	1930	1627	11700	15435	1920	1557	11172	14630	1910	1417	10124	13082	1900
	-35	1856	13244	17909	1890	1646	11666	15454	1880	1576	11149	14660	1870	1436	10112	13120	1860
	-30	1876	13178	17896	1850	1666	11625	15463	1840	1596	11112	14672	1830	1456	10094	13150	1820
	-25	1895	13111	17876	1810	1685	11581	15466	1800	1615	11076	14692	1800	1475	10074	13174	1790
	-20	1915	13039	17856	1780	1705	11533	15468	1760	1635	11036	14702	1760	1495	10050	13197	1750
	-15	1935	12994	17927	1740	1725	11508	15544	1730	1655	11018	14780	1720	1515	10044	13279	1720
	-10	1952	13548	18969	1710	1742	12006	16448	1700	1672	11498	15629	1700	1532	10489	14056	1690
	-5	1923	14775	21270	1690	1713	13058	18372	1680	1643	12492	17434	1670	1503	11370	15622	1660
	0	1883	16404	24329	1670	1673	14444	20916	1660	1603	13799	19815	1650	1463	12522	17701	1640
	5	1876	18455	27817	1660	1666	16221	23864	1640	1596	15487	22593	1640	1456	14037	20141	1620
	10	1885	21176	32248	1650	1675	18594	27623	1630	1605	17748	26143	1620	1465	16078	23294	1610
1 3 5 0 0	-54	1791	12596	16706	2050	1581	11046	14358	2040	1511	10535	13604	2030	1371	9520	12125	2020
	-40	1844	12537	16840	1930	1634	11038	14527	1910	1564	10543	13784	1910	1424	9561	12326	1900
	-35	1864	12484	16840	1880	1654	11007	14546	1870	1584	10519	13810	1870	1444	9551	12363	1860
	-30	1885	12425	16829	1850	1674	10970	14556	1830	1604	10490	13826	1830	1464	9536	12392	1820
	-25	1903	12363	16811	1810	1693	10930	14559	1790	1623	10457	13836	1790	1483	9518	12415	1780
	-20	1923	12298	16794	1770	1713	10887	14562	1760	1643	10422	13846	1750	1503	9497	12438	1750
	-15	1943	12258	16872	1740	1733	10866	14645	1720	1663	10406	13919	1720	1523	9493	12525	1710
	-10	1960	12772	17825	1710	1750	11329	15472	1690	1680	10853	14718	1690	1540	9908	13237	1680
	-5	1929	13876	19933	1680	1719	12276	17236	1670	1649	11748	16373	1670	1509	10702	14682	1660
	0	1889	15326	22724	1660	1679	13509	19546	1650	1609	12911	18535	1650	1469	11726	16561	1640
	5	1850	17116	26120	1650	1640	15028	22374	1630	1570	14342	21169	1630	1430	12984	18846	1620
	10	1859	19529	30114	1640	1649	17133	25759	1620	1579	16347	24378	1610	1439	14794	21693	1600
1 2 5 0 0	-54	1807	11197	14770	2040	1597	9839	12723	2020	1527	9390	12065	2020	1387	8499	10771	2010
	-40	1861	11147	14886	1910	1651	9833	12870	1900	1581	9399	12222	1900	1441	8537	10957	1890
	-35	1880	11103	14887	1870	1670	9808	12887	1860	1600	9380	12245	1860	1460	8529	10991	1850
	-30	1900	11054	14879	1830	1690	9778	12908	1820	1620	9357	12261	1820	1480	8518	11017	1810
	-25	1919	11002	14865	1790	1709	9745	12912	1780	1639	9330	12270	1780	1499	8504	11038	1770
	-20	1940	10949	14851	1760	1730	9711	12917	1750	1660	9302	12280	1740	1520	8488	11060	1740
	-15	1960	10917	14921	1720	1750	9695	12980	1710	1680	9291	12345	1710	1540	8488	11128	1700
	-10	1977	11365	15741	1690	1767	10101	13694	1680	1697	9683	13038	1680	1557	8852	11745	1670
	-5	1945	12267	17522	1670	1735	10874	15184	1660	1665	10414	14436	1660	1525	9500	12966	1650
	0	1903	13419	19825	1650	1693	11857	17103	1640	1623	11341	16231	1630	1483	10316	14526	1620
	5	1861	14819	22613	1630	1651	13040	19410	1620	1581	12454	18388	1610	1441	11294	16395	1600
	10	1817	16645	26236	1620	1607	14582	22393	1600	1537	13902	21172	1590	1397	12562	18802	1580
1 1 5 0 0	-54	1825	9952	13036	2020	1615	8761	11255	2010	1544	8368	10683	2010	1404	7585	9564	2000
	-40	1878	9909	13136	1900	1667	8757	11393	1890	1597	8376	10818	1890	1457	7619	9716	1880
	-35	1897	9872	13137	1860	1687	8737	11409	1850	1617	8361	10838	1850	1477	7614	9746	1840
	-30	1917	9831	13143	1820	1707	8712	11418	1810	1637	8342	10852	1810	1497	7606	9770	1800
	-25	1938	9789	13132	1780	1727	8686	11422	1770	1657	8321	10874	1770	1517	7595	9789	1760
	-20	1960	9745	13121	1750	1750	8658	11427	1740	1680	8299	10883	1740	1539	7584	9809	1730
	-15	1978	9720	13171	1710	1768	8647	11482	1700	1698	8292	10940	1700	1558	7586	9869	1700
	-10	1996	10115	13879	1680	1786	9006	12102	1670	1716	8639	11532	1670	1576	7909	10418	1670
	-5	1962	10854	15391	1660	1752	9639	13367	1650	1682	9238	12719	1650	1542	8440	11442	1640
	0	1918	11785	17323	1640	1708	10430	14973	1620	1638	9983	14210	1620	1498	9095	12748	1610
	5	1875	12886	19619	1620	1665	11364	16877	1600	1595	10863	15991	1600	1455	9865	14277	1590
	10	1828	14296	22545	1600	1618	12554	19294	1580	1548	11980	18246	1580	1408	10841	16227	1570

56FMC-00-00

Figure 4-31 (Sheet 10)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 5000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1852	18748	24632	2100	1641	16457	21214	2080	1571	15705	20107	2070	1431	14216	17965	2050
	-40	1903	18659	24897	1970	1693	16439	21497	1950	1623	15709	20412	1940	1483	14266	18289	1930
	-35	1922	18563	24884	1930	1711	16375	21512	1910	1641	15657	20435	1900	1501	14234	18329	1890
	-30	1940	18456	24850	1890	1730	16303	21508	1870	1660	15595	20441	1860	1520	14194	18353	1850
	-25	1958	18383	24919	1850	1747	16257	21599	1830	1677	15558	20524	1820	1537	14173	18441	1810
	-20	1975	18460	25280	1810	1765	16340	21910	1790	1695	15643	20835	1790	1555	14264	18733	1780
	-15	1992	19093	26402	1780	1782	16911	22900	1760	1712	16194	21767	1760	1572	14776	19577	1750
	-10	2006	21118	29417	1770	1796	18698	25491	1740	1726	17905	24241	1740	1586	16336	21801	1720
	-5	2018	23939	33595	1760	1808	21178	29086	1730	1738	20274	27638	1730	1598	18491	24831	1710
	0	2029	27759	39239	1750	1819	24520	33920	1730	1749	23463	32217	1720	1609	21382	28921	1700
	5	2041	32866	46808	1760	1831	28966	40356	1730	1761	27698	38304	1720	1621	25208	34343	1700
	10	2051	40516	58141	1790	1841	35571	49921	1750	1771	33972	47307	1740	1631	30849	42324	1720
1 6 5 0 0	-54	1838	18005	23816	2090	1628	15796	20491	2070	1558	15070	19415	2060	1418	13633	17331	2050
	-40	1889	17922	24068	1960	1679	15780	20772	1940	1609	15076	19705	1940	1469	13683	17640	1920
	-35	1907	17831	24060	1920	1697	15721	20790	1900	1627	15027	19731	1900	1487	13654	17692	1880
	-30	1925	17731	24031	1880	1715	15652	20790	1860	1645	14969	19752	1860	1505	13616	17719	1840
	-25	1943	17660	24113	1840	1733	15608	20869	1820	1663	14934	19834	1820	1523	13598	17808	1810
	-20	1961	17727	24443	1810	1751	15683	21177	1790	1681	15011	20120	1780	1541	13680	18075	1770
	-15	1978	18313	25516	1780	1768	16212	22100	1760	1698	15521	21011	1750	1558	14154	18883	1740
	-10	1991	20205	28367	1760	1781	17882	24561	1740	1711	17120	23337	1730	1571	15613	20972	1720
	-5	2003	22829	32282	1750	1793	20189	27929	1720	1723	19324	26531	1720	1583	17617	23833	1700
	0	2014	26355	37553	1740	1804	23276	32444	1720	1734	22271	30807	1710	1594	20289	27640	1690
	5	2025	31018	44531	1750	1815	27339	38378	1720	1745	26141	36420	1710	1605	23788	32640	1690
	10	2036	37894	54830	1770	1826	33286	47101	1740	1756	31795	44633	1720	1616	28875	39924	1700
1 6 0 0 0	-54	1817	16936	22620	2080	1607	14844	19432	2060	1537	14156	18400	2050	1397	12792	16400	2040
	-40	1867	16860	22883	1950	1657	14831	19709	1930	1587	14164	18696	1930	1447	12843	16714	1920
	-35	1885	16777	22881	1910	1675	14777	19731	1890	1605	14120	18725	1890	1465	12817	16759	1870
	-30	1903	16685	22860	1870	1693	14715	19737	1850	1623	14067	18740	1850	1483	12784	16789	1840
	-25	1921	16618	22928	1830	1710	14674	19814	1810	1640	14034	18820	1810	1500	12767	16876	1800
	-20	1938	16673	23236	1800	1728	14737	20101	1780	1658	14100	19087	1770	1518	12838	17125	1760
	-15	1955	17194	24222	1770	1745	15208	20949	1750	1675	14555	19906	1740	1535	13262	17868	1730
	-10	1968	18903	26829	1750	1758	16717	23210	1730	1688	15999	22042	1720	1548	14579	19785	1710
	-5	1979	21257	30418	1730	1769	18788	26284	1710	1699	17978	24957	1710	1559	16379	22395	1690
	0	1991	24390	35167	1730	1781	21532	30353	1700	1711	20598	28810	1700	1571	18754	25836	1680
	5	2002	28466	41385	1730	1792	25088	35642	1700	1722	23987	33813	1690	1582	21820	30295	1680
	10	2011	34353	50363	1740	1801	30192	43256	1710	1731	28841	41002	1700	1591	26192	36659	1680
1 5 5 0 0	-54	1806	15926	21400	2070	1596	13954	18363	2050	1526	13306	17393	2040	1386	12021	15496	2030
	-40	1859	15855	21625	1940	1649	13946	18629	1930	1579	13318	17658	1920	1439	12073	15780	1910
	-35	1878	15778	21608	1900	1668	13898	18640	1880	1598	13280	17679	1880	1458	12054	15818	1870
	-30	1898	15693	21572	1860	1688	13844	18635	1850	1618	13235	17684	1840	1478	12028	15842	1830
	-25	1918	15631	21615	1820	1708	13808	18694	1810	1638	13208	17747	1800	1498	12018	15925	1790
	-20	1939	15681	21874	1790	1729	13868	18933	1770	1659	13271	17991	1770	1519	12089	16147	1760
	-15	1953	16154	22798	1760	1743	14295	19736	1740	1673	13684	18745	1740	1533	12472	16829	1730
	-10	1944	17687	25392	1740	1734	15629	21937	1720	1664	14952	20821	1710	1524	13613	18666	1700
	-5	1956	19805	28663	1720	1746	17491	24749	1700	1676	16732	23487	1700	1536	15231	21052	1680
	0	1967	22594	32984	1710	1757	19936	28436	1690	1687	19066	26979	1680	1547	17348	24169	1670
	5	1978	26173	38533	1710	1768	23061	33173	1690	1698	22045	31459	1680	1558	20044	28147	1660
	10	1988	31246	46430	1720	1778	27467	39861	1690	1708	26238	37775	1680	1568	23823	33753	1660
1 5 0 0 0	-54	1812	14981	20113	2060	1602	13139	17284	2040	1531	12533	16367	2040	1391	11331	14592	2020
	-40	1864	14915	20322	1940	1654	13132	17522	1920	1584	12545	16625	1910	1444	11380	14867	1900
	-35	1884	14846	20308	1890	1674	13090	17535	1880	1604	12511	16646	1870	1464	11364	14905	1860
	-30	1904	14770	20278	1850	1694	13041	17534	1840	1624	12472	16654	1830	1484	11343	14929	1820
	-25	1926	14714	20319	1820	1716	13010	17590	1800	1646	12449	16715	1800	1506	11335	15000	1790
	-20	1945	14761	20571	1780	1735	13067	17823	1760	1665	12509	16931	1760	1525	11402	15207	1750
	-15	1960	15195	21411	1750	1750	13460	18554	1730	1680	12888	17639	1730	1539	11755	15847	1720
	-10	1933	16560	23939	1730	1722	14631	20662	1710	1652	13996	19618	1710	1512	12739	17579	1690
	-5	1932	18457	27032	1710	1722	16288	23309	1690	1652	15575	22108	1690	1512	14165	19791	1670
	0	1941	20946	30946	1700	1731	18470	26660	1680	1661	17658	25281	1670	1521	16055	22622	1660
	5	1952	24100	35931	1690	1742	21226	30901	1670	1672	20286	29293	1660	1532	18433	26195	1650
	10	1962	28498	42899	1700	1753	25050	36805	1670	1683	23927	34884	1660	1543	21716	31145	1640

56FMC-00-00

Figure 4-31 (Sheet 11)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 5000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1818	14104	18909	2050	1607	12383	16266	2030	1537	11815	15418	2030	1397	10690	13755	2020
	-40	1870	14044	19115	1930	1660	12376	16488	1910	1590	11827	15649	1910	1450	10736	14004	1900
	-35	1891	13981	19105	1890	1681	12339	16513	1870	1611	11798	15671	1860	1471	10724	14041	1850
	-30	1911	13912	19079	1850	1701	12296	16513	1830	1631	11763	15680	1830	1491	10705	14066	1820
	-25	1931	13863	19119	1810	1721	12269	16567	1790	1651	11743	15738	1790	1511	10700	14143	1780
	-20	1951	13908	19341	1770	1741	12323	16774	1760	1671	11800	15950	1750	1531	10764	14336	1740
	-15	1966	14307	20128	1740	1756	12685	17449	1730	1686	12150	16594	1720	1546	11090	14920	1710
	-10	1940	15531	22427	1720	1730	13735	19375	1700	1660	13144	18403	1700	1520	11973	16502	1690
	-5	1907	17205	25500	1700	1697	15168	21956	1680	1627	14498	20813	1680	1487	13173	18607	1670
	0	1918	19432	29066	1690	1708	17121	24995	1670	1638	16362	23702	1660	1498	14863	21183	1650
	5	1928	22220	33562	1680	1718	19559	28832	1660	1648	18688	27318	1650	1508	16967	24403	1640
	10	1938	26051	39743	1680	1728	22893	34084	1650	1658	21863	32278	1650	1518	19832	28792	1630
1 4 0 0 0	-54	1824	13289	17792	2040	1614	11678	15321	2030	1544	11146	14517	2020	1404	10092	12971	2010
	-40	1875	13232	17973	1920	1665	11672	15528	1900	1595	11158	14743	1900	1455	10136	13204	1890
	-35	1897	13176	17965	1880	1687	11639	15542	1860	1617	11132	14765	1860	1477	10126	13240	1850
	-30	1918	13114	17943	1840	1708	11601	15545	1820	1638	11101	14775	1820	1498	10110	13265	1810
	-25	1938	13070	17981	1800	1728	11577	15596	1790	1658	11085	14831	1780	1518	10107	13329	1770
	-20	1959	13113	18199	1770	1749	11629	15788	1750	1679	11140	15019	1750	1539	10168	13509	1740
	-15	1973	13481	18916	1730	1763	11964	16425	1720	1693	11464	15627	1720	1553	10470	14061	1710
	-10	1945	14581	21020	1710	1735	12909	18189	1700	1665	12357	17272	1690	1525	11264	15499	1680
	-5	1908	16066	23848	1690	1698	14175	20547	1670	1628	13552	19481	1670	1488	12320	17423	1660
	0	1892	18034	27313	1680	1682	15875	23454	1660	1612	15165	22228	1650	1472	13762	19840	1640
	5	1903	20507	31365	1660	1693	18038	26910	1640	1623	17228	25497	1640	1483	15628	22737	1630
	10	1912	23858	36884	1660	1702	20956	31600	1640	1632	20007	29912	1630	1492	18136	26667	1620
1 3 5 0 0	-54	1831	12527	16731	2040	1621	11019	14422	2020	1551	10521	13680	2020	1411	9533	12224	2010
	-40	1884	12475	16898	1910	1674	11015	14614	1900	1604	10533	13881	1890	1464	9576	12441	1880
	-35	1905	12424	16904	1870	1695	10985	14640	1860	1625	10510	13903	1850	1485	9567	12486	1840
	-30	1925	12368	16885	1830	1715	10951	14644	1820	1645	10483	13914	1810	1505	9554	12511	1810
	-25	1946	12328	16921	1790	1736	10930	14692	1780	1666	10469	13966	1780	1526	9552	12571	1770
	-20	1966	12370	17112	1760	1756	10981	14871	1750	1686	10522	14153	1740	1546	9611	12740	1730
	-15	1982	12711	17776	1730	1772	11291	15452	1710	1702	10823	14707	1710	1562	9892	13243	1700
	-10	1952	13703	19707	1700	1742	12143	17070	1690	1672	11628	16226	1680	1532	10607	14572	1680
	-5	1915	15026	22281	1680	1705	13271	19216	1670	1635	12693	18236	1660	1495	11548	16323	1650
	0	1874	16748	25608	1660	1664	14735	21970	1650	1594	14073	20814	1640	1454	12763	18562	1630
	5	1877	18939	29346	1650	1667	16643	25143	1630	1597	15890	23809	1630	1456	14399	21204	1620
	10	1886	21881	34293	1650	1676	19207	29333	1620	1606	18331	27766	1620	1466	16602	24713	1600
1 2 5 0 0	-54	1847	11144	14794	2020	1637	9822	12780	2010	1567	9385	12134	2000	1427	8516	10871	1990
	-40	1901	11100	14948	1900	1691	9819	12957	1890	1621	9396	12307	1880	1481	8555	11059	1870
	-35	1922	11058	14944	1860	1712	9796	12972	1850	1642	9378	12327	1840	1502	8549	11091	1830
	-30	1942	11012	14930	1820	1732	9768	12977	1810	1662	9357	12338	1800	1522	8540	11114	1800
	-25	1963	10980	14962	1780	1753	9753	13020	1770	1683	9348	12397	1770	1543	8541	11168	1760
	-20	1984	11020	15127	1750	1774	9800	13175	1740	1704	9397	12549	1730	1564	8596	11315	1730
	-15	1999	11316	15699	1720	1789	10070	13677	1700	1719	9659	13029	1700	1579	8841	11751	1690
	-10	1970	12125	17333	1690	1759	10765	15047	1680	1689	10316	14314	1670	1549	9425	12876	1670
	-5	1929	13185	19480	1670	1719	11669	16837	1650	1649	11169	15980	1650	1509	10177	14336	1640
	0	1887	14534	22196	1650	1677	12817	19094	1630	1607	12251	18092	1630	1467	11128	16171	1620
	5	1845	16197	25543	1630	1635	14225	21857	1610	1565	13576	20687	1610	1425	12291	18409	1600
	10	1832	18458	29713	1620	1622	16170	25357	1600	1552	15419	23964	1600	1412	13935	21283	1580
1 1 5 0 0	-54	1864	9912	13059	2010	1654	8752	11318	2000	1584	8368	10744	1990	1444	7605	9643	1990
	-40	1919	9874	13191	1890	1709	8751	11460	1880	1639	8379	10904	1870	1499	7640	9807	1870
	-35	1940	9840	13188	1850	1730	8732	11473	1840	1660	8366	10923	1830	1520	7637	9835	1830
	-30	1961	9802	13177	1810	1751	8711	11479	1800	1681	8349	10933	1790	1541	7631	9856	1790
	-25	1982	9777	13205	1770	1772	8700	11517	1760	1702	8343	10975	1760	1562	7634	9903	1750
	-20	2003	9815	13347	1740	1793	8744	11652	1730	1723	8390	11107	1720	1583	7685	10032	1720
	-15	2018	10073	13842	1700	1808	8981	12100	1700	1738	8619	11524	1690	1598	7901	10424	1690
	-10	1986	10737	15231	1680	1776	9551	13251	1670	1706	9159	12617	1660	1566	8379	11368	1660
	-5	1945	11593	17035	1650	1735	10281	14755	1640	1665	9850	14017	1640	1525	8986	12594	1630
	0	1901	12663	19284	1630	1691	11189	16624	1620	1621	10703	15762	1620	1481	9738	14100	1610
	5	1857	13953	21998	1610	1647	12281	18873	1600	1577	11730	17865	1590	1437	10638	15922	1590
	10	1810	15644	25541	1600	1600	13707	21798	1580	1530	13070	20596	1580	1390	11808	18281	1570

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Figure 4-31 (Sheet 12)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 6000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1883	18779	24827	2080	1673	16523	21418	2060	1603	15782	20329	2050	1463	14316	18198	2040
	-40	1935	18680	25044	1960	1725	16496	21679	1940	1655	15779	20604	1930	1515	14358	18499	1920
	-35	1953	18598	25073	1910	1743	16444	21739	1890	1673	15737	20658	1890	1533	14335	18566	1880
	-30	1972	18545	25226	1870	1762	16416	21886	1860	1692	15716	20804	1850	1552	14331	18710	1840
	-25	1990	18844	26003	1840	1780	16691	22557	1820	1710	15984	21443	1810	1570	14584	19287	1800
	-20	2008	19492	27117	1810	1798	17275	23519	1790	1728	16547	22373	1780	1588	15108	20133	1770
	-15	2022	20876	29205	1780	1812	18506	25336	1760	1742	17728	24104	1760	1602	16191	21698	1740
	-10	2035	23408	32981	1770	1825	20734	28589	1750	1755	19860	27193	1740	1615	18134	24459	1730
	-5	2047	26877	38155	1770	1837	23782	33022	1740	1767	22771	31383	1730	1627	20779	28225	1720
	0	2059	31655	45269	1770	1849	27952	39102	1740	1779	26748	37139	1730	1639	24379	33346	1710
	5	2071	38370	55283	1790	1861	33774	47585	1760	1791	32286	45153	1750	1651	29373	40470	1720
	10	2082	48925	71037	1850	1872	42815	60789	1800	1802	40857	57563	1780	1662	37047	51409	1750
1 6 5 0 0	-54	1869	18036	23996	2080	1659	15860	20691	2050	1589	15145	19621	2050	1449	13729	17549	2030
	-40	1921	17942	24215	1950	1711	15836	20952	1930	1641	15146	19908	1920	1501	13772	17858	1910
	-35	1939	17864	24259	1910	1729	15787	21002	1890	1659	15103	19961	1880	1519	13750	17925	1870
	-30	1959	17812	24407	1870	1749	15758	21144	1850	1679	15083	20103	1840	1539	13745	18064	1830
	-25	1975	18087	25146	1830	1765	16012	21783	1810	1695	15330	20710	1810	1555	13980	18614	1800
	-20	1993	18692	26191	1800	1783	16558	22708	1780	1713	15857	21583	1780	1573	14470	19407	1760
	-15	2009	19981	28175	1780	1798	17705	24422	1760	1728	16957	23215	1750	1588	15480	20882	1740
	-10	2020	22333	31727	1760	1810	19779	27485	1740	1740	18941	26122	1730	1600	17288	23492	1720
	-5	2032	25543	36537	1760	1822	22597	31617	1730	1752	21634	30040	1720	1612	19735	27001	1710
	0	2044	29918	43130	1760	1834	26420	37256	1730	1764	25279	35379	1720	1624	23037	31751	1700
	5	2055	35981	52291	1780	1845	31683	45005	1740	1775	30289	42702	1730	1635	27557	38262	1710
	10	2066	45299	66383	1820	1856	39696	56851	1770	1786	37892	53864	1760	1646	34375	48112	1730
1 6 0 0 0	-54	1847	16966	22796	2070	1637	14905	19626	2050	1567	14227	18610	2040	1427	12884	16622	2020
	-40	1899	16880	23029	1940	1689	14884	19885	1920	1619	14227	18881	1910	1479	12926	16916	1900
	-35	1917	16807	23064	1900	1707	14839	19937	1880	1637	14191	18938	1870	1497	12908	16984	1860
	-30	1935	16756	23204	1860	1725	14810	20083	1840	1655	14170	19072	1830	1515	12901	17116	1820
	-25	1953	16998	23890	1820	1743	15035	20665	1810	1673	14390	19637	1800	1533	13111	17627	1790
	-20	1970	17545	24858	1790	1760	15529	21523	1770	1690	14867	20445	1770	1550	13555	18362	1760
	-15	1984	18703	26664	1770	1774	16560	23094	1750	1704	15856	21941	1740	1564	14463	19713	1730
	-10	1997	20816	29911	1750	1787	18423	25880	1730	1717	17639	24598	1720	1577	16087	22097	1710
	-5	2008	23671	34283	1740	1798	20932	29637	1720	1728	20035	28147	1710	1588	18266	25274	1700
	0	2020	27515	40168	1740	1810	24294	34671	1710	1740	23243	32913	1710	1600	21173	29514	1690
	5	2031	32735	48200	1750	1821	28836	41489	1720	1751	27568	39357	1710	1611	25078	35246	1690
	10	2042	40538	60215	1780	1832	35568	51614	1740	1762	33963	48904	1730	1622	30824	43679	1700
1 5 5 0 0	-54	1838	15953	21549	2060	1628	14014	18536	2040	1558	13376	17574	2030	1418	12111	15691	2020
	-40	1892	15873	21748	1930	1682	13997	18785	1910	1612	13380	17825	1910	1472	12153	15962	1890
	-35	1911	15806	21771	1890	1701	13957	18828	1870	1631	13348	17874	1870	1491	12142	16027	1850
	-30	1931	15758	21888	1850	1721	13932	18946	1830	1651	13331	18003	1830	1511	12139	16157	1820
	-25	1950	15975	22506	1810	1740	14137	19484	1800	1670	13531	18505	1790	1530	12332	16613	1780
	-20	1964	16471	23434	1780	1754	14583	20280	1770	1684	13962	19275	1760	1544	12731	17311	1750
	-15	1960	17511	25254	1760	1750	15491	21842	1740	1680	14827	20740	1730	1540	13512	18610	1720
	-10	1973	19412	28228	1740	1763	17168	24392	1720	1693	16432	23172	1710	1553	14975	20792	1700
	-5	1984	21959	32185	1730	1774	19407	27791	1710	1704	18570	26395	1700	1564	16918	23663	1690
	0	1996	25348	37473	1720	1786	22374	32315	1700	1716	21402	30664	1690	1576	19485	27486	1670
	5	2007	29870	44575	1730	1797	26314	38347	1700	1727	25155	36367	1690	1586	22877	32546	1670
	10	2017	36466	54938	1750	1807	32021	47094	1710	1737	30580	44618	1700	1597	27757	39838	1680
1 5 0 0 0	-54	1844	15007	20252	2050	1634	13195	17446	2030	1564	12599	16536	2020	1424	11416	14784	2010
	-40	1898	14934	20440	1920	1688	13181	17671	1900	1618	12604	16783	1900	1478	11459	15043	1890
	-35	1917	14873	20463	1880	1707	13146	17713	1860	1637	12576	16831	1860	1497	11447	15102	1850
	-30	1937	14830	20585	1840	1727	13123	17824	1830	1657	12561	16942	1820	1517	11446	15215	1810
	-25	1956	15029	21139	1810	1746	13311	18318	1790	1676	12745	17404	1780	1536	11624	15646	1770
	-20	1971	15479	21990	1770	1761	13718	19049	1760	1691	13138	18112	1750	1550	11989	16278	1740
	-15	1953	16405	23778	1750	1743	14516	20553	1730	1673	13894	19526	1720	1533	12662	17519	1710
	-10	1948	18108	26648	1730	1738	16002	22996	1710	1668	15313	21837	1700	1528	13939	19566	1690
	-5	1960	20384	30252	1710	1750	18002	26089	1690	1680	17221	24766	1690	1540	15677	22177	1670
	0	1971	23382	35021	1710	1761	20628	30169	1680	1691	19727	28615	1680	1551	17949	25610	1660
	5	1982	27319	41298	1710	1772	24062	35517	1680	1702	22999	33671	1670	1562	20907	30108	1660
	10	1992	32939	50324	1720	1782	28935	43127	1690	1712	27634	40853	1680	1572	25081	36473	1660

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Figure 4-31 (Sheet 13)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 6000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1850	14129	19039	2040	1640	12436	16417	2020	1570	11877	15576	2010	1430	10770	13926	2000
	-40	1904	14063	19229	1910	1694	12424	16640	1900	1624	11884	15799	1890	1484	10811	14171	1880
	-35	1924	14008	19252	1870	1714	12392	16681	1860	1644	11859	15845	1850	1504	10802	14237	1840
	-30	1943	13968	19355	1830	1733	12373	16784	1820	1663	11846	15949	1810	1523	10802	14343	1800
	-25	1965	14151	19875	1800	1755	12546	17230	1780	1685	12017	16386	1780	1545	10967	14732	1770
	-20	1977	14562	20645	1770	1767	12918	17913	1750	1697	12376	17027	1750	1557	11301	15324	1740
	-15	1960	15391	22281	1740	1750	13632	19278	1720	1680	13053	18321	1720	1540	11904	16450	1710
	-10	1926	16895	25134	1720	1716	14918	21673	1700	1646	14268	20557	1700	1506	12980	18402	1680
	-5	1935	18931	28448	1700	1725	16705	24501	1680	1655	15974	23246	1680	1515	14528	20790	1670
	0	1947	21589	32746	1690	1737	19035	28176	1670	1667	18197	26725	1660	1527	16544	23892	1650
	5	1956	25032	38349	1690	1746	22040	32950	1660	1676	21062	31225	1660	1536	19134	27908	1640
	10	1966	29854	46248	1700	1756	26227	39631	1670	1686	25046	37531	1660	1546	22725	33484	1640
1 4 0 0 0	-54	1855	13313	17913	2030	1645	11728	15462	2010	1575	11205	14665	2010	1435	10168	13132	2000
	-40	1911	13252	18081	1910	1701	11718	15662	1890	1631	11212	14886	1890	1491	10208	13361	1880
	-35	1931	13202	18104	1860	1721	11690	15701	1850	1651	11191	14930	1850	1511	10200	13415	1840
	-30	1951	13167	18200	1830	1741	11673	15798	1810	1671	11180	15028	1810	1530	10201	13514	1800
	-25	1970	13335	18679	1790	1760	11833	16220	1780	1690	11338	15420	1770	1550	10354	13884	1760
	-20	1984	13711	19386	1760	1774	12174	16839	1740	1704	11668	16022	1740	1564	10662	14422	1730
	-15	1966	14455	20887	1730	1756	12816	18101	1720	1686	12275	17198	1710	1546	11203	15463	1700
	-10	1933	15794	23482	1710	1723	13961	20270	1690	1653	13357	19232	1690	1512	12162	17228	1680
	-5	1909	17586	26760	1690	1699	15503	23014	1670	1629	14819	21823	1670	1489	13464	19502	1660
	0	1920	19950	30658	1680	1710	17575	26345	1660	1640	16796	24963	1650	1500	15256	22301	1640
	5	1930	22972	35681	1670	1720	20215	30611	1650	1650	19313	29009	1640	1510	17532	25886	1630
	10	1940	27134	42618	1680	1730	23833	36509	1650	1660	22756	34563	1640	1520	20637	30809	1620
1 3 5 0 0	-54	1864	12551	16844	2020	1654	11067	14554	2010	1584	10577	13819	2000	1444	9605	12375	1990
	-40	1919	12495	17013	1900	1709	11059	14753	1880	1639	10585	14016	1880	1499	9644	12600	1870
	-35	1939	12450	17036	1860	1729	11033	14789	1840	1659	10566	14058	1840	1519	9637	12651	1830
	-30	1958	12418	17125	1820	1748	11019	14880	1810	1678	10557	14149	1800	1538	9639	12744	1790
	-25	1978	12573	17554	1780	1768	11168	15259	1770	1698	10704	14523	1770	1558	9782	13077	1760
	-20	1992	12919	18219	1750	1782	11482	15842	1740	1712	11008	15068	1730	1572	10066	13584	1730
	-15	1974	13589	19586	1720	1764	12059	16991	1710	1694	11554	16160	1700	1554	10553	14531	1700
	-10	1939	14784	21952	1700	1729	13082	18968	1690	1659	12521	18014	1680	1519	11408	16150	1670
	-5	1900	16357	25040	1680	1690	14421	21530	1660	1620	13784	20414	1660	1480	12523	18239	1650
	0	1894	18446	28719	1670	1684	16235	24644	1650	1614	15509	23339	1640	1474	14072	20822	1630
	5	1904	21108	33223	1660	1694	18561	28480	1640	1624	17726	26964	1630	1484	16074	24041	1620
	10	1913	24717	39374	1660	1703	21701	33698	1630	1633	20716	31889	1620	1493	18773	28411	1610
1 2 5 0 0	-54	1880	11166	14891	2010	1670	9865	12895	1990	1600	9435	12255	1990	1460	8581	11003	1980
	-40	1936	11120	15041	1890	1726	9860	13071	1870	1656	9444	12427	1870	1516	8617	11191	1860
	-35	1954	11082	15061	1840	1744	9839	13104	1830	1674	9429	12464	1830	1534	8612	11236	1820
	-30	1976	11057	15139	1810	1766	9829	13183	1800	1696	9423	12555	1790	1556	8617	11318	1780
	-25	1996	11192	15503	1770	1786	9959	13506	1760	1716	9552	12865	1760	1576	8742	11604	1750
	-20	2010	11485	16071	1740	1800	10227	14006	1730	1730	9811	13332	1720	1590	8986	12041	1720
	-15	1991	12031	17231	1710	1781	10697	14981	1700	1711	10257	14260	1690	1571	9382	12843	1690
	-10	1955	12991	19210	1680	1745	11518	16635	1670	1674	11028	15796	1670	1534	10067	14197	1660
	-5	1914	14228	21744	1660	1704	12572	18745	1650	1634	12026	17776	1640	1494	10944	15906	1640
	0	1872	15821	24966	1650	1662	13925	21422	1630	1592	13301	20282	1620	1452	12066	18093	1610
	5	1849	17862	28880	1630	1639	15675	24699	1610	1569	14957	23357	1610	1429	13536	20773	1600
	10	1859	20610	33778	1620	1649	18068	28841	1600	1579	17235	27265	1600	1439	15589	24235	1580
1 1 5 0 0	-54	1898	9933	13143	1990	1688	8791	11419	1980	1618	8414	10850	1980	1478	7664	9760	1970
	-40	1952	9894	13274	1870	1742	8789	11560	1860	1673	8424	11010	1860	1533	7697	9923	1850
	-35	1975	9863	13291	1830	1765	8773	11589	1820	1695	8412	11043	1820	1555	7694	9962	1810
	-30	1995	9843	13358	1800	1785	8765	11658	1790	1715	8409	11112	1780	1575	7700	10034	1780
	-25	2015	9961	13667	1760	1805	8880	11934	1750	1735	8522	11378	1750	1595	7811	10291	1740
	-20	2029	10212	14155	1730	1819	9110	12365	1720	1749	8746	11778	1710	1609	8021	10657	1710
	-15	2008	10660	15145	1700	1798	9496	13196	1690	1728	9111	12572	1680	1588	8345	11341	1680
	-10	1971	11435	16811	1670	1761	10158	14589	1660	1691	9736	13865	1660	1551	8898	12480	1650
	-5	1928	12421	18918	1650	1718	10997	16331	1640	1648	10527	15509	1630	1508	9594	13898	1620
	0	1884	13663	21551	1630	1674	12052	18520	1610	1604	11520	17556	1610	1464	10467	15676	1600
	5	1840	15202	24817	1610	1630	13354	21236	1600	1560	12745	20085	1590	1420	11540	17867	1580
	10	1798	17245	29095	1600	1588	15080	24765	1580	1518	14368	23393	1580	1378	12961	20721	1560

56FMC-00-00

Figure 4-31 (Sheet 14)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 7000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1912	18877	25252	2070	1702	16643	21831	2050	1632	15909	20724	2040	1493	14456	18580	2030
	-40	1967	18717	25473	1940	1757	16560	22077	1920	1687	15852	20981	1920	1547	14449	18862	1900
	-35	1985	18770	25772	1900	1775	16624	22351	1880	1705	15919	21260	1880	1565	14524	19125	1860
	-30	2005	19260	26729	1870	1795	17071	23187	1850	1725	16352	22059	1840	1585	14929	19841	1830
	-25	2022	20204	28252	1840	1812	17916	24516	1820	1742	17166	23314	1810	1602	15681	20991	1800
	-20	2038	21231	29868	1810	1828	18834	25926	1790	1758	18047	24658	1780	1618	16493	22210	1770
	-15	2053	22959	32437	1790	1843	20368	28163	1770	1773	19520	26789	1760	1633	17843	24136	1750
	-10	2066	26055	37055	1780	1856	23095	32146	1760	1786	22127	30570	1750	1646	20218	27518	1730
	-5	2078	30357	43436	1780	1868	26865	37611	1750	1798	25727	35753	1750	1658	23488	32160	1730
	0	2090	36333	52294	1800	1880	32071	45178	1760	1810	30687	42896	1750	1670	27974	38533	1730
	5	2102	45298	65525	1840	1892	39817	56378	1790	1822	38049	53471	1780	1682	34598	47908	1750
	10	2113	60188	87396	1920	1903	52509	74627	1860	1833	50060	70638	1840	1693	45314	63019	1800
1 6 5 0 0	-54	1899	18128	24420	2060	1689	15973	21082	2040	1619	15264	20015	2030	1479	13863	17930	2020
	-40	1953	17975	24630	1940	1743	15895	21326	1920	1673	15211	20272	1910	1533	13857	18209	1900
	-35	1971	18021	24916	1900	1761	15952	21600	1880	1691	15272	20527	1870	1551	13926	18451	1860
	-30	1990	18476	25823	1860	1780	16368	22382	1840	1710	15675	21285	1840	1570	14304	19141	1820
	-25	2007	19360	27269	1830	1797	17158	23641	1810	1727	16437	22488	1800	1587	15008	20233	1790
	-20	2023	20319	28800	1800	1813	18017	24979	1780	1743	17262	23762	1780	1603	15768	21375	1760
	-15	2037	21922	31214	1780	1827	19442	27080	1760	1757	18628	25764	1750	1617	17021	23185	1740
	-10	2050	24789	35542	1770	1840	21967	30813	1750	1770	21044	29295	1740	1630	19222	26353	1720
	-5	2062	28738	41455	1770	1852	25431	35894	1740	1782	24351	34114	1730	1642	22226	30669	1720
	0	2074	34159	49600	1780	1864	30159	42838	1750	1794	28858	40687	1740	1654	26305	36536	1720
	5	2086	42151	61546	1810	1876	37077	52963	1770	1806	35437	50253	1760	1666	32231	45019	1730
	10	2097	55058	80776	1880	1887	48121	69074	1830	1817	45900	65398	1810	1677	41586	58394	1770
1 6 0 0 0	-54	1877	17049	23202	2050	1667	15008	20000	2030	1597	14337	18977	2020	1457	13007	16977	2010
	-40	1930	16907	23413	1930	1720	14937	20253	1910	1650	14289	19230	1900	1510	13005	17251	1890
	-35	1949	16943	23692	1890	1739	14985	20498	1870	1669	14341	19480	1860	1529	13065	17488	1850
	-30	1967	17350	24519	1850	1757	15357	21234	1830	1687	14702	20171	1830	1547	13405	18117	1810
	-25	1984	18153	25860	1820	1774	16075	22389	1800	1704	15393	21284	1800	1564	14044	19126	1780
	-20	2000	19018	27269	1790	1790	16851	23621	1770	1720	16140	22459	1770	1580	14732	20192	1750
	-15	2013	20450	29470	1770	1803	18125	25536	1750	1733	17363	24286	1740	1593	15852	21828	1730
	-10	2026	23008	33389	1760	1816	20379	28914	1730	1746	19518	27491	1730	1606	17817	24706	1710
	-5	2038	26491	38703	1750	1828	23433	33478	1730	1758	22435	31805	1720	1618	20462	28576	1700
	0	2050	31188	45909	1760	1840	27539	39628	1730	1770	26351	37628	1720	1630	24014	33765	1700
	5	2061	37953	56232	1780	1851	33410	48388	1740	1781	31938	45908	1730	1641	29054	41112	1710
	10	2072	48488	72258	1830	1862	42465	61876	1780	1792	40527	58621	1770	1652	36753	52335	1740
1 5 5 0 0	-54	1861	16030	21988	2040	1651	14103	18943	2020	1581	13468	17957	2020	1441	12212	16049	2000
	-40	1917	15897	22163	1920	1707	14040	19158	1900	1637	13433	18200	1890	1497	12217	16313	1880
	-35	1938	15926	22403	1880	1727	14083	19373	1860	1657	13477	18407	1850	1517	12274	16517	1840
	-30	1955	16293	23167	1840	1745	14420	20053	1820	1675	13804	19046	1820	1535	12582	17109	1810
	-25	1964	17019	24486	1810	1754	15064	21190	1790	1684	14420	20124	1790	1544	13147	18066	1780
	-20	1976	17805	25827	1780	1766	15763	22341	1760	1696	15092	21231	1760	1556	13764	19064	1750
	-15	1990	19087	27839	1760	1780	16904	24090	1740	1710	16186	22897	1730	1570	14767	20569	1720
	-10	2002	21374	31408	1740	1792	18920	27166	1720	1722	18115	25804	1710	1582	16525	23176	1700
	-5	2014	24450	36196	1730	1804	21622	31266	1710	1734	20697	29706	1700	1594	18871	26656	1690
	0	2025	28547	42576	1740	1815	25205	36740	1710	1745	24114	34874	1700	1605	21968	31269	1680
	5	2036	34319	51562	1750	1826	30225	44374	1720	1756	28894	42091	1710	1616	26283	37691	1690
	10	2047	43032	65127	1790	1837	37740	55819	1750	1767	36031	52887	1730	1627	32693	47233	1710
1 5 0 0 0	-54	1867	15071	20654	2030	1657	13273	17812	2010	1587	12679	16899	2010	1447	11504	15114	2000
	-40	1923	14951	20831	1910	1713	13217	18014	1890	1643	12645	17115	1890	1503	11512	15354	1880
	-35	1944	14978	21043	1870	1733	13258	18225	1850	1663	12691	17311	1850	1523	11567	15544	1840
	-30	1961	15314	21757	1830	1751	13566	18840	1820	1681	12991	17911	1810	1541	11852	16093	1800
	-25	1970	15969	22950	1800	1760	14148	19880	1780	1690	13549	18887	1780	1550	12361	16978	1770
	-20	1965	16672	24335	1770	1755	14759	21054	1750	1685	14130	19994	1750	1545	12884	17946	1740
	-15	1965	17819	26305	1750	1755	15767	22731	1730	1685	15093	21594	1720	1545	13754	19370	1710
	-10	1977	19869	29564	1730	1767	17575	25539	1710	1697	16822	24246	1700	1557	15332	21751	1690
	-5	1989	22597	33880	1720	1779	19972	29245	1700	1709	19112	27760	1690	1569	17414	24896	1680
	0	2000	26183	39581	1720	1790	23111	34124	1690	1720	22107	32378	1680	1580	20128	29004	1670
	5	2011	31141	47475	1720	1801	27429	40835	1700	1731	26221	38724	1690	1591	23846	34652	1670
	10	2021	38426	59061	1750	1811	33730	50623	1710	1741	32209	47960	1700	1601	29231	42838	1680

56FMC-00-00

Figure 4-31 (Sheet 15)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 7000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1873	14183	19420	2020	1663	12501	16763	2010	1593	11947	15901	2000	1453	10848	14231	1990
	-40	1929	14073	19577	1900	1719	12452	16955	1880	1649	11918	16115	1880	1509	10858	14467	1870
	-35	1950	14100	19774	1860	1740	12492	17142	1840	1670	11962	16298	1840	1530	10910	14645	1830
	-30	1968	14408	20431	1820	1758	12776	17720	1810	1688	12238	16841	1800	1548	11171	15141	1790
	-25	1976	15001	21536	1790	1766	13304	18663	1780	1696	12745	17747	1770	1556	11636	15955	1760
	-20	1971	15627	22786	1760	1761	13849	19734	1750	1691	13267	18750	1740	1551	12103	16838	1730
	-15	1949	16643	24775	1740	1739	14721	21393	1720	1669	14089	20316	1710	1529	12836	18215	1700
	-10	1952	18477	27840	1720	1742	16330	24016	1700	1672	15624	22788	1690	1532	14227	20418	1680
	-5	1963	20901	31753	1710	1753	18460	27375	1690	1683	17660	25972	1680	1543	16077	23265	1670
	0	1974	24052	36852	1700	1764	21220	31737	1680	1694	20293	30101	1670	1554	18465	26950	1650
	5	1985	28335	43809	1700	1775	24955	37669	1680	1705	23852	35709	1670	1565	21682	31927	1650
	10	1995	34480	53826	1720	1785	30281	46124	1690	1715	28917	43690	1680	1575	26242	39004	1660
1 4 0 0 0	-54	1880	13357	18254	2010	1670	11784	15771	2000	1600	11262	14971	1990	1460	10236	13412	1980
	-40	1936	13257	18401	1890	1726	11741	15952	1880	1656	11241	15166	1870	1516	10248	13625	1860
	-35	1957	13283	18595	1850	1747	11779	16137	1840	1677	11283	15338	1830	1537	10298	13792	1820
	-30	1975	13567	19190	1820	1765	12041	16661	1800	1695	11538	15850	1800	1555	10539	14261	1790
	-25	1981	14105	20204	1780	1772	12522	17538	1770	1702	11999	16673	1770	1562	10963	15000	1760
	-20	1978	14666	21346	1750	1768	13010	18505	1740	1698	12464	17596	1730	1558	11382	15817	1720
	-15	1956	15569	23160	1730	1745	13786	20029	1710	1675	13198	19017	1710	1535	12034	17062	1700
	-10	1926	17184	26207	1710	1716	15172	22585	1690	1646	14510	21418	1680	1506	13200	19164	1670
	-5	1937	19344	29763	1690	1727	17070	25637	1670	1657	16324	24310	1670	1517	14848	21749	1660
	0	1948	22121	34367	1680	1738	19504	29563	1660	1668	18646	28025	1660	1528	16952	25063	1640
	5	1958	25838	40529	1680	1748	22748	34816	1660	1678	21738	32991	1650	1538	19748	29469	1630
	10	1968	31062	49239	1690	1758	27283	42189	1660	1688	26053	39952	1650	1548	23636	35642	1640
1 3 5 0 0	-54	1886	12586	17168	2010	1676	11115	14849	1990	1606	10629	14094	1990	1466	9665	12643	1980
	-40	1944	12496	17306	1880	1734	11077	15019	1870	1664	10608	14285	1870	1524	9678	12843	1860
	-35	1965	12521	17476	1840	1755	11114	15181	1830	1685	10649	14445	1830	1545	9726	12999	1820
	-30	1983	12783	18037	1810	1773	11356	15665	1800	1703	10885	14909	1790	1563	9950	13424	1780
	-25	1991	13274	18958	1780	1781	11795	16473	1760	1711	11307	15677	1760	1571	10338	14116	1750
	-20	1985	13776	20015	1750	1775	12232	17358	1730	1705	11723	16512	1730	1565	10712	14852	1720
	-15	1961	14583	21661	1720	1752	12925	18752	1700	1682	12379	17821	1700	1542	11295	16001	1690
	-10	1928	16009	24481	1700	1718	14144	21098	1680	1648	13531	20022	1680	1507	12314	17923	1670
	-5	1911	17910	27922	1680	1701	15789	24004	1660	1631	15092	22760	1660	1491	13712	20335	1650
	0	1921	20364	32065	1670	1711	17940	27546	1650	1641	17145	26112	1640	1501	15573	23324	1630
	5	1931	23605	37559	1670	1721	20770	32229	1640	1651	19842	30526	1640	1511	18012	27250	1620
	10	1941	28076	45181	1670	1731	24656	38699	1640	1661	23541	36634	1640	1521	21346	32654	1620
1 2 5 0 0	-54	1906	11189	15168	1990	1695	9900	13147	1980	1625	9474	12488	1980	1485	8627	11222	1970
	-40	1961	11114	15287	1870	1751	9870	13295	1860	1681	9459	12656	1860	1541	8642	11397	1850
	-35	1983	11139	15434	1830	1772	9905	13437	1820	1702	9497	12796	1820	1562	8686	11534	1810
	-30	2001	11364	15903	1800	1791	10115	13852	1780	1721	9702	13194	1780	1581	8881	11911	1770
	-25	2009	11775	16697	1760	1798	10482	14541	1750	1728	10056	13850	1750	1588	9208	12491	1740
	-20	2002	12180	17575	1730	1792	10836	15285	1720	1722	10393	14552	1720	1582	9511	13112	1710
	-15	1978	12828	18972	1700	1768	11392	16459	1690	1698	10919	15643	1690	1558	9978	14077	1680
	-10	1941	13956	21293	1680	1731	12357	18399	1670	1661	11829	17463	1660	1521	10783	15655	1650
	-5	1901	15414	24270	1660	1691	13598	20880	1650	1620	13000	19787	1640	1480	11815	17678	1630
	0	1866	17287	27983	1640	1656	15199	23970	1630	1586	14511	22696	1620	1446	13151	20217	1610
	5	1876	19777	32388	1640	1666	17372	27719	1620	1596	16583	26227	1610	1456	15024	23354	1600
	10	1885	23104	38330	1630	1675	20268	32763	1610	1605	19340	30988	1600	1465	17509	27562	1590
1 1 5 0 0	-54	1921	9946	13377	1980	1711	8816	11621	1970	1641	8442	11057	1970	1501	7699	9944	1960
	-40	1980	9884	13480	1860	1770	8793	11749	1850	1700	8432	11194	1850	1560	7715	10097	1840
	-35	2001	9909	13607	1820	1791	8827	11872	1810	1721	8469	11316	1810	1581	7757	10216	1800
	-30	2020	10104	14009	1780	1810	9010	12242	1770	1740	8648	11659	1770	1600	7927	10545	1770
	-25	2027	10450	14687	1750	1817	9320	12820	1740	1747	8946	12221	1740	1607	8204	11040	1730
	-20	2020	10779	15429	1720	1810	9608	13449	1710	1740	9220	12815	1710	1600	8451	11565	1700
	-15	1995	11303	16614	1690	1785	10057	14444	1680	1715	9645	13736	1680	1575	8827	12383	1670
	-10	1956	12204	18537	1670	1746	10826	16050	1650	1676	10371	15254	1650	1536	9468	13695	1640
	-5	1912	13346	20985	1640	1702	11798	18089	1630	1632	11288	17164	1630	1492	10274	15357	1620
	0	1869	14775	24039	1620	1659	13011	20617	1610	1589	12430	19530	1610	1449	11278	17413	1600
	5	1824	16622	27946	1610	1614	14570	23864	1590	1544	13898	22557	1590	1404	12564	20037	1580
	10	1823	19127	32737	1600	1613	16742	27902	1580	1543	15960	26359	1580	1403	14413	23390	1560

56FMC-00-00

Figure 4-31 (Sheet 16)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 8000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1946	18985	25646	2060	1736	16774	22196	2030	1666	16051	21088	2030	1526	14610	18933	2010
	-35	2020	19730	27548	1900	1810	17498	23922	1880	1740	16766	22750	1870	1600	15317	20484	1860
	-30	2037	20793	29211	1870	1827	18449	25375	1850	1757	17680	24136	1840	1617	16160	21743	1830
	-25	2053	21999	31115	1840	1843	19524	27021	1820	1773	18713	25704	1810	1633	17111	23163	1800
	-20	2070	23180	32986	1810	1860	20579	28652	1790	1790	19727	27259	1780	1650	18045	24572	1770
	-15	2084	25270	36090	1800	1874	22433	31352	1770	1804	21508	29834	1760	1664	19673	26896	1750
	-10	2097	28940	41589	1790	1887	25661	36075	1760	1817	24590	34315	1760	1677	22483	30908	1740
	-5	2109	34097	49250	1800	1899	30173	42648	1770	1829	28896	40546	1760	1689	26390	36486	1740
	0	2122	41630	60448	1830	1912	36716	52170	1790	1842	35127	49554	1780	1702	32017	44495	1750
	5	2131	53273	77647	1890	1921	46728	66648	1830	1851	44628	63186	1820	1712	40544	56578	1790
	9	2143	68865	100496	1980	1933	59935	85627	1910	1863	57102	81012	1890	1723	51633	72195	1850
	10	2145	74319	108515	2010	1935	64498	92183	1940	1865	61395	87117	1910	1725	55423	77527	1870
1 6 5 0 0	-54	1932	18228	24787	2050	1722	16097	21433	2030	1652	15396	20363	2020	1512	14009	18270	2010
	-40	1986	18365	25614	1930	1776	16268	22200	1910	1706	15579	21111	1900	1566	14215	18984	1890
	-35	2005	18917	26619	1890	1795	16770	23083	1870	1725	16064	21956	1860	1585	14668	19744	1850
	-30	2022	19909	28192	1860	1812	17658	24458	1840	1742	16919	23257	1830	1602	15457	20935	1820
	-25	2038	21036	29981	1830	1828	18663	26016	1810	1758	17885	24741	1800	1618	16346	22279	1790
	-20	2054	22136	31747	1800	1844	19645	27555	1780	1774	18829	26208	1780	1634	17216	23608	1760
	-15	2068	24066	34652	1790	1858	21358	30081	1760	1788	20471	28628	1760	1648	18721	25782	1740
	-10	2081	27443	39759	1780	1871	24331	34485	1750	1801	23314	32794	1750	1661	21310	29521	1730
	-5	2094	32140	46852	1780	1883	28444	40537	1750	1813	27241	38551	1740	1673	24875	34675	1730
	0	2106	38907	57035	1810	1896	34332	49222	1770	1826	32850	46751	1760	1686	29945	41968	1730
	5	2117	49133	72333	1850	1907	43150	62147	1810	1837	41225	58927	1790	1697	37473	52772	1760
	10	2128	66926	98782	1960	1918	58257	84170	1890	1848	55503	79589	1870	1708	50183	70926	1830
1 6 0 0 0	-54	1910	17140	23549	2040	1700	15121	20343	2020	1630	14457	19306	2010	1490	13143	17300	2000
	-40	1963	17258	24333	1920	1753	15274	21072	1900	1683	14622	20017	1890	1543	13330	17978	1880
	-35	1982	17752	25261	1880	1772	15724	21875	1860	1702	15057	20797	1850	1562	13738	18690	1840
	-30	2001	18648	26712	1850	1790	16527	23144	1830	1720	15830	21995	1820	1580	14451	19776	1810
	-25	2014	19666	28360	1820	1804	17435	24578	1800	1734	16703	23362	1790	1594	15255	21014	1780
	-20	2030	20654	29981	1790	1820	18319	25991	1770	1750	17553	24709	1770	1610	16038	22234	1750
	-15	2044	22368	32614	1770	1834	19840	28281	1750	1764	19012	26889	1740	1624	17375	24204	1730
	-10	2057	25355	37220	1760	1847	22471	32236	1740	1777	21528	30644	1730	1637	19668	27575	1720
	-5	2069	29449	43496	1760	1859	26062	37624	1740	1789	24957	35769	1730	1649	22782	32149	1710
	0	2081	35238	52375	1780	1871	31109	45207	1740	1801	29768	42929	1730	1661	27136	38537	1710
	5	2092	43725	65358	1810	1882	38453	56203	1770	1812	36751	53294	1760	1672	33424	47725	1730
	10	2103	57795	86788	1890	1893	50478	74133	1830	1823	48138	70166	1810	1683	43599	62586	1780
1 5 5 0 0	-54	1898	16110	22267	2030	1688	14210	19226	2010	1618	13585	18251	2000	1478	12346	16348	1990
	-40	1955	16213	22971	1910	1745	14350	19888	1890	1675	13737	18890	1880	1535	12522	16961	1870
	-35	1972	16658	23840	1870	1762	14755	20639	1850	1692	14129	19619	1850	1552	12889	17625	1830
	-30	1974	17469	25314	1840	1764	15469	21902	1820	1694	14811	20815	1810	1554	13509	18693	1800
	-25	1990	18391	26835	1810	1780	16292	23226	1790	1710	15603	22066	1780	1570	14238	19824	1770
	-20	2006	19280	28312	1780	1796	17088	24526	1760	1726	16371	23307	1760	1586	14944	20946	1740
	-15	2020	20805	30719	1760	1810	18442	26606	1740	1740	17667	25285	1730	1600	16134	22734	1720
	-10	2032	23455	34871	1750	1822	20778	30184	1720	1752	19900	28680	1720	1612	18170	25782	1700
	-5	2044	27040	40481	1740	1834	23924	35002	1720	1764	22907	33249	1710	1624	20901	29857	1690
	0	2056	32026	48295	1750	1846	28280	41665	1720	1776	27060	39557	1710	1636	24662	35486	1690
	5	2067	39145	59409	1770	1857	34457	51091	1740	1787	32938	48463	1730	1647	29963	43387	1700
	10	2077	50483	77081	1830	1867	44194	65949	1780	1797	42173	62438	1770	1657	38238	55740	1740
1 5 0 0 0	-54	1902	15151	20927	2020	1692	13373	18072	2000	1622	12789	17164	1990	1482	11630	15385	1980
	-40	1960	15240	21562	1900	1750	13502	18687	1880	1680	12929	17766	1870	1540	11794	15963	1860
	-35	1978	15647	22362	1860	1768	13873	19389	1840	1698	13289	18426	1840	1558	12131	16565	1830
	-30	1971	16370	23795	1830	1761	14502	20592	1810	1691	13887	19571	1810	1551	12669	17578	1790
	-25	1966	17201	25397	1800	1755	15225	21951	1780	1685	14575	20842	1780	1545	13288	18702	1760
	-20	1981	18004	26759	1770	1771	15943	23149	1750	1701	15266	21984	1750	1561	13926	19735	1730
	-15	1996	19363	28937	1750	1786	17151	25042	1730	1716	16424	23786	1720	1576	14987	21362	1710
	-10	2007	21720	32703	1730	1797	19229	28287	1710	1727	18412	26866	1700	1587	16798	24125	1690
	-5	2019	24870	37737	1730	1809	21996	32597	1700	1739	21056	30951	1690	1599	19201	27781	1680
	0	2028	29190	44636	1730	1819	25774	38481	1700	1749	24660	36521	1690	1609	22466	32752	1670
	5	2041	35216	54269	1740	1831	31013	46660	1710	1761	29648	44253	1700	1621	26971	39616	1680
	10	2051	44492	69076	1780	1841	39010	59138	1740	1771	37242	56019	1730	1631	33789	50012	1700

56FMC-00-00

Figure 4-31 (Sheet 17)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

FLAPS - 7° 8000 FEET

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1910	14255	19658	2010	1700	12598	17008	1990	1630	12051	16149	1990	1490	10967	14495	1980
	-40	1968	14340	20262	1890	1758	12717	17577	1870	1688	12181	16706	1870	1548	11120	15022	1860
	-35	1985	14712	20985	1850	1775	13057	18213	1840	1705	12511	17326	1830	1565	11430	15588	1820
	-30	1977	15359	22295	1820	1767	13621	19326	1800	1697	13047	18362	1800	1557	11911	16503	1790
	-25	1967	16097	23773	1790	1758	14260	20564	1770	1688	13655	19542	1770	1548	12458	17545	1760
	-20	1964	16814	25209	1760	1754	14884	21792	1740	1684	14249	20689	1740	1544	12988	18555	1730
	-15	1969	18026	27281	1730	1759	15953	23576	1720	1689	15271	22381	1710	1549	13922	20075	1700
	-10	1981	20128	30707	1720	1771	17806	26514	1700	1701	17044	25181	1690	1561	15538	22573	1680
	-5	1993	22907	35241	1710	1783	20248	30393	1690	1713	19377	28859	1680	1573	17658	25863	1670
	0	2004	26668	41364	1710	1794	23540	35628	1680	1724	22518	33817	1670	1584	20505	30286	1660
	5	2014	31805	49758	1720	1804	28015	42759	1690	1734	26781	40543	1680	1594	24356	36270	1660
	10	2025	39487	62330	1750	1815	34657	53372	1710	1745	33094	50556	1700	1605	30033	45142	1670
1 4 5 0 0	-54	1917	13426	18473	2000	1707	11876	16000	1990	1637	11364	15207	1980	1497	10350	13651	1970
	-40	1975	13504	19032	1880	1765	11986	16527	1870	1695	11486	15725	1860	1555	10492	14150	1850
	-35	1992	13846	19711	1840	1782	12300	17115	1830	1712	11790	16287	1820	1572	10778	14664	1820
	-30	1984	14426	20899	1810	1774	12804	18133	1800	1704	12270	17236	1790	1564	11210	15513	1780
	-25	1976	15083	22247	1780	1766	13376	19262	1760	1696	12813	18311	1760	1556	11698	16452	1750
	-20	1971	15720	23550	1750	1761	13930	20378	1730	1691	13341	19365	1730	1551	12173	17384	1720
	-15	1946	16786	25705	1720	1736	14842	22185	1710	1666	14203	21049	1700	1526	12936	18858	1690
	-10	1955	18662	28846	1710	1745	16495	24873	1690	1675	15783	23610	1680	1535	14374	21150	1670
	-5	1966	21120	32928	1690	1756	18655	28376	1670	1686	17847	26918	1670	1546	16249	24107	1660
	0	1977	24407	38397	1690	1767	21534	33054	1670	1697	20594	31345	1660	1557	18740	28044	1640
	5	1987	28814	45755	1690	1777	25377	39308	1670	1707	24256	37258	1660	1567	22051	33304	1640
	10	1997	35240	56532	1710	1787	30946	48419	1680	1717	29553	45857	1670	1577	26819	40927	1650
1 3 5 0 0	-54	1925	12652	17373	1990	1715	11202	15063	1980	1645	10723	14312	1970	1505	9771	12864	1960
	-40	1983	12725	17877	1870	1773	11306	15540	1860	1703	10835	14790	1850	1563	9907	13321	1850
	-35	2000	13040	18505	1840	1790	11595	16095	1820	1720	11118	15311	1820	1580	10171	13807	1810
	-30	1992	13561	19595	1800	1782	12049	17019	1790	1712	11550	16194	1780	1572	10559	14576	1780
	-25	1983	14148	20826	1770	1773	12559	18062	1760	1703	12035	17165	1750	1563	10996	15445	1740
	-20	1978	14715	22025	1740	1768	13053	19067	1730	1698	12505	18125	1720	1558	11419	16284	1710
	-15	1951	15657	23971	1710	1741	13859	20708	1700	1671	13267	19655	1690	1531	12093	17632	1680
	-10	1928	17306	27104	1700	1718	15280	23336	1680	1648	14614	22138	1670	1508	13296	19805	1660
	-5	1939	19485	30803	1680	1729	17196	26508	1660	1659	16445	25132	1660	1519	14958	22480	1640
	0	1950	22367	35689	1670	1740	19721	30686	1650	1670	18854	29086	1650	1530	17142	26005	1630
	5	1960	26167	42190	1670	1750	23038	36212	1650	1680	22016	34310	1640	1540	20001	30654	1620
	10	1970	31590	51507	1690	1760	27745	44094	1660	1690	26494	41750	1650	1550	24037	37237	1630
1 2 5 0 0	-54	1942	11250	15344	1980	1732	9980	13334	1970	1662	9560	12688	1960	1522	8725	11417	1950
	-40	2001	11314	15772	1860	1791	10071	13741	1850	1721	9660	13090	1840	1581	8844	11820	1840
	-35	2018	11584	16312	1820	1808	10320	14220	1810	1738	9902	13537	1810	1598	9072	12230	1800
	-30	2009	12006	17234	1790	1799	10688	15001	1780	1729	10252	14286	1770	1589	9387	12880	1770
	-25	2000	12478	18268	1760	1790	11098	15877	1740	1720	10643	15100	1740	1580	9738	13610	1730
	-20	1994	12930	19256	1730	1784	11493	16716	1710	1714	11019	15903	1710	1574	10077	14310	1700
	-15	1966	13673	20887	1700	1756	12128	18082	1690	1686	11618	17174	1680	1546	10607	15420	1670
	-10	1928	14949	23534	1680	1718	13217	20282	1660	1648	12647	19248	1660	1508	11515	17230	1650
	-5	1886	16607	26943	1660	1676	14627	23133	1640	1606	13975	21907	1640	1466	12686	19545	1630
	0	1893	18837	30930	1650	1683	16577	26521	1630	1613	15836	25123	1620	1473	14368	22405	1610
	5	1903	21703	36060	1640	1693	19081	30893	1620	1623	18222	29242	1610	1483	16526	26067	1600
	10	1912	25644	43162	1640	1702	22510	36919	1620	1632	21486	34931	1610	1492	19469	31098	1590
1 1 5 0 0	-54	1960	10004	13529	1970	1750	8890	11783	1960	1680	8522	11223	1950	1540	7789	10115	1940
	-40	2020	10061	13892	1850	1810	8972	12144	1840	1740	8611	11566	1830	1600	7894	10462	1830
	-35	2037	10294	14358	1810	1827	9187	12546	1800	1757	8821	11965	1800	1617	8093	10817	1790
	-30	2027	10639	15142	1780	1817	9488	13210	1770	1747	9107	12590	1760	1607	8351	11370	1760
	-25	2017	11019	16002	1740	1807	9819	13950	1730	1737	9422	13276	1730	1597	8634	11987	1720
	-20	2011	11383	16845	1710	1801	10137	14654	1700	1731	9725	13953	1700	1591	8907	12575	1690
	-15	1981	11974	18202	1680	1771	10641	15788	1670	1701	10201	15017	1670	1561	9327	13503	1660
	-10	1942	12981	20391	1660	1732	11498	17615	1650	1662	11010	16729	1640	1522	10040	14997	1640
	-5	1898	14253	23155	1640	1688	12582	19919	1630	1618	12031	18887	1620	1478	10938	16875	1610
	0	1855	15915	26710	1620	1645	13991	22864	1610	1575	13358	21644	1600	1435	12104	19270	1590
	5	1841	18079	30983	1610	1631	15858	26462	1590	1561	15128	25017	1590	1421	13684	22237	1580
	10	1850	21004	36523	1600	1640	18403	31160	1580	1570	17551	29463	1580	1430	15867	26163	1560

56FMC-00-00

Figure 4-31 (Sheet 18)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES
AND TAKEOFF CLIMB INCREMENT (TCI)
ANTI-ICE SYSTEMS - ON****FLAPS - 7°
9000 FEET****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1979	19591	27025	2050	1769	17332	23402	2020	1699	16591	22248	2020	1559	15124	19994	2000
	-35	2052	21485	30393	1900	1842	19072	26394	1880	1772	18280	25122	1870	1632	16717	22626	1860
	-30	2068	22670	32265	1870	1858	20131	28029	1850	1788	19303	26687	1840	1648	17656	24041	1830
	-25	2085	24174	34666	1850	1875	21467	30113	1820	1805	20581	28651	1810	1665	18833	25832	1800
	-20	2102	25475	36764	1820	1892	22631	31942	1800	1822	21699	30394	1790	1682	19863	27412	1770
	-15	2116	28099	40905	1810	1906	24945	35496	1780	1836	23915	33770	1770	1696	21887	30449	1750
	-10	2130	32617	47919	1810	1920	28901	41499	1780	1850	27692	39457	1770	1710	25318	35518	1750
	-5	2143	39187	58132	1830	1933	34612	50156	1790	1862	33131	47641	1780	1722	30235	42783	1760
	0	2155	49139	73708	1870	1945	43168	63191	1830	1875	41252	59892	1810	1735	37525	53612	1780
	5	2167	65997	100395	1970	1957	57380	85024	1900	1887	54660	80293	1880	1747	49424	71376	1840
	7	2172	76835	117750	2040	1962	66314	98900	1960	1892	63029	93183	1930	1752	56756	82418	1890
	8	2174	83823	129130	2090	1964	71979	107816	2000	1894	68311	101385	1970	1754	61342	89380	1910
1 6 5 0 0	-54	1964	18794	26105	2040	1754	16619	22598	2020	1684	15904	21465	2010	1544	14491	19275	2000
	-35	2036	20558	29302	1890	1826	18241	25440	1870	1756	17481	24193	1860	1616	15979	21786	1850
	-30	2053	21660	31083	1860	1843	19227	26982	1840	1773	18429	25665	1830	1633	16853	23121	1820
	-25	2069	23059	33330	1840	1859	20471	28932	1810	1789	19623	27520	1810	1649	17950	24797	1790
	-20	2086	24266	35303	1810	1876	21549	30650	1790	1806	20659	29158	1780	1666	18904	26280	1760
	-15	2100	26668	39151	1790	1890	23672	33957	1770	1820	22693	32299	1760	1680	20763	29106	1750
	-10	2114	30790	45636	1790	1904	27285	39510	1770	1834	26143	37561	1760	1694	23899	33798	1740
	-5	2126	36705	54935	1810	1916	32436	47403	1770	1846	31052	45024	1760	1706	28340	40426	1740
	0	2139	45478	68809	1840	1929	40003	59066	1800	1859	38240	55994	1790	1718	34806	50136	1760
	5	2151	59816	91710	1920	1940	52169	77943	1860	1870	49740	73693	1840	1730	45048	65595	1810
	8	2157	74232	115117	2010	1947	64128	96760	1930	1877	60965	91134	1910	1737	54916	80638	1860
	10	2162	87644	137373	2100	1952	74976	114087	2000	1882	71071	107129	1970	1742	63675	94145	1920
1 6 0 0 0	-54	1941	17649	24782	2030	1731	15594	21423	2010	1661	14918	20338	2000	1521	13581	18240	1990
	-40	1995	18432	26413	1910	1785	16334	22880	1890	1715	15644	21743	1890	1575	14280	19546	1870
	-35	2013	19236	27739	1880	1803	17056	24053	1860	1733	16340	22863	1850	1593	14924	20565	1840
	-30	2029	20224	29358	1850	1819	17941	25454	1830	1749	17192	24212	1820	1609	15710	21789	1810
	-25	2045	21480	31431	1820	1835	19060	27254	1800	1765	18264	25911	1790	1625	16697	23325	1780
	-20	2062	22556	33230	1800	1852	20021	28820	1770	1782	19190	27405	1770	1642	17549	24677	1750
	-15	2073	24667	36672	1780	1864	21889	31778	1750	1794	20979	30230	1750	1654	19186	27204	1730
	-10	2089	28269	42434	1770	1879	25051	36733	1750	1809	24001	34911	1740	1669	21933	31391	1720
	-5	2101	33345	50558	1780	1891	29481	43639	1750	1821	28226	41444	1740	1681	25761	37215	1720
	0	2113	40668	62364	1810	1903	35822	53599	1770	1833	34257	50819	1760	1693	31197	45508	1730
	5	2125	52107	80936	1860	1915	45602	69038	1810	1845	43522	65324	1800	1705	39484	58245	1760
	10	2136	72443	114656	1980	1926	62574	96271	1910	1856	59481	90674	1890	1716	53558	80122	1840
1 5 5 0 0	-54	1921	16574	23499	2020	1711	14633	20289	2000	1641	13994	19263	1990	1501	12729	17257	1980
	-40	1972	17280	25046	1900	1761	15299	21665	1880	1691	14648	20577	1880	1551	13359	18475	1870
	-35	1989	18003	26267	1870	1778	15950	22747	1850	1708	15276	21610	1840	1568	13940	19415	1830
	-30	2005	18892	27755	1840	1795	16747	24033	1820	1725	16042	22849	1810	1585	14648	20539	1800
	-25	2021	20023	29645	1810	1811	17754	25674	1790	1741	17010	24411	1780	1601	15538	21949	1770
	-20	2037	20983	31288	1780	1827	18613	27105	1760	1757	17836	25775	1750	1617	16300	23185	1740
	-15	2051	22845	34392	1760	1841	20262	29786	1740	1771	19416	28309	1730	1631	17745	25464	1720
	-10	2063	26005	39551	1750	1853	23040	34210	1730	1783	22071	32503	1720	1643	20161	29202	1710
	-5	2076	30390	46716	1760	1866	26874	40290	1730	1796	25729	38255	1720	1656	23478	34348	1700
	0	2088	36566	56850	1770	1878	32238	48875	1740	1808	30836	46362	1730	1668	28088	41511	1710
	5	2099	45864	72244	1810	1889	40231	61732	1770	1819	38421	58462	1760	1679	34894	52161	1730
	10	2110	61355	98277	1900	1900	53317	83081	1840	1830	50769	78374	1820	1690	45856	69501	1780
1 5 0 0 0	-54	1927	15561	22050	2010	1717	13752	19047	1990	1647	13157	18089	1980	1507	11977	16218	1970
	-40	1975	16200	23487	1890	1764	14355	20331	1870	1694	13748	19327	1870	1554	12545	17362	1860
	-35	1973	16851	24785	1860	1763	14921	21444	1840	1693	14292	20371	1830	1553	13037	18289	1820
	-30	1980	17647	26241	1830	1770	15634	22696	1810	1700	14970	21566	1800	1560	13657	19362	1790
	-25	1998	18672	27986	1800	1787	16543	24205	1780	1717	15844	23003	1770	1577	14461	20659	1760
	-20	2012	19531	29490	1770	1802	17313	25516	1750	1732	16585	24253	1740	1592	15144	21779	1730
	-15	2025	21177	32298	1750	1815	18771	27941	1730	1745	17982	26544	1720	1605	16423	23851	1710
	-10	2038	23961	36921	1740	1828	21220	31907	1720	1758	20323	30302	1710	1618	18554	27213	1690
	-5	2050	27770	43259	1740	1840	24555	37303	1710	1770	23507	35409	1700	1630	21442	31770	1690
	0	2061	33023	52048	1750	1851	29129	44764	1710	1781	27864	42457	1700	1641	25381	38018	1690
	5	2073	40692	64992	1770	1863	35750	55637	1740	1793	34155	52678	1720	1653	31038	47033	1700
	10	2084	52840	85812	1840	1874	46097	72825	1780	1804	43943	68792	1770	1664	39768	61127	1740

56FMC-00-00

Figure 4-31 (Sheet 19)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES AND TAKEOFF CLIMB INCREMENT (TCI) ANTI-ICE SYSTEMS - ON

**FLAPS - 7°
9000 FEET**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1933	14626	20690	2000	1723	12939	17900	1980	1653	12383	16996	1980	1513	11280	15249	1960
	-40	1981	15206	22011	1880	1771	13486	19082	1870	1701	12922	18137	1860	1561	11800	16305	1850
	-35	1979	15787	23195	1850	1769	13997	20092	1830	1699	13408	19101	1830	1559	12240	17162	1820
	-30	1972	16498	24660	1820	1762	14614	21334	1800	1692	13994	20259	1790	1552	12767	18185	1780
	-25	1971	17416	26425	1790	1761	15417	22824	1770	1691	14760	21679	1760	1551	13458	19445	1750
	-20	1984	18186	27807	1760	1774	16107	24027	1740	1704	15424	22826	1730	1564	14072	20484	1720
	-15	1999	19644	30338	1740	1789	17399	26213	1720	1719	16662	24902	1710	1579	15205	22350	1700
	-10	2012	22105	34525	1720	1802	19565	29804	1700	1732	18733	28293	1700	1592	17090	25370	1680
	-5	2024	25429	40159	1720	1813	22479	34602	1690	1743	21515	32850	1690	1603	19615	29434	1670
	0	2035	29930	47839	1720	1825	26405	41130	1690	1755	25258	39002	1680	1615	23001	34904	1670
	5	2046	36329	58874	1740	1836	31948	50423	1710	1766	30529	47764	1690	1626	27750	42641	1670
	10	2056	46063	75862	1780	1846	40289	64569	1740	1776	38434	61028	1730	1636	34824	54298	1700
1 4 0 0 0	-54	1940	13759	19419	1990	1730	12184	16818	1970	1660	11664	15985	1970	1520	10633	14353	1960
	-40	1989	14288	20636	1870	1779	12686	17911	1860	1709	12158	17027	1850	1569	11111	15330	1840
	-35	1986	14807	21731	1840	1776	13142	18833	1820	1706	12593	17910	1820	1566	11504	16104	1810
	-30	1978	15439	23054	1810	1768	13691	19964	1790	1698	13115	18965	1790	1558	11973	17035	1780
	-25	1969	16252	24718	1780	1759	14395	21371	1760	1689	13784	20291	1760	1549	12574	18206	1740
	-20	1966	16938	26160	1750	1756	14993	22584	1730	1686	14354	21446	1730	1546	13087	19230	1710
	-15	1973	18230	28524	1720	1763	16133	24612	1710	1693	15444	23370	1700	1553	14080	20949	1690
	-10	1985	20411	32299	1710	1775	18053	27850	1690	1705	17280	26439	1680	1565	15751	23681	1670
	-5	1997	23324	37342	1700	1787	20609	32160	1680	1717	19720	30505	1670	1576	17967	27307	1660
	0	2008	27205	44112	1700	1798	23998	37904	1670	1728	22952	35933	1670	1588	20892	32134	1650
	5	2018	32596	53592	1710	1808	28680	45920	1680	1738	27408	43495	1670	1598	24911	38815	1650
	10	2029	40525	67726	1740	1819	35497	57730	1700	1749	33884	54588	1690	1609	30720	48585	1670
1 3 5 0 0	-54	1948	12953	18240	1980	1738	11481	15815	1970	1668	10992	15024	1960	1528	10031	13503	1950
	-40	1995	13436	19350	1870	1785	11941	16813	1850	1715	11448	16000	1850	1575	10470	14407	1840
	-35	1994	13907	20361	1830	1783	12351	17670	1820	1713	11839	16799	1810	1573	10824	15117	1800
	-30	1985	14466	21563	1800	1775	12840	18692	1780	1705	12304	17774	1780	1565	11242	15978	1770
	-25	1976	15186	23073	1770	1766	13466	19970	1750	1696	12899	18967	1750	1556	11776	17031	1740
	-20	1973	15792	24380	1740	1763	13994	21068	1720	1693	13403	20015	1720	1553	12230	17959	1710
	-15	1946	16922	26825	1710	1736	14960	23113	1700	1666	14315	21933	1690	1526	13037	19636	1680
	-10	1958	18859	30250	1700	1748	16666	26049	1680	1678	15946	24704	1670	1538	14522	22112	1660
	-5	1969	21420	34766	1680	1759	18914	29908	1660	1689	18093	28356	1660	1549	16470	25368	1650
	0	1980	24781	40764	1680	1770	21852	35000	1660	1700	20903	33176	1650	1560	19008	29649	1630
	5	1990	29359	48989	1690	1780	25834	41963	1660	1710	24687	39738	1650	1570	22431	35460	1630
	10	2000	35903	60928	1710	1790	31486	51975	1670	1720	30056	49143	1660	1580	27255	43755	1640
1 2 5 0 0	-54	1966	11496	16062	1970	1756	10210	13970	1950	1686	9785	13283	1950	1545	8940	11967	1940
	-40	2014	11904	17021	1850	1804	10601	14823	1840	1734	10170	14119	1840	1594	9315	12734	1830
	-35	2011	12282	17872	1820	1801	10933	15536	1800	1731	10487	14793	1800	1591	9602	13333	1790
	-30	2001	12732	18884	1780	1791	11324	16406	1770	1721	10859	15613	1770	1581	9936	14057	1760
	-25	1992	13303	20138	1750	1782	11821	17456	1740	1712	11332	16602	1730	1572	10361	14931	1730
	-20	1988	13781	21206	1720	1778	12239	18375	1710	1708	11730	17459	1700	1568	10720	15701	1690
	-15	1957	14657	23214	1690	1748	12987	20055	1680	1678	12436	19035	1680	1538	11345	17067	1670
	-10	1921	16131	26364	1670	1711	14245	22683	1660	1641	13624	21499	1650	1502	12395	19218	1640
	-5	1912	18102	30213	1660	1702	15955	25925	1640	1632	15249	24565	1640	1492	13853	21923	1620
	0	1923	20654	34969	1650	1713	18188	29974	1630	1643	17380	28380	1620	1503	15783	25315	1610
	5	1932	24017	41294	1640	1722	21119	35338	1620	1652	20172	33442	1610	1512	18306	29792	1600
	10	1942	28610	50075	1650	1732	25104	42711	1620	1662	23962	40389	1610	1522	21717	35929	1600
1 1 5 0 0	-54	1984	10207	14134	1950	1774	9081	12323	1940	1704	8709	11726	1940	1564	7969	10584	1930
	-40	2033	10554	14956	1840	1823	9416	13054	1830	1753	9039	12445	1820	1613	8291	11243	1820
	-35	2029	10862	15666	1800	1819	9687	13660	1790	1749	9298	13017	1790	1609	8526	11763	1780
	-30	2019	11224	16535	1770	1809	10002	14396	1760	1739	9598	13698	1750	1599	8795	12364	1750
	-25	2008	11682	17571	1740	1798	10400	15272	1730	1728	9976	14537	1720	1588	9135	13094	1710
	-20	2004	12062	18473	1710	1794	10733	16041	1690	1724	10294	15251	1690	1584	9422	13738	1680
	-15	1974	12750	20128	1680	1764	11320	17423	1670	1694	10848	16559	1660	1554	9911	14869	1650
	-10	1935	13892	22695	1660	1725	12295	19567	1640	1655	11768	18569	1640	1515	10723	16623	1630
	-5	1893	15368	26002	1640	1683	13550	22309	1620	1613	12955	21141	1620	1473	11765	18858	1610
	0	1860	17275	30139	1620	1650	15176	25759	1600	1580	14486	24360	1600	1440	13122	21670	1590
	5	1869	19793	35102	1610	1659	17373	29968	1590	1589	16579	28332	1590	1449	15011	25190	1570
	10	1878	23113	41758	1610	1668	20258	35591	1590	1598	19324	33631	1580	1458	17483	29861	1570

56FMC-00-00

Figure 4-31 (Sheet 20)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 7°

AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	2012	20867	29151	2040	1802	18485	25284	2020	1732	17704	24035	2010	1592	16160	21624	2000
	-40	2066	22472	31978	1940	1856	19953	27775	1910	1786	19127	26439	1900	1646	17497	23819	1890
	-35	2084	23575	33757	1900	1874	20942	29332	1880	1804	20079	27926	1870	1664	18377	25170	1860
	-30	2100	25049	36123	1880	1890	22254	31392	1850	1820	21340	29874	1850	1680	19531	26926	1830
	-25	2118	26832	38984	1860	1908	23836	33854	1830	1838	22858	32217	1820	1698	20929	29062	1800
	-20	2135	28546	41789	1830	1925	25359	36288	1810	1855	24318	34534	1800	1715	22271	31140	1780
	-15	2149	32355	47882	1830	1939	28705	41498	1800	1869	27517	39474	1790	1729	25183	35567	1770
	-10	2163	38650	57824	1850	1953	34184	49954	1810	1883	32738	47471	1800	1743	29905	42670	1770
	-5	2176	48539	73618	1890	1966	42691	63180	1840	1896	40814	59905	1830	1756	37164	53644	1800
	0	2189	64546	99551	1980	1979	56192	84432	1910	1909	53554	79764	1890	1769	48474	70965	1850
	5	2199	88626	138410	2140	1989	75880	115778	2040	1919	71940	108931	2010	1779	64474	95818	1950
	10	2202	98046	152910	2200	1992	83372	127620	2090	1922	78880	119767	2060	1782	70419	105172	1990
1 6 5 0 0	-54	1997	19988	28141	2040	1787	17699	24375	2010	1717	16947	23164	2010	1577	15462	20824	1990
	-40	2050	21479	30801	1930	1840	19065	26748	1900	1770	18273	25440	1900	1630	16709	22916	1880
	-35	2068	22504	32494	1890	1858	19983	28200	1870	1788	19157	26841	1860	1648	17527	24176	1850
	-30	2085	23868	34701	1870	1875	21200	30136	1840	1805	20326	28671	1840	1665	18602	25847	1820
	-25	2102	25515	37380	1840	1892	22663	32444	1820	1822	21730	30867	1810	1682	19891	27829	1800
	-20	2118	27087	39976	1820	1908	24060	34713	1790	1838	23072	33028	1790	1698	21124	29767	1770
	-15	2133	30551	45598	1810	1923	27107	39525	1790	1853	25985	37592	1780	1713	23778	33858	1760
	-10	2147	36222	54682	1830	1937	32051	47242	1790	1867	30699	44893	1780	1727	28048	40348	1760
	-5	2159	44939	68761	1860	1949	39575	59059	1820	1879	37849	56035	1800	1739	34484	50216	1780
	0	2172	58554	91066	1930	1962	51134	77475	1880	1892	48777	73278	1860	1752	44222	65279	1820
	5	2185	85085	134781	2100	1975	72951	112899	2010	1905	69189	106072	1980	1765	62045	93277	1930
	10	2192	116812	178964	2320	1982	97813	149499	2180	1912	92118	140891	2130	1772	81538	124396	2050
1 6 0 0 0	-54	1974	18731	26670	2020	1764	16574	23071	2000	1694	15865	21913	2000	1554	14463	19677	1980
	-40	2044	20984	30656	1880	1834	18623	26589	1860	1764	17849	25296	1850	1624	16318	22761	1840
	-35	2061	22201	32669	1850	1851	19710	28341	1830	1781	18893	26965	1820	1641	17280	24272	1810
	-30	2077	23667	35103	1830	1867	21013	30453	1800	1797	20144	28962	1800	1657	18429	26088	1780
	-25	2094	25049	37442	1800	1884	22244	32485	1780	1814	21325	30894	1770	1674	19517	27836	1760
	-20	2108	28060	42424	1790	1898	24896	36768	1770	1828	23864	34960	1760	1688	21830	31465	1740
	-15	2122	32931	50394	1800	1912	29153	43531	1770	1842	27925	41360	1760	1701	25515	37176	1740
	-10	2134	40208	62366	1820	1924	35459	53632	1780	1854	33925	50894	1770	1714	30926	45615	1750
	-5	2147	51072	80476	1870	1937	44754	68714	1830	1867	42733	65041	1810	1727	38809	58041	1780
	0	2159	70527	113579	1990	1949	60998	95456	1920	1879	58010	89938	1890	1739	52289	79531	1850
	5	2166	91022	148341	2130	1956	77580	123414	2020	1886	73440	115791	1990	1746	65625	101327	1930
	10	2171	112777	177553	2280	1961	94563	148476	2140	1891	89085	140000	2100	1751	78883	123422	2020
1 5 5 0 0	-54	1951	17557	25281	2010	1741	15521	21839	1990	1671	14852	20743	1990	1531	13528	18603	1970
	-40	2002	18756	27545	1900	1792	16625	23848	1880	1722	15925	22672	1880	1582	14539	20377	1860
	-35	2019	19577	28953	1870	1809	17362	25081	1850	1739	16635	23849	1840	1599	15197	21435	1830
	-30	2036	20666	30793	1840	1826	18335	26683	1820	1756	17571	25376	1810	1616	16059	22817	1800
	-25	2052	21973	32996	1810	1842	19499	28594	1790	1772	18688	27196	1780	1632	17086	24459	1770
	-20	2068	23193	35129	1790	1858	20587	30448	1770	1788	19733	28947	1760	1648	18048	26042	1740
	-15	2083	25822	39563	1770	1873	22905	34262	1750	1803	21952	32565	1740	1663	20073	29286	1730
	-10	2096	30033	46585	1770	1886	26593	40243	1750	1816	25472	38228	1740	1676	23269	34341	1720
	-5	2107	36171	56867	1790	1897	31928	48939	1760	1827	30553	46440	1750	1687	27860	41637	1720
	0	2121	45004	71890	1830	1911	39527	61515	1780	1841	37767	58253	1770	1700	34336	52042	1740
	5	2134	59832	97515	1910	1924	52060	82512	1850	1854	49597	77864	1830	1714	44845	69101	1790
	10	2144	87979	147365	2090	1934	75026	122424	1990	1864	71031	114604	1960	1724	63485	100272	1900
1 5 0 0 0	-54	1951	16451	23723	2000	1741	14553	20503	1980	1671	13929	19478	1980	1531	12693	17475	1960
	-40	1978	17534	26060	1890	1768	15528	22531	1870	1698	14869	21408	1870	1557	13563	19218	1850
	-35	1994	18271	27354	1860	1784	16191	23664	1840	1714	15507	22491	1830	1574	14155	20202	1820
	-30	2011	19247	29041	1830	1801	17064	25133	1810	1731	16347	23878	1800	1591	14929	21456	1790
	-25	2027	20423	31061	1800	1817	18106	26879	1780	1747	17347	25553	1770	1607	15849	22957	1760
	-20	2043	21495	32975	1770	1833	19069	28549	1750	1763	18273	27130	1750	1623	16702	24394	1730
	-15	2057	23799	36969	1760	1847	21103	31970	1740	1777	20220	30376	1730	1637	18479	27306	1710
	-10	2070	27460	43171	1750	1860	24313	37288	1730	1790	23286	35411	1720	1650	21258	31782	1700
	-5	2082	32682	52119	1760	1872	28864	44852	1730	1802	27623	42557	1720	1662	25187	38141	1700
	0	2094	39968	64768	1790	1884	35160	55477	1750	1814	33607	52569	1740	1674	30574	46976	1710
	5	2105	51605	85269	1840	1895	45078	72430	1790	1825	42993	68443	1780	1685	38951	60866	1750
	10	2117	71677	121868	1960	1907	61761	101758	1890	1837	58659	95641	1870	1697	52728	84258	1820

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Figure 4-31 (Sheet 21)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 7°

AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1957	15431	22219	1990	1747	13665	19235	1970	1677	13084	18269	1970	1537	11932	16403	1960
	-40	1977	16395	24414	1880	1767	14529	21131	1860	1697	13915	20070	1860	1557	12699	18022	1850
	-35	1974	17055	25798	1850	1764	15104	22295	1830	1694	14463	21180	1820	1554	13192	19007	1810
	-30	1985	17931	27397	1810	1775	15883	23678	1800	1705	15210	22484	1790	1565	13878	20179	1780
	-25	2001	18979	29241	1790	1791	16818	25278	1770	1721	16108	24006	1760	1581	14704	21553	1750
	-20	2017	19937	30989	1760	1807	17673	26797	1740	1737	16931	25453	1730	1596	15462	22861	1720
	-15	2030	21961	34570	1740	1820	19462	29878	1720	1750	18643	28375	1710	1610	17026	25482	1700
	-10	2043	25159	40105	1740	1833	22272	34616	1710	1763	21325	32859	1700	1623	19463	29472	1690
	-5	2055	29634	47933	1740	1845	26176	41254	1710	1775	25050	39136	1700	1635	22837	35056	1680
	0	2067	35716	58704	1750	1857	31450	50327	1720	1787	30068	47691	1710	1647	27360	42633	1690
	5	2078	45047	75478	1790	1868	39452	64277	1750	1798	37654	60798	1740	1658	34155	54115	1710
	10	2089	60049	103229	1880	1879	52088	86903	1820	1809	49568	81864	1800	1669	44709	72388	1760
1 4 0 0 0	-54	1964	14490	20821	1980	1754	12845	18044	1970	1684	12303	17144	1960	1544	11228	15415	1950
	-40	1984	15350	22828	1870	1774	13617	19778	1850	1704	13046	18792	1850	1564	11915	16887	1840
	-35	1981	15934	24086	1840	1771	14126	20836	1820	1701	13532	19802	1810	1561	12353	17783	1800
	-30	1973	16710	25714	1800	1763	14801	22215	1790	1693	14173	21102	1780	1553	12929	18932	1770
	-25	1974	17649	27542	1780	1764	15625	23777	1760	1694	14960	22568	1750	1554	13643	20237	1740
	-20	1990	18500	29137	1750	1780	16385	25163	1730	1710	15691	23888	1720	1570	14317	21430	1710
	-15	2004	20284	32355	1730	1794	17963	27931	1710	1724	17202	26527	1700	1584	15697	23784	1690
	-10	2013	23089	37317	1720	1804	20427	32176	1700	1734	19556	30533	1690	1594	17837	27374	1680
	-5	2025	26946	44204	1720	1816	23800	38023	1690	1746	22773	36060	1680	1606	20752	32293	1670
	0	2039	32073	53507	1730	1829	28256	45874	1700	1759	27016	43468	1690	1619	24583	38844	1670
	5	2050	39680	67462	1750	1840	34810	57546	1720	1770	33239	54448	1700	1630	30169	48501	1680
	10	2061	51273	89336	1810	1851	44665	75543	1760	1781	42542	71257	1740	1641	38464	63143	1710
1 3 5 0 0	-54	1972	13619	19515	1970	1762	12085	16931	1960	1692	11579	16103	1950	1552	10575	14481	1940
	-40	1991	14387	21354	1860	1781	12776	18521	1850	1711	12245	17615	1840	1571	11192	15842	1830
	-35	1987	14906	22501	1830	1777	13229	19497	1810	1707	12677	18525	1810	1567	11581	16648	1800
	-30	1979	15593	23978	1790	1769	13826	20737	1780	1699	13244	19705	1770	1559	12092	17692	1760
	-25	1970	16420	25726	1770	1760	14544	22215	1750	1690	13927	21087	1740	1550	12704	18912	1730
	-20	1965	17171	27364	1740	1755	15200	23618	1720	1685	14547	22407	1710	1545	13262	20079	1700
	-15	1974	18746	30315	1720	1764	16587	26136	1700	1694	15878	24797	1690	1554	14475	22218	1680
	-10	1990	21215	34765	1700	1780	18758	29943	1680	1710	17952	28415	1680	1570	16361	25435	1660
	-5	1999	24558	40874	1700	1789	21683	35131	1670	1719	20744	33322	1670	1579	18891	29801	1650
	0	2011	28914	48955	1700	1801	25476	41960	1670	1731	24357	39752	1660	1591	22156	35503	1650
	5	2021	35198	60737	1720	1811	30909	51862	1690	1741	29520	49075	1670	1601	26800	43715	1650
	10	2032	44377	78428	1760	1822	38762	66510	1710	1752	36951	62782	1700	1612	33447	55734	1670
1 2 5 0 0	-54	1990	12054	17153	1960	1780	10718	14916	1940	1710	10276	14199	1940	1570	9400	12790	1930
	-40	2007	12672	18705	1850	1797	11276	16260	1830	1727	10815	15477	1830	1587	9900	13942	1820
	-35	2003	13085	19653	1810	1793	11637	17065	1800	1723	11159	16238	1790	1583	10210	14616	1780
	-30	1995	13627	20879	1780	1785	12108	18105	1760	1715	11608	17207	1760	1575	10614	15484	1750
	-25	1985	14274	22315	1750	1775	12671	19309	1730	1705	12142	18353	1730	1565	11094	16486	1720
	-20	1979	14856	23654	1720	1769	13178	20457	1700	1699	12626	19425	1700	1559	11528	17444	1690
	-15	1953	16060	26349	1690	1743	14212	22708	1680	1673	13604	21540	1670	1533	12399	19288	1660
	-10	1931	17950	30252	1680	1720	15841	26001	1660	1650	15148	24637	1650	1510	13777	22011	1640
	-5	1942	20489	35104	1670	1731	18066	30123	1650	1661	17272	28533	1640	1521	15703	25477	1630
	0	1952	23691	41315	1660	1742	20861	35394	1640	1672	19936	33510	1630	1532	18112	29881	1620
	5	1962	28107	50014	1660	1752	24692	42716	1640	1682	23585	40416	1630	1542	21401	35986	1610
	10	1972	34158	62233	1680	1762	29916	52914	1650	1692	28541	49999	1640	1552	25858	44432	1620
1 1 5 0 0	-54	2008	10677	15062	1940	1798	9512	13128	1930	1728	9126	12508	1930	1588	8360	11287	1920
	-40	2026	11179	16380	1830	1816	9966	14270	1820	1746	9565	13582	1820	1606	8768	12266	1810
	-35	2020	11510	17176	1800	1810	10256	14947	1780	1740	9839	14232	1780	1600	9018	12832	1770
	-30	2011	11942	18204	1760	1801	10632	15819	1750	1731	10199	15044	1750	1591	9339	13548	1740
	-25	2000	12454	19382	1730	1790	11077	16816	1720	1720	10622	15996	1710	1580	9720	14390	1710
	-20	1994	12912	20502	1700	1784	11476	17755	1690	1714	11003	16882	1680	1574	10063	15174	1680
	-15	1967	13849	22698	1670	1757	12283	19600	1660	1687	11766	18616	1660	1547	10741	16695	1650
	-10	1929	15279	25933	1650	1718	13504	22316	1640	1648	12919	21152	1640	1508	11761	18911	1630
	-5	1887	17154	30208	1640	1677	15099	25864	1620	1607	14423	24487	1620	1467	13087	21806	1610
	0	1889	19545	35164	1630	1679	17179	30055	1610	1609	16403	28440	1600	1468	14870	25300	1590
	5	1898	22740	41787	1620	1688	19959	35641	1600	1618	19050	33693	1590	1478	17257	29959	1580
	10	1908	26922	50654	1630	1698	23582	43096	1600	1628	22493	40711	1590	1488	20352	36133	1580

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Figure 4-31 (Sheet 22)

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SINGLE-ENGINE TAKEOFF FLIGHT PATH - FLAPS 15°

FIRST AND SECOND SEGMENTS

Knowing weight, altitude, temperature, wind, obstacle height above runway surface and the obstacle distance from "reference zero", at the airport pressure altitude plus the takeoff climb increment from Figure 4-34 or 4-35, determine the available climb gradient from Figure 4-42 or 4-43. Using this climb gradient, the required horizontal distance can be determined from Figure 4-32. If this required horizontal distance is less than the horizontal distance to the obstacle, the takeoff weight determined by other limitations is satisfactory; otherwise, the weight must be reduced to correspond with the required horizontal distance.

EXAMPLE:

Flaps = 15°

Anti-Ice Systems = OFF

Pressure Altitude at Airport = 4000 FEET

Gross Weight at Brake Release = 13,500 POUNDS

Ambient Temperature at Airport = -10°C

Wind = 10 KNOTS (HEADWIND)

- A. Obstacle Height = 250 feet above runway surface
- B. Obstacle Horizontal Distance from Reference Zero = 4000 FEET

From Figure 4-34, the takeoff climb increment (TCI) above the runway surface is 1690 feet. The pressure altitude at airport plus the takeoff climb increment (TCI) is 5690 feet.

From Figure 4-42, the available climb gradient at a pressure altitude of 5690 feet under the specified conditions is 14.0%.

From Figure 4-32, for 14.0% gradient, the required horizontal distance to clear the obstacle is 1810 feet.

The obstacle can be cleared since the horizontal distance to the obstacle (4000 feet) is greater than the required horizontal distance to clear the obstacle (1810 feet).

**SINGLE-ENGINE TAKEOFF FLIGHT PATH
FIRST AND SECOND SEGMENT**

FLAPS - 15°

CONDITIONS: Landing Gear - DOWN/UP Inoperative Engine - WINDMILLING
 Speedbrakes - RETRACT Operative Engine - TAKEOFF THRUST
 Airspeed - V_2

SECOND SEGMENT GRADIENT AT PRESSURE ALTITUDE AT AIRPORT PLUS TAKEOFF CLIMB INCREMENT - PERCENT													
HEIGHT ABOVE RUNWAY FT													
	20	18	16	14	12	10	8	7	6	5	4	3	2
REQUIRED HORIZONTAL DISTANCE FROM REFERENCE ZERO - FEET													
50	90	100	110	130	150	180	240	280	340	430	590	940	2180
100	370	420	470	550	650	800	1040	1220	1480	1880	2410	3170	4680
150	660	740	840	970	1150	1420	1840	2150	2490	2960	3660	4830	7180
200	950	1060	1200	1390	1650	2030	2530	2870	3320	3960	4910	6500	9680
250	1230	1380	1570	1810	2150	2550	3150	3580	4150	4960	6160	8170	12180
300	1520	1700	1930	2220	2560	3050	3780	4300	4990	5960	7410	9830	14680
350	1810	2020	2270	2580	2980	3550	4400	5010	5820	6960	8660	11500	17180
400	2090	2310	2580	2930	3400	4050	5030	5720	6650	7960	9910	13170	19680
450	2340	2590	2900	3290	3810	4550	5650	6440	7490	8960	11160	14830	22180
500	2590	2870	3210	3650	4230	5050	6280	7150	8320	9960	12410	16500	24680
550	2840	3140	3520	4000	4650	5550	6900	7870	9150	10960	13660	18170	27180
600	3090	3420	3830	4360	5060	6050	7530	8580	9990	11960	14910	19830	29680
650	3340	3700	4150	4720	5480	6550	8150	9300	10820	12960	16160	21500	32180
700	3590	3980	4460	5080	5900	7050	8780	10010	11650	13960	17410	23170	34680
750	3840	4260	4770	5430	6310	7550	9400	10720	12490	14960	18660	24830	37180
800	4090	4530	5080	5790	6730	8050	10030	11440	13320	15960	19910	26500	39680
850	4340	4810	5400	6150	7150	8550	10650	12150	14150	16960	21160	28170	42180
900	4590	5090	5710	6500	7560	9050	11280	12870	14990	17960	22410	29830	44680
950	4840	5370	6020	6860	7980	9550	11900	13580	15820	18960	23660	31500	47180
1000	5090	5640	6330	7220	8400	10050	12530	14300	16650	19960	24910	33170	49680
1050	5340	5920	6650	7580	8810	10550	13150	15010	17490	20960	26160	34830	52180
1100	5590	6200	6960	7930	9230	11050	13780	15720	18320	21960	27410	36500	54680
1150	5840	6480	7270	8290	9650	11550	14400	16440	19150	22960	28660	38170	57180
1200	6090	6760	7580	8650	10060	12050	15030	17150	19990	23960	29910	39830	59680
1250	6340	7030	7900	9000	10480	12550	15650	17870	20820	24960	31160	41500	62180
1300	6590	7310	8210	9360	10900	13050	16280	18580	21650	25960	32410	43170	64680
1350	6840	7590	8520	9720	11310	13550	16900	19300	22490	26960	33660	44830	67180
1400	7090	7870	8830	10080	11730	14050	17530	20010	23320	27960	34910	46500	69680
1450	7340	8140	9150	10430	12150	14550	18150	20720	24150	28960	36160	48170	72180
1500	7590	8420	9460	10790	12560	15050	18780	21440	24990	29960	37410	49830	74680

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Figure 4-32

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES - FLAPS 15°

The data presented in Figure 4-34 (anti-ice off) and Figure 4-35 (anti-ice on) is for the purpose of determining the takeoff climb increment and the horizontal distances along the net takeoff flight path. The net takeoff flight path is used to plan obstacle clearance.

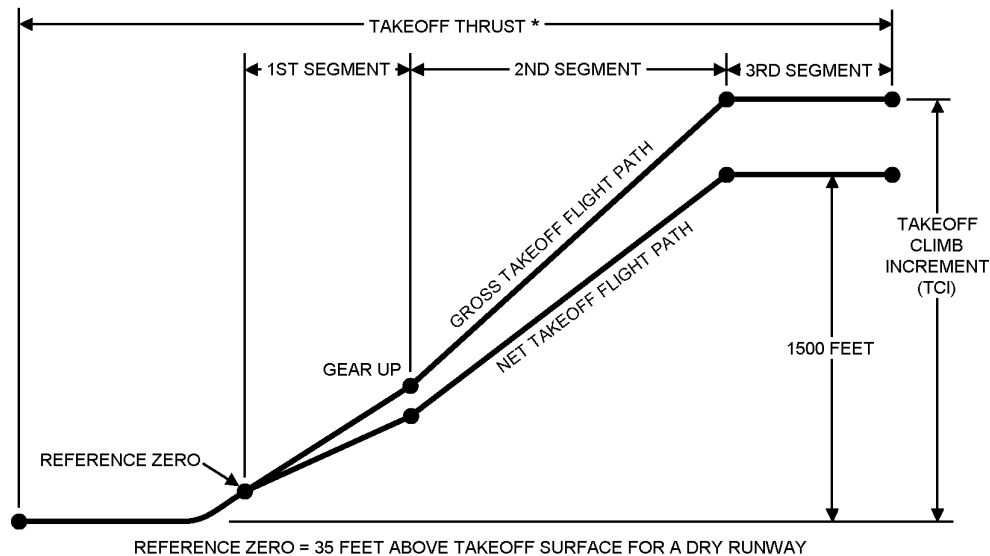


Figure 4-33

SINGLE ENGINE FLIGHT PATH CONDITIONS:			
	FIRST SEGMENT	SECOND SEGMENT	THIRD SEGMENT
LANDING GEAR	DOWN	UP	UP
WING FLAP DEGREES	15	15	15
SPEEDBRAKES	RETRACT	RETRACT	RETRACT
INOPERATIVE ENGINE	WINDMILLING	WINDMILLING	WINDMILLING
OPERATIVE ENGINE	T.O. THRUST	T.O. THRUST *	T.O. THRUST *
AIRSPED	V ₂	V ₂	V ₂ TRANSITIONING TO V _{ENR}

***TAKEOFF THRUST IS LIMITED TO TEN MINUTES MAXIMUM AND THEREAFTER TO MAXIMUM CONTINUOUS THRUST.**

EXAMPLE:

Flaps = 15°
 Anti-Ice Systems = OFF
 Pressure Altitude at Airport = 4000 FEET
 Gross Weight at Brake Release = 12,500 POUNDS
 Ambient Temperature at Airport = 10°C
 Wind = 10 KNOTS (HEADWIND)
 Airport Barometric Altitude = 3925 FEET MSL

Horizontal Distances and Takeoff Climb Increment from Figure 4-34
 Reference Zero to End of First Segment = 1615 FEET
 Reference Zero to End of Second Segment = 11,211 FEET
 Reference Zero to End of Third Segment = 16,532 FEET
 Takeoff Climb Increment (TCI) = 1570 FEET

Calculate the level off altitude by adding the takeoff climb increment to the airport barometric altitude.
 3925 + 1570 = 5495 FEET.

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) SEA LEVEL
ANTI-ICE SYSTEMS - OFF****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1630	22386	28819	2210	1420	19249	24349	2180	1350	18224	22931	2170	1210	16201	20157	2150
	-30	1706	22300	29398	1990	1496	19308	24990	1960	1426	18328	23570	1950	1286	16397	20836	1940
	-20	1738	22071	29364	1910	1527	19162	25022	1880	1457	18209	23646	1870	1317	16330	20929	1860
	-10	1766	21814	29286	1830	1556	18988	25014	1810	1486	18062	23660	1800	1346	16235	21007	1790
	0	1795	21543	29185	1760	1585	18799	24983	1740	1515	17899	23651	1730	1375	16123	21040	1720
	10	1823	21325	29142	1700	1613	18652	25023	1680	1543	17776	23685	1670	1403	16047	21113	1660
	20	1852	21766	30447	1650	1642	19063	26125	1620	1572	18177	24733	1620	1432	16430	22058	1600
	30	1882	27670	38998	1640	1672	24194	33391	1610	1602	23061	31632	1600	1462	20833	28175	1580
	40	1912	37947	53446	1660	1702	33038	45593	1620	1632	31452	43117	1610	1492	28351	38351	1590
	50	1941	57725	80867	1750	1731	49719	68294	1690	1661	47176	64382	1670	1521	42265	56925	1640
1 6 5 0 0	54	1952	72966	101731	1830	1742	62249	85131	1760	1672	58893	80024	1730	1532	52476	70372	1690
	-54	1616	21382	27689	2200	1406	18372	23388	2170	1336	17387	21995	2160	1196	15444	19312	2140
	-30	1691	21299	28257	1980	1481	18428	24015	1950	1411	17488	22641	1950	1271	15632	19994	1930
	-20	1722	21085	28235	1900	1512	18292	24055	1880	1442	17377	22700	1870	1302	15571	20092	1850
	-10	1751	20844	28196	1830	1541	18130	24058	1800	1471	17241	22724	1790	1331	15485	20155	1780
	0	1779	20590	28110	1760	1569	17955	24038	1730	1499	17090	22725	1730	1359	15383	20196	1710
	10	1808	20386	28079	1690	1598	17818	24062	1670	1528	16976	22766	1660	1388	15311	20271	1650
	20	1837	20781	29281	1640	1627	18189	25099	1620	1557	17340	23753	1610	1416	15662	21163	1600
	30	1866	26216	37256	1620	1656	22915	31875	1600	1586	21839	30186	1590	1446	19719	26866	1580
	40	1895	35503	50458	1640	1685	30920	43030	1610	1615	29436	40686	1600	1475	26531	36172	1570
1 6 0 0 0	50	1924	52702	74586	1710	1714	45484	63095	1660	1644	43182	59495	1640	1504	38722	52621	1610
	54	1935	65349	92120	1780	1725	55968	77328	1710	1655	53010	72786	1690	1515	47328	64121	1650
	-54	1595	19955	26107	2190	1385	17124	21992	2160	1315	16197	20667	2150	1175	14367	18114	2130
	-30	1669	19877	26638	1970	1459	17177	22599	1940	1389	16292	21290	1930	1249	14544	18770	1920
	-20	1698	19682	26654	1890	1488	17055	22649	1860	1418	16194	21358	1860	1278	14492	18872	1840
	-10	1727	19464	26610	1810	1517	16910	22665	1790	1447	16073	21392	1780	1307	14417	18943	1770
	0	1756	19234	26545	1750	1546	16752	22660	1720	1476	15938	21428	1720	1335	14328	18994	1700
	10	1783	19049	26530	1680	1573	16630	22695	1660	1503	15836	21479	1660	1363	14266	19096	1640
	20	1811	19384	27627	1630	1601	16948	23643	1610	1531	16149	22383	1600	1391	14570	19893	1590
	30	1841	24191	34795	1610	1631	21132	29756	1590	1561	20132	28139	1580	1421	18163	25036	1560
1 5 5 0 0	40	1872	32203	46388	1620	1662	28049	39562	1590	1592	26701	37395	1580	1452	24058	33217	1560
	50	1899	46307	66562	1670	1689	40052	56395	1620	1619	38047	53185	1610	1479	34148	47077	1580
	54	1910	56088	80412	1720	1700	48239	67751	1660	1630	45744	63813	1640	1490	40924	56310	1610
	-54	1573	18632	24606	2170	1363	15966	20686	2150	1293	15092	19443	2140	1153	13366	17011	2120
	-30	1646	18559	25144	1960	1436	16016	21272	1930	1366	15181	20025	1920	1226	13533	17623	1910
	-20	1678	18377	25124	1880	1468	15907	21315	1850	1398	15097	20107	1850	1258	13494	17743	1830
	-10	1710	18174	25062	1800	1500	15778	21321	1780	1430	14991	20135	1770	1290	13436	17811	1760
	0	1742	17961	24978	1730	1532	15638	21305	1710	1462	14875	20141	1710	1322	13365	17859	1700
	10	1773	17789	24947	1670	1563	15529	21330	1650	1493	14786	20183	1650	1353	13316	17935	1640
	20	1802	18080	25934	1620	1592	15810	22189	1600	1522	15064	21004	1590	1382	13590	18683	1580
1 5 0 0 0	30	1814	22354	32568	1600	1604	19510	27812	1570	1534	18580	26285	1570	1394	16746	23355	1550
	40	1845	29305	42808	1600	1634	25522	36475	1570	1564	24291	34462	1560	1424	21874	30580	1540
	50	1873	41027	59885	1630	1663	35536	50787	1590	1593	33767	47929	1580	1453	30318	42412	1550
	54	1884	48779	71103	1660	1674	42069	60026	1620	1604	39923	56553	1600	1464	35759	49955	1570
	-54	1573	17379	23034	2160	1363	14903	19393	2130	1293	14090	18212	2130	1152	12484	15937	2110
	-30	1649	17306	23514	1940	1439	14950	19908	1920	1369	14177	18766	1910	1228	12646	16526	1900
	-20	1681	17144	23502	1870	1471	14855	19954	1840	1401	14103	18830	1840	1261	12616	16626	1820
	-10	1713	16963	23455	1790	1503	14742	19990	1770	1433	14012	18864	1770	1293	12567	16696	1750
	0	1746	16773	23387	1720	1535	14618	19984	1710	1465	13909	18878	1700	1325	12506	16748	1690
	10	1776	16620	23367	1660	1566	14522	20015	1640	1496	13832	18924	1640	1356	12465	16825	1630
1 4 5 0 0	20	1806	16881	24272	1610	1596	14776	20806	1590	1526	14087	19683	1590	1386	12715	17516	1570
	30	1789	20679	30490	1580	1579	18031	25995	1560	1509	17163	24575	1560	1369	15451	21804	1540
	40	1818	26742	39605	1580	1608	23279	33707	1550	1538	22150	31831	1540	1398	19931	28211	1530
	50	1846	36591	54273	1600	1636	31717	46018	1560	1566	30142	43388	1550	1426	27063	38400	1530
	54	1857	42850	63476	1620	1647	37021	53690	1580	1577	35148	50586	1570	1437	31501	44677	1540
	-54	1576	16229	21558	2150	1366	13932	18166	2120	1296	13177	17085	2120	1155	11683	14963	2100
	-30	1652	16163	22010	1930	1442	13977	18672	1910	1372	13258	17586	1910	1232	11836	15497	1890
	-20	1684	16017	22007	1850	1474	13893	18721	1840	1404	13194	17652	1830	1264	11811	15595	1820
	-10	1717	15856	21972	1780	1507	13793	18741	1760	1437	13114	17690	1760	1297	11770	15687	1750
	0	1747	15686	21917	1720	1537	13683	18743	1700	1467	13024	17731	1690	1328	11719	15742	1680
1 4 0 0 0	10	1780	15549	21905	1650	1570	13598	18778	1640	1500	12956	17780	1630	1360	11684	15819	1620
	20	1809	15785	22737	1600	1599	13830	19508	1580	1529	13187	18457	1580	1389	11913	16437	1570
	30	1772	19144	28507	1570	1562	16685	24284	1550	1492	15879	22950	1550	1352	14286	20345	1530
	40	1791	24457	36716	1560	1581	21275	31206	1540	1511	20237	29479	1530	1371	18191	26092	1510
	50	1819	32806	49387	1570	1609	28445	41881	1540	1539	27031	39504	1530	1399	24262	34934	1510
	54	1830	37938	57139	1590	1620	32811	48330	1550	1550	31157	45529	1540	1410	27927	40220	1520

56FMC-00-00

Figure 4-34 (Sheet 1 of 22)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) SEA LEVEL ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1579	15175	20215	2140	1369	13040	17053	2110	1299	12338	16023	2110	1159	10948	14042	2090
	-30	1656	15112	20617	1920	1445	13083	17507	1900	1375	12415	16515	1900	1235	11091	14564	1890
	-20	1688	14984	20646	1850	1478	13009	17558	1830	1408	12359	16581	1820	1268	11071	14660	1810
	-10	1721	14839	20620	1770	1511	12920	17583	1760	1441	12289	16622	1750	1301	11037	14732	1740
	0	1753	14687	20577	1710	1543	12823	17591	1690	1473	12210	16647	1690	1333	10993	14788	1680
	10	1786	14563	20572	1650	1575	12748	17651	1630	1505	12150	16697	1630	1365	10964	14864	1620
	20	1814	14778	21340	1590	1604	12960	18304	1580	1534	12362	17345	1570	1394	11175	15458	1560
	30	1776	17749	26518	1560	1566	15488	22635	1540	1496	14745	21378	1540	1356	13277	18965	1530
	40	1764	22408	34093	1540	1554	19474	28958	1520	1484	18515	27314	1520	1344	16624	24163	1500
	50	1792	29539	45146	1550	1582	25609	38249	1520	1512	24332	36063	1510	1372	21825	31856	1490
1 3 5 0 0	54	1803	33798	51720	1560	1593	29243	43757	1530	1523	27769	41240	1520	1383	24883	36376	1500
	-54	1583	14204	18947	2130	1373	12218	15998	2110	1303	11563	15056	2100	1163	10269	13207	2090
	-30	1660	14148	19350	1910	1450	12259	16447	1900	1380	11637	15499	1890	1240	10404	13677	1880
	-20	1692	14031	19359	1840	1482	12193	16499	1820	1412	11588	15565	1810	1272	10388	13792	1800
	-10	1724	13901	19340	1770	1514	12115	16527	1750	1444	11526	15608	1740	1304	10359	13863	1730
	0	1758	13764	19306	1700	1548	12029	16541	1680	1478	11457	15659	1680	1338	10322	13920	1670
	10	1789	13653	19306	1640	1579	11962	16579	1620	1509	11404	15710	1620	1369	10298	13995	1610
	20	1819	13850	20017	1580	1609	12157	17207	1570	1539	11599	16288	1570	1398	10493	14526	1560
	30	1780	16488	24700	1550	1570	14401	21102	1530	1500	13718	19938	1530	1360	12362	17700	1520
	40	1736	20558	31724	1530	1526	17846	26901	1510	1456	16958	25357	1500	1316	15205	22397	1490
1 3 0 0 0	50	1763	26689	41426	1530	1553	23126	35057	1500	1483	21966	33037	1490	1343	19685	29171	1480
	54	1774	30259	47054	1530	1564	26180	39777	1500	1494	24856	37474	1500	1354	22259	33045	1480
	-54	1587	13306	17789	2120	1377	11457	15037	2100	1307	10848	14137	2090	1167	9640	12431	2080
	-30	1664	13255	18145	1910	1454	11496	15437	1890	1384	10916	14573	1880	1244	9767	12871	1870
	-20	1697	13149	18157	1830	1487	11438	15489	1810	1417	10874	14639	1810	1277	9755	12961	1800
	-10	1730	13032	18145	1760	1520	11368	15520	1740	1450	10820	14683	1740	1310	9731	13032	1730
	0	1763	12909	18117	1690	1553	11292	15536	1680	1483	10759	14713	1670	1343	9700	13088	1660
	10	1795	12810	18145	1630	1585	11233	15599	1620	1515	10713	14764	1610	1375	9681	13161	1610
	20	1825	12992	18778	1580	1615	11415	16158	1560	1545	10895	15324	1560	1405	9863	13677	1550
	30	1784	15341	23029	1540	1574	13416	19697	1530	1504	12783	18613	1520	1364	11528	16559	1510
1 2 5 0 0	40	1722	18880	29388	1520	1512	16389	24911	1500	1442	15573	23499	1490	1302	13960	20747	1480
	50	1735	24179	38106	1510	1525	20934	32203	1490	1455	19875	30355	1480	1315	17791	26742	1460
	54	1745	27197	42990	1510	1535	23520	36302	1490	1465	22324	34184	1480	1325	19974	30107	1460
	-54	1594	12476	16680	2110	1384	10755	14117	2090	1314	10188	13299	2080	1174	9063	11686	2070
	-30	1672	12431	17036	1900	1462	10794	14513	1880	1392	10254	13686	1880	1252	9183	12122	1870
	-20	1705	12337	17050	1820	1495	10743	14565	1810	1425	10218	13749	1800	1285	9175	12208	1790
	-10	1739	12232	17041	1750	1529	10682	14597	1740	1459	10171	13818	1730	1319	9157	12277	1720
	0	1771	12121	17019	1690	1561	10615	14615	1670	1491	10118	13849	1670	1351	9131	12332	1660
	10	1804	12032	17025	1620	1594	10563	14654	1610	1524	10078	13899	1610	1384	9115	12403	1600
	20	1836	12202	17637	1570	1626	10733	15198	1560	1556	10249	14396	1550	1416	9286	12886	1550
1 2 0 0 0	30	1789	14292	21512	1530	1579	12512	18395	1520	1509	11926	17413	1520	1369	10767	15485	1510
	40	1727	17376	27167	1510	1517	15104	23052	1490	1447	14358	21755	1490	1307	12884	19222	1470
	50	1705	21952	35118	1490	1495	18984	29655	1470	1425	18014	27911	1470	1285	16103	24572	1450
	54	1716	24521	39357	1490	1506	21189	33214	1470	1435	20102	31257	1460	1295	17964	27489	1450
	-54	1602	11706	15664	2100	1392	10103	13277	2080	1322	9575	12493	2080	1182	8525	11012	2070
	-30	1680	11665	15974	1890	1470	10141	13626	1880	1400	9638	12878	1870	1260	8639	11397	1860
	-20	1713	11580	15990	1810	1503	10096	13676	1800	1433	9606	12939	1800	1293	8634	11480	1790
	-10	1747	11485	15985	1740	1537	10042	13708	1730	1467	9565	12983	1730	1327	8619	11546	1720
	0	1783	11386	15967	1680	1572	9981	13752	1670	1502	9519	13015	1660	1362	8598	11625	1660
	10	1813	11305	16001	1620	1603	9936	13792	1610	1533	9483	13063	1600	1393	8585	11692	1600
1 1 5 0 0	20	1843	11464	16543	1560	1633	10096	14273	1550	1563	9643	13551	1550	1423	8746	12119	1540
	30	1795	13330	20080	1530	1585	11683	17213	1510	1515	11139	16276	1510	1375	10062	14482	1500
	40	1731	16026	25154	1500	1521	13947	21388	1480	1451	13264	20169	1480	1311	11911	17834	1470
	50	1673	19963	32418	1480	1463	17237	27323	1460	1393	16345	25718	1450	1253	14586	22580	1440
	54	1684	22163	36143	1480	1474	19126	30451	1460	1404	18135	28636	1450	1264	16181	25164	1430
	-54	1611	10987	14688	2090	1401	9494	12466	2080	1331	9002	11759	2070	1191	8022	10542	2060
	-30	1688	10950	15002	1880	1478	9530	12816	1870	1408	9062	12121	1870	1268	8130	10772	1860
	-20	1721	10873	15019	1810	1511	9491	12865	1800	1441	9034	12180	1790	1301	8127	10826	1780
	-10	1756	10788	15017	1740	1546	9443	12897	1730	1476	8999	12223	1720	1336	8116	10882	1710
	0	1790	10699	15003	1670	1580	9390	12918	1660	1510	8957	12254	1660	1370	8098	10935	1650
1 1 0 0 0	10	1822	10625	15012	1610	1612	9348	12955	1600	1542	8926	12301	1600	1402	8088	10999	1590
	20	1853	10775	15543	1560	1643	9499	13430	1550	1573	9077	12731	1550	1433	8239	11423	1540
	30	1804	12449	18742	1520	1594	10923	16086	1510	1524	10420	15242	1500	1384	9421	13577	1500
	40	1735	14806	23312	1490	1525	12899	19842	1470	1455	12272	18717	1470	1315	11030	16561	1460
	50	1673	18180	29740	1470	1463	15717	25088	1450	1393	14910	23624	1440	1253	13315	20751	1430
	54	1651	20060	33262	1460	1441	17284	27972	1440	1371	16376	26285	1440	1231	14584	23033	1420

561MC-00-00

Figure 4-34 (Sheet 2)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 1000 FEET
ANTI-ICE SYSTEMS - OFF****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1656	21783	28310	2190	1446	18782	23974	2160	1376	17800	22599	2150	1236	15863	19907	2130
	-30	1733	21565	28697	1970	1522	18723	24454	1940	1452	17792	23087	1940	1312	15954	20452	1920
	-20	1763	21351	28681	1890	1553	18587	24499	1870	1483	17681	23173	1860	1343	15893	20554	1840
	-10	1794	21100	28607	1820	1583	18416	24492	1790	1513	17536	23187	1780	1373	15797	20630	1770
	0	1823	20841	28510	1750	1613	18234	24463	1720	1543	17379	23180	1720	1403	15690	20664	1700
	10	1852	20628	28502	1680	1642	18089	24506	1660	1572	17256	23238	1660	1432	15610	20753	1640
	20	1882	23436	33206	1650	1672	20546	28490	1620	1602	19602	27009	1620	1462	17738	24088	1600
	30	1913	31196	44214	1650	1703	27282	37878	1620	1633	26009	35862	1610	1493	23511	31968	1590
	40	1942	44353	62711	1690	1733	38551	53452	1650	1663	36686	50505	1640	1523	33052	44886	1610
	50	1973	73884	103443	1850	1763	63120	86695	1770	1693	59749	81541	1750	1553	53301	71796	1700
	52	1979	85298	119021	1920	1769	72323	99004	1830	1699	68306	92902	1800	1559	60680	81488	1750
	1 6 5 0 0	-54	1642	20820	27221	2180	1432	17938	23046	2150	1362	16994	21693	2140	1221	15132	19088
-30		1718	20613	27609	1960	1508	17883	23500	1940	1438	16989	22196	1930	1298	15222	19644	1910
-20		1748	20413	27603	1880	1538	17757	23574	1860	1468	16886	22266	1850	1328	15167	19749	1830
-10		1780	20178	27543	1810	1570	17598	23577	1790	1500	16752	22290	1780	1359	15080	19811	1760
0		1807	19934	27461	1740	1597	17428	23559	1720	1527	16606	22291	1710	1387	14981	19851	1700
10		1836	19734	27487	1680	1626	17294	23608	1660	1556	16492	22355	1650	1416	14908	19944	1640
20		1866	22320	31872	1640	1656	19558	27345	1620	1586	18654	25889	1610	1446	16870	23093	1600
30		1897	29428	42084	1640	1687	25732	36031	1610	1617	24530	34104	1600	1477	22166	30381	1580
40		1927	41170	58767	1670	1717	35812	50092	1630	1647	34085	47362	1620	1507	30715	42083	1590
50		1956	66094	93605	1800	1746	56687	78694	1730	1676	53721	74114	1710	1536	48020	65375	1670
52		1963	75195	106184	1850	1753	64122	88773	1770	1683	60659	83443	1750	1543	54045	73375	1700
1 6 0 0 0		-54	1620	19450	25695	2170	1410	16736	21695	2140	1340	15847	20427	2130	1200	14090	17924
	-30	1695	19259	26060	1950	1485	16688	22163	1920	1415	15845	20899	1920	1275	14178	18465	1900
	-20	1725	19076	26069	1870	1515	16574	22224	1850	1445	15754	20976	1840	1305	14131	18574	1820
	-10	1754	18863	26027	1800	1544	16431	22240	1780	1474	15633	21010	1770	1334	14055	18644	1750
	0	1783	18641	25988	1730	1573	16279	22236	1710	1503	15503	21025	1700	1363	13968	18694	1690
	10	1810	18460	26002	1670	1600	16158	22293	1650	1530	15401	21118	1640	1390	13905	18812	1630
	20	1841	20745	29961	1630	1630	18161	25690	1610	1560	17315	24308	1600	1420	15643	21652	1590
	30	1872	26993	39108	1620	1662	23594	33445	1590	1592	22485	31641	1590	1451	20305	28181	1570
	40	1901	36952	53547	1640	1691	32166	45632	1610	1621	30619	43137	1590	1481	27592	38305	1570
	50	1930	56647	81642	1730	1720	48790	68893	1670	1650	46292	64925	1660	1510	41466	57325	1620
	52	1936	63364	91065	1760	1726	54355	76560	1700	1656	51508	72084	1680	1516	46030	63536	1640
	1 5 5 0 0	-54	1606	18165	24173	2150	1396	15621	20389	2130	1326	14787	19189	2120	1186	13138	16839
-30		1683	17984	24502	1940	1473	15579	20824	1910	1403	14790	19631	1910	1263	13229	17333	1890
-20		1717	17815	24514	1860	1507	15479	20873	1840	1437	14712	19719	1830	1297	13195	17456	1820
-10		1750	17618	24453	1790	1540	15353	20877	1770	1470	14608	19743	1760	1330	13135	17520	1750
0		1783	17415	24371	1720	1573	15218	20861	1700	1503	14496	19748	1690	1363	13066	17565	1680
10		1815	17249	24365	1660	1604	15111	20904	1640	1534	14408	19807	1630	1394	13017	17654	1620
20		1821	19294	28157	1610	1611	16880	24117	1600	1541	16089	22808	1590	1401	14524	20296	1580
30		1846	24809	36410	1600	1636	21671	31125	1580	1566	20647	29431	1570	1426	18629	26156	1560
40		1875	33324	49003	1610	1665	29017	41734	1580	1595	27620	39440	1570	1455	24883	35022	1550
50		1904	49206	72147	1680	1694	42500	61000	1630	1624	40355	57504	1610	1484	36192	50861	1580
52		1910	54340	79547	1700	1700	46796	67066	1650	1630	44395	63180	1630	1490	39747	55771	1600
1 5 0 0 0		-54	1609	16961	22625	2140	1399	14601	19119	2120	1329	13826	17981	2110	1189	12294	15789
	-30	1687	16798	22963	1930	1477	14566	19514	1900	1407	13833	18421	1900	1267	12382	16276	1880
	-20	1720	16646	22962	1850	1510	14478	19566	1830	1440	13765	18490	1820	1300	12354	16378	1810
	-10	1753	16470	22914	1780	1543	14366	19578	1760	1473	13674	18520	1750	1333	12304	16444	1740
	0	1786	16289	22847	1710	1576	14247	19593	1690	1506	13575	18533	1690	1366	12245	16493	1670
	10	1818	16140	22850	1650	1608	14152	19640	1630	1538	13498	18594	1630	1398	12202	16581	1610
	20	1824	17962	26286	1600	1614	15732	22536	1590	1544	15000	21319	1580	1404	13552	18983	1570
	30	1819	22838	33950	1590	1609	19934	28980	1570	1539	18984	27411	1560	1399	17115	24332	1550
	40	1849	30169	45003	1590	1639	26268	38324	1560	1569	25000	36203	1550	1429	22511	32116	1530
	50	1877	43182	64377	1630	1667	37364	54496	1590	1597	35494	51412	1580	1457	31852	45466	1550
	52	1883	47211	70328	1650	1673	40760	59397	1610	1603	38694	56007	1590	1463	34679	49448	1560
	1 4 5 0 0	-54	1612	15859	21196	2130	1402	13666	17928	2110	1332	12946	16885	2100	1192	11519	14838
-30		1690	15711	21521	1920	1480	13637	18324	1900	1410	12955	17283	1890	1270	11604	15280	1880
-20		1723	15575	21527	1840	1513	13559	18379	1820	1443	12896	17353	1810	1303	11582	15379	1800
-10		1757	15418	21490	1770	1547	13460	18396	1750	1477	12816	17387	1740	1337	11540	15468	1730
0		1790	15255	21436	1700	1580	13355	18397	1680	1510	12729	17427	1680	1370	11489	15520	1670
10		1822	15121	21445	1640	1612	13271	18447	1620	1542	12661	17490	1620	1402	11453	15607	1610
20		1828	16753	24570	1590	1618	14688	21084	1580	1548	14009	19952	1570	1408	12666	17777	1560
30		1792	21052	31721	1570	1582	18356	27035	1550	1512	17473	25532	1550	1372	15731	22648	1530

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 1000 FEET ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1616	14846	19894	2120	1406	12806	16844	2100	1336	12135	15850	2090	1196	10806	13938	2080
	-30	1695	14712	20183	1910	1485	12782	17199	1890	1415	12147	16248	1880	1275	10888	14376	1870
	-20	1728	14590	20194	1830	1517	12713	17255	1810	1447	12095	16318	1810	1307	10870	14473	1800
	-10	1761	14448	20190	1760	1551	12625	17277	1740	1481	12025	16355	1740	1341	10834	14540	1730
	0	1794	14302	20147	1690	1584	12532	17284	1680	1514	11948	16378	1670	1374	10791	14593	1660
	10	1826	14182	20161	1630	1616	12457	17358	1620	1546	11888	16441	1610	1406	10761	14679	1600
	20	1832	15648	23013	1590	1622	13733	19745	1570	1552	13103	18713	1570	1412	11856	16686	1560
	30	1768	19423	29632	1560	1558	16920	25221	1540	1488	16100	23805	1540	1348	14479	21089	1520
	40	1794	24949	38322	1550	1584	21700	32556	1530	1514	20640	30723	1520	1374	18553	27211	1510
	50	1822	34006	52419	1570	1612	29468	44384	1540	1542	27999	41855	1530	1402	25123	36996	1510
	52	1827	36630	56467	1580	1617	31701	47766	1540	1547	30109	45032	1530	1407	26997	39753	1510
	52	1827	36630	56467	1580	1617	31701	47766	1540	1547	30109	45032	1530	1407	26997	39753	1510
1 3 5 0 0	-54	1620	13911	18662	2110	1410	12012	15816	2090	1340	11386	14908	2080	1200	10147	13120	2070
	-30	1699	13789	18959	1900	1488	11992	16174	1880	1418	11399	15263	1870	1278	10225	13513	1860
	-20	1732	13679	18975	1820	1522	11931	16230	1810	1452	11354	15332	1800	1312	10215	13633	1790
	-10	1766	13551	18955	1750	1556	11852	16256	1740	1486	11292	15372	1730	1346	10181	13697	1720
	0	1799	13420	18920	1680	1589	11769	16267	1670	1519	11225	15421	1670	1379	10144	13750	1660
	10	1831	13311	18938	1620	1621	11702	16318	1610	1551	11172	15483	1610	1411	10119	13834	1600
	20	1837	14634	21547	1580	1627	12857	18503	1560	1557	12271	17542	1560	1417	11111	15652	1550
	30	1772	17944	27488	1550	1562	15652	23419	1530	1492	14899	22111	1530	1352	13411	19603	1520
	40	1765	22763	35470	1540	1555	19780	30087	1510	1485	18805	28400	1510	1345	16884	25094	1490
	50	1793	30425	47679	1540	1583	26365	40337	1510	1513	25047	38024	1500	1373	22460	33574	1490
	52	1798	32588	51113	1550	1588	28211	43213	1520	1518	26792	40726	1510	1378	24014	35949	1490
	52	1798	32588	51113	1550	1588	28211	43213	1520	1518	26792	40726	1510	1378	24014	35949	1490
1 3 0 0 0	-54	1625	13045	17535	2100	1415	11275	14877	2080	1345	10691	14007	2080	1205	9535	12358	2060
	-30	1704	12934	17793	1890	1494	11259	15194	1870	1424	10707	14365	1870	1284	9610	12727	1860
	-20	1738	12836	17810	1810	1528	11206	15249	1800	1458	10668	14432	1790	1318	9602	12819	1780
	-10	1772	12721	17795	1740	1562	11137	15276	1730	1492	10615	14473	1720	1352	9578	12886	1720
	0	1804	12603	17765	1680	1595	11064	15289	1660	1525	10556	14500	1660	1385	9547	12939	1650
	10	1839	12506	17810	1620	1629	11005	15340	1610	1559	10510	14561	1600	1419	9528	13021	1590
	20	1842	13701	20184	1570	1632	12048	17372	1560	1562	11503	16453	1550	1422	10423	14714	1550
	30	1776	16614	25536	1540	1566	14509	21776	1530	1496	13816	20566	1520	1356	12447	18246	1510
	40	1736	20802	32876	1520	1526	18054	27864	1500	1456	17160	26266	1500	1316	15381	23188	1480
	50	1764	27331	43522	1520	1554	23673	36807	1500	1484	22483	34679	1490	1344	20144	30584	1470
	52	1770	29132	46465	1520	1560	25214	39247	1500	1490	23941	36972	1490	1349	21443	32598	1470
	52	1770	29132	46465	1520	1560	25214	39247	1500	1490	23941	36972	1490	1349	21443	32598	1470
1 2 5 0 0	-54	1633	12246	16450	2090	1423	10598	13975	2070	1353	10054	13186	2070	1213	8975	11627	2060
	-30	1712	12146	16718	1880	1502	10586	14296	1870	1432	10071	13500	1860	1292	9049	11998	1850
	-20	1747	12057	16737	1810	1537	10539	14351	1790	1467	10037	13566	1790	1327	9042	12085	1780
	-10	1781	11954	16726	1740	1571	10478	14379	1720	1501	9990	13631	1720	1361	9022	12149	1710
	0	1815	11848	16703	1670	1605	10412	14395	1660	1535	9938	13659	1660	1395	8997	12202	1650
	10	1848	11760	16723	1610	1638	10360	14445	1600	1568	9898	13719	1600	1428	8980	12279	1590
	20	1852	12845	18903	1560	1642	11309	16290	1550	1572	10802	15459	1550	1432	9797	13817	1540
	30	1781	15410	23747	1530	1571	13472	20270	1520	1501	12835	19174	1510	1361	11572	17025	1500
	40	1720	19031	30419	1510	1509	16513	25766	1490	1439	15688	24276	1480	1299	14058	21421	1470
	50	1734	24629	39867	1500	1524	21316	33671	1480	1454	20235	31706	1470	1314	18109	27947	1460
	52	1739	26143	42382	1500	1529	22613	35781	1480	1459	21463	33690	1470	1319	19203	29690	1450
	52	1739	26143	42382	1500	1529	22613	35781	1480	1459	21463	33690	1470	1319	19203	29690	1450
1 2 0 0 0	-54	1641	11501	15459	2080	1431	9964	13153	2070	1361	9457	12418	2060	1221	8451	10999	2050
	-30	1721	11410	15687	1880	1511	9955	13432	1860	1441	9475	12713	1860	1301	8522	11288	1850
	-20	1755	11330	15707	1800	1545	9914	13484	1790	1475	9446	12776	1780	1335	8517	11371	1770
	-10	1790	11235	15698	1730	1580	9860	13513	1720	1510	9405	12816	1710	1370	8501	11459	1710
	0	1825	11141	15681	1670	1615	9802	13530	1650	1545	9359	12845	1650	1405	8480	11510	1640
	10	1858	11061	15702	1610	1647	9755	13605	1590	1577	9323	12903	1590	1437	8465	11584	1580
	20	1860	12051	17735	1560	1650	10622	15305	1550	1580	10150	14505	1540	1440	9213	13003	1540
	30	1785	14311	22104	1520	1575	12525	18883	1510	1505	11934	17867	1510	1365	10770	15877	1500
	40	1722	17449	28016	1500	1512	15160	23776	1480	1442	14409	22409	1480	1302	12924	19788	1460
	50	1702	22250	36607	1490	1492	19232	30867	1460	1422	18247	29069	1460	1282	16304	25558	1440
	52	1707	23531	38797	1480	1497	20331	32704	1460	1427	19287	30772	1460	1287	17232	27076	1440
	52	1707	23531	38797	1480	1497	20331	32704	1460	1427	19287	30772	1460	1287	17232	27076	1440
1 1 5 0 0	-54	1649	10804	14503	2080	1439	9372	12356	2060	1369	8899	11675	2060	1229	7960	10549	2050
	-30	1730	10721	14744	1870	1520	9365	12643	1860	1450	8917	11974	1850	1310	8027	10747	1840
	-20	1765	10649	14764	1790	1555	9329	12694	1780	1485	8892	12035	1780	1345	8025	10802	1770
	-10	1800	10565	14760	1720	1590	9281	12722	1710	1520	8856	12074	1710	1380	8012	10849	1700
	0	1832	10479	14744	1660	1623	9229	12740	1650	1553	8815	12103	1650	1413	7994	10890	1640
	10	1868	10407	14766	1600	1658	9187	12788	1590	1588	8784	12158	1590	1447	7982	10934	1580
	20	1870	11311	16613	1550	1660	9981	14355	1540	1590	9541	13638	1540	1450	8668	12214	1530

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 2000 FEET
ANTI-ICE SYSTEMS - OFF****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1682	21140	27711	2170	1472	18277	23524	2140	1402	17343	22199	2130	1262	15493	19579	2110
	-40	1728	21030	27939	2040	1518	18258	23829	2010	1448	17350	22496	2000	1308	15555	19926	1980
	-30	1760	20882	28010	1950	1550	18180	23949	1930	1480	17294	22631	1920	1340	15545	20093	1900
	-20	1791	20681	28032	1870	1581	18052	24004	1850	1511	17190	22704	1840	1371	15487	20200	1820
	-10	1822	20433	27962	1800	1612	17881	23998	1780	1542	17043	22718	1770	1402	15389	20253	1750
	0	1852	20172	27871	1730	1642	17695	23971	1710	1572	16882	22734	1700	1432	15274	20307	1690
	10	1882	20607	29153	1670	1672	18102	25080	1650	1602	17280	23791	1640	1462	15657	21242	1630
	20	1914	25954	37009	1660	1704	22772	31814	1630	1634	21734	30146	1620	1494	19688	26917	1610
	30	1946	35632	50800	1670	1735	31150	43494	1640	1665	29697	41187	1630	1525	26853	36739	1610
	40	1976	53276	75533	1750	1766	46159	64162	1700	1696	43887	60595	1680	1556	39483	53815	1650
1 5 0 0	50	2006	101680	146030	2030	1796	85405	117046	1920	1726	80447	109501	1880	1586	71133	95625	1820
	-54	1667	20220	26667	2160	1457	17470	22634	2130	1387	16569	21327	2120	1247	14790	18808	2100
	-40	1713	20115	26918	2030	1503	17451	22911	2000	1433	16577	21619	1990	1293	14852	19131	1980
	-30	1745	19975	26994	1940	1535	17378	23034	1920	1465	16526	21778	1910	1325	14842	19316	1890
	-20	1776	19787	27002	1860	1566	17259	23095	1840	1496	16430	21856	1830	1356	14791	19427	1820
	-10	1806	19554	26945	1790	1596	17099	23121	1770	1526	16293	21878	1760	1386	14700	19486	1750
	0	1836	19309	26868	1720	1626	16925	23104	1700	1556	16142	21881	1700	1416	14594	19525	1680
	10	1865	19702	28078	1660	1655	17296	24153	1640	1585	16506	22880	1640	1445	14945	20431	1630
	20	1897	24645	35434	1650	1687	21612	30431	1620	1617	20622	28826	1610	1477	18671	25718	1600
	30	1929	33431	48094	1660	1719	29229	41158	1620	1649	27866	38967	1610	1509	25192	34738	1590
1 6 0 0	40	1959	48910	70075	1720	1749	42440	59604	1670	1679	40367	56297	1650	1539	36340	50003	1620
	50	1989	87741	124036	1930	1779	74340	103116	1840	1709	70187	96734	1810	1569	62348	84796	1760
	-54	1645	18908	25201	2150	1435	16316	21332	2120	1365	15466	20085	2110	1225	13786	17682	2090
	-40	1690	18810	25428	2010	1480	16298	21604	1990	1410	15474	20391	1980	1270	13845	18016	1970
	-30	1721	18683	25511	1930	1511	16233	21729	1910	1441	15429	20530	1900	1301	13839	18179	1880
	-20	1753	18511	25532	1850	1543	16126	21820	1830	1473	15344	20615	1820	1333	13795	18294	1810
	-10	1786	18293	25455	1780	1576	15983	21812	1760	1506	15223	20628	1750	1366	13722	18349	1740
	0	1820	18066	25359	1710	1610	15827	21784	1690	1540	15091	20622	1690	1400	13635	18384	1670
	10	1851	18406	26443	1650	1641	16153	22732	1640	1571	15413	21527	1630	1431	13950	19210	1620
	20	1872	22804	33188	1630	1662	19986	28465	1610	1592	19064	26973	1600	1452	17244	24034	1590
1 5 0 0	30	1903	30437	44380	1630	1693	26610	37977	1610	1623	25366	35941	1600	1483	22922	32011	1580
	40	1933	43274	62995	1670	1723	37611	53603	1630	1653	35788	50666	1620	1513	32236	44994	1590
	50	1962	72227	104097	1830	1752	61726	87198	1750	1682	58433	81996	1730	1542	52129	72204	1680
	-54	1641	17664	23647	2130	1431	15248	20018	2110	1361	14455	18868	2100	1221	12887	16612	2080
	-40	1688	17572	23852	2000	1478	15234	20291	1980	1408	14466	19134	1970	1268	12944	16905	1960
	-30	1721	17454	23919	1920	1511	15177	20403	1900	1441	14428	19260	1890	1301	12948	17060	1880
	-20	1755	17296	23919	1840	1545	15083	20458	1820	1475	14355	19332	1810	1335	12915	17186	1800
	-10	1789	17102	23858	1770	1579	14956	20459	1750	1509	14250	19375	1740	1369	12853	17245	1730
	0	1823	16899	23803	1700	1613	14817	20443	1680	1543	14133	19378	1680	1403	12777	17285	1670
	10	1855	17205	24798	1640	1645	15114	21315	1630	1575	14426	20213	1620	1435	13065	18050	1610
1 4 5 0 0	20	1846	21128	31148	1620	1636	18499	26675	1600	1566	17638	25238	1590	1426	15938	22478	1580
	30	1877	27790	41092	1610	1667	24288	35126	1590	1597	23147	33228	1580	1457	20903	29588	1560
	40	1907	38559	57027	1640	1697	33545	48557	1600	1627	31925	45855	1590	1487	28761	40733	1570
	50	1936	60905	89510	1750	1726	52336	75325	1690	1656	49622	70941	1670	1516	44390	62563	1630
	-54	1645	16516	22159	2120	1435	14272	18794	2100	1364	13534	17700	2090	1224	12075	15593	2070
	-40	1691	16433	22355	1990	1481	14260	19033	1970	1411	13546	17973	1960	1271	12132	15892	1950
	-30	1725	16327	22445	1910	1515	14210	19142	1890	1445	13513	18095	1880	1305	12135	16039	1870
	-20	1759	16185	22453	1830	1549	14127	19199	1810	1479	13450	18168	1810	1338	12109	16142	1790
	-10	1791	16011	22405	1760	1581	14014	19208	1740	1511	13357	18195	1740	1371	12055	16204	1720
	0	1826	15828	22341	1690	1616	13891	19223	1680	1546	13254	18205	1670	1406	11990	16248	1660
1 3 0 0	10	1859	16106	23257	1630	1649	14162	20005	1620	1579	13522	18977	1610	1438	12254	16956	1600
	20	1819	19591	29257	1610	1609	17135	25015	1590	1539	16330	23652	1580	1399	14738	21033	1570
	30	1850	25432	38130	1600	1640	22215	32553	1570	1570	21165	30804	1560	1430	19097	27372	1550
	40	1880	34551	51887	1610	1670	30072	44191	1580	1600	28621	41721	1570	1460	25780	37033	1550
	50	1908	52239	78208	1690	1698	45048	66020	1630	1628	42754	62207	1620	1488	38309	54932	1590
	-54	1648	15463	20781	2110	1438	13376	17642	2090	1368	12688	16639	2080	1228	11328	14669	2070
	-40	1695	15382	20986	1980	1485	13365	17867	1960	1415	12700	16878	1960	1275	11382	14932	1940
	-30	1728	15291	21059	1900	1518	13321	17995	1880	1448	12672	16995	1870	1308	11387	15073	1860
	-20	1762	15164	21072	1820	1552	13248	18054	1800	1482	12617	17069	1800	1342	11366	15174	1790
	-10	1797	15008	21035	1750	1587	13148	18069	1730	1517	12535	17100	1730	1377	11320	15258	1720
1 2 0 0	0	1831	14843	20982	1680	1621	13038	18068	1670	1551	12443	17138	1660	1411	11264	15305	1650
	10	1863	15096	21828	1630	1653	13286	18814	1610	1583	12690	17830	1610	1443	11508	15941	1600
	20	1822	18181	27248	1590	1612	15919	23318	1580	1542	15177	22053	1570	1402	13709	19625	1560
	30	1823	23319	35443	1580	1613	20353	30242	1560	1543	19383	28576	1550	1403	17472	25381	1540
	40	1852	31101	47437	1590	1642	27071	40370	1560	1572	25762	38129	1550	1432	23194	33813	1530
	50	1881	45374	69218	1640	1671	39216	58484	1590	1601	37241	55152	1580	1461	33398	48740	1550

56FMC-00-00

Figure 4-34 (Sheet 5)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 2000 FEET ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1652	14492	19524	2100	1442	12547	16591	2080	1372	11907	15633	2070	1232	10638	13791	2060
	-40	1699	14423	19702	1970	1489	12540	16805	1950	1419	11919	15859	1950	1279	10690	14061	1940
	-30	1733	14333	19765	1890	1523	12501	16907	1870	1453	11896	15994	1870	1312	10697	14195	1860
	-20	1767	14222	19787	1810	1557	12436	16966	1800	1487	11847	16067	1790	1347	10680	14293	1780
	-10	1801	14081	19758	1740	1591	12346	16985	1730	1521	11775	16101	1720	1381	10641	14356	1710
	0	1835	13933	19740	1680	1625	12249	16990	1660	1555	11693	16120	1660	1415	10592	14405	1650
	10	1868	14165	20497	1620	1657	12477	17682	1610	1587	11921	16785	1600	1447	10817	15017	1590
	20	1826	16905	25407	1580	1616	14819	21762	1570	1546	14133	20611	1560	1406	12775	18355	1550
	30	1795	21413	33017	1570	1585	18670	28129	1550	1515	17773	26563	1540	1375	16001	23535	1530
	40	1824	28100	43545	1560	1614	24451	37021	1540	1544	23263	34950	1530	1404	20929	30959	1510
1 3 5 0 0	50	1852	39792	61819	1600	1642	34438	52279	1560	1572	32713	49299	1550	1432	29347	43551	1520
	-54	1656	13594	18330	2090	1446	11781	15590	2070	1376	11184	14717	2070	1236	9999	12993	2050
	-40	1703	13531	18499	1960	1493	11775	15793	1950	1423	11196	14929	1940	1283	10048	13227	1930
	-30	1737	13453	18589	1880	1527	11741	15914	1870	1457	11176	15038	1860	1317	10057	13355	1850
	-20	1772	13349	18610	1810	1562	11683	15973	1790	1492	11133	15109	1790	1351	10043	13472	1780
	-10	1806	13222	18588	1740	1596	11603	15996	1720	1526	11069	15145	1720	1386	10010	13535	1710
	0	1841	13088	18553	1670	1630	11516	16004	1660	1560	10997	15167	1650	1420	9967	13584	1640
	10	1873	13302	19279	1610	1663	11727	16623	1600	1593	11208	15786	1600	1453	10177	14132	1590
	20	1830	15745	23715	1580	1620	13816	20331	1560	1550	13182	19262	1560	1410	11925	17166	1550
	30	1766	19686	30763	1550	1556	17143	26164	1530	1486	16310	24712	1530	1346	14664	21861	1520
1 3 0 0 0	40	1795	25463	40049	1550	1585	22142	34031	1520	1515	21059	32110	1510	1375	18928	28406	1500
	50	1823	35159	55575	1570	1613	30448	47016	1530	1543	28925	44325	1520	1403	25945	39160	1500
	-54	1661	12763	17234	2080	1451	11072	14676	2060	1381	10514	13837	2060	1241	9408	12249	2050
	-40	1710	12705	17393	1960	1500	11068	14866	1940	1430	10527	14061	1930	1290	9456	12469	1920
	-30	1744	12635	17456	1870	1534	11038	14960	1860	1464	10511	14164	1850	1324	9466	12590	1840
	-20	1779	12542	17478	1800	1569	10987	15018	1780	1499	10475	14233	1780	1359	9457	12682	1770
	-10	1814	12427	17461	1730	1604	10917	15041	1720	1534	10419	14270	1710	1394	9429	12743	1700
	0	1849	12307	17431	1660	1639	10840	15052	1650	1569	10355	14294	1650	1429	9393	12792	1640
	10	1882	12507	18103	1610	1672	11038	15651	1590	1602	10553	14871	1590	1462	9591	13326	1580
	20	1835	14685	22152	1570	1625	12899	19032	1550	1555	12311	18015	1550	1415	11146	16066	1540
1 2 5 0 0	30	1768	18120	28464	1540	1558	15799	24230	1520	1488	15037	22894	1520	1348	13530	20264	1510
	40	1766	23128	36938	1530	1556	20093	31342	1510	1486	19101	29554	1500	1346	17150	26133	1490
	50	1793	31249	50288	1540	1583	27065	42514	1510	1513	25708	40067	1500	1373	23046	35363	1480
	-54	1671	11993	16179	2070	1461	10417	13796	2060	1391	9897	13036	2050	1251	8865	11532	2040
	-40	1718	11941	16328	1950	1508	10414	13974	1930	1438	9910	13224	1930	1298	8910	11762	1920
	-30	1753	11877	16415	1870	1543	10388	14088	1850	1473	9897	13321	1850	1333	8921	11877	1840
	-20	1788	11793	16438	1790	1578	10343	14144	1780	1508	9865	13388	1770	1368	8914	11964	1770
	-10	1822	11690	16425	1720	1612	10281	14169	1710	1542	9816	13450	1710	1402	8891	12024	1700
	0	1858	11581	16400	1660	1648	10212	14181	1650	1578	9759	13475	1640	1438	8860	12072	1630
	10	1892	11768	16998	1600	1682	10398	14715	1590	1612	9945	13988	1590	1472	9046	12546	1580
1 2 0 0 0	20	1839	13712	20702	1560	1629	12056	17804	1550	1559	11511	16883	1540	1419	10429	15068	1530
	30	1772	16719	26367	1530	1562	14595	22466	1520	1492	13897	21236	1510	1352	12516	18831	1500
	40	1735	21045	34150	1510	1525	18266	28911	1490	1455	17350	27262	1490	1315	15553	24043	1470
	50	1763	27904	45690	1510	1553	24158	38615	1490	1483	22940	36376	1480	1343	20547	32069	1460
	-54	1679	11274	15215	2070	1469	9803	12993	2050	1399	9318	12285	2050	1259	8354	10974	2040
	-40	1727	11226	15355	1940	1517	9802	13160	1930	1447	9332	12461	1920	1307	8397	11094	1910
	-30	1762	11169	15413	1860	1552	9779	13244	1850	1482	9320	12554	1840	1342	8409	11182	1830
	-20	1797	11092	15437	1780	1587	9740	13299	1770	1517	9293	12618	1770	1377	8404	11264	1760
	-10	1833	10999	15427	1720	1623	9684	13324	1700	1553	9249	12654	1700	1413	8385	11381	1690
	0	1868	10901	15406	1650	1658	9622	13338	1640	1588	9199	12679	1640	1448	8358	11417	1630
1 1 5 0 0	10	1904	11077	15990	1590	1693	9797	13861	1580	1623	9374	13184	1580	1483	8534	11838	1570
	20	1849	12820	19374	1550	1639	11285	16658	1540	1569	10780	15804	1540	1429	9774	14117	1530
	30	1776	15454	24456	1520	1566	13506	20857	1510	1496	12865	19723	1500	1356	11595	17501	1490
	40	1714	19175	31504	1500	1504	16627	26661	1480	1434	15793	25113	1480	1294	14145	22145	1460
	50	1731	25008	41655	1490	1521	21632	35183	1470	1451	20532	33122	1460	1311	18367	29157	1450
	-54	1688	10600	14283	2060	1478	9228	12297	2050	1408	8775	11624	2040	1268	7874	10537	2030
	-40	1736	10557	14440	1930	1526	9225	12393	1920	1456	8788	11718	1920	1316	7916	10656	1910
	-30	1771	10504	14496	1850	1561	9208	12475	1840	1491	8779	11892	1840	1351	7928	10725	1830
	-20	1806	10435	14519	1780	1596	9173	12527	1770	1526	8755	11930	1760	1386	7925	10782	1760
	-10	1843	10351	14512	1710	1633	9123	12552	1700	1563	8717	11956	1700	1422	7909	10827	1690
1 1 0 0 0	0	1879	10262	14495	1650	1669	9067	12567	1640	1599	8672	11975	1630	1459	7887	10865	1630
	10	1912	10428	15010	1590	1702	9233	13057	1580	1632	8837	12399	1580	1492	8052	11186	1570
	20	1858	11996	18108	1550	1648	10572	15614	1540	1578	10102	14794	1530	1438	9168	13253	1520
	30	1781	14306	22702	1510	1570	12516	19403	1500	1500	11926	18331	1500	1360	10757	16277	1490
	40	1717	17509	28948	1490	1507	15204	24523	1470	1437	14447	23106	1470	1297	12952	20392	1450
	50	1697	22475	38097	1480	1487	19416	32125	1450	1417	18417	30222	1450	1277	16449	26560	1430

561MC-00-00

Figure 4-34 (Sheet 6)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 3000 FEET
ANTI-ICE SYSTEMS - OFF**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1708	20453	27084	2150	1498	17734	23048	2120	1428	16843	21768	2110	1288	15084	19240	2090
	-30	1788	20232	27418	1930	1578	17661	23498	1910	1508	16817	22224	1900	1368	15150	19772	1880
	-20	1820	20029	27405	1850	1610	17528	23542	1830	1540	16708	22286	1820	1400	15086	19868	1810
	-10	1851	19775	27350	1780	1641	17353	23528	1760	1571	16556	22293	1750	1431	14981	19913	1740
	0	1882	19550	27369	1710	1672	17191	23586	1690	1602	16417	22386	1690	1462	14885	20010	1670
	10	1913	22198	31845	1670	1703	19520	27418	1650	1633	18643	25993	1640	1493	16912	23255	1630
	20	1946	29016	41708	1670	1736	25468	35841	1640	1666	24313	33972	1630	1526	22040	30386	1610
	30	1978	41166	59031	1700	1768	35945	50510	1660	1698	34261	47791	1650	1558	30973	42632	1630
	40	2009	66545	94530	1830	1799	57299	79799	1760	1729	54380	75221	1740	1589	48768	66572	1700
	48	2030	112041	170878	2110	1820	93647	131650	1980	1750	88097	120116	1940	1610	77731	104662	1870
1 6 5 0	-54	1694	19575	26083	2140	1484	16960	22191	2110	1414	16103	20928	2100	1274	14408	18497	2080
	-40	1740	19519	26392	2010	1530	16978	22515	1980	1460	16145	21265	1970	1320	14498	18856	1960
	-30	1773	19367	26446	1920	1563	16893	22618	1900	1493	16081	21403	1890	1353	14476	19023	1880
	-20	1804	19176	26443	1840	1594	16770	22668	1820	1524	15980	21471	1820	1384	14417	19123	1800
	-10	1835	18941	26380	1770	1625	16605	22665	1750	1555	15838	21487	1750	1415	14321	19175	1730
	0	1866	18725	26403	1700	1656	16454	22750	1690	1586	15708	21562	1680	1445	14232	19275	1670
	10	1897	21170	30610	1660	1687	18606	26329	1640	1617	17765	24976	1640	1477	16106	22303	1620
	20	1930	27444	39800	1650	1720	24083	34178	1630	1650	22987	32386	1620	1510	20830	28948	1600
	30	1961	38357	55558	1680	1751	33510	47533	1650	1681	31943	44968	1630	1541	28879	40101	1610
	40	1992	60081	86308	1780	1782	51885	73076	1720	1712	49283	68913	1710	1572	44262	61077	1670
1 6 0 0	48	2016	104389	155222	2050	1806	87653	121499	1930	1736	82560	113680	1900	1596	73000	99298	1830
	-54	1675	18317	24621	2120	1465	15855	20917	2100	1395	15047	19715	2090	1255	13450	17400	2070
	-40	1722	18262	24911	2000	1512	15873	21225	1970	1442	15089	20056	1960	1302	13537	17764	1950
	-30	1757	18121	24951	1910	1547	15797	21317	1890	1477	15033	20164	1880	1337	13523	17903	1870
	-20	1791	17943	24930	1830	1581	15687	21377	1810	1511	14945	20221	1810	1371	13478	17997	1790
	-10	1827	17725	24842	1760	1617	15540	21358	1740	1547	14822	20224	1740	1407	13400	18041	1720
	0	1861	17525	24827	1690	1651	15405	21395	1680	1581	14708	20278	1670	1441	13329	18127	1660
	10	1871	19715	28860	1650	1661	17310	24766	1630	1591	16521	23498	1630	1451	14962	20954	1610
	20	1904	25264	37117	1640	1694	22158	31835	1610	1624	21143	30177	1610	1484	19145	26918	1590
	30	1935	34601	50832	1650	1725	30242	43501	1620	1655	28826	41172	1610	1515	26060	36662	1590
1 5 5 0	40	1966	52066	76090	1730	1756	45106	64569	1680	1686	42882	60956	1660	1546	38571	54053	1630
	48	1990	83344	120182	1900	1780	70874	100252	1810	1710	66999	94139	1790	1570	59627	82686	1740
	-54	1678	17128	23097	2110	1468	14840	19620	2090	1398	14089	18518	2080	1258	12602	16355	2070
	-40	1725	17077	23350	1980	1515	14857	19931	1960	1445	14128	18819	1960	1305	12684	16678	1940
	-30	1760	16950	23395	1900	1550	14790	20023	1880	1480	14080	18925	1870	1340	12670	16809	1860
	-20	1794	16791	23383	1820	1584	14693	20066	1800	1514	14003	18986	1800	1374	12636	16907	1790
	-10	1830	16596	23312	1750	1620	14563	20057	1730	1550	13894	19019	1730	1410	12569	16976	1720
	0	1865	16417	23332	1690	1655	14444	20100	1670	1585	13795	19077	1660	1445	12508	17064	1650
	10	1870	18371	27003	1640	1660	16142	23203	1620	1590	15411	22002	1620	1450	13963	19648	1610
	20	1877	23294	34667	1620	1667	20416	29719	1600	1597	19475	28131	1590	1457	17618	25084	1580
1 5 0 0	30	1909	31339	46748	1630	1699	27392	39945	1600	1629	26110	37796	1590	1489	23593	33651	1570
	40	1939	45619	67823	1680	1729	39604	57638	1640	1659	37672	54419	1620	1519	33913	48293	1600
	48	1962	68832	101323	1800	1752	58979	85085	1730	1682	55878	80054	1710	1542	49925	70569	1670
	-54	1681	16038	21668	2100	1471	13909	18442	2080	1401	13209	17391	2070	1261	11824	15369	2060
	-40	1729	15991	21907	1970	1519	13925	18715	1950	1449	13246	17696	1950	1309	11900	15693	1930
	-30	1763	15877	21955	1890	1553	13865	18804	1870	1483	13204	17800	1870	1343	11894	15824	1850
	-20	1798	15734	21975	1810	1588	13780	18852	1800	1518	13137	17863	1790	1378	11862	15917	1780
	-10	1834	15559	21917	1740	1624	13665	18851	1730	1554	13041	17880	1720	1414	11805	15969	1710
	0	1869	15399	21921	1680	1659	13560	18898	1660	1589	12954	17941	1660	1449	11753	16056	1650
	10	1874	17148	25262	1630	1664	15083	21725	1620	1594	14405	20608	1610	1454	13061	18415	1600
1 4 5 0	20	1850	21507	32446	1610	1640	18832	27775	1590	1570	17956	26275	1580	1430	16228	23397	1570
	30	1882	28478	43090	1610	1672	24886	36812	1580	1602	23717	34816	1570	1462	21417	30965	1560
	40	1912	40313	60954	1640	1702	35043	51845	1600	1632	33344	48947	1590	1492	30026	43420	1570
	48	1935	58145	87342	1730	1725	50062	73640	1670	1655	47495	69381	1650	1515	42536	61273	1620
	-54	1685	15035	20342	2090	1475	13052	17328	2070	1405	12399	16366	2060	1265	11106	14474	2050
	-40	1733	14992	20591	1960	1523	13067	17585	1950	1453	12430	16630	1940	1313	11178	14759	1930
	-30	1767	14889	20641	1880	1557	13015	17696	1860	1487	12397	16734	1860	1347	11174	14885	1850
	-20	1802	14760	20644	1810	1592	12938	17745	1790	1522	12338	16798	1780	1382	11148	14976	1770
	-10	1838	14603	20597	1730	1628	12836	17751	1720	1558	12253	16820	1710	1418	11099	15052	1700
	0	1873	14458	20607	1670	1663	12742	17800	1660	1593	12177	16905	1650	1453	11054	15139	1640
1 4 0 0	10	1878	16032	23657	1620	1668	14115	20386	1610	1598	13485	19321	1600	1458	12235	17276	1590
	20	1823	19876	30370	1600	1613	17386	25979	1580	1543	16569	24561	1570	1403	14956	21839	1560
	30	1854	25949	39847	1590	1644	22664	34000	1560	1574	21592	32140	1560	1434	19483	28576	1540
	40	1884	35866	55147	1610	1674	31198	46892	1580	1604	29688	44294	1560	1464	26733	39267	1540
	48	1907	49914	76481	1670	1697	43109	64662	1620	1627	40933	60944	1600	1487	36710	53845	1580

56FMC-00-00

Figure 4-34 (Sheet 7)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI)

3000 FEET

ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1690	14109	19131	2080	1480	12259	16313	2060	1410	11649	15391	2060	1269	10442	13620	2040
	-40	1737	14068	19343	1950	1527	12273	16554	1940	1457	11682	15642	1930	1317	10509	13910	1920
	-30	1772	13975	19394	1870	1562	12227	16641	1860	1492	11651	15762	1850	1352	10508	14030	1840
	-20	1807	13859	19402	1800	1597	12159	16691	1780	1527	11598	15826	1780	1387	10486	14119	1770
	-10	1843	13717	19364	1730	1633	12067	16701	1710	1563	11523	15852	1710	1423	10444	14174	1700
	0	1878	13587	19378	1660	1668	11985	16752	1650	1598	11456	15914	1640	1458	10406	14260	1640
	10	1883	15008	22171	1610	1673	13226	19123	1600	1603	12639	18153	1600	1463	11476	16243	1590
	20	1820	18385	28255	1590	1610	16093	24158	1570	1540	15341	22864	1560	1400	13854	20336	1550
	30	1826	23695	36920	1570	1615	20680	31486	1550	1545	19694	29747	1540	1405	17752	26390	1530
	40	1855	32081	50168	1580	1645	27912	42631	1550	1575	26558	40255	1540	1435	23905	35684	1520
1 3 5 0 0	48	1878	43365	67754	1620	1668	37526	57321	1580	1598	35649	54065	1570	1458	31993	47797	1540
	-54	1694	13249	17977	2070	1484	11523	15342	2050	1414	10954	14502	2050	1274	9825	12843	2040
	-40	1742	13212	18176	1950	1532	11537	15569	1930	1462	10984	14737	1920	1322	9888	13095	1910
	-30	1777	13128	18251	1860	1567	11495	15676	1850	1497	10957	14832	1840	1357	9889	13210	1830
	-20	1812	13022	18263	1790	1602	11435	15727	1780	1532	10911	14894	1770	1392	9871	13319	1760
	-10	1846	12894	18232	1720	1636	11353	15741	1710	1566	10845	14923	1700	1426	9835	13374	1690
	0	1884	12779	18249	1660	1674	11281	15792	1640	1604	10787	14984	1640	1464	9805	13458	1630
	10	1888	14065	20815	1610	1678	12406	17947	1590	1608	11860	17043	1590	1468	10775	15259	1580
	20	1824	17041	26276	1570	1614	14934	22511	1560	1544	14241	21290	1550	1404	12871	18949	1540
	30	1797	21675	34261	1560	1587	18897	29173	1540	1517	17988	27544	1530	1377	16195	24422	1520
1 3 0 0 0	40	1826	28820	45813	1560	1616	25069	38922	1530	1546	23848	36738	1520	1406	21451	32531	1510
	48	1848	38025	60544	1580	1638	32940	51255	1550	1568	31298	48339	1540	1428	28092	42712	1510
	-54	1701	12454	16913	2060	1491	10843	14454	2050	1421	10312	13646	2040	1281	9257	12118	2030
	-40	1749	12420	17099	1940	1539	10857	14665	1920	1469	10341	13889	1920	1329	9317	12354	1910
	-30	1785	12344	17148	1860	1575	10821	14746	1840	1505	10318	13980	1840	1365	9320	12463	1830
	-20	1820	12249	17161	1780	1610	10767	14795	1770	1540	10278	14040	1770	1400	9307	12546	1760
	-10	1857	12135	17136	1710	1647	10696	14811	1700	1577	10221	14070	1700	1437	9277	12601	1690
	0	1894	12031	17154	1650	1684	10632	14861	1640	1614	10170	14131	1630	1474	9252	12681	1630
	10	1896	13196	19520	1600	1686	11652	16873	1590	1616	11143	16004	1580	1476	10132	14366	1580
	20	1829	15824	24463	1570	1619	13882	20978	1550	1549	13244	19847	1550	1409	11979	17676	1540
1 2 5 0 0	30	1767	19852	31856	1540	1557	17286	27080	1520	1487	16445	25551	1520	1347	14787	22621	1510
	40	1796	25980	41964	1540	1586	22584	35636	1510	1516	21478	33618	1510	1376	19300	29731	1490
	48	1818	33582	54474	1550	1608	29103	46128	1520	1538	27652	43460	1510	1398	24811	38399	1490
	-54	1710	11716	15889	2060	1500	10212	13596	2040	1430	9716	12865	2040	1290	8731	11417	2030
	-40	1758	11684	16063	1930	1548	10225	13819	1920	1478	9744	13070	1910	1338	8787	11661	1900
	-30	1796	11616	16136	1850	1586	10194	13896	1840	1516	9724	13156	1830	1375	8792	11765	1820
	-20	1830	11530	16151	1780	1620	10146	13944	1760	1550	9689	13215	1760	1410	8781	11844	1750
	-10	1867	11427	16130	1710	1657	10083	13961	1700	1587	9639	13270	1690	1447	8756	11897	1680
	0	1904	11333	16151	1640	1694	10026	14011	1630	1624	9594	13330	1630	1484	8735	11975	1620
	10	1905	12396	18304	1590	1695	10958	15841	1580	1625	10484	15058	1580	1485	9541	13507	1570
1 2 0 0 0	20	1834	14716	22794	1560	1624	12924	19566	1540	1554	12334	18516	1540	1414	11165	16527	1530
	30	1766	18208	29388	1530	1556	15870	25022	1510	1486	15103	23613	1510	1346	13567	20913	1500
	40	1765	23483	38557	1520	1555	20395	32697	1500	1485	19387	30827	1490	1345	17400	27223	1480
	48	1787	29825	49285	1530	1577	25844	41700	1500	1507	24551	39301	1490	1367	22013	34661	1470
	-54	1718	11024	14954	2050	1508	9620	12814	2030	1438	9156	12161	2030	1298	8235	10929	2020
	-40	1767	10995	15115	1920	1557	9633	12998	1910	1487	9183	12324	1910	1347	8288	11060	1900
	-30	1803	10932	15161	1840	1593	9605	13071	1830	1523	9166	12406	1830	1383	8294	11125	1820
	-20	1839	10855	15176	1770	1629	9562	13118	1760	1559	9135	12462	1750	1419	8286	11178	1750
	-10	1877	10762	15159	1700	1667	9506	13136	1690	1597	9090	12492	1690	1457	8265	11347	1680
	0	1914	10678	15180	1640	1704	9456	13212	1630	1634	9052	12550	1620	1494	8248	11393	1620
1 1 5 0 0	10	1915	11650	17194	1590	1705	10309	14902	1580	1635	9867	14145	1570	1495	8987	12727	1570
	20	1839	13700	21279	1550	1629	12043	18260	1540	1559	11497	17310	1530	1419	10415	15439	1520
	30	1769	16740	27150	1520	1559	14609	23140	1500	1489	13909	21844	1500	1349	12523	19360	1490
	40	1732	21270	35501	1500	1522	18449	30054	1480	1452	17526	28315	1480	1312	15706	24985	1460
	48	1755	26606	44773	1500	1545	23039	37835	1480	1475	21878	35639	1470	1335	19595	31413	1450
	-54	1728	10375	14045	2040	1517	9064	12211	2030	1447	8630	11554	2020	1307	7769	10506	2020
	-40	1777	10348	14223	1920	1567	9076	12306	1910	1497	8655	11659	1900	1357	7819	10635	1890
	-30	1813	10291	14267	1840	1603	9051	12345	1830	1533	8641	11835	1820	1393	7826	10701	1820
	-20	1848	10221	14283	1760	1639	9013	12372	1750	1569	8614	11873	1750	1429	7820	10757	1740
	-10	1887	10137	14269	1700	1677	8963	12389	1690	1607	8575	11901	1680	1467	7803	10804	1680
1 1 0 0 0	0	1923	10061	14291	1630	1713	8919	12430	1620	1644	8541	11931	1620	1504	7789	10851	1610
	10	1925	10952	16123	1580	1715	9703	13991	1570	1645	9290	13314	1570	1505	8469	11966	1560
	20	1847	12773	19839	1540	1637	11242	17069	1530	1567	10737	16163	1530	1427	9735	14429	1520
	30	1773	15422	25112	1510	1563	13474	21425	1500	1493	12833	20230	1490	1353	11564	17943	1480
	40	1707	19294	32684	1490	1497	16720	27614	1470	1427	15877	26025	1470	1287	14212	22916	1450
	48	1721	23815	40823	1480	1511	20600	34446	1460	1441	19551	32425	1450	1301	17485	28536	1440

561MC-00-00

Figure 4-34 (Sheet 8)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 4000 FEET
ANTI-ICE SYSTEMS - OFF****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1736	19942	26710	2130	1526	17335	22776	2100	1456	16480	21529	2090	1316	14792	19085	2070
	-30	1817	19736	27078	1910	1607	17269	23251	1890	1537	16460	22008	1880	1397	14860	19614	1870
	-20	1849	19519	27084	1830	1639	17123	23288	1810	1569	16336	22062	1810	1429	14781	19702	1790
	-10	1881	19275	27028	1760	1671	16949	23289	1740	1601	16186	22104	1740	1461	14675	19756	1720
	0	1912	19646	28205	1700	1702	17303	24317	1680	1632	16534	23063	1670	1492	15014	20651	1660
	10	1946	24688	35687	1680	1736	21727	30753	1660	1666	20759	29168	1650	1526	18850	26123	1630
	20	1980	33034	47806	1690	1770	28990	41092	1660	1700	27677	38957	1650	1560	25100	34838	1630
	30	2012	48841	70344	1750	1802	42543	60061	1700	1732	40524	56810	1690	1592	36597	50619	1660
	40	2043	87470	124082	1970	1833	74448	103567	1870	1763	70417	97332	1850	1623	62765	85667	1790
	45	2055	124915	214418	2210	1845	103533	153639	2060	1775	97187	139157	2010	1635	85432	117980	1930
1 6 5 0	-54	1721	19095	25738	2120	1511	16586	21943	2090	1441	15763	20711	2080	1301	14136	18340	2070
	-40	1768	19068	26090	1990	1558	16628	22303	1970	1488	15827	21102	1960	1348	14243	18728	1940
	-30	1801	18901	26134	1900	1591	16526	22394	1880	1521	15747	21209	1880	1381	14205	18884	1860
	-20	1833	18697	26126	1830	1623	16390	22439	1810	1553	15632	21269	1800	1413	14133	18976	1790
	-10	1866	18465	26068	1760	1656	16227	22461	1740	1586	15492	21289	1730	1446	14037	19031	1720
	0	1901	18799	27143	1690	1691	16552	23387	1670	1621	15814	22198	1670	1481	14355	19867	1660
	10	1929	23473	34216	1670	1719	20648	29460	1650	1649	19724	27958	1640	1509	17901	24996	1630
	20	1963	31089	45393	1670	1753	27283	38996	1640	1683	26045	36961	1630	1543	23614	33032	1610
	30	1995	45076	65627	1720	1785	39308	56052	1680	1715	37452	53019	1660	1575	33838	47238	1640
	40	2026	76885	110453	1890	1816	65828	92726	1810	1746	62370	87296	1790	1606	55764	76985	1740
1 6 0 0	45	2041	115018	178750	2130	1831	95975	137384	2000	1761	90227	124771	1960	1621	79582	108682	1880
	-54	1713	17867	24213	2110	1503	15521	20638	2080	1433	14750	19477	2070	1293	13227	17262	2060
	-40	1762	17840	24537	1980	1552	15560	20973	1960	1482	14811	19844	1950	1342	13330	17627	1930
	-30	1798	17685	24563	1890	1588	15470	21073	1870	1518	14742	19938	1870	1377	13302	17753	1850
	-20	1833	17497	24533	1820	1623	15349	21102	1800	1553	14642	19985	1790	1413	13244	17836	1780
	-10	1869	17286	24461	1750	1659	15205	21093	1730	1589	14520	19996	1720	1449	13165	17885	1710
	0	1904	17587	25449	1680	1694	15500	21968	1670	1624	14814	20835	1660	1484	13456	18658	1650
	10	1903	21766	32146	1660	1693	19131	27639	1640	1623	18268	26191	1630	1483	16565	23408	1620
	20	1936	28423	42091	1650	1726	24938	36125	1620	1656	23803	34225	1620	1516	21570	30584	1600
	30	1968	40155	59374	1680	1758	35057	50751	1650	1688	33411	48000	1630	1548	30197	42784	1610
1 5 5 0	40	1999	64576	94574	1800	1789	55630	79800	1740	1719	52803	75256	1720	1579	47359	66573	1680
	45	2014	89952	130341	1950	1804	76280	108400	1860	1734	72059	101746	1830	1594	64062	89264	1770
	-54	1718	16728	22737	2090	1508	14545	19377	2070	1438	13828	18312	2060	1298	12408	16222	2050
	-40	1767	16703	23021	1970	1557	14582	19714	1950	1487	13885	18637	1940	1346	12504	16565	1930
	-30	1801	16564	23052	1880	1591	14502	19793	1860	1521	13824	18731	1860	1381	12481	16687	1850
	-20	1837	16394	23033	1810	1627	14394	19827	1790	1557	13736	18804	1780	1417	12432	16792	1770
	-10	1873	16205	22975	1740	1663	14266	19826	1720	1593	13628	18821	1710	1453	12364	16845	1700
	0	1908	16479	23885	1670	1698	14536	20634	1660	1628	13897	19576	1650	1488	12632	17540	1640
	10	1877	20203	30228	1640	1667	17740	25952	1620	1597	16933	24577	1620	1457	15337	21935	1610
	20	1910	26048	39114	1630	1700	22844	33531	1610	1630	21798	31781	1600	1490	19739	28342	1580
1 5 0 0	30	1941	35984	54040	1650	1731	31435	46175	1620	1661	29958	43692	1610	1521	27079	38923	1590
	40	1972	55246	82430	1740	1762	47784	69795	1680	1692	45406	65858	1670	1552	40805	58349	1630
	45	1987	73341	108564	1840	1777	62769	91055	1760	1707	59453	85665	1740	1567	53106	75472	1690
	-54	1720	15682	21349	2080	1510	13648	18230	2060	1440	12980	17213	2060	1300	11658	15260	2040
	-40	1769	15658	21616	1960	1559	13682	18526	1940	1489	13032	17540	1930	1349	11744	15600	1920
	-30	1805	15533	21675	1870	1595	13612	18605	1860	1525	12979	17632	1850	1385	11726	15719	1840
	-20	1841	15380	21664	1800	1631	13515	18642	1780	1561	12902	17687	1780	1421	11684	15802	1770
	-10	1877	15210	21618	1730	1667	13401	18648	1710	1597	12806	17709	1710	1457	11625	15857	1700
	0	1912	15460	22461	1670	1702	13650	19398	1650	1632	13054	18431	1650	1492	11872	16525	1640
	10	1869	18764	28268	1630	1659	16482	24269	1610	1589	15733	22982	1610	1449	14252	20510	1600
1 4 5 0	20	1882	23917	36413	1620	1672	20961	31202	1590	1602	19995	29531	1590	1462	18090	26327	1570
	30	1914	32400	49433	1630	1704	28310	42243	1600	1634	26982	39963	1590	1494	24378	35540	1570
	40	1944	47908	72833	1680	1734	41545	61780	1640	1664	39506	58349	1620	1524	35542	51709	1600
	45	1959	61404	92860	1750	1749	52852	78250	1690	1679	50130	73674	1670	1539	44919	65106	1640
	-54	1724	14717	20058	2070	1514	12821	17142	2050	1444	12196	16212	2050	1304	10959	14380	2030
	-40	1773	14693	20332	1950	1563	12852	17443	1930	1493	12245	16499	1920	1353	11042	14683	1910
	-30	1809	14581	20372	1870	1599	12789	17521	1850	1529	12199	16589	1840	1389	11028	14797	1830
	-20	1845	14444	20367	1790	1635	12703	17562	1770	1565	12130	16644	1770	1425	10992	14901	1760
	-10	1881	14290	20330	1720	1671	12601	17573	1710	1601	12045	16670	1700	1461	10941	14958	1690
	0	1917	14520	21111	1660	1707	12831	18271	1640	1637	12274	17341	1640	1497	11171	15558	1630
1 4 0 0	10	1873	17457	26375	1620	1663	15350	22664	1610	1593	14658	21467	1600	1453	13289	19171	1590
	20	1854	21995	33975	1600	1644	19259	29045	1580	1574	18364	27498	1570	1434	16597	24458	1560
	30	1886	29286	45376	1600	1676	25586	38741	1580	1606	24382	36634	1570	1466	22016	32572	1550
	40	1916	41973	64975	1640	1706	36457	55212	1600	1636	34682	52111	1590	1496	31218	46204	1560
	45	1930	52364	80838	1690	1720	45236	68292	1640	1650	42961	64382	1620	1510	38551	56922	1590

56FMC-00-00

Figure 4-34 (Sheet 9)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 4000 FEET ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1728	13824	18878	2060	1518	12054	16150	2050	1448	11470	15257	2040	1308	10313	13564	2030
	-40	1778	13803	19114	1940	1568	12083	16411	1920	1498	11516	15549	1920	1358	10392	13847	1910
	-30	1814	13700	19154	1860	1604	12027	16487	1840	1534	11475	15637	1840	1394	10380	13958	1830
	-20	1850	13576	19154	1780	1640	11950	16529	1770	1570	11414	15692	1760	1430	10350	14038	1750
	-10	1887	13437	19125	1710	1676	11859	16545	1700	1606	11338	15722	1690	1466	10305	14095	1690
	0	1922	13650	19849	1650	1712	12072	17194	1640	1642	11552	16348	1630	1502	10519	14677	1630
	10	1877	16270	24637	1610	1667	14321	21188	1600	1597	13680	20099	1590	1457	12411	17962	1580
	20	1826	20252	31708	1590	1616	17713	27087	1570	1546	16882	25606	1560	1406	15239	22762	1550
	30	1857	26555	41801	1580	1647	23189	35648	1560	1577	22091	33693	1550	1437	19932	29922	1530
	40	1887	37067	58448	1610	1677	32226	49660	1570	1607	30661	46863	1560	1467	27601	41560	1540
1 3 5 0 0	45	1901	45263	71284	1640	1691	39191	60313	1600	1621	37242	56908	1580	1481	33449	50317	1560
	-54	1734	12995	17749	2060	1524	11341	15199	2040	1454	10796	14385	2030	1314	9714	12778	2020
	-40	1783	12976	17995	1930	1573	11369	15443	1910	1503	10839	14637	1910	1363	9787	13044	1900
	-30	1819	12883	18035	1850	1609	11319	15541	1830	1539	10803	14722	1830	1399	9780	13173	1820
	-20	1856	12771	18038	1770	1646	11251	15583	1760	1576	10750	14776	1760	1436	9755	13251	1750
	-10	1893	12646	18014	1710	1683	11171	15600	1690	1613	10684	14807	1690	1473	9717	13308	1680
	0	1930	12845	18687	1640	1720	11371	16180	1630	1650	10885	15390	1630	1510	9919	13827	1620
	10	1882	15186	23032	1600	1672	13380	19825	1590	1602	12786	18813	1590	1462	11608	16824	1580
	20	1818	18664	29455	1580	1608	16332	25165	1560	1538	15566	23787	1550	1398	14053	21145	1540
	30	1827	24139	38594	1560	1617	21063	32870	1540	1547	20059	31050	1530	1407	18079	27563	1520
1 3 0 0 0	40	1857	32942	52868	1580	1647	28648	44894	1550	1577	27256	42383	1540	1437	24528	37557	1520
	45	1871	39526	63456	1600	1661	34269	53772	1560	1591	32574	50698	1550	1451	29265	44841	1530
	-54	1742	12229	16707	2050	1532	10685	14326	2030	1462	10175	13543	2030	1322	9164	12065	2020
	-40	1792	12211	16913	1920	1582	10711	14555	1910	1512	10216	13803	1900	1372	9233	12313	1890
	-30	1828	12127	16952	1840	1618	10667	14625	1830	1548	10185	13884	1820	1408	9227	12414	1820
	-20	1865	12025	16958	1770	1655	10606	14667	1760	1585	10137	13937	1750	1445	9206	12489	1740
	-10	1903	11912	16938	1700	1693	10534	14686	1690	1623	10079	13968	1680	1483	9175	12545	1680
	0	1939	12099	17565	1640	1729	10722	15252	1630	1659	10268	14515	1620	1519	9365	13054	1620
	10	1888	14191	21545	1600	1677	12516	18566	1580	1607	11964	17620	1580	1467	10870	15767	1570
	20	1822	17238	27314	1570	1612	15102	23358	1550	1542	14400	22086	1540	1402	13012	19647	1530
1 2 5 0 0	30	1797	21986	35696	1550	1587	19165	30381	1530	1517	18242	28681	1520	1377	16422	25400	1510
	40	1826	29421	48062	1550	1616	25583	40809	1520	1546	24335	38511	1520	1406	21884	34091	1500
	45	1841	34790	56948	1570	1631	30181	48243	1530	1561	28690	45506	1520	1421	25771	40223	1500
	-54	1751	11515	15704	2040	1541	10072	13484	2030	1471	9596	12776	2020	1331	8650	11375	2010
	-40	1801	11498	15922	1920	1591	10097	13722	1900	1521	9634	12995	1900	1381	8715	11639	1890
	-30	1839	11422	15961	1840	1629	10058	13790	1820	1559	9607	13072	1820	1419	8712	11724	1810
	-20	1875	11329	15968	1760	1665	10003	13830	1750	1595	9565	13150	1750	1455	8694	11796	1740
	-10	1913	11227	15952	1690	1703	9939	13851	1680	1633	9513	13181	1680	1493	8667	11850	1670
	0	1950	11404	16509	1630	1740	10117	14353	1620	1670	9692	13667	1620	1530	8847	12303	1610
	10	1895	13279	20156	1590	1685	11724	17407	1580	1615	11211	16532	1570	1475	10193	14808	1570
1 2 0 0 0	20	1827	15954	25360	1560	1617	13993	21707	1540	1547	13348	20556	1540	1407	12071	18301	1530
	30	1766	20055	33059	1530	1556	17459	28089	1520	1486	16609	26498	1510	1346	14930	23451	1500
	40	1795	26381	43844	1530	1585	22926	37183	1510	1515	21800	35072	1500	1375	19586	31007	1480
	45	1809	30811	51381	1540	1599	26731	43526	1510	1529	25406	41042	1500	1389	22807	36241	1480
	-54	1760	10847	14790	2030	1550	9496	12715	2020	1480	9051	12131	2010	1340	8166	10932	2010
	-40	1811	10829	14965	1910	1601	9519	12913	1900	1531	9087	12259	1890	1391	8227	11073	1880
	-30	1848	10759	15002	1830	1638	9484	12977	1820	1568	9063	12332	1810	1428	8225	11133	1810
	-20	1885	10675	15010	1760	1675	9435	13017	1750	1605	9025	12382	1740	1465	8210	11308	1730
	-10	1923	10582	14997	1690	1713	9378	13065	1680	1643	8979	12413	1670	1503	8187	11352	1670
	0	1960	10750	15545	1630	1750	9547	13533	1620	1680	9149	12894	1610	1540	8358	11619	1610
1 1 5 0 0	10	1904	12438	18885	1580	1694	10994	16304	1570	1624	10517	15493	1570	1484	9571	13889	1560
	20	1831	14787	23571	1550	1621	12984	20194	1530	1551	12390	19129	1530	1411	11213	17042	1520
	30	1762	18321	30450	1520	1552	15963	25885	1500	1482	15189	24422	1500	1342	13660	21620	1490
	40	1762	23728	40142	1510	1552	20599	33994	1490	1482	19578	32044	1480	1342	17566	28312	1470
	45	1776	27419	46595	1510	1566	23775	39427	1490	1496	22589	37158	1480	1356	20258	32795	1460
	-54	1770	10213	13894	2030	1560	8954	12178	2010	1490	8537	11535	2010	1350	7710	10520	2000
	-40	1821	10199	14087	1900	1611	8973	12283	1890	1541	8571	11782	1890	1401	7767	10658	1880
	-30	1860	10136	14123	1820	1649	8944	12320	1810	1579	8550	11826	1810	1439	7767	10720	1800
	-20	1896	10059	14132	1750	1686	8900	12343	1740	1616	8517	11859	1740	1476	7753	10769	1730
	-10	1934	9975	14121	1680	1724	8848	12359	1670	1654	8476	11886	1670	1514	7734	10816	1660
1 1 0 0 0	0	1972	10135	14604	1620	1762	9010	12761	1610	1691	8638	12136	1610	1551	7897	11146	1600
	10	1914	11658	17669	1580	1704	10315	15299	1570	1634	9872	14518	1560	1494	8992	13054	1560
	20	1836	13723	21920	1540	1626	12061	18795	1530	1556	11511	17809	1520	1416	10427	15878	1510
	30	1766	16781	28047	1510	1556	14639	23865	1490	1486	13936	22523	1490	1345	12544	19953	1480
	40	1728	21392	36828	1490	1518	18545	31134	1470	1448	17615	29351	1470	1308	15779	25867	1450
	45	1742	24493	42421	1490	1532	21216	35846	1470	1462	20147	33763	1460	1322	18044	29754	1450

561MC-00-00

Figure 4-34 (Sheet 10)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 5000 FEET
ANTI-ICE SYSTEMS - OFF**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1764	19737	26726	2110	1554	17198	22839	2080	1484	16365	21607	2070	1344	14719	19191	2060
	-30	1846	19536	27180	1900	1636	17132	23357	1880	1566	16343	22146	1870	1426	14783	19749	1850
	-20	1880	19319	27150	1820	1669	16984	23386	1800	1599	16220	22195	1790	1459	14702	19852	1780
	-10	1912	19190	27397	1750	1702	16908	23658	1730	1632	16159	22443	1720	1492	14677	20105	1710
	0	1945	21315	30967	1700	1735	18795	26726	1680	1665	17969	25360	1670	1525	16337	22735	1660
	10	1980	27717	40335	1690	1770	24404	34786	1670	1700	23323	33006	1660	1560	21196	29562	1640
	20	2014	38298	55704	1710	1804	33582	47834	1680	1734	32056	45352	1670	1594	29070	40569	1640
	30	2047	60061	86672	1820	1836	52074	73677	1760	1766	49537	69584	1740	1626	44634	61871	1700
	40	2078	127565	211030	2240	1868	105631	154777	2080	1798	99139	142374	2040	1658	87158	118974	1950
42	2081	161186	307070	2470	1871	117193	194634	2160	1801	109607	171886	2100	1661	95774	138728	2010	
					1874	150470	287393	2380	1804	125814	231693	2210	1664	106458	169141	2070	
1 6 5 0 0	-54	1749	18902	25787	2100	1539	16458	22013	2080	1469	15655	20795	2070	1329	14070	18450	2050
	-40	1797	18890	26193	1970	1587	16509	22429	1950	1517	15728	21236	1940	1377	14183	18898	1930
	-30	1834	18707	26182	1890	1624	16397	22504	1870	1554	15639	21308	1860	1414	14139	19008	1850
	-20	1871	18498	26118	1810	1661	16260	22510	1790	1591	15525	21336	1790	1451	14071	19078	1770
	-10	1908	18370	26333	1740	1698	16189	22718	1720	1628	15472	21550	1720	1488	14055	19305	1710
	0	1928	20351	29803	1690	1718	17934	25696	1670	1648	17141	24373	1670	1508	15575	21831	1660
	10	1963	26255	38552	1680	1753	23110	33225	1660	1683	22083	31515	1650	1543	20060	28206	1630
	20	1996	35809	52603	1700	1786	31410	45158	1660	1716	29983	42808	1650	1576	27190	38277	1630
	30	2029	54661	79806	1780	1819	47495	67916	1720	1749	45208	64204	1710	1609	40777	57112	1680
40	2061	106198	157733	2090	1851	89289	125504	1970	1780	84156	117500	1930	1640	74537	102744	1860	
42	2067	129763	227513	2240	1857	107177	160865	2080	1787	100512	147800	2030	1647	88232	123432	1950	
1 6 0 0 0	-54	1752	17684	24184	2090	1542	15411	20659	2070	1472	14665	19542	2060	1332	13189	17349	2040
	-40	1800	17670	24557	1960	1590	15458	21067	1940	1520	14731	19932	1930	1380	13293	17748	1920
	-30	1837	17506	24557	1880	1627	15359	21124	1860	1557	14653	20007	1850	1417	13257	17857	1840
	-20	1874	17319	24509	1800	1664	15238	21139	1780	1594	14554	20042	1780	1454	13199	17930	1770
	-10	1912	17205	24714	1730	1702	15176	21337	1720	1632	14509	20268	1710	1492	13188	18168	1700
	0	1917	18978	28000	1680	1707	16725	24135	1660	1637	15986	22889	1660	1497	14523	20494	1650
	10	1937	24219	36034	1660	1727	21306	31015	1640	1657	20353	29403	1630	1517	18474	26310	1620
	20	1970	32455	48384	1670	1760	28470	41538	1640	1690	27177	39364	1630	1550	24638	35171	1610
	30	2002	47836	71038	1730	1792	41663	60596	1680	1722	39683	57295	1670	1582	35831	50975	1640
40	2033	84388	123497	1930	1823	71920	103168	1840	1753	68050	96960	1820	1613	60691	85333	1760	
42	2039	98534	144467	2020	1829	83189	118766	1910	1759	78492	111323	1880	1619	69645	97487	1810	
1 5 5 0 0	-54	1755	16568	22701	2080	1545	14453	19429	2060	1475	13757	18363	2050	1335	12380	16312	2030
	-40	1804	16553	23047	1950	1593	14494	19788	1930	1523	13817	18748	1920	1383	12477	16705	1910
	-30	1840	16406	23080	1870	1630	14407	19848	1850	1560	13749	18825	1840	1420	12447	16813	1830
	-20	1878	16238	23044	1790	1668	14300	19870	1780	1598	13662	18865	1770	1458	12398	16888	1760
	-10	1915	16137	23216	1720	1705	14246	20082	1710	1635	13624	19059	1700	1495	12391	17093	1690
	0	1921	17721	26207	1670	1711	15633	22608	1660	1641	14952	21475	1650	1501	13589	19238	1640
	10	1910	22374	33753	1650	1700	19667	29013	1630	1630	18781	27490	1620	1490	17032	24567	1610
	20	1943	29510	44635	1650	1733	25887	38288	1620	1663	24707	36300	1610	1523	22388	32402	1590
	30	1975	42243	63825	1690	1765	36853	54466	1650	1695	35110	51532	1630	1555	31718	45873	1610
40	2005	69510	103885	1830	1795	59714	87445	1760	1725	56631	82353	1730	1585	50714	72705	1690	
42	2012	78987	117627	1880	1801	67460	98415	1800	1731	63864	92563	1770	1591	57004	81475	1730	
1 5 0 0 0	-54	1758	15542	21325	2070	1548	13570	18267	2050	1478	12921	17291	2040	1338	11636	15370	2030
	-40	1807	15522	21667	1940	1597	13608	18601	1920	1527	12976	17630	1920	1387	11725	15717	1900
	-30	1844	15394	21686	1860	1634	13530	18663	1840	1564	12915	17705	1840	1424	11701	15823	1830
	-20	1882	15244	21660	1780	1672	13436	18714	1770	1602	12840	17750	1760	1462	11659	15899	1750
	-10	1920	15152	21824	1710	1710	13389	18893	1700	1640	12808	17934	1690	1500	11656	16117	1690
	0	1925	16575	24555	1660	1715	14636	21200	1650	1645	13998	20140	1640	1505	12735	18056	1630
	10	1882	20692	31624	1640	1672	18171	27140	1620	1602	17345	25724	1610	1462	15713	22958	1600
	20	1915	26911	41318	1630	1705	23597	35404	1600	1635	22516	33550	1590	1495	20389	29914	1580
	30	1947	37571	57708	1650	1737	32802	49269	1620	1667	31260	46612	1610	1527	28243	41470	1580
40	1977	58617	89473	1750	1767	50609	75583	1690	1697	48065	71284	1670	1557	43151	63054	1640	
42	1983	65388	99531	1780	1773	56234	83790	1720	1703	53343	78904	1700	1563	47782	69683	1660	
1 4 5 0 0	-54	1763	14594	20069	2060	1553	12754	17184	2040	1482	12148	16272	2030	1342	10947	14473	2020
	-40	1812	14579	20369	1930	1602	12789	17519	1910	1532	12199	16588	1910	1392	11030	14820	1900
	-30	1849	14459	20388	1850	1639	12720	17582	1830	1569	12147	16664	1830	1429	11010	14923	1820
	-20	1887	14324	20370	1780	1677	12636	17613	1760	1607	12079	16734	1760	1467	10975	14998	1750
	-10	1924	14242	20551	1710	1714	12595	17783	1690	1644	12052	16909	1690	1504	10975	15183	1680
	0	1930	15524	23026	1650	1720	13721	19921	1640	1650	13127	18907	1640	1510	11951	16962	1630
	10	1865	19151	29575	1620	1655	16813	25364	1610	1585	16046	24034	1600	1445	14529	21434	1590
	20	1887	24596	38326	1610	1677	21554	32382	1590	1607	20560	31066	1580	1467	18602	27664	1560
	30	1918	33606	52515	1620	1708	29351	44813	1590	1638	27971	42384	1580	1498	25266	37711	1560
40	1948	50260	78265	1690	1738	43533	66304	1640	1668	41381	62556	1630	1528	37205	55399	1600	
42	1954	55310	85981	1710	1744	47774	72649	1660	1674	45374	68501	1640	1534	40730	60596	1610	

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 5000 FEET ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1767	13716	18873	2050	1557	11998	16196	2030	1487	11431	15342	2020	1347	10308	13656	2010
	-40	1816	13701	19151	1920	1606	12029	16486	1910	1536	11478	15637	1900	1396	10385	13959	1890
	-30	1854	13593	19173	1840	1644	11968	16549	1830	1574	11432	15712	1820	1434	10369	14059	1810
	-20	1890	13471	19188	1770	1680	11893	16582	1750	1610	11372	15759	1750	1471	10339	14133	1740
	-10	1930	13398	19335	1700	1720	11858	16768	1690	1650	11350	15925	1680	1510	10342	14332	1670
	0	1937	14557	21606	1650	1727	12878	18709	1630	1656	12324	17762	1630	1516	11227	15968	1620
	10	1869	17753	27514	1610	1659	15603	23617	1600	1589	14897	22387	1590	1449	13499	19979	1580
	20	1858	22522	35610	1590	1648	19719	30456	1570	1578	18802	28805	1570	1438	16993	25640	1550
	30	1889	30197	47983	1600	1679	26373	40912	1570	1609	25130	38680	1560	1469	22688	34381	1540
	40	1919	43628	69322	1640	1709	37864	58809	1600	1639	36011	55490	1590	1499	32400	49174	1560
1 3 5 0 0	42	1925	47514	75448	1660	1715	41153	63873	1610	1645	39115	60242	1600	1505	35153	53343	1570
	-54	1774	12902	17747	2040	1563	11297	15245	2020	1493	10767	14447	2020	1353	9716	12869	2010
	-40	1824	12887	18031	1920	1614	11326	15540	1900	1543	10810	14722	1900	1403	9788	13175	1890
	-30	1861	12790	18054	1840	1651	11272	15601	1820	1581	10771	14794	1820	1441	9776	13271	1810
	-20	1900	12680	18046	1760	1689	11206	15635	1750	1619	10719	14866	1740	1479	9753	13344	1740
	-10	1938	12616	18182	1690	1728	11177	15785	1680	1658	10702	15022	1680	1518	9760	13510	1670
	0	1940	13663	20309	1640	1730	12097	17578	1630	1660	11581	16717	1620	1520	10557	15017	1610
	10	1873	16490	25629	1600	1663	14508	22018	1590	1593	13857	20879	1580	1453	12567	18645	1570
	20	1828	20652	33156	1580	1618	18062	28314	1560	1548	17214	26762	1550	1408	15538	23787	1540
	30	1859	27235	43987	1580	1649	23775	37492	1550	1579	22648	35430	1540	1439	20431	31456	1530
1 3 0 0 0	40	1889	38229	61902	1600	1679	33216	52552	1570	1609	31597	49615	1560	1469	28434	43949	1530
	42	1895	41289	66908	1610	1685	35822	56706	1580	1614	34061	53484	1560	1474	30626	47349	1540
	-54	1782	12147	16709	2030	1572	10648	14374	2020	1502	10153	13629	2010	1362	9171	12153	2000
	-40	1832	12133	16948	1910	1622	10674	14624	1890	1552	10193	13884	1890	1412	9237	12416	1880
	-30	1870	12045	16972	1830	1660	10627	14684	1820	1590	10158	13954	1810	1450	9228	12508	1800
	-20	1909	11946	16967	1750	1699	10568	14718	1740	1629	10113	14001	1740	1489	9209	12578	1730
	-10	1948	11889	17123	1690	1738	10544	14886	1680	1668	10100	14147	1670	1528	9217	12759	1660
	0	1950	12842	19058	1630	1740	11384	16540	1620	1670	10902	15712	1620	1530	9947	14152	1610
	10	1878	15341	23895	1590	1668	13512	20572	1580	1598	12910	19491	1580	1458	11717	17417	1570
	20	1813	18958	30741	1570	1603	16578	26238	1550	1533	15798	24817	1540	1393	14255	22047	1530
1 2 5 0 0	30	1828	24633	40455	1560	1618	21495	34444	1530	1548	20463	32527	1530	1408	18441	28841	1510
	40	1858	33743	55699	1570	1648	29332	47266	1540	1578	27903	44614	1530	1438	25103	39519	1510
	42	1864	36199	59826	1580	1654	31432	50731	1550	1584	29890	47840	1530	1444	26875	42359	1510
	-54	1790	11441	15707	2020	1581	10042	13556	2010	1511	9579	12836	2010	1371	8660	11569	2000
	-40	1842	11429	15956	1900	1632	10066	13788	1890	1562	9616	13072	1880	1422	8722	11727	1880
	-30	1880	11349	15980	1820	1670	10024	13845	1810	1600	9586	13166	1810	1460	8716	11814	1800
	-20	1920	11259	15978	1750	1710	9971	13879	1740	1640	9546	13211	1730	1500	8700	11881	1730
	-10	1959	11209	16098	1680	1749	9951	14013	1670	1679	9536	13349	1670	1539	8710	12027	1660
	0	1960	12084	17888	1630	1750	10720	15541	1620	1680	10271	14796	1610	1540	9379	13317	1600
	10	1883	14292	22293	1590	1673	12601	19212	1570	1603	12044	18207	1570	1463	10939	16306	1560
1 2 0 0 0	20	1817	17440	28415	1560	1607	15270	24277	1540	1537	14558	22972	1530	1397	13148	20422	1520
	30	1797	22332	37282	1540	1587	19462	31690	1520	1517	18523	29912	1510	1377	16672	26508	1500
	40	1826	29955	50400	1540	1616	26037	42737	1520	1546	24764	40323	1510	1406	22265	35682	1490
	42	1832	31954	53845	1550	1622	27751	45633	1520	1552	26388	43049	1510	1412	23715	38085	1490
	-54	1801	10780	14793	2020	1591	9471	12760	2000	1521	9038	12187	2000	1381	8178	11009	1990
	-40	1852	10767	14996	1900	1642	9493	12975	1880	1572	9072	12332	1880	1432	8236	11271	1870
	-30	1890	10694	15020	1820	1680	9455	13030	1800	1610	9046	12396	1800	1470	8232	11334	1790
	-20	1930	10613	15020	1740	1720	9409	13091	1730	1650	9010	12440	1730	1510	8219	11391	1720
	-10	1969	10568	15162	1680	1759	9392	13216	1670	1689	9003	12597	1660	1549	8230	11462	1660
	0	1970	11368	16815	1620	1760	10098	14632	1610	1690	9678	13909	1610	1550	8845	12558	1600
1 1 5 0 0	10	1890	13330	20806	1580	1680	11765	17948	1570	1610	11248	17040	1560	1470	10224	15250	1550
	20	1820	16079	26307	1550	1610	14094	22496	1530	1540	13442	21294	1530	1400	12150	18944	1520
	30	1764	20281	34419	1520	1554	17649	29229	1510	1484	16788	27570	1500	1344	15086	24369	1490
	40	1793	26712	45794	1520	1583	23203	38814	1500	1513	22060	36603	1490	1373	19814	32350	1470
	42	1798	28358	48697	1520	1588	24618	41256	1500	1518	23402	38902	1490	1378	21013	34376	1470
	-54	1811	10159	13932	2010	1601	8932	12227	2000	1531	8528	11592	2000	1391	7723	10599	1990
	-40	1862	10143	14116	1890	1652	8953	12332	1880	1582	8560	11838	1870	1442	7777	10733	1870
	-30	1901	10078	14140	1810	1691	8919	12367	1800	1621	8536	11884	1800	1481	7775	10796	1790
	-20	1941	10004	14141	1740	1731	8878	12397	1730	1661	8505	11924	1720	1521	7764	10853	1720
	-10	1981	9965	14247	1670	1771	8865	12446	1660	1701	8501	11981	1660	1561	7777	11059	1650
1 1 0 0 0	0	1981	10700	15778	1620	1771	9515	13747	1610	1701	9123	13102	1600	1561	8344	11815	1600
	10	1899	12449	19443	1570	1689	11000	16795	1560	1619	10521	15927	1560	1479	9572	14267	1550
	20	1825	14849	24379	1540	1615	13031	20865	1520	1545	12432	19758	1520	1405	11246	17589	1510
	30	1756	18445	31598	1510	1546	16061	26837	1490	1476	15279	25338	1490	1336	13733	22396	1480
	40	1758	23902	41733	1500	1548	20734	35340	1480	1478	19709	33313	1470	1338	17677	29398	1460
	42	1764	25271	44258	1500	1554	21920	37449	1480	1484	20827	35292	1470	1344	18677	31142	1460

561MC-00-00

Figure 4-34 (Sheet 12)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 6000 FEET
ANTI-ICE SYSTEMS - OFF**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1793	19675	26801	2090	1583	17187	22954	2070	1513	16366	21729	2060	1373	14757	19343	2040
	-30	1877	19457	27199	1880	1667	17106	23438	1860	1597	16334	22245	1850	1457	14807	19882	1840
	-20	1911	19259	27277	1810	1701	16973	23551	1790	1631	16222	22370	1780	1491	14736	20051	1770
	-10	1944	20086	29224	1740	1734	17722	25231	1720	1664	16946	23944	1720	1524	15413	21471	1700
	0	1979	23605	34542	1710	1769	20834	29845	1690	1699	19927	28334	1680	1559	18137	25432	1660
	10	2015	31434	46049	1710	1805	27680	39702	1680	1735	26458	37681	1670	1595	24058	33777	1650
	20	2049	45277	66172	1750	1839	39628	56734	1710	1769	37811	53740	1700	1629	34267	48030	1670
	30	2082	77786	112246	1930	1872	66836	94577	1850	1802	63410	89106	1830	1662	56862	78872	1780
	36	2101	132723	215310	2290	1891	109629	160480	2120	1821	102832	148216	2070	1681	90328	125473	1980
	37	2104	166638	284581	2520	1894	121742	196543	2200	1824	113735	176709	2140	1684	99263	143437	2040
1 6 5 0	-54	1780	18844	25840	2090	1570	16452	22112	2060	1500	15667	20910	2050	1360	14114	18594	2040
	-40	1831	18800	26147	1960	1621	16477	22460	1940	1551	15715	21291	1930	1411	14207	18997	1910
	-30	1868	18632	26177	1880	1658	16373	22563	1850	1588	15636	21393	1850	1448	14170	19131	1830
	-20	1904	18440	26224	1800	1694	16252	22659	1780	1624	15532	21499	1770	1484	14109	19265	1760
	-10	1939	19204	28045	1740	1729	16947	24212	1720	1659	16205	23000	1710	1519	14740	20624	1700
	0	1962	22475	33168	1700	1752	19827	28633	1680	1682	18960	27173	1670	1542	17248	24370	1660
	10	1997	29644	43850	1690	1787	26101	37784	1670	1717	24947	35852	1660	1577	22677	32118	1640
	20	2031	41975	61954	1730	1821	36769	53158	1690	1751	35089	50350	1680	1611	31808	45027	1650
	30	2064	69238	101138	1870	1854	59749	85558	1800	1784	56758	80722	1780	1644	51012	71544	1740
	38	2090	134079	225771	2280	1880	110534	164945	2120	1810	103618	152105	2070	1670	90910	128562	1980
1 6 0 0	-54	1783	17632	24233	2070	1573	15409	20753	2050	1503	14678	19651	2040	1363	13233	17486	2030
	-30	1797	17703	24435	2040	1587	15487	20945	2010	1517	14758	19839	2010	1377	13317	17669	1990
	-20	1834	17591	24525	1950	1624	15433	21105	1930	1554	14725	19993	1920	1414	13319	17847	1910
	-10	1871	17441	24563	1860	1661	15344	21191	1850	1591	14654	20093	1840	1451	13288	17978	1830
	0	1936	20881	31225	1690	1726	18404	26917	1670	1656	17593	25531	1660	1516	15989	22867	1650
	10	1970	27175	40740	1680	1760	23919	35096	1650	1690	22856	33286	1640	1550	20765	29787	1630
	20	2004	37607	56395	1700	1794	32968	48378	1660	1724	31467	45850	1650	1584	28528	40981	1630
	30	2037	58975	87791	1800	1827	51129	74563	1740	1757	48635	70446	1720	1617	43814	62552	1690
	39	2093	176171	311509	2570	1883	123133	203085	2200	1813	114976	180919	2140	1673	100193	146138	2040
	39	2065	110186	169155	2110	1855	92387	133003	1980	1785	87008	123999	1940	1645	76956	108172	1870
1 5 5 0	-54	1787	16522	22749	2060	1577	14452	19519	2040	1507	13772	18467	2030	1367	12424	16441	2020
	-30	1800	16586	22935	2020	1590	14523	19697	2000	1520	13844	18642	2000	1380	12501	16613	1980
	-20	1837	16484	23027	1940	1627	14475	19831	1920	1557	13814	18811	1910	1417	12505	16804	1900
	-10	1875	16349	23069	1850	1664	14396	19918	1840	1594	13753	18912	1830	1454	12479	16931	1820
	0	1912	16195	23149	1780	1702	14297	20011	1780	1632	13673	19017	1760	1492	12435	17060	1750
	10	1946	16812	24645	1720	1736	14864	21336	1700	1666	14224	20258	1690	1526	12955	18186	1680
	20	1914	19412	29338	1670	1704	17099	25286	1660	1634	16340	23972	1650	1494	14840	21450	1640
	30	1943	24962	37953	1660	1733	21959	32655	1630	1663	20978	30955	1630	1523	19044	27695	1610
	39	1977	33861	51604	1670	1766	29695	44244	1640	1696	28343	41920	1630	1556	25692	37442	1610
	39	2009	50983	77340	1740	1799	44337	65829	1690	1729	42209	62215	1670	1589	38080	55307	1640
1 5 0 0	-54	1791	15501	21372	2050	1581	13572	18353	2030	1511	12936	17390	2030	1371	11678	15493	2010
	-30	1804	15558	21544	2010	1594	13635	18518	2000	1524	13002	17553	1990	1384	11748	15653	1980
	-20	1841	15467	21661	1930	1631	13593	18648	1910	1561	12976	17694	1900	1421	11754	15815	1890
	-10	1879	15344	21706	1850	1669	13523	18757	1830	1599	12922	17793	1820	1459	11733	15938	1810
	0	1916	15205	21764	1770	1706	13435	18849	1760	1636	12851	17896	1750	1496	11695	16062	1740
	10	1951	15764	23135	1710	1741	13950	20046	1690	1671	13353	19037	1690	1531	12170	17101	1680
	20	1917	18064	27384	1660	1707	15925	23618	1650	1637	15228	22402	1640	1497	13839	20057	1630
	30	1915	22968	35439	1640	1705	20190	30452	1620	1635	19281	28852	1610	1495	17487	25756	1600
	39	1948	30613	47394	1640	1738	26847	40633	1620	1668	25622	38486	1610	1528	23215	34344	1590
	39	1980	44572	68893	1690	1770	38838	58719	1650	1700	36994	55502	1640	1560	33401	49375	1610
1 4 5 0	-54	1795	14558	20114	2040	1585	12757	17266	2020	1515	12164	16365	2020	1375	10988	14589	2010
	-30	1809	14610	20272	2010	1599	12815	17443	1990	1529	12224	16518	1980	1389	11052	14738	1970
	-20	1846	14526	20365	1920	1636	12778	17568	1900	1566	12202	16653	1900	1426	11059	14915	1880
	-10	1883	14416	20412	1840	1673	12715	17653	1820	1603	12154	16772	1820	1463	11042	15033	1810
	0	1922	16841	25590	1650	1711	14866	22095	1640	1641	14216	20959	1630	1501	12929	18777	1620
	10	1887	21161	33106	1630	1677	18584	28404	1610	1607	17740	26895	1600	1467	16073	23999	1590
	20	1920	27769	43657	1620	1710	24345	37421	1600	1640	23229	35427	1590	1500	21034	31581	1570
	30	1951	39307	61878	1650	1741	34291	52744	1620	1671	32672	49886	1600	1531	29506	44361	1580
	39	1979	58932	92285	1740	1769	50876	77921	1690	1699	48317	73477	1670	1559	43376	64978	1630

56FMC-00-00

Figure 4-34 (Sheet 13)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 6000 FEET ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1800	13684	18915	2030	1590	12002	16273	2020	1520	11447	15430	2010	1380	10347	13766	2000
	-50	1813	13730	19063	2000	1603	12054	16417	1980	1533	11502	15573	1970	1393	10406	13905	1960
	-40	1851	13655	19153	1910	1641	12021	16537	1890	1571	11483	15702	1890	1431	10414	14052	1880
	-30	1888	13554	19201	1830	1678	11965	16618	1810	1608	11440	15794	1810	1468	10400	14165	1800
	-20	1926	13440	19285	1760	1716	11894	16731	1740	1646	11384	15892	1740	1506	10372	14281	1730
	-10	1961	13904	20447	1690	1751	12326	17750	1680	1681	11806	16866	1670	1541	10774	15170	1670
	0	1926	15726	23937	1640	1716	13895	20687	1630	1646	13292	19627	1620	1506	12097	17619	1620
	10	1861	19516	30951	1620	1651	17124	26520	1600	1581	16339	25097	1590	1441	14788	22366	1580
	20	1890	25257	40342	1600	1680	22130	34538	1580	1610	21108	32681	1570	1470	19097	29097	1560
	39	1922	34901	55910	1620	1712	30465	47707	1590	1642	29028	45078	1580	1502	26213	40090	1560
1 3 5 0 0	39	1949	50258	80414	1680	1739	43518	68084	1630	1669	41368	64228	1620	1529	37195	56868	1590
	-54	1806	12874	17811	2020	1596	11302	15317	2010	1526	10783	14529	2000	1386	9754	12973	1990
	-50	1820	12915	17949	1990	1610	11350	15475	1970	1540	10833	14662	1970	1400	9808	13125	1960
	-40	1858	12847	18035	1900	1648	11321	15589	1890	1578	10817	14784	1880	1438	9818	13264	1870
	-30	1896	12755	18081	1820	1686	11271	15667	1810	1616	10780	14897	1800	1476	9807	13372	1800
	-20	1934	12652	18138	1750	1724	11208	15751	1740	1654	10731	14991	1730	1514	9785	13483	1720
	-10	1969	13080	19208	1690	1759	11607	16694	1670	1689	11121	15893	1670	1549	10157	14308	1660
	0	1931	14703	22433	1640	1721	13003	19381	1620	1651	12443	18418	1620	1511	11333	16523	1610
	10	1864	18022	28708	1600	1654	15832	24621	1590	1584	15113	23307	1580	1444	13690	20785	1570
	20	1860	23021	37351	1590	1650	20154	31932	1570	1580	19216	30198	1560	1440	17367	26875	1540
1 3 0 0 0	30	1891	31157	50827	1590	1681	27208	43350	1560	1611	25914	40937	1560	1471	23390	36375	1540
	39	1918	43401	70919	1630	1708	37671	60144	1590	1638	35828	56744	1580	1498	32238	50275	1550
	-54	1816	12121	16744	2020	1605	10653	14440	2000	1535	10169	13706	2000	1395	9206	12251	1990
	-50	1831	12159	16873	1980	1621	10697	14566	1970	1551	10215	13830	1960	1411	9256	12371	1950
	-40	1867	12097	16955	1890	1657	10671	14672	1880	1587	10201	13945	1880	1447	9266	12501	1870
	-30	1905	12014	16999	1820	1695	10626	14747	1800	1625	10168	14029	1800	1485	9258	12603	1790
	-20	1944	11920	17082	1740	1734	10571	14854	1730	1664	10125	14118	1730	1524	9239	12734	1720
	-10	1979	12316	18043	1680	1769	10941	15700	1670	1699	10487	14955	1660	1559	9585	13476	1660
	0	1937	13762	21009	1630	1727	12182	18192	1620	1657	11661	17270	1610	1517	10628	15502	1600
	10	1869	16681	26639	1590	1659	14670	22890	1580	1589	14009	21674	1570	1449	12700	19343	1560
1 2 5 0 0	20	1829	21018	34632	1570	1619	18380	29561	1550	1549	17516	27963	1550	1409	15810	24826	1530
	30	1860	27935	46381	1570	1650	24378	39510	1540	1580	23220	37331	1540	1440	20944	33135	1520
	39	1887	37869	63179	1590	1677	32907	53584	1560	1607	31304	50585	1550	1467	28171	44800	1530
	-54	1826	11419	15768	2010	1616	10047	13619	2000	1546	9594	12908	1990	1406	8694	11667	1980
	-50	1839	11453	15887	1970	1629	10088	13734	1960	1559	9636	13022	1960	1419	8740	11733	1950
	-40	1877	11396	15964	1890	1667	10065	13835	1880	1597	9625	13156	1870	1457	8750	11809	1860
	-30	1916	11321	16008	1810	1706	10024	13906	1800	1636	9596	13237	1790	1496	8744	11904	1790
	-20	1954	11237	16061	1740	1744	9975	13983	1730	1674	9558	13322	1720	1534	8729	12004	1710
	-10	1990	11603	16977	1670	1780	10319	14794	1660	1710	9895	14100	1660	1570	9052	12719	1650
	0	1946	12900	19669	1620	1736	11432	17052	1610	1666	10948	16220	1610	1526	9986	14575	1600
1 2 0 0 0	10	1874	15467	24768	1580	1664	13617	21303	1570	1594	13009	20177	1560	1453	11803	18019	1560
	20	1807	19213	32086	1560	1597	16792	27363	1540	1527	15998	25850	1530	1387	14429	22950	1520
	30	1828	25131	42448	1550	1618	21917	36143	1530	1548	20867	34132	1520	1408	18802	30257	1500
	39	1855	33298	56656	1560	1645	28947	48097	1530	1575	27536	45362	1520	1435	24773	40174	1500
	-54	1835	10759	14823	2000	1625	9477	12819	1990	1555	9053	12267	1990	1415	8211	11104	1980
	-50	1849	10790	14934	1970	1639	9514	12926	1950	1569	9092	12327	1950	1429	8253	11167	1940
	-40	1889	10739	15007	1880	1679	9494	13021	1870	1609	9082	12388	1870	1469	8264	11368	1860
	-30	1924	10670	15048	1800	1714	9457	13115	1790	1644	9056	12464	1790	1505	8259	11430	1780
	-20	1965	10594	15128	1730	1755	9413	13189	1720	1685	9023	12544	1720	1545	8247	11483	1710
	-10	2000	10932	15945	1670	1790	9734	13914	1660	1720	9337	13267	1650	1580	8549	11979	1650
1 1 5 0 0	0	1956	12101	18419	1620	1746	10735	15987	1600	1676	10284	15214	1600	1536	9388	13682	1590
	10	1878	14360	23076	1580	1668	12656	19843	1560	1598	12094	18824	1560	1458	10981	16823	1550
	20	1810	17601	29542	1550	1600	15403	25241	1530	1530	14680	23852	1520	1390	13252	21191	1510
	30	1795	22669	38977	1530	1585	19747	33137	1510	1515	18792	31273	1500	1375	16915	27687	1490
	39	1821	29454	51147	1540	1611	25600	43354	1510	1541	24346	40900	1500	1401	21886	36183	1480
	-54	1845	10138	13958	2000	1635	8940	12300	1980	1565	8543	11804	1980	1425	7755	10694	1970
	-50	1859	10167	14061	1960	1649	8973	12356	1950	1579	8579	11861	1950	1439	7794	10753	1940
	-40	1898	10119	14129	1880	1688	8956	12405	1860	1618	8571	11920	1860	1478	7805	10828	1850
	-30	1937	10057	14168	1800	1727	8923	12441	1790	1657	8548	11966	1780	1517	7802	10890	1780
	-20	1976	9988	14217	1730	1766	8884	12468	1720	1696	8519	12002	1710	1556	7792	10943	1710
1 1 0 0 0	-10	2013	10306	15004	1660	1803	9184	13111	1650	1733	8813	12510	1650	1593	8076	11382	1640
	0	1968	11356	17275	1610	1758	10085	15015	1600	1688	9666	14269	1600	1548	8831	12871	1590
	10	1884	13350	21481	1570	1674	11778	18488	1560	1604	11259	17546	1550	1464	10231	15692	1540
	20	1814	16163	27264	1530	1604	14161	23317	1520	1534	13502	22041	1510	1394	12199	19595	1510
	30	1760	20488	35851	1520	1550	17822	30426	1500	1480	16949	28694	1490	1340	15225	25378	1480
	39	1786	26175	46359	1510	1576	22733	39276	1490	1506	21611	37034	1480	1366	19405	32721	1460

561MC-00-00

Figure 4-34 (Sheet 14)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 7000 FEET
ANTI-ICE SYSTEMS - OFF**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1823	19737	27308	2080	1613	17276	23425	2050	1543	16468	22194	2050	1403	14873	19761	2030
	-40	1874	19506	27391	1950	1664	17140	23579	1930	1594	16363	22371	1920	1454	14828	20003	1910
	-30	1909	19299	27384	1870	1699	17003	23630	1850	1629	16249	22441	1840	1489	14757	20107	1830
	-20	1943	19529	28322	1800	1733	17240	24466	1780	1663	16488	23246	1770	1523	15000	20852	1760
	-10	1978	21904	32175	1750	1768	19348	27811	1730	1698	18510	26407	1720	1558	16856	23708	1700
	0	2014	26328	38831	1720	1804	23253	33552	1690	1734	22248	31867	1680	1594	20269	28632	1670
	10	2050	36106	53224	1730	1840	31780	45857	1700	1770	30377	43529	1690	1630	27625	39038	1670
	20	2084	54961	80522	1810	1874	47940	68799	1760	1804	45697	65135	1740	1664	41346	58126	1710
	30	2118	110173	161438	2150	1908	92826	130899	2030	1838	87569	122686	1990	1698	77724	107476	1920
	32	2125	139003	218461	2350	1915	114545	167004	2170	1845	107391	154250	2120	1705	94274	132015	2020
1 5 6 0 0	33	2128	171283	272175	2570	1918	127406	196851	2260	1848	118965	178742	2190	1708	103713	147632	2090
	-54	1807	18909	26340	2070	1597	16539	22591	2050	1527	15761	21374	2040	1387	14223	19032	2020
	-40	1896	18490	26420	1860	1686	16283	22782	1840	1616	15558	21607	1830	1476	14123	19346	1820
	-30	1934	18695	27249	1790	1724	16499	23550	1770	1654	15777	22349	1760	1514	14350	20039	1750
	-20	1961	20913	30966	1740	1751	18462	26742	1720	1681	17658	25381	1710	1541	16071	22769	1700
	-10	1997	24988	37188	1710	1787	22062	32107	1680	1717	21105	30484	1680	1577	19219	27369	1660
	0	2032	33863	50408	1720	1822	29810	43413	1680	1752	28494	41201	1670	1612	25911	36933	1650
	10	2066	50356	74597	1780	1856	43994	63822	1730	1786	41953	60475	1720	1646	37988	53976	1690
	20	2100	94035	137012	2040	1890	80040	114372	1940	1820	75727	107471	1900	1680	67564	94653	1850
	33	2109	125352	191648	2240	1899	104326	151788	2090	1829	98069	140775	2050	1689	86481	120268	1960
1 6 0 0 0	35	2116	178646	293060	2600	1906	130936	207728	2270	1836	119582	187743	2180	1696	104126	154849	2070
	36					1909	165230	265901	2500	1839	146209	232192	2370	1699	117158	182809	2160
	-54	1808	17687	24713	2060	1598	15482	21209	2040	1528	14758	20070	2030	1388	13325	17878	2010
	-40	1823	17633	24741	2020	1613	15453	21256	2000	1543	14737	20123	1990	1403	13320	17942	1980
	-30	1861	17486	24807	1930	1651	15369	21349	1910	1581	14673	20254	1910	1441	13295	18104	1890
	-20	1899	17307	24788	1850	1689	15255	21390	1830	1619	14580	20314	1830	1479	13243	18199	1810
	-10	1937	17492	25550	1780	1727	15452	22101	1760	1657	14781	20978	1750	1517	13453	18820	1740
	0	1944	19491	29137	1730	1734	17202	25145	1710	1664	16451	23858	1700	1524	14966	21388	1690
	10	1970	23111	34850	1690	1760	20391	30076	1670	1690	19500	28541	1660	1550	17743	25595	1650
	20	2005	30809	46538	1690	1795	27122	40080	1660	1725	25922	38025	1650	1585	23564	34057	1640
1 5 0 0 0	30	2039	44434	66952	1740	1829	38886	57390	1690	1759	37100	54343	1680	1619	33616	48535	1650
	32	2072	76521	113853	1910	1862	65773	95888	1830	1792	62406	90379	1810	1652	55964	79962	1760
	36	2091	125357	198065	2220	1881	104174	155484	2070	1811	97874	143865	2020	1671	86213	122225	1940
	-54	1811	16564	23212	2050	1601	14513	19917	2030	1531	13839	18873	2020	1391	12503	16823	2010
	-40	1827	16515	23241	2010	1617	14487	19963	1990	1547	13820	18925	1980	1407	12500	16885	1970
	-30	1865	16383	23287	1920	1655	14413	20056	1900	1585	13764	19033	1900	1445	12480	17021	1880
	-20	1903	16223	23278	1840	1693	14311	20101	1820	1623	13682	19095	1820	1483	12436	17117	1810
	-10	1941	16391	24006	1770	1731	14492	20760	1750	1661	13867	19734	1750	1521	12629	17716	1740
	0	1948	18173	27238	1720	1738	16056	23526	1700	1668	15360	22329	1690	1528	13984	20029	1680
	10	1942	21397	32691	1680	1732	18862	28172	1660	1662	18032	26744	1650	1522	16391	23929	1640
1 4 5 0 0	20	1977	28105	43106	1670	1767	24735	37088	1640	1697	23643	35178	1640	1557	21474	31469	1620
	30	2011	39493	60564	1700	1801	34599	51876	1660	1731	33018	49153	1650	1591	29925	43881	1630
	32	2044	63985	97217	1820	1834	55331	82335	1760	1764	52591	77686	1740	1624	47309	68895	1700
	36	2063	95346	143315	2010	1853	80843	119071	1900	1783	76385	111728	1870	1643	67963	98052	1810
	-54	1815	15533	21799	2040	1605	13622	18718	2020	1535	12993	17743	2010	1395	11747	15825	2000
	-40	1831	15492	21831	2000	1621	13599	18786	1980	1550	12977	17793	1970	1410	11744	15884	1960
	-30	1869	15369	21876	1910	1659	13535	18880	1890	1589	12927	17898	1890	1449	11729	16016	1880
	-20	1907	15224	21875	1830	1697	13442	18926	1810	1627	12855	17963	1810	1487	11691	16132	1800
	-10	1945	15379	22550	1760	1735	13609	19516	1740	1665	13026	18557	1740	1525	11870	16669	1730
	0	1952	16974	25494	1710	1742	15011	22038	1690	1672	14366	20922	1680	1532	13088	18779	1670
1 4 0 0 0	10	1914	19827	30718	1670	1704	17461	26431	1650	1634	16685	25077	1640	1494	15151	22406	1630
	20	1949	25699	40015	1650	1739	22607	34388	1630	1669	21597	32595	1620	1529	19607	29131	1600
	30	1982	35311	55077	1670	1772	30952	47192	1630	1702	29540	44705	1620	1562	26771	39885	1600
	32	2015	54528	84580	1750	1805	47338	71877	1700	1735	45045	67901	1680	1595	40598	60309	1650
	36	2034	76397	117618	1870	1824	65479	98717	1790	1754	62063	92874	1770	1614	55530	81949	1720
	-54	1820	14581	20483	2030	1610	12798	17625	2010	1540	12211	16690	2000	1400	11047	14917	1990
	-40	1835	14541	20511	1990	1625	12778	17668	1970	1555	12197	16761	1970	1415	11046	14974	1960
	-30	1873	14432	20562	1900	1663	12718	17758	1890	1593	12153	16864	1880	1453	11033	15100	1870
	-20	1912	14301	20568	1820	1702	12638	17809	1810	1632	12089	16929	1800	1492	11001	15193	1790
	-10	1950	14444	21194	1750	1740	12793	18380	1740	1670	12248	17459	1730	1530	11169	15716	1720
1 4 0 0 0	0	1956	15878	23883	1700	1746	14055	20662	1680	1676	13455	19646	1680	1536	12266	17646	1670
	10	1914	18386	28625	1650	1704	16206	24645	1640	1634	15490	23388	1630	1494	14073	20904	1620
	20	1920	23546	37212	1640	1710	20697	31937	1610	1640	19766	30282	1610	1500	17928	27030	1590
	30	1953	31725	50302	1640	1743	27813	43103	1610	1673	26542	40817	1600	1533	24046	36415	1580
	32	1985	47126	74620	1700	1775	41015	63482	1650	1705	39060	60030	1640	1565	35238	53324	1610
	36	2004	63187	99576	1780	1794	54508	84062	1720	1724	51760	79222	1700	1584	46465	70079	1660

56FMC-00-00

Figure 4-34 (Sheet 15)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 7000 FEET ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1824	13699	19279	2020	1614	12035	16582	2000	1544	11486	15729	2000	1404	10398	14048	1990
	-50	1841	13663	19307	1980	1631	12017	16623	1970	1561	11474	15775	1960	1421	10398	14102	1950
	-40	1878	13564	19359	1890	1668	11963	16735	1880	1598	11436	15875	1870	1458	10388	14223	1860
	-30	1917	13446	19369	1810	1707	11891	16787	1800	1637	11379	15940	1800	1497	10361	14313	1790
	-20	1955	13578	19926	1740	1745	12036	17296	1730	1675	11527	16458	1730	1535	10518	14802	1720
	-10	1961	14871	22389	1690	1751	13176	19385	1670	1681	12617	18438	1670	1541	11510	16571	1660
	0	1918	17084	26679	1640	1708	15074	22990	1630	1638	14413	21825	1620	1498	13105	19541	1610
	10	1891	21606	34654	1620	1680	18975	29723	1600	1610	18113	28141	1590	1470	16412	25108	1580
	20	1923	28615	46169	1620	1713	25081	39524	1590	1643	23930	37414	1580	1503	21667	33344	1570
	30	1955	41163	66482	1650	1745	35881	56616	1620	1675	34178	53532	1600	1535	30853	47580	1580
1 3 5 0 0	36	1974	53388	86086	1710	1764	46241	72881	1660	1694	43960	68768	1640	1554	39539	60924	1610
	-54	1831	12881	18124	2010	1621	11327	15625	1990	1551	10814	14805	1990	1411	9797	13255	1980
	-50	1846	12848	18150	1970	1636	11311	15665	1960	1566	10804	14873	1950	1426	9796	13305	1940
	-40	1885	12759	18201	1890	1675	11264	15749	1870	1605	10770	14968	1870	1465	9791	13422	1860
	-30	1924	12652	18213	1810	1714	11200	15801	1790	1644	10720	15032	1790	1504	9771	13511	1780
	-20	1963	12778	18756	1740	1753	11337	16299	1720	1683	10862	15491	1720	1543	9917	13968	1710
	-10	1967	13942	20997	1680	1757	12364	18222	1670	1687	11844	17312	1660	1547	10811	15595	1650
	0	1924	15902	24892	1630	1714	14046	21468	1620	1644	13435	20387	1610	1504	12224	18265	1600
	10	1860	19851	32306	1610	1650	17413	27663	1590	1580	16614	26199	1580	1440	15035	23318	1570
	20	1893	25892	42462	1600	1683	22682	36307	1570	1613	21634	34379	1560	1473	19572	30604	1550
1 3 0 0 0	30	1924	36251	59691	1620	1714	31624	50859	1590	1644	30127	48080	1570	1504	27196	42711	1550
	36	1943	45803	75490	1650	1733	39771	64061	1610	1663	37835	60460	1600	1523	34065	53574	1570
	-54	1840	12124	17030	2000	1630	10673	14701	1990	1560	10194	13958	1980	1420	9243	12488	1970
	-50	1855	12093	17056	1970	1645	10658	14738	1950	1575	10184	14000	1950	1435	9244	12536	1940
	-40	1894	12012	17132	1880	1684	10616	14844	1870	1614	10155	14090	1860	1474	9239	12670	1850
	-30	1934	11916	17147	1800	1724	10559	14895	1790	1654	10111	14152	1780	1514	9221	12754	1780
	-20	1973	12035	17626	1730	1763	10689	15336	1720	1693	10245	14607	1710	1553	9362	13160	1710
	-10	1976	13088	19685	1670	1766	11619	17102	1660	1696	11134	16281	1660	1556	10172	14656	1650
	0	1928	14823	23242	1630	1718	13105	20087	1610	1648	12540	19058	1610	1508	11418	17086	1600
	10	1860	18260	29904	1590	1650	16034	25624	1580	1580	15303	24274	1570	1440	13857	21613	1560
1 2 5 0 0	20	1862	23487	39167	1580	1652	20558	33445	1560	1582	19600	31651	1550	1442	17712	28138	1540
	30	1895	32130	53928	1590	1684	28036	45955	1560	1614	26707	43431	1550	1474	24100	38549	1530
	36	1911	39747	66926	1610	1701	34562	56813	1580	1631	32890	53653	1560	1491	29624	47563	1540
	-54	1850	11417	16029	2000	1640	10062	13856	1980	1570	9614	13165	1980	1430	8725	11790	1970
	-50	1865	11390	16053	1960	1655	10049	13892	1950	1585	9606	13204	1940	1445	8726	11836	1930
	-40	1905	11316	16101	1870	1695	10011	13968	1860	1625	9580	13289	1860	1485	8724	11940	1850
	-30	1943	11228	16117	1790	1734	9960	14017	1780	1664	9541	13349	1780	1524	8708	12019	1770
	-20	1984	11342	16591	1720	1774	10084	14456	1710	1704	9669	13749	1710	1564	8843	12425	1700
	-10	1987	12298	18483	1670	1777	10930	16081	1660	1707	10478	15289	1650	1567	9581	13803	1640
	0	1934	13833	21712	1620	1724	12243	18783	1600	1654	11718	17826	1600	1514	10674	16013	1590
1 2 0 0 0	10	1864	16838	27693	1580	1654	14803	23752	1570	1584	14133	22509	1560	1444	12809	20078	1550
	20	1829	21346	36189	1560	1619	18663	30880	1540	1549	17785	29181	1540	1409	16051	25927	1520
	30	1860	28622	48967	1560	1650	24968	41690	1540	1580	23779	39384	1530	1440	21442	34947	1510
	36	1878	34793	59814	1580	1668	30274	50797	1540	1598	28811	47963	1530	1458	25946	42491	1510
	-54	1859	10754	15061	1990	1649	9487	13036	1980	1579	9069	12392	1970	1439	8237	11287	1960
	-50	1875	10728	15085	1950	1665	9476	13097	1940	1595	9062	12428	1940	1455	8239	11316	1930
	-40	1915	10661	15159	1870	1705	9442	13169	1860	1635	9039	12509	1850	1495	8237	11384	1840
	-30	1955	10582	15175	1790	1745	9396	13217	1780	1675	9004	12567	1770	1535	8225	11442	1770
	-20	1995	10691	15591	1720	1785	9515	13600	1710	1715	9126	12968	1710	1574	8353	11706	1700
	-10	1999	11561	17332	1660	1789	10285	15098	1650	1719	9864	14388	1650	1578	9027	12976	1640
1 1 5 0 0	0	1942	12927	20282	1610	1732	11453	17565	1600	1662	10966	16702	1590	1522	10001	14997	1590
	10	1868	15556	25681	1570	1658	13690	22045	1560	1588	13076	20899	1550	1448	11860	18653	1540
	20	1801	19427	33440	1550	1591	16968	28494	1530	1521	16162	26935	1520	1381	14574	23884	1510
	30	1826	25598	44625	1540	1616	22314	37946	1520	1546	21242	35855	1510	1406	19134	31775	1490
	36	1844	30662	53812	1550	1634	26678	45699	1520	1564	25384	43133	1510	1424	22845	38176	1490
	-54	1870	10130	14175	1980	1660	8946	12340	1970	1590	8555	11849	1970	1450	7777	10747	1960
	-50	1886	10107	14197	1950	1676	8936	12358	1930	1606	8549	11871	1930	1466	7779	10776	1920
	-40	1925	10045	14240	1860	1715	8906	12398	1850	1645	8529	11921	1850	1505	7779	10843	1840
	-30	1966	9973	14257	1780	1756	8865	12432	1770	1686	8498	11963	1770	1546	7769	10902	1760
	-20	2006	10078	14674	1710	1796	8979	12820	1700	1726	8615	12201	1700	1586	7893	11207	1690
1 1 0 0 0	-10	2008	10871	16247	1650	1798	9682	14200	1640	1728	9289	13511	1640	1588	8508	12226	1630
	0	1952	12092	18974	1600	1742	10725	16455	1590	1672	10273	15627	1590	1532	9376	14044	1580
	10	1873	14394	23833	1560	1663	12680	20475	1550	1593	12116	19418	1550	1453	10997	17343	1540
	20	1804	17719	30712	1540	1594	15497	26195	1520	1524	14767	24747	1510	1384	13324	21974	1500
	30	1791	22963	40805	1520	1581	19994	34645	1500	1511	19024	32691	1490	1371	17111	28950	1480
	36	1808	27162	48661	1520	1598	23619	41280	1500	1528	22465	38944	1490	1388	20197	34452	1470

561MC-00-00

Figure 4-34 (Sheet 16)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 8000 FEET
ANTI-ICE SYSTEMS - OFF**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1854	19949	27903	2070	1643	17498	23997	2040	1573	16694	22730	2030	1433	15105	20292	2020
	-50	1868	19881	27925	2030	1658	17458	24041	2000	1588	16663	22782	2000	1448	15092	20359	1980
	-40	1905	19685	27981	1940	1695	17333	24132	1920	1625	16561	22890	1910	1485	15035	20500	1890
	-30	1941	19536	28245	1860	1731	17242	24401	1840	1661	16489	23184	1830	1521	15000	20798	1820
	-20	1977	21058	30955	1800	1767	18608	26767	1770	1697	17806	25417	1770	1557	16219	22825	1750
	-10	2013	24092	35672	1750	1803	21300	30869	1730	1733	20387	29324	1720	1593	18586	26332	1710
	0	2050	29651	44034	1730	1840	26197	38075	1700	1770	25071	36175	1700	1630	22857	32502	1680
	10	2086	42031	62274	1770	1876	36954	53637	1730	1806	35314	50876	1710	1666	32110	45602	1690
	20	2121	68948	101107	1900	1911	59772	85930	1840	1841	56873	81207	1820	1701	51296	72231	1770
	27	2145	122344	180759	2250	1935	102515	146527	2100	1865	96553	136516	2060	1725	85450	118605	1980
29	2151	171517	266260	2590	1941	130759	196728	2290	1871	121881	179825	2230	1731	106391	150923	2120	
1 6 5 0 0	-54	1844	19094	26862	2060	1634	16745	23070	2030	1564	15974	21869	2030	1424	14449	19494	2010
	-30	1937	18693	27110	1850	1727	16502	23445	1830	1657	15783	22254	1820	1517	14364	19968	1810
	-20	1959	20123	29818	1790	1749	17773	25759	1770	1679	17001	24475	1760	1539	15473	21934	1750
	-10	1996	22941	34259	1740	1786	20274	29621	1720	1716	19401	28129	1710	1576	17678	25264	1700
	0	2032	28029	42028	1720	1822	24760	36318	1690	1752	23693	34496	1680	1612	21592	30973	1670
	10	2068	39133	58577	1740	1858	34425	50446	1710	1788	32901	47881	1700	1648	29919	42905	1670
	20	2103	62081	92145	1850	1893	53983	78499	1790	1823	51411	74269	1770	1683	46441	66155	1740
	29	2133	127721	193078	2270	1923	106503	154461	2120	1853	100162	143748	2070	1713	88399	123923	1990
	30	2136	147127	229835	2400	1926	119258	176594	2200	1856	111725	162257	2150	1716	97993	139123	2050
	31	2140	181966	290072	2640	1929	136994	209634	2320	1859	125709	190479	2240	1719	108200	158859	2120
1 6 0 0 0	-54	1847	17854	25174	2050	1637	15673	21637	2020	1567	14956	20518	2020	1427	13538	18321	2000
	-40	1902	17626	25216	1920	1692	15535	21758	1900	1622	14848	20664	1890	1482	13488	18513	1880
	-30	1941	17493	25424	1840	1731	15458	22006	1820	1661	14789	20892	1810	1521	13464	18752	1800
	-20	1958	18772	27928	1780	1748	16597	24144	1760	1678	15876	22941	1750	1538	14460	20592	1740
	-10	1969	21319	32264	1730	1759	18826	27858	1710	1689	18008	26441	1700	1549	16395	23719	1690
	0	2005	25790	39217	1700	1795	22765	33843	1680	1725	21778	32130	1670	1585	19835	28844	1650
	10	2040	35264	53650	1710	1830	31036	46183	1680	1760	29664	43824	1670	1620	26974	39277	1650
	20	2075	53621	81085	1790	1865	46781	69282	1740	1795	44593	65576	1720	1655	40348	58488	1690
	30	2108	107144	160930	2120	1898	90467	131651	2000	1828	85355	123376	1960	1688	75839	108128	1890
	32	2114	129165	202262	2260	1904	107411	159639	2100	1834	100926	148300	2060	1694	88916	127348	1970
1 5 5 0 0	33	2118	147807	240925	2380	1908	118744	181667	2180	1838	111224	166170	2120	1698	97440	141705	2030
	-54	1851	16720	23616	2030	1641	14691	20338	2010	1571	14024	19270	2010	1431	12703	17218	1990
	-50	1864	16667	23637	2000	1655	14662	20381	1980	1585	14002	19320	1970	1445	12696	17279	1960
	-40	1906	16515	23668	1910	1696	14569	20462	1890	1626	13929	19416	1880	1486	12661	17405	1870
	-30	1945	16395	23892	1830	1735	14500	20674	1810	1665	13877	19656	1810	1525	12642	17654	1790
	-20	1963	17539	26149	1770	1753	15517	22620	1750	1683	14853	21505	1740	1543	13537	19314	1730
	-10	1944	19820	30340	1720	1734	17489	26164	1700	1664	16724	24844	1690	1524	15213	22263	1680
	0	1977	23753	36633	1680	1767	20959	31606	1660	1697	20045	29992	1660	1557	18242	26868	1640
	10	2012	31905	49317	1690	1802	28083	42423	1660	1732	26840	40243	1650	1592	24399	36037	1630
	20	2046	46851	72216	1740	1836	40963	61755	1700	1766	39070	58502	1680	1626	35384	52183	1660
1 5 0 0 0	30	2079	84535	128429	1950	1869	72300	107616	1870	1799	68528	101287	1840	1659	61297	89374	1790
	33	2089	106062	163321	2090	1879	89468	132361	1970	1809	84410	124015	1930	1669	74919	108612	1870
	-54	1856	15679	22173	2020	1646	13789	19112	2000	1576	13167	18113	2000	1436	11935	16217	1990
	-50	1871	15631	22197	1990	1661	13763	19156	1970	1591	13148	18163	1960	1451	11930	16276	1950
	-40	1910	15493	22233	1900	1700	13680	19236	1880	1630	13083	18281	1880	1490	11899	16398	1870
	-30	1949	15385	22445	1820	1739	13619	19437	1800	1669	13037	18486	1800	1529	11884	16612	1790
	-20	1967	16412	24509	1760	1757	14534	21243	1740	1687	13916	20178	1730	1547	12692	18134	1720
	-10	1948	18422	28292	1710	1738	16273	24419	1690	1668	15567	23195	1680	1528	14171	20798	1670
	0	1949	21909	34265	1670	1738	19316	29521	1650	1668	18467	27997	1640	1528	16789	25072	1630
	10	1984	28958	45468	1660	1774	25485	39106	1640	1704	24353	37081	1630	1563	22126	33174	1610
1 4 5 0 0	20	2017	41295	64816	1700	1807	36155	55515	1660	1737	34496	52551	1650	1597	31255	46896	1620
	30	2050	69215	107633	1840	1840	59688	90888	1780	1770	56684	85695	1750	1630	50912	75851	1710
	33	2059	83245	128852	1920	1849	71171	107867	1840	1779	67414	101450	1810	1639	60257	89425	1760
	-54	1859	14718	20856	2010	1649	12956	17971	2000	1579	12375	17060	1990	1439	11225	15263	1980
	-50	1875	14675	20882	1980	1665	12933	18014	1960	1595	12359	17108	1950	1455	11220	15320	1940
	-40	1915	14550	20921	1890	1705	12858	18094	1870	1635	12301	17201	1870	1494	11195	15438	1860
	-30	1954	14452	21098	1810	1744	12804	18308	1800	1674	12260	17394	1790	1534	11183	15664	1780
	-20	1972	15379	22989	1750	1762	13631	19943	1730	1692	13056	18948	1730	1551	11915	17039	1720
	-10	1952	17155	26416	1690	1742	15170	22819	1680	1672	14517	21683	1670	1532	13225	19455	1660
	0	1919	20228	32107	1660	1709	17817	27621	1640	1639	17026	26180	1630	1499	15463	23413	1620
1 4 0 0 0	10	1954	26354	42054	1640	1744	23183	36129	1620	1674	22147	34243	1610	1534	20108	30600	1600
	20	1988	36654	58614	1660	1778	32116	50192	1630	1708	30647	47503	1620	1568	27769	42400	1600
	30	2020	58075	92410	1760	1810	50328	78353	1710	1740	47863	73934	1690	1600	43096	65607	1660
	33	2029	67903	107721	1820	1819	58514	90848	1750	1749	55552	85618	1730	1609	49858	75702	1690

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15 °

AND TAKEOFF CLIMB INCREMENT (TCI) 8000 FEET

ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1864	13829	19603	2000	1654	12184	16930	1990	1584	11642	16054	1980	1444	10566	14396	1970
	-50	1880	13790	19630	1970	1670	12163	16972	1950	1600	11627	16100	1950	1460	10563	14450	1940
	-40	1920	13676	19671	1880	1710	12096	17050	1870	1640	11575	16190	1860	1500	10541	14564	1850
	-30	1961	13587	19838	1800	1751	12048	17229	1790	1681	11540	16398	1780	1541	10533	14755	1780
	-20	1977	14426	21575	1740	1767	12798	18733	1720	1697	12262	17829	1720	1557	11198	16044	1710
	-10	1958	16003	24689	1690	1747	14165	21371	1670	1677	13560	20290	1660	1537	12361	18216	1650
	0	1911	18692	29883	1640	1701	16469	25732	1630	1631	15740	24388	1620	1491	14296	21809	1610
	10	1924	24040	38946	1630	1714	21132	33442	1600	1644	20181	31679	1600	1504	18307	28299	1580
	20	1957	32721	53271	1640	1747	28678	45589	1610	1677	27365	43165	1600	1537	24788	38499	1580
	30	1989	49583	80666	1700	1779	43103	68543	1660	1709	41028	64741	1640	1569	36994	57517	1610
33	1999	56810	92307	1740	1789	49194	78164	1680	1719	46768	73718	1670	1579	42077	65344	1630	
1 3 5 0 0	-54	1872	13006	18422	2000	1662	11470	15927	1980	1592	10964	15132	1980	1452	9958	13559	1970
	-50	1888	12971	18449	1960	1678	11452	15967	1950	1608	10951	15176	1940	1468	9956	13611	1930
	-40	1928	12868	18489	1870	1718	11392	16042	1860	1648	10905	15263	1860	1508	9939	13719	1850
	-30	1970	12788	18671	1800	1759	11350	16236	1780	1689	10876	15434	1780	1549	9934	13899	1770
	-20	1984	13547	20278	1730	1774	12030	17600	1720	1704	11529	16757	1710	1564	10536	15089	1700
	-10	1962	14948	23092	1680	1752	13244	20007	1660	1682	12682	19000	1660	1542	11569	17069	1650
	0	1915	17307	27773	1630	1705	15266	23938	1620	1635	14595	22694	1610	1495	13267	20307	1600
	10	1893	21968	36182	1610	1683	19293	30999	1590	1613	18417	29373	1580	1473	16688	26180	1570
	20	1926	29345	48643	1610	1716	25715	41623	1580	1646	24533	39396	1570	1506	22210	35103	1560
	30	1958	42881	71276	1650	1748	37348	60642	1610	1678	35566	57322	1600	1538	32091	50923	1580
33	1967	48380	80434	1680	1757	42020	68252	1630	1687	39981	64432	1620	1547	36019	57176	1590	
1 3 0 0 0	-54	1881	12243	17336	1990	1671	10810	15009	1970	1601	10336	14242	1970	1461	9396	12798	1960
	-50	1897	12211	17361	1950	1687	10793	15047	1940	1617	10325	14284	1930	1477	9395	12847	1930
	-40	1938	12117	17401	1870	1728	10739	15119	1850	1658	10284	14366	1850	1518	9381	12949	1840
	-30	1978	12045	17546	1790	1768	10702	15276	1780	1698	10259	14553	1770	1558	9378	13119	1770
	-20	1994	12737	19028	1720	1784	11323	16561	1710	1714	10856	15775	1710	1574	9929	14220	1700
	-10	1968	13978	21609	1670	1758	12396	18739	1660	1688	11874	17827	1650	1548	10840	16026	1640
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	10	1862	20103	33628	1600	1652	17635	28789	1580	1582	16825	27238	1570	1442	15226	24264	1560
	20	1895	26412	44558	1590	1685	23133	38085	1560	1615	22064	36029	1560	1475	19958	32065	1540
	30	1926	37446	63584	1620	1716	32648	54136	1580	1646	31097	51131	1570	1506	28063	45436	1550
33	1935	41740	70993	1630	1725	36318	60317	1590	1655	34571	56945	1580	1515	31162	50528	1550	
1 2 5 0 0	-54	1892	11532	16289	1980	1682	10193	14121	1970	1612	9751	13431	1960	1472	8872	12058	1960
	-50	1908	11502	16314	1950	1698	10178	14157	1930	1628	9740	13470	1930	1488	8871	12104	1920
	-40	1948	11417	16352	1860	1738	10130	14225	1850	1668	9704	13548	1840	1528	8859	12201	1840
	-30	1989	11352	16516	1780	1779	10099	14402	1770	1709	9682	13699	1770	1569	8858	12386	1760
	-20	2004	11985	17856	1720	1794	10666	15560	1710	1724	10232	14832	1700	1584	9364	13379	1690
	-10	1977	13089	20242	1660	1767	11621	17549	1650	1697	11136	16702	1640	1557	10174	15029	1640
	0	1926	14920	24066	1610	1716	13188	20782	1600	1646	12618	19713	1600	1506	11487	17663	1590
	10	1856	18421	31055	1580	1646	16169	26618	1570	1576	15430	25185	1560	1436	13968	22439	1550
	20	1862	23841	40947	1570	1652	20864	34953	1550	1582	19891	33048	1540	1442	17973	29399	1530
	30	1893	32947	57124	1580	1683	28736	48615	1550	1613	27370	45936	1540	1473	24691	40760	1520
33	1902	36366	63184	1590	1692	31671	53715	1560	1622	30152	50740	1550	1482	27179	44999	1530	
1 2 0 0 0	-54	1902	10864	15333	1980	1692	9613	13312	1960	1622	9199	12641	1960	1482	8377	11491	1950
	-50	1918	10837	15356	1940	1708	9599	13345	1930	1638	9190	12678	1920	1498	8377	11519	1920
	-40	1959	10759	15394	1850	1749	9556	13410	1840	1679	9158	12780	1840	1539	8367	11580	1830
	-30	2000	10700	15520	1780	1790	9527	13548	1770	1720	9139	12921	1760	1580	8368	11670	1760
	-20	2015	11281	16787	1710	1805	10049	14648	1700	1735	9642	13969	1700	1595	8834	12616	1690
	-10	1987	12266	18940	1650	1777	10902	16466	1640	1707	10452	15652	1640	1567	9557	14123	1630
	0	1930	13879	22428	1610	1720	12280	19385	1590	1650	11751	18416	1590	1510	10706	16514	1580
	10	1860	16922	28680	1570	1650	14870	24580	1560	1580	14196	23288	1550	1440	12861	20762	1540
	20	1828	21568	37711	1550	1617	18852	32139	1530	1547	17962	30392	1530	1407	16208	26973	1510
	30	1859	29159	51590	1560	1648	25425	43896	1530	1578	24210	41461	1520	1438	21824	36778	1500
33	1867	31924	56681	1560	1657	27806	48158	1530	1587	26469	45477	1520	1447	23848	40326	1500	
1 1 5 0 0	-54	1913	10236	14402	1970	1703	9067	12527	1960	1633	8680	12040	1950	1493	7911	10944	1950
	-50	1929	10211	14424	1930	1719	9055	12551	1920	1649	8672	12061	1920	1509	7911	11102	1910
	-40	1970	10140	14459	1850	1760	9015	12612	1840	1690	8643	12105	1830	1550	7903	11166	1830
	-30	2011	10087	14607	1770	1801	8990	12770	1760	1731	8628	12157	1760	1591	7906	11233	1750
	-20	2025	10621	15749	1710	1815	9471	13761	1700	1745	9091	13129	1690	1605	8335	11868	1690
	-10	1997	11502	17720	1650	1787	10234	15424	1640	1717	9815	14695	1630	1577	8982	13247	1630
	0	1939	12931	20926	1600	1729	11454	18081	1590	1659	10966	17187	1580	1519	9998	15423	1580
	10	1864	15577	26519	1560	1654	13704	22748	1550	1584	13088	21559	1540	1444	11866	19233	1530
	20	1795	19542	34753	1540	1585	17059	29595	1520	1515	16245	27946	1510	1375	14637	24787	1500
	30	1823	25923	46804	1530	1613	22586	39776	1510	1543	21498	37549	1500	1403	19357	33264	1490
33	1831	28188	51100	1530	1621	24541	43404	1510	1551	23354	40968	1500	1411	21021	36288	1480	

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 9000 FEET

ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1885	20531	29159	2060	1675	18040	25111	2030	1605	17223	23799	2020	1465	15610	21275	2010
	-50	1901	20478	29247	2020	1691	18012	25188	1990	1621	17204	23881	1990	1481	15607	21367	1970
	-40	1938	20250	29251	1930	1728	17861	25255	1910	1658	17077	23967	1900	1518	15527	21490	1890
	-30	1974	20649	30360	1850	1764	18249	26254	1830	1694	17462	24931	1820	1554	15907	22388	1810
	-20	2012	23089	34203	1800	1802	20427	29614	1780	1732	19555	28137	1770	1592	17834	25300	1750
	-10	2049	26700	39855	1760	1839	23624	34492	1740	1769	22619	32780	1730	1629	20640	29495	1710
	0	2086	33719	50311	1750	1876	29793	43534	1720	1806	28517	41376	1710	1666	26011	37209	1690
	10	2123	49680	73611	1810	1913	43605	63297	1760	1843	41653	60042	1750	1703	37851	53834	1720
	20	2158	90141	130779	2050	1948	77439	110325	1950	1878	73485	104049	1920	1738	65957	92262	1870
	23	2169	118339	174797	2230	1959	99954	141986	2100	1888	94410	132322	2060	1748	83922	116257	1980
1 6 5 0 0	25	2175	157374	248873	2500	1965	124629	186837	2260	1895	116957	171139	2210	1755	102869	145316	2100
	-54	1869	19649	28133	2050	1659	17254	24181	2020	1589	16468	22908	2020	1449	14915	20460	2000
	-40	1921	19385	28209	1920	1711	17087	24331	1900	1641	16333	23104	1890	1501	14842	20699	1880
	-30	1960	19744	29233	1840	1750	17442	25260	1820	1680	16687	23979	1820	1540	15194	21519	1800
	-20	1995	22009	32881	1790	1785	19461	28444	1770	1715	18627	27015	1760	1575	16979	24272	1750
	-10	2031	25344	38176	1750	1821	22417	33014	1730	1751	21460	31366	1720	1611	19574	28204	1700
	0	2068	31719	47790	1740	1858	28027	41330	1710	1788	26825	39272	1700	1648	24463	35296	1680
	10	2105	45833	66684	1780	1895	40271	59113	1740	1825	38478	56072	1730	1685	34987	50277	1700
	20	2140	79137	116532	1970	1930	68351	98756	1890	1860	64965	93285	1860	1720	58476	82908	1810
	25	2157	122510	183709	2250	1947	103110	148939	2110	1877	97253	138681	2060	1737	86302	120439	1980
1 6 0 0 0	27	2164	173449	277908	2600	1954	132515	204540	2300	1884	122140	186615	2230	1744	107063	156629	2120
	28					1957	166387	260400	2540	1887	149622	230515	2420	1747	123139	185603	2230
	-54	1869	18350	26370	2030	1659	16125	22678	2010	1589	15395	21510	2010	1449	13950	19197	1990
	-40	1925	18107	26415	1910	1715	15976	22802	1890	1645	15276	21659	1880	1505	13891	19416	1870
	-30	1963	18430	27357	1830	1753	16298	23659	1810	1683	15597	22489	1810	1543	14212	20172	1800
	-20	1968	20482	31008	1780	1758	18096	26786	1760	1688	17313	25427	1750	1548	15767	22816	1740
	-10	2004	23446	35791	1730	1794	20726	30941	1710	1724	19835	29382	1700	1584	18078	26364	1690
	0	2041	28981	44339	1710	1831	25603	38311	1690	1761	24501	36389	1680	1621	22333	32674	1660
	10	2077	40807	62209	1740	1867	35901	53584	1710	1797	34303	50814	1690	1657	31195	45573	1670
	20	2111	66338	99830	1870	1901	57622	85031	1810	1831	54858	80392	1790	1691	49526	71653	1750
1 5 5 0 0	28	2138	128580	200325	2270	1928	107651	159471	2120	1858	101365	148304	2070	1718	89668	127678	1990
	30	2145	185377	312726	2660	1935	136799	219291	2310	1865	123611	195388	2220	1725	108120	164397	2110
	31					1939	173514	268847	2560	1869	153612	248131	2420	1729	123898	194700	2210
	-54	1872	17159	24709	2020	1662	15093	21266	2000	1592	14415	20178	2000	1452	13071	18040	1980
	-50	1888	17117	24760	1990	1678	15073	21332	1970	1608	14401	20248	1960	1468	13072	18120	1950
	-40	1928	16941	24763	1900	1718	14961	21417	1880	1648	14310	20327	1870	1508	13021	18232	1860
	-30	1967	17234	25632	1820	1757	15254	22185	1800	1687	14604	21095	1800	1547	13315	18955	1790
	-20	1958	19058	29072	1770	1748	16841	25110	1750	1678	16113	23834	1740	1538	14674	21382	1730
	-10	1976	21717	33592	1720	1766	19182	29000	1700	1696	18351	27523	1690	1556	16712	24691	1680
	0	2012	26544	41229	1690	1802	23440	35584	1670	1732	22426	33784	1660	1592	20429	30302	1650
1 5 0 0 0	10	2050	36548	56680	1710	1840	32165	48793	1680	1770	30744	46303	1670	1629	27958	41502	1650
	20	2082	56648	87084	1800	1872	49389	74405	1750	1802	47071	70426	1730	1662	42576	62773	1700
	30	2116	115699	180561	2160	1906	97512	145670	2030	1836	91987	135228	1990	1696	81629	117648	1920
	31	2119	127457	205629	2240	1909	106604	162485	2090	1839	100341	150807	2040	1699	88685	129205	1960
	-54	1876	16068	23174	2010	1666	14147	19985	1990	1596	13515	18945	1990	1456	12264	16949	1970
	-50	1892	16030	23223	1980	1682	14129	20048	1960	1612	13504	19013	1950	1472	12265	17024	1940
	-40	1932	15871	23234	1890	1722	14030	20111	1870	1652	13423	19093	1870	1512	12222	17135	1850
	-30	1971	16139	24039	1810	1761	14299	20822	1800	1691	13693	19806	1790	1551	12493	17807	1780
	-20	1962	17753	27130	1750	1752	15704	23476	1740	1682	15031	22288	1730	1542	13698	20008	1720
	-10	1948	20132	31581	1710	1738	17768	27228	1690	1668	16988	25823	1680	1528	15454	23134	1670
1 4 5 0 0	0	1983	24357	38404	1680	1773	21496	33104	1650	1703	20560	31413	1650	1563	18713	28168	1630
	10	2019	32886	51895	1680	1809	28948	44644	1650	1739	27668	42351	1640	1599	25154	37929	1620
	20	2053	49036	76998	1740	1843	42858	65847	1700	1773	40873	62336	1680	1633	37011	55648	1660
	30	2086	89579	137836	1970	1876	76590	115635	1880	1806	72553	108836	1850	1666	64869	96025	1800
	31	2089	96521	148373	2020	1879	82184	123702	1920	1809	77754	116324	1880	1669	69359	102408	1820
	-54	1881	15065	21749	2000	1670	13276	18773	1980	1600	12687	17801	1980	1460	11520	15958	1970
	-50	1896	15030	21796	1970	1686	13260	18833	1950	1616	12677	17889	1940	1476	11522	16030	1930
	-40	1937	14887	21814	1880	1727	13171	18898	1860	1657	12606	17969	1860	1517	11485	16138	1850
	-30	1976	15132	22560	1800	1766	13419	19582	1790	1696	12854	18608	1780	1556	11735	16740	1770
	-20	1968	16566	25370	1740	1757	14665	21968	1730	1687	14044	20866	1720	1547	12808	18742	1710
1 5 0 0 0	-10	1948	18654	29409	1690	1738	16475	25368	1680	1668	15760	24067	1670	1528	14345	21571	1660
	0	1954	22381	35819	1660	1744	19735	30858	1640	1674	18868	29266	1630	1534	17158	26210	1620
	10	1989	29699	47671	1660	1779	26139	41003	1630	1709	24979	38863	1620	1569	22698	34789	1600
	20	2024	42881	68724	1700	1814	37536	58825	1660	1744	35812	55727	1650	1603	32445	49737	1620
	30	2055	72365	114494	1850	1845	62386	96699	1780	1775	59241	91196	1780	1635	53200	80756	1720
	31	2059	76933	121462	1880	1849	66153	102341	1800	1779	62769	96463	1780	1639	56284	85333	1730
	-54	1869	18350	26370	2030	1659	16125										

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 9000 FEET ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1885	14139	20448	1990	1675	12471	17643	1980	1605	11922	16758	1970	1465	10832	15012	1960
	-50	1902	14107	20493	1960	1691	12457	17700	1940	1621	11913	16819	1940	1481	10835	15080	1930
	-40	1940	13977	20515	1870	1730	12377	17765	1860	1660	11849	16898	1850	1521	10803	15185	1840
	-30	1981	14203	21182	1800	1771	12606	18402	1780	1701	12080	17517	1780	1561	11035	15770	1770
	-20	1971	15481	23771	1730	1761	13721	20582	1720	1691	13141	19576	1710	1551	11992	17596	1700
	-10	1952	17318	27365	1680	1742	15312	23649	1670	1672	14653	22443	1660	1532	13347	20127	1650
	0	1924	20588	33442	1650	1714	18136	28766	1630	1644	17332	27290	1620	1504	15743	24384	1610
	10	1959	26905	43912	1640	1748	23667	37754	1610	1678	22611	35785	1600	1538	20532	31982	1590
	20	1992	37799	61802	1660	1782	33116	52926	1630	1712	31600	50094	1620	1572	28632	44718	1590
	30	2024	60080	97596	1760	1814	52062	82754	1710	1744	49511	78150	1690	1604	44578	69332	1650
1 3 5 0 0	31	2028	63289	102659	1780	1817	54748	86941	1720	1747	52038	82074	1700	1607	46807	72765	1660
	-54	1892	13282	19203	1980	1682	11726	16609	1970	1612	11213	15758	1960	1472	10196	14151	1950
	-50	1908	13253	19246	1950	1698	11714	16663	1930	1628	11206	15815	1930	1488	10199	14214	1920
	-40	1949	13136	19269	1860	1739	11643	16727	1850	1669	11150	15892	1840	1529	10173	14316	1840
	-30	1989	13346	19914	1790	1779	11856	17294	1770	1709	11365	16469	1770	1569	10390	14837	1760
	-20	1976	14485	22262	1730	1766	12850	19291	1710	1696	12311	18355	1710	1556	11242	16509	1700
	-10	1956	16105	25512	1670	1746	14256	22071	1660	1676	13647	20950	1650	1536	12440	18801	1640
	0	1908	18956	31136	1630	1698	16696	26769	1620	1628	15954	25366	1610	1488	14486	22673	1600
	10	1927	24432	40566	1620	1717	21482	34838	1600	1647	20513	33000	1590	1507	18609	29456	1570
	20	1961	33536	55925	1630	1751	29391	47865	1600	1681	28045	45323	1590	1540	25405	40428	1570
1 3 0 0 0	30	1993	50855	84730	1700	1783	44211	71992	1650	1713	42083	68011	1640	1573	37947	60443	1610
	31	1996	53214	88592	1710	1786	46206	75210	1660	1716	43965	71033	1640	1576	39617	63057	1610
	-54	1901	12490	18027	1980	1691	11040	15611	1960	1621	10561	14842	1960	1481	9611	13319	1950
	-50	1918	12463	18066	1940	1708	11028	15661	1930	1638	10555	14895	1920	1498	9614	13378	1910
	-40	1959	12358	18091	1860	1749	10965	15723	1840	1679	10505	14969	1840	1539	9592	13475	1830
	-30	1999	12554	18692	1780	1789	11165	16278	1770	1719	10707	15483	1760	1579	9796	13987	1760
	-20	1983	13568	20854	1720	1773	12048	18113	1710	1703	11546	17215	1700	1563	10551	15494	1690
	-10	1962	15003	23808	1660	1752	13292	20614	1650	1682	12728	19598	1650	1542	11613	17602	1640
	0	1912	17488	28858	1620	1702	15421	24833	1610	1632	14741	23537	1600	1492	13396	21053	1590
	10	1895	22234	37543	1600	1685	19527	32192	1580	1615	18641	30479	1570	1475	16892	27193	1560
1 2 5 0 0	20	1928	29908	50866	1600	1718	26208	43497	1580	1648	25003	41170	1570	1508	22636	36688	1550
	30	1960	43662	74474	1650	1750	38032	63392	1610	1680	36218	59930	1590	1540	32682	53222	1570
	31	1963	45454	77547	1660	1753	39558	65969	1610	1683	37663	62314	1600	1543	33969	55358	1570
	-54	1912	11753	16950	1970	1702	10400	14700	1960	1632	9954	13957	1950	1492	9066	12563	1940
	-50	1928	11729	16987	1930	1718	10390	14747	1920	1648	9948	14007	1920	1508	9070	12619	1910
	-40	1970	11633	17012	1850	1760	10333	14807	1840	1690	9904	14078	1830	1550	9049	12708	1820
	-30	2010	11818	17545	1770	1800	10522	15299	1760	1730	10094	14584	1760	1590	9243	13164	1750
	-20	1993	12726	19527	1710	1783	11313	16981	1700	1713	10846	16172	1700	1573	9920	14570	1690
	-10	1967	13991	22255	1660	1757	12408	19263	1640	1687	11886	18321	1640	1547	10850	16464	1630
	0	1917	16168	26753	1610	1706	14273	23065	1600	1636	13649	21868	1590	1496	12414	19573	1580
1 2 0 0 0	10	1863	20264	34792	1590	1652	17776	29785	1570	1582	16961	28205	1560	1442	15349	25104	1550
	20	1895	26775	46418	1580	1685	23456	39684	1560	1615	22371	37544	1550	1475	20236	33418	1530
	30	1927	37888	66164	1610	1717	33036	56318	1570	1647	31468	53235	1560	1507	28399	47286	1540
	31	1929	39284	68625	1610	1719	34232	58424	1580	1649	32600	55183	1560	1509	29410	49005	1540
	-54	1922	11064	15913	1960	1712	9800	13818	1950	1642	9383	13152	1950	1502	8554	11826	1940
	-50	1939	11041	15948	1930	1728	9791	13862	1910	1658	9378	13199	1910	1518	8557	11878	1900
	-40	1981	10956	15974	1840	1771	9740	13919	1830	1701	9339	13266	1830	1561	8541	11965	1820
	-30	2021	11128	16498	1770	1811	9918	14406	1760	1741	9518	13712	1750	1601	8723	12416	1750
	-20	2003	11944	18318	1700	1793	10628	15923	1690	1723	10194	15171	1690	1583	9331	13680	1680
	-10	1976	13065	20776	1650	1766	11599	18028	1640	1696	11116	17128	1630	1556	10155	15405	1620
1 1 5 0 0	0	1921	14973	24853	1600	1711	13231	21446	1590	1641	12657	20363	1580	1501	11520	18239	1580
	10	1852	18496	32106	1570	1642	16230	27484	1560	1572	15486	26002	1550	1432	14014	23160	1540
	20	1860	24058	42498	1560	1650	21051	36303	1540	1580	20068	34325	1530	1440	18131	30510	1520
	30	1891	33148	59199	1570	1681	28910	50392	1540	1611	27535	47619	1530	1471	24839	42292	1510
	31	1894	34257	61237	1580	1684	29864	52111	1540	1614	28440	49239	1530	1474	25649	43724	1510
	-54	1933	10416	14963	1960	1723	9237	13014	1940	1653	8847	12365	1940	1513	8072	11251	1930
	-50	1950	10396	14996	1920	1740	9229	13054	1910	1670	8843	12409	1910	1530	8076	11284	1900
	-40	1992	10316	15020	1840	1782	9183	13109	1830	1712	8808	12501	1820	1572	8063	11346	1820
	-30	2032	10481	15482	1760	1822	9351	13536	1750	1752	8977	12918	1750	1612	8234	11683	1740
	-20	2014	11214	17155	1700	1804	9990	14957	1690	1734	9585	14259	1680	1594	8781	12870	1680
1 0 0 0 0	-10	1986	12212	19395	1640	1776	10854	16850	1630	1706	10406	16042	1630	1566	9515	14442	1620
	0	1926	13884	23129	1590	1716	12280	19951	1580	1646	11752	18951	1580	1506	10703	16984	1570
	10	1856	16926	29541	1560	1646	14870	25334	1550	1576	14194	23974	1540	1436	12856	21368	1530
	20	1824	21665	39011	1540	1614	18932	33271	1520	1544	18038	31437	1520	1404	16273	27899	1500
	30	1855	29184	53280	1540	1645	25445	45341	1520	1575	24228	42828	1510	1435	21837	37996	1490
	31	1858	30079	54992	1550	1648	26216	46788	1520	1578	24960	44193	1510	1438	22493	39174	1490

561MC-00-00

Figure 4-34 (Sheet 20)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET
ANTI-ICE SYSTEMS - OFF****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1918	21552	30999	2050	1708	18967	26708	2030	1638	18120	25327	2020	1498	16448	22673	2000
	-50	1934	21577	31196	2010	1724	19007	26900	1990	1654	18165	25518	1980	1514	16504	22861	1970
	-40	1972	21307	31198	1920	1762	18821	26967	1900	1692	18005	25630	1890	1552	16396	22987	1880
	-30	2010	22601	33531	1860	1800	19997	29031	1830	1730	19144	27583	1830	1590	17460	24800	1810
	-20	2048	25527	38150	1810	1838	22603	33035	1780	1768	21647	31402	1770	1628	19762	28266	1760
	-10	2086	29830	44850	1770	1876	26402	38842	1750	1806	25288	36930	1740	1666	23093	33229	1720
	0	2124	38544	57805	1780	1914	34043	49993	1740	1844	32585	47524	1730	1704	29728	42727	1710
	10	2161	59442	88158	1870	1951	52013	75630	1820	1881	49642	71713	1800	1740	45046	64216	1760
	19	2193	112399	166400	2200	1983	95510	135638	2080	1913	90350	127514	2040	1773	80642	112466	1970
	20	2196	124532	187689	2280	1986	105028	151759	2140	1916	99137	141092	2100	1776	88131	122443	2020
	21	2200	139872	226231	2390	1990	116797	171937	2220	1920	109933	159700	2170	1780	97231	137407	2080
1 6 5 0 0	-54	1902	20599	29853	2040	1692	18117	25696	2020	1622	17304	24358	2010	1482	15697	21786	1990
	-50	1917	20623	30045	2010	1707	18156	25883	1980	1637	17348	24567	1970	1497	15751	21969	1960
	-40	1955	20371	30061	1920	1745	17983	25960	1890	1675	17200	24663	1890	1535	15653	22123	1870
	-30	1992	21562	32257	1850	1782	19068	27903	1830	1712	18250	26501	1820	1572	16636	23809	1800
	-20	2032	24262	36586	1800	1822	21474	31657	1770	1752	20562	30082	1770	1612	18763	27058	1750
	-10	2068	28209	42827	1760	1858	24965	37070	1730	1788	23907	35234	1720	1648	21825	31684	1710
	0	2105	36046	54645	1760	1895	31847	47244	1720	1825	30484	44904	1710	1685	27810	40388	1690
	10	2142	54200	81410	1830	1932	47512	69943	1780	1862	45369	66332	1760	1722	41206	59412	1730
	20	2178	104762	154553	2140	1968	89359	128419	2030	1898	84622	120872	1990	1757	75668	106724	1930
	21	2181	115370	173769	2210	1971	97780	140619	2080	1901	92421	131478	2040	1761	82357	115737	1970
	24	2192	205126	357958	2830	1982	142820	230644	2380	1912	129391	206474	2290	1772	112596	169107	2170
1 6 0 0 0	-54	1892	19214	28035	2030	1682	16902	24127	2010	1612	16144	22892	2000	1472	14644	20449	1980
	-40	1949	19001	28200	1900	1739	16782	24356	1880	1669	16053	23141	1880	1529	14612	20759	1860
	-30	1963	20090	30450	1830	1754	17751	26303	1810	1684	16983	24967	1810	1544	15466	22402	1790
	-20	2003	22486	34357	1780	1793	19888	29715	1760	1723	19037	28223	1750	1583	17358	25357	1740
	-10	2040	25962	39981	1740	1830	22968	34569	1720	1760	21990	32843	1710	1620	20062	29503	1690
	0	2077	32676	50333	1730	1867	28873	43486	1700	1797	27636	41319	1690	1657	25206	37134	1670
	10	2114	47536	72735	1780	1904	41753	62568	1740	1834	39891	59343	1720	1694	36263	53191	1700
	20	2149	83928	125844	1990	1939	72357	106439	1900	1869	68735	100500	1880	1729	61812	89204	1820
	24	2163	120072	185816	2220	1952	101342	150153	2090	1882	95662	139429	2040	1742	85026	121037	1970
	26	2169	167218	285487	2540	1959	126739	206817	2250	1889	118894	188441	2200	1749	104502	157284	2090
	27					1963	156279	262601	2460	1893	139609	230510	2340	1753	115991	183938	2170
1 5 5 0 0	-54	1896	17928	26223	2020	1686	15788	22588	1990	1616	15089	21443	1990	1476	13694	19184	1970
	-50	1912	17945	26381	1980	1702	15819	22744	1960	1632	15121	21595	1950	1492	13740	19340	1940
	-40	1952	17738	26387	1890	1742	15682	22834	1870	1672	15006	21679	1870	1532	13668	19459	1850
	-30	1968	18701	28413	1820	1758	16539	24586	1800	1688	15830	23344	1800	1548	14425	20957	1780
	-20	1975	20861	32294	1770	1765	18435	27891	1750	1695	17640	26500	1740	1555	16069	23755	1730
	-10	2012	23934	37383	1730	1802	21161	32283	1700	1732	20254	30683	1700	1592	18465	27532	1680
	0	2049	29719	46503	1710	1839	26258	40172	1680	1769	25130	38156	1670	1628	22910	34260	1650
	10	2085	42048	65554	1740	1875	36979	56395	1700	1805	35341	53523	1690	1664	32139	47960	1660
	20	2119	69417	106611	1880	1909	60240	90679	1810	1839	57335	85766	1790	1699	51739	76315	1750
	27	2143	122522	195747	2220	1933	103101	157359	2080	1863	97228	146068	2030	1723	86252	124832	1960
	29	2150	169318	308119	2530	1940	125683	212328	2220	1870	117856	191732	2170	1730	103500	158274	2070
1 5 0 0 0	-54	1900	16757	24556	2000	1689	14771	21169	1980	1619	14118	20099	1980	1479	12825	17996	1970
	-50	1916	16771	24702	1970	1706	14800	21340	1950	1636	14151	20244	1940	1496	12867	18141	1930
	-40	1957	16586	24717	1880	1746	14677	21408	1860	1676	14049	20330	1860	1536	12805	18260	1850
	-30	1972	17439	26561	1810	1762	15439	23004	1790	1692	14782	21847	1790	1552	13480	19626	1780
	-20	1958	19358	30283	1750	1748	17102	26136	1740	1678	16362	24827	1730	1538	14898	22239	1720
	-10	1983	22095	34996	1710	1773	19520	30208	1690	1703	18677	28670	1680	1563	17011	25719	1670
	0	2019	27106	43103	1690	1809	23940	37196	1660	1739	22906	35314	1650	1599	20870	31675	1640
	10	2055	37444	59472	1700	1845	32954	51185	1670	1775	31499	48534	1660	1635	28646	43497	1640
	20	2089	58674	92243	1800	1879	51132	78725	1750	1809	48726	74505	1730	1669	44065	66396	1690
	29	2120	110262	178178	2110	1909	93344	142440	1990	1839	88174	131863	1960	1699	78442	115857	1890
1 4 5 0 0	-54	1904	15684	23014	1990	1694	13838	19881	1980	1624	13231	18859	1970	1484	12027	16897	1960
	-50	1920	15696	23149	1960	1710	13864	20016	1940	1640	13261	18993	1930	1500	12066	17031	1920
	-40	1961	15529	23171	1870	1751	13755	20087	1860	1681	13171	19080	1850	1541	12013	17171	1840
	-30	1976	16289	24855	1800	1766	14435	21546	1780	1696	13825	20468	1780	1556	12616	18398	1770
	-20	1961	17974	28215	1740	1751	15897	24372	1730	1681	15215	23159	1720	1541	13864	20781	1710
	-10	1953	20417	32792	1700	1743	18020	28263	1680	1673	17234	26833	1670	1533	15681	24016	1660
	0	1989	24776	40000	1670	1779	21869	34503	1650	1709	20918	32740	1640	1569	19043	29359	1620
	10	2025	33523	54209	1680	1815	29511	46625	1640	1745	28207	44229	1630	1605	25647	39610	1620
	20	2059	50375	81020	1740	1849	44020	69267	1690	1779	41980	65569	1680	1639	38012	58488	1650
	29	2089	85709	135481	1940	1879	73505	113944	1850	1809	69696	107311	1830	1669	62428	94847	1770

56FMC-00-00

Figure 4-34 (Sheet 21)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° **AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET** **ANTI-ICE SYSTEMS - OFF**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 0 0 0	-54	1909	14696	21583	1980	1699	12979	18661	1970	1629	12413	17731	1960	1489	11292	15898	1950
	-50	1925	14707	21707	1950	1715	13002	18786	1930	1645	12441	17856	1930	1505	11327	16023	1920
	-40	1966	14557	21762	1860	1756	12905	18859	1850	1686	12361	17943	1840	1546	11281	16137	1830
	-30	1981	15236	23276	1790	1771	13515	20196	1780	1701	12948	19215	1770	1561	11823	17284	1760
	-20	1966	16722	26321	1730	1756	14805	22755	1720	1686	14174	21630	1710	1546	12925	19421	1700
	-10	1947	18860	30525	1680	1737	16655	26314	1670	1667	15931	24985	1660	1527	14498	22362	1650
	0	1959	22681	37204	1650	1749	20004	32047	1630	1678	19127	30392	1620	1538	17396	27218	1610
	10	1994	30136	49627	1650	1784	26526	42679	1620	1714	25351	40439	1610	1574	23039	36180	1600
	20	2028	43750	71907	1690	1818	38296	61539	1650	1747	36537	58294	1640	1607	33104	52027	1610
	29	2057	69361	112869	1820	1847	59933	95513	1760	1777	56952	90118	1740	1637	51215	79921	1690
1 3 5 0 0	-54	1914	13784	20275	1980	1704	12185	17523	1960	1634	11657	16656	1950	1494	10611	14944	1940
	-50	1931	13794	20390	1940	1721	12206	17639	1920	1651	11683	16772	1920	1510	10644	15060	1910
	-40	1972	13658	20420	1850	1762	12120	17736	1840	1692	11612	16856	1840	1552	10605	15170	1830
	-30	1987	14268	21837	1780	1777	12666	18939	1770	1707	12139	18027	1760	1567	11093	16226	1750
	-20	1970	15582	24576	1720	1760	13809	21265	1710	1690	13225	20220	1700	1550	12068	18167	1690
	-10	1951	17453	28358	1670	1741	15429	24468	1660	1671	14764	23240	1650	1531	13447	20812	1640
	0	1927	20790	34671	1640	1717	18317	29821	1620	1647	17506	28264	1610	1507	15903	25278	1600
	10	1962	27182	45567	1630	1752	23916	39144	1600	1682	22850	37101	1590	1542	20751	33158	1580
	20	1996	38335	64386	1650	1785	33587	55132	1620	1715	32051	52181	1610	1575	29044	46581	1580
	29	2025	57619	96391	1740	1815	50018	81865	1690	1745	47594	77291	1670	1605	42899	68660	1640
1 3 0 0 0	-54	1924	12946	19011	1970	1714	11457	16476	1950	1644	10965	15643	1950	1504	9990	14073	1940
	-50	1940	12954	19117	1930	1730	11476	16583	1920	1660	10989	15750	1910	1520	10021	14181	1900
	-40	1982	12832	19148	1850	1772	11399	16653	1830	1702	10926	15858	1830	1562	9987	14286	1820
	-30	1995	13377	20460	1770	1785	11888	17790	1760	1715	11397	16913	1760	1575	10422	15235	1750
	-20	1976	14539	22963	1710	1766	12897	19911	1700	1696	12356	18915	1700	1556	11283	17005	1690
	-10	1957	16183	26376	1660	1747	14322	22778	1650	1677	13709	21643	1640	1537	12496	19416	1630
	0	1904	19076	32225	1620	1694	16797	27689	1610	1624	16049	26257	1600	1484	14569	23439	1590
	10	1929	24587	41973	1610	1719	21617	36010	1580	1649	20646	34113	1580	1509	18732	30449	1560
	20	1963	33831	58041	1620	1753	29652	49672	1590	1683	28295	47033	1580	1543	25636	41925	1560
	29	1992	48766	83736	1680	1782	42454	71248	1630	1712	40428	67326	1620	1572	36486	59826	1590
1 2 5 0 0	-54	1934	12168	17828	1960	1724	10781	15471	1950	1654	10323	14721	1940	1514	9413	13234	1930
	-50	1953	12176	17925	1920	1743	10799	15570	1910	1673	10344	14820	1910	1533	9442	13334	1900
	-40	1993	12064	17957	1840	1783	10729	15637	1830	1713	10288	14898	1820	1573	9412	13434	1810
	-30	2005	12556	19166	1770	1795	11171	16685	1760	1725	10714	15896	1750	1585	9806	14333	1740
	-20	1983	13582	21461	1710	1773	12060	18627	1690	1703	11558	17700	1690	1563	10562	15949	1680
	-10	1961	15029	24553	1650	1751	13314	21222	1640	1681	12750	20172	1630	1541	11630	18109	1620
	0	1909	17536	29783	1610	1699	15460	25615	1590	1629	14777	24300	1590	1488	13426	21704	1580
	10	1896	22289	38707	1590	1686	19577	33185	1570	1616	18689	31417	1560	1476	16937	28029	1550
	20	1929	30025	52570	1590	1719	26313	44983	1560	1649	25105	42577	1560	1509	22730	37943	1540
	29	1958	41843	73657	1630	1748	36488	62736	1590	1678	34760	59283	1580	1538	31387	52704	1550
1 2 0 0 0	-54	1945	11442	16749	1950	1735	10148	14556	1940	1665	9721	13831	1940	1525	8872	12472	1930
	-50	1961	11449	16838	1920	1751	10165	14647	1900	1681	9741	13922	1900	1541	8898	12564	1890
	-40	2004	11347	16871	1830	1794	10102	14711	1820	1724	9690	14025	1820	1584	8873	12659	1810
	-30	2016	11792	17956	1760	1806	10503	15651	1750	1736	10077	14918	1750	1596	9230	13463	1740
	-20	1991	12704	20052	1700	1781	11293	17425	1690	1711	10825	16587	1680	1572	9902	14939	1670
	-10	1966	13974	22874	1640	1756	12391	19786	1630	1686	11869	18814	1630	1546	10834	16900	1620
	0	1912	16157	27571	1600	1702	14260	23732	1590	1632	13635	22521	1580	1492	12398	20150	1570
	10	1861	20240	35809	1570	1651	17754	30625	1560	1581	16939	28999	1550	1441	15328	25808	1540
	20	1894	26766	47837	1570	1684	23442	40885	1540	1614	22357	38678	1540	1474	20223	34426	1520
	29	1922	36276	65402	1590	1712	31656	55726	1560	1642	30159	52682	1550	1502	27229	46807	1520
1 1 5 0 0	-54	1956	10762	15706	1950	1746	9556	13667	1930	1676	9157	13019	1930	1536	8365	11728	1920
	-50	1972	10768	15787	1910	1762	9571	13750	1900	1692	9175	13103	1890	1552	8389	11813	1890
	-40	2015	10676	15819	1830	1805	9514	13812	1820	1735	9130	13174	1810	1595	8367	11902	1810
	-30	2027	11080	16850	1750	1817	9878	14707	1740	1747	9481	14027	1740	1607	8692	12672	1730
	-20	2003	11892	18766	1690	1793	10582	16329	1680	1723	10150	15527	1680	1583	9291	14021	1670
	-10	1975	13012	21302	1640	1765	11551	18472	1620	1695	11069	17546	1620	1555	10112	15774	1610
	0	1917	14913	25548	1590	1707	13175	22008	1580	1637	12603	20892	1570	1497	11467	18704	1560
	10	1847	18406	32944	1560	1637	16146	28191	1540	1567	15405	26668	1540	1427	13938	23748	1530
	20	1857	23942	43657	1550	1647	20947	37286	1530	1577	19968	35253	1520	1437	18039	31333	1500
	29	1885	31699	58525	1560	1675	27661	49832	1530	1605	26349	47094	1520	1465	23774	41833	1500

56FMG-00-00

Figure 4-34 (Sheet 22)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) SEA LEVEL

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1631	22971	29532	2220	1421	19747	24969	2190	1351	18688	23488	2170	1211	16615	20647	2150
	-40	1675	23049	30057	2090	1465	19893	25481	2050	1395	18861	24030	2040	1255	16827	21170	2020
	-35	1691	22951	30067	2040	1481	19838	25523	2010	1411	18820	24082	2000	1271	16812	21242	1980
	-30	1706	22855	30077	2000	1496	19783	25564	1970	1426	18778	24133	1960	1286	16796	21312	1940
	-25	1721	22735	30053	1960	1511	19707	25576	1930	1441	18716	24156	1920	1301	16761	21378	1900
	-20	1736	22600	30009	1910	1526	19617	25570	1890	1456	18640	24163	1880	1316	16712	21405	1860
	-15	1751	22457	29954	1880	1541	19518	25577	1850	1471	18556	24159	1840	1331	16658	21427	1820
	-10	1766	22306	29887	1840	1556	19412	25550	1810	1486	18465	24144	1810	1346	16595	21436	1790
	-5	1781	22152	29814	1800	1571	19303	25517	1780	1501	18370	24123	1770	1361	16528	21439	1750
	0	1795	22013	29783	1770	1585	19205	25497	1750	1515	18286	24115	1740	1375	16470	21453	1720
	5	1810	22010	30115	1740	1600	19220	25786	1710	1530	18306	24392	1710	1390	16502	21708	1690
	10	1824	23562	32762	1720	1614	20566	28020	1690	1544	19586	26497	1690	1404	17656	23570	1670
1 6 5 0 0	-54	1617	21925	28379	2210	1407	18833	23946	2180	1337	17822	22519	2160	1197	15828	19769	2140
	-40	1661	21996	28865	2070	1451	18971	24464	2040	1381	17981	23039	2040	1241	16029	20296	2020
	-35	1676	21905	28879	2030	1466	18920	24509	2000	1396	17944	23093	1990	1256	16017	20369	1970
	-30	1692	21815	28917	1990	1482	18869	24552	1960	1412	17905	23146	1950	1272	16003	20439	1930
	-25	1707	21702	28900	1950	1497	18798	24569	1920	1427	17848	23173	1910	1287	15972	20486	1890
	-20	1722	21576	28864	1910	1512	18715	24568	1880	1442	17778	23184	1870	1302	15928	20519	1850
	-15	1736	21442	28817	1870	1526	18624	24558	1840	1456	17700	23185	1830	1316	15877	20542	1820
	-10	1751	21301	28759	1830	1541	18525	24537	1810	1471	17616	23176	1800	1331	15820	20556	1780
	-5	1768	21158	28696	1790	1557	18424	24512	1770	1487	17528	23162	1760	1347	15759	20564	1750
	0	1780	21027	28647	1760	1570	18333	24497	1740	1500	17450	23181	1730	1360	15705	20581	1720
	5	1794	21020	28962	1730	1584	18344	24772	1710	1514	17466	23445	1700	1374	15734	20846	1680
	10	1808	22441	31435	1710	1598	19577	26859	1690	1528	18640	25389	1680	1388	16793	22564	1660
1 6 0 0 0	-54	1595	20442	26710	2190	1385	17538	22497	2160	1315	16587	21160	2150	1175	14710	18546	2130
	-40	1639	20504	27174	2060	1429	17663	22990	2030	1359	16733	21636	2020	1219	14897	19027	2000
	-35	1654	20421	27217	2020	1444	17618	23038	1990	1374	16700	21692	1980	1234	14887	19100	1960
	-30	1669	20340	27237	1970	1459	17573	23085	1950	1389	16666	21747	1940	1249	14876	19172	1920
	-25	1684	20238	27229	1930	1474	17509	23107	1910	1404	16615	21779	1900	1264	14849	19222	1880
	-20	1699	20124	27203	1890	1489	17434	23114	1870	1419	16553	21817	1860	1279	14812	19259	1840
	-15	1713	20002	27167	1850	1503	17353	23111	1830	1433	16480	21822	1820	1293	14768	19287	1810
	-10	1728	19875	27121	1820	1518	17264	23099	1790	1448	16408	21824	1790	1308	14717	19327	1770
	-5	1742	19745	27071	1780	1532	17174	23082	1760	1462	16330	21818	1750	1322	14664	19341	1740
	0	1756	19627	27033	1750	1546	17092	23076	1730	1476	16260	21822	1720	1336	14617	19364	1710
	5	1770	19615	27323	1720	1560	17098	23354	1700	1490	16273	22067	1690	1350	14641	19591	1680
	10	1784	20861	29561	1700	1574	18182	25220	1670	1504	17304	23824	1670	1364	15572	21144	1650
1 5 5 0 0	-54	1573	19069	25153	2180	1363	16337	21164	2150	1293	15442	19872	2140	1153	13673	17384	2120
	-40	1617	19123	25618	2050	1407	16452	21614	2020	1337	15576	20325	2010	1196	13846	17842	1990
	-35	1631	19048	25643	2000	1421	16412	21664	1980	1351	15547	20403	1970	1211	13839	17916	1950
	-30	1646	18974	25668	1960	1436	16370	21713	1940	1366	15517	20460	1930	1226	13831	18007	1910
	-25	1661	18881	25667	1920	1451	16314	21740	1900	1381	15472	20496	1890	1241	13808	18060	1870
	-20	1675	18778	25650	1880	1465	16247	21753	1860	1395	15417	20518	1850	1255	13776	18100	1830
	-15	1690	18668	25624	1840	1480	16174	21758	1820	1410	15355	20532	1810	1270	13738	18132	1800
	-10	1704	18552	25589	1810	1494	16095	21753	1780	1424	15288	20537	1780	1284	13693	18156	1760
	-5	1718	18435	25548	1770	1508	16013	21744	1750	1438	15218	20538	1740	1298	13646	18176	1730
	0	1733	18326	25510	1740	1523	15940	21738	1720	1453	15157	20542	1710	1313	13607	18200	1700
	5	1748	18308	25763	1710	1538	15943	21987	1690	1468	15166	20762	1680	1328	13631	18407	1670
	10	1759	19407	27819	1680	1549	16895	23695	1660	1479	16072	22391	1660	1339	14446	19821	1640
1 5 0 0 0	-54	1563	17779	23596	2160	1353	15229	19842	2140	1283	14392	18626	2130	1143	12739	16283	2110
	-40	1607	17825	24026	2030	1397	15333	20261	2010	1327	14516	19068	2000	1187	12900	16732	1980
	-35	1623	17756	24045	1990	1413	15298	20307	1970	1343	14492	19122	1960	1203	12897	16802	1940
	-30	1639	17687	24063	1950	1429	15263	20351	1920	1359	14467	19174	1920	1219	12893	16870	1900
	-25	1655	17602	24055	1910	1445	15213	20394	1890	1375	14428	19206	1880	1235	12877	16920	1860
	-20	1671	17507	24030	1870	1461	15154	20402	1850	1391	14381	19225	1840	1251	12853	16959	1830
	-15	1688	17406	23995	1830	1478	15089	20401	1810	1408	14328	19234	1800	1268	12826	16991	1790
	-10	1704	17300	23951	1800	1494	15020	20392	1780	1424	14271	19236	1770	1284	12788	17011	1760
	-5	1720	17193	23902	1760	1510	14948	20378	1740	1440	14211	19233	1730	1300	12751	17029	1720
	0	1736	17095	23865	1730	1526	14884	20373	1710	1456	14157	19238	1700	1316	12719	17054	1690
	5	1751	17079	24122	1700	1541	14887	20584	1680	1471	14167	19464	1670	1331	12741	17267	1660
	10	1762	18060	25970	1670	1552	15739	22138	1650	1482	14977	20927	1650	1342	13472	18556	1640

56FMC-00-00

Figure 4-35 (Sheet 1 of 22)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) SEA LEVEL ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1567	16583	22084	2150	1357	14220	18570	2130	1287	13444	17456	2120	1147	11908	15272	2100
	-40	1610	16623	22463	2020	1400	14314	18979	2000	1330	13556	17848	1990	1190	12056	15671	1980
	-35	1627	16561	22483	1980	1416	14283	19024	1960	1346	13535	17901	1950	1206	12055	15739	1930
	-30	1642	16499	22504	1940	1432	14252	19068	1920	1362	13514	17952	1910	1222	12053	15805	1890
	-25	1658	16423	22500	1900	1448	14208	19093	1880	1378	13481	17985	1870	1238	12040	15874	1860
	-20	1675	16338	22482	1860	1465	14157	19104	1840	1395	13439	18006	1830	1255	12020	15913	1820
	-15	1691	16248	22455	1820	1481	14099	19106	1800	1411	13393	18040	1800	1271	11995	15945	1780
	-10	1707	16154	22418	1790	1497	14038	19103	1770	1427	13343	18045	1760	1287	11965	15969	1750
	-5	1723	16058	22378	1750	1513	13975	19094	1730	1443	13290	18047	1730	1303	11934	15990	1720
	0	1739	15971	22348	1720	1529	13918	19093	1700	1459	13243	18055	1690	1319	11906	16016	1680
	5	1755	15956	22587	1690	1545	13922	19289	1670	1475	13253	18245	1660	1335	11928	16196	1650
	10	1765	16336	24266	1660	1555	14688	20704	1650	1485	13983	19578	1640	1345	12587	17372	1630
1 4 0 0	-54	1570	15489	20670	2140	1360	13295	17415	2120	1290	12574	16357	2110	1150	11147	14320	2090
	-40	1614	15523	21020	2010	1404	13381	17777	1990	1334	12677	16742	1980	1194	11283	14712	1970
	-35	1630	15467	21042	1970	1420	13354	17821	1950	1350	12659	16794	1940	1210	11283	14777	1930
	-30	1646	15412	21087	1930	1436	13327	17864	1910	1366	12641	16844	1900	1226	11283	14840	1890
	-25	1662	15344	21087	1890	1452	13288	17890	1870	1382	12612	16877	1860	1242	11272	14889	1850
	-20	1678	15268	21074	1850	1468	13242	17903	1830	1398	12576	16900	1820	1258	11255	14927	1810
	-15	1695	15188	21053	1810	1485	13192	17910	1790	1415	12535	16915	1790	1275	11234	14960	1780
	-10	1711	15103	21023	1780	1501	13138	17909	1760	1431	12491	16923	1750	1291	11209	14986	1740
	-5	1727	15017	20990	1740	1517	13082	17927	1730	1447	12445	16928	1720	1307	11182	15007	1710
	0	1743	14938	20965	1710	1533	13032	17930	1690	1463	12404	16939	1690	1323	11159	15035	1680
	5	1759	14926	21166	1680	1549	13036	18111	1660	1479	12415	17118	1660	1339	11179	15224	1650
	10	1769	15719	22696	1650	1559	13728	19405	1640	1489	13073	18334	1630	1349	11777	16280	1620
1 3 5 0 0	-54	1574	14483	19358	2130	1364	12445	16326	2110	1294	11774	15358	2100	1154	10446	13457	2090
	-40	1618	14513	19706	2000	1408	12523	16683	1980	1338	11868	15698	1970	1198	10571	13803	1960
	-35	1634	14463	19729	1960	1424	12499	16726	1940	1354	11854	15748	1930	1214	10573	13865	1920
	-30	1650	14413	19752	1920	1440	12475	16769	1900	1370	11837	15796	1890	1230	10575	13949	1880
	-25	1666	14352	19755	1880	1456	12441	16795	1860	1386	11812	15829	1850	1246	10565	13995	1840
	-20	1683	14284	19746	1840	1472	12400	16811	1820	1402	11780	15853	1820	1262	10551	14033	1810
	-15	1699	14212	19730	1800	1489	12356	16820	1790	1419	11745	15870	1780	1279	10533	14066	1770
	-10	1715	14136	19706	1770	1505	12308	16822	1750	1435	11706	15903	1750	1295	10512	14092	1740
	-5	1732	14059	19678	1730	1522	12258	16821	1720	1452	11665	15910	1710	1312	10489	14115	1700
	0	1748	13989	19659	1700	1538	12214	16826	1690	1468	11629	15923	1680	1328	10466	14140	1670
	5	1764	13977	19844	1670	1553	12218	16995	1660	1483	11638	16088	1650	1343	10489	14300	1640
	10	1774	14695	21243	1650	1564	12847	18180	1630	1494	12238	17206	1630	1354	11033	15290	1620
1 2 5 0 0	-54	1584	12697	17019	2110	1374	10934	14385	2090	1304	10352	13545	2090	1164	9199	11889	2070
	-40	1628	12720	17323	1980	1418	10999	14698	1970	1348	10432	13838	1960	1208	9307	12211	1950
	-35	1645	12680	17345	1940	1435	10981	14738	1920	1365	10421	13884	1920	1225	9310	12268	1910
	-30	1661	12639	17368	1900	1451	10963	14778	1880	1381	10410	13929	1880	1241	9313	12323	1870
	-25	1679	12590	17375	1860	1468	10936	14804	1850	1398	10391	13961	1840	1258	9309	12367	1830
	-20	1694	12535	17371	1820	1484	10905	14821	1810	1414	10368	13986	1800	1274	9300	12404	1790
	-15	1711	12477	17361	1790	1501	10870	14833	1770	1431	10340	14028	1770	1291	9288	12436	1760
	-10	1728	12416	17345	1750	1518	10833	14839	1740	1448	10310	14041	1730	1308	9274	12463	1720
	-5	1744	12354	17326	1720	1534	10794	14842	1710	1464	10279	14051	1700	1324	9257	12487	1690
	0	1761	12298	17313	1690	1551	10759	14851	1670	1481	10251	14066	1670	1341	9243	12514	1660
	5	1777	12290	17472	1660	1567	10765	14997	1640	1497	10262	14209	1640	1357	9263	12651	1630
	10	1787	12886	18653	1630	1577	11289	16002	1620	1507	10763	15158	1610	1367	9718	13494	1610
1 5 0 0	-54	1599	11164	14968	2090	1389	9636	12712	2080	1319	9132	11960	2070	1179	8131	10628	2060
	-40	1644	11182	15232	1970	1434	9692	12961	1950	1364	9200	12212	1950	1224	8224	10804	1940
	-35	1661	11148	15254	1930	1451	9678	12997	1910	1381	9193	12279	1910	1241	8229	10855	1900
	-30	1677	11116	15276	1890	1467	9664	13033	1870	1397	9185	12320	1870	1257	8233	10904	1860
	-25	1694	11075	15284	1850	1484	9643	13058	1830	1414	9170	12350	1830	1274	8231	10944	1820
	-20	1711	11031	15284	1810	1501	9618	13076	1800	1431	9152	12373	1790	1291	8227	10980	1780
	-15	1728	10984	15279	1770	1518	9591	13089	1760	1448	9131	12392	1760	1308	8218	11009	1750
	-10	1745	10935	15268	1740	1535	9562	13097	1730	1465	9108	12406	1720	1325	8207	11034	1720
	-5	1762	10884	15255	1710	1552	9531	13103	1690	1482	9084	12418	1690	1342	8195	11058	1680
	0	1780	10839	15247	1670	1570	9504	13113	1660	1500	9063	12433	1660	1359	8186	11084	1650
	5	1795	10834	15384	1640	1585	9511	13240	1630	1515	9073	12558	1630	1375	8205	11203	1620
	10	1805	11337	16389	1620	1595	9956	14098	1610	1525	9499	13370	1600	1385	8593	11927	1600

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Figure 4-35 (Sheet 2)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 1000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1656	22302	28953	2200	1446	19224	24535	2160	1376	18217	23105	2150	1236	16232	20350	2130
	-40	1701	22194	29217	2060	1491	19211	24832	2030	1421	18238	23422	2020	1281	16308	20698	2000
	-35	1718	22102	29231	2020	1507	19158	24876	1990	1437	18195	23472	1980	1297	16294	20769	1960
	-30	1733	22001	29233	1970	1523	19097	24909	1950	1453	18147	23537	1940	1313	16266	20826	1920
	-25	1748	21873	29199	1930	1538	19013	24910	1910	1468	18076	23550	1900	1328	16227	20866	1880
	-20	1764	21735	29148	1890	1554	18918	24897	1870	1484	17995	23549	1860	1344	16174	20908	1840
	-15	1779	21586	29079	1860	1569	18814	24869	1830	1499	17905	23533	1820	1359	16112	20917	1810
	-10	1794	21429	28999	1820	1584	18701	24829	1790	1514	17807	23507	1790	1374	16041	20914	1770
	-5	1809	21275	28920	1780	1599	18589	24789	1760	1529	17709	23479	1750	1389	15970	20911	1740
	0	1823	21258	29252	1750	1613	18593	25083	1730	1543	17719	23739	1720	1403	15993	21151	1710
	5	1838	22673	31727	1730	1628	19823	27151	1710	1558	18891	25712	1700	1418	17052	22877	1680
	10	1854	26137	36611	1730	1644	22829	31338	1700	1574	21757	29653	1690	1434	19627	26399	1670
1 6 5 0 0	-54	1642	21303	27847	2190	1432	18349	23551	2160	1362	17382	22167	2150	1222	15475	19502	2130
	-40	1687	21200	28087	2050	1477	18337	23843	2020	1407	17400	22497	2020	1267	15549	19863	2000
	-35	1702	21114	28105	2010	1492	18289	23890	1980	1422	17363	22553	1970	1282	15537	19936	1950
	-30	1718	21019	28111	1970	1508	18232	23948	1940	1438	17319	22598	1930	1298	15517	19999	1910
	-25	1733	20899	28084	1920	1523	18154	23954	1900	1453	17254	22615	1890	1313	15473	20032	1870
	-20	1749	20770	28041	1890	1538	18065	23947	1860	1468	17179	22619	1850	1328	15428	20061	1840
	-15	1764	20631	27981	1850	1553	17968	23925	1820	1483	17095	22609	1820	1343	15371	20074	1800
	-10	1778	20484	27911	1810	1568	17863	23893	1790	1498	17004	22588	1780	1358	15306	20077	1770
	-5	1793	20339	27865	1780	1583	17759	23860	1750	1513	16913	22567	1750	1373	15241	20078	1730
	0	1808	20319	28156	1740	1598	17759	24116	1720	1528	16920	22837	1710	1388	15261	20307	1700
	5	1822	21618	30474	1720	1612	18890	26077	1700	1542	17996	24662	1690	1402	16234	21945	1680
	10	1839	24808	35027	1720	1628	21660	29957	1690	1558	20632	28329	1680	1418	18608	25206	1670
1 6 0 0 0	-54	1620	19883	26242	2170	1410	17105	22153	2140	1340	16195	20856	2130	1200	14398	18319	2110
	-40	1664	19788	26480	2040	1454	17095	22460	2010	1384	16212	21157	2000	1244	14469	18649	1990
	-35	1680	19709	26504	1990	1470	17052	22510	1970	1400	16180	21215	1960	1260	14459	18722	1940
	-30	1695	19623	26516	1950	1485	17001	22549	1930	1415	16141	21263	1920	1275	14443	18786	1900
	-25	1710	19515	26499	1910	1500	16931	22562	1890	1430	16083	21286	1880	1290	14408	18828	1860
	-20	1725	19397	26489	1870	1515	16851	22562	1850	1445	16016	21296	1840	1305	14366	18857	1830
	-15	1740	19272	26442	1840	1530	16765	22549	1810	1460	15942	21293	1810	1320	14316	18876	1790
	-10	1756	19139	26385	1800	1546	16670	22527	1780	1476	15860	21282	1770	1335	14259	18885	1760
	-5	1769	19007	26328	1760	1559	16577	22503	1740	1489	15779	21269	1740	1349	14201	18893	1720
	0	1783	18983	26596	1730	1573	16572	22741	1710	1503	15781	21520	1700	1363	14216	19127	1690
	5	1798	20125	28700	1710	1588	17568	24521	1690	1518	16730	23176	1680	1378	15075	20593	1670
	10	1814	22950	32807	1700	1604	20022	28020	1680	1534	19065	26483	1670	1394	17174	23529	1650
1 5 5 0 0	-54	1598	18567	24741	2160	1388	15950	20865	2130	1318	15092	19609	2120	1178	13393	17188	2100
	-40	1643	18476	24964	2030	1433	15942	21137	2000	1363	15111	19897	1990	1223	13468	17509	1980
	-35	1659	18403	25004	1980	1449	15903	21183	1960	1379	15083	19951	1950	1239	13463	17579	1930
	-30	1676	18322	25010	1940	1466	15858	21218	1920	1396	15050	20016	1910	1256	13451	17661	1890
	-25	1692	18222	24985	1900	1482	15796	21227	1880	1412	14999	20035	1870	1272	13425	17702	1860
	-20	1709	18113	24944	1860	1499	15725	21222	1840	1429	14941	20042	1830	1289	13391	17730	1820
	-15	1726	17996	24889	1820	1516	15648	21205	1800	1446	14876	20037	1800	1306	13351	17748	1780
	-10	1742	17873	24822	1790	1532	15564	21177	1770	1462	14805	20022	1760	1322	13304	17757	1750
	-5	1759	17752	24756	1750	1549	15481	21149	1730	1479	14735	20006	1730	1339	13258	17764	1710
	0	1775	17726	24986	1720	1565	15476	21381	1700	1495	14737	20210	1700	1355	13275	17958	1680
	5	1787	18741	26913	1700	1577	16361	22988	1680	1507	15580	21724	1670	1367	14037	19295	1660
	10	1789	21255	30763	1690	1579	18527	26235	1670	1509	17634	24780	1660	1369	15871	21989	1640
1 5 0 0 0	-54	1601	17316	23135	2140	1391	14892	19528	2120	1321	14096	18358	2110	1181	12522	16105	2090
	-40	1646	17234	23370	2010	1436	14886	19785	1990	1366	14115	18650	1980	1226	12589	16423	1970
	-35	1662	17168	23390	1970	1452	14852	19831	1950	1382	14091	18703	1940	1242	12586	16491	1930
	-30	1679	17096	23399	1930	1469	14812	19867	1910	1399	14062	18747	1900	1259	12578	16552	1890
	-25	1695	17006	23381	1890	1485	14757	19879	1870	1415	14018	18770	1860	1275	12555	16593	1850
	-20	1712	16909	23348	1850	1502	14695	19880	1830	1432	13967	18780	1820	1292	12527	16623	1810
	-15	1729	16806	23303	1810	1519	14627	19890	1790	1449	13910	18780	1790	1309	12492	16644	1770
	-10	1746	16696	23247	1780	1536	14553	19870	1760	1466	13848	18771	1750	1326	12453	16656	1740
	-5	1762	16588	23191	1740	1552	14479	19848	1730	1482	13786	18760	1720	1342	12412	16667	1710
	0	1779	16565	23404	1710	1569	14476	20044	1690	1499	13789	18950	1690	1359	12429	16848	1680
	5	1791	17475	25158	1690	1581	15272	21506	1670	1511	14549	20329	1660	1371	13117	18069	1650
	10	1764	19704	28846	1680	1554	17155	24581	1650	1484	16320	23203	1650	1343	14671	20558	1630

56FMC-00-00

Figure 4-35 (Sheet 3)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° **AND TAKEOFF CLIMB INCREMENT (TCI) 1000 FEET** **ANTI-ICE SYSTEMS - ON**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1604	16174	21678	2130	1394	13924	18296	2110	1324	13185	17224	2100	1184	11721	15122	2090
	-40	1649	16099	21880	2000	1439	13920	18560	1980	1369	13203	17480	1970	1229	11785	15403	1960
	-35	1666	16040	21902	1960	1456	13890	18605	1940	1386	13183	17532	1930	1246	11784	15469	1920
	-30	1682	15976	21914	1920	1472	13855	18642	1900	1402	13158	17576	1890	1262	11777	15528	1880
	-25	1699	15895	21901	1880	1489	13806	18657	1860	1419	13119	17600	1850	1279	11759	15569	1840
	-20	1716	15808	21876	1840	1506	13751	18661	1820	1436	13075	17614	1820	1296	11734	15621	1800
	-15	1732	15716	21838	1800	1522	13691	18655	1790	1452	13025	17617	1780	1312	11705	15644	1770
	-10	1749	15618	21790	1770	1539	13625	18640	1750	1469	12970	17635	1740	1329	11671	15659	1730
	-5	1765	15521	21743	1730	1555	13560	18624	1720	1485	12915	17629	1710	1345	11636	15672	1700
	0	1783	15500	21965	1700	1572	13559	18806	1690	1502	12919	17807	1680	1362	11653	15842	1670
	5	1795	16321	23542	1680	1585	14278	20142	1660	1515	13607	19068	1660	1375	12277	16961	1640
	10	1765	18283	26857	1660	1555	15937	22909	1640	1485	15167	21631	1640	1345	13645	19177	1630
1 4 0 0 0	-54	1607	15126	20309	2120	1397	13035	17176	2100	1327	12347	16155	2090	1187	10985	14213	2080
	-40	1653	15058	20501	1990	1443	13032	17406	1970	1373	12366	16418	1970	1233	11046	14478	1950
	-35	1669	15005	20524	1950	1459	13006	17450	1930	1389	12348	16469	1920	1249	11046	14542	1910
	-30	1686	14947	20538	1910	1476	12975	17466	1890	1406	12327	16513	1880	1266	11041	14598	1870
	-25	1703	14875	20529	1870	1493	12932	17503	1850	1423	12293	16538	1850	1283	11026	14639	1830
	-20	1720	14797	20533	1830	1510	12883	17510	1810	1439	12253	16554	1810	1299	11005	14671	1800
	-15	1736	14714	20502	1790	1526	12830	17508	1780	1456	12206	16557	1770	1316	10980	14695	1760
	-10	1753	14626	20462	1760	1543	12772	17497	1740	1473	12161	16559	1740	1333	10950	14712	1730
	-5	1770	14539	20422	1730	1560	12714	17486	1710	1490	12112	16557	1700	1350	10920	14728	1690
	0	1787	14521	20606	1690	1577	12713	17679	1680	1507	12118	16723	1670	1367	10937	14887	1660
	5	1799	15264	22048	1670	1589	13367	18904	1650	1519	12743	17880	1650	1379	11506	15914	1640
	10	1770	16999	25036	1650	1560	14834	21377	1640	1490	14123	20191	1630	1350	12716	17913	1620
1 3 5 0 0	-54	1612	14161	19037	2110	1402	12215	16115	2090	1331	11575	15184	2080	1191	10306	13350	2070
	-40	1657	14099	19242	1980	1447	12214	16354	1960	1377	11593	15411	1960	1237	10363	13599	1950
	-35	1674	14051	19266	1940	1464	12191	16397	1920	1394	11578	15460	1920	1254	10364	13660	1900
	-30	1690	13998	19282	1900	1480	12164	16433	1880	1410	11559	15503	1880	1270	10361	13736	1870
	-25	1707	13934	19277	1860	1497	12125	16452	1840	1427	11527	15526	1840	1287	10348	13776	1830
	-20	1724	13863	19261	1820	1514	12082	16461	1810	1444	11495	15546	1800	1304	10331	13809	1790
	-15	1741	13788	19235	1790	1531	12034	16462	1770	1461	11456	15554	1770	1321	10309	13833	1760
	-10	1760	13710	19202	1750	1549	11983	16455	1740	1479	11413	15556	1730	1339	10284	13852	1720
	-5	1775	13632	19168	1720	1565	11931	16448	1700	1495	11370	15580	1700	1355	10258	13869	1690
	0	1792	13616	19340	1690	1581	11932	16607	1670	1511	11376	15736	1670	1371	10275	14018	1660
	5	1804	14292	20661	1660	1594	12528	17732	1650	1524	11947	16800	1640	1384	10795	14965	1630
	10	1774	15831	23390	1640	1564	13830	19969	1630	1494	13172	18890	1620	1354	11869	16773	1610
1 2 5 0 0	-54	1623	12444	16760	2090	1413	10758	14221	2080	1343	10202	13412	2070	1203	9099	11814	2060
	-40	1670	12393	16946	1970	1460	10759	14437	1950	1390	10220	13613	1940	1250	9151	12056	1930
	-35	1686	12354	16969	1920	1476	10741	14476	1910	1406	10209	13658	1900	1266	9154	12112	1890
	-30	1703	12311	16986	1880	1493	10720	14510	1870	1423	10195	13697	1860	1283	9154	12162	1850
	-25	1718	12259	16985	1840	1509	10690	14529	1830	1439	10173	13723	1830	1299	9146	12200	1820
	-20	1738	12202	16976	1810	1528	10656	14541	1790	1458	10146	13741	1790	1318	9134	12231	1780
	-15	1755	12142	16957	1770	1545	10619	14546	1760	1475	10117	13777	1750	1335	9119	12256	1740
	-10	1772	12078	16933	1740	1562	10579	14544	1720	1492	10084	13783	1720	1352	9101	12276	1710
	-5	1790	12015	16907	1700	1580	10538	14541	1690	1510	10050	13787	1690	1370	9082	12294	1680
	0	1807	12005	17056	1670	1597	10542	14680	1660	1527	10059	13924	1660	1387	9100	12426	1650
	5	1819	12572	18177	1650	1609	11044	15639	1630	1539	10541	14806	1630	1399	9540	13236	1620
	10	1784	13785	20415	1630	1574	12068	17487	1610	1504	11502	16531	1610	1364	10381	14700	1600
1 1 5 0 0	-54	1641	10963	14760	2080	1431	9500	12585	2060	1360	9017	11859	2060	1220	8058	10626	2050
	-40	1686	10920	14927	1950	1476	9502	12752	1940	1406	9034	12034	1930	1266	8105	10747	1920
	-35	1703	10888	14949	1910	1493	9489	12788	1900	1423	9027	12100	1890	1283	8109	10779	1880
	-30	1720	10853	14966	1870	1510	9472	12819	1860	1440	9016	12136	1850	1300	8110	10809	1840
	-25	1738	10811	14968	1830	1528	9449	12838	1820	1458	8999	12161	1810	1318	8105	10833	1810
	-20	1755	10764	14962	1790	1545	9422	12851	1780	1475	8979	12179	1780	1335	8097	10855	1770
	-15	1773	10715	14950	1760	1563	9392	12857	1750	1493	8954	12191	1740	1353	8087	10875	1740
	-10	1791	10664	14931	1720	1581	9360	12859	1710	1511	8929	12199	1710	1370	8073	10892	1700
	-5	1808	10612	14913	1690	1598	9328	12859	1680	1528	8903	12206	1680	1388	8059	10909	1670
	0	1825	10606	15042	1660	1615	9334	12981	1650	1545	8913	12326	1650	1405	8077	11022	1640
	5	1838	11090	16000	1630	1628	9764	13805	1620	1558	9327	13107	1620	1418	8457	11721	1610
	10	1801	12059	17859	1610	1591	10582	15339	1600	1521	10094	14512	1600	1381	9127	12955	1590

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Figure 4-35 (Sheet 4)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 2000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1682	21623	28333	2170	1472	18692	24048	2140	1402	17732	22688	2130	1262	15539	20027	2110
	-40	1728	21442	28496	2040	1518	18612	24278	2010	1448	17685	22918	2000	1308	15855	20299	1990
	-35	1744	21351	28510	2000	1534	18559	24322	1970	1464	17645	22971	1960	1324	15839	20370	1940
	-30	1760	21238	28495	1950	1550	18486	24339	1930	1480	17584	22999	1920	1340	15804	20417	1900
	-25	1776	21107	28458	1910	1566	18397	24337	1890	1496	17509	23008	1880	1356	15755	20447	1860
	-20	1792	20961	28401	1870	1582	18295	24318	1850	1512	17421	23022	1840	1371	15694	20462	1830
	-15	1807	20805	28327	1840	1597	18181	24281	1810	1527	17321	22998	1810	1387	15621	20461	1790
	-10	1822	20644	28246	1800	1612	18063	24239	1780	1542	17217	22968	1770	1402	15544	20476	1760
	-5	1837	20568	28431	1760	1627	18015	24410	1740	1557	17178	23135	1740	1417	15524	20637	1720
	0	1853	21887	30775	1740	1643	19167	26398	1720	1573	18277	24989	1710	1433	16519	22282	1700
	5	1869	25050	35296	1740	1659	21920	30236	1710	1589	20898	28647	1700	1449	18885	25519	1690
	10	1886	29412	41440	1740	1676	25699	35496	1710	1606	24491	33592	1700	1466	22117	29915	1680
1 6 5 0 0	-54	1668	20670	27274	2160	1458	17854	23123	2140	1388	16932	21786	2130	1248	15111	19209	2110
	-40	1713	20499	27418	2030	1503	17780	23332	2000	1433	16889	22036	2000	1293	15129	19499	1980
	-35	1729	20413	27436	1990	1519	17731	23378	1960	1449	16852	22092	1950	1309	15115	19570	1940
	-30	1745	20307	27427	1950	1535	17663	23400	1920	1465	16796	22123	1910	1325	15083	19620	1900
	-25	1760	20184	27397	1900	1550	17580	23403	1880	1480	16726	22136	1870	1340	15039	19653	1860
	-20	1776	20049	27350	1870	1566	17485	23412	1840	1496	16644	22134	1830	1356	14983	19672	1820
	-15	1791	19899	27281	1830	1581	17379	23382	1810	1511	16551	22115	1800	1371	14915	19676	1780
	-10	1807	19750	27212	1790	1596	17269	23347	1770	1526	16455	22092	1760	1386	14845	19674	1750
	-5	1821	19676	27413	1760	1611	17222	23511	1740	1541	16417	22252	1730	1401	14825	19830	1720
	0	1837	20886	29586	1730	1626	18280	25352	1710	1556	17426	24013	1710	1416	15739	21393	1690
	5	1853	23809	33813	1730	1643	20825	28967	1700	1573	19849	27410	1700	1433	17927	24396	1680
	10	1870	27805	39512	1730	1660	24289	33821	1700	1590	23144	31997	1690	1450	20892	28474	1670
1 6 0 0 0	-54	1646	19311	25731	2150	1436	16661	21777	2120	1365	15792	20522	2110	1225	14074	18066	2100
	-40	1691	19155	25883	2020	1480	16597	21989	1990	1410	15754	20751	1990	1270	14094	18331	1970
	-35	1708	19078	25908	1970	1497	16551	22058	1950	1427	15722	20808	1940	1287	14083	18403	1930
	-30	1722	18981	25906	1930	1512	16489	22084	1910	1442	15672	20843	1900	1302	14056	18455	1890
	-25	1737	18870	25886	1890	1527	16415	22094	1870	1457	15610	20863	1860	1317	14017	18493	1850
	-20	1752	18747	25849	1850	1542	16330	22088	1830	1472	15536	20867	1820	1332	13968	18517	1810
	-15	1767	18612	25795	1820	1557	16234	22068	1800	1487	15453	20857	1790	1347	13908	18527	1770
	-10	1782	18476	25736	1780	1572	16135	22042	1760	1502	15366	20842	1750	1362	13846	18532	1740
	-5	1798	18402	25916	1750	1588	16090	22190	1730	1518	15330	21010	1720	1378	13828	18697	1710
	0	1812	19468	27899	1720	1602	17021	23869	1700	1532	16219	22594	1700	1392	14633	20100	1680
	5	1828	22066	31703	1710	1618	19285	27118	1690	1548	18375	25670	1680	1408	16579	22816	1670
	10	1845	25578	36803	1710	1635	22332	31464	1680	1565	21273	29752	1680	1425	19188	26468	1660
1 5 5 0 0	-54	1634	18037	24194	2140	1424	15555	20480	2110	1354	14740	19275	2100	1214	13131	16955	2090
	-40	1681	17890	24327	2010	1471	15496	20675	1980	1401	14710	19490	1970	1261	13156	17207	1960
	-35	1698	17818	24344	1960	1488	15457	20719	1940	1418	14682	19542	1930	1278	13149	17276	1920
	-30	1715	17728	24334	1920	1505	15406	20743	1900	1435	14640	19572	1890	1295	13129	17325	1880
	-25	1732	17626	24304	1880	1522	15338	20744	1860	1452	14586	19608	1850	1312	13098	17380	1840
	-20	1749	17513	24280	1840	1539	15262	20732	1820	1469	14523	19608	1820	1329	13059	17401	1800
	-15	1767	17390	24216	1810	1557	15177	20706	1790	1486	14450	19593	1780	1346	13011	17410	1770
	-10	1784	17264	24146	1770	1574	15090	20674	1750	1504	14372	19570	1740	1364	12960	17413	1730
	-5	1801	17197	24281	1740	1591	15050	20806	1720	1521	14344	19705	1710	1381	12947	17545	1700
	0	1815	18153	26082	1710	1605	15888	22357	1690	1535	15145	21148	1690	1395	13674	18826	1670
	5	1803	20472	29777	1700	1593	17874	25432	1680	1523	17023	24059	1670	1383	15342	21353	1660
	10	1819	23569	34364	1690	1609	20564	29339	1670	1539	19581	27728	1660	1399	17646	24611	1650
1 5 0 0 0	-54	1637	16847	22651	2120	1427	14544	19190	2100	1357	13787	18066	2090	1217	12290	15921	2080
	-40	1684	16714	22804	1990	1474	14492	19378	1970	1404	13762	18292	1970	1264	12317	16162	1950
	-35	1701	16650	22824	1950	1491	14458	19422	1930	1421	13738	18344	1920	1281	12312	16228	1910
	-30	1717	16575	22825	1910	1507	14410	19445	1890	1437	13700	18376	1880	1297	12295	16277	1870
	-25	1735	16478	22797	1870	1525	14352	19453	1850	1455	13653	18393	1840	1315	12270	16312	1830
	-20	1753	16377	22758	1830	1543	14285	19446	1810	1473	13601	18401	1810	1332	12236	16336	1800
	-15	1770	16266	22704	1800	1560	14210	19427	1780	1490	13534	18388	1770	1350	12194	16348	1760
	-10	1787	16154	22644	1760	1577	14132	19424	1740	1507	13467	18374	1740	1367	12149	16355	1730
	-5	1805	16094	22771	1730	1595	14098	19549	1710	1525	13442	18500	1700	1385	12140	16480	1690
	0	1819	16956	24413	1700	1609	14856	20945	1680	1539	14166	19818	1680	1399	12800	17653	1670
	5	1789	19005	27880	1690	1579	16591	23798	1670	1509	15799	22508	1660	1369	14234	19986	1650
	10	1793	21748	32101	1680	1583	18957	27365	1660	1513	18044	25869	1650	1373	16243	22929	1640

56FMC-00-00

Figure 4-35 (Sheet 5)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 2000 FEET ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1640	15757	21248	2110	1430	13616	17998	2090	1360	12915	16972	2080	1220	11519	14947	2070
	-40	1687	15637	21377	1980	1477	13571	18201	1960	1407	12892	17166	1960	1267	11546	15176	1940
	-35	1704	15579	21398	1940	1494	13541	18244	1920	1424	12871	17216	1920	1284	11543	15239	1900
	-30	1721	15507	21397	1900	1511	13499	18269	1880	1441	12838	17249	1880	1301	11529	15287	1860
	-25	1739	15425	21380	1860	1529	13448	18279	1840	1459	12797	17268	1840	1319	11508	15324	1820
	-20	1756	15334	21348	1820	1546	13388	18277	1810	1476	12748	17275	1800	1336	11478	15370	1790
	-15	1774	15235	21302	1790	1564	13321	18263	1770	1494	12691	17271	1760	1354	11442	15384	1750
	-10	1791	15134	21251	1750	1581	13252	18243	1740	1511	12632	17261	1730	1371	11403	15394	1720
	-5	1809	15081	21371	1720	1599	13222	18362	1700	1529	12610	17402	1700	1389	11397	15513	1690
	0	1823	15862	22898	1690	1613	13911	19641	1680	1543	13269	18613	1670	1403	11998	16592	1660
	5	1793	17671	25997	1680	1583	15443	22211	1660	1513	14712	21015	1650	1373	13265	18673	1640
	10	1767	20086	30039	1670	1557	17492	25568	1650	1487	16641	24132	1640	1347	14961	21377	1630
1 4 0 0 0	-54	1644	14754	19927	2100	1434	12763	16914	2080	1364	12107	15932	2080	1224	10808	14063	2060
	-40	1691	14646	20051	1970	1481	12723	17087	1960	1411	12090	16141	1950	1271	10836	14280	1940
	-35	1708	14594	20074	1930	1498	12697	17130	1910	1428	12072	16190	1910	1288	10834	14342	1900
	-30	1726	14529	20076	1890	1516	12659	17155	1870	1446	12043	16223	1870	1306	10823	14389	1860
	-25	1743	14455	20063	1850	1533	12613	17167	1840	1463	12007	16244	1830	1323	10805	14425	1820
	-20	1761	14373	20037	1810	1551	12561	17169	1800	1480	11963	16254	1790	1340	10778	14449	1780
	-15	1778	14284	19998	1780	1568	12501	17158	1760	1498	11913	16252	1760	1358	10748	14467	1750
	-10	1796	14194	19978	1740	1586	12439	17143	1730	1516	11861	16247	1720	1376	10714	14479	1710
	-5	1813	14146	20092	1710	1603	12413	17255	1700	1533	11842	16359	1690	1393	10710	14592	1680
	0	1827	14857	21469	1680	1617	13042	18432	1670	1547	12444	17473	1660	1407	11260	15585	1650
	5	1797	16460	24271	1670	1587	14399	20777	1650	1517	13724	19644	1640	1377	12384	17467	1630
	10	1761	18575	27959	1650	1551	16182	23800	1640	1481	15397	22464	1630	1341	13846	19900	1620
1 3 5 0 0	-54	1648	13829	18696	2090	1438	11973	15884	2070	1368	11362	14987	2070	1228	10151	13220	2050
	-40	1694	13730	18840	1970	1484	11939	16048	1950	1414	11348	15165	1940	1274	10178	13426	1930
	-35	1713	13683	18863	1920	1503	11915	16113	1910	1433	11332	15212	1900	1293	10178	13485	1890
	-30	1730	13624	18867	1880	1520	11882	16139	1870	1450	11308	15246	1860	1310	10169	13552	1850
	-25	1748	13558	18858	1840	1538	11841	16153	1830	1468	11276	15267	1820	1328	10153	13588	1810
	-20	1765	13484	18837	1810	1555	11794	16157	1790	1485	11237	15279	1790	1345	10132	13615	1780
	-15	1783	13404	18804	1770	1573	11741	16150	1760	1503	11192	15280	1750	1363	10104	13633	1740
	-10	1801	13322	18767	1740	1591	11686	16139	1720	1521	11146	15278	1720	1381	10075	13646	1710
	-5	1818	13280	18873	1700	1608	11663	16245	1690	1538	11130	15407	1680	1398	10072	13753	1680
	0	1832	13929	20140	1680	1622	12239	17330	1660	1552	11682	16410	1660	1412	10578	14671	1650
	5	1801	15355	22680	1660	1591	13448	19436	1640	1521	12820	18380	1640	1381	11577	16354	1630
	10	1765	17210	25991	1640	1555	15011	22146	1630	1485	14289	20933	1620	1345	12860	18559	1610
1 2 5 0 0	-54	1662	12180	16483	2080	1452	10569	14038	2060	1382	10038	13259	2050	1242	8983	11718	2040
	-40	1712	12099	16618	1950	1502	10544	14210	1930	1431	10030	13419	1930	1291	9011	11925	1920
	-35	1727	12061	16640	1910	1517	10525	14249	1890	1447	10019	13462	1890	1307	9013	11978	1880
	-30	1745	12013	16647	1870	1535	10499	14274	1850	1465	10000	13493	1850	1325	9008	12020	1840
	-25	1762	11959	16642	1830	1552	10467	14289	1820	1482	9975	13515	1810	1342	8997	12054	1800
	-20	1781	11900	16628	1790	1571	10430	14296	1780	1501	9945	13528	1770	1361	8982	12081	1770
	-15	1799	11835	16603	1760	1589	10388	14294	1740	1519	9910	13558	1740	1379	8962	12100	1730
	-10	1817	11769	16574	1720	1607	10345	14288	1710	1537	9874	13559	1710	1397	8940	12115	1700
	-5	1835	11736	16668	1690	1625	10329	14382	1680	1555	9865	13654	1670	1415	8942	12210	1670
	0	1849	12288	17750	1660	1639	10820	15312	1650	1569	10336	14510	1650	1429	9375	13001	1640
	5	1813	13412	19861	1640	1603	11771	17058	1630	1533	11230	16141	1620	1393	10157	14385	1620
	10	1774	14853	22534	1620	1564	12984	19261	1610	1494	12369	18197	1600	1354	11150	16157	1600
1 1 5 0 0	-54	1679	10750	14535	2060	1469	9351	12440	2050	1399	8888	11738	2040	1259	7970	10610	2030
	-40	1727	10684	14660	1940	1517	9331	12571	1920	1447	8884	11880	1920	1307	7997	10716	1910
	-35	1745	10652	14681	1890	1535	9317	12606	1880	1465	8876	11945	1880	1325	7999	10748	1870
	-30	1763	10613	14689	1850	1553	9297	12629	1840	1483	8861	11974	1840	1343	7997	10776	1830
	-25	1781	10569	14688	1820	1571	9271	12645	1800	1501	8842	11995	1800	1361	7990	10800	1790
	-20	1799	10521	14677	1780	1589	9242	12653	1770	1519	8819	12009	1760	1379	7979	10820	1760
	-15	1816	10467	14658	1740	1606	9208	12653	1730	1536	8791	12015	1730	1396	7964	10836	1720
	-10	1836	10413	14636	1710	1626	9173	12651	1700	1556	8763	12019	1700	1416	7948	10852	1690
	-5	1854	10388	14720	1680	1644	9163	12734	1670	1574	8757	12103	1660	1434	7952	10880	1660
	0	1869	10863	15649	1650	1659	9587	13538	1640	1589	9166	12839	1640	1449	8328	11532	1630
	5	1831	11764	17408	1630	1621	10348	14964	1620	1551	9881	14197	1610	1411	8953	12677	1610
	10	1787	12884	19580	1610	1577	11288	16773	1600	1507	10761	15881	1590	1367	9717	14125	1580

56FMC-00-00

Figure 4-35 (Sheet 6)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 3000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1709	20946	27732	2150	1499	18157	23593	2120	1429	17243	22280	2110	1289	15439	19709	2100
	-40	1756	20800	27916	2020	1546	18102	23857	1990	1476	17222	22544	1990	1336	15472	20005	1970
	-35	1772	20702	27940	1980	1562	18042	23889	1950	1492	17170	22582	1940	1352	15448	20065	1930
	-30	1788	20575	27904	1930	1578	17956	23888	1910	1508	17097	22592	1900	1368	15401	20096	1890
	-25	1804	20444	27862	1890	1594	17865	23880	1870	1524	17020	22595	1860	1384	15349	20120	1850
	-20	1820	20295	27795	1850	1610	17758	23851	1830	1540	16926	22578	1820	1400	15282	20126	1810
	-15	1836	20139	27719	1820	1626	17645	23813	1800	1556	16826	22552	1790	1416	15208	20123	1770
	-10	1850	20081	27964	1780	1640	17612	24032	1760	1570	16802	22786	1750	1430	15200	20343	1740
	-5	1867	21141	29965	1760	1657	18540	25730	1740	1587	17688	24367	1730	1447	16006	21748	1710
	0	1884	24141	34277	1750	1674	21158	29423	1720	1604	20183	27863	1720	1464	18262	24869	1700
	5	1901	28071	39915	1750	1691	24572	34207	1720	1621	23433	32388	1710	1481	21191	28901	1690
	10	1918	33620	47804	1760	1708	29363	40871	1730	1638	27983	38682	1720	1498	25277	34459	1700
1 6 5 0 0	-54	1694	20035	26716	2140	1484	17354	22703	2120	1414	16475	21410	2110	1274	14739	18918	2090
	-40	1741	19898	26903	2100	1531	17305	22946	1990	1461	16454	21691	1980	1321	14774	19232	1960
	-35	1757	19806	26909	1970	1547	17249	22981	1940	1477	16410	21735	1940	1337	14752	19294	1920
	-30	1773	19686	26880	1930	1563	17168	22984	1900	1493	16342	21749	1890	1353	14709	19327	1880
	-25	1789	19563	26845	1890	1579	17084	22982	1860	1509	16270	21757	1860	1369	14661	19355	1840
	-20	1804	19424	26787	1850	1594	16984	22960	1830	1524	16183	21746	1820	1384	14600	19366	1800
	-15	1820	19278	26720	1810	1610	16878	22951	1790	1540	16090	21726	1780	1400	14531	19367	1770
	-10	1835	19220	26953	1770	1625	16844	23160	1750	1555	16064	21928	1750	1415	14522	19558	1730
	-5	1851	20193	28833	1750	1641	17698	24733	1730	1571	16880	23437	1720	1431	15264	20877	1710
	0	1868	22969	32870	1740	1658	20121	28190	1720	1588	19189	26711	1710	1448	17352	23798	1690
	5	1885	26579	38114	1740	1675	23259	32640	1710	1605	22177	30895	1700	1465	20047	27548	1680
	10	1901	31613	45335	1750	1691	27612	38772	1720	1621	26312	36686	1700	1481	23762	32663	1680
1 6 0 0 0	-54	1672	18737	25233	2130	1461	16209	21404	2100	1391	15379	20190	2090	1251	13740	17812	2080
	-40	1717	18612	25426	2000	1507	16166	21647	1980	1437	15363	20449	1970	1297	13776	18101	1950
	-35	1734	18527	25437	1960	1524	16116	21706	1930	1454	15324	20495	1930	1314	13759	18163	1910
	-30	1751	18416	25398	1910	1541	16043	21704	1890	1471	15264	20505	1880	1331	13724	18195	1870
	-25	1767	18301	25352	1870	1558	15968	21696	1850	1488	15201	20508	1850	1348	13685	18221	1830
	-20	1789	18171	25281	1840	1579	15879	21666	1820	1509	15126	20491	1810	1369	13636	18230	1800
	-15	1806	18035	25199	1800	1596	15784	21626	1780	1526	15044	20465	1770	1386	13580	18229	1760
	-10	1824	17976	25412	1760	1614	15752	21804	1740	1544	15021	20639	1740	1404	13575	18398	1730
	-5	1839	18840	27096	1740	1629	16512	23234	1720	1559	15748	22014	1710	1419	14238	19622	1700
	0	1843	21319	30889	1730	1633	18659	26452	1700	1563	17789	25026	1700	1423	16070	22288	1680
	5	1860	24503	35575	1720	1650	21431	30454	1700	1580	20427	28811	1690	1440	18450	25634	1670
	10	1876	28870	41964	1730	1666	25211	35856	1700	1596	24020	33914	1690	1456	21680	30164	1670
1 5 5 0 0	-54	1671	17505	23658	2120	1461	15154	20077	2090	1391	14382	18941	2080	1251	12854	16715	2070
	-40	1719	17389	23823	1990	1509	15117	20317	1960	1439	14371	19178	1960	1299	12894	16984	1940
	-35	1737	17312	23828	1940	1527	15073	20350	1920	1457	14337	19219	1920	1317	12882	17042	1900
	-30	1754	17212	23798	1900	1544	15009	20353	1880	1474	14285	19233	1880	1334	12852	17076	1860
	-25	1772	17110	23761	1860	1562	14943	20350	1840	1492	14230	19241	1840	1352	12820	17125	1820
	-20	1791	16994	23701	1830	1580	14864	20328	1810	1510	14163	19251	1800	1370	12777	17137	1790
	-15	1809	16873	23631	1790	1599	14780	20296	1770	1529	14091	19232	1760	1389	12728	17141	1750
	-10	1826	16820	23831	1750	1616	14753	20463	1740	1546	14073	19396	1730	1406	12726	17301	1720
	-5	1843	17598	25364	1730	1633	15439	21768	1710	1563	14730	20631	1700	1423	13327	18402	1690
	0	1817	19805	29051	1710	1607	17317	24840	1690	1537	16501	23486	1690	1397	14890	20886	1670
	5	1834	22624	33252	1710	1624	19771	28424	1680	1554	18838	26875	1670	1414	16999	23903	1660
	10	1850	26430	38935	1710	1640	23071	33231	1680	1570	21975	31415	1670	1430	19820	27935	1650
1 5 0 0 0	-54	1674	16375	22176	2100	1464	14189	18854	2080	1394	13471	17774	2070	1254	12048	15714	2060
	-40	1720	16269	22358	1980	1511	14157	19064	1960	1441	13463	18020	1950	1301	12088	15970	1940
	-35	1740	16200	22367	1930	1530	14118	19098	1910	1460	13433	18062	1910	1320	12078	16027	1890
	-30	1758	16111	22343	1890	1548	14062	19104	1870	1478	13388	18078	1870	1338	12053	16062	1850
	-25	1776	16019	22314	1850	1566	14003	19106	1830	1496	13339	18090	1830	1356	12027	16094	1820
	-20	1794	15920	22267	1820	1584	13933	19089	1800	1514	13280	18084	1790	1374	11988	16107	1780
	-15	1812	15807	22204	1780	1602	13858	19064	1760	1532	13217	18070	1760	1392	11946	16115	1750
	-10	1831	15761	22369	1740	1621	13836	19244	1730	1551	13202	18225	1720	1411	11946	16265	1710
	-5	1847	16463	23769	1720	1637	14458	20440	1700	1567	13799	19356	1700	1427	12493	17275	1680
	0	1817	18412	27121	1700	1607	16113	23204	1680	1537	15358	21966	1680	1397	13866	19522	1660
	5	1807	20913	31141	1690	1597	18259	26580	1670	1527	17390	25116	1660	1387	15674	22307	1650
	10	1824	24246	36193	1690	1614	21151	30850	1660	1544	20140	29174	1660	1404	18148	25885	1640

56FMC-00-00

Figure 4-35 (Sheet 7)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 3000 FEET ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1678	15336	20826	2090	1468	13302	17702	2070	1398	12633	16713	2070	1258	11307	14768	2050
	-40	1726	15240	20979	1970	1516	13274	17924	1950	1446	12627	16927	1940	1306	11345	15010	1930
	-35	1744	15178	20990	1920	1534	13240	17958	1910	1464	12602	16968	1900	1324	11337	15065	1890
	-30	1760	15097	20972	1880	1550	13189	17967	1870	1480	12561	16987	1860	1340	11316	15101	1850
	-25	1780	15015	20949	1840	1570	13137	17972	1830	1500	12519	17000	1820	1360	11293	15153	1810
	-20	1798	14922	20906	1810	1588	13075	17961	1790	1518	12467	16999	1780	1378	11261	15171	1770
	-15	1817	14825	20855	1770	1607	13009	17942	1750	1537	12411	16990	1750	1397	11224	15181	1740
	-10	1835	14784	21010	1740	1625	12990	18089	1720	1555	12399	17158	1720	1415	11227	15324	1710
	-5	1851	15423	22292	1710	1641	13557	19187	1690	1571	12943	18199	1690	1431	11727	16255	1680
	0	1821	17149	25323	1690	1611	15024	21685	1670	1540	14326	20536	1670	1400	12944	18284	1660
	5	1787	19349	29135	1680	1577	16882	24840	1660	1507	16073	23461	1650	1367	14475	20815	1640
	10	1798	22280	33696	1670	1588	19418	28704	1650	1518	18482	27104	1640	1378	16636	24037	1630
1 4 0 0 0	-54	1682	14379	19549	2080	1472	12483	16652	2060	1402	11859	15706	2060	1262	10622	13909	2050
	-40	1730	14291	19696	1960	1520	12459	16842	1940	1450	11856	15931	1930	1310	10659	14138	1920
	-35	1748	14235	19709	1910	1538	12428	16876	1900	1468	11833	15972	1890	1328	10653	14191	1880
	-30	1766	14163	19695	1870	1556	12384	16888	1860	1486	11798	15992	1850	1346	10635	14227	1840
	-25	1784	14089	19677	1840	1574	12337	16895	1820	1504	11760	16008	1810	1364	10615	14258	1800
	-20	1803	14005	19640	1800	1593	12282	16887	1780	1523	11714	16009	1780	1383	10588	14277	1770
	-15	1821	13918	19597	1760	1611	12223	16873	1750	1541	11665	16004	1740	1401	10556	14290	1730
	-10	1840	13882	19767	1730	1630	12207	17011	1710	1560	11655	16141	1710	1420	10560	14424	1700
	-5	1856	14464	20946	1700	1646	12726	18023	1690	1576	12154	17100	1680	1436	11019	15283	1670
	0	1825	15999	23669	1680	1615	14031	20287	1670	1545	13384	19219	1660	1405	12102	17123	1650
	5	1790	17927	27089	1670	1580	15660	23118	1650	1510	14916	21841	1640	1370	13444	19391	1630
	10	1769	20499	31434	1660	1559	17846	26734	1640	1489	16978	25228	1630	1349	15263	22340	1620
1 3 5 0 0	-54	1686	13492	18358	2080	1476	11724	15652	2060	1406	11142	14788	2050	1266	9987	13086	2040
	-40	1735	13412	18522	1950	1525	11704	15854	1930	1455	11140	14981	1930	1315	10023	13302	1920
	-35	1753	13361	18536	1910	1543	11676	15888	1890	1473	11121	15020	1890	1333	10019	13354	1870
	-30	1771	13296	18526	1870	1561	11637	15901	1850	1491	11089	15041	1850	1351	10003	13411	1840
	-25	1789	13230	18512	1830	1579	11595	15911	1810	1509	11056	15058	1810	1369	9986	13443	1800
	-20	1810	13155	18481	1790	1599	11546	15907	1780	1529	11016	15062	1770	1389	9963	13463	1760
	-15	1826	13076	18444	1760	1616	11493	15896	1740	1546	10971	15060	1740	1406	9935	13477	1730
	-10	1845	13044	18580	1720	1635	11480	16026	1710	1565	10964	15213	1700	1425	9941	13604	1690
	-5	1861	13577	19666	1690	1651	11957	16961	1680	1581	11423	16074	1680	1441	10363	14400	1670
	0	1829	14947	22141	1670	1619	13122	19018	1660	1549	12521	18000	1650	1409	11330	16048	1640
	5	1794	16644	25221	1660	1584	14555	21544	1640	1514	13869	20360	1630	1374	12511	18089	1620
	10	1757	18881	29193	1650	1547	16438	24843	1630	1477	15637	23439	1620	1337	14055	20747	1610
1 2 5 0 0	-54	1701	11912	16208	2060	1491	10374	13854	2040	1421	9867	13104	2040	1281	8860	11618	2030
	-40	1751	11846	16358	1930	1541	10360	14038	1920	1471	9869	13273	1910	1331	8895	11833	1900
	-35	1769	11805	16373	1890	1559	10338	14069	1880	1489	9854	13310	1870	1349	8893	11880	1860
	-30	1788	11752	16367	1850	1577	10307	14084	1840	1507	9830	13331	1830	1367	8883	11913	1830
	-25	1806	11698	16358	1810	1596	10275	14095	1800	1526	9805	13349	1800	1386	8871	11943	1790
	-20	1825	11637	16335	1780	1615	10236	14094	1760	1545	9774	13355	1760	1405	8855	11964	1750
	-15	1844	11574	16306	1740	1634	10195	14089	1730	1564	9740	13382	1730	1424	8835	11980	1720
	-10	1864	11551	16425	1710	1654	10189	14204	1700	1584	9739	13497	1690	1444	8844	12093	1690
	-5	1880	12007	17353	1680	1670	10598	15007	1670	1600	10133	14234	1660	1460	9210	12781	1660
	0	1843	13093	19423	1660	1633	11518	16722	1650	1563	10999	15837	1640	1423	9969	14144	1630
	5	1804	14414	21923	1640	1594	12633	18762	1620	1524	12047	17765	1620	1384	10884	15808	1610
	10	1765	16121	25101	1620	1555	14070	21407	1610	1485	13395	20210	1600	1345	12061	17917	1590
1 1 5 0 0	-54	1719	10535	14312	2040	1509	9196	12319	2030	1439	8753	11655	2030	1299	7874	10588	2020
	-40	1769	10480	14449	1920	1559	9185	12433	1910	1489	8757	11868	1900	1349	7907	10703	1890
	-35	1788	10446	14463	1880	1577	9168	12462	1870	1507	8746	11889	1860	1367	7907	10733	1850
	-30	1806	10403	14460	1840	1596	9144	12476	1830	1526	8728	11904	1820	1386	7900	10759	1820
	-25	1825	10359	14455	1800	1615	9118	12488	1790	1545	8708	11918	1790	1405	7893	10783	1780
	-20	1845	10309	14437	1770	1635	9088	12490	1750	1565	8684	11929	1750	1425	7881	10805	1740
	-15	1864	10258	14415	1730	1654	9055	12488	1720	1584	8657	11938	1720	1444	7867	10824	1710
	-10	1884	10242	14520	1700	1674	9053	12590	1690	1604	8660	11976	1680	1463	7878	10858	1680
	-5	1900	10636	15320	1670	1690	9409	13285	1660	1620	9003	12610	1650	1480	8196	11351	1650
	0	1861	11510	17021	1650	1651	10149	14692	1630	1581	9699	13951	1630	1441	8807	12484	1620
	5	1818	12545	19085	1620	1608	11019	16393	1610	1538	10516	15538	1610	1398	9520	13854	1600
	10	1774	13853	21674	1610	1564	12117	18521	1590	1494	11545	17520	1590	1354	10411	15555	1580

56FMC-00-00

Figure 4-35 (Sheet 8)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 4000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1736	20463	27400	2130	1526	17782	23379	2100	1456	16904	22075	2100	1316	15169	19564	2080
	-40	1784	20352	27659	2000	1574	17756	23666	1980	1504	16905	22377	1970	1364	15223	19897	1950
	-35	1801	20240	27653	1960	1591	17682	23689	1930	1521	16844	22410	1930	1381	15186	19948	1910
	-30	1817	20113	27630	1920	1607	17595	23697	1890	1537	16769	22428	1890	1397	15137	19984	1870
	-25	1833	19981	27597	1880	1623	17502	23696	1850	1553	16688	22459	1850	1413	15081	20012	1830
	-20	1850	19841	27570	1840	1640	17401	23697	1820	1570	16601	22470	1810	1429	15018	20062	1790
	-15	1866	19749	27708	1800	1655	17340	23830	1780	1585	16549	22602	1770	1445	14986	20194	1760
	-10	1881	20792	29642	1780	1671	18258	25482	1750	1601	17427	24143	1750	1461	15787	21569	1730
	-5	1899	23443	33513	1760	1689	20574	28801	1740	1619	19637	27288	1730	1479	17789	24382	1720
	0	1916	27189	38908	1760	1706	23839	33418	1730	1636	22747	31658	1730	1496	20598	28255	1710
	5	1934	32181	46086	1770	1724	28162	39501	1740	1654	26857	37408	1730	1513	24297	33369	1710
	10	1950	39608	56657	1800	1740	34543	48406	1760	1670	32908	45771	1740	1530	29714	40776	1720
1 6 5 0 0	-54	1721	19581	26410	2120	1511	17003	22489	2100	1441	16158	21224	2090	1301	14487	18790	2070
	-40	1767	19478	26649	1990	1557	16980	22775	1970	1487	16161	21547	1960	1348	14542	19140	1950
	-35	1785	19372	26648	1950	1575	16912	22802	1930	1505	16105	21583	1920	1365	14509	19193	1900
	-30	1801	19253	26631	1910	1591	16830	22836	1890	1521	16035	21604	1880	1381	14463	19232	1860
	-25	1818	19129	26605	1870	1607	16743	22840	1850	1537	15960	21617	1840	1397	14412	19263	1830
	-20	1834	18997	26584	1830	1623	16649	22846	1810	1553	15878	21632	1800	1413	14354	19295	1790
	-15	1849	18909	26742	1790	1639	16590	22976	1770	1569	15829	21760	1770	1429	14323	19423	1750
	-10	1865	19868	28536	1770	1655	17435	24507	1750	1585	16637	23233	1740	1445	15061	20715	1730
	-5	1883	22320	32163	1750	1672	19581	27618	1730	1602	18685	26158	1720	1462	16917	23352	1710
	0	1900	25763	37184	1750	1690	22588	31920	1720	1620	21549	30230	1720	1480	19504	26960	1700
	5	1917	30313	43779	1760	1707	26527	37502	1730	1637	25295	35506	1720	1497	22877	31652	1700
	10	1934	36964	53348	1780	1724	32252	45569	1740	1654	30728	43116	1730	1514	27746	38396	1700
1 6 0 0 0	-54	1705	18314	24900	2110	1495	15893	21180	2090	1425	15098	20001	2080	1285	13527	17690	2060
	-40	1755	18216	25111	1980	1545	15875	21465	1960	1475	15107	20281	1950	1335	13587	18002	1940
	-35	1773	18119	25100	1940	1563	15814	21486	1920	1493	15057	20312	1910	1353	13560	18051	1890
	-30	1792	18008	25071	1900	1581	15741	21491	1880	1511	14997	20327	1870	1371	13523	18087	1860
	-25	1810	17893	25033	1860	1600	15664	21486	1840	1530	14931	20333	1830	1390	13482	18114	1820
	-20	1828	17772	24996	1820	1618	15580	21482	1800	1548	14860	20339	1790	1408	13434	18141	1780
	-15	1847	17688	25120	1780	1637	15527	21588	1760	1567	14817	20470	1760	1427	13412	18275	1750
	-10	1863	18546	26749	1760	1653	16286	22982	1740	1583	15544	21791	1730	1443	14077	19456	1720
	-5	1857	20741	30261	1740	1647	18180	25948	1720	1577	17341	24561	1710	1437	15684	21897	1700
	0	1874	23793	34794	1730	1664	20841	29799	1710	1594	19877	28231	1700	1454	17975	25147	1690
	5	1891	27748	40619	1730	1681	24276	34760	1710	1611	23144	32895	1700	1471	20919	29320	1680
	10	1908	33415	48921	1750	1698	29165	41797	1720	1628	27787	39537	1700	1488	25086	35153	1680
1 5 5 0 0	-54	1707	17125	23336	2100	1497	14877	19888	2070	1427	14137	18765	2070	1287	12675	16607	2050
	-40	1758	17038	23539	1970	1548	14863	20138	1950	1478	14148	19032	1940	1338	12733	16903	1930
	-35	1776	16950	23534	1930	1566	14808	20161	1910	1496	14104	19086	1900	1356	12710	16973	1890
	-30	1795	16851	23512	1890	1585	14744	20170	1870	1515	14051	19104	1860	1375	12679	17010	1850
	-25	1813	16748	23505	1850	1603	14675	20170	1830	1533	13993	19114	1820	1393	12643	17039	1810
	-20	1832	16639	23475	1810	1622	14600	20171	1790	1552	13930	19124	1790	1412	12602	17068	1770
	-15	1850	16564	23571	1770	1640	14554	20272	1760	1570	13893	19228	1750	1430	12583	17176	1740
	-10	1867	17339	25058	1750	1657	15242	21547	1730	1587	14552	20437	1720	1447	13188	18259	1710
	-5	1842	19287	28393	1730	1632	16901	24330	1710	1562	16119	23023	1700	1422	14573	20512	1690
	0	1848	21997	32566	1720	1638	19252	27875	1700	1568	18354	26369	1690	1428	16582	23479	1680
	5	1865	25457	37765	1720	1655	22260	32307	1690	1585	21217	30559	1680	1445	19162	27181	1670
	10	1882	30321	45016	1720	1672	26464	38429	1690	1602	25211	36338	1680	1462	22750	32304	1660
1 5 0 0 0	-54	1712	16037	21891	2090	1502	13944	18672	2060	1432	13256	17645	2060	1292	11893	15627	2040
	-40	1762	15957	22109	1960	1552	13933	18911	1940	1482	13267	17898	1930	1342	11948	15906	1920
	-35	1780	15878	22109	1920	1570	13885	18935	1900	1500	13229	17931	1890	1360	11930	15955	1880
	-30	1798	15791	22093	1880	1588	13827	18947	1860	1518	13182	17951	1850	1378	11903	15992	1840
	-25	1817	15697	22068	1840	1607	13766	18951	1820	1537	13131	17964	1810	1397	11872	16023	1800
	-20	1835	15599	22045	1800	1625	13700	18978	1780	1555	13075	17977	1780	1415	11836	16053	1770
	-15	1854	15532	22136	1760	1644	13659	19075	1750	1574	13043	18076	1740	1434	11821	16156	1730
	-10	1871	16235	23497	1740	1661	14285	20246	1720	1591	13643	19186	1710	1450	12373	17152	1700
	-5	1846	17959	26509	1720	1636	15755	22737	1700	1565	15031	21521	1690	1425	13600	19187	1680
	0	1822	20358	30537	1710	1612	17800	26098	1690	1542	16962	24673	1680	1402	15307	21938	1660
	5	1839	23398	35171	1700	1629	20444	30047	1680	1559	19479	28405	1670	1419	17577	25256	1650
	10	1855	27598	41572	1700	1645	24081	35453	1680	1575	22935	33508	1670	1435	20682	29783	1650

56FMC-00-00

Figure 4-35 (Sheet 9)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 4000 FEET ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 4 5 0 0	-54	1716	15035	20574	2080	1506	13085	17543	2060	1436	12447	16588	2050	1296	11172	14696	2040
	-40	1766	14963	20760	1950	1556	13077	17793	1930	1486	12456	16824	1930	1346	11225	14961	1910
	-35	1784	14892	20763	1910	1574	13038	17823	1890	1504	12422	16857	1880	1364	11209	15030	1870
	-30	1803	14812	20751	1870	1593	12983	17832	1850	1523	12380	16879	1840	1383	11186	15068	1830
	-25	1821	14728	20731	1830	1611	12928	17839	1810	1541	12335	16894	1810	1401	11159	15099	1800
	-20	1840	14640	20713	1790	1630	12869	17846	1780	1560	12286	16932	1770	1420	11129	15130	1760
	-15	1859	14580	20800	1760	1649	12833	17938	1740	1578	12258	17026	1740	1438	11117	15228	1730
	-10	1875	15221	22050	1730	1665	13405	19016	1710	1595	12807	18050	1710	1455	11622	16148	1700
	-5	1850	16757	24785	1710	1639	14712	21273	1690	1569	14041	20165	1690	1429	12713	17991	1670
	0	1815	18857	28479	1690	1605	16495	24342	1670	1535	15720	23012	1670	1395	14188	20461	1660
	5	1811	21537	32826	1680	1601	18802	28004	1660	1531	17905	26457	1660	1391	16138	23491	1640
	10	1828	25183	38480	1680	1618	21961	32803	1660	1548	20909	30988	1650	1408	18839	27485	1630
1 4 0 0 0	-54	1720	14110	19326	2070	1510	12291	16514	2050	1440	11692	15595	2040	1300	10505	13851	2030
	-40	1770	14044	19503	1940	1560	12285	16729	1920	1490	11705	15845	1920	1350	10556	14100	1910
	-35	1789	13980	19507	1900	1579	12247	16756	1880	1509	11675	15878	1880	1369	10542	14147	1870
	-30	1807	13908	19499	1860	1597	12201	16771	1840	1527	11638	15901	1840	1387	10523	14184	1830
	-25	1826	13832	19509	1820	1616	12152	16780	1810	1546	11597	15917	1800	1406	10499	14216	1790
	-20	1846	13753	19495	1780	1636	12100	16789	1770	1566	11554	15934	1760	1426	10473	14247	1750
	-15	1863	13699	19578	1750	1653	12068	16901	1730	1583	11530	16023	1730	1443	10463	14340	1720
	-10	1880	14286	20730	1720	1670	12593	17871	1710	1600	12035	16969	1700	1460	10929	15191	1690
	-5	1854	15651	23186	1700	1644	13758	19921	1680	1574	13136	18891	1680	1434	11902	16866	1670
	0	1819	17501	26487	1680	1609	15326	22684	1660	1539	14612	21451	1660	1399	13199	19086	1650
	5	1784	19850	30648	1670	1574	17304	26097	1650	1504	16472	24663	1640	1363	14828	21866	1630
	10	1800	23026	35683	1670	1590	20063	30376	1640	1520	19094	28678	1640	1380	17185	25424	1620
1 3 5 0 0	-54	1725	13252	18159	2060	1515	11554	15531	2040	1445	10995	14693	2030	1305	9885	13039	2020
	-40	1775	13192	18352	1930	1565	11550	15758	1920	1495	11008	14907	1910	1355	9934	13298	1900
	-35	1794	13134	18358	1890	1584	11516	15785	1880	1514	10982	14940	1870	1374	9923	13343	1860
	-30	1812	13068	18353	1850	1602	11475	15801	1840	1532	10949	14964	1830	1392	9906	13379	1820
	-25	1831	13001	18340	1810	1621	11431	15811	1800	1551	10914	14981	1790	1411	9887	13411	1780
	-20	1850	12929	18329	1780	1640	11383	15820	1760	1570	10875	15022	1760	1430	9864	13442	1750
	-15	1870	12882	18406	1740	1660	11358	15904	1730	1589	10855	15107	1720	1449	9858	13530	1710
	-10	1886	13421	19470	1710	1676	11842	16825	1700	1606	11321	15958	1690	1466	10288	14320	1690
	-5	1859	14640	21710	1690	1649	12883	18694	1680	1579	12304	17710	1670	1439	11156	15822	1660
	0	1823	16273	24687	1670	1613	14267	21163	1660	1543	13607	20019	1650	1403	12301	17824	1640
	5	1787	18313	28396	1660	1577	15989	24208	1640	1507	15226	22887	1630	1367	13719	20306	1620
	10	1771	21087	33164	1650	1561	18353	28163	1630	1491	17458	26596	1620	1351	15693	23520	1610
1 2 5 0 0	-54	1741	11722	16047	2040	1531	10244	13761	2030	1461	9756	13033	2020	1321	8788	11614	2010
	-40	1793	11673	16221	1920	1583	10243	13965	1900	1513	9771	13221	1900	1373	8833	11821	1890
	-35	1812	11626	16228	1880	1602	10216	13990	1860	1532	9751	13252	1860	1392	8826	11862	1850
	-30	1831	11573	16226	1840	1621	10184	14007	1820	1551	9725	13300	1820	1411	8814	11896	1810
	-25	1852	11518	16219	1800	1642	10150	14019	1790	1572	9698	13318	1780	1432	8800	11926	1770
	-20	1869	11459	16212	1760	1659	10112	14031	1750	1589	9668	13336	1750	1449	8784	11956	1740
	-15	1889	11422	16281	1730	1679	10093	14104	1720	1609	9654	13411	1710	1469	8781	12035	1710
	-10	1906	11885	17195	1700	1696	10510	14900	1690	1626	10056	14142	1680	1486	9155	12721	1680
	-5	1874	12857	19072	1680	1664	11338	16436	1660	1594	10837	15607	1660	1454	9843	13968	1650
	0	1833	14131	21524	1660	1623	12415	18466	1640	1553	11850	17502	1640	1413	10729	15607	1630
	5	1796	15696	24488	1640	1586	13737	20942	1620	1516	13092	19791	1620	1376	11814	17584	1610
	10	1756	17770	28389	1630	1546	15480	24134	1610	1476	14728	22793	1600	1336	13243	20154	1590
1 1 5 0 0	-54	1760	10383	14210	2030	1550	9095	12293	2020	1480	8669	11641	2010	1340	7822	10607	2000
	-40	1812	10343	14338	1900	1602	9096	12383	1890	1532	8683	11871	1890	1392	7864	10732	1880
	-35	1831	10304	14347	1860	1621	9074	12402	1850	1551	8667	11888	1850	1411	7859	10760	1840
	-30	1850	10260	14347	1830	1640	9048	12418	1810	1570	8648	11903	1810	1430	7851	10784	1800
	-25	1870	10215	14342	1790	1660	9021	12430	1780	1590	8626	11915	1770	1450	7841	10806	1770
	-20	1890	10167	14338	1750	1680	8991	12442	1740	1610	8602	11925	1740	1470	7828	10827	1730
	-15	1909	10138	14399	1720	1699	8977	12508	1710	1629	8593	11945	1700	1489	7829	10855	1700
	-10	1926	10541	15190	1690	1716	9341	13200	1680	1646	8945	12538	1670	1506	8157	11306	1670
	-5	1893	11327	16737	1660	1683	10011	14484	1650	1613	9576	13768	1650	1473	8714	12348	1640
	0	1850	12331	18766	1640	1640	10858	16160	1630	1570	10372	15333	1620	1430	9408	13699	1620
	5	1806	13534	21191	1620	1596	11870	18160	1610	1526	11321	17197	1600	1386	10234	15305	1590
	10	1763	15105	24316	1600	1553	13190	20711	1590	1483	12559	19576	1580	1343	11311	17354	1570

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Figure 4-35 (Sheet 10)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 5000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1764	20320	27546	2120	1554	17699	23532	2090	1484	16840	22237	2080	1344	15143	19744	2060
	-40	1813	20233	27871	1990	1603	17689	23884	1960	1533	16856	22621	1950	1393	15208	20146	1940
	-35	1830	20120	27860	1940	1620	17615	23904	1920	1550	16794	22651	1910	1410	15171	20195	1900
	-30	1847	19997	27824	1900	1637	17531	23903	1880	1567	16722	22661	1870	1427	15123	20226	1860
	-25	1863	19905	27903	1860	1653	17472	24017	1840	1583	16673	22755	1830	1443	15096	20327	1820
	-20	1880	19977	28325	1830	1670	17551	24368	1800	1600	16755	23092	1800	1460	15183	20639	1780
	-15	1896	20661	29606	1800	1686	18163	25477	1770	1616	17344	24147	1770	1476	15726	21591	1750
	-10	1914	23015	33075	1780	1704	20229	28464	1760	1634	19317	26981	1750	1494	17519	24133	1730
	-5	1932	26396	37990	1780	1722	23182	32651	1750	1652	22133	30976	1740	1512	20068	27680	1720
	0	1950	31132	44819	1780	1740	27287	38470	1750	1670	26040	36453	1740	1530	23591	32559	1720
	5	1967	37682	54216	1800	1757	32943	46417	1760	1687	31411	43958	1750	1547	28413	39223	1730
	10	1984	48110	69029	1850	1774	41836	58826	1800	1704	39825	55602	1790	1564	35914	49465	1760
1 6 5 0 0	-54	1749	19446	26538	2110	1539	16925	22644	2080	1469	16098	21409	2070	1329	14465	18991	2060
	-40	1797	19364	26858	1980	1587	16918	23012	1950	1517	16115	21765	1950	1377	14529	19364	1930
	-35	1814	19258	26877	1930	1604	16849	23037	1910	1534	16058	21798	1900	1394	14495	19415	1890
	-30	1831	19142	26848	1890	1621	16770	23041	1870	1551	15991	21812	1860	1411	14452	19449	1850
	-25	1847	19055	26927	1850	1637	16714	23130	1830	1567	15945	21905	1830	1427	14426	19549	1810
	-20	1865	19116	27285	1820	1655	16785	23452	1800	1585	16021	22239	1790	1445	14509	19862	1780
	-15	1880	19747	28509	1790	1670	17348	24508	1770	1600	16561	23242	1760	1460	15007	20742	1750
	-10	1898	21928	31765	1770	1688	19263	27311	1750	1617	18391	25878	1740	1477	16669	23127	1730
	-5	1915	25044	36352	1760	1705	21987	31218	1740	1635	20988	29607	1730	1495	19220	26436	1710
	0	1933	29357	42658	1770	1723	25736	36601	1740	1653	24557	34673	1730	1513	22440	30949	1710
	5	1950	35253	51205	1780	1740	30829	43826	1750	1670	29396	41497	1740	1530	26589	37011	1710
	10	1967	44424	64412	1820	1757	38674	54910	1780	1687	36825	51901	1760	1547	33223	46169	1740
1 6 0 0 0	-54	1744	18181	24948	2090	1534	15827	21305	2070	1464	15054	20122	2060	1324	13526	17845	2050
	-40	1792	18102	25258	1970	1582	15821	21623	1940	1512	15072	20449	1940	1372	13591	18193	1920
	-35	1811	18005	25238	1920	1601	15760	21637	1900	1531	15023	20496	1900	1391	13565	18259	1880
	-30	1830	17898	25195	1880	1620	15691	21631	1860	1550	14966	20503	1860	1410	13531	18288	1840
	-25	1849	17817	25246	1840	1639	15642	21701	1820	1569	14927	20579	1820	1429	13513	18376	1800
	-20	1868	17866	25561	1810	1658	15707	22015	1790	1588	14997	20861	1780	1448	13591	18642	1770
	-15	1885	18436	26681	1780	1674	16214	22956	1760	1604	15484	21779	1750	1464	14041	19469	1740
	-10	1872	20392	29912	1760	1662	17898	25680	1740	1592	17080	24319	1730	1452	15465	21704	1720
	-5	1890	23154	34028	1750	1680	20313	29209	1730	1610	19384	27662	1720	1470	17552	24692	1700
	0	1907	26922	39651	1750	1697	23593	33984	1720	1627	22508	32179	1710	1487	20378	28699	1690
	5	1924	31973	47101	1760	1714	27966	40318	1720	1644	26664	38164	1710	1504	24111	34010	1690
	10	1941	39601	58286	1790	1731	34515	49726	1750	1661	32873	47033	1730	1521	29670	41828	1710
1 5 5 0 0	-54	1745	17008	23388	2080	1535	14823	19992	2060	1465	14104	18887	2050	1325	12681	16760	2040
	-40	1795	16938	23683	1950	1585	14818	20290	1930	1515	14121	19216	1930	1375	12742	17107	1910
	-35	1815	16851	23669	1910	1605	14765	20308	1890	1535	14079	19244	1890	1395	12721	17153	1870
	-30	1834	16756	23635	1870	1624	14703	20307	1850	1554	14028	19254	1850	1414	12692	17184	1830
	-25	1854	16684	23687	1830	1644	14661	20399	1810	1574	13995	19328	1810	1434	12678	17269	1800
	-20	1872	16733	23981	1800	1662	14721	20668	1780	1592	14060	19589	1770	1452	12750	17516	1760
	-15	1887	17243	25000	1770	1677	15179	21552	1750	1607	14501	20430	1740	1467	13159	18276	1730
	-10	1864	18975	28023	1750	1654	16658	24056	1730	1584	15898	22779	1720	1443	14395	20326	1710
	-5	1863	21433	31917	1730	1653	18787	27358	1710	1583	17921	25894	1710	1443	16210	23083	1690
	0	1881	24740	36925	1730	1671	21669	31609	1700	1601	20665	29915	1700	1461	18689	26665	1680
	5	1898	29097	43495	1730	1688	25444	37196	1700	1618	24257	35194	1690	1478	21922	31332	1680
	10	1914	35508	53095	1750	1704	30966	45284	1720	1634	29496	42822	1710	1494	26617	38054	1680
1 5 0 0 0	-54	1749	15937	21974	2070	1539	13901	18777	2050	1469	13231	17765	2040	1329	11904	15775	2030
	-40	1799	15871	22226	1940	1589	13897	19080	1930	1519	13248	18054	1920	1379	11962	16082	1910
	-35	1818	15793	22218	1900	1608	13851	19100	1880	1538	13211	18083	1880	1398	11945	16128	1870
	-30	1838	15708	22190	1860	1627	13796	19104	1840	1557	13167	18097	1840	1417	11920	16160	1830
	-25	1857	15643	22241	1820	1647	13759	19170	1810	1577	13139	18168	1800	1437	11909	16264	1790
	-20	1876	15688	22538	1790	1666	13815	19420	1770	1596	13199	18434	1770	1456	11977	16494	1760
	-15	1891	16151	23448	1760	1681	14232	20233	1740	1611	13600	19184	1730	1471	12350	17172	1720
	-10	1867	17684	26183	1740	1657	15542	22497	1720	1587	14838	21308	1710	1447	13446	19026	1700
	-5	1837	19858	29938	1720	1627	17389	25644	1700	1556	16579	24256	1690	1416	14977	21588	1680
	0	1853	22772	34440	1710	1643	19929	29466	1690	1573	19000	27871	1680	1433	17166	24812	1670
	5	1871	26548	40229	1710	1661	23208	34394	1690	1591	22119	32528	1680	1451	19975	28925	1660
	10	1887	31988	48538	1730	1677	27901	41400	1690	1607	26575	39137	1680	1467	23973	34778	1660

56FMC-00-00

Figure 4-35 (Sheet 11)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° **AND TAKEOFF CLIMB INCREMENT (TCI) 5000 FEET** **ANTI-ICE SYSTEMS - ON**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1753	14949	20637	2060	1543	13051	17671	2040	1473	12426	16703	2030	1333	11188	14841	2020
	-40	1803	14888	20873	1930	1593	13049	17934	1920	1523	12443	16996	1910	1383	11243	15151	1900
	-35	1823	14818	20869	1890	1613	13007	17955	1880	1543	12410	17026	1870	1403	11228	15196	1860
	-30	1841	14742	20847	1850	1631	12959	17962	1840	1561	12372	17042	1830	1421	11208	15229	1820
	-25	1861	14684	20897	1820	1651	12927	18027	1800	1581	12344	17108	1790	1441	11199	15308	1780
	-20	1881	14726	21174	1780	1671	12979	18283	1760	1601	12404	17337	1760	1461	11263	15522	1750
	-15	1895	15147	22009	1750	1685	13359	19008	1730	1615	12771	18052	1730	1475	11604	16170	1720
	-10	1871	16510	24492	1730	1661	14525	21062	1710	1591	13872	19979	1700	1451	12579	17852	1690
	-5	1839	18417	27869	1710	1629	16145	23894	1690	1559	15399	22607	1680	1419	13924	20137	1670
	0	1826	20988	32187	1700	1616	18350	27473	1680	1546	17486	25994	1670	1406	15781	23085	1660
	5	1843	24278	37316	1690	1633	21209	31862	1670	1563	20207	30117	1660	1423	18232	26772	1650
	10	1860	28926	44589	1700	1649	25227	37999	1670	1579	24023	35907	1660	1439	21658	31875	1640
1 4 0 0 0	-54	1758	14035	19390	2050	1548	12264	16618	2030	1478	11681	15734	2030	1337	10524	13991	2020
	-40	1808	13979	19636	1930	1598	12263	16864	1910	1528	11698	15988	1900	1388	10576	14261	1890
	-35	1827	13916	19635	1880	1617	12226	16887	1870	1547	11669	16019	1860	1407	10564	14306	1850
	-30	1847	13848	19618	1850	1637	12184	16920	1830	1567	11635	16036	1820	1427	10547	14339	1810
	-25	1866	13794	19665	1810	1656	12155	16983	1790	1586	11614	16103	1790	1446	10541	14414	1780
	-20	1886	13835	19900	1770	1676	12205	17198	1760	1606	11667	16337	1750	1466	10601	14638	1740
	-15	1901	14220	20695	1740	1690	12553	17866	1730	1620	12004	16974	1720	1480	10915	15214	1710
	-10	1876	15436	22930	1720	1666	13593	19735	1700	1596	12986	18727	1700	1456	11785	16745	1690
	-5	1843	17116	25972	1700	1633	15021	22290	1680	1563	14332	21095	1680	1423	12969	18803	1660
	0	1808	19363	29997	1690	1598	16922	25604	1670	1528	16122	24218	1660	1388	14540	21489	1650
	5	1815	22242	34697	1680	1605	19413	29585	1660	1535	18487	27948	1650	1395	16662	24786	1630
	10	1831	26239	41046	1680	1621	22872	34966	1650	1551	21774	33025	1650	1411	19614	29281	1630
1 3 5 0 0	-54	1763	13188	18248	2040	1553	11535	15656	2030	1483	10990	14806	2020	1343	9908	13197	2010
	-40	1814	13136	18454	1920	1604	11535	15886	1900	1534	11006	15068	1900	1394	9958	13451	1890
	-35	1833	13080	18454	1880	1623	11503	15909	1860	1553	10982	15098	1860	1413	9949	13494	1850
	-30	1853	13019	18440	1840	1643	11462	15916	1820	1573	10953	15116	1820	1433	9936	13528	1810
	-25	1873	12974	18487	1800	1663	11441	15979	1790	1593	10936	15180	1780	1453	9933	13599	1770
	-20	1893	13011	18701	1760	1683	11489	16178	1750	1613	10987	15375	1750	1473	9990	13786	1740
	-15	1907	13365	19437	1730	1697	11810	16822	1720	1627	11297	15964	1720	1487	10280	14344	1710
	-10	1881	14449	21481	1710	1671	12736	18529	1690	1601	12172	17565	1690	1461	11053	15716	1680
	-5	1847	15934	24230	1690	1637	13998	20816	1670	1567	13362	19705	1670	1427	12100	17576	1660
	0	1811	17895	27832	1670	1601	15658	23779	1660	1531	14924	22500	1650	1391	13472	20001	1640
	5	1786	20404	32277	1660	1576	17789	27476	1640	1506	16932	25938	1640	1366	15241	22990	1620
	10	1802	23859	37897	1660	1592	20782	32240	1640	1522	19776	30433	1630	1382	17796	26946	1610
1 2 5 0 0	-54	1781	11677	16133	2030	1571	10236	13880	2010	1501	9761	13136	2010	1361	8817	11737	2000
	-40	1832	11633	16310	1900	1622	10238	14079	1890	1552	9777	13368	1890	1412	8862	11957	1880
	-35	1851	11587	16314	1860	1641	10212	14101	1850	1571	9758	13397	1850	1431	8856	11998	1840
	-30	1872	11538	16305	1820	1662	10183	14114	1810	1592	9736	13416	1810	1452	8847	12029	1800
	-25	1892	11502	16348	1790	1682	10166	14167	1770	1612	9724	13473	1770	1472	8847	12094	1760
	-20	1913	11537	16533	1750	1702	10210	14341	1740	1632	9771	13643	1740	1492	8900	12257	1730
	-15	1927	11841	17169	1720	1717	10486	14900	1710	1647	10039	14150	1700	1507	9151	12744	1700
	-10	1897	12707	18886	1690	1687	11225	16304	1680	1617	10736	15492	1680	1477	9762	13882	1670
	-5	1859	13866	21161	1670	1649	12206	18192	1660	1579	11659	17256	1650	1438	10575	15415	1640
	0	1820	15378	24051	1650	1610	13487	20587	1640	1540	12864	19496	1630	1400	11632	17355	1620
	5	1783	17265	27653	1640	1573	15075	23563	1620	1503	14357	22252	1620	1363	12937	19738	1600
	10	1742	19834	32482	1630	1532	17235	27546	1610	1462	16384	25968	1600	1322	14703	22943	1590
1 1 5 0 0	-54	1800	10349	14265	2010	1590	9093	12356	2000	1520	8677	11841	2000	1380	7852	10698	1990
	-40	1852	10312	14415	1890	1642	9095	12477	1880	1572	8692	11944	1880	1432	7892	10821	1870
	-35	1872	10275	14420	1850	1662	9075	12499	1840	1592	8678	11966	1840	1452	7890	10853	1830
	-30	1893	10234	14415	1810	1683	9052	12511	1800	1613	8661	11985	1800	1473	7884	10882	1790
	-25	1913	10206	14453	1770	1703	9039	12559	1760	1633	8654	12010	1760	1493	7886	10916	1750
	-20	1934	10240	14614	1740	1723	9081	12711	1730	1653	8698	12106	1730	1513	7936	11119	1720
	-15	1949	10504	15169	1710	1739	9322	13200	1700	1669	8932	12575	1690	1529	8155	11342	1690
	-10	1917	11207	16585	1680	1707	9921	14377	1670	1637	9497	13676	1670	1497	8653	12283	1660
	-5	1877	12124	18471	1660	1667	10697	15941	1650	1597	10226	15137	1640	1457	9292	13548	1630
	0	1832	13290	20844	1640	1622	11681	17902	1620	1552	11150	16968	1620	1412	10098	15129	1610
	5	1791	14721	23744	1620	1581	12886	20273	1600	1511	12282	19181	1600	1371	11085	17039	1590
	10	1748	16626	27511	1600	1538	14488	23403	1590	1468	13783	22074	1580	1328	12392	19533	1570

56FMC-00-00

Figure 4-35 (Sheet 12)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 6000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1793	20377	27790	2100	1583	17792	23792	2070	1513	16944	22503	2070	1373	15270	20021	2050
	-40	1843	20270	28057	1970	1633	17765	24106	1950	1563	16946	22856	1940	1423	15323	20401	1930
	-35	1860	20173	28092	1930	1650	17705	24165	1910	1580	16895	22920	1900	1440	15294	20479	1880
	-30	1877	20099	28258	1890	1667	17660	24348	1870	1597	16860	23079	1860	1457	15275	20632	1840
	-25	1894	20432	29205	1850	1684	17962	25136	1830	1614	17153	23825	1820	1474	15554	21306	1810
	-20	1911	21187	30525	1820	1701	18637	26282	1800	1631	17802	24916	1790	1491	16152	22293	1780
	-15	1929	22757	32868	1800	1719	20027	28317	1780	1649	19133	26853	1770	1509	17369	24041	1750
	-10	1948	25766	37298	1790	1738	22662	32100	1770	1668	21641	30433	1760	1528	19652	27256	1740
	-5	1966	30019	43450	1790	1756	26369	37366	1760	1686	25181	35429	1750	1546	22846	31714	1730
	0	1983	36120	52279	1810	1773	31648	44847	1770	1703	30200	42501	1760	1563	27363	37979	1740
	5	2001	45138	65218	1850	1791	39377	55732	1800	1721	37525	52727	1790	1581	33916	46999	1760
	10	2018	60548	87009	1940	1808	52370	73780	1870	1738	49774	69619	1850	1598	44765	61786	1810
1 6 5 0 0	-54	1778	19504	26778	2090	1568	17017	22900	2070	1498	16201	21671	2060	1358	14589	19262	2040
	-40	1827	19403	27047	1960	1617	16995	23236	1940	1547	16204	21998	1930	1407	14641	19616	1920
	-35	1844	19311	27109	1920	1634	16936	23295	1900	1564	16157	22064	1890	1424	14615	19694	1880
	-30	1861	19238	27268	1880	1651	16893	23449	1860	1581	16123	22239	1850	1441	14600	19867	1840
	-25	1878	19541	28140	1850	1668	17168	24194	1820	1598	16390	22923	1820	1458	14852	20480	1800
	-20	1895	20243	29387	1810	1685	17796	25278	1790	1615	16994	23955	1790	1475	15409	21413	1770
	-15	1913	21694	31583	1790	1703	19080	27185	1770	1633	18224	25770	1760	1493	16535	23052	1750
	-10	1931	24467	35691	1780	1721	21512	30717	1760	1651	20546	29120	1750	1511	18642	26054	1730
	-5	1949	28356	41421	1780	1739	24904	35599	1750	1669	23779	33744	1740	1529	21566	30158	1720
	0	1966	33863	49473	1790	1756	29676	42457	1760	1686	28318	40196	1750	1546	25655	35901	1720
	5	1984	41844	61074	1820	1774	36534	52196	1780	1704	34822	49417	1770	1564	31481	44040	1740
	10	2001	55051	80023	1890	1791	47724	67940	1840	1721	45388	64171	1820	1581	40865	56977	1780
1 6 0 0 0	-54	1773	18232	25154	2080	1563	15913	21534	2060	1493	15152	20358	2050	1353	13646	18095	2030
	-40	1824	18137	25418	1950	1614	15894	21822	1930	1544	15157	20683	1920	1404	13699	18446	1910
	-35	1843	18052	25444	1910	1633	15842	21872	1890	1563	15116	20740	1880	1423	13679	18518	1870
	-30	1861	17984	25580	1870	1651	15803	22008	1850	1581	15086	20877	1840	1441	13668	18656	1830
	-25	1882	18251	26358	1830	1671	16050	22679	1810	1601	15327	21515	1810	1461	13897	19233	1800
	-20	1894	18880	27519	1800	1684	16611	23684	1780	1614	15866	22447	1780	1474	14394	20073	1760
	-15	1887	20187	29763	1800	1677	17739	25580	1760	1607	16936	24234	1750	1467	15351	21649	1740
	-10	1905	22646	33476	1770	1695	19896	28774	1740	1625	18996	27263	1730	1485	17220	24362	1720
	-5	1923	26053	38573	1760	1713	22871	33112	1730	1643	21832	31400	1730	1503	19787	28033	1710
	0	1940	30794	45625	1770	1730	26988	39123	1740	1660	25750	37056	1730	1520	23319	33068	1710
	5	1958	37487	55559	1790	1748	32757	47509	1750	1678	31227	44937	1740	1537	28234	40059	1710
	10	1975	48112	71116	1840	1765	41182	60483	1790	1695	39792	57182	1770	1555	35867	50784	1740
1 5 5 0 0	-54	1776	17057	23583	2070	1566	14903	20206	2050	1496	14194	19129	2040	1356	12792	17014	2020
	-40	1829	16972	23838	1940	1619	14887	20481	1920	1549	14201	19417	1910	1408	12844	17327	1900
	-35	1846	16895	23866	1900	1636	14841	20530	1880	1566	14165	19474	1870	1426	12827	17397	1860
	-30	1865	16834	23994	1860	1655	14806	20682	1840	1585	14139	19603	1830	1445	12817	17526	1820
	-25	1883	17073	24704	1820	1673	15029	21273	1810	1603	14357	20188	1800	1463	13026	18058	1790
	-20	1897	17637	25760	1790	1687	15533	22189	1770	1617	14842	21037	1770	1477	13474	18824	1760
	-15	1883	18792	27850	1770	1673	16523	23944	1750	1603	15778	22686	1740	1463	14306	20269	1730
	-10	1878	20983	31405	1750	1668	18419	26953	1730	1598	17579	25546	1720	1458	15919	22798	1710
	-5	1896	23980	35981	1740	1686	21038	30874	1720	1616	20076	29236	1710	1476	18180	26094	1700
	0	1914	28087	42223	1740	1704	24609	36171	1720	1634	23476	34245	1710	1494	21249	30529	1690
	5	1931	33752	50770	1760	1721	29504	43424	1720	1651	28127	41095	1710	1511	25426	36576	1690
	10	1948	42438	63807	1790	1738	36947	54335	1750	1668	35171	51327	1740	1528	31718	45609	1710
1 5 0 0 0	-54	1780	15981	22154	2060	1570	13975	18977	2040	1500	13315	17972	2030	1360	12008	15994	2020
	-40	1832	15903	22376	1930	1622	13962	19261	1910	1552	13323	18245	1910	1412	12058	16290	1890
	-35	1850	15834	22405	1890	1640	13921	19310	1870	1570	13291	18300	1870	1430	12044	16358	1850
	-30	1869	15779	22525	1850	1659	13891	19431	1830	1589	13269	18445	1830	1449	12037	16503	1820
	-25	1887	15994	23175	1810	1677	14092	19997	1800	1607	13467	18961	1790	1467	12227	16970	1780
	-20	1901	16502	24140	1780	1691	14548	20811	1770	1621	13905	19760	1760	1481	12632	17694	1750
	-15	1887	17523	26032	1760	1677	15423	22400	1740	1607	14733	21229	1730	1467	13368	18980	1720
	-10	1858	19457	29444	1740	1648	17070	25244	1720	1578	16287	23918	1710	1438	14740	21325	1700
	-5	1869	22105	33637	1730	1659	19377	28797	1710	1589	18484	27278	1700	1449	16722	24290	1680
	0	1886	25680	39164	1730	1676	22489	33510	1700	1606	21447	31711	1690	1466	19396	28260	1670
	5	1903	30514	46601	1730	1693	26674	39826	1700	1623	25426	37675	1690	1483	22975	33529	1670
	10	1921	37709	57623	1760	1711	32855	49093	1720	1641	31287	46409	1710	1501	28219	41219	1680

56FMC-00-00

Figure 4-35 (Sheet 13)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 6000 FEET ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1784	14989	20804	2050	1574	13120	17858	2030	1504	12504	16895	2020	1364	11285	15067	2010
	-40	1834	14918	21016	1920	1624	13109	18105	1900	1554	12513	17177	1900	1415	11332	15347	1890
	-35	1855	14856	21046	1880	1645	13073	18154	1860	1575	12485	17231	1860	1435	11320	15412	1850
	-30	1873	14807	21184	1840	1663	13046	18268	1820	1593	12466	17346	1820	1453	11316	15529	1810
	-25	1892	15002	21756	1800	1682	13230	18789	1790	1612	12646	17820	1780	1472	11490	15983	1770
	-20	1906	15460	22639	1770	1696	13642	19534	1760	1626	13044	18554	1750	1486	11859	16625	1740
	-15	1891	16366	24359	1750	1681	14420	20979	1730	1611	13780	19911	1720	1471	12512	17815	1710
	-10	1862	18066	27427	1730	1652	15868	23537	1710	1582	15146	22308	1700	1442	13718	19903	1690
	-5	1841	20400	31453	1710	1631	17864	26909	1690	1561	17033	25450	1690	1421	15391	22651	1670
	0	1858	23527	36392	1710	1648	20588	31123	1680	1578	19627	29436	1680	1438	17733	26175	1660
1 4 5 0 0	5	1875	27678	42934	1710	1665	24188	36656	1680	1595	23051	34661	1670	1455	20814	30813	1660
	10	1892	33702	52345	1730	1682	29377	44608	1690	1612	27974	42158	1680	1472	25227	37415	1660
	-54	1791	14073	19546	2040	1581	12329	16793	2020	1511	11754	15914	2010	1370	10615	14182	2000
	-40	1841	14008	19772	1910	1631	12320	17051	1900	1561	11764	16159	1890	1421	10660	14446	1880
	-35	1859	13952	19803	1870	1649	12287	17098	1860	1579	11739	16211	1850	1439	10650	14509	1840
	-30	1878	13907	19909	1830	1668	12264	17205	1820	1598	11722	16319	1810	1458	10647	14642	1800
	-25	1897	14084	20460	1800	1687	12432	17663	1780	1617	11887	16780	1780	1477	10807	15039	1770
	-20	1911	14500	21244	1760	1701	12807	18371	1750	1631	12250	17431	1740	1491	11144	15653	1740
	-15	1896	15308	22812	1740	1686	13500	19663	1720	1616	12905	18669	1720	1476	11726	16714	1710
	-10	1866	16808	25582	1720	1656	14778	21998	1700	1586	14111	20833	1690	1446	12790	18600	1680
1 3 5 0 0	-5	1833	18845	29293	1700	1623	16507	25059	1680	1553	15739	23698	1680	1413	14223	21088	1660
	0	1830	21588	33865	1690	1620	18873	28918	1670	1550	17984	27333	1660	1410	16231	24294	1650
	5	1847	25174	39654	1690	1637	21986	33813	1660	1567	20946	31957	1660	1427	18897	28399	1640
	10	1863	30263	47784	1700	1653	26378	40689	1670	1583	25116	38439	1660	1443	22637	34109	1640
	-54	1795	13222	18391	2030	1585	11595	15818	2010	1514	11058	14973	2010	1374	9993	13376	2000
	-40	1847	13164	18582	1900	1637	11588	16039	1890	1567	11069	15228	1880	1427	10037	13625	1870
	-35	1866	13113	18611	1860	1656	11560	16084	1850	1586	11047	15278	1840	1446	10030	13684	1840
	-30	1884	13073	18710	1820	1674	11539	16185	1810	1604	11033	15380	1810	1464	10028	13788	1800
	-25	1904	13236	19218	1790	1694	11694	16632	1780	1624	11186	15783	1770	1484	10177	14180	1760
	-20	1918	13614	19939	1760	1708	12037	17260	1740	1638	11516	16407	1740	1498	10484	14723	1730
1 2 5 0 0	-15	1900	14334	21376	1730	1690	12654	18467	1710	1620	12100	17515	1710	1480	11002	15691	1700
	-10	1871	15662	23885	1710	1661	13785	20558	1690	1591	13168	19475	1690	1451	11944	17399	1680
	-5	1836	17444	27214	1690	1626	15297	23302	1670	1556	14592	22043	1670	1416	13197	19629	1650
	0	1801	19833	31574	1680	1590	17318	26919	1660	1520	16494	25426	1650	1380	14866	22565	1640
	5	1817	22946	36694	1670	1607	20023	31246	1650	1537	19067	29538	1640	1397	17183	26190	1630
	10	1834	27277	43798	1680	1624	23766	37256	1650	1554	22623	35181	1640	1414	20374	31182	1620
	-54	1813	11705	16255	2010	1603	10288	14018	2000	1533	9819	13280	1990	1393	8890	11892	1980
	-40	1866	11657	16423	1890	1656	10284	14212	1880	1586	9831	13508	1870	1446	8930	12109	1860
	-35	1885	11615	16450	1850	1675	10261	14253	1840	1605	9814	13553	1830	1465	8926	12163	1820
	-30	1904	11583	16538	1810	1694	10246	14342	1800	1624	9804	13644	1800	1484	8927	12255	1790
1 5 0 0	-25	1923	11723	16973	1780	1713	10380	14728	1760	1643	9937	13987	1760	1503	9056	12596	1750
	-20	1938	12040	17582	1740	1728	10669	15261	1730	1658	10216	14523	1730	1517	9317	13058	1720
	-15	1918	12615	18800	1710	1708	11160	16281	1700	1638	10680	15453	1700	1498	9727	13869	1690
	-10	1882	13653	20886	1690	1672	12042	17988	1680	1602	11510	17076	1670	1462	10456	15278	1660
	-5	1845	15031	23568	1670	1635	13211	20218	1650	1565	12611	19161	1650	1425	11423	17089	1640
	0	1808	16833	27016	1650	1598	14735	23100	1640	1528	14045	21833	1630	1388	12681	19404	1620
	5	1770	19153	31439	1640	1559	16688	26731	1620	1489	15882	25249	1620	1349	14287	22359	1600
	10	1773	22345	37041	1640	1563	19435	31446	1610	1493	18484	29659	1610	1353	16608	26238	1590
	-54	1832	10374	14368	2000	1622	9137	12461	1990	1552	8729	11953	1980	1412	7916	10819	1970
	-40	1886	10334	14514	1880	1676	9136	12594	1870	1606	8740	12055	1860	1466	7953	10942	1860
1 5 0 0	-35	1906	10299	14539	1840	1696	9118	12631	1830	1626	8727	12075	1820	1486	7951	10972	1820
	-30	1925	10274	14616	1800	1715	9107	12710	1790	1645	8721	12104	1790	1505	7954	11133	1780
	-25	1945	10396	14993	1760	1735	9225	13046	1750	1665	8838	12398	1750	1525	8068	11259	1740
	-20	1959	10669	15514	1730	1749	9471	13501	1720	1679	9077	12862	1720	1539	8292	11588	1710
	-15	1938	11131	16512	1700	1728	9868	14336	1690	1658	9451	13644	1690	1518	8623	12269	1680
	-10	1900	11957	18248	1680	1690	10569	15779	1660	1620	10111	14994	1660	1480	9202	13442	1650
	-5	1858	13022	20460	1650	1648	11469	17610	1640	1578	10957	16705	1640	1438	9941	14922	1630
	0	1816	14396	23248	1630	1606	12630	19918	1620	1536	12048	18861	1610	1396	10895	16787	1610
	5	1776	16127	26744	1620	1566	14088	22784	1600	1496	13418	21536	1600	1356	12091	19099	1590
	10	1734	18449	31375	1610	1524	16036	26599	1590	1454	15244	25072	1580	1314	13680	22147	1570

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Figure 4-35 (Sheet 14)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 7000 FEET ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1824	20503	28291	2090	1614	17940	24289	2060	1544	17100	22990	2050	1404	15440	20490	2040
	-40	1874	20320	28576	1960	1664	17846	24587	1940	1594	17035	23300	1930	1454	15431	20825	1910
	-35	1892	20361	28910	1920	1682	17901	24891	1890	1612	17094	23618	1890	1472	15501	21126	1870
	-30	1909	20912	30023	1880	1699	18398	25856	1860	1629	17574	24539	1850	1489	15947	21936	1840
	-25	1927	22026	31818	1850	1717	19388	27415	1830	1647	18524	26023	1820	1507	16819	23276	1810
	-20	1945	23248	33743	1830	1735	20472	29062	1800	1665	19564	27593	1800	1525	17773	24695	1780
	-15	1963	25244	36647	1810	1753	22237	31615	1780	1683	21254	29998	1780	1543	19317	26866	1760
	-10	1982	29018	42133	1810	1772	25538	36332	1780	1702	24403	34472	1770	1562	22172	30874	1750
	-5	2000	34424	49917	1820	1790	30240	42967	1780	1720	28881	40756	1770	1580	26217	36489	1750
	0	2018	42322	61177	1850	1808	37052	52503	1800	1738	35350	49769	1790	1598	32028	44471	1760
1 6 5 0 0	5	2036	55004	78969	1910	1826	47860	67405	1860	1756	45577	63769	1840	1616	41147	56809	1800
	10	2053	78736	111521	2060	1843	67653	94128	1980	1773	64175	88757	1950	1633	57513	78573	1900
	-54	1808	19626	27291	2080	1598	17160	23384	2050	1528	16352	22124	2040	1388	14753	19698	2030
	-40	1858	19452	27551	1950	1648	17072	23679	1930	1578	16291	22453	1920	1438	14747	20050	1910
	-35	1875	19484	27893	1910	1665	17119	23991	1890	1595	16343	22733	1880	1455	14809	20315	1870
	-30	1893	19991	28917	1870	1683	17578	24904	1850	1613	16786	23603	1850	1473	15222	21102	1830
	-25	1910	21027	30611	1850	1700	18498	26375	1820	1630	17669	25002	1820	1490	16033	22367	1800
	-20	1928	22160	32422	1820	1718	19504	27926	1800	1648	18635	26480	1790	1508	16919	23679	1770
	-15	1947	23994	35131	1800	1737	21127	30281	1770	1667	20190	28723	1770	1527	18340	25729	1750
	-10	1965	27453	40227	1790	1755	24155	34634	1770	1685	23079	32880	1760	1545	20960	29428	1740
1 6 0 0 0	-5	1983	32351	47349	1800	1773	28420	40735	1770	1703	27142	38630	1760	1563	24633	34565	1740
	0	2001	39392	57552	1820	1791	34505	49384	1780	1721	32924	46808	1770	1581	29833	41810	1750
	5	2018	50411	73219	1880	1808	43928	62572	1830	1738	41849	59203	1810	1598	37807	52744	1780
	10	2036	70113	100683	2000	1826	60475	85228	1920	1756	57430	80465	1900	1616	51572	71353	1850
	-54	1796	18350	25706	2070	1585	16042	22012	2040	1515	15284	20842	2030	1375	13789	18552	2020
	-40	1849	18186	25923	1940	1639	15962	22297	1920	1569	15232	21118	1910	1429	13786	18852	1900
	-35	1868	18209	26219	1900	1658	16002	22550	1880	1588	15278	21366	1870	1448	13844	19090	1860
	-30	1886	18661	27154	1860	1676	16413	23386	1840	1606	15674	22163	1840	1466	14215	19813	1820
	-25	1894	19595	28789	1830	1684	17233	24764	1810	1614	16459	23492	1800	1474	14928	21001	1790
	-20	1902	20618	30523	1800	1692	18131	26251	1780	1622	17316	24901	1780	1482	15707	22237	1760
1 5 5 0 0	-15	1920	22238	32995	1780	1710	19565	28376	1760	1640	18690	26925	1750	1500	16963	24065	1740
	-10	1939	25277	37538	1770	1728	22229	32308	1750	1658	21233	30629	1740	1518	19270	27407	1720
	-5	1957	29516	43838	1780	1747	25925	37679	1750	1677	24759	35721	1740	1536	22456	31927	1720
	0	1974	35477	52618	1790	1764	31089	45161	1760	1694	29667	42794	1740	1554	26878	38197	1720
	5	1992	44494	65763	1830	1782	38834	56217	1790	1712	37011	53189	1770	1572	33455	47410	1740
	10	2009	59725	87505	1920	1799	51729	74322	1850	1729	49184	70209	1830	1589	44260	62354	1800
	-54	1799	17156	24090	2050	1589	15016	20647	2030	1519	14308	19552	2020	1379	12913	17410	2010
	-40	1852	17008	24298	1930	1642	14942	20916	1910	1572	14263	19815	1900	1432	12919	17699	1890
	-35	1872	17029	24573	1890	1662	14980	21151	1870	1592	14307	20069	1860	1452	12973	17943	1850
	-30	1889	17435	25425	1850	1679	15350	21917	1830	1609	14665	20776	1830	1469	13309	18585	1810
1 5 0 0 0	-25	1898	18268	26907	1820	1688	16083	23190	1800	1618	15366	21983	1800	1478	13948	19665	1780
	-20	1894	19179	28584	1790	1684	16871	24583	1770	1614	16114	23319	1770	1474	14618	20844	1750
	-15	1894	20628	30989	1770	1683	18132	26634	1750	1613	17314	25258	1740	1473	15698	22544	1730
	-10	1912	23306	35105	1760	1702	20481	30148	1730	1632	19556	28591	1730	1492	17733	25528	1710
	-5	1930	26995	40680	1760	1720	23701	34926	1730	1650	22627	33092	1720	1509	20511	29574	1700
	0	1947	32080	48320	1760	1737	28116	41440	1730	1667	26827	39253	1720	1527	24297	35034	1700
	5	1964	39552	59441	1790	1754	34554	50839	1750	1684	32938	48128	1740	1544	29780	42879	1710
	10	1981	51602	77083	1850	1771	44819	65628	1800	1701	42646	62011	1780	1561	38426	55088	1750
	-54	1802	16063	22596	2040	1592	14069	19401	2020	1522	13413	18359	2020	1382	12114	16357	2000
	-40	1856	15928	22819	1920	1646	14007	19638	1900	1576	13374	18632	1890	1436	12122	16653	1880
1 5 0 0 0	-35	1876	15948	23052	1880	1666	14043	19857	1860	1596	13415	18847	1850	1456	12173	16861	1840
	-30	1893	16316	23830	1840	1683	14378	20561	1820	1613	13741	19495	1820	1473	12479	17450	1810
	-25	1902	17060	25178	1810	1692	15036	21721	1790	1622	14371	20596	1790	1482	13053	18435	1770
	-20	1898	17863	26692	1780	1688	15728	22973	1760	1618	15031	21803	1760	1478	13645	19502	1740
	-15	1880	19144	29020	1760	1670	16826	24930	1740	1600	16066	23637	1730	1460	14562	21086	1720
	-10	1884	21516	32841	1740	1674	18890	28186	1720	1604	18030	26691	1710	1464	16332	23821	1700
	-5	1902	24741	37823	1740	1692	21709	32458	1710	1622	20711	30730	1700	1482	18765	27412	1690
	0	1919	29108	44544	1740	1709	25505	38165	1710	1639	24332	36135	1700	1499	22025	32218	1680
	5	1937	35364	54080	1760	1727	30910	46232	1720	1657	29467	43755	1710	1517	26638	38953	1690
	10	1953	45075	68679	1800	1743	39221	58499	1760	1673	37337	55276	1740	1533	33666	49132	1710

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Figure 4-35 (Sheet 15)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° AND TAKEOFF CLIMB INCREMENT (TCI) 7000 FEET ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1807	15057	21209	2030	1597	13200	18225	2010	1527	12588	17274	2010	1386	11377	15400	1990
	-40	1862	14935	21424	1910	1652	13145	18451	1890	1582	12556	17511	1890	1442	11387	15661	1870
	-35	1880	14954	21640	1870	1670	13179	18679	1850	1600	12594	17712	1850	1460	11435	15855	1830
	-30	1897	15288	22379	1830	1687	13485	19303	1820	1617	12891	18332	1810	1477	11715	16420	1800
	-25	1906	15957	23583	1800	1696	14077	20363	1780	1626	13459	19314	1780	1486	12234	17299	1770
	-20	1902	16667	24955	1770	1692	14693	21525	1750	1622	14044	20409	1750	1482	12758	18267	1740
	-15	1883	17791	27055	1750	1673	15655	23262	1730	1603	14953	22064	1720	1463	13564	19716	1710
	-10	1856	19883	30777	1730	1646	17438	26373	1710	1576	16636	24959	1700	1436	15052	22243	1690
	-5	1874	22714	35221	1720	1664	19913	30181	1700	1594	18997	28564	1690	1454	17189	25463	1680
	0	1891	26486	41168	1720	1681	23195	35229	1690	1611	22124	33341	1680	1471	20010	29691	1670
	5	1908	31772	49377	1730	1698	27772	42207	1700	1628	26473	39931	1690	1488	23922	35544	1670
	10	1925	39715	61652	1760	1715	34594	52507	1720	1645	32940	49642	1710	1505	29707	44102	1680
1 4 0 0 0	-54	1811	14126	19940	2020	1601	12396	17153	2010	1531	11826	16241	2000	1391	10695	14488	1990
	-40	1865	14017	20122	1900	1655	12348	17367	1880	1585	11798	16466	1880	1445	10707	14757	1870
	-35	1885	14036	20324	1860	1675	12380	17558	1840	1605	11835	16677	1840	1465	10753	14939	1830
	-30	1902	14340	21005	1820	1692	12660	18158	1810	1622	12107	17226	1800	1482	11010	15440	1790
	-25	1911	14944	22131	1790	1701	13196	19104	1780	1631	12620	18149	1770	1491	11479	16268	1760
	-20	1907	15574	23352	1760	1697	13743	20162	1750	1627	13140	19121	1740	1487	11946	17126	1730
	-15	1888	16565	25253	1740	1678	14591	21731	1720	1608	13942	20619	1710	1468	12656	18437	1700
	-10	1857	18392	28613	1720	1647	16146	24536	1700	1577	15409	23225	1690	1437	13950	20707	1680
	-5	1845	20881	32864	1710	1635	18287	28119	1680	1565	17438	26596	1680	1425	15760	23674	1660
	0	1862	24156	38127	1700	1652	21140	32583	1680	1582	20155	30818	1670	1442	18212	27433	1650
	5	1879	28656	45303	1710	1669	25042	38686	1680	1599	23864	36583	1670	1459	21550	32528	1650
	10	1896	35232	55709	1730	1686	30704	47456	1690	1616	29237	44854	1680	1476	26364	39819	1660
1 3 5 0 0	-54	1816	13266	18734	2010	1606	11651	16129	2000	1536	11118	15298	1990	1396	10061	13657	1980
	-40	1871	13166	18904	1890	1661	11608	16330	1880	1591	11095	15510	1870	1451	10075	13890	1860
	-35	1891	13185	19117	1850	1681	11640	16533	1840	1611	11131	15686	1830	1471	10120	14060	1820
	-30	1908	13463	19721	1820	1698	11897	17064	1800	1628	11381	16218	1800	1488	10356	14547	1790
	-25	1915	14009	20755	1780	1705	12382	17957	1770	1635	11844	17039	1760	1495	10782	15285	1750
	-20	1912	14571	21866	1750	1702	12870	18896	1740	1632	12310	17951	1730	1492	11199	16090	1720
	-15	1892	15448	23592	1730	1682	13620	20344	1710	1612	13019	19286	1710	1472	11827	17256	1690
	-10	1861	17046	26586	1710	1651	14985	22844	1690	1581	14306	21629	1680	1441	12962	19297	1670
	-5	1823	19215	30579	1690	1613	16820	26139	1670	1544	16035	24737	1670	1404	14482	22001	1650
	0	1832	22071	35367	1680	1622	19297	30205	1660	1552	18389	28551	1650	1412	16597	25355	1640
	5	1849	25926	41649	1680	1639	22643	35548	1660	1569	21571	33598	1650	1429	19462	29837	1630
	10	1866	31425	50578	1700	1656	27388	43079	1680	1586	26077	40702	1650	1446	23502	36125	1630
1 2 5 0 0	-54	1835	11730	16541	2000	1625	10325	14277	1980	1555	9861	13556	1980	1415	8941	12128	1970
	-40	1890	11649	16690	1880	1680	10293	14455	1860	1610	9846	13744	1860	1470	8956	12332	1850
	-35	1910	11668	16881	1840	1700	10324	14638	1820	1630	9880	13898	1820	1490	8998	12507	1810
	-30	1928	11906	17395	1800	1718	10545	15091	1790	1648	10095	14359	1780	1508	9202	12905	1780
	-25	1935	12355	18243	1770	1725	10945	15823	1760	1655	10479	15053	1750	1515	9555	13528	1740
	-20	1929	12799	19201	1740	1719	11330	16634	1720	1648	10845	15791	1720	1508	9882	14203	1710
	-15	1905	13485	20622	1710	1695	11913	17818	1700	1625	11395	16927	1690	1485	10367	15168	1680
	-10	1871	14729	23099	1690	1661	12972	19860	1670	1591	12394	18839	1670	1451	11246	16833	1660
	-5	1834	16370	26268	1670	1624	14365	22495	1650	1554	13705	21305	1650	1414	12399	18975	1640
	0	1796	18503	30354	1650	1586	16168	25886	1640	1516	15406	24457	1630	1376	13886	21705	1620
	5	1788	21369	35466	1650	1578	18624	30178	1630	1508	17726	28487	1620	1367	15954	25246	1600
	10	1804	25308	42217	1650	1594	22032	35872	1620	1524	20963	33857	1620	1384	18859	30000	1600
1 1 5 0 0	-54	1856	10387	14607	1990	1646	9163	12642	1970	1576	8758	12017	1970	1436	7953	10886	1960
	-40	1910	10320	14737	1860	1700	9138	12798	1850	1630	8745	12179	1850	1490	7971	11122	1840
	-35	1929	10340	14878	1820	1719	9168	12963	1810	1649	8781	12316	1810	1509	8010	11189	1800
	-30	1949	10546	15348	1790	1739	9360	13352	1780	1669	8968	12718	1770	1529	8188	11454	1770
	-25	1956	10920	16065	1760	1746	9695	13972	1740	1676	9290	13307	1740	1536	8485	11982	1730
	-20	1948	11275	16870	1720	1738	10003	14655	1710	1668	9582	13922	1710	1528	8747	12551	1700
	-15	1924	11821	18056	1690	1713	10467	15642	1680	1643	10020	14874	1680	1503	9132	13354	1670
	-10	1885	12789	20083	1670	1675	11288	17327	1660	1605	10793	16424	1650	1465	9809	14723	1650
	-5	1842	14044	22664	1650	1632	12348	19467	1640	1562	11790	18426	1630	1422	10682	16432	1620
	0	1804	15646	25916	1630	1593	13703	22141	1620	1523	13064	20927	1610	1383	11798	18600	1600
	5	1763	17741	30085	1620	1553	15467	25612	1600	1483	14720	24170	1600	1343	13244	21407	1580
	10	1736	20603	35612	1610	1526	17889	30181	1590	1456	17001	28446	1580	1316	15247	25123	1570

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Figure 4-35 (Sheet 16)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 8000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1854	20634	28788	2070	1644	18094	24731	2050	1574	17262	23424	2040	1434	15617	20909	2020
	-40	1906	20812	29812	1950	1696	18307	25674	1930	1626	17487	24341	1920	1486	15866	21779	1900
	-35	1924	21479	31042	1910	1714	18909	26747	1890	1644	18066	25364	1880	1504	16404	22709	1870
	-30	1943	22722	32959	1890	1733	20010	28413	1860	1663	19124	26953	1850	1523	17375	24148	1840
	-25	1961	24170	35210	1860	1751	21297	30347	1830	1681	20357	28793	1830	1541	18505	25811	1810
	-20	1980	25602	37430	1830	1769	22566	32302	1810	1699	21574	30655	1800	1559	19620	27468	1780
	-15	1998	28067	41017	1820	1788	24740	35389	1790	1718	23655	33593	1780	1578	21519	30147	1760
	-10	2019	32635	47651	1820	1809	28730	41088	1790	1738	27460	38999	1780	1598	24966	34963	1760
	-5	2035	39310	57230	1840	1825	34518	49238	1800	1755	32968	46715	1790	1615	29933	41817	1770
	0	2053	49698	71972	1890	1843	43437	61646	1840	1773	41426	58431	1830	1633	37526	52193	1800
	5	2071	67242	96296	1990	1861	58266	81900	1920	1791	55420	77436	1900	1651	49932	68877	1860
	10	2089	105477	149797	2250	1879	89247	123920	2130	1809	84307	116159	2090	1669	75024	101863	2020
1 6 5 0 0	-54	1838	19747	27743	2060	1628	17305	23808	2040	1558	16504	22562	2030	1418	14921	20122	2020
	-40	1889	19906	28727	1940	1679	17500	24714	1920	1609	16711	23445	1910	1469	15152	20960	1900
	-35	1907	20521	29884	1900	1697	18054	25725	1880	1627	17246	24410	1870	1487	15649	21813	1860
	-30	1926	21668	31682	1880	1716	19076	27292	1850	1646	18227	25880	1840	1506	16550	23167	1830
	-25	1944	23014	33803	1850	1734	20269	29109	1830	1664	19371	27635	1820	1524	17599	24730	1800
	-20	1962	24336	35882	1820	1752	21441	30941	1800	1682	20495	29354	1790	1542	18630	26282	1770
	-15	1981	26587	39209	1810	1771	23429	33804	1780	1701	22398	32079	1770	1561	20363	28764	1750
	-10	2001	30741	45295	1810	1791	27061	39033	1780	1721	25863	37039	1770	1581	23508	33185	1750
	-5	2018	36726	54021	1820	1808	32259	46463	1790	1738	30812	44075	1770	1598	27975	39435	1750
	0	2036	45855	67121	1860	1826	40119	57541	1820	1756	38272	54541	1800	1616	34670	48735	1770
	5	2054	60744	88110	1940	1844	52780	75094	1880	1774	50226	71011	1860	1634	45310	63237	1820
	10	2071	90774	130227	2140	1861	77516	108774	2040	1791	73414	102282	2010	1651	65620	90264	1950
1 6 0 0 0	-54	1830	18453	26075	2050	1620	16174	22396	2030	1550	15426	21202	2020	1410	13946	18906	2010
	-40	1885	18585	26952	1930	1675	16347	23193	1910	1605	15612	22004	1900	1465	14159	19673	1890
	-35	1901	19134	28023	1890	1691	16842	24126	1870	1621	16090	22895	1860	1481	14603	20458	1850
	-30	1900	20183	29881	1860	1690	17752	25703	1840	1620	16955	24359	1830	1480	15381	21777	1820
	-25	1918	21386	31789	1830	1708	18819	27361	1810	1638	17979	25937	1800	1498	16319	23203	1790
	-20	1936	22558	33676	1810	1726	19861	29000	1790	1656	18978	27498	1780	1516	17236	24613	1760
	-15	1954	24527	36655	1790	1744	21602	31590	1770	1674	20645	29964	1760	1534	18759	26815	1740
	-10	1973	28140	42063	1790	1763	24764	36211	1760	1693	23663	34346	1750	1553	21496	30768	1730
	-5	1991	33245	49655	1790	1781	29208	42678	1760	1711	27896	40471	1750	1571	25321	36211	1730
	0	2009	40830	60790	1820	1799	35760	52110	1780	1729	34122	49387	1770	1589	30919	44110	1740
	5	2027	52656	77813	1880	1817	45867	66468	1830	1747	43692	62882	1810	1607	39466	56014	1780
	10	2044	74546	108820	2020	1834	64206	91907	1940	1764	60950	86690	1910	1624	54695	76832	1860
1 5 5 0 0	-54	1834	17251	24427	2040	1624	15135	21000	2020	1554	14440	19885	2010	1414	13063	17743	2000
	-40	1888	17367	25240	1920	1678	15291	21762	1900	1608	14609	20630	1890	1468	13259	18457	1880
	-35	1905	17861	26217	1880	1695	15737	22591	1860	1625	15040	21445	1850	1485	13660	19197	1840
	-30	1900	18788	27928	1850	1690	16539	24038	1830	1620	15801	22785	1820	1480	14341	20378	1810
	-25	1894	19881	29911	1820	1684	17482	25712	1800	1614	16695	24361	1790	1474	15141	21767	1780
	-20	1909	20928	31660	1790	1699	18410	27226	1770	1629	17584	25800	1770	1489	15955	23064	1750
	-15	1927	22656	34310	1770	1717	19939	29528	1750	1647	19049	27992	1740	1507	17293	25042	1730
	-10	1946	25812	39138	1770	1736	22704	33682	1740	1666	21689	31932	1730	1525	19689	28547	1720
	-5	1964	30198	45785	1770	1754	26529	39346	1740	1684	25334	37297	1730	1544	22984	33340	1710
	0	1981	36566	55340	1790	1771	32043	47452	1750	1701	30578	44962	1740	1561	27707	40132	1720
	5	1999	46128	69443	1830	1789	40253	59385	1780	1719	38363	56183	1770	1579	34678	50077	1740
	10	2016	62739	93543	1920	1806	54300	79399	1860	1736	51618	74944	1840	1596	46434	66539	1800
1 5 0 0 0	-54	1838	16150	22906	2030	1628	14183	19709	2010	1558	13536	18691	2000	1418	12254	16691	1990
	-40	1892	16254	23660	1910	1682	14325	20418	1890	1612	13690	19361	1880	1472	12433	17332	1870
	-35	1909	16699	24554	1870	1699	14729	21176	1850	1629	14081	20109	1850	1489	12798	18012	1830
	-30	1903	17518	26103	1840	1693	15438	22487	1820	1623	14754	21345	1810	1483	13401	19104	1800
	-25	1897	18474	27884	1810	1687	16266	23994	1790	1617	15540	22740	1780	1477	14104	20332	1770
	-20	1894	19416	29649	1780	1684	17078	25483	1760	1614	16311	24143	1750	1474	14794	21572	1740
	-15	1900	20948	32172	1760	1689	18419	27648	1740	1619	17589	26194	1730	1479	15952	23402	1720
	-10	1918	23715	36473	1750	1708	20845	31346	1730	1638	19906	29701	1720	1498	18055	26544	1700
	-5	1936	27508	42358	1750	1726	24156	36361	1720	1656	23062	34451	1710	1516	20910	30762	1690
	0	1953	32896	50623	1760	1743	28833	43376	1730	1673	27512	41086	1710	1533	24921	36670	1690
	5	1971	40739	62501	1790	1761	35590	53409	1750	1691	33927	50558	1730	1551	30676	45043	1710
	10	1988	53691	81807	1860	1778	46616	69577	1800	1708	44352	65736	1780	1568	39958	58390	1750

56FMC-00-00

Figure 4-35 (Sheet 17)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° **AND TAKEOFF CLIMB INCREMENT (TCI) 8000 FEET** **ANTI-ICE SYSTEMS - ON**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1842	15138	21520	2020	1632	13306	18512	2000	1562	12703	17562	1990	1422	11508	15693	1980
	-40	1897	15232	22222	1900	1687	13437	19171	1880	1617	12845	18208	1870	1477	11674	16311	1860
	-35	1914	15635	23016	1860	1704	13804	19891	1840	1634	13200	18872	1840	1493	12006	16915	1830
	-30	1908	16361	24424	1830	1698	14432	21059	1810	1628	13798	19996	1800	1488	12542	17908	1790
	-25	1901	17207	26036	1800	1691	15164	22421	1780	1621	14492	21255	1770	1481	13163	19017	1760
	-20	1898	18029	27594	1770	1688	15876	23762	1750	1618	15168	22519	1740	1478	13769	20134	1730
	-15	1876	19382	30141	1750	1666	17029	25872	1730	1596	16257	24499	1720	1456	14731	21864	1710
	-10	1889	21819	34060	1730	1679	19161	29230	1710	1609	18290	27680	1700	1469	16572	24681	1690
	-5	1907	25114	39269	1730	1697	22041	33666	1700	1627	21036	31881	1690	1487	19057	28457	1680
	0	1925	29707	46466	1730	1715	26033	39806	1700	1645	24837	37689	1690	1505	22486	33604	1670
	5	1942	36215	56578	1750	1732	31657	48360	1720	1662	30179	45768	1700	1522	27285	40747	1680
	10	1959	46526	72360	1800	1749	40478	61617	1750	1679	38533	58219	1740	1539	34743	51744	1710
1 4 0 0	-54	1847	14204	20206	2010	1637	12497	17421	1990	1567	11934	16511	1990	1427	10818	14785	1970
	-40	1902	14289	20859	1890	1692	12616	18035	1870	1622	12065	17111	1870	1482	10972	15338	1860
	-35	1918	14656	21588	1850	1708	12951	18675	1840	1638	12389	17747	1830	1498	11276	15919	1820
	-30	1912	15302	22871	1820	1702	13511	19762	1800	1632	12921	18747	1800	1492	11753	16800	1790
	-25	1906	16050	24333	1790	1696	14158	20972	1770	1626	13536	19912	1770	1486	12303	17828	1760
	-20	1902	16774	25737	1760	1692	14786	22184	1740	1622	14132	21030	1740	1482	12838	18815	1720
	-15	1880	17953	28001	1730	1670	15792	24079	1720	1600	15082	22808	1710	1460	13677	20368	1700
	-10	1860	20097	31813	1720	1650	17629	27257	1700	1580	16820	25819	1690	1440	15222	22988	1680
	-5	1878	22973	36468	1710	1668	20144	31219	1690	1598	19219	29573	1680	1458	17393	26338	1660
	0	1895	26913	42771	1710	1685	23574	36626	1680	1615	22484	34661	1670	1475	20340	30868	1660
	5	1912	32368	51458	1720	1702	28297	43981	1690	1632	26974	41609	1680	1492	24378	37039	1660
	10	1929	40715	64625	1760	1719	35464	55030	1710	1649	33769	52025	1700	1509	30457	46219	1680
1 3 5 0 0	-54	1852	13339	18977	2000	1642	11746	16379	1980	1572	11221	15551	1980	1432	10178	13914	1970
	-40	1908	13417	19584	1880	1698	11857	16949	1860	1628	11343	16110	1860	1488	10322	14452	1850
	-35	1924	13752	20282	1840	1714	12164	17539	1830	1644	11640	16674	1820	1504	10601	14966	1810
	-30	1918	14327	21429	1810	1708	12663	18533	1790	1638	12114	17586	1790	1498	11026	15795	1780
	-25	1911	14991	22759	1780	1701	13237	19632	1760	1631	12660	18646	1760	1491	11515	16706	1750
	-20	1907	15631	24028	1750	1697	13793	20731	1730	1627	13187	19683	1730	1487	11989	17623	1720
	-15	1884	16664	26069	1720	1674	14673	22439	1710	1604	14019	21260	1700	1464	12722	18999	1690
	-10	1852	18528	29575	1710	1642	16259	25340	1690	1572	15514	23979	1680	1432	14040	21368	1670
	-5	1848	21046	33911	1690	1638	18435	29010	1670	1568	17580	27438	1670	1428	15890	24423	1650
	0	1865	24445	39489	1690	1655	21396	33770	1670	1585	20399	31941	1660	1445	18436	28408	1640
	5	1882	29055	47010	1700	1672	25393	40139	1670	1602	24201	37957	1660	1462	21857	33750	1640
	10	1899	35903	58136	1720	1689	31291	49517	1680	1619	29797	46768	1670	1479	26871	41549	1650
1 2 5 0 0	-54	1871	11798	16753	1980	1661	10412	14497	1970	1591	9954	13778	1970	1451	9045	12352	1960
	-40	1928	11866	17275	1860	1718	10510	14990	1850	1648	10062	14237	1850	1508	9172	12821	1840
	-35	1943	12150	17845	1830	1733	10771	15494	1820	1663	10316	14745	1810	1523	9412	13262	1800
	-30	1935	12606	18838	1790	1725	11165	16333	1780	1655	10690	15509	1780	1515	9746	13959	1770
	-25	1926	13126	19922	1760	1715	11615	17245	1750	1645	11116	16394	1740	1505	10127	14713	1740
	-20	1918	13625	21004	1730	1708	12047	18161	1720	1638	11527	17231	1710	1498	10495	15449	1700
	-15	1894	14425	22657	1700	1684	12730	19541	1690	1614	12169	18548	1690	1474	11060	16599	1680
	-10	1861	15847	25484	1680	1651	13938	21874	1670	1581	13310	20735	1660	1441	12065	18504	1650
	-5	1823	17732	29132	1670	1613	15535	24931	1650	1543	14813	23573	1640	1403	13385	20969	1630
	0	1803	20280	33852	1660	1593	17710	28834	1640	1523	16868	27260	1630	1383	15204	24171	1620
	5	1819	23638	39623	1650	1609	20628	33741	1630	1539	19644	31871	1620	1399	17704	28288	1610
	10	1836	28396	47768	1660	1626	24740	40639	1630	1556	23550	38378	1620	1416	21209	34024	1610
1 1 5 0 0	-54	1892	10449	14791	1970	1682	9242	12834	1960	1612	8842	12211	1960	1472	8049	11169	1950
	-40	1949	10510	15242	1850	1739	9328	13263	1840	1669	8938	12634	1840	1529	8161	11379	1830
	-35	1966	10754	15730	1820	1756	9554	13695	1800	1686	9157	13048	1800	1545	8369	11759	1790
	-30	1956	11121	16568	1780	1746	9871	14404	1770	1676	9458	13688	1770	1536	8638	12349	1760
	-25	1945	11534	17469	1750	1735	10229	15162	1740	1665	9797	14429	1730	1525	8941	12974	1730
	-20	1938	11929	18341	1720	1728	10571	15897	1710	1658	10123	15121	1700	1518	9233	13584	1690
	-15	1909	12549	19745	1690	1699	11096	17067	1680	1629	10617	16189	1670	1489	9665	14536	1660
	-10	1870	13637	22040	1670	1660	12018	18975	1650	1590	11484	17975	1650	1450	10425	16061	1640
	-5	1830	15062	24959	1650	1620	13225	21400	1630	1550	12620	20245	1630	1410	11421	18032	1620
	0	1792	16939	28755	1630	1582	14810	24526	1610	1512	14111	23169	1610	1372	12727	20567	1600
	5	1751	19395	33658	1620	1541	16876	28581	1600	1471	16050	26958	1590	1331	14418	23847	1580
	10	1767	22803	39837	1620	1557	19826	33815	1590	1487	18853	31894	1590	1347	16933	28190	1570

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Figure 4-35 (Sheet 18)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°

AND TAKEOFF CLIMB INCREMENT (TCI) 9000 FEET

ANTI-ICE SYSTEMS - ON

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 6 8 3 0	-54	1886	21357	30428	2060	1676	18753	26157	2040	1606	17900	24807	2030	1466	16217	22142	2010
	-40	1939	22443	32596	1950	1729	19764	28095	1920	1659	18888	26648	1920	1519	17158	23868	1900
	-35	1960	23565	34378	1920	1749	20766	29652	1890	1679	19851	28133	1880	1539	18044	25216	1870
	-30	1977	24968	36548	1890	1767	22012	31543	1860	1697	21046	29935	1860	1557	19142	26849	1840
	-25	1996	26823	39440	1870	1786	23648	34043	1840	1716	22613	32311	1830	1576	20573	28963	1810
	-20	2015	28435	41995	1850	1805	25073	36227	1820	1735	23977	34390	1810	1595	21822	30867	1790
	-15	2034	31609	46858	1840	1824	27857	40413	1800	1754	26637	38363	1790	1614	24241	34406	1770
	-10	2052	37433	55618	1850	1842	32910	47840	1810	1772	31446	45389	1800	1632	28581	40635	1780
	-5	2071	46394	68975	1890	1861	40601	59030	1840	1791	38741	55944	1820	1651	35121	49949	1800
	0	2090	61199	90904	1970	1880	53083	77136	1900	1810	50514	72842	1880	1669	45563	64731	1850
	5	2108	90887	134992	2160	1898	77132	111860	2060	1828	72928	104956	2020	1688	65006	92089	1960
	10	2125	181595	260581	2820	1915	145411	202401	2540	1845	135336	186823	2460	1705	117407	159606	2330
1 6 5 0 0	-54	1870	20417	29327	2060	1660	17917	25188	2030	1590	17098	23855	2020	1450	15480	21296	2010
	-40	1922	21419	31352	1940	1712	18853	26999	1920	1642	18012	25598	1910	1502	16353	22909	1890
	-35	1941	22456	33025	1910	1731	19779	28460	1880	1661	18902	26993	1880	1521	17173	24175	1860
	-30	1959	23748	35057	1880	1749	20928	30531	1860	1679	20006	28680	1850	1539	18188	25704	1830
	-25	1980	25458	37760	1860	1770	22438	32569	1830	1700	21452	30904	1820	1560	19509	27681	1810
	-20	1997	26932	40138	1830	1787	23743	34603	1810	1717	22702	32838	1800	1577	20654	29456	1780
	-15	2016	29805	44579	1820	1806	26267	38427	1790	1736	25114	36468	1780	1596	22849	32716	1760
	-10	2035	35038	52571	1830	1825	30814	45209	1790	1755	29445	42887	1780	1615	26761	38413	1760
	-5	2053	42933	64456	1860	1843	37612	55222	1820	1773	35899	52338	1800	1633	32557	46764	1770
	0	2072	55546	83408	1920	1862	48310	70899	1870	1792	46008	67028	1850	1652	41554	59652	1810
	5	2090	79153	118665	2070	1880	67720	99231	1980	1810	64180	93321	1960	1670	57449	82231	1900
	10	2107	143764	205603	2530	1897	116627	166352	2320	1827	108596	154887	2260	1687	94311	133286	2150
1 6 0 0 0	-54	1853	19062	27625	2040	1643	16722	23708	2020	1573	15954	22446	2010	1433	14437	20022	2000
	-40	1899	19962	29552	1930	1689	17558	25419	1900	1619	16770	24088	1900	1479	15213	21534	1880
	-35	1915	20889	31114	1890	1705	18383	26776	1870	1635	17562	25381	1860	1495	15941	22703	1850
	-30	1934	22034	32957	1870	1724	19403	28383	1840	1654	18542	26913	1830	1514	16842	24091	1820
	-25	1952	23549	35406	1840	1742	20743	30475	1820	1672	19825	28902	1810	1532	18015	25883	1790
	-20	1970	24842	37517	1810	1760	21890	32306	1790	1690	20925	30672	1780	1550	19024	27457	1770
	-15	1989	27323	41449	1800	1779	24073	35694	1770	1709	23013	33891	1760	1569	20926	30348	1750
	-10	2008	31800	48416	1800	1798	27973	41612	1770	1728	26729	39463	1760	1588	24287	35319	1740
	-5	2026	38384	58543	1820	1816	33663	50163	1780	1746	32138	47541	1770	1606	29155	42464	1750
	0	2044	48467	73960	1870	1834	42277	63059	1820	1764	40295	59640	1800	1624	36442	53106	1770
	5	2062	65883	100456	1970	1852	56841	84665	1900	1782	53996	79807	1880	1642	48533	70616	1830
	10	2080	104342	157632	2230	1870	87289	129911	2100	1800	82186	121286	2060	1660	72690	105478	1990
1 5 5 0 0	-54	1855	17787	25839	2030	1645	15620	22194	2010	1575	14908	21019	2000	1435	13500	18761	1990
	-40	1903	18588	27595	1910	1693	16368	23756	1890	1623	15639	22520	1890	1483	14198	20145	1870
	-35	1903	19427	29173	1880	1693	17096	25096	1860	1623	16334	23787	1850	1483	14823	21269	1840
	-30	1907	20463	31011	1850	1697	18003	26669	1830	1627	17197	25273	1820	1487	15605	22593	1810
	-25	1925	21810	33209	1830	1715	19196	28571	1800	1645	18340	27081	1790	1505	16651	24223	1780
	-20	1943	22948	35115	1800	1733	20207	30226	1780	1663	19310	28656	1770	1523	17541	25646	1750
	-15	1962	25100	38613	1780	1752	22104	33244	1760	1682	21125	31523	1750	1541	19195	28195	1730
	-10	1980	28956	44724	1780	1770	25469	38439	1750	1700	24336	36444	1740	1560	22100	32585	1720
	-5	1998	34505	53437	1790	1788	30279	45812	1760	1718	28909	43409	1750	1578	26225	38752	1720
	0	2016	42712	66214	1820	1806	37327	56538	1780	1736	35594	53520	1770	1596	32215	47696	1740
	5	2034	56068	86973	1890	1824	48618	73648	1840	1754	46249	69531	1820	1614	41674	61658	1780
	10	2051	81839	126902	2060	1841	69687	105421	1960	1771	65933	98957	1930	1631	58817	86815	1880
1 5 0 0 0	-54	1860	16625	24196	2020	1650	14614	20801	2000	1580	13953	19728	1990	1440	12644	17622	1980
	-40	1906	17341	25800	1900	1696	15291	22237	1880	1626	14610	21104	1880	1486	13274	18869	1860
	-35	1906	18080	27200	1870	1696	15929	23445	1850	1626	15223	22226	1840	1486	13826	19887	1830
	-30	1901	18997	28950	1840	1691	16722	24900	1820	1621	15975	23620	1810	1481	14499	21117	1800
	-25	1897	20216	31200	1810	1687	17776	26804	1790	1617	16976	25391	1780	1477	15396	22680	1770
	-20	1915	21224	32931	1780	1705	18672	28306	1760	1635	17836	26822	1750	1495	16186	23950	1740
	-15	1933	23096	36027	1760	1723	20324	30977	1740	1653	19417	29358	1730	1513	17629	26252	1720
	-10	1952	26436	41447	1760	1742	23243	35587	1730	1672	22201	33722	1720	1532	20151	30123	1710
	-5	1970	31152	48971	1760	1760	27342	41990	1730	1690	26103	39776	1720	1550	23672	35510	1700
	0	1988	37927	59812	1780	1778	33183	51084	1750	1708	31650	48354	1730	1568	28654	43080	1710
	5	2005	48449	76475	1830	1795	42146	64968	1790	1725	40128	61366	1770	1585	36211	54492	1740
	10	2022	67004	105815	1940	1812	57595	88729	1870	1742	54639	83505	1850	1602	48974	73647	1810

56FMC-00-00

Figure 4-35 (Sheet 19)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° **AND TAKEOFF CLIMB INCREMENT (TCI) 9000 FEET** **ANTI-ICE SYSTEMS - ON**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1864	15560	22677	2010	1654	13691	19511	1990	1584	13076	18511	1980	1444	11858	16546	1970
	-40	1911	16204	24148	1890	1701	14298	20825	1870	1631	13670	19777	1870	1491	12428	17716	1860
	-35	1910	16857	25414	1860	1700	14868	21927	1840	1630	14213	20793	1830	1490	12918	18616	1820
	-30	1904	17662	26993	1830	1694	15564	23262	1810	1624	14874	22051	1800	1484	13510	19727	1790
	-25	1898	18729	29016	1800	1688	16484	24943	1780	1618	15747	23657	1770	1478	14291	21142	1760
	-20	1896	19632	30774	1770	1686	17266	26431	1750	1616	16490	25061	1740	1476	14957	22359	1730
	-15	1905	21276	33680	1750	1695	18700	28912	1730	1625	17864	27392	1720	1485	16202	24462	1710
	-10	1923	24182	38482	1740	1713	21249	33001	1720	1643	20296	31263	1710	1503	18401	27913	1690
	-5	1941	28219	45085	1740	1731	24763	38626	1710	1661	23637	36576	1700	1521	21424	32623	1690
	0	1958	33874	54279	1750	1748	29654	46414	1720	1678	28286	43892	1710	1538	25606	39111	1690
	5	1976	42331	68004	1790	1766	36898	57865	1740	1696	35150	54704	1730	1556	31743	48582	1700
	10	1993	56295	90569	1860	1783	48662	76434	1800	1713	46239	72013	1780	1573	41558	63664	1750
1 4 0 0 0	-54	1869	14580	21267	2000	1659	12841	18338	1980	1589	12266	17379	1970	1449	11133	15545	1960
	-40	1917	15161	22619	1880	1707	13391	19549	1870	1637	12812	18551	1860	1497	11652	16625	1850
	-35	1915	15742	23796	1850	1705	13897	20526	1830	1635	13290	19494	1820	1495	12088	17467	1810
	-30	1909	16450	25198	1820	1699	14511	21736	1800	1629	13873	20610	1790	1489	12610	18450	1780
	-25	1901	17386	27017	1790	1691	15315	23242	1770	1621	14640	22056	1760	1481	13296	19725	1750
	-20	1900	18172	28593	1760	1690	16001	24581	1740	1620	15288	23316	1730	1480	13878	20815	1720
	-15	1877	19618	31471	1740	1667	17231	26983	1720	1597	16449	25567	1710	1457	14902	22780	1700
	-10	1893	22156	35783	1720	1683	19452	30644	1700	1613	18567	29034	1690	1473	16821	25871	1680
	-5	1911	25631	41580	1720	1701	22481	35614	1690	1631	21453	33707	1690	1491	19429	30031	1670
	0	1929	30396	49538	1720	1719	26612	42336	1700	1649	25382	40054	1690	1509	22968	35634	1670
	5	1946	37301	61015	1750	1736	32552	51969	1710	1666	31017	49093	1700	1526	28017	43651	1680
	10	1963	48135	78973	1800	1753	41752	66838	1750	1683	39711	63047	1730	1543	35747	55821	1700
1 3 5 0 0	-54	1875	13674	19952	1990	1664	12054	17220	1970	1594	11520	16351	1970	1454	10461	14635	1960
	-40	1921	14201	21197	1870	1711	12554	18338	1860	1641	12012	17402	1850	1501	10936	15634	1840
	-35	1920	14718	22271	1840	1710	13006	19227	1820	1640	12443	18268	1820	1500	11325	16379	1810
	-30	1914	15345	23542	1810	1704	13549	20327	1790	1634	12958	19279	1780	1494	11787	17270	1770
	-25	1906	16169	25185	1780	1696	14262	21715	1760	1626	13634	20587	1750	1486	12392	18423	1740
	-20	1904	16857	26604	1750	1694	14860	22893	1730	1624	14203	21722	1720	1484	12903	19428	1710
	-15	1881	18109	29175	1720	1671	15925	25039	1700	1601	15212	23738	1700	1461	13790	21161	1690
	-10	1863	20327	33314	1710	1653	17827	28511	1690	1583	17008	26973	1680	1443	15390	24022	1670
	-5	1881	23335	38458	1700	1671	20452	32898	1680	1601	19509	31121	1670	1461	17652	27692	1650
	0	1898	27381	45370	1700	1688	23966	38739	1670	1618	22853	36636	1670	1478	20665	32587	1650
	5	1915	33092	55113	1710	1705	28893	46931	1680	1635	27532	44359	1670	1495	24864	39418	1650
	10	1932	41690	69738	1750	1722	36238	59125	1710	1652	34485	55783	1690	1512	31066	49432	1670
1 2 5 0 0	-54	1893	12067	17574	1970	1683	10661	15208	1960	1613	10197	14455	1950	1473	9276	12964	1950
	-40	1939	12504	18637	1860	1729	11079	16164	1840	1659	10609	15351	1840	1519	9675	13796	1830
	-35	1936	12913	19515	1820	1726	11436	16909	1810	1656	10949	16081	1800	1516	9982	14444	1790
	-30	1927	13402	20603	1790	1717	11858	17802	1770	1647	11349	16920	1770	1507	10339	15181	1760
	-25	1917	14043	21934	1760	1707	12412	18949	1740	1637	11874	18000	1740	1497	10809	16132	1730
	-20	1917	14577	23096	1730	1706	12877	19936	1710	1636	12317	18907	1710	1496	11207	16934	1700
	-15	1890	15530	25177	1700	1680	13688	21648	1690	1610	13082	20536	1680	1470	11881	18355	1670
	-10	1857	17190	28535	1680	1647	15100	24469	1670	1577	14413	23155	1660	1437	13054	20635	1650
	-5	1821	19437	33037	1670	1611	17002	28160	1650	1541	16204	26632	1640	1401	14627	23634	1630
	0	1835	22411	38378	1660	1625	19585	32715	1640	1555	18661	30906	1630	1415	16839	27446	1620
	5	1852	26432	45593	1660	1641	23069	38793	1640	1571	21972	36668	1630	1431	19816	32521	1610
	10	1868	32122	55826	1680	1658	27965	47367	1650	1588	26616	44710	1630	1448	23975	39613	1610
1 1 5 0 0	-54	1913	10668	15485	1960	1703	9446	13437	1950	1633	9042	12787	1940	1493	8239	11491	1930
	-40	1960	11037	16395	1840	1750	9800	14260	1830	1680	9392	13552	1830	1540	8580	12231	1820
	-35	1956	11366	17130	1810	1746	10088	14883	1800	1676	9666	14170	1790	1536	8827	12752	1780
	-30	1946	11752	18012	1770	1736	10422	15625	1760	1666	9983	14867	1760	1526	9110	13364	1750
	-25	1935	12259	19142	1740	1725	10856	16576	1730	1655	10395	15734	1730	1515	9478	14153	1720
	-20	1930	12669	20076	1710	1720	11216	17369	1700	1650	10737	16509	1690	1510	9785	14812	1690
	-15	1901	13397	21797	1680	1691	11832	18801	1670	1621	11316	17823	1670	1481	10293	15952	1660
	-10	1866	14658	24500	1660	1655	12904	21051	1650	1585	12326	19931	1640	1445	11181	17786	1630
	-5	1828	16321	28023	1640	1618	14312	23954	1630	1548	13652	22672	1620	1408	12344	20145	1610
	0	1789	18486	32556	1630	1579	16138	27707	1610	1509	15368	26157	1610	1369	13846	23188	1590
	5	1781	21391	38262	1620	1571	18629	32465	1600	1501	17725	30626	1600	1361	15942	27107	1580
	10	1798	25331	45760	1630	1588	22030	38785	1600	1518	20954	36579	1590	1378	18837	32338	1580

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Figure 4-35 (Sheet 20)

**SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15°
AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET
ANTI-ICE SYSTEMS - ON****CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE**

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT	1ST FT	2ND FT	3RD FT	TCI FT
1 6 8 3 0	-54	1919	22885	32994	2060	1709	20120	28398	2040	1639	19215	26920	2030	1499	17432	24083	2010
	-30	2013	27892	41215	1900	1803	24601	35564	1870	1733	23528	33764	1860	1593	21417	30282	1850
	-25	2032	30130	44691	1880	1822	26571	38565	1850	1752	25412	36614	1840	1612	23135	32847	1820
	-20	2051	32274	48084	1860	1841	28458	41494	1830	1771	27217	39399	1820	1631	24783	35355	1800
	-15	2070	37107	55553	1870	1860	32664	47842	1830	1790	31225	45410	1820	1650	28409	40727	1800
	-10	2089	45697	68580	1900	1879	40046	58811	1860	1809	38230	55720	1840	1669	34695	49838	1810
	-5	2108	60409	90782	1980	1898	52454	77112	1920	1828	49936	72845	1900	1688	45081	64786	1860
	0	2127	88464	132294	2170	1917	75305	110481	2070	1847	71251	103909	2030	1706	63584	91363	1970
	5	2145	167085	232564	2740	1935	138207	187751	2510	1865	129700	174891	2450	1725	112733	151742	2320
	8	2152	250022	367932	3350	1942	187968	260198	2880	1872	172806	236407	2760	1732	146734	197111	2560
1 6 5 0 0	-54	1902	21836	31725	2050	1692	19187	27281	2030	1622	18321	25877	2020	1482	16610	23108	2000
	-30	1995	26436	39384	1890	1785	23311	33989	1860	1715	22291	32259	1850	1575	20283	28913	1840
	-25	2014	28480	42607	1870	1804	25112	36775	1840	1734	24015	34906	1830	1594	21857	31297	1810
	-20	2032	30420	45769	1850	1822	26822	39445	1820	1752	25652	37445	1810	1612	23352	33583	1790
	-15	2052	34744	52536	1850	1842	30593	45233	1810	1772	29247	42928	1800	1632	26609	38486	1780
	-10	2071	42318	64141	1880	1861	37122	55062	1830	1791	35449	52171	1820	1651	32183	46659	1790
	-5	2090	54852	83299	1940	1880	47758	70923	1880	1810	45500	67076	1870	1670	41132	59698	1830
	0	2108	77249	117138	2080	1898	66219	98466	1990	1828	62785	92636	1970	1688	56251	81689	1920
	5	2127	136792	192453	2500	1917	111796	159180	2310	1847	104532	148663	2250	1707	91288	129766	2150
	8	2138	220561	318552	3110	1927	171390	237868	2740	1857	158573	218041	2640	1717	136302	184280	2470
1 6 0 0 0	-54	1877	20349	29924	2040	1667	17865	25696	2020	1597	17052	24336	2010	1457	15444	21724	1990
	-30	1930	21885	32742	1930	1720	19268	28190	1910	1650	18411	26727	1900	1510	16719	23919	1880
	-25	1949	22955	34505	1900	1739	20223	29729	1870	1669	19329	28196	1870	1529	17566	25252	1850
	-20	1968	24407	36842	1870	1758	21510	31759	1850	1688	20564	30127	1840	1548	18698	26998	1820
	-15	1987	26196	39730	1850	1777	23090	34257	1820	1707	22076	32503	1810	1567	20080	29111	1800
	-10	2006	27870	42507	1830	1796	24569	36630	1800	1726	23493	34759	1790	1586	21376	31173	1770
	-5	2025	31548	48418	1820	1815	27785	41696	1790	1745	26561	39560	1780	1605	24159	35410	1760
	0	2044	37871	58327	1840	1833	33256	50076	1800	1763	31764	47442	1790	1623	28846	42416	1770
	5	2062	47891	73932	1880	1852	41819	63094	1840	1782	39875	59694	1820	1642	36096	53236	1790
	10	2080	64448	99773	1980	1870	55666	84166	1910	1800	52902	79364	1890	1660	47593	70276	1850
1 5 5 0 0	-54	1880	18931	27920	2030	1670	16639	23998	2000	1600	15887	22758	2000	1460	14401	20308	1980
	-30	1903	20337	30823	1920	1693	17888	26500	1890	1623	17086	25110	1890	1483	15501	22443	1870
	-25	1922	21284	32425	1880	1712	18735	27873	1860	1642	17900	26445	1850	1502	16252	23631	1840
	-20	1941	22565	34538	1860	1731	19873	29735	1830	1661	18992	28193	1820	1521	17253	25209	1810
	-15	1960	24138	37110	1830	1750	21264	31959	1810	1680	20324	30307	1800	1540	18472	27139	1780
	-10	1978	25590	39589	1810	1768	22549	34078	1780	1698	21557	32352	1770	1558	19601	28957	1760
	-5	1997	28730	44745	1800	1787	25308	38509	1770	1717	24190	36522	1760	1577	21992	32689	1740
	0	2015	34073	53296	1810	1805	29938	45743	1770	1735	28596	43362	1760	1595	25968	38778	1740
	5	2034	42228	66291	1840	1824	36944	56658	1800	1754	35244	53612	1780	1614	31928	47816	1760
	10	2052	54921	86521	1900	1842	47677	73330	1850	1772	45374	69255	1830	1632	40911	61445	1790
1 5 0 0 0	-54	1884	17646	26087	2010	1674	15530	22446	1990	1604	14830	21290	1990	1464	13453	19032	1970
	-30	1905	18879	28697	1900	1695	16624	24691	1880	1625	15884	23426	1870	1485	14421	20950	1860
	-25	1904	19739	30365	1870	1694	17369	26106	1850	1624	16592	24761	1840	1484	15057	22108	1830
	-20	1913	20885	32385	1840	1703	18376	27840	1820	1633	17555	26406	1810	1493	15932	23580	1800
	-15	1932	22273	34736	1820	1721	19606	29877	1790	1651	18733	28318	1790	1511	17010	25302	1770
	-10	1950	23538	36931	1790	1740	20728	31779	1770	1670	19809	30127	1760	1530	17997	26933	1740
	-5	1968	26249	41501	1780	1758	23106	35673	1750	1688	22081	33818	1740	1548	20062	30265	1730
	0	1987	30787	48926	1780	1777	27055	41966	1750	1707	25842	39770	1740	1567	23459	35538	1720
	5	2005	37520	59889	1800	1795	32864	51235	1760	1725	31359	48478	1750	1585	28417	43259	1730
	10	2023	47520	76190	1850	1813	41385	64783	1800	1743	39420	61212	1780	1603	35607	54397	1750
1 0 0	5	2041	65271	104964	1950	1831	56167	88084	1880	1761	53306	82923	1860	1621	47822	73184	1820
	10	2058	103255	161165	2200	1848	86289	135055	2070	1778	81166	126409	2040	1638	71607	109775	1960

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Figure 4-35 (Sheet 21)

SINGLE-ENGINE TAKEOFF FLIGHT PATH DISTANCES FLAPS - 15° **AND TAKEOFF CLIMB INCREMENT (TCI) 10,000 FEET** **ANTI-ICE SYSTEMS - ON**

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

WT LBS	TEMP DEG C	TAILWIND 10 KTS				ZERO WIND				HEADWIND 10 KTS				HEADWIND 30 KTS			
		1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI	1ST	2ND	3RD	TCI
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
1 4 5 0 0	-54	1888	16475	24401	2000	1678	14512	21009	1980	1608	13866	19938	1980	1468	12588	17835	1960
	-40	1909	17561	26764	1890	1699	15480	23074	1870	1629	14796	21876	1860	1489	13443	19577	1850
	-35	1907	18311	28264	1860	1697	16132	24322	1840	1627	15416	23078	1830	1487	14003	20621	1820
	-30	1902	19328	30230	1830	1692	17010	25984	1810	1622	16250	24619	1800	1482	14747	22000	1790
	-25	1903	20573	32519	1800	1693	18093	27928	1780	1623	17280	26455	1770	1483	15674	23628	1760
	-20	1921	21680	34495	1770	1711	19075	29641	1750	1641	18222	28110	1750	1500	16539	25099	1730
	-15	1939	24025	38559	1760	1729	21135	33104	1740	1659	20191	31367	1730	1519	18330	28038	1710
	-10	1957	27914	45054	1760	1747	24525	38643	1730	1677	23421	36606	1720	1537	21250	32681	1700
	-5	1975	33536	54436	1770	1765	29391	46558	1740	1695	28048	44079	1730	1555	25414	39279	1700
	0	1993	41577	67847	1800	1783	36282	57783	1760	1713	34578	54607	1750	1573	31256	48568	1720
	5	2011	54943	90017	1870	1801	47546	75980	1810	1731	45198	71653	1800	1591	40661	63392	1760
	10	2028	79881	131435	2030	1818	67863	108870	1940	1748	64153	102061	1910	1608	57127	89302	1850
1 4 0 0	-54	1892	15404	22841	1990	1682	13582	19709	1970	1612	12982	18687	1970	1472	11793	16728	1960
	-40	1914	16363	24990	1880	1704	14439	21566	1860	1634	13806	20452	1860	1494	12556	18318	1840
	-35	1912	17021	26345	1850	1702	15012	22691	1830	1631	14351	21538	1820	1491	13044	19278	1810
	-30	1906	17909	28110	1810	1696	15779	24184	1800	1626	15080	22921	1790	1486	13696	20496	1780
	-25	1899	18998	30230	1790	1689	16719	25974	1770	1619	15971	24606	1760	1479	14493	21982	1750
	-20	1895	19983	32228	1760	1685	17569	27661	1740	1615	16778	26196	1730	1475	15215	23385	1720
	-15	1909	22022	35876	1740	1699	19358	30785	1720	1629	18485	29154	1710	1489	16764	26003	1700
	-10	1927	25373	41586	1740	1717	22282	35659	1710	1647	21273	33764	1700	1507	19286	30110	1690
	-5	1945	30112	49683	1740	1735	26393	42500	1710	1665	25184	40224	1700	1525	22811	35845	1680
	0	1963	36680	60950	1760	1753	32046	51923	1730	1683	30548	49103	1710	1543	27621	43661	1690
	5	1980	47059	78627	1810	1770	40865	66600	1760	1700	38884	62843	1750	1560	35037	55682	1720
	10	1997	64658	108679	1910	1787	55484	90843	1840	1717	52603	85401	1820	1577	47081	75145	1780
1 3 5 0 0	-54	1898	14419	21394	1980	1688	12725	18478	1960	1618	12168	17525	1960	1478	11062	15723	1950
	-40	1919	15269	23354	1870	1709	13488	20173	1850	1639	12901	19136	1850	1499	11739	17148	1840
	-35	1916	15849	24581	1830	1706	13993	21191	1820	1636	13382	20122	1810	1496	12172	18022	1800
	-30	1910	16628	26173	1800	1700	14667	22538	1790	1630	14019	21389	1780	1490	12745	19120	1770
	-25	1903	17577	28074	1780	1693	15487	24144	1760	1623	14800	22879	1750	1483	13441	20453	1740
	-20	1899	18429	29857	1750	1689	16224	25652	1730	1619	15500	24301	1720	1479	14068	21710	1710
	-15	1878	20210	33416	1730	1668	17746	28631	1710	1598	16938	27097	1700	1458	15343	24157	1690
	-10	1896	23110	38488	1720	1686	20279	32961	1700	1616	19354	31193	1690	1476	17529	27782	1670
	-5	1912	27134	45561	1720	1702	23777	38942	1690	1632	22683	36843	1680	1493	20531	32800	1670
	0	1932	32568	55071	1730	1722	28468	46971	1700	1652	27139	44379	1690	1512	24535	39468	1670
	5	1949	40810	69528	1760	1739	35514	58996	1720	1669	33804	55672	1710	1529	30489	49379	1680
	10	1966	53858	92422	1830	1756	46488	77727	1770	1686	44147	73155	1760	1546	39626	64535	1720
1 2 5 0 0	-54	1916	12679	18791	1960	1706	11216	16273	1950	1636	10733	15445	1950	1496	9774	13887	1940
	-40	1933	13347	20442	1850	1723	11815	17672	1840	1653	11310	16800	1830	1513	10307	15080	1820
	-35	1928	13797	21440	1820	1718	12206	18543	1800	1648	11681	17596	1800	1508	10641	15807	1790
	-30	1921	14401	22749	1780	1711	12729	19625	1770	1641	12178	18641	1760	1501	11086	16705	1750
	-25	1913	15133	24294	1750	1703	13362	20932	1740	1633	12779	19872	1730	1493	11624	17792	1720
	-20	1908	15781	25708	1720	1698	13924	22153	1710	1628	13313	20999	1700	1488	12103	18787	1690
	-15	1886	17116	28570	1700	1676	15067	24528	1680	1606	14393	23228	1680	1466	13061	20738	1670
	-10	1854	19268	32945	1690	1644	16897	28174	1670	1574	16119	26646	1660	1434	14583	23718	1650
	-5	1850	22222	38579	1680	1640	19443	32894	1660	1570	18534	31088	1650	1430	16741	27631	1640
	0	1869	26052	45668	1680	1659	22764	38894	1650	1589	21700	36758	1640	1449	19584	32621	1630
	5	1884	31511	55784	1690	1674	27465	47374	1660	1604	26153	44733	1650	1464	23582	39637	1630
	10	1901	39379	70437	1720	1691	34178	59519	1680	1621	32504	56138	1670	1481	29240	49643	1640
1 1 5 0 0	-54	1936	11180	16516	1950	1726	9911	14343	1940	1656	9492	13624	1930	1516	8660	12280	1920
	-40	1953	11712	17875	1840	1743	10391	15515	1820	1673	9954	14766	1820	1533	9088	13279	1810
	-35	1947	12067	18731	1800	1737	10699	16243	1790	1667	10248	15425	1780	1527	9351	13861	1780
	-30	1937	12536	19792	1770	1727	11105	17137	1750	1657	10633	16293	1750	1517	9693	14624	1740
	-25	1926	13100	21070	1740	1716	11592	18216	1720	1646	11095	17282	1720	1506	10108	15497	1710
	-20	1920	13597	22231	1710	1710	12023	19196	1690	1640	11504	18232	1690	1500	10474	16336	1680
	-15	1895	14616	24529	1680	1685	12894	21120	1670	1615	12327	20012	1660	1475	11202	17891	1650
	-10	1861	16218	27988	1660	1651	14257	23981	1650	1581	13613	22719	1640	1441	12336	20252	1630
	-5	1823	18357	32576	1650	1613	16069	27792	1630	1543	15319	26262	1620	1403	13835	23332	1610
	0	1797	21109	38352	1640	1587	18406	32600	1620	1517	17521	30766	1610	1377	15776	27234	1600
	5	1814	24892	45781	1640	1604	21676	38839	1610	1534	20627	36644	1610	1394	18564	32423	1590
	10	1830	30017	55912	1650	1620	26079	47337	1620	1550	24801	44635	1610	1410	22295	39428	1590

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Figure 4-35 (Sheet 22)

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-25	5.8	6.7	7.0	7.4	7.8	6.1	7.0	7.4	7.8	8.2	6.6	7.6	8.0	8.4	8.9	7.1	8.2	8.6	9.1	9.6	7.7	8.8	9.3	9.8	10.4	7.7	8.8	9.3	9.8	10.4
	-20	5.8	6.7	7.0	7.4	7.8	6.1	7.1	7.4	7.8	8.3	6.6	7.6	8.0	8.4	8.9	7.1	8.2	8.7	9.1	9.6	7.7	8.9	9.3	9.9	10.4	7.7	8.9	9.3	9.9	10.4
	-15	5.9	6.7	7.1	7.5	7.9	6.2	7.1	7.5	7.8	8.3	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7	7.8	8.9	9.4	9.9	10.4	7.8	8.9	9.4	9.9	10.4
	-10	5.9	6.8	7.1	7.5	7.9	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7	7.8	9.0	9.4	9.9	10.5	7.8	9.0	9.4	9.9	10.5
	-5	6.0	6.8	7.2	7.5	7.9	6.3	7.2	7.5	7.9	8.4	6.8	7.7	8.1	8.6	9.0	7.3	8.4	8.8	9.2	9.7	7.9	9.0	9.5	10.0	10.5	7.9	9.0	9.5	10.0	10.5
	0	6.0	6.9	7.2	7.6	8.0	6.3	7.2	7.6	8.0	8.4	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.3	9.8	7.9	9.1	9.5	10.0	10.6	7.9	9.1	9.5	10.0	10.6
	5	6.0	6.9	7.2	7.6	8.0	6.4	7.3	7.6	8.0	8.4	6.9	7.8	8.2	8.6	9.1	7.4	8.4	8.9	9.3	9.8	7.9	9.1	9.5	10.0	10.6	8.0	9.1	9.5	10.0	10.6
	10	6.1	6.9	7.3	7.6	8.0	6.4	7.3	7.6	8.0	8.4	6.9	7.9	8.2	8.7	9.1	7.4	8.5	8.9	9.3	9.8	8.0	9.1	9.6	10.1	10.6	8.0	9.1	9.6	10.1	10.6
	15	6.1	6.9	7.3	7.6	8.0	6.4	7.3	7.7	8.0	8.4	6.9	7.9	8.3	8.7	9.1	7.4	8.5	8.9	9.3	9.8	8.0	9.1	9.6	10.1	10.6	8.0	9.1	9.6	10.1	10.6
	20	6.1	7.0	7.3	7.7	8.0	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.4	9.9	8.0	9.2	9.6	10.1	10.6	8.0	9.2	9.6	10.1	10.6
0	25	5.9	6.7	7.0	7.4	7.7	6.2	7.1	7.4	7.8	8.2	6.7	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.1	9.5	7.8	8.9	9.3	9.8	10.3	7.8	8.9	9.3	9.8	10.3
	30	5.2	5.9	6.2	6.5	6.8	5.5	6.3	6.6	6.9	7.2	6.0	6.8	7.1	7.5	7.9	6.5	7.4	7.7	8.1	8.5	7.0	8.0	8.4	8.8	9.3	7.0	8.0	8.4	8.8	9.3
	35	4.5	5.1	5.4	5.6	5.9	4.8	5.4	5.7	6.0	6.3	5.2	6.0	6.2	6.6	6.9	5.7	6.5	6.8	7.2	7.5	6.2	7.1	7.4	7.8	8.2	5.5	6.2	6.6	6.9	7.2
	40	3.8	4.4	4.6	4.8	5.1	4.1	4.7	4.9	5.2	5.4	4.5	5.2	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.6	5.5	6.2	6.6	6.9	7.2	4.7	5.4	5.7	6.0	6.3
	45	3.2	3.6	3.8	4.0	4.2	3.4	3.9	4.1	4.3	4.6	3.8	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.4	5.7	4.7	5.4	5.7	6.0	6.3	4.0	4.6	4.8	5.0	5.3
	50	2.5	2.9	3.0	3.2	3.4	2.7	3.2	3.3	3.5	3.7	3.1	3.6	3.8	4.0	4.2	3.5	4.1	4.3	4.5	4.7	4.0	4.6	4.8	5.0	5.3	3.4	3.9	4.1	4.3	4.6
	54	2.0	2.3	2.4	2.6	2.7	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.5	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.6	3.4	3.9	4.1	4.3	4.6
	58	1.6	1.9	2.0	2.2	2.3	1.9	2.2	2.3	2.4	2.6	2.3	2.6	2.8	2.9	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.1	3.1	3.5	3.7	3.9	4.1
	62	1.1	1.4	1.5	1.6	1.7	1.3	1.6	1.7	1.8	2.0	1.7	2.0	2.1	2.3	2.4	2.1	2.4	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.4	2.5	2.9	3.0	3.2	3.4
	66	0.8	1.1	1.2	1.3	1.4	1.0	1.3	1.4	1.5	1.7	1.4	1.7	1.8	2.0	2.1	1.7	2.0	2.1	2.3	2.4	2.1	2.4	2.5	2.7	2.8	2.1	2.4	2.5	2.7	2.8
1	-25	6.0	6.9	7.3	7.7	8.1	6.3	7.3	7.7	8.1	8.5	6.8	7.9	8.3	8.7	9.2	7.4	8.5	8.9	9.4	9.9	7.9	9.1	9.6	10.1	10.7	7.9	9.1	9.6	10.1	10.7
	-20	6.1	7.0	7.3	7.7	8.1	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.7	9.2	7.4	8.5	8.9	9.4	9.9	8.0	9.2	9.6	10.1	10.7	8.0	9.2	9.6	10.1	10.7
	-15	6.1	7.0	7.3	7.7	8.1	6.4	7.4	7.7	8.1	8.6	6.9	7.9	8.3	8.8	9.2	7.5	8.5	9.0	9.5	10.0	8.0	9.2	9.7	10.2	10.7	8.0	9.2	9.7	10.2	10.7
	-10	6.2	7.0	7.4	7.8	8.2	6.5	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.8	9.3	7.5	8.6	9.0	9.5	10.0	8.1	9.2	9.7	10.2	10.8	8.1	9.2	9.7	10.2	10.8
	-5	6.2	7.1	7.4	7.8	8.2	6.5	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.8	9.3	7.6	8.6	9.1	9.5	10.0	8.1	9.3	9.7	10.2	10.8	8.1	9.3	9.7	10.2	10.8
	0	6.3	7.1	7.5	7.8	8.2	6.6	7.5	7.8	8.2	8.7	7.1	8.1	8.5	8.9	9.3	7.6	8.7	9.1	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.2	9.3	9.8	10.3	10.8
	5	6.3	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.7	8.7	9.1	9.6	10.1	8.2	9.4	9.8	10.3	10.8	8.2	9.4	9.8	10.3	10.8
	10	6.3	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.7	8.8	9.2	9.6	10.1	8.2	9.4	9.8	10.3	10.9	8.2	9.4	9.8	10.3	10.9
	15	6.3	7.2	7.5	7.9	8.3	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.5	9.0	9.4	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.9	10.3	10.9	8.3	9.4	9.9	10.3	10.9
	20	6.2	7.0	7.3	7.7	8.1	6.5	7.4	7.7	8.1	8.5	7.0	8.0	8.3	8.7	9.2	7.5	8.6	9.0	9.4	9.9	8.1	9.2	9.7	10.1	10.7	8.1	9.2	9.7	10.1	10.7
0	25	5.4	6.2	6.5	6.8	7.1	5.7	6.5	6.8	7.2	7.5	6.2	7.1	7.4	7.8	8.2	6.7	7.7	8.0	8.4	8.9	7.3	8.3	8.7	9.1	9.6	7.3	8.3	8.7	9.1	9.6
	30	4.7	5.3	5.6	5.8	6.1	4.9	5.6	5.9	6.2	6.5	5.4	6.2	6.4	6.8	7.1	5.9	6.7	7.0	7.4	7.8	6.4	7.3	7.6	8.0	8.4	6.4	7.3	7.6	8.0	8.4
	35	3.9	4.5	4.7	4.9	5.2	4.2	4.8	5.0	5.3	5.6	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7	5.6	6.4	6.7	7.0	7.4	5.6	6.4	6.7	7.0	7.4
	40	3.3	3.7	3.9	4.1	4.3	3.5	4.0	4.2	4.4	4.7	3.9	4.5	4.7	5.0	5.2	4.4	5.0	5.2	5.5	5.8	4.8	5.5	5.8	6.1	6.4	4.8	5.5	5.8	6.1	6.4
	45	2.6	3.0	3.1	3.3	3.5	2.8	3.3	3.4	3.6	3.8	3.2	3.7	3.9	4.1	4.3	3.6	4.2	4.4	4.6	4.9	4.1	4.7	4.9	5.2	5.4	4.1	4.7	4.9	5.2	5.4
	50	2.0	2.3	2.4	2.5	2.7	2.2	2.5	2.7	2.8	3.0	2.6	2.9	3.1	3.3	3.4	2.9	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.4	3.9	4.1	4.3	4.5
	52	1.7	2.0	2.1	2.2	2.3	1.9	2.2	2.4	2.5	2.6	2.3	2.6	2.8	2.9	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.1	3.1	3.5	3.7	3.9	4.1
	56	1.4	1.7	1.8	1.9	2.0	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.6	2.7	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.4	3.5	3.7	2.8	3.2	3.4	3.5	3.7
	60	1.1	1.4	1.5	1.6	1.7	1.3	1.6	1.7	1.8	2.0	1.7	2.0	2.1	2.3	2.4	2.1	2.4	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.4	2.5	2.9	3.0	3.2	3.4
	64	0.8	1.1	1.2	1.3	1.4	1.0	1.3	1.4	1.5	1.7	1.4	1.7	1.8	2.0	2.1	1.7	2.0	2.1	2.3	2.4	2.1	2.4	2.5	2.7	2.8	2.1	2.4	2.5	2.7	2.8
2	-25	6.3	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.2	9.6	10.2	8.2	9.4	9.8	10.3	10.9	8.2	9.4	9.8	10.3	10.9
	-20	6.3	7.2	7.5	7.9	8.3	6.6	7.6	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.5	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.9	10.4	10.9	8.2	9.4	9.9	10.4	10.9
	-15	6.3	7.2	7.6	8.0	8.4	6.7	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.4	11.0	8.3	9.4	9.9	10.4	11.0
	-10	6.4	7.3	7.6	8.0	8.4	6.7	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.1	9.5	7.8	8.8	9.3	9.7	10.3	8.3	9.5	9.9	10.4	11.0	8.3	9.5	9.9	10.4	11.0
	-5	6.4	7.3	7.7	8.0																										

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																															
		14500					14000					13500					12500					11500											
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS											
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30		
0	-25	8.2	9.5	10.0	10.5	11.1	8.8	10.1	10.7	11.3	11.9	9.4	10.8	11.4	12.0	12.7	10.7	12.3	12.9	13.6	14.4	12.2	13.9	14.6	15.4	16.2	12.2	13.9	14.6	15.4	16.2		
	-20	8.3	9.5	10.0	10.6	11.2	8.8	10.2	10.7	11.3	11.9	9.5	10.9	11.4	12.0	12.7	10.8	12.3	12.9	13.6	14.4	12.2	14.0	14.7	15.4	16.3	12.3	14.0	14.7	15.4	16.3		
	-15	8.3	9.6	10.0	10.6	11.2	8.9	10.2	10.7	11.3	11.9	9.5	10.9	11.4	12.1	12.7	10.8	12.4	13.0	13.7	14.4	12.3	14.0	14.7	15.4	16.3	12.3	14.0	14.7	15.4	16.3		
	-10	8.4	9.6	10.1	10.6	11.2	8.9	10.3	10.8	11.3	12.0	9.5	10.9	11.5	12.1	12.7	10.9	12.4	13.0	13.7	14.4	12.3	14.0	14.7	15.5	16.3	12.4	14.0	14.7	15.5	16.3		
	-5	8.4	9.6	10.1	10.7	11.3	9.0	10.3	10.8	11.4	12.0	9.6	11.0	11.5	12.1	12.8	10.9	12.4	13.1	13.7	14.5	12.4	14.1	14.8	15.5	16.3	12.4	14.1	14.8	15.5	16.3		
	0	8.5	9.7	10.2	10.7	11.3	9.0	10.3	10.8	11.4	12.0	9.7	11.0	11.6	12.2	12.8	11.0	12.5	13.1	13.8	14.5	12.4	14.1	14.8	15.5	16.3	12.4	14.1	14.8	15.5	16.3		
	5	8.5	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.4	12.0	9.7	11.1	11.6	12.2	12.8	11.0	12.5	13.1	13.8	14.5	12.5	14.2	14.8	15.6	16.4	12.5	14.2	14.8	15.6	16.4		
	10	8.5	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.5	12.1	9.7	11.1	11.6	12.2	12.8	11.1	12.6	13.2	13.8	14.5	12.5	14.2	14.9	15.6	16.4	12.5	14.2	14.9	15.6	16.4		
	15	8.6	9.8	10.2	10.8	11.3	9.1	10.4	10.9	11.5	12.1	9.8	11.1	11.6	12.2	12.8	11.1	12.6	13.2	13.8	14.5	12.6	14.2	14.9	15.6	16.4	12.6	14.2	14.9	15.6	16.4		
	20	8.6	9.8	10.3	10.8	11.3	9.2	10.4	10.9	11.5	12.1	9.8	11.1	11.7	12.2	12.9	11.1	12.6	13.2	13.8	14.5	12.6	14.3	14.9	15.6	16.4	12.6	14.3	14.9	15.6	16.4		
25	8.4	9.5	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	11.9	12.6	10.9	12.3	12.9	13.5	14.2	12.4	14.0	14.6	15.3	16.1	12.5	14.0	14.6	15.3	16.1			
30	7.6	8.6	9.1	9.5	10.0	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.6	10.1	11.5	12.0	12.6	13.2	11.5	13.1	13.7	14.3	15.1	11.5	13.1	13.7	14.3	15.1			
35	6.8	7.7	8.1	8.5	9.0	7.3	8.4	8.8	9.3	9.8	8.0	9.1	9.6	10.1	10.6	9.2	10.5	11.1	11.6	12.2	10.7	12.1	12.7	13.4	14.1	10.7	12.1	12.7	13.4	14.1			
40	6.0	6.8	7.2	7.5	7.9	6.5	7.5	7.9	8.3	8.7	7.1	8.2	8.6	9.0	9.5	8.4	9.7	10.1	10.7	11.3	9.8	11.2	11.8	12.4	13.1	9.8	11.2	11.8	12.4	13.1			
45	5.2	6.0	6.3	6.6	6.9	5.7	6.6	6.9	7.3	7.7	6.3	7.2	7.6	8.0	8.4	7.6	8.7	9.1	9.6	10.2	9.0	10.3	10.8	11.4	12.0	9.0	10.3	10.8	11.4	12.0			
50	4.4	5.1	5.4	5.6	5.9	4.9	5.7	6.0	6.3	6.6	5.5	6.3	6.6	7.0	7.3	6.7	7.7	8.1	8.5	9.0	8.1	9.3	9.8	10.3	10.9	8.1	9.3	9.8	10.3	10.9			
54	3.8	4.4	4.6	4.9	5.2	4.3	5.0	5.2	5.5	5.8	4.8	5.6	5.8	6.1	6.5	6.0	6.9	7.2	7.6	8.1	7.3	8.4	8.9	9.4	9.9	7.3	8.4	8.9	9.4	9.9			
1	-25	8.5	9.7	10.2	10.8	11.4	9.1	10.4	10.9	11.5	12.2	9.7	11.1	11.6	12.3	12.9	11.0	12.6	13.2	13.9	14.6	12.5	14.2	14.9	15.7	16.5	12.5	14.2	14.9	15.7	16.5		
	-20	8.5	9.8	10.3	10.8	11.4	9.1	10.4	11.0	11.5	12.2	9.7	11.1	11.7	12.3	13.0	11.0	12.6	13.2	13.9	14.6	12.5	14.2	14.9	15.7	16.5	12.5	14.2	14.9	15.7	16.5		
	-15	8.6	9.8	10.3	10.9	11.5	9.2	10.5	11.0	11.6	12.2	9.8	11.2	11.7	12.3	13.0	11.1	12.6	13.3	13.9	14.7	12.6	14.3	15.0	15.7	16.5	12.6	14.3	15.0	15.7	16.5		
	-10	8.6	9.9	10.4	10.9	11.5	9.2	10.5	11.0	11.6	12.2	9.8	11.2	11.8	12.4	13.0	11.1	12.7	13.3	14.0	14.7	12.6	14.3	15.0	15.7	16.6	12.6	14.3	15.0	15.7	16.6		
	-5	8.7	9.9	10.4	10.9	11.5	9.3	10.6	11.1	11.6	12.3	9.9	11.3	11.8	12.4	13.0	11.2	12.7	13.3	14.0	14.7	12.7	14.4	15.1	15.8	16.6	12.7	14.4	15.1	15.8	16.6		
	0	8.7	10.0	10.4	11.0	11.5	9.3	10.6	11.1	11.7	12.3	9.9	11.3	11.8	12.4	13.1	11.2	12.8	13.4	14.0	14.7	12.7	14.4	15.1	15.8	16.6	12.7	14.4	15.1	15.8	16.6		
	5	8.8	10.0	10.5	11.0	11.6	9.4	10.6	11.1	11.7	12.3	10.0	11.3	11.9	12.4	13.1	11.3	12.8	13.4	14.1	14.8	12.8	14.5	15.1	15.8	16.6	12.8	14.5	15.1	15.9	16.6		
	10	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.7	12.3	10.0	11.4	11.9	12.5	13.1	11.3	12.8	13.4	14.1	14.8	12.8	14.5	15.1	15.9	16.6	12.8	14.5	15.1	15.9	16.6		
	15	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.7	12.3	10.0	11.4	11.9	12.5	13.1	11.4	12.9	13.4	14.1	14.8	12.9	14.5	15.2	15.9	16.6	12.9	14.5	15.2	15.9	16.6		
	20	8.7	9.8	10.3	10.8	11.4	9.3	10.5	11.0	11.5	12.1	9.9	11.2	11.7	12.3	12.9	11.2	12.7	13.2	13.9	14.5	12.7	14.3	15.0	15.6	16.4	12.7	14.3	15.0	15.6	16.4		
25	7.9	9.0	9.4	9.9	10.4	8.5	9.6	10.1	10.6	11.1	9.1	10.3	10.8	11.3	11.9	10.4	11.8	12.3	12.9	13.5	11.8	13.4	14.0	14.7	15.4	11.8	13.4	14.0	14.7	15.4			
30	7.0	7.9	8.3	8.7	9.2	7.5	8.6	9.0	9.5	10.0	8.2	9.3	9.8	10.3	10.8	9.4	10.8	11.3	11.8	12.5	10.9	12.4	12.9	13.6	14.3	10.9	12.4	12.9	13.6	14.3			
35	6.1	7.0	7.3	7.7	8.1	6.7	7.6	8.0	8.4	8.8	7.3	8.3	8.7	9.2	9.7	8.6	9.8	10.3	10.8	11.4	10.0	11.4	11.9	12.5	13.2	10.0	11.4	11.9	12.5	13.2			
40	5.3	6.1	6.4	6.7	7.1	5.9	6.7	7.0	7.4	7.8	6.4	7.4	7.7	8.1	8.6	7.7	8.8	9.3	9.8	10.3	9.1	10.4	10.9	11.5	12.1	9.1	10.4	10.9	11.5	12.1			
45	4.6	5.2	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7	5.6	6.4	6.7	7.1	7.5	6.8	7.8	8.2	8.7	9.1	8.2	9.4	9.9	10.5	11.1	8.2	9.4	9.9	10.5	11.1			
50	3.8	4.4	4.6	4.8	5.1	4.3	4.9	5.2	5.4	5.7	4.8	5.5	5.8	6.1	6.4	5.9	6.8	7.2	7.6	8.0	7.3	8.4	8.8	9.3	9.9	7.3	8.4	8.8	9.3	9.9			
52	3.5	4.0	4.2	4.5	4.7	4.0	4.6	4.8	5.1	5.3	4.5	5.1	5.4	5.7	6.0	5.6	6.4	6.8	7.1	7.5	6.9	8.0	8.4	8.8	9.3	6.9	8.0	8.4	8.8	9.3			
2	-25	8.7	10.0	10.5	11.0	11.6	9.3	10.6	11.2	11.7	12.4	9.9	11.3	11.9	12.5	13.2	11.2	12.8	13.4	14.1	14.8	12.7	14.5	15.1	15.9	16.7	12.7	14.5	15.1	15.9	16.7		
	-20	8.8	10.0	10.5	11.1	11.6	9.4	10.7	11.2	11.8	12.4	10.0	11.4	11.9	12.5	13.2	11.3	12.8	13.5	14.1	14.9	12.8	14.5	15.2	15.9	16.7	12.8	14.5	15.2	15.9	16.7		
	-15	8.8	10.1	10.5	11.1	11.7	9.4	10.7	11.2	11.8	12.4	10.0	11.4	11.9	12.5	13.2	11.3	12.9	13.5	14.2	14.9	12.8	14.5	15.2	15.9	16.8	12.8	14.5	15.2	15.9	16.8		
	-10	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4	10.1	11.4	12.0	12.6	13.3	11.4	12.9	13.5	14.2	14.9	12.9	14.6	15.3	16.0	16.8	12.9	14.6	15.3	16.0	16.8		
	-5	8.9	10.1	10.6	11.2	11.7	9.5	10.8	11.3	11.9	12.5	10.1	11.5	12.0	12.6	13.3	11.4	13.0	13.6	14.2	14.9	12.9	14.6	15.3	16.0	16.8	12.9	14.6	15.3	16.0	16.8		
	0	9.0	10.2	10.7	11.2	11.8	9.5	10.8	11.3	11.9	12.5	10.2	11.5	12.1	12.6	13.3	11.5	13.0	13.6	14.2	15.0	13.0	14.7	15.3	16.0	16.8	13.0	14.7	15.3	16.0	16.8		
	5	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	11.9	12.5	10.2	11.6	12.1	12.7	13.3	11.5	13.1	13.6	14.3	15.0	13.0	14.7	15.4	16.1	16.8	13.0	14.7	15.4	16.1	16.8		
	10	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	11.9	12.5	10.2	11.6	12.1	12.7	13.3	11.6	13.1	13.7	14.3	15.0	13.1	14.7	15.4	16.1	16.9	13.1	14.7	15.4	16.1	16.9		
	15	8.9	10.0	10.5	11.0	11.6	9.5	10.7	11.2	11.7																							

56FMC-00-00

Figure 4-36 (Sheet 2)

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
OPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		16830					16500					16000					15500					15000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
4000	-30	6.7	7.6	7.9	8.3	8.8	7.0	8.0	8.3	8.8	9.2	7.5	8.6	9.0	9.4	9.9	8.0	9.2	9.6	10.1	10.6	8.6	9.8	10.3	10.8	11.3
	-25	6.7	7.6	8.0	8.4	8.8	7.0	8.0	8.4	8.8	9.2	7.5	8.6	9.0	9.4	9.9	8.1	9.2	9.7	10.1	10.7	8.6	9.8	10.3	10.8	11.3
	-20	6.7	7.7	8.0	8.4	8.8	7.1	8.0	8.4	8.8	9.3	7.6	8.6	9.0	9.5	10.0	8.1	9.2	9.7	10.2	10.7	8.7	9.9	10.3	10.8	11.4
	-15	6.8	7.7	8.1	8.4	8.9	7.1	8.1	8.5	8.9	9.3	7.6	8.7	9.1	9.5	10.0	8.2	9.3	9.7	10.2	10.7	8.7	9.9	10.4	10.9	11.4
	-10	6.8	7.7	8.1	8.5	8.9	7.2	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.0	8.2	9.3	9.8	10.2	10.8	8.8	9.9	10.4	10.9	11.4
	-5	6.9	7.8	8.1	8.5	8.9	7.2	8.2	8.5	8.9	9.4	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8	8.8	10.0	10.4	10.9	11.5
	0	6.9	7.8	8.2	8.6	9.0	7.3	8.2	8.6	9.0	9.4	7.8	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8	8.9	10.0	10.5	11.0	11.5
	5	6.8	7.7	8.0	8.4	8.8	7.1	8.1	8.4	8.8	9.3	7.7	8.7	9.1	9.5	9.9	8.2	9.3	9.7	10.2	10.7	8.8	9.9	10.3	10.8	11.3
	10	6.0	6.7	7.0	7.4	7.7	6.3	7.1	7.4	7.8	8.1	6.8	7.7	8.0	8.4	8.8	7.3	8.3	8.7	9.1	9.5	7.9	8.9	9.3	9.8	10.3
	15	5.2	5.9	6.2	6.4	6.8	5.5	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.4	7.8	6.5	7.3	7.7	8.0	8.4	7.0	7.9	8.3	8.7	9.1
	20	4.4	5.0	5.3	5.5	5.8	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.1	6.4	6.8	5.7	6.4	6.7	7.0	7.4	6.2	7.0	7.3	7.7	8.1
	25	3.7	4.2	4.4	4.6	4.8	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.5	5.7	4.8	5.5	5.8	6.0	6.3	5.3	6.0	6.3	6.6	7.0
	30	3.0	3.4	3.6	3.8	3.9	3.2	3.7	3.9	4.1	4.3	3.6	4.2	4.4	4.6	4.8	4.1	4.6	4.9	5.1	5.4	4.5	5.2	5.4	5.7	6.0
	35	2.3	2.7	2.8	2.9	3.1	2.5	2.9	3.1	3.2	3.4	2.9	3.3	3.5	3.7	3.9	3.3	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	5.0
	40	1.7	1.9	2.0	2.1	2.3	1.9	2.2	2.3	2.4	2.6	2.2	2.6	2.7	2.9	3.0	2.6	3.0	3.2	3.3	3.5	3.0	3.5	3.6	3.8	4.0
	45	1.0	1.2	1.3	1.4	1.5	1.3	1.5	1.6	1.7	1.8	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.5	2.7	2.3	2.7	2.8	3.0	3.2
5000	-35	6.8	7.8	8.1	8.5	9.0	7.2	8.1	8.5	8.9	9.4	7.7	8.7	9.2	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.7	10.0	10.4	10.9	11.5
	-30	6.9	7.8	8.2	8.6	9.0	7.2	8.2	8.6	9.0	9.4	7.7	8.8	9.2	9.6	10.1	8.2	9.4	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.5
	-25	6.9	7.8	8.2	8.6	9.0	7.2	8.2	8.6	9.0	9.5	7.8	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.3	10.9	8.8	10.0	10.5	11.0	11.5
	-20	7.0	7.9	8.2	8.6	9.1	7.3	8.3	8.6	9.1	9.5	7.8	8.9	9.3	9.7	10.2	8.3	9.5	9.9	10.4	10.9	8.9	10.1	10.5	11.0	11.6
	-15	7.0	7.9	8.3	8.7	9.1	7.3	8.3	8.7	9.1	9.5	7.9	8.9	9.3	9.8	10.3	8.4	9.5	9.9	10.4	10.9	9.0	10.1	10.6	11.1	11.6
	-10	7.1	8.0	8.3	8.7	9.2	7.4	8.4	8.7	9.1	9.6	7.9	9.0	9.4	9.8	10.3	8.5	9.6	10.0	10.5	11.0	9.0	10.2	10.6	11.1	11.7
	-5	7.1	8.0	8.4	8.8	9.2	7.5	8.4	8.8	9.2	9.6	8.0	9.0	9.4	9.9	10.4	8.5	9.6	10.0	10.5	11.0	9.1	10.2	10.7	11.2	11.7
	0	6.9	7.8	8.2	8.5	8.9	7.3	8.2	8.6	8.9	9.4	7.8	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8	8.9	10.0	10.4	10.9	11.4
	5	6.1	6.9	7.2	7.6	7.9	6.5	7.3	7.6	8.0	8.3	7.0	7.9	8.2	8.6	9.0	7.5	8.5	8.8	9.3	9.7	8.1	9.1	9.5	10.0	10.5
	10	5.3	6.0	6.3	6.6	6.9	5.6	6.3	6.6	6.9	7.3	6.1	6.9	7.2	7.5	7.9	6.6	7.5	7.8	8.2	8.6	7.1	8.1	8.4	8.8	9.3
	15	4.6	5.2	5.4	5.7	5.9	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.3	6.6	6.9	5.8	6.5	6.8	7.2	7.5	6.3	7.1	7.5	7.8	8.2
	20	3.8	4.3	4.5	4.8	5.0	4.1	4.7	4.9	5.1	5.3	4.5	5.1	5.4	5.6	5.9	5.0	5.7	5.9	6.2	6.5	5.5	6.2	6.5	6.8	7.1
	25	3.1	3.5	3.7	3.9	4.1	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9	4.2	4.8	5.0	5.2	5.5	4.7	5.3	5.5	5.8	6.1
	30	2.4	2.8	2.9	3.1	3.2	2.7	3.1	3.2	3.4	3.5	3.1	3.5	3.7	3.8	4.0	3.5	3.9	4.1	4.3	4.6	3.9	4.4	4.7	4.9	5.1
	35	1.8	2.0	2.1	2.3	2.4	2.0	2.3	2.4	2.5	2.7	2.3	2.7	2.8	3.0	3.1	2.7	3.1	3.3	3.5	3.6	3.1	3.6	3.8	4.0	4.2
	40	1.2	1.4	1.4	1.5	1.6	1.4	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.2	2.3	2.1	2.4	2.5	2.7	2.8	2.5	2.8	3.0	3.1	3.3
42	0.9	1.1	1.2	1.2	1.3	1.1	1.3	1.4	1.5	1.6	1.5	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.5	2.2	2.5	2.7	2.8	3.0	
6000	-35	7.0	7.9	8.3	8.7	9.1	7.3	8.3	8.6	9.1	9.5	7.8	8.9	9.3	9.7	10.2	8.3	9.5	9.9	10.4	10.9	8.9	10.1	10.5	11.0	11.6
	-30	7.0	7.9	8.3	8.7	9.1	7.3	8.3	8.7	9.1	9.6	7.9	8.9	9.3	9.8	10.3	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.6
	-25	7.1	8.0	8.3	8.7	9.2	7.4	8.4	8.7	9.2	9.6	7.9	9.0	9.4	9.8	10.3	8.4	9.6	10.0	10.5	11.0	9.0	10.2	10.6	11.1	11.7
	-20	7.1	8.0	8.4	8.8	9.2	7.5	8.4	8.8	9.2	9.7	8.0	9.0	9.4	9.9	10.4	8.5	9.6	10.1	10.5	11.0	9.1	10.2	10.7	11.2	11.7
	-15	7.2	8.1	8.4	8.8	9.2	7.5	8.5	8.8	9.2	9.7	8.0	9.1	9.5	9.9	10.4	8.6	9.7	10.1	10.6	11.1	9.1	10.3	10.7	11.2	11.7
	-10	7.2	8.1	8.5	8.9	9.3	7.5	8.5	8.9	9.3	9.7	8.1	9.1	9.5	9.9	10.4	8.6	9.7	10.1	10.6	11.1	9.1	10.3	10.8	11.2	11.8
	-5	7.0	7.9	8.2	8.6	9.0	7.3	8.3	8.6	9.0	9.4	7.9	8.9	9.2	9.7	10.1	8.4	9.5	9.9	10.3	10.8	8.9	10.1	10.5	11.0	11.5
	0	6.3	7.1	7.4	7.7	8.1	6.6	7.4	7.7	8.1	8.5	7.1	8.0	8.3	8.7	9.1	7.6	8.6	9.0	9.4	9.8	8.2	9.2	9.6	10.1	10.6
	5	5.5	6.2	6.5	6.7	7.1	5.8	6.5	6.8	7.1	7.5	6.3	7.1	7.4	7.7	8.1	6.8	7.6	8.0	8.4	8.8	7.3	8.3	8.6	9.0	9.5
	10	4.7	5.3	5.5	5.8	6.1	5.0	5.6	5.9	6.1	6.4	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.0	7.3	7.6	6.4	7.3	7.6	7.9	8.3
	15	4.0	4.5	4.7	4.9	5.1	4.2	4.8	5.0	5.2	5.5	4.7	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.3	6.7	5.6	6.4	6.6	7.0	7.3
	20	3.2	3.7	3.9	4.0	4.2	3.5	4.0	4.2	4.4	4.6	3.9	4.4	4.6	4.9	5.1	4.3	4.9	5.2	5.4	5.7	4.8	5.5	5.7	6.0	6.3
	25	2.5	2.9	3.1	3.2	3.4	2.8	3.2	3.3	3.5	3.7	3.2	3.6	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.7	4.0	4.6	4.8	5.0	5.3
	30	1.9	2.2	2.3	2.4	2.5	2.1	2.4	2.5	2.7	2.8	2.5	2.8	3.0	3.1	3.3	2.9	3.3	3.4	3.6	3.8	3.3	3.7	3.9	4.1	4.3
	35	1.2	1.5	1.5	1.6	1.7	1.4	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4	2.2	2.5	2.6	2.8	2.9	2.6	2.9	3.1	3.2	3.4
	39	0.8	0.9	1.0	1.1	1.1	1.0	1.2	1.2	1.3	1.4	1.3	1.5	1.6	1.7	1.8	1.7	1.9	2.0	2.2	2.3	2.0	2.4	2.5	2.6	2.8
7000	-35	6.9	7.8	8.2	8.6	9.0	7.3	8.2	8.6	9.0	9.4	7.8	8.8	9.2	9.7	10.1	8.3	9.4	9.8	10.3	10.8	8.9	10.0	10.5	11.0	11.5
	-30	7.0	7.9	8.2	8.6	9.0	7.3	8.2	8.6	9.0	9.5	7.8	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.3	10.8	8.9	10.1	10.5	11.0	11.5
	-25	7.0	7.9	8.3	8.6	9.1	7.3	8.3	8.7	9.1	9.5	7.9	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.5	11.0	11.6
	-20	7.1	8.0	8.3	8.7	9.1	7.4	8.3	8.7</																	

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
4000	-30	9.2	10.4	10.9	11.5	12.1	9.7	11.1	11.6	12.2	12.8	10.4	11.8	12.3	12.9	13.6	11.7	13.3	13.9	14.5	15.3	13.2	14.9	15.6	16.3	17.1	13.2	14.9	15.6	16.3	17.1
	-25	9.2	10.4	10.9	11.5	12.1	9.8	11.1	11.6	12.2	12.8	10.4	11.8	12.3	12.9	13.6	11.7	13.3	13.9	14.6	15.3	13.2	15.0	15.6	16.4	17.2	13.2	15.0	15.6	16.4	17.2
	-20	9.2	10.5	11.0	11.5	12.1	9.8	11.1	11.7	12.2	12.8	10.5	11.8	12.4	13.0	13.6	11.8	13.3	13.9	14.6	15.3	13.3	15.0	15.7	16.4	17.2	13.3	15.0	15.7	16.4	17.2
	-15	9.3	10.5	11.0	11.5	12.1	9.9	11.2	11.7	12.3	12.9	10.5	11.9	12.4	13.0	13.6	11.9	13.4	14.0	14.6	15.3	13.4	15.1	15.7	16.4	17.2	13.4	15.1	15.7	16.4	17.2
	-10	9.3	10.6	11.1	11.6	12.2	9.9	11.2	11.7	12.3	12.9	10.6	11.9	12.5	13.0	13.7	11.9	13.4	14.0	14.7	15.4	13.4	15.1	15.8	16.5	17.2	13.4	15.1	15.8	16.5	17.2
	-5	9.4	10.6	11.1	11.6	12.2	10.0	11.3	11.8	12.3	12.9	10.6	12.0	12.5	13.1	13.7	12.0	13.5	14.1	14.7	15.4	13.5	15.1	15.8	16.5	17.3	13.5	15.1	15.8	16.5	17.3
	0	9.4	10.7	11.1	11.6	12.2	10.0	11.3	11.8	12.4	13.0	10.7	12.0	12.5	13.1	13.7	12.0	13.5	14.1	14.7	15.4	13.5	15.2	15.8	16.5	17.3	13.5	15.2	15.8	16.5	17.3
	5	9.3	10.5	11.0	11.5	12.1	9.9	11.2	11.7	12.2	12.8	10.6	11.9	12.4	13.0	13.6	11.9	13.4	13.9	14.6	15.2	13.4	15.1	15.7	16.4	17.1	13.4	15.1	15.7	16.4	17.1
	10	8.4	9.6	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.7	9.6	10.9	11.4	11.9	12.5	11.0	12.4	12.9	13.5	14.1	12.4	14.0	14.6	15.3	16.0	12.4	14.0	14.6	15.3	16.0
	15	7.6	8.6	9.0	9.4	9.9	8.2	9.3	9.7	10.2	10.7	8.8	10.0	10.4	10.9	11.5	10.1	11.4	11.9	12.5	13.1	11.5	13.0	13.6	14.2	14.9	11.5	13.0	13.6	14.2	14.9
	20	6.7	7.6	8.0	8.4	8.8	7.3	8.3	8.7	9.1	9.6	7.9	9.0	9.4	9.9	10.4	9.2	10.4	10.9	11.5	12.0	10.6	12.0	12.6	13.2	13.8	10.6	12.0	12.6	13.2	13.8
	25	5.8	6.6	6.9	7.3	7.7	6.4	7.3	7.6	8.0	8.4	7.0	7.9	8.3	8.7	9.2	8.3	9.4	9.9	10.4	10.9	9.7	11.0	11.5	12.1	12.7	9.7	11.0	11.5	12.1	12.7
	30	5.0	5.7	6.0	6.3	6.6	5.5	6.3	6.6	6.9	7.3	6.1	7.0	7.3	7.6	8.0	7.4	8.4	8.8	9.3	9.7	8.8	10.0	10.5	11.0	11.6	8.8	10.0	10.5	11.0	11.6
	35	4.2	4.8	5.1	5.3	5.6	4.7	5.4	5.6	5.9	6.2	5.2	6.0	6.3	6.6	6.9	6.4	7.3	7.7	8.1	8.5	7.8	9.0	9.4	9.9	10.4	7.8	9.0	9.4	9.9	10.4
	40	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.7	5.0	5.2	4.4	5.1	5.3	5.6	5.9	5.6	6.4	6.7	7.0	7.4	6.9	7.9	8.3	8.7	9.2	6.9	7.9	8.3	8.7	9.2
	45	2.8	3.2	3.3	3.5	3.7	3.2	3.7	3.9	4.1	4.3	3.7	4.2	4.4	4.7	4.9	4.7	5.4	5.7	6.0	6.3	6.0	6.9	7.2	7.6	8.0	6.0	6.9	7.2	7.6	8.0
5000	-35	9.3	10.6	11.1	11.6	12.2	9.9	11.2	11.8	12.3	13.0	10.5	11.9	12.5	13.1	13.8	11.9	13.4	14.0	14.7	15.4	13.4	15.1	15.8	16.5	17.3	13.4	15.1	15.8	16.5	17.3
	-30	9.4	10.6	11.1	11.6	12.2	10.0	11.3	11.8	12.4	13.0	10.6	12.0	12.5	13.1	13.8	11.9	13.5	14.1	14.7	15.5	13.4	15.2	15.8	16.5	17.3	13.4	15.2	15.8	16.5	17.3
	-25	9.4	10.7	11.1	11.7	12.3	10.0	11.3	11.8	12.4	13.0	10.6	12.0	12.6	13.2	13.8	12.0	13.5	14.1	14.8	15.5	13.5	15.2	15.9	16.6	17.4	13.5	15.2	15.9	16.6	17.4
	-20	9.5	10.7	11.2	11.7	12.3	10.1	11.4	11.9	12.4	13.0	10.7	12.1	12.6	13.2	13.8	12.0	13.6	14.2	14.8	15.5	13.6	15.2	15.9	16.6	17.4	13.6	15.2	15.9	16.6	17.4
	-15	9.5	10.8	11.2	11.8	12.3	10.1	11.4	11.9	12.5	13.1	10.8	12.1	12.7	13.2	13.9	12.1	13.6	14.2	14.9	15.5	13.6	15.3	16.0	16.7	17.4	13.6	15.3	16.0	16.7	17.4
	-10	9.6	10.8	11.3	11.8	12.4	10.2	11.5	12.0	12.5	13.1	10.8	12.2	12.7	13.3	13.9	12.2	13.7	14.3	14.9	15.6	13.7	15.4	16.0	16.7	17.5	13.7	15.4	16.0	16.7	17.5
	-5	9.6	10.9	11.3	11.9	12.4	10.2	11.5	12.0	12.6	13.2	10.9	12.2	12.8	13.3	13.9	12.2	13.7	14.3	14.9	15.6	13.8	15.4	16.1	16.8	17.5	13.8	15.4	16.1	16.8	17.5
	0	9.4	10.6	11.1	11.6	12.2	10.0	11.3	11.8	12.3	12.9	10.7	12.0	12.5	13.1	13.7	12.0	13.5	14.1	14.7	15.4	13.5	15.2	15.8	16.5	17.2	13.5	15.2	15.8	16.5	17.2
	5	8.6	9.7	10.2	10.6	11.2	9.2	10.4	10.9	11.4	11.9	9.8	11.1	11.6	12.1	12.7	11.1	12.5	13.1	13.7	14.3	12.6	14.2	14.8	15.5	16.2	12.6	14.2	14.8	15.5	16.2
	10	7.7	8.7	9.1	9.6	10.0	8.3	9.4	9.8	10.3	10.8	8.9	10.1	10.5	11.0	11.6	10.2	11.5	12.0	12.6	13.2	11.7	13.2	13.7	14.4	15.0	11.7	13.2	13.7	14.4	15.0
	15	6.8	7.8	8.1	8.5	8.9	7.4	8.4	8.8	9.2	9.7	8.1	9.2	9.6	10.0	10.6	9.3	10.6	11.1	11.6	12.2	10.8	12.2	12.7	13.3	14.0	10.8	12.2	12.7	13.3	14.0
	20	6.0	6.8	7.1	7.5	7.8	6.5	7.4	7.8	8.2	8.6	7.1	8.1	8.5	8.9	9.4	8.4	9.6	10.1	10.6	11.1	9.9	11.2	11.7	12.3	12.9	9.9	11.2	11.7	12.3	12.9
	25	5.1	5.9	6.1	6.4	6.7	5.7	6.5	6.8	7.1	7.4	6.2	7.1	7.4	7.8	8.2	7.5	8.6	9.0	9.4	9.9	8.9	10.1	10.6	11.2	11.7	8.9	10.1	10.6	11.2	11.7
	30	4.4	5.0	5.2	5.5	5.7	4.9	5.5	5.8	6.1	6.4	5.4	6.2	6.4	6.8	7.1	6.6	7.5	7.9	8.3	8.7	8.0	9.2	9.6	10.1	10.6	8.0	9.2	9.6	10.1	10.6
	35	3.6	4.1	4.3	4.5	4.7	4.1	4.6	4.9	5.1	5.4	4.6	5.2	5.5	5.7	6.0	5.7	6.5	6.8	7.2	7.5	7.0	8.0	8.4	8.9	9.3	7.0	8.0	8.4	8.9	9.3
	40	2.9	3.3	3.5	3.7	3.9	3.3	3.8	4.0	4.2	4.4	3.8	4.4	4.6	4.8	5.1	4.9	5.6	5.9	6.2	6.5	6.1	7.0	7.4	7.8	8.2	6.1	7.0	7.4	7.8	8.2
42	2.6	3.0	3.1	3.3	3.5	3.0	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.7	4.6	5.2	5.5	5.8	6.1	5.8	6.6	7.0	7.3	7.7	5.8	6.6	7.0	7.3	7.7	
6000	-35	9.5	10.7	11.2	11.7	12.3	10.1	11.4	11.9	12.5	13.1	10.7	12.1	12.6	13.2	13.9	12.0	13.6	14.2	14.8	15.5	13.5	15.3	15.9	16.6	17.4	13.5	15.3	15.9	16.6	17.4
	-30	9.5	10.8	11.2	11.8	12.3	10.1	11.4	11.9	12.5	13.1	10.7	12.1	12.7	13.2	13.9	12.1	13.6	14.2	14.9	15.6	13.6	15.3	16.0	16.7	17.4	13.6	15.3	16.0	16.7	17.4
	-25	9.6	10.8	11.3	11.8	12.4	10.2	11.5	12.0	12.5	13.1	10.8	12.2	12.7	13.3	13.9	12.2	13.7	14.3	14.9	15.6	13.7	15.4	16.0	16.7	17.5	13.7	15.4	16.0	16.7	17.5
	-20	9.6	10.9	11.3	11.9	12.4	10.2	11.5	12.0	12.6	13.2	10.9	12.2	12.8	13.3	14.0	12.2	13.7	14.3	15.0	15.6	13.7	15.4	16.1	16.8	17.5	13.7	15.4	16.1	16.8	17.5
	-15	9.7	10.9	11.4	11.9	12.5	10.3	11.6	12.1	12.6	13.2	10.9	12.3	12.8	13.4	14.0	12.3	13.8	14.4	15.0	15.7	13.8	15.5	16.1	16.8	17.6	13.8	15.5	16.1	16.8	17.6
	-10	9.7	10.9	11.4	11.9	12.5	10.3	11.6	12.1	12.6	13.2	11.0	12.3	12.8	13.4	14.0	12.3	13.8	14.4	15.0	15.7	13.9	15.5	16.2	16.8	17.6	13.9	15.5	16.2	16.8	17.6
	-5	9.5	10.7	11.2	11.7	12.2	10.1	11.4	11.9	12.4	13.0	10.7	12.1	12.6	13.1	13.7	12.1	13.6	14.1	14.7	15.4	13.6	15.3	15.9	16.6	17.3	13.6	15.3	15.9	16.6	17.3
	0	8.7	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.2	11.7	12.2	12.8	11.3	12.7	13.2	13.8	14.4	12.8	14.3	14.9	15.6	16.3	12.8	14.3	14.9	15.6	16.3
	5	7.9	8.9	9.3	9.8	10.3	8.5	9.6	10.0	10.5	11.0	9.1	10.3	10.7																	

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
8000	-35	7.1	8.0	8.4	8.8	9.2		7.4	8.4	8.8	9.2	9.6		8.0	9.0	9.4	9.9	10.3		8.5	9.6	10.0	10.5	11.0		9.0	10.2	10.7	11.1	11.7	
	-30	7.1	8.1	8.4	8.8	9.2		7.5	8.4	8.8	9.2	9.7		8.0	9.0	9.4	9.9	10.4		8.5	9.6	10.1	10.5	11.0		9.1	10.2	10.7	11.2	11.7	
	-25	7.2	8.1	8.5	8.8	9.2		7.5	8.5	8.9	9.3	9.7		8.1	9.1	9.5	9.9	10.4		8.6	9.7	10.1	10.5	11.0		9.1	10.3	10.7	11.2	11.7	
	-20	7.0	7.9	8.2	8.6	9.0		7.3	8.3	8.6	9.0	9.4		7.9	8.9	9.2	9.7	10.1		8.4	9.5	9.9	10.3	10.8		8.9	10.1	10.5	11.0	11.5	
	-15	6.6	7.4	7.7	8.1	8.4		6.9	7.8	8.1	8.5	8.8		7.4	8.3	8.7	9.1	9.5		7.9	9.0	9.4	9.8	10.2		8.5	9.6	10.0	10.4	10.9	
	-10	6.2	6.9	7.2	7.6	7.9		6.5	7.3	7.6	8.0	8.3		7.0	7.9	8.2	8.6	9.0		7.5	8.5	8.8	9.2	9.7		8.1	9.1	9.5	9.9	10.4	
	-5	5.7	6.4	6.7	7.0	7.3		6.0	6.8	7.0	7.4	7.7		6.5	7.3	7.6	8.0	8.3		7.0	7.9	8.2	8.6	9.0		7.6	8.5	8.9	9.3	9.7	
	0	5.0	5.6	5.8	6.1	6.4		5.3	5.9	6.2	6.5	6.8		5.7	6.5	6.7	7.0	7.4		6.2	7.0	7.3	7.6	8.0		6.7	7.6	7.9	8.3	8.7	
	5	4.2	4.8	5.0	5.2	5.5		4.5	5.1	5.3	5.6	5.8		5.0	5.6	5.8	6.1	6.4		5.4	6.1	6.4	6.7	7.0		5.9	6.7	7.0	7.3	7.6	
	10	3.5	4.0	4.1	4.3	4.5		3.8	4.2	4.4	4.6	4.9		4.2	4.7	4.9	5.2	5.4		4.6	5.2	5.4	5.7	6.0		5.1	5.8	6.0	6.3	6.6	
	15	2.8	3.2	3.3	3.5	3.7		3.1	3.5	3.6	3.8	4.0		3.4	3.9	4.1	4.3	4.5		3.9	4.4	4.6	4.8	5.0		4.3	4.9	5.1	5.3	5.6	
	20	2.1	2.4	2.6	2.7	2.8		2.4	2.7	2.8	3.0	3.1		2.7	3.1	3.3	3.4	3.6		3.1	3.6	3.7	3.9	4.1		3.5	4.0	4.2	4.4	4.6	
	25	1.5	1.7	1.8	1.9	2.0		1.7	2.0	2.1	2.2	2.3		2.0	2.4	2.5	2.6	2.7		2.4	2.8	2.9	3.1	3.2		2.8	3.2	3.4	3.5	3.7	
	30	0.8	1.0	1.1	1.1	1.2		1.0	1.2	1.3	1.4	1.5		1.4	1.6	1.7	1.8	1.9		1.7	2.0	2.1	2.2	2.3		2.1	2.4	2.5	2.7	2.8	
	33	0.5	0.6	0.7	0.7	0.8		0.7	0.9	0.9	1.0	1.1		1.0	1.2	1.3	1.4	1.5		1.4	1.6	1.7	1.8	1.9		1.7	2.0	2.1	2.2	2.3	
9000	-35	7.0	7.9	8.2	8.6	9.0		7.3	8.2	8.6	9.0	9.4		7.8	8.8	9.2	9.6	10.1		8.4	9.4	9.8	10.3	10.8		8.9	10.0	10.5	11.0	11.5	
	-30	7.0	7.9	8.2	8.6	9.0		7.3	8.3	8.6	9.0	9.4		7.9	8.9	9.2	9.7	10.1		8.4	9.5	9.9	10.3	10.8		8.9	10.1	10.5	11.0	11.5	
	-25	6.9	7.7	8.0	8.4	8.8		7.2	8.1	8.4	8.8	9.2		7.7	8.7	9.0	9.5	9.9		8.2	9.3	9.7	10.1	10.6		8.8	9.9	10.3	10.8	11.3	
	-20	6.4	7.2	7.5	7.9	8.2		6.7	7.6	7.9	8.3	8.6		7.2	8.2	8.5	8.9	9.3		7.8	8.8	9.2	9.6	10.0		8.3	9.4	9.8	10.2	10.7	
	-15	5.9	6.7	7.0	7.3	7.6		6.2	7.0	7.3	7.7	8.0		6.7	7.6	7.9	8.3	8.6		7.3	8.2	8.5	8.9	9.3		7.8	8.8	9.2	9.6	10.1	
	-10	5.6	6.3	6.5	6.8	7.1		5.9	6.6	6.9	7.2	7.5		6.3	7.1	7.4	7.8	8.1		6.9	7.7	8.1	8.4	8.8		7.4	8.3	8.7	9.1	9.5	
	-5	5.1	5.7	5.9	6.2	6.5		5.4	6.0	6.3	6.6	6.9		5.8	6.6	6.8	7.1	7.5		6.3	7.1	7.4	7.8	8.1		6.8	7.7	8.0	8.4	8.8	
	0	4.4	4.9	5.1	5.4	5.6		4.6	5.2	5.5	5.7	6.0		5.1	5.7	6.0	6.2	6.5		5.6	6.3	6.5	6.8	7.1		6.1	6.8	7.1	7.4	7.8	
	5	3.6	4.1	4.3	4.5	4.7		3.9	4.4	4.6	4.8	5.0		4.3	4.9	5.1	5.3	5.6		4.8	5.4	5.6	5.9	6.1		5.2	5.9	6.2	6.4	6.7	
	10	2.9	3.3	3.5	3.6	3.8		3.2	3.6	3.8	3.9	4.1		3.6	4.1	4.2	4.4	4.6		4.0	4.5	4.7	5.0	5.2		4.5	5.0	5.3	5.5	5.8	
	15	2.3	2.6	2.7	2.8	3.0		2.5	2.8	3.0	3.1	3.3		2.9	3.3	3.4	3.6	3.8		3.3	3.7	3.9	4.1	4.3		3.7	4.2	4.4	4.6	4.8	
	20	1.6	1.9	2.0	2.1	2.2		1.8	2.1	2.2	2.3	2.5		2.2	2.5	2.6	2.8	2.9		2.6	2.9	3.1	3.2	3.4		3.0	3.4	3.5	3.7	3.9	
	25	1.0	1.2	1.2	1.3	1.4		1.2	1.4	1.5	1.6	1.6		1.5	1.8	1.9	2.0	2.1		1.9	2.2	2.3	2.4	2.5		2.3	2.6	2.7	2.9	3.0	
	30	0.4	0.5	0.6	0.6	0.7		0.6	0.7	0.8	0.8	0.9		0.9	1.1	1.1	1.2	1.3		1.2	1.5	1.5	1.6	1.7		1.6	1.9	2.0	2.1	2.2	
	31	0.3	0.4	0.4	0.5	0.5		0.5	0.6	0.6	0.7	0.7		0.8	0.9	1.0	1.1	1.1		1.1	1.3	1.4	1.5	1.6		1.5	1.7	1.8	1.9	2.0	
10000	-35	6.8	7.6	8.0	8.3	8.7		7.1	8.0	8.4	8.7	9.1		7.6	8.6	9.0	9.4	9.8		8.2	9.2	9.6	10.1	10.5		8.7	9.8	10.2	10.7	11.2	
	-30	6.6	7.4	7.7	8.1	8.4		6.9	7.8	8.1	8.5	8.9		7.4	8.4	8.7	9.1	9.5		8.0	9.0	9.4	9.8	10.3		8.5	9.6	10.0	10.5	10.9	
	-25	6.2	7.0	7.3	7.6	8.0		6.5	7.3	7.7	8.0	8.4		7.0	7.9	8.3	8.6	9.0		7.6	8.5	8.9	9.3	9.7		8.1	9.2	9.6	10.0	10.4	
	-20	5.8	6.5	6.8	7.1	7.4		6.1	6.9	7.2	7.5	7.8		6.6	7.4	7.7	8.1	8.4		7.1	8.0	8.3	8.7	9.1		7.7	8.6	9.0	9.4	9.9	
	-15	5.3	6.0	6.2	6.5	6.8		5.6	6.3	6.6	6.9	7.2		6.1	6.9	7.1	7.5	7.8		6.6	7.4	7.7	8.1	8.5		7.1	8.0	8.4	8.8	9.2	
	-10	5.0	5.6	5.8	6.1	6.4		5.3	5.9	6.2	6.4	6.7		5.7	6.4	6.7	7.0	7.3		6.2	7.0	7.3	7.6	8.0		6.7	7.6	7.9	8.3	8.6	
	-5	4.5	5.0	5.2	5.5	5.7		4.7	5.3	5.6	5.8	6.1		5.2	5.8	6.1	6.4	6.6		5.7	6.4	6.6	6.9	7.3		6.2	6.9	7.2	7.6	7.9	
	0	3.8	4.3	4.4	4.6	4.9		4.0	4.6	4.7	5.0	5.2		4.5	5.0	5.2	5.5	5.7		4.9	5.5	5.8	6.0	6.3		5.4	6.1	6.3	6.6	6.9	
	5	3.1	3.5	3.6	3.8	4.0		3.3	3.8	3.9	4.1	4.3		3.7	4.2	4.4	4.6	4.8		4.2	4.7	4.9	5.1	5.4		4.6	5.2	5.4	5.7	6.0	
	10	2.4	2.7	2.9	3.0	3.1		2.6	3.0	3.1	3.3	3.4		3.0	3.4	3.6	3.8	3.9		3.4	3.9	4.1	4.2	4.5		3.9	4.4	4.6	4.8	5.0	
	15	1.7	2.0	2.1	2.2	2.3		2.0	2.2	2.3	2.5	2.6		2.3	2.6	2.8	2.9	3.0		2.7	3.1	3.2	3.4	3.5		3.1	3.5	3.7	3.9	4.1	
	20	1.1	1.3	1.4	1.5	1.5		1.3	1.5	1.6	1.7	1.8		1.7	1.9	2.0	2.1	2.2		2.0	2.3	2.4	2.6	2.7		2.4	2.8	2.9	3.0	3.2	
	25	0.5	0.6	0.7	0.7	0.8		0.7	0.8	0.9	1.0	1.0		1.0	1.2	1.3	1.3	1.4		1.3	1.6	1.7	1.8	1.9		1.7	2.0	2.1	2.2	2.3	
	29	0.0	0.1	0.1	0.2	0.2		0.2	0.3	0.4	0.4	0.5		0.5	0.7	0.7	0.8	0.8		0.9	1.0	1.1	1.2	1.2		1.2	1.4	1.5	1.6	1.7	
	11000	-35	6.0	6.8	7.0	7.4	7.7		6.3	7.1	7.4	7.7	8.1		6.8	7.7	8.0	8.3	8.7		7.3	8.3	8.6	9.0	9.4		7.9	8.9	9.3	9.7	10.2
-30		5.7	6.4	6.6	6.9	7.2		6.0	6.7	7.0	7.3	7.6		6.4	7.2	7.5	7.9	8.2		6.9	7.8	8.1	8.5	8.9		7.5	8.4	8.8	9.2	9.6	
-25		5.3	6.0	6.2	6.5	6.8		5.6	6.3	6.6	6.9	7.2		6.1	6.8	7.1	7.4	7.8		6.6	7.4	7.7	8.1	8.4		7.1	8.0	8.3	8.7	9.1	
-20		4.9	5.5	5.7	6.0	6.3		5.2	5.8	6.1	6.3	6.6		5.6	6.3	6.6	6.9	7.2		6.1	6.9	7.2	7.5	7.8		6.7	7.5	7.8	8.2	8.5	
-15		4.5	5.0	5.2	5.5	5.7		4.7	5.3	5.6	5.8	6.1		5.2	5.8	6.1	6.3	6.6		5.7	6.4	6.6	6.9	7.2		6.2	6.9	7.2	7.6	7.9	
-10		4.1	4.6	4.8	5.1	5.3		4.4	4.9	5.2	5.4	5.6		4.8	5.																

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8000	-35	9.6	10.8	11.3	11.8	12.4	10.2	11.5	12.0	12.6	13.1	10.9	12.2	12.7	13.3	13.9	12.2	13.7	14.3	14.9	15.6
	-30	9.7	10.9	11.4	11.9	12.4	10.3	11.5	12.0	12.6	13.2	10.9	12.2	12.8	13.3	13.9	12.3	13.7	14.3	14.9	15.6
	-25	9.7	10.9	11.4	11.9	12.4	10.3	11.6	12.1	12.6	13.2	11.0	12.3	12.8	13.4	14.0	12.3	13.8	14.4	15.0	15.6
	-20	9.5	10.7	11.2	11.7	12.2	10.1	11.4	11.8	12.4	12.9	10.8	12.1	12.6	13.1	13.7	12.1	13.6	14.1	14.7	15.4
	-15	9.1	10.2	10.6	11.1	11.6	9.7	10.9	11.3	11.8	12.4	10.3	11.6	12.0	12.6	13.2	11.6	13.0	13.6	14.2	14.8
	-10	8.6	9.7	10.2	10.6	11.1	9.2	10.4	10.8	11.3	11.9	9.9	11.1	11.6	12.1	12.6	11.2	12.6	13.1	13.7	14.3
	-5	8.1	9.2	9.6	10.0	10.5	8.7	9.8	10.3	10.7	11.2	9.3	10.5	11.0	11.5	12.0	10.6	12.0	12.5	13.0	13.6
	0	7.3	8.2	8.6	9.0	9.4	7.9	8.9	9.3	9.8	10.2	8.5	9.6	10.0	10.5	11.0	9.8	11.1	11.5	12.1	12.6
	5	6.5	7.3	7.6	8.0	8.4	7.0	7.9	8.3	8.7	9.1	7.6	8.7	9.0	9.5	9.9	8.9	10.1	10.6	11.0	11.6
	10	5.6	6.3	6.6	6.9	7.2	6.1	6.9	7.3	7.6	8.0	6.7	7.6	8.0	8.3	8.7	8.0	9.1	9.5	10.0	10.5
	15	4.8	5.4	5.7	5.9	6.2	5.3	6.0	6.3	6.6	6.9	5.9	6.6	6.9	7.3	7.6	7.1	8.1	8.4	8.8	9.3
	20	4.0	4.5	4.8	5.0	5.2	4.5	5.1	5.3	5.6	5.9	5.0	5.7	6.0	6.2	6.5	6.2	7.0	7.4	7.7	8.1
9000	-35	9.5	10.7	11.1	11.6	12.2	10.1	11.3	11.8	12.4	12.9	10.7	12.0	12.6	13.1	13.7	12.1	13.5	14.1	14.7	15.4
	-30	9.5	10.7	11.2	11.7	12.2	10.1	11.4	11.9	12.4	12.9	10.8	12.1	12.6	13.1	13.7	12.1	13.6	14.1	14.7	15.4
	-25	9.4	10.5	11.0	11.5	12.0	10.0	11.2	11.7	12.2	12.7	10.6	11.9	12.4	12.9	13.5	12.0	13.4	13.9	14.5	15.2
	-20	8.9	10.0	10.5	10.9	11.4	9.5	10.7	11.1	11.6	12.2	10.1	11.4	11.9	12.4	12.9	11.5	12.9	13.4	14.0	14.6
	-15	8.4	9.5	9.9	10.3	10.8	9.0	10.1	10.5	11.0	11.5	9.6	10.8	11.3	11.8	12.3	10.9	12.3	12.8	13.3	13.9
	-10	8.0	9.0	9.4	9.8	10.3	8.6	9.7	10.1	10.5	11.0	9.2	10.3	10.8	11.3	11.8	10.5	11.8	12.3	12.8	13.4
	-5	7.4	8.4	8.7	9.1	9.5	8.0	9.0	9.4	9.9	10.4	8.6	9.7	10.1	10.6	11.1	9.9	11.2	11.6	12.2	12.7
	0	6.6	7.4	7.8	8.1	8.5	7.2	8.1	8.5	8.8	9.3	7.8	8.8	9.2	9.6	10.1	9.1	10.2	10.7	11.2	11.7
	5	5.7	6.5	6.8	7.1	7.4	6.3	7.1	7.4	7.8	8.1	6.9	7.8	8.1	8.5	8.9	8.2	9.3	9.7	10.1	10.6
	10	4.9	5.6	5.8	6.1	6.4	5.5	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.4	7.8	7.3	8.2	8.6	9.0	9.5
	15	4.2	4.7	4.9	5.2	5.4	4.6	5.3	5.5	5.8	6.0	5.2	5.9	6.1	6.4	6.7	6.4	7.2	7.5	7.9	8.3
	20	3.4	3.9	4.0	4.2	4.5	3.9	4.4	4.6	4.8	5.1	4.4	5.0	5.2	5.4	5.7	5.5	6.2	6.5	6.8	7.2
10000	-35	9.3	10.5	10.9	11.4	11.9	9.9	11.1	11.6	12.1	12.7	10.5	11.8	12.3	12.9	13.4	11.9	13.3	13.9	14.5	15.1
	-30	9.1	10.2	10.7	11.1	11.7	9.7	10.9	11.3	11.8	12.4	10.3	11.6	12.1	12.6	13.2	11.7	13.1	13.6	14.2	14.8
	-25	8.7	9.8	10.2	10.7	11.2	9.3	10.4	10.9	11.4	11.9	9.9	11.1	11.6	12.1	12.7	11.2	12.6	13.1	13.7	14.3
	-20	8.2	9.3	9.7	10.1	10.6	8.8	9.9	10.4	10.8	11.3	9.4	10.6	11.1	11.6	12.1	10.8	12.1	12.6	13.1	13.7
	-15	7.7	8.7	9.1	9.5	9.9	8.3	9.4	9.8	10.2	10.7	8.9	10.0	10.5	10.9	11.4	10.2	11.5	12.0	12.5	13.1
	-10	7.3	8.2	8.6	9.0	9.4	7.9	8.9	9.3	9.7	10.2	8.5	9.6	10.0	10.4	10.9	9.8	11.0	11.5	12.0	12.6
	-5	6.7	7.6	7.9	8.2	8.6	7.3	8.2	8.6	9.0	9.4	7.9	8.9	9.3	9.8	10.2	9.2	10.4	10.8	11.3	11.8
	0	5.9	6.7	7.0	7.3	7.6	6.5	7.3	7.6	8.0	8.3	7.1	8.0	8.3	8.7	9.1	8.4	9.4	9.9	10.3	10.8
	5	5.1	5.8	6.0	6.3	6.6	5.6	6.4	6.6	6.9	7.3	6.2	7.0	7.3	7.7	8.0	7.5	8.4	8.8	9.2	9.7
	10	4.3	4.9	5.1	5.3	5.6	4.8	5.5	5.7	6.0	6.2	5.3	6.1	6.3	6.6	6.9	6.5	7.4	7.8	8.1	8.5
	15	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.8	5.0	5.2	4.5	5.1	5.3	5.6	5.9	5.6	6.4	6.7	7.0	7.4
	20	2.8	3.2	3.4	3.5	3.7	3.3	3.7	3.9	4.1	4.3	3.7	4.2	4.4	4.7	4.9	4.8	5.5	5.7	6.0	6.3
11000	-35	8.5	9.5	9.9	10.4	10.9	9.1	10.2	10.6	11.1	11.6	9.7	10.9	11.3	11.8	12.4	11.0	12.3	12.9	13.4	14.0
	-30	8.1	9.1	9.5	9.9	10.4	8.7	9.7	10.2	10.6	11.1	9.3	10.4	10.9	11.3	11.9	10.6	11.9	12.4	12.9	13.5
	-25	7.7	8.7	9.0	9.4	9.9	8.3	9.3	9.7	10.2	10.6	8.9	10.0	10.4	10.9	11.4	10.2	11.5	11.9	12.5	13.0
	-20	7.2	8.1	8.5	8.8	9.3	7.8	8.8	9.2	9.6	10.0	8.4	9.5	9.9	10.3	10.8	9.7	10.9	11.4	11.9	12.4
	-15	6.7	7.5	7.9	8.2	8.6	7.3	8.2	8.6	8.9	9.4	7.9	8.9	9.3	9.7	10.2	9.2	10.3	10.8	11.3	11.8
	-10	6.3	7.1	7.4	7.7	8.1	6.9	7.7	8.1	8.4	8.8	7.5	8.4	8.8	9.2	9.6	8.8	9.9	10.3	10.8	11.3
	-5	5.8	6.5	6.8	7.1	7.4	6.3	7.1	7.4	7.7	8.1	6.9	7.8	8.1	8.5	8.9	8.2	9.2	9.7	10.1	10.6
	0	5.0	5.7	5.9	6.2	6.4	5.5	6.2	6.5	6.8	7.1	6.1	6.9	7.2	7.5	7.9	7.3	8.3	8.7	9.1	9.5
	5	4.3	4.8	5.0	5.3	5.5	4.8	5.4	5.6	5.9	6.1	5.3	6.0	6.2	6.5	6.8	6.5	7.3	7.6	8.0	8.4
	10	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.7	4.9	5.2	4.5	5.1	5.3	5.5	5.8	5.6	6.3	6.6	6.9	7.3
	15	2.8	3.2	3.3	3.5	3.7	3.2	3.7	3.9	4.0	4.2	3.7	4.2	4.4	4.6	4.8	4.8	5.4	5.7	5.9	6.2
	20	2.1	2.4	2.5	2.7	2.8	2.5	2.9	3.0	3.2	3.3	3.0	3.4	3.6	3.7	3.9	4.0	4.5	4.7	5.0	5.2
12000	-35	1.5	1.7	1.8	1.9	2.0	1.9	2.1	2.3	2.4	2.5	2.3	2.6	2.7	2.9	3.0	3.2	3.7	3.9	4.1	4.3
	-30	1.3	1.5	1.6	1.7	1.8	1.7	2.0	2.1	2.2	2.3	2.1	2.4	2.6	2.7	2.8	3.1	3.5	3.7	3.8	4.0

56FMC-00-00

Figure 4-36 (Sheet 6)

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	5.5	6.4	6.7	7.1	7.5	5.8	6.7	7.1	7.5	7.9	6.3	7.3	7.7	8.1	8.6	6.8	7.9	8.3	8.8	9.3	7.4	8.5	9.0	9.5	10.1	7.4	8.5	9.0	9.5	10.1
	-30	5.6	6.4	6.8	7.1	7.5	5.9	6.8	7.1	7.5	7.9	6.3	7.3	7.7	8.1	8.6	6.9	7.9	8.3	8.8	9.3	7.4	8.6	9.0	9.5	10.1	7.4	8.6	9.0	9.5	10.1
	-25	5.6	6.4	6.8	7.1	7.6	5.9	6.8	7.2	7.5	8.0	6.4	7.4	7.7	8.2	8.6	6.9	8.0	8.4	8.8	9.3	7.4	8.6	9.0	9.5	10.1	7.4	8.6	9.0	9.5	10.1
	-20	5.6	6.5	6.8	7.2	7.6	5.9	6.8	7.2	7.6	8.0	6.4	7.4	7.8	8.2	8.7	6.9	8.0	8.4	8.9	9.4	7.5	8.6	9.1	9.6	10.1	7.5	8.6	9.1	9.6	10.1
	-15	5.7	6.5	6.9	7.2	7.6	6.0	6.9	7.2	7.6	8.0	6.5	7.4	7.8	8.2	8.7	7.0	8.0	8.5	8.9	9.4	7.5	8.7	9.1	9.6	10.2	7.5	8.7	9.1	9.6	10.2
	-10	5.7	6.6	6.9	7.3	7.7	6.0	6.9	7.3	7.7	8.1	6.5	7.5	7.9	8.3	8.7	7.0	8.1	8.5	8.9	9.4	7.6	8.7	9.2	9.7	10.2	7.6	8.7	9.2	9.7	10.2
	-5	5.8	6.6	6.9	7.3	7.7	6.1	7.0	7.3	7.7	8.1	6.6	7.5	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.5	7.6	8.8	9.2	9.7	10.3	7.6	8.8	9.2	9.7	10.3
	0	5.8	6.7	7.0	7.3	7.7	6.1	7.0	7.3	7.7	8.1	6.6	7.6	7.9	8.4	8.8	7.1	8.2	8.6	9.0	9.5	7.7	8.8	9.3	9.7	10.3	7.7	8.8	9.3	9.7	10.3
	5	5.9	6.7	7.0	7.4	7.8	6.2	7.0	7.4	7.8	8.2	6.7	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.1	9.5	7.7	8.9	9.3	9.8	10.3	7.7	8.9	9.3	9.8	10.3
	10	5.8	6.7	7.0	7.3	7.7	6.1	7.0	7.3	7.7	8.1	6.6	7.6	7.9	8.3	8.8	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.3	9.7	10.3	7.7	8.8	9.3	9.7	10.3
10	-35	5.8	6.7	7.0	7.4	7.8	6.1	7.0	7.4	7.8	8.2	6.6	7.6	8.0	8.4	8.9	7.1	8.2	8.6	9.1	9.6	7.7	8.9	9.3	9.8	10.4	7.7	8.9	9.3	9.8	10.4
	-30	5.8	6.7	7.1	7.4	7.8	6.1	7.1	7.4	7.8	8.3	6.6	7.6	8.0	8.5	8.9	7.2	8.2	8.7	9.1	9.7	7.7	8.9	9.3	9.9	10.4	7.7	8.9	9.3	9.9	10.4
	-25	5.9	6.7	7.1	7.5	7.9	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7	7.8	8.9	9.4	9.9	10.5	7.8	8.9	9.4	9.9	10.5
	-20	5.9	6.8	7.1	7.5	7.9	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7	7.8	9.0	9.4	9.9	10.5	7.8	9.0	9.4	9.9	10.5
	-15	6.0	6.8	7.2	7.5	7.9	6.3	7.2	7.5	7.9	8.4	6.8	7.8	8.1	8.6	9.0	7.3	8.4	8.8	9.2	9.8	7.9	9.0	9.5	10.0	10.5	7.9	9.0	9.5	10.0	10.5
	-10	6.0	6.9	7.2	7.6	8.0	6.3	7.2	7.6	8.0	8.4	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.3	9.8	7.9	9.1	9.5	10.0	10.6	7.9	9.1	9.5	10.0	10.6
	-5	6.1	6.9	7.3	7.6	8.0	6.4	7.3	7.6	8.0	8.4	6.9	7.9	8.2	8.7	9.1	7.4	8.5	8.9	9.3	9.8	8.0	9.1	9.6	10.1	10.6	8.0	9.1	9.6	10.1	10.6
	0	6.1	7.0	7.3	7.7	8.1	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.7	9.2	7.5	8.5	8.9	9.4	9.9	8.0	9.2	9.6	10.1	10.6	8.0	9.2	9.6	10.1	10.6
	5	6.1	7.0	7.3	7.7	8.1	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.7	9.2	7.5	8.5	8.9	9.4	9.9	8.0	9.2	9.6	10.1	10.6	8.0	9.2	9.6	10.1	10.6
	10	5.6	6.4	6.7	7.0	7.4	5.9	6.7	7.0	7.4	7.8	6.4	7.3	7.6	8.0	8.4	6.9	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.4	9.9	7.5	8.5	8.9	9.4	9.9
20	-35	6.0	6.9	7.3	7.7	8.1	6.4	7.3	7.7	8.1	8.5	6.8	7.9	8.3	8.7	9.2	7.4	8.5	8.9	9.4	9.9	7.9	9.1	9.6	10.1	10.7	7.9	9.1	9.6	10.1	10.7
	-30	6.1	7.0	7.3	7.7	8.1	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.7	9.2	7.4	8.5	8.9	9.4	10.0	8.0	9.2	9.6	10.1	10.7	8.0	9.2	9.6	10.1	10.7
	-25	6.1	7.0	7.4	7.7	8.1	6.5	7.4	7.7	8.1	8.6	6.9	7.9	8.3	8.8	9.3	7.5	8.6	9.0	9.5	10.0	8.0	9.2	9.7	10.2	10.7	8.0	9.2	9.7	10.2	10.7
	-20	6.2	7.1	7.4	7.8	8.2	6.5	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.8	9.3	7.5	8.6	9.0	9.5	10.0	8.1	9.2	9.7	10.2	10.8	8.1	9.2	9.7	10.2	10.8
	-15	6.2	7.1	7.4	7.8	8.2	6.5	7.5	7.8	8.2	8.7	7.0	8.0	8.4	8.9	9.3	7.6	8.7	9.1	9.6	10.1	8.1	9.3	9.8	10.3	10.8	8.1	9.3	9.8	10.3	10.8
	-10	6.3	7.1	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.2	9.3	9.8	10.3	10.8
	-5	6.3	7.2	7.5	7.9	8.3	6.6	7.6	7.9	8.3	8.7	7.1	8.1	8.5	9.0	9.4	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.9	10.3	10.9	8.2	9.4	9.9	10.3	10.9
	0	6.4	7.2	7.6	7.9	8.3	6.7	7.6	8.0	8.3	8.8	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.4	10.9	8.3	9.4	9.9	10.4	10.9
	5	5.8	6.6	6.9	7.3	7.6	6.1	7.0	7.3	7.7	8.1	6.6	7.5	7.9	8.3	8.7	7.2	8.1	8.5	9.0	9.4	7.7	8.8	9.2	9.7	10.2	7.7	8.8	9.2	9.7	10.2
	10	5.0	5.7	5.9	6.2	6.5	5.3	6.0	6.3	6.6	6.9	5.7	6.5	6.8	7.2	7.5	6.2	7.1	7.4	7.8	8.2	6.7	7.7	8.1	8.5	8.9	6.7	7.7	8.1	8.5	8.9
30	-35	6.3	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.4	7.6	8.7	9.2	9.6	10.2	8.2	9.4	9.8	10.3	10.9	8.2	9.4	9.8	10.3	10.9
	-30	6.3	7.2	7.5	7.9	8.4	6.6	7.6	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.5	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.9	10.4	10.9	8.2	9.4	9.9	10.4	10.9
	-25	6.3	7.2	7.6	8.0	8.4	6.7	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.3	9.7	10.2	8.3	9.4	9.9	10.4	11.0	8.3	9.4	9.9	10.4	11.0
	-20	6.4	7.3	7.6	8.0	8.4	6.7	7.7	8.0	8.4	8.9	7.2	8.2	8.6	9.1	9.6	7.8	8.9	9.3	9.8	10.3	8.3	9.5	10.0	10.5	11.0	8.3	9.5	10.0	10.5	11.0
	-15	6.5	7.3	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.4	9.8	10.3	8.4	9.5	10.0	10.5	11.1	8.4	9.5	10.0	10.5	11.1
	-10	6.5	7.4	7.7	8.1	8.5	6.8	7.8	8.1	8.5	9.0	7.3	8.4	8.8	9.2	9.7	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.1	10.5	11.1	8.4	9.6	10.1	10.5	11.1
	-5	6.6	7.5	7.8	8.2	8.6	6.9	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.2	9.7	8.0	9.0	9.5	9.9	10.4	8.5	9.7	10.1	10.6	11.1	8.5	9.7	10.1	10.6	11.1
	0	6.1	6.9	7.2	7.6	7.9	6.4	7.2	7.6	7.9	8.3	6.9	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.3	9.7	8.0	9.1	9.5	10.0	10.5	8.0	9.1	9.5	10.0	10.5
	5	5.2	5.9	6.2	6.5	6.8	5.5	6.3	6.6	6.9	7.2	6.0	6.8	7.1	7.5	7.9	6.5	7.4	7.7	8.1	8.5	7.0	8.0	8.4	8.8	9.2	7.0	8.0	8.4	8.8	9.2
	10	4.3	5.0	5.2	5.4	5.7	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7	5.5	6.3	6.6	7.0	7.3	6.1	6.9	7.2	7.6	8.0	6.1	6.9	7.2	7.6	8.0
40	-35	6.5	7.4	7.8	8.2	8.6	6.8	7.8	8.2	8.6	9.0	7.3	8.4	8.8	9.2	9.7	7.9	9.0	9.5	9.9	10.5	8.4	9.6	10.1	10.6	11.2	8.4	9.6	10.1	10.6	11.2
	-30	6.5	7.5	7.8	8.2	8.6	6.9	7.8	8.2	8.6	9.1	7.4	8.4	8.8	9.3	9.8	7.9	9.1	9.5	10.0	10.5	8.5	9.7	10.1	10.6	11.2	8.5	9.7	10.1	10.6	11.2
	-25	6.6	7.5	7.9	8.2	8.7	6.9	7.9	8.2	8.7	9.1	7.4	8.5	8.9	9.3	9.8	8.0	9.1	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.2	8.5	9.7	10.2	10.7	11.2
	-20	6.6	7.5	7.9	8.3	8.7	7.0	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.4	9.8	8.0	9.1	9.6	10.1	10.6	8.6	9.7	10.2	10.7	11.3	8.6	9.7	10.2	10.7	11.3
	-15	6.7	7.6	8.0	8.3	8.8	7.0	8.0	8.3	8.7	9.2	7.5	8.6	9.0	9.4	9.9	8.1	9.2	9.6	10.1	10.6										

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	7.9	9.2	9.7	10.3	10.9	8.5	9.8	10.4	11.0	11.6	9.1	10.5	11.1	11.7	12.4	10.4	12.0	12.6	13.3	14.1
	-30	8.0	9.2	9.7	10.3	10.9	8.5	9.9	10.4	11.0	11.6	9.1	10.6	11.1	11.7	12.4	10.4	12.0	12.6	13.3	14.1
	-25	8.0	9.3	9.7	10.3	10.9	8.6	9.9	10.4	11.0	11.6	9.2	10.6	11.1	11.8	12.4	10.5	12.0	12.7	13.3	14.1
	-20	8.1	9.3	9.8	10.3	10.9	8.6	9.9	10.5	11.0	11.7	9.2	10.6	11.2	11.8	12.5	10.5	12.1	12.7	13.4	14.1
	-15	8.1	9.3	9.8	10.4	10.9	8.7	10.0	10.5	11.1	11.7	9.3	10.7	11.2	11.8	12.5	10.6	12.1	12.7	13.4	14.2
	-10	8.2	9.4	9.9	10.4	11.0	8.7	10.0	10.5	11.1	11.7	9.3	10.7	11.3	11.8	12.5	10.6	12.2	12.8	13.4	14.2
	-5	8.2	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.8	9.4	10.8	11.3	11.9	12.5	10.7	12.2	12.8	13.5	14.2
	0	8.3	9.5	9.9	10.5	11.0	8.8	10.1	10.6	11.2	11.8	9.4	10.8	11.3	11.9	12.6	10.8	12.3	12.9	13.5	14.2
	5	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.2	11.8	9.5	10.8	11.4	11.9	12.6	10.8	12.3	12.9	13.5	14.3
	10	8.3	9.5	9.9	10.4	11.0	8.9	10.1	10.6	11.2	11.8	9.5	10.8	11.3	11.9	12.5	10.8	12.3	12.9	13.5	14.2
10	-35	8.2	9.5	10.0	10.6	11.2	8.8	10.1	10.7	11.3	11.9	9.4	10.8	11.4	12.0	12.7	10.7	12.3	12.9	13.6	14.4
	-30	8.3	9.5	10.0	10.6	11.2	8.8	10.2	10.7	11.3	11.9	9.5	10.9	11.4	12.0	12.7	10.8	12.3	12.9	13.6	14.4
	-25	8.3	9.6	10.1	10.6	11.2	8.9	10.2	10.7	11.3	11.9	9.5	10.9	11.4	12.1	12.7	10.8	12.4	13.0	13.7	14.4
	-20	8.4	9.6	10.1	10.6	11.2	8.9	10.3	10.8	11.3	12.0	9.5	10.9	11.5	12.1	12.8	10.9	12.4	13.0	13.7	14.4
	-15	8.4	9.6	10.1	10.7	11.3	9.0	10.3	10.8	11.4	12.0	9.6	11.0	11.5	12.1	12.8	10.9	12.5	13.1	13.7	14.5
	-10	8.5	9.7	10.2	10.7	11.3	9.1	10.3	10.9	11.4	12.0	9.7	11.0	11.6	12.2	12.8	11.0	12.5	13.1	13.8	14.5
	-5	8.5	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.5	12.1	9.7	11.1	11.6	12.2	12.8	11.0	12.6	13.1	13.8	14.5
	0	8.6	9.8	10.3	10.8	11.4	9.2	10.4	10.9	11.5	12.1	9.8	11.1	11.7	12.2	12.9	11.1	12.6	13.2	13.8	14.5
	5	8.6	9.8	10.3	10.8	11.4	9.2	10.5	11.0	11.5	12.1	9.8	11.1	11.7	12.2	12.9	11.1	12.6	13.2	13.8	14.5
	10	8.6	9.8	10.3	10.8	11.4	9.2	10.5	11.0	11.5	12.1	9.8	11.1	11.7	12.2	12.9	11.1	12.6	13.2	13.8	14.5
20	-35	8.5	9.8	10.3	10.8	11.4	9.1	10.4	10.9	11.5	12.2	9.7	11.1	11.7	12.3	13.0	11.0	12.6	13.2	13.9	14.6
	-30	8.5	9.8	10.3	10.8	11.4	9.1	10.4	11.0	11.5	12.2	9.7	11.1	11.7	12.3	13.0	11.0	12.6	13.2	13.9	14.6
	-25	8.6	9.8	10.3	10.9	11.5	9.2	10.5	11.0	11.6	12.2	9.8	11.2	11.7	12.3	13.0	11.1	12.6	13.3	13.9	14.7
	-20	8.6	9.9	10.4	10.9	11.5	9.2	10.5	11.0	11.6	12.2	9.8	11.2	11.8	12.4	13.0	11.1	12.7	13.3	14.0	14.7
	-15	8.7	9.9	10.4	10.9	11.5	9.3	10.6	11.1	11.7	12.3	9.9	11.3	11.8	12.4	13.1	11.2	12.7	13.3	14.0	14.7
	-10	8.7	10.0	10.5	11.0	11.6	9.3	10.6	11.1	11.7	12.3	9.9	11.3	11.9	12.4	13.1	11.3	12.8	13.4	14.0	14.8
	-5	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.7	12.3	10.0	11.4	11.9	12.5	13.1	11.3	12.8	13.4	14.1	14.8
	0	8.9	10.1	10.5	11.1	11.6	9.4	10.7	11.2	11.8	12.4	10.1	11.4	11.9	12.5	13.2	11.4	12.9	13.5	14.1	14.8
	5	8.3	9.4	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4	10.8	12.2	12.8	13.4	14.1
	10	7.3	8.3	8.8	9.2	9.7	7.9	9.0	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.3	9.8	11.2	11.7	12.3	12.9
30	-35	8.7	10.0	10.5	11.0	11.6	9.3	10.6	11.2	11.7	12.4	9.9	11.3	11.9	12.5	13.2	11.2	12.8	13.4	14.1	14.8
	-30	8.8	10.0	10.5	11.1	11.7	9.4	10.7	11.2	11.8	12.4	10.0	11.4	11.9	12.5	13.2	11.3	12.8	13.5	14.1	14.9
	-25	8.8	10.1	10.6	11.1	11.7	9.4	10.7	11.2	11.8	12.4	10.0	11.4	12.0	12.6	13.2	11.3	12.9	13.5	14.2	14.9
	-20	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.9	12.5	10.1	11.5	12.0	12.6	13.3	11.4	12.9	13.5	14.2	14.9
	-15	8.9	10.2	10.7	11.2	11.8	9.5	10.8	11.3	11.9	12.5	10.1	11.5	12.1	12.6	13.3	11.5	13.0	13.6	14.3	15.0
	-10	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	11.9	12.6	10.2	11.6	12.1	12.7	13.3	11.5	13.1	13.6	14.3	15.0
	-5	9.1	10.3	10.8	11.3	11.8	9.7	10.9	11.4	12.0	12.6	10.3	11.6	12.2	12.7	13.4	11.6	13.1	13.7	14.3	15.0
	0	8.5	9.7	10.2	10.7	11.2	9.1	10.4	10.8	11.4	11.9	9.7	11.0	11.6	12.1	12.7	11.1	12.5	13.1	13.7	14.4
	5	7.6	8.7	9.1	9.5	10.0	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.6	10.1	11.5	12.0	12.6	13.2
	10	6.6	7.5	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.5	7.8	8.9	9.3	9.8	10.4	9.1	10.3	10.8	11.4	12.0
40	-35	9.0	10.2	10.7	11.3	11.9	9.6	10.9	11.4	12.0	12.6	10.2	11.6	12.1	12.8	13.4	11.5	13.1	13.7	14.4	15.1
	-30	9.0	10.3	10.8	11.3	11.9	9.6	10.9	11.5	12.0	12.7	10.2	11.6	12.2	12.8	13.4	11.6	13.1	13.7	14.4	15.1
	-25	9.1	10.3	10.8	11.4	11.9	9.7	11.0	11.5	12.1	12.7	10.3	11.7	12.2	12.8	13.5	11.6	13.2	13.8	14.4	15.1
	-20	9.1	10.4	10.9	11.4	12.0	9.7	11.0	11.6	12.1	12.7	10.4	11.7	12.3	12.9	13.5	11.7	13.2	13.8	14.5	15.2
	-15	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.2	12.8	10.4	11.8	12.3	12.9	13.5	11.8	13.3	13.9	14.5	15.2
	-10	9.3	10.5	11.0	11.5	12.1	9.9	11.1	11.6	12.2	12.8	10.5	11.8	12.4	12.9	13.6	11.8	13.3	13.9	14.6	15.2
	-5	8.8	10.0	10.5	11.0	11.5	9.4	10.7	11.1	11.7	12.3	10.0	11.3	11.9	12.4	13.0	11.4	12.8	13.4	14.0	14.7
	0	7.9	9.0	9.4	9.9	10.4	8.5	9.6	10.1	10.6	11.1	9.1	10.3	10.8	11.3	11.9	10.4	11.8	12.3	12.9	13.5
	5	6.9	7.9	8.2	8.6	9.1	7.5	8.5	9.0	9.4	9.9	8.1	9.3	9.7	10.2	10.7	9.4	10.7	11.2	11.7	12.3
	10	5.9	6.7	7.1	7.4	7.8	6.5	7.4	7.7	8.1	8.5	7.1	8.1	8.4	8.9	9.3	8.4	9.5	10.0	10.5	11.1
50	-35	9.2	10.4	10.9	11.5	12.0	9.8	11.1	11.6	12.2	12.8	10.4	11.8	12.3	12.9	13.6	11.7	13.3	13.9	14.5	15.3
	-30	9.2	10.5	11.0	11.5	12.1	9.8	11.1	11.7	12.2	12.8	10.4	11.8	12.4	13.0	13.6	11.8	13.3	13.9	14.6	15.3
	-25	9.3	10.5	11.0	11.5	12.1	9.9	11.2	11.7	12.3	12.9	10.5	11.9	12.4	13.0	13.6	11.8	13.4	14.0	14.6	15.3
	-20	9.4	10.6	11.1	11.6	12.2	10.0	11.3	11.8	12.3	12.9	10.6	11.9	12.5	13.1	13.7	11.9	13.4	14.0	14.7	15.4
	-15	9.4	10.7	11.1	11.7	12.2	10.0	11.3	11.8	12.4	13.0	10.7	12.0	12.5	13.1	13.8	12.0	13.5	14.1	14.7	15.4
	-10	8.9	10.1	10.6	11.1	11.6	9.5	10.8	11.2	11.8	12.4	10.1	11.5	12.0	12.5	13.1	11.5	12.9	13.5	14.1	14.8
	-5	8.1	9.2	9.6	10.0	10.6	8.6	9.8	10.3	10.7	11.3	9.2	10.5	11.0	11.5	12.1	10.6	11.9	12.5	13.1	13.7

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6000	-35	6.8	7.7	8.1	8.5	8.9	7.1	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.0	8.2	9.3	9.7	10.2	10.7	8.7	9.9	10.4	10.9	11.4	8.7	9.9	10.4	10.9	11.4
	-30	6.9	7.8	8.1	8.5	9.0	7.2	8.2	8.5	8.9	9.4	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8	8.8	10.0	10.4	10.9	11.5	8.8	10.0	10.4	10.9	11.5
	-25	6.9	7.8	8.2	8.6	9.0	7.2	8.2	8.6	9.0	9.4	7.8	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8	8.9	10.0	10.5	11.0	11.5	8.9	10.0	10.5	11.0	11.5
	-20	7.0	7.9	8.2	8.6	9.0	7.3	8.2	8.6	9.0	9.5	7.8	8.8	9.2	9.7	10.1	8.3	9.4	9.9	10.3	10.8	8.9	10.1	10.5	11.0	11.5	8.9	10.1	10.5	11.0	11.5
	-15	6.5	7.4	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.4	8.3	8.7	9.1	9.6	7.9	8.9	9.4	9.8	10.3	8.5	9.6	10.0	10.5	11.0	8.5	9.6	10.0	10.5	11.0
	-10	5.7	6.5	6.8	7.1	7.5	6.1	6.9	7.2	7.5	7.9	6.5	7.4	7.7	8.1	8.5	7.1	8.0	8.4	8.8	9.2	7.6	8.6	9.0	9.5	9.9	7.6	8.6	9.0	9.5	9.9
	-5	4.9	5.6	5.8	6.1	6.4	5.2	5.9	6.2	6.5	6.8	5.7	6.4	6.7	7.0	7.4	6.2	7.0	7.3	7.7	8.0	6.7	7.6	7.9	8.3	8.7	6.7	7.6	7.9	8.3	8.7
	0	4.1	4.7	4.9	5.1	5.4	4.4	5.0	5.2	5.4	5.7	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.5	5.8	6.6	6.9	7.2	7.5
	5	3.3	3.8	3.9	4.1	4.3	3.5	4.0	4.2	4.4	4.7	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.5	5.8	4.9	5.5	5.8	6.1	6.4	4.9	5.5	5.8	6.1	6.4
	10	2.5	2.8	3.0	3.1	3.3	2.7	3.1	3.3	3.4	3.6	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.7	5.0	5.2	3.9	4.5	4.7	5.0	5.2
7000	-35	6.7	7.6	8.0	8.3	8.7	7.0	8.0	8.3	8.7	9.2	7.6	8.6	9.0	9.4	9.9	8.1	9.2	9.6	10.1	10.6	8.6	9.8	10.2	10.7	11.3	8.6	9.8	10.2	10.7	11.3
	-30	6.8	7.7	8.0	8.4	8.8	7.1	8.0	8.4	8.8	9.2	7.6	8.6	9.0	9.4	9.9	8.2	9.2	9.7	10.1	10.6	8.7	9.8	10.3	10.8	11.3	8.7	9.8	10.3	10.8	11.3
	-25	6.7	7.6	7.9	8.3	8.7	7.0	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.3	9.8	8.1	9.2	9.6	10.0	10.5	8.6	9.8	10.2	10.7	11.2	8.6	9.8	10.2	10.7	11.2
	-20	6.4	7.2	7.6	7.9	8.3	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.4	7.8	8.8	9.2	9.6	10.1	8.3	9.4	9.9	10.3	10.8	8.3	9.4	9.9	10.3	10.8
	-15	5.8	6.6	6.9	7.2	7.6	6.2	7.0	7.3	7.6	8.0	6.6	7.5	7.9	8.2	8.6	7.2	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.0	8.7	9.8	10.3	10.8	11.3
	-10	5.1	5.7	6.0	6.3	6.6	5.4	6.1	6.4	6.6	7.0	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.5	7.8	8.2	6.9	7.8	8.1	8.5	8.9	6.9	7.8	8.1	8.5	8.9
	-5	4.3	4.8	5.1	5.3	5.6	4.5	5.2	5.4	5.6	5.9	5.0	5.7	5.9	6.2	6.5	5.5	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.4	7.8	6.1	6.8	7.1	7.4	7.8
	0	3.5	4.0	4.1	4.3	4.6	3.7	4.3	4.4	4.7	4.9	4.2	4.7	4.9	5.2	5.4	4.6	5.2	5.5	5.7	6.0	5.1	5.8	6.0	6.3	6.6	5.0	5.8	6.0	6.3	6.6
	5	2.7	3.1	3.2	3.4	3.5	2.9	3.3	3.5	3.7	3.9	3.3	3.8	4.0	4.2	4.4	3.7	4.2	4.4	4.7	4.9	4.2	4.7	5.0	5.2	5.5	4.2	4.7	5.0	5.2	5.5
	10	1.9	2.2	2.3	2.4	2.5	2.1	2.4	2.5	2.7	2.8	2.5	2.8	3.0	3.1	3.3	2.9	3.3	3.4	3.6	3.8	3.3	3.7	3.9	4.1	4.3	3.3	3.7	3.9	4.1	4.3
8000	-35	6.8	7.7	8.1	8.5	8.9	7.2	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.5	10.0	8.2	9.3	9.7	10.2	10.7	8.8	9.9	10.4	10.8	11.4	8.8	9.9	10.4	10.8	11.4
	-30	6.5	7.4	7.7	8.0	8.4	6.8	7.7	8.1	8.4	8.8	7.3	8.3	8.7	9.1	9.5	7.9	8.9	9.3	9.8	10.2	8.4	9.5	10.0	10.4	10.9	8.4	9.5	10.0	10.4	10.9
	-25	6.1	6.9	7.2	7.6	7.9	6.4	7.3	7.6	8.0	8.3	6.9	7.8	8.2	8.6	9.0	7.5	8.4	8.8	9.2	9.7	8.0	9.1	9.5	9.9	10.4	8.0	9.1	9.5	9.9	10.4
	-20	5.8	6.5	6.8	7.1	7.5	6.1	6.9	7.2	7.5	7.9	6.6	7.4	7.8	8.1	8.5	7.1	8.0	8.4	8.8	9.2	7.7	8.7	9.0	9.5	9.9	7.7	8.7	9.0	9.5	9.9
	-15	5.2	5.9	6.1	6.4	6.7	5.5	6.2	6.5	6.8	7.1	6.0	6.7	7.0	7.4	7.7	6.5	7.3	7.6	8.0	8.4	7.0	7.9	8.3	8.7	9.1	6.7	7.9	8.3	8.7	9.1
	-10	4.4	5.0	5.3	5.5	5.8	4.7	5.3	5.6	5.8	6.1	5.2	5.8	6.1	6.4	6.7	5.6	6.4	6.7	7.0	7.3	6.1	7.0	7.3	7.6	8.0	6.1	7.0	7.3	7.6	8.0
	-5	3.6	4.1	4.3	4.5	4.8	3.9	4.4	4.6	4.9	5.1	4.3	4.9	5.1	5.4	5.6	4.8	5.4	5.7	5.9	6.2	5.3	6.0	6.2	6.5	6.9	5.3	6.0	6.2	6.5	6.9
	0	2.9	3.3	3.4	3.6	3.8	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.7	4.9	5.1	4.4	5.0	5.2	5.5	5.7	4.4	5.0	5.2	5.5	5.7
	5	2.1	2.4	2.5	2.6	2.8	2.3	2.7	2.8	2.9	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	3.5	4.0	4.2	4.4	4.6
	10	1.3	1.5	1.6	1.7	1.8	1.5	1.8	1.9	2.0	2.1	1.9	2.2	2.3	2.4	2.5	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.2	3.3	3.5	2.6	3.0	3.2	3.3	3.5
9000	-35	6.3	7.1	7.4	7.8	8.1	6.6	7.5	7.8	8.2	8.6	7.1	8.1	8.4	8.8	9.2	7.7	8.7	9.1	9.5	9.9	8.2	9.3	9.7	10.2	10.7	8.2	9.3	9.7	10.2	10.7
	-30	5.9	6.7	7.0	7.3	7.6	6.2	7.0	7.3	7.7	8.0	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.4	7.8	8.8	9.2	9.7	10.1	7.8	8.8	9.2	9.7	10.1
	-25	5.5	6.2	6.5	6.8	7.1	5.8	6.6	6.9	7.2	7.5	6.3	7.1	7.4	7.8	8.2	6.8	7.7	8.0	8.4	8.8	7.4	8.3	8.7	9.1	9.5	7.4	8.3	8.7	9.1	9.5
	-20	5.2	5.9	6.2	6.5	6.8	5.5	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.4	7.7	6.5	7.3	7.7	8.0	8.4	7.0	7.9	8.3	8.7	9.1	7.0	7.9	8.3	8.7	9.1
	-15	4.6	5.2	5.5	5.7	6.0	4.9	5.6	5.8	6.1	6.4	5.4	6.1	6.3	6.6	7.0	5.9	6.6	6.9	7.2	7.6	6.4	7.2	7.5	7.9	8.3	6.4	7.2	7.5	7.9	8.3
	-10	3.9	4.4	4.6	4.8	5.1	4.2	4.7	4.9	5.2	5.4	4.6	5.2	5.5	5.7	6.0	5.1	5.7	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.2	5.6	6.3	6.6	6.9	7.2
	-5	3.2	3.6	3.8	3.9	4.1	3.4	3.9	4.1	4.2	4.5	3.8	4.3	4.5	4.7	5.0	4.3	4.8	5.0	5.3	5.5	4.7	5.3	5.6	5.8	6.1	4.7	5.3	5.6	5.8	6.1
	0	2.4	2.7	2.9	3.0	3.2	2.6	3.0	3.2	3.3	3.5	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.0	3.9	4.4	4.6	4.8	5.0
	5	1.6	1.9	2.0	2.1	2.2	1.9	2.2	2.3	2.4	2.5	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.5	3.0	3.4	3.6	3.8	4.0	3.0	3.4	3.6	3.8	4.0
	10	0.9	1.1	1.1	1.2	1.3	1.1	1.3	1.4	1.5	1.6	1.4	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4	2.2	2.5	2.6	2.8	2.9	2.2	2.5	2.6	2.8	2.9
10000	-35	5.7	6.4	6.7	7.0	7.4	6.0	6.8	7.1	7.4	7.8	6.5	7.3	7.7	8.0	8.4	7.0	7.9	8.3	8.7	9.1	7.6	8.6	8.9	9.4	9.8	7.6	8.6	8.9	9.4	9.8
	-30	5.3	6.0	6.3	6.6	6.9	5.6	6.4	6.6	6.9	7.3	6.1	6.9	7.2	7.5	7.9	6.6	7.5	7.8	8.2	8.5	7.2	8.1	8.4	8.8	9.3	7.2	8.1	8.4	8.8	9.3
	-25	5.0	5.6	5.9	6.1	6.4	5.3	5.9	6.2	6.5	6.8	5.7	6.5	6.7	7.0	7.4	6.2	7.0	7.3	7.7	8.0	6.7	7.6	7.9	8.3	8.7	6.7	7.6	7.9	8.3	8.7
	-20	4.7	5.3	5.5	5.7	6.0	5.0	5.6	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.0	5.9	6.6	6.9	7.3	7.6	6.4	7.2	7.5	7.9	8.3	5.6	6.4	7.2	7.5	7.9
	-15	4.1	4.6	4.8	5.1	5.3	4.4	4.9	5.2	5.4	5.7	4.8	5.4	5.7	5.9	6.2	5.3	6.0	6.2	6.5	6.8	5.8	6.5	6.8	7.1	7.5	5.8	6.5	6.8	7.1	

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6	-35	9.3	10.6	11.0	11.6	12.2	9.9	11.2	11.7	12.3	12.9	10.5	11.9	12.5	13.0	13.7	11.9	13.4	14.0	14.7	15.4	13.4	15.1	15.7	16.5	17.2	13.4	15.1	15.7	16.5	17.2
	-30	9.4	10.6	11.1	11.6	12.2	10.0	11.3	11.8	12.3	12.9	10.6	12.0	12.5	13.1	13.7	11.9	13.5	14.1	14.7	15.4	13.5	15.1	15.8	16.5	17.3	13.5	15.1	15.8	16.5	17.3
	-25	9.4	10.7	11.1	11.7	12.2	10.0	11.3	11.8	12.4	13.0	10.6	12.0	12.5	13.1	13.8	12.0	13.5	14.1	14.7	15.4	13.5	15.2	15.8	16.5	17.3	13.5	15.2	15.8	16.5	17.3
	-20	9.5	10.7	11.2	11.7	12.2	10.1	11.4	11.9	12.4	13.0	10.7	12.1	12.6	13.2	13.8	12.1	13.6	14.1	14.8	15.5	13.6	15.2	15.9	16.6	17.3	13.6	15.2	15.9	16.6	17.3
	-15	9.0	10.2	10.6	11.1	11.7	9.6	10.9	11.3	11.9	12.4	10.2	11.5	12.1	12.6	13.2	11.6	13.0	13.6	14.2	14.9	13.1	14.7	15.3	16.0	16.7	13.1	14.7	15.3	16.0	16.7
	-10	8.2	9.3	9.7	10.2	10.7	8.8	9.9	10.4	10.9	11.4	9.4	10.6	11.1	11.6	12.2	10.7	12.1	12.6	13.2	13.8	12.2	13.7	14.3	15.0	15.7	12.2	13.7	14.3	15.0	15.7
	-5	7.3	8.2	8.6	9.0	9.5	7.9	8.9	9.4	9.8	10.3	8.5	9.6	10.1	10.5	11.1	9.8	11.0	11.6	12.1	12.7	11.2	12.7	13.2	13.8	14.5	10.2	11.6	12.1	12.7	13.3
	0	6.3	7.2	7.5	7.9	8.3	6.9	7.8	8.2	8.6	9.0	7.5	8.5	8.9	9.4	9.8	8.8	10.0	10.4	11.0	11.5	10.2	11.6	12.1	12.7	13.3	9.1	10.4	10.9	11.5	12.1
	5	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.0	7.4	7.8	6.5	7.4	7.7	8.1	8.5	7.8	8.9	9.3	9.8	10.3	9.1	10.4	10.9	11.5	12.1	8.1	9.2	9.7	10.2	10.8
	10	4.4	5.0	5.3	5.5	5.8	4.9	5.6	5.9	6.2	6.5	5.4	6.2	6.5	6.8	7.2	6.7	7.6	8.0	8.4	8.8	8.1	9.2	9.7	10.2	10.8	7.2	8.2	8.6	9.1	9.6
7	-35	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.1	12.7	10.4	11.8	12.3	12.9	13.5	11.8	13.3	13.9	14.5	15.2	13.3	15.0	15.6	16.3	17.1	13.3	15.0	15.6	16.3	17.1
	-30	9.3	10.5	10.9	11.5	12.0	9.9	11.1	11.6	12.2	12.8	10.5	11.8	12.4	12.9	13.5	11.8	13.3	13.9	14.5	15.2	13.4	15.0	15.7	16.3	17.1	13.4	15.0	15.7	16.3	17.1
	-25	9.2	10.4	10.9	11.4	11.9	9.8	11.1	11.5	12.1	12.7	10.4	11.8	12.3	12.8	13.4	11.8	13.2	13.8	14.4	15.1	13.3	14.9	15.6	16.2	17.0	13.3	14.9	15.6	16.2	17.0
	-20	8.9	10.1	10.5	11.0	11.5	9.5	10.7	11.2	11.7	12.3	10.1	11.4	11.9	12.5	13.0	11.5	12.9	13.4	14.1	14.7	13.0	14.6	15.2	15.8	16.6	12.3	13.8	14.4	15.1	15.8
	-15	8.3	9.4	9.8	10.3	10.8	8.9	10.0	10.5	11.0	11.5	9.5	10.7	11.2	11.7	12.3	10.8	12.2	12.7	13.3	13.9	12.3	13.8	14.4	15.1	15.8	11.4	12.8	13.4	14.0	14.7
	-10	7.4	8.4	8.8	9.2	9.7	8.0	9.1	9.5	10.0	10.5	8.6	9.8	10.2	10.7	11.3	9.9	11.2	11.7	12.3	12.9	11.4	12.8	13.4	14.0	14.7	10.4	11.8	12.3	12.9	13.5
	-5	6.5	7.4	7.7	8.1	8.5	7.1	8.0	8.4	8.8	9.3	7.7	8.7	9.1	9.6	10.1	9.0	10.2	10.7	11.2	11.7	10.4	11.8	12.3	12.9	13.5	9.4	10.7	11.2	11.7	12.3
	0	5.6	6.3	6.6	6.9	7.3	6.1	7.0	7.3	7.6	8.0	6.7	7.6	8.0	8.4	8.8	8.0	9.1	9.6	10.0	10.6	9.4	10.7	11.2	11.7	12.3	8.3	9.5	10.0	10.5	11.1
	5	4.6	5.3	5.5	5.8	6.1	5.2	5.9	6.1	6.5	6.8	5.7	6.5	6.8	7.1	7.5	6.9	7.9	8.3	8.7	9.2	8.3	9.5	10.0	10.5	11.1	7.2	8.2	8.6	9.1	9.6
	10	3.7	4.2	4.5	4.7	4.9	4.2	4.8	5.0	5.3	5.5	4.7	5.4	5.6	5.9	6.2	5.8	6.7	7.0	7.4	7.8	7.2	8.1	8.5	8.9	9.4	6.3	7.3	7.6	8.0	8.4
8	-35	9.4	10.6	11.0	11.5	12.1	9.9	11.2	11.7	12.2	12.8	10.6	11.9	12.4	13.0	13.6	11.9	13.4	14.0	14.6	15.3	13.4	15.1	15.7	16.4	17.2	13.4	15.1	15.7	16.4	17.2
	-30	9.0	10.2	10.6	11.1	11.7	9.6	10.8	11.3	11.8	12.4	10.2	11.5	12.0	12.6	13.2	11.6	13.0	13.6	14.2	14.8	13.1	14.7	15.3	16.0	16.7	12.6	14.2	14.8	15.5	16.2
	-25	8.6	9.7	10.2	10.6	11.1	9.2	10.4	10.8	11.3	11.9	9.8	11.1	11.5	12.1	12.7	11.1	12.5	13.1	13.7	14.3	12.6	14.2	14.8	15.5	16.2	11.1	12.5	13.1	13.7	14.3
	-20	8.2	9.3	9.7	10.2	10.7	8.8	10.0	10.4	10.9	11.4	9.4	10.6	11.1	11.6	12.2	10.8	12.1	12.6	13.2	13.8	12.2	13.8	14.3	15.0	15.7	10.6	12.0	12.5	13.1	13.7
	-15	7.6	8.6	9.0	9.4	9.8	8.2	9.3	9.7	10.1	10.6	8.8	9.9	10.4	10.9	11.4	10.1	11.4	11.9	12.4	13.0	11.5	13.0	13.6	14.2	14.8	9.6	10.9	11.4	11.9	12.5
	-10	6.7	7.6	7.9	8.3	8.7	7.3	8.2	8.6	9.0	9.5	7.9	9.0	9.4	9.8	10.3	9.2	10.4	10.9	11.4	11.9	10.6	12.0	12.5	13.1	13.7	8.6	9.8	10.2	10.8	11.3
	-5	5.8	6.5	6.8	7.2	7.5	6.3	7.2	7.5	7.9	8.3	6.9	7.8	8.2	8.6	9.0	8.2	9.3	9.8	10.3	10.8	9.6	10.9	11.4	11.9	12.5	7.5	8.6	9.0	9.4	9.9
	0	4.9	5.5	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.1	7.4	7.8	7.2	8.2	8.6	9.0	9.5	8.6	9.8	10.2	10.8	11.3	6.1	7.0	7.3	7.7	8.1
	5	4.0	4.5	4.7	5.0	5.2	4.4	5.1	5.3	5.6	5.8	5.0	5.6	5.9	6.2	6.5	6.1	7.0	7.3	7.7	8.1	7.5	8.6	9.0	9.4	9.9	5.1	5.8	6.1	6.4	6.7
	10	3.0	3.5	3.7	3.8	4.0	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.8	5.0	5.3	5.1	5.8	6.1	6.4	6.7	6.3	7.3	7.6	8.0	8.4	4.5	5.2	5.4	5.7	6.0
9	-35	8.8	9.9	10.4	10.8	11.4	9.4	10.6	11.0	11.6	12.1	10.0	11.3	11.8	12.3	12.9	11.3	12.7	13.3	13.9	14.5	12.8	14.4	15.0	15.7	16.4	12.8	14.4	15.0	15.7	16.4
	-30	8.4	9.5	9.9	10.4	10.9	9.0	10.1	10.6	11.1	11.6	9.6	10.8	11.3	11.8	12.4	10.9	12.3	12.8	13.4	14.0	12.4	13.9	14.5	15.2	15.9	11.2	12.7	13.2	13.8	14.4
	-25	7.9	9.0	9.4	9.8	10.3	8.5	9.6	10.1	10.5	11.1	9.1	10.3	10.8	11.3	11.8	10.5	11.8	12.3	12.9	13.5	11.9	13.4	14.0	14.6	15.3	10.9	12.3	12.8	13.4	14.0
	-20	7.6	8.6	9.0	9.4	9.9	8.2	9.3	9.7	10.1	10.6	8.8	9.9	10.4	10.9	11.4	10.1	11.4	11.9	12.4	13.0	11.6	13.0	13.6	14.2	14.8	9.0	10.2	10.7	11.2	11.7
	-15	6.9	7.8	8.2	8.6	9.0	7.5	8.5	8.9	9.3	9.8	8.1	9.2	9.6	10.1	10.6	9.4	10.6	11.1	11.6	12.2	10.9	12.2	12.8	13.4	14.0	8.0	9.1	9.5	10.0	10.5
	-10	6.1	6.9	7.2	7.5	7.9	6.6	7.5	7.9	8.2	8.6	7.2	8.2	8.6	9.0	9.4	8.5	9.7	10.1	10.6	11.1	9.9	11.2	11.8	12.3	12.9	7.3	8.3	8.7	9.1	9.6
	-5	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.5	6.3	7.1	7.5	7.8	8.2	7.6	8.6	9.0	9.4	9.9	9.0	10.2	10.7	11.2	11.7	6.5	7.4	7.8	8.2	8.6
	0	4.3	4.9	5.1	5.4	5.7	4.8	5.5	5.7	6.0	6.3	5.3	6.1	6.4	6.7	7.0	6.5	7.4	7.8	8.2	8.6	8.0	9.1	9.5	10.0	10.5	5.5	6.3	6.6	6.9	7.3
	5	3.4	3.9	4.1	4.3	4.5	3.9	4.5	4.7	4.9	5.1	4.4	5.0	5.3	5.5	5.8	5.5	6.3	6.6	6.9	7.3	6.8	7.8	8.2	8.6	9.1	4.5	5.2	5.4	5.7	6.0
	10	2.6	3.0	3.1	3.3	3.4	3.0	3.5	3.6	3.8	4.0	3.5	4.0	4.2	4.4	4.6	4.5	5.2	5.4	5.7	6.0	5.8	6.6	6.9	7.3	7.7					
1	-35	8.1	9.2	9.6	10.1	10.6	8.7	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.1	10.7	12.0	12.5	13.1	13.7	12.1	13.6	14.2	14.8	15.5	12.1	13.6	14.2	14.8	15.5
	-30	7.7	8.7	9.1	9.6	10.0	8.3	9.4	9.8	10.3	10.8	8.9	10.1	10.5	11.0	11.1															

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
0	-25	5.3	6.2	6.5	6.9	7.3	5.6	6.5	6.9	7.3	7.7	6.1	7.1	7.5	7.9	8.4	6.6	7.7	8.1	8.6	9.2	7.2	8.3	8.8	9.3	9.9	7.2	8.4	8.8	9.3	9.9
	-20	5.3	6.2	6.5	6.9	7.3	5.7	6.6	6.9	7.3	7.7	6.1	7.1	7.5	8.0	8.4	6.7	7.7	8.2	8.7	9.2	7.2	8.4	8.8	9.3	9.9	7.2	8.4	8.8	9.3	9.9
	-15	5.4	6.2	6.6	6.9	7.3	5.7	6.6	6.9	7.3	7.8	6.2	7.2	7.6	8.0	8.5	6.7	7.8	8.2	8.7	9.2	7.3	8.4	8.9	9.4	9.9	7.3	8.4	8.9	9.4	9.9
	-10	5.4	6.3	6.6	7.0	7.4	5.7	6.6	7.0	7.4	7.8	6.2	7.2	7.6	8.0	8.5	6.8	7.8	8.3	8.7	9.2	7.3	8.4	8.9	9.4	10.0	7.3	8.4	8.9	9.4	10.0
	-5	5.5	6.3	6.6	7.0	7.4	5.8	6.7	7.0	7.4	7.8	6.3	7.3	7.6	8.1	8.5	6.8	7.9	8.3	8.8	9.3	7.4	8.5	8.9	9.4	10.0	7.4	8.5	8.9	9.4	10.0
	0	5.5	6.4	6.7	7.1	7.5	5.8	6.7	7.1	7.5	7.9	6.3	7.3	7.7	8.1	8.6	6.9	7.9	8.3	8.8	9.3	7.4	8.5	9.0	9.5	10.0	7.4	8.5	9.0	9.5	10.0
	5	5.6	6.4	6.7	7.1	7.5	5.9	6.8	7.1	7.5	7.9	6.4	7.3	7.7	8.1	8.6	6.9	8.0	8.4	8.8	9.3	7.4	8.6	9.0	9.5	10.0	7.4	8.6	9.0	9.5	10.0
	10	5.6	6.4	6.7	7.1	7.5	5.9	6.8	7.1	7.5	7.9	6.4	7.4	7.7	8.2	8.6	6.9	8.0	8.4	8.9	9.4	7.5	8.6	9.0	9.5	10.1	7.5	8.6	9.0	9.5	10.1
	15	5.6	6.4	6.8	7.1	7.5	5.9	6.8	7.1	7.5	7.9	6.4	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.9	9.4	7.5	8.6	9.0	9.5	10.1	7.5	8.6	9.0	9.5	10.1
	20	5.6	6.5	6.8	7.1	7.5	6.0	6.8	7.2	7.5	8.0	6.5	7.4	7.8	8.2	8.7	7.0	8.0	8.4	8.9	9.4	7.5	8.6	9.1	9.5	10.1	7.5	8.6	9.1	9.5	10.1
	25	5.4	6.2	6.5	6.9	7.2	5.7	6.6	6.9	7.3	7.7	6.2	7.1	7.5	7.9	8.3	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.3	9.8	7.3	8.4	8.8	9.3	9.8
	30	4.7	5.4	5.7	6.0	6.3	5.0	5.7	6.0	6.3	6.7	5.5	6.3	6.6	7.0	7.3	6.0	6.9	7.2	7.6	8.0	6.5	7.5	7.9	8.3	8.8	6.5	7.5	7.9	8.3	8.8
	35	4.0	4.6	4.8	5.1	5.4	4.3	4.9	5.2	5.4	5.7	4.7	5.4	5.7	6.0	6.4	5.2	6.0	6.3	6.6	7.0	5.7	6.6	6.9	7.3	7.7	5.7	6.6	6.9	7.3	7.7
	40	3.3	3.8	4.0	4.3	4.5	3.6	4.1	4.4	4.6	4.9	4.0	4.6	4.9	5.1	5.4	4.5	5.2	5.4	5.7	6.0	5.0	5.7	6.0	6.4	6.7	5.0	5.7	6.0	6.4	6.7
	45	2.7	3.1	3.2	3.4	3.6	2.9	3.4	3.6	3.7	4.0	3.3	3.8	4.0	4.3	4.5	3.8	4.3	4.6	4.8	5.1	4.2	4.9	5.1	5.4	5.7	4.2	4.9	5.1	5.4	5.7
	50	2.0	2.3	2.5	2.6	2.8	2.2	2.6	2.8	2.9	3.1	2.6	3.1	3.2	3.4	3.6	3.0	3.5	3.7	3.9	4.2	3.5	4.0	4.2	4.5	4.7	3.5	4.0	4.2	4.5	4.7
	54	1.5	1.7	1.8	2.0	2.1	1.7	2.0	2.1	2.2	2.4	2.1	2.4	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.4	2.9	3.4	3.5	3.7	4.0	2.9	3.4	3.5	3.7	4.0
10	-25	5.6	6.4	6.8	7.1	7.6	5.9	6.8	7.2	7.6	8.0	6.4	7.4	7.8	8.2	8.7	6.9	8.0	8.4	8.9	9.4	7.4	8.6	9.1	9.6	10.1	7.4	8.6	9.1	9.6	10.1
	-20	5.6	6.5	6.8	7.2	7.6	5.9	6.8	7.2	7.6	8.0	6.4	7.4	7.8	8.2	8.7	6.9	8.0	8.5	8.9	9.5	7.5	8.6	9.1	9.6	10.2	7.5	8.6	9.1	9.6	10.2
	-15	5.6	6.5	6.8	7.2	7.6	5.9	6.9	7.2	7.6	8.1	6.4	7.4	7.8	8.3	8.8	7.0	8.1	8.5	9.0	9.5	7.5	8.7	9.1	9.6	10.2	7.5	8.7	9.1	9.6	10.2
	-10	5.7	6.5	6.9	7.2	7.7	6.0	6.9	7.3	7.7	8.1	6.5	7.5	7.9	8.3	8.8	7.0	8.1	8.5	9.0	9.5	7.6	8.7	9.2	9.7	10.2	7.6	8.7	9.2	9.7	10.2
	-5	5.7	6.6	6.9	7.3	7.7	6.0	6.9	7.3	7.7	8.1	6.5	7.5	7.9	8.4	8.8	7.1	8.1	8.6	9.0	9.5	7.6	8.8	9.2	9.7	10.3	7.6	8.8	9.2	9.7	10.3
	0	5.8	6.6	7.0	7.3	7.7	6.1	7.0	7.3	7.7	8.2	6.6	7.6	8.0	8.4	8.9	7.1	8.2	8.6	9.1	9.6	7.7	8.8	9.2	9.7	10.3	7.7	8.8	9.2	9.7	10.3
	5	5.8	6.7	7.0	7.4	7.8	6.1	7.0	7.4	7.8	8.2	6.6	7.6	8.0	8.4	8.9	7.2	8.2	8.6	9.1	9.6	7.7	8.8	9.3	9.8	10.3	7.7	8.8	9.3	9.8	10.3
	10	5.8	6.7	7.0	7.4	7.8	6.2	7.1	7.4	7.8	8.2	6.7	7.6	8.0	8.5	8.9	7.2	8.2	8.7	9.1	9.6	7.7	8.9	9.3	9.8	10.3	7.7	8.9	9.3	9.8	10.3
	15	5.9	6.7	7.0	7.4	7.8	6.2	7.1	7.4	7.8	8.2	6.7	7.7	8.1	8.5	8.9	7.2	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3	7.8	8.9	9.3	9.8	10.3
	20	5.7	6.5	6.8	7.2	7.6	6.0	6.9	7.2	7.6	8.0	6.5	7.5	7.8	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1	7.6	8.7	9.1	9.6	10.1
	25	5.0	5.7	6.0	6.3	6.6	5.3	6.0	6.3	6.6	7.0	5.7	6.6	6.9	7.3	7.7	6.3	7.2	7.5	7.9	8.4	6.8	7.8	8.2	8.6	9.1	6.8	7.8	8.2	8.6	9.1
	30	4.2	4.8	5.0	5.3	5.6	4.5	5.1	5.4	5.6	6.0	4.9	5.6	5.9	6.2	6.6	5.4	6.2	6.5	6.9	7.2	5.9	6.8	7.1	7.5	7.9	5.9	6.8	7.1	7.5	7.9
	35	3.4	4.0	4.2	4.4	4.6	3.7	4.3	4.5	4.7	5.0	4.1	4.8	5.0	5.3	5.6	4.6	5.3	5.6	5.9	6.2	5.1	5.9	6.2	6.5	6.9	5.1	5.9	6.2	6.5	6.9
	40	2.8	3.2	3.4	3.5	3.7	3.0	3.5	3.7	3.9	4.1	3.4	4.0	4.2	4.4	4.6	3.9	4.5	4.7	4.9	5.2	4.3	5.0	5.3	5.5	5.9	4.3	5.0	5.3	5.5	5.9
	45	2.1	2.4	2.6	2.7	2.9	2.3	2.7	2.9	3.0	3.2	2.7	3.2	3.3	3.5	3.7	3.1	3.6	3.8	4.0	4.3	3.6	4.1	4.4	4.6	4.9	3.6	4.1	4.4	4.6	4.9
	50	1.4	1.7	1.8	1.9	2.0	1.7	2.0	2.1	2.2	2.3	2.0	2.4	2.5	2.7	2.8	2.4	2.8	3.0	3.2	3.4	2.9	3.3	3.5	3.7	3.9	2.9	3.3	3.5	3.7	3.9
	52	1.2	1.4	1.5	1.6	1.7	1.4	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.5	2.2	2.5	2.7	2.8	3.0	2.6	3.0	3.2	3.3	3.5	2.6	3.0	3.2	3.3	3.5
20	-25	5.8	6.7	7.0	7.4	7.8	6.1	7.0	7.4	7.8	8.3	6.6	7.6	8.0	8.5	9.0	7.1	8.2	8.7	9.1	9.7	7.7	8.8	9.3	9.8	10.4	7.7	8.8	9.3	9.8	10.4
	-20	5.8	6.7	7.0	7.4	7.8	6.1	7.1	7.4	7.8	8.3	6.6	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7	7.7	8.9	9.3	9.8	10.4	7.7	8.9	9.3	9.8	10.4
	-15	5.9	6.7	7.1	7.5	7.9	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7	7.7	8.9	9.4	9.9	10.4	7.7	8.9	9.4	9.9	10.4
	-10	5.9	6.8	7.1	7.5	7.9	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.6	9.1	7.3	8.3	8.8	9.2	9.7	7.8	8.9	9.4	9.9	10.4	7.8	8.9	9.4	9.9	10.4
	-5	5.9	6.8	7.2	7.5	7.9	6.3	7.2	7.5	7.9	8.4	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.4	9.9	10.5	7.8	9.0	9.4	9.9	10.5
	0	6.0	6.9	7.2	7.6	8.0	6.3	7.2	7.6	8.0	8.4	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.3	9.8	7.9	9.0	9.5	10.0	10.5	7.9	9.0	9.5	10.0	10.5
	5	6.0	6.9	7.2	7.6	8.0	6.3	7.3	7.6	8.0	8.4	6.9	7.9	8.3	8.7	9.2	7.4	8.4	8.9	9.3	9.8	7.9	9.1	9.5	10.0	10.5	7.9	9.1	9.5	10.0	10.5
	10	6.1	6.9	7.3	7.6	8.0	6.4	7.3	7.6	8.0	8.5	6.9	7.9	8.3	8.7	9.2	7.4	8.5	8.9	9.3	9.8	8.0	9.1	9.5	10.0	10.5	8.0	9.1	9.5	10.0	10.5

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500						14000						13500						12500						11500					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
	-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		
0	-25	7.7	9.0	9.5	10.0	10.6	8.3	9.6	10.2	10.7	11.4	8.9	10.3	10.9	11.5	12.2	10.2	11.8	12.4	13.1	13.9	11.7	13.4	14.1	14.9	15.8					
	-20	7.8	9.0	9.5	10.0	10.6	8.4	9.7	10.2	10.8	11.4	9.0	10.4	10.9	11.5	12.2	10.3	11.8	12.5	13.2	13.9	11.7	13.5	14.2	15.0	15.8					
	-15	7.8	9.0	9.5	10.1	10.7	8.4	9.7	10.2	10.8	11.4	9.0	10.4	10.9	11.6	12.2	10.3	11.9	12.5	13.2	14.0	11.8	13.5	14.2	15.0	15.8					
	-10	7.9	9.1	9.6	10.1	10.7	8.4	9.7	10.3	10.8	11.5	9.1	10.4	11.0	11.6	12.3	10.4	11.9	12.5	13.2	14.0	11.8	13.6	14.3	15.0	15.8					
	-5	7.9	9.1	9.6	10.1	10.7	8.5	9.8	10.3	10.9	11.5	9.1	10.5	11.0	11.6	12.3	10.4	12.0	12.6	13.3	14.0	11.9	13.6	14.3	15.0	15.9					
	0	8.0	9.2	9.6	10.2	10.7	8.5	9.8	10.3	10.9	11.5	9.2	10.5	11.1	11.7	12.3	10.5	12.0	12.6	13.3	14.0	11.9	13.7	14.3	15.1	15.9					
	5	8.0	9.2	9.7	10.2	10.8	8.6	9.9	10.4	10.9	11.5	9.2	10.6	11.1	11.7	12.3	10.5	12.1	12.7	13.3	14.0	12.0	13.7	14.4	15.1	15.9					
	10	8.0	9.2	9.7	10.2	10.8	8.6	9.9	10.4	10.9	11.6	9.2	10.6	11.1	11.7	12.4	10.6	12.1	12.7	13.3	14.1	12.0	13.7	14.4	15.1	15.9					
	15	8.1	9.2	9.7	10.2	10.8	8.7	9.9	10.4	11.0	11.6	9.3	10.6	11.1	11.7	12.4	10.6	12.1	12.7	13.3	14.1	12.1	13.7	14.4	15.1	15.9					
	20	8.1	9.3	9.7	10.2	10.8	8.7	9.9	10.4	11.0	11.6	9.3	10.6	11.2	11.7	12.4	10.6	12.1	12.7	13.4	14.1	12.1	13.8	14.4	15.1	15.9					
0	25	7.9	9.0	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.4	12.1	10.4	11.9	12.4	13.1	13.8	11.9	13.5	14.1	14.8	15.6					
	30	7.1	8.1	8.6	9.0	9.5	7.7	8.8	9.2	9.7	10.3	8.3	9.5	10.0	10.5	11.1	9.6	11.0	11.5	12.1	12.8	11.0	12.6	13.2	13.9	14.6					
	35	6.3	7.2	7.6	8.0	8.5	6.9	7.9	8.3	8.8	9.3	7.5	8.6	9.0	9.5	10.1	8.7	10.0	10.6	11.1	11.7	10.2	11.7	12.2	12.9	13.6					
	40	5.5	6.3	6.7	7.0	7.4	6.1	7.0	7.4	7.8	8.2	6.7	7.7	8.1	8.5	9.0	7.9	9.1	9.6	10.1	10.7	9.3	10.7	11.3	11.9	12.6					
	45	4.7	5.4	5.7	6.1	6.4	5.3	6.1	6.4	6.7	7.1	5.8	6.7	7.1	7.5	7.9	7.1	8.2	8.6	9.1	9.7	8.5	9.8	10.3	10.9	11.5					
	50	4.0	4.6	4.8	5.1	5.4	4.5	5.2	5.4	5.7	6.1	5.0	5.8	6.1	6.4	6.8	6.2	7.2	7.6	8.0	8.5	7.6	8.8	9.3	9.8	10.4					
	54	3.3	3.9	4.1	4.3	4.6	3.8	4.4	4.7	4.9	5.2	4.3	5.0	5.3	5.6	5.9	5.5	6.4	6.7	7.1	7.5	6.9	8.0	8.4	8.9	9.5					
	58	2.6	3.2	3.4	3.6	3.9	3.1	3.7	4.0	4.3	4.6	3.6	4.3	4.6	4.9	5.2	4.8	5.7	6.0	6.4	6.8	6.0	7.1	7.5	8.0	8.5					
	62	2.0	2.6	2.8	3.0	3.3	2.5	3.1	3.4	3.7	4.0	3.0	3.7	4.0	4.3	4.6	3.4	4.2	4.5	4.9	5.3	4.7	5.8	6.2	6.7	7.3					
	66	1.4	2.0	2.2	2.4	2.7	1.9	2.5	2.8	3.1	3.4	2.4	3.1	3.4	3.7	4.0	2.8	3.6	3.9	4.3	4.7	4.1	5.2	5.6	6.1	6.7					
1	-25	8.0	9.2	9.7	10.3	10.9	8.6	9.9	10.4	11.0	11.7	9.2	10.6	11.2	11.8	12.5	10.5	12.1	12.7	13.4	14.2	12.0	13.7	14.4	15.2	16.0					
	-20	8.0	9.3	9.8	10.3	10.9	8.6	9.9	10.5	11.0	11.7	9.2	10.6	11.2	11.8	12.5	10.6	12.1	12.7	13.4	14.2	12.0	13.8	14.5	15.2	16.1					
	-15	8.1	9.3	9.8	10.3	10.9	8.7	10.0	10.5	11.1	11.7	9.3	10.7	11.2	11.8	12.5	10.6	12.2	12.8	13.5	14.2	12.1	13.8	14.5	15.2	16.1					
	-10	8.1	9.3	9.8	10.4	11.0	8.7	10.0	10.5	11.1	11.7	9.3	10.7	11.3	11.9	12.5	10.7	12.2	12.8	13.5	14.2	12.1	13.9	14.5	15.3	16.1					
	-5	8.2	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.8	9.4	10.8	11.3	11.9	12.6	10.7	12.3	12.9	13.5	14.3	12.2	13.9	14.6	15.3	16.1					
	0	8.2	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.2	11.8	9.4	10.8	11.3	11.9	12.6	10.8	12.3	12.9	13.6	14.3	12.2	13.9	14.6	15.3	16.2					
	5	8.3	9.5	9.9	10.5	11.0	8.9	10.1	10.6	11.2	11.8	9.5	10.8	11.4	12.0	12.6	10.8	12.3	12.9	13.6	14.3	12.3	14.0	14.6	15.4	16.2					
	10	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.2	11.8	9.5	10.9	11.4	12.0	12.6	10.9	12.4	13.0	13.6	14.3	12.3	14.0	14.7	15.4	16.2					
	15	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.2	11.8	9.6	10.9	11.4	12.0	12.6	10.9	12.4	13.0	13.6	14.3	12.4	14.0	14.7	15.4	16.2					
	20	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.8	12.4	10.7	12.2	12.8	13.4	14.1	12.2	13.8	14.5	15.2	15.9					
0	25	7.4	8.4	8.9	9.3	9.8	7.9	9.1	9.6	10.1	10.6	8.6	9.8	10.3	10.8	11.4	9.9	11.3	11.8	12.4	13.1	11.3	12.9	13.5	14.2	14.9					
	30	6.5	7.4	7.8	8.2	8.7	7.1	8.1	8.5	9.0	9.5	7.7	8.8	9.2	9.7	10.3	9.0	10.3	10.8	11.3	12.0	10.4	11.9	12.5	13.1	13.8					
	35	5.6	6.5	6.8	7.2	7.6	6.2	7.1	7.5	7.9	8.4	6.8	7.8	8.2	8.7	9.2	8.1	9.3	9.8	10.3	10.9	9.5	10.9	11.4	12.0	12.7					
	40	4.8	5.6	5.9	6.2	6.5	5.4	6.2	6.5	6.9	7.3	6.0	6.9	7.2	7.6	8.1	7.2	8.3	8.8	9.3	9.8	8.6	9.9	10.4	11.0	11.6					
	45	4.1	4.7	4.9	5.2	5.5	4.6	5.3	5.6	5.9	6.2	5.1	5.9	6.2	6.6	7.0	6.3	7.3	7.7	8.2	8.7	7.7	8.9	9.4	9.9	10.5					
	50	3.3	3.8	4.0	4.3	4.5	3.8	4.4	4.6	4.9	5.2	4.3	5.0	5.3	5.5	5.9	5.5	6.3	6.7	7.1	7.5	6.8	7.9	8.4	8.8	9.4					
	52	3.0	3.5	3.7	3.9	4.1	3.5	4.0	4.3	4.5	4.8	4.0	4.6	4.9	5.1	5.4	5.1	5.9	6.2	6.6	7.0	6.4	7.5	7.9	8.4	8.9					
	56	2.4	2.9	3.1	3.3	3.5	2.9	3.4	3.7	4.0	4.3	3.4	4.0	4.3	4.5	4.8	4.5	5.3	5.6	6.0	6.4	5.8	6.9	7.3	7.8	8.3					
	60	1.8	2.3	2.5	2.7	2.9	2.2	2.7	3.0	3.3	3.6	2.6	3.2	3.5	3.8	4.1	3.8	4.6	4.9	5.3	5.7	5.0	6.1	6.5	7.0	7.5					
	64	1.2	1.7	1.9	2.1	2.3	1.6	2.1	2.4	2.7	3.0	2.0	2.6	2.9	3.2	3.5	2.8	3.5	3.8	4.2	4.6	4.0	5.1	5.5	6.0	6.5					
2	-25	8.2	9.5	10.0	10.5	11.1	8.8	10.1	10.7	11.2	11.9	9.4	10.8	11.4	12.0	12.7	10.8	12.3	13.0	13.6	14.4	12.2	14.0	14.7	15.4	16.3					
	-20	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.3	11.9	9.5	10.9	11.4	12.0	12.7	10.8	12.4	13.0	13.7	14.4	12.3	14.0	14.7	15.4	16.3					
	-15	8.3	9.5	10.0	10.6	11.2	8.9	10.2	10.7	11.3	11.9	9.5	10.9	11.5	12.1	12.7	10.9	12.4	13.0	13.7	14.4	12.3	14.1	14.7	15.5	16.3					
	-10	8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.3	12.0	9.6	11.0	11.5	12.1	12.8	10.9	12.5	13.1	13.7	14.5	12.4	14.1	14.8	15.5	16.3					
	-5	8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.4	12.0	9.6	11.0	11.5	12.1	12.8	11.0	12.5	13.1	13.8	14.5	12.4	14.1	14.8	15.5	16.3					
	0	8.5	9.7	10.1	10.7	11.2	9.1	10.3	10.8	11.4	12.0	9.7	11.0	11.6	12.2	12.8	11.0	12.5	13.1	13.8	14.5	12.5	14.2	14.8	15.6	16.4					
	5	8.5	9.7	10.2	10.7	11.3	9.1	10.4	10.9																						

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		16830					16500					16000					15500					15000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
4000	-30	6.2	7.1	7.5	7.8	8.3	6.5	7.5	7.9	8.3	8.7	7.0	8.1	8.5	8.9	9.4	7.5	8.7	9.1	9.6	10.1	8.1	9.3	9.7	10.2	10.8
	-25	6.2	7.1	7.5	7.9	8.3	6.5	7.5	7.9	8.3	8.8	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1	8.1	9.3	9.8	10.3	10.8
	-20	6.3	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.5	7.6	8.7	9.2	9.6	10.1	8.2	9.3	9.8	10.3	10.9
	-15	6.3	7.2	7.6	8.0	8.4	6.6	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.8	10.3	10.9
	-10	6.4	7.3	7.6	8.0	8.4	6.7	7.6	8.0	8.4	8.9	7.2	8.2	8.6	9.1	9.5	7.7	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.4	10.9
	-5	6.4	7.3	7.7	8.0	8.5	6.7	7.7	8.1	8.5	8.9	7.2	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.7	10.2	8.3	9.5	9.9	10.4	11.0
	0	6.4	7.3	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3	8.4	9.5	10.0	10.4	11.0
	5	6.3	7.2	7.5	7.9	8.3	6.7	7.6	7.9	8.3	8.8	7.2	8.2	8.6	9.0	9.4	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8
	10	5.5	6.2	6.5	6.9	7.2	5.8	6.6	6.9	7.3	7.6	6.3	7.2	7.5	7.9	8.3	6.8	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.2	9.7
	15	4.7	5.4	5.6	5.9	6.2	5.0	5.7	6.0	6.3	6.6	5.5	6.3	6.6	6.9	7.2	6.0	6.8	7.2	7.5	7.9	6.5	7.5	7.8	8.2	8.7
	20	3.9	4.5	4.7	5.0	5.2	4.2	4.8	5.1	5.3	5.6	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.9	5.7	6.5	6.8	7.2	7.5
	25	3.2	3.7	3.8	4.0	4.3	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.7	4.9	5.2	4.3	5.0	5.2	5.5	5.8	4.8	5.5	5.8	6.1	6.4
	30	2.5	2.9	3.0	3.2	3.3	2.7	3.2	3.3	3.5	3.7	3.1	3.6	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.8	4.0	4.6	4.9	5.1	5.4
	35	1.8	2.1	2.2	2.3	2.5	2.0	2.4	2.5	2.6	2.8	2.4	2.8	2.9	3.1	3.3	2.8	3.3	3.4	3.6	3.8	3.3	3.8	3.9	4.2	4.4
	40	1.1	1.4	1.4	1.5	1.6	1.4	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.3	2.4	2.1	2.5	2.6	2.7	2.9	2.5	2.9	3.1	3.3	3.4
	45	0.5	0.7	0.7	0.8	0.9	0.7	0.9	1.0	1.0	1.1	1.1	1.3	1.4	1.5	1.6	1.4	1.7	1.8	1.9	2.0	1.8	2.1	2.3	2.4	2.5
5000	-35	6.3	7.3	7.6	8.0	8.5	6.7	7.6	8.0	8.5	8.9	7.2	8.2	8.6	9.1	9.6	7.7	8.8	9.3	9.7	10.3	8.3	9.4	9.9	10.4	11.0
	-30	6.4	7.3	7.7	8.1	8.5	6.7	7.7	8.1	8.5	8.9	7.2	8.3	8.7	9.1	9.6	7.7	8.9	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0
	-25	6.4	7.3	7.7	8.1	8.5	6.8	7.7	8.1	8.5	9.0	7.3	8.3	8.7	9.2	9.6	7.8	8.9	9.3	9.8	10.3	8.3	9.5	10.0	10.5	11.0
	-20	6.5	7.4	7.7	8.1	8.6	6.8	7.8	8.2	8.6	9.0	7.3	8.3	8.8	9.2	9.7	7.8	8.9	9.4	9.8	10.4	8.4	9.6	10.0	10.5	11.1
	-15	6.5	7.4	7.8	8.2	8.6	6.9	7.8	8.2	8.6	9.1	7.4	8.4	8.8	9.2	9.7	7.9	9.0	9.4	9.9	10.4	8.5	9.6	10.1	10.6	11.1
	-10	6.6	7.5	7.8	8.2	8.7	6.9	7.9	8.3	8.7	9.1	7.4	8.4	8.8	9.3	9.8	8.0	9.0	9.5	9.9	10.4	8.5	9.7	10.1	10.6	11.1
	-5	6.6	7.5	7.9	8.3	8.7	7.0	7.9	8.3	8.7	9.2	7.5	8.5	8.9	9.3	9.8	8.0	9.1	9.5	10.0	10.5	8.6	9.7	10.2	10.7	11.2
	0	6.4	7.3	7.7	8.0	8.4	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.5	7.8	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.9
	5	5.6	6.4	6.7	7.0	7.4	6.0	6.8	7.1	7.4	7.8	6.5	7.4	7.7	8.1	8.5	7.0	8.0	8.4	8.8	9.2	7.5	8.6	9.0	9.4	9.9
	10	4.8	5.5	5.7	6.0	6.3	5.1	5.8	6.1	6.4	6.7	5.6	6.4	6.7	7.0	7.4	6.1	7.0	7.3	7.7	8.1	6.7	7.6	8.0	8.4	8.8
	15	4.1	4.6	4.9	5.1	5.4	4.4	5.0	5.2	5.5	5.7	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.3	6.6	7.0	5.8	6.6	7.0	7.3	7.7
	20	3.3	3.8	4.0	4.2	4.4	3.6	4.1	4.3	4.5	4.8	4.0	4.6	4.8	5.1	5.3	4.5	5.1	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.6
	25	2.6	3.0	3.1	3.3	3.5	2.9	3.3	3.4	3.6	3.8	3.3	3.7	3.9	4.1	4.4	3.7	4.2	4.4	4.7	4.9	4.2	4.8	5.0	5.3	5.6
	30	1.9	2.2	2.3	2.5	2.6	2.2	2.5	2.6	2.8	2.9	2.5	2.9	3.1	3.3	3.4	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.6
	35	1.2	1.5	1.6	1.7	1.8	1.5	1.7	1.8	1.9	2.1	1.8	2.1	2.3	2.4	2.5	2.2	2.6	2.7	2.9	3.0	2.6	3.0	3.2	3.4	3.6
	40	0.6	0.8	0.9	0.9	1.0	0.8	1.0	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7	1.6	1.8	1.9	2.1	2.2	2.0	2.3	2.4	2.6	2.7
42	0.4	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.9	1.0	0.9	1.1	1.2	1.3	1.4	1.3	1.5	1.6	1.7	1.8	1.7	2.0	2.1	2.2	2.3	
6000	-35	6.5	7.4	7.8	8.1	8.6	6.8	7.8	8.2	8.6	9.0	7.3	8.3	8.8	9.2	9.7	7.8	8.9	9.4	9.9	10.4	8.4	9.6	10.0	10.5	11.1
	-30	6.5	7.4	7.8	8.2	8.6	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.2	9.7	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.1	10.6	11.1
	-25	6.6	7.5	7.8	8.2	8.7	6.9	7.9	8.2	8.7	9.1	7.4	8.4	8.8	9.3	9.8	7.9	9.0	9.5	9.9	10.4	8.5	9.7	10.1	10.6	11.1
	-20	6.6	7.5	7.9	8.3	8.7	7.0	7.9	8.3	8.7	9.2	7.5	8.5	8.9	9.3	9.8	8.0	9.1	9.5	10.0	10.5	8.6	9.7	10.2	10.7	11.2
	-15	6.7	7.6	7.9	8.3	8.7	7.0	8.0	8.3	8.7	9.2	7.5	8.5	8.9	9.4	9.8	8.0	9.1	9.5	10.0	10.5	8.6	9.7	10.2	10.7	11.2
	-10	6.7	7.6	8.0	8.4	8.8	7.0	8.0	8.4	8.8	9.2	7.5	8.6	9.0	9.4	9.9	8.1	9.2	9.6	10.0	10.5	8.6	9.8	10.2	10.7	11.2
	-5	6.5	7.4	7.7	8.1	8.5	6.8	7.8	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.9	8.9	9.3	9.8	10.3	8.4	9.5	10.0	10.5	11.0
	0	5.8	6.5	6.8	7.2	7.5	6.1	6.9	7.2	7.6	8.0	6.6	7.5	7.8	8.2	8.6	7.1	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.0
	5	5.0	5.7	5.9	6.2	6.5	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.5	7.9	8.3	6.8	7.8	8.2	8.6	9.0
	10	4.2	4.8	5.0	5.2	5.5	4.5	5.1	5.3	5.6	5.9	4.9	5.6	5.9	6.2	6.5	5.4	6.2	6.5	6.8	7.1	5.9	6.8	7.1	7.4	7.8
	15	3.4	3.9	4.1	4.3	4.6	3.7	4.3	4.5	4.7	4.9	4.2	4.7	5.0	5.2	5.5	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.8
	20	2.7	3.1	3.3	3.5	3.6	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.8	4.4	4.6	4.8	5.1	4.3	4.9	5.2	5.4	5.7
	25	2.0	2.4	2.5	2.6	2.8	2.3	2.6	2.8	2.9	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.5	4.7
	30	1.4	1.6	1.7	1.8	1.9	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.5	2.7	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.4	3.5	3.7
	35	0.7	0.9	0.9	1.0	1.1	0.9	1.1	1.2	1.3	1.4	1.3	1.5	1.6	1.7	1.8	1.7	1.9	2.0	2.2	2.3	2.0	2.4	2.5	2.7	2.8
	39	0.2	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.8	1.0	1.0	1.1	1.2	1.1	1.4	1.5	1.5	1.6	1.5	1.8	1.9	2.0	2.1
7000	-35	6.4	7.3	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0
	-30	6.5	7.4	7.7	8.1	8.5	6.8	7.7	8.1	8.5	9.0	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3	8.4	9.5	10.0	10.5	11.0
	-25	6.5	7.4	7.7	8.1	8.5	6.8	7.8	8.1	8.5	9.0	7.3	8.3	8.7	9.2	9.6	7.9	8.9	9.4	9.8	10.3	8.4	9.6	10.0	10.5	11.0
	-20	6.5	7.4	7.8	8.2	8.6	6.9	7.8	8.2	8.6																

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
4000	-30	8.7	9.9	10.4	10.9	11.5	9.3	10.6	11.1	11.7	12.3	9.9	11.3	11.8	12.5	13.1	11.2	12.8	13.4	14.1	14.8	12.7	14.4	15.1	15.9	16.7	12.7	14.4	15.1	15.9	16.7
	-25	8.7	9.9	10.4	11.0	11.6	9.3	10.6	11.1	11.7	12.3	9.9	11.3	11.9	12.5	13.1	11.3	12.8	13.4	14.1	14.8	12.7	14.5	15.1	15.9	16.7	12.7	14.5	15.1	15.9	16.7
	-20	8.7	10.0	10.5	11.0	11.6	9.3	10.7	11.2	11.7	12.4	10.0	11.4	11.9	12.5	13.2	11.3	12.9	13.5	14.1	14.8	12.8	14.5	15.2	15.9	16.7	12.8	14.5	15.2	15.9	16.7
	-15	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.8	12.4	10.0	11.4	12.0	12.5	13.2	11.4	12.9	13.5	14.2	14.9	12.9	14.6	15.2	15.9	16.7	12.9	14.6	15.2	15.9	16.7
	-10	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4	10.1	11.5	12.0	12.6	13.2	11.4	12.9	13.5	14.2	14.9	12.9	14.6	15.3	16.0	16.8	12.9	14.6	15.3	16.0	16.8
	-5	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.9	12.5	10.1	11.5	12.0	12.6	13.3	11.5	13.0	13.6	14.2	14.9	13.0	14.6	15.3	16.0	16.8	13.0	14.6	15.3	16.0	16.8
	0	9.0	10.2	10.6	11.1	11.7	9.6	10.8	11.3	11.9	12.5	10.2	11.5	12.1	12.6	13.3	11.5	13.0	13.6	14.3	15.0	13.0	14.7	15.3	16.0	16.8	13.0	14.7	15.3	16.0	16.8
	5	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.7	12.3	10.1	11.4	11.9	12.5	13.1	11.4	12.9	13.5	14.1	14.8	12.9	14.6	15.2	15.9	16.6	12.9	14.6	15.2	15.9	16.6
	10	7.9	9.0	9.5	9.9	10.5	8.5	9.7	10.2	10.7	11.2	9.2	10.4	10.9	11.4	12.0	10.5	11.9	12.4	13.0	13.7	12.0	13.5	14.1	14.8	15.5	12.0	13.5	14.1	14.8	15.5
	15	7.1	8.1	8.5	8.9	9.4	7.7	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.4	10.9	9.6	10.9	11.4	12.0	12.6	11.1	12.5	13.1	13.8	14.5	11.1	12.5	13.1	13.8	14.5
	20	6.2	7.1	7.5	7.9	8.3	6.8	7.8	8.2	8.6	9.1	7.4	8.5	8.9	9.4	9.9	8.7	9.9	10.4	10.9	11.5	10.1	11.6	12.1	12.7	13.4	10.1	11.6	12.1	12.7	13.4
	25	5.3	6.1	6.4	6.8	7.1	5.9	6.8	7.1	7.5	7.9	6.5	7.5	7.8	8.3	8.7	7.8	8.9	9.4	9.8	10.4	9.2	10.5	11.0	11.6	12.2	9.2	10.5	11.0	11.6	12.2
	30	4.5	5.2	5.5	5.7	6.1	5.0	5.8	6.1	6.4	6.8	5.6	6.4	6.8	7.1	7.5	6.9	7.9	8.3	8.8	9.3	8.3	9.5	10.0	10.5	11.1	8.3	9.5	10.0	10.5	11.1
	35	3.7	4.3	4.5	4.7	5.0	4.2	4.9	5.1	5.4	5.7	4.8	5.5	5.8	6.1	6.4	5.9	6.9	7.2	7.6	8.0	7.3	8.4	8.9	9.4	9.9	7.3	8.4	8.9	9.4	9.9
	40	3.0	3.4	3.6	3.8	4.0	3.4	4.0	4.2	4.4	4.6	3.9	4.5	4.8	5.0	5.3	5.1	5.8	6.2	6.5	6.9	6.4	7.4	7.8	8.2	8.7	6.4	7.4	7.8	8.2	8.7
	45	2.2	2.6	2.8	2.9	3.1	2.7	3.1	3.3	3.5	3.7	3.2	3.7	3.9	4.1	4.3	4.2	4.9	5.2	5.4	5.8	5.5	6.4	6.7	7.1	7.5	5.5	6.4	6.7	7.1	7.5
5000	-35	8.8	10.1	10.6	11.1	11.7	9.4	10.8	11.3	11.9	12.5	10.1	11.5	12.0	12.6	13.3	11.4	13.0	13.6	14.2	15.0	12.9	14.6	15.3	16.0	16.8	12.9	14.6	15.3	16.0	16.8
	-30	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.9	12.5	10.1	11.5	12.0	12.6	13.3	11.4	13.0	13.6	14.3	15.0	12.9	14.6	15.3	16.0	16.9	12.9	14.6	15.3	16.0	16.9
	-25	8.9	10.2	10.6	11.2	11.8	9.5	10.8	11.4	11.9	12.5	10.2	11.5	12.1	12.7	13.3	11.5	13.0	13.6	14.3	15.0	13.0	14.7	15.4	16.1	16.9	13.0	14.7	15.4	16.1	16.9
	-20	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	12.0	12.6	10.2	11.6	12.1	12.7	13.4	11.5	13.1	13.7	14.3	15.0	13.0	14.7	15.4	16.1	16.9	13.1	14.8	15.4	16.1	16.9
	-15	9.0	10.3	10.7	11.3	11.8	9.6	10.9	11.4	12.0	12.6	10.3	11.6	12.2	12.8	13.4	11.6	13.1	13.7	14.4	15.1	13.1	14.8	15.4	16.2	16.9	13.1	14.8	15.4	16.2	16.9
	-10	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.0	12.6	10.3	11.7	12.2	12.8	13.4	11.7	13.2	13.8	14.4	15.1	13.2	14.8	15.5	16.2	17.0	13.2	14.8	15.5	16.2	17.0
	-5	9.2	10.4	10.8	11.4	11.9	9.8	11.0	11.5	12.1	12.7	10.4	11.8	12.3	12.9	13.5	11.7	13.2	13.8	14.5	15.2	13.2	14.9	15.6	16.3	17.0	13.2	14.9	15.6	16.3	17.0
	0	9.0	10.1	10.6	11.1	11.7	9.6	10.8	11.3	11.8	12.4	10.2	11.5	12.0	12.6	13.2	11.5	13.0	13.6	14.2	14.9	13.0	14.7	15.3	16.0	16.7	13.0	14.7	15.3	16.0	16.7
	5	8.1	9.2	9.7	10.1	10.6	8.7	9.9	10.3	10.8	11.4	9.3	10.6	11.1	11.6	12.2	10.7	12.1	12.6	13.2	13.9	12.1	13.7	14.3	15.0	15.7	12.1	13.7	14.3	15.0	15.7
	10	7.2	8.2	8.6	9.1	9.5	7.8	8.9	9.3	9.8	10.3	8.4	9.6	10.0	10.5	11.1	9.7	11.0	11.6	12.1	12.7	11.2	12.7	13.3	13.9	14.6	11.2	12.7	13.3	13.9	14.6
	15	6.4	7.3	7.6	8.0	8.4	6.9	7.9	8.3	8.8	9.2	7.5	8.6	9.0	9.5	10.0	8.8	10.1	10.6	11.1	11.7	10.3	11.7	12.2	12.8	13.5	10.3	11.7	12.2	12.8	13.5
	20	5.5	6.3	6.6	6.9	7.3	6.1	6.9	7.3	7.7	8.1	6.7	7.6	8.0	8.4	8.9	7.9	9.1	9.5	10.0	10.6	9.4	10.7	11.2	11.8	12.4	9.4	10.7	11.2	11.8	12.4
	25	4.7	5.3	5.6	5.9	6.2	5.2	5.9	6.2	6.6	6.9	5.8	6.6	6.9	7.3	7.7	7.0	8.1	8.5	8.9	9.4	8.4	9.6	10.1	10.6	11.2	8.4	9.6	10.1	10.6	11.2
	30	3.9	4.4	4.7	4.9	5.2	4.4	5.0	5.3	5.5	5.9	4.9	5.6	5.9	6.2	6.6	6.1	7.0	7.4	7.8	8.2	7.5	8.6	9.1	9.6	10.1	7.5	8.6	9.1	9.6	10.1
	35	3.1	3.6	3.7	3.9	4.2	3.6	4.1	4.3	4.5	4.8	4.1	4.7	4.9	5.2	5.5	5.2	6.0	6.3	6.6	7.0	6.5	7.5	7.9	8.4	8.9	6.5	7.5	7.9	8.4	8.9
	40	2.4	2.8	2.9	3.1	3.3	2.8	3.3	3.4	3.6	3.8	3.3	3.8	4.0	4.2	4.5	4.4	5.1	5.3	5.6	5.9	6.7	6.5	6.9	7.3	7.7	6.7	6.5	6.9	7.3	7.7
42	2.1	2.4	2.6	2.7	2.9	2.5	2.9	3.1	3.3	3.5	3.0	3.5	3.7	3.9	4.1	4.1	4.7	4.9	5.2	5.5	5.3	6.1	6.5	6.8	7.2	5.3	6.1	6.5	6.8	7.2	
6000	-35	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	12.0	12.6	10.2	11.6	12.1	12.7	13.4	11.5	13.1	13.7	14.3	15.1	13.0	14.7	15.4	16.1	16.9	13.0	14.7	15.4	16.1	16.9
	-30	9.0	10.2	10.7	11.3	11.8	9.6	10.9	11.4	12.0	12.6	10.2	11.6	12.2	12.8	13.4	11.6	13.1	13.7	14.4	15.1	13.1	14.8	15.4	16.2	17.0	13.1	14.8	15.4	16.2	17.0
	-25	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.0	12.7	10.3	11.7	12.2	12.8	13.5	11.7	13.2	13.8	14.4	15.1	13.2	14.8	15.5	16.2	17.0	13.2	14.8	15.5	16.2	17.0
	-20	9.1	10.4	10.8	11.4	11.9	9.7	11.0	11.5	12.1	12.7	10.4	11.7	12.3	12.9	13.5	11.7	13.2	13.8	14.5	15.2	13.2	14.9	15.6	16.3	17.0	13.2	14.9	15.6	16.3	17.0
	-15	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.1	12.7	10.4	11.8	12.3	12.9	13.5	11.8	13.3	13.9	14.5	15.2	13.3	14.9	15.6	16.3	17.1	13.3	14.9	15.6	16.3	17.1
	-10	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.2	12.7	10.5	11.8	12.3	12.9	13.5	11.8	13.3	13.9	14.5	15.2	13.3	15.0	15.6	16.3	17.1	13.3	15.0	15.6	16.3	17.1
	-5	9.0	10.2	10.7	11.2	11.7	9.6	10.9	11.4	11.9	12.5	10.3	11.6	12.1	12.7	13.3	11.6	13.1	13.6	14.3	14.9	13.1	14.7	15.4	16.0	16.8	13.1	14.7	15.4	16.0	16.8
	0	8.2	9.3	9.8	10.2	10.8	8.8	10.0	10.5	11.0	11.5	9.5	10.7	11.2	11.7	12.3	10.8	12.2	12.7	13.3	14.0	12.3	13.8	14.4	15.1	15.8	12.3	13.8	14.4	15.1	15.8
	5	7.4	8.4	8.8	9.3	9.7	8.0	9.1	9.5	10.0	10.5	8.6	9.8	10.2	10.7	11.3	9.9	11.2	11.8	12.3	12.9	11.									

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																														
		16830					16500					16000					15500					15000										
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS										
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
8000	-35	6.6	7.5	7.9	8.3	8.7	6.9	7.9	8.3	8.7	9.1	7.4	8.5	8.9	9.3	9.8	8.0	9.1	9.5	9.9	10.4	8.5	9.7	10.1	10.6	11.2	8.5	9.7	10.1	10.6	11.2	
	-30	6.6	7.6	7.9	8.3	8.7	7.0	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.3	9.8	8.0	9.1	9.5	10.0	10.5	8.6	9.7	10.2	10.6	11.2	8.6	9.7	10.2	10.6	11.2	
	-25	6.7	7.6	7.9	8.3	8.7	7.0	8.0	8.3	8.7	9.2	7.5	8.5	8.9	9.4	9.8	8.1	9.1	9.6	10.0	10.5	8.6	9.8	10.2	10.7	11.2	8.6	9.8	10.2	10.7	11.2	
	-20	6.5	7.4	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.9	8.9	9.3	9.8	10.2	8.4	9.5	10.0	10.4	10.9	8.4	9.5	10.0	10.4	10.9	
	-15	6.1	6.9	7.2	7.5	7.9	6.4	7.2	7.6	7.9	8.3	6.9	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.2	9.7	8.0	9.0	9.4	9.9	10.4	8.0	9.0	9.4	9.9	10.4	
	-10	5.7	6.4	6.7	7.0	7.4	6.0	6.8	7.1	7.4	7.8	6.5	7.3	7.7	8.1	8.5	7.0	8.0	8.3	8.7	9.2	7.6	8.6	9.0	9.4	9.9	7.6	8.6	9.0	9.4	9.9	
	-5	5.2	5.9	6.1	6.4	6.8	5.5	6.2	6.5	6.8	7.2	6.0	6.8	7.1	7.4	7.8	6.5	7.4	7.7	8.1	8.5	7.1	8.0	8.4	8.8	9.2	7.1	8.0	8.4	8.8	9.2	
	0	4.5	5.1	5.3	5.6	5.8	4.8	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.5	6.3	7.1	7.4	7.8	8.2	6.3	7.1	7.4	7.8	8.2	
	5	3.7	4.2	4.4	4.7	4.9	4.0	4.6	4.8	5.0	5.2	4.4	5.1	5.3	5.6	5.8	4.9	5.6	5.9	6.1	6.5	5.4	6.2	6.5	6.8	7.1	5.4	6.2	6.5	6.8	7.1	
	10	3.0	3.4	3.6	3.7	3.9	3.2	3.7	3.9	4.1	4.3	3.4	4.2	4.4	4.6	4.8	4.1	4.7	4.9	5.1	5.4	4.6	5.2	5.5	5.7	6.0	4.6	5.2	5.5	5.7	6.0	
	15	2.3	2.6	2.8	2.9	3.1	2.5	2.9	3.1	3.2	3.4	2.9	3.4	3.5	3.7	3.9	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.6	4.8	5.0	3.8	4.3	4.6	4.8	5.0	
	20	1.6	1.9	2.0	2.1	2.2	1.8	2.1	2.2	2.4	2.5	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.2	3.3	3.5	3.0	3.5	3.7	3.9	4.1	3.0	3.5	3.7	3.9	4.1	
	25	1.0	1.1	1.2	1.3	1.4	1.2	1.4	1.5	1.6	1.7	1.5	1.8	1.9	2.0	2.1	1.9	2.2	2.3	2.5	2.6	2.3	2.7	2.8	3.0	3.1	2.3	2.7	2.8	3.0	3.1	
	30	0.3	0.4	0.5	0.5	0.6	0.5	0.7	0.7	0.8	0.8	0.8	1.0	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7	1.6	1.9	2.0	2.1	2.2	1.6	1.9	2.0	2.1	2.2	
	33	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.8	1.0	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7	1.6	1.9	2.0	2.1	2.2	
9000	-35	6.5	7.3	7.7	8.0	8.4	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.5	7.8	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.9	8.4	9.5	9.9	10.4	10.9	
	-30	6.5	7.4	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.9	8.9	9.3	9.8	10.2	8.4	9.5	10.0	10.4	10.9	8.4	9.5	10.0	10.4	10.9	
	-25	6.3	7.2	7.5	7.9	8.3	6.7	7.6	7.9	8.3	8.7	7.2	8.1	8.5	8.9	9.4	7.7	8.7	9.1	9.6	10.0	8.3	9.4	9.8	10.2	10.7	8.3	9.4	9.8	10.2	10.7	
	-20	5.9	6.7	7.0	7.3	7.7	6.2	7.1	7.4	7.7	8.1	6.7	7.7	8.0	8.4	8.8	7.3	8.2	8.6	9.0	9.5	7.8	8.9	9.3	9.7	10.2	7.8	8.9	9.3	9.7	10.2	
	-15	5.4	6.2	6.4	6.7	7.1	5.7	6.5	6.8	7.1	7.5	6.2	7.1	7.4	7.7	8.1	6.8	7.7	8.0	8.4	8.8	7.3	8.3	8.7	9.1	9.5	7.8	8.3	8.7	9.1	9.5	
	-10	5.1	5.7	6.0	6.3	6.6	5.4	6.1	6.3	6.6	7.0	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.5	7.9	8.3	6.9	7.8	8.2	8.6	9.0	6.9	7.8	8.2	8.6	9.0	
	-5	4.6	5.2	5.4	5.7	5.9	4.9	5.5	5.7	6.0	6.3	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.6	6.4	7.2	7.5	7.9	8.3	6.4	7.2	7.5	7.9	8.3	
	0	3.8	4.4	4.6	4.8	5.0	4.1	4.7	4.9	5.1	5.4	4.6	5.2	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.3	5.6	6.3	6.6	6.9	7.3	
	5	3.1	3.5	3.7	3.9	4.1	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	5.0	4.2	4.8	5.1	5.3	5.6	4.7	5.4	5.6	5.9	6.2	4.7	5.4	5.6	5.9	6.2	
	10	2.4	2.8	2.9	3.1	3.2	2.7	3.1	3.2	3.4	3.5	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.7	5.0	5.2	4.0	4.5	4.7	5.0	5.2	
	15	1.7	2.0	2.1	2.2	2.4	2.0	2.3	2.4	2.5	2.7	2.4	2.7	2.8	3.0	3.1	2.8	3.2	3.3	3.5	3.7	3.2	3.6	3.8	4.0	4.2	3.2	3.6	3.8	4.0	4.2	
	20	1.1	1.3	1.4	1.4	1.5	1.3	1.5	1.6	1.7	1.8	1.7	1.9	2.0	2.2	2.3	2.0	2.4	2.5	2.6	2.8	2.5	2.8	3.0	3.1	3.3	2.5	2.8	3.0	3.1	3.3	
	25	0.4	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.2	1.3	1.3	1.4	1.4	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.3	2.4	1.7	2.0	2.1	2.3	2.4	
	30	-0.1	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.9	0.9	1.0	1.1	1.1	1.3	1.4	1.5	1.6	1.1	1.3	1.4	1.5	1.6
	31	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.1	0.1	0.2	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	0.9	0.9	1.1	1.2	1.3	1.4	0.9	1.1	1.2	1.3	1.4	
10000	-35	6.3	7.1	7.4	7.8	8.2	6.6	7.5	7.8	8.2	8.6	7.1	8.1	8.4	8.8	9.3	7.7	8.7	9.1	9.5	10.0	8.2	9.3	9.7	10.2	10.7	8.2	9.3	9.7	10.2	10.7	
	-30	6.1	6.9	7.2	7.5	7.9	6.4	7.3	7.6	8.0	8.3	6.9	7.8	8.2	8.6	9.0	7.5	8.4	8.8	9.2	9.7	8.0	9.1	9.5	9.9	10.4	8.0	9.1	9.5	9.9	10.4	
	-25	5.7	6.5	6.8	7.1	7.4	6.0	6.8	7.1	7.5	7.8	6.5	7.4	7.7	8.1	8.5	7.1	8.0	8.4	8.8	9.2	7.6	8.6	9.0	9.4	9.9	7.6	8.6	9.0	9.4	9.9	
	-20	5.3	6.0	6.3	6.5	6.9	5.6	6.3	6.6	6.9	7.3	6.1	6.9	7.2	7.6	7.9	6.6	7.5	7.8	8.2	8.6	7.2	8.1	8.5	8.9	9.3	7.2	8.1	8.5	8.9	9.3	
	-15	4.8	5.5	5.7	6.0	6.2	5.1	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.3	6.1	6.9	7.2	7.6	7.9	6.6	7.5	7.9	8.2	8.7	6.6	7.5	7.9	8.2	8.7	
	-10	4.5	5.0	5.3	5.5	5.8	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.4	6.2	7.1	7.4	7.7	8.1	6.2	7.1	7.4	7.7	8.1	
	-5	4.0	4.5	4.7	4.9	5.1	4.2	4.8	5.0	5.2	5.5	4.7	5.3	5.5	5.8	6.1	5.2	5.8	6.1	6.4	6.7	5.7	6.4	6.7	7.0	7.4	5.7	6.4	6.7	7.0	7.4	
	0	3.3	3.7	3.9	4.1	4.3	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.5	5.8	4.9	5.6	5.8	6.1	6.4	4.9	5.6	5.8	6.1	6.4	
	5	2.6	2.9	3.1	3.2	3.4	2.8	3.2	3.4	3.5	3.7	3.2	3.7	3.8	4.0	4.2	3.7	4.2	4.4	4.6	4.8	4.1	4.7	4.9	5.1	5.4	4.1	4.7	4.9	5.1	5.4	
	10	1.9	2.2	2.3	2.4	2.5	2.1	2.4	2.6	2.7	2.8	2.5	2.9	3.0	3.2	3.3	2.9	3.3	3.5	3.7	3.9	3.3	3.8	4.0	4.2	4.4	3.3	3.8	4.0	4.2	4.4	
	15	1.2	1.4	1.5	1.6	1.7	1.4	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4	2.2	2.5	2.6	2.8	2.9	2.6	3.0	3.1	3.3	3.4	2.6	3.0	3.1	3.3	3.4	
	20	0.6	0.7	0.8	0.8	0.9	0.8	1.0	1.0	1.1	1.2	1.1	1.3	1.4	1.5	1.6	1.5	1.8	1.8	2.0	2.1	1.9	2.2	2.3	2.4	2.6	1.9	2.2	2.3	2.4	2.6	
	25	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.8	1.0	1.1	1.1	1.2	1.2	1.4	1.5	1.6	1.7	1.2	1.4	1.5	1.6	1.7	
	29	-0.5	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.0	1.0	0.7	0.8	0.9	1.0	1.0
	11000	-35	5.5	6.2	6.5	6.8	7.1	5.8	6.6	6.9	7.2	7.5	6.3	7.1	7.5	7.8	8.2	6.8	7.7	8.1	8.5	8.9	7.4	8.4	8.7	9.1	9.6	7.4	8.4	8.7	9.1	9.6
-30		5.1	5.8	6.1	6.4	6.7	5.4	6.2	6.4	6.7	7.1	5																				

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500						14000						13500						12500						11500					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
8000	-35	9.1	10.3	10.8	11.3	11.9		9.7	11.0	11.5	12.1	12.7		10.4	11.7	12.2	12.8	13.5		11.7	13.2	13.8	14.4	15.1		13.2	14.9	15.5	16.2	17.0	
	-30	9.2	10.4	10.8	11.4	11.9		9.8	11.1	11.5	12.1	12.7		10.4	11.8	12.3	12.9	13.5		11.8	13.3	13.8	14.5	15.2		13.3	14.9	15.6	16.3	17.0	
	-25	9.2	10.4	10.9	11.4	11.9		9.8	11.1	11.6	12.1	12.7		10.5	11.8	12.3	12.9	13.5		11.8	13.3	13.9	14.5	15.2		13.3	15.0	15.6	16.3	17.0	
	-20	9.0	10.2	10.6	11.1	11.7		9.6	10.9	11.3	11.9	12.4		10.3	11.6	12.1	12.6	13.2		11.6	13.1	13.6	14.2	14.9		13.1	14.7	15.4	16.0	16.8	
	-15	8.6	9.7	10.1	10.6	11.1		9.2	10.3	10.8	11.3	11.9		9.8	11.1	11.5	12.1	12.7		11.1	12.5	13.1	13.7	14.3		12.6	14.2	14.8	15.5	16.2	
	-10	8.1	9.2	9.6	10.1	10.6		8.7	9.9	10.3	10.8	11.3		9.3	10.6	11.0	11.6	12.1		10.7	12.1	12.6	13.2	13.8		12.2	13.7	14.3	14.9	15.6	
	-5	7.6	8.6	9.0	9.5	9.9		8.2	9.3	9.7	10.2	10.7		8.8	10.0	10.4	10.9	11.5		10.2	11.5	12.0	12.5	13.1		11.6	13.1	13.7	14.3	15.0	
	0	6.8	7.8	8.1	8.5	9.0		7.4	8.4	8.8	9.2	9.7		8.0	9.1	9.5	10.0	10.5		9.3	10.6	11.0	11.6	12.1		10.8	12.2	12.7	13.3	14.0	
	5	6.0	6.8	7.1	7.5	7.8		6.5	7.5	7.8	8.2	8.6		7.2	8.2	8.5	9.0	9.4		8.4	9.6	10.0	10.5	11.1		9.9	11.2	11.7	12.3	12.9	
	10	5.1	5.8	6.1	6.4	6.7		5.6	6.4	6.7	7.1	7.5		6.2	7.1	7.5	7.8	8.2		7.5	8.6	9.0	9.4	9.9		8.9	10.2	10.6	11.2	11.7	
	15	4.3	4.9	5.1	5.4	5.7		4.8	5.5	5.8	6.0	6.4		5.4	6.1	6.4	6.8	7.1		6.6	7.6	7.9	8.4	8.8		8.0	9.1	9.6	10.1	10.6	
	20	3.5	4.0	4.2	4.4	4.7		4.0	4.6	4.8	5.0	5.3		4.5	5.2	5.4	5.7	6.0		5.7	6.5	6.8	7.2	7.6		7.1	8.1	8.5	9.0	9.5	
	25	2.7	3.2	3.3	3.5	3.7		3.2	3.7	3.9	4.1	4.3		3.7	4.3	4.5	4.7	5.0		4.8	5.5	5.8	6.1	6.4		6.1	7.0	7.4	7.8	8.2	
	30	2.0	2.3	2.4	2.6	2.7		2.4	2.8	3.0	3.1	3.3		2.9	3.4	3.5	3.7	3.9		4.0	4.5	4.8	5.0	5.3		5.2	6.0	6.3	6.6	7.0	
	33	1.6	1.9	2.0	2.1	2.2		2.0	2.4	2.5	2.6	2.8		2.5	2.9	3.0	3.2	3.4		3.5	4.0	4.2	4.5	4.7		4.7	5.4	5.7	6.0	6.3	
9000	-35	9.0	10.1	10.6	11.1	11.7		9.6	10.8	11.3	11.8	12.4		10.2	11.5	12.1	12.6	13.2		11.6	13.0	13.6	14.2	14.9		13.1	14.7	15.3	16.0	16.8	
	-30	9.0	10.2	10.6	11.1	11.7		9.6	10.9	11.3	11.9	12.4		10.3	11.6	12.1	12.6	13.2		11.6	13.1	13.6	14.2	14.9		13.1	14.7	15.4	16.0	16.8	
	-25	8.9	10.0	10.4	10.9	11.5		9.5	10.7	11.2	11.7	12.2		10.1	11.4	11.9	12.4	13.0		11.5	12.9	13.4	14.0	14.7		13.0	14.5	15.2	15.8	16.6	
	-20	8.4	9.5	9.9	10.4	10.9		9.0	10.2	10.6	11.1	11.7		9.6	10.9	11.4	11.9	12.4		11.0	12.4	12.9	13.5	14.1		12.5	14.0	14.6	15.3	16.0	
	-15	7.9	8.9	9.3	9.8	10.2		8.5	9.6	10.0	10.5	11.0		9.1	10.3	10.7	11.2	11.8		10.4	11.8	12.3	12.8	13.5		11.9	13.4	14.0	14.6	15.3	
	-10	7.5	8.5	8.8	9.3	9.7		8.0	9.1	9.5	10.0	10.5		8.7	9.8	10.2	10.7	11.2		10.0	11.3	11.8	12.3	12.9		11.5	12.9	13.5	14.1	14.8	
	-5	6.9	7.9	8.2	8.6	9.1		7.5	8.5	8.9	9.3	9.8		8.1	9.2	9.6	10.1	10.6		9.4	10.7	11.1	11.7	12.2		10.9	12.3	12.8	13.4	14.1	
	0	6.1	6.9	7.3	7.6	8.0		6.7	7.6	8.0	8.4	8.8		7.3	8.3	8.7	9.1	9.6		8.6	9.7	10.2	10.7	11.2		10.0	11.4	11.9	12.4	13.0	
	5	5.2	6.0	6.2	6.6	6.9		5.8	6.6	6.9	7.3	7.6		6.4	7.3	7.6	8.0	8.4		7.7	8.7	9.2	9.6	10.1		9.1	10.3	10.8	11.3	11.9	
	10	4.4	5.1	5.3	5.6	5.8		5.0	5.7	5.9	6.2	6.5		5.5	6.3	6.6	6.9	7.3		6.8	7.8	8.1	8.6	9.0		8.2	9.3	9.8	10.3	10.8	
	15	3.7	4.2	4.4	4.6	4.8		4.1	4.7	5.0	5.2	5.5		4.7	5.3	5.6	5.9	6.2		5.9	6.7	7.0	7.4	7.8		7.3	8.3	8.7	9.2	9.7	
	20	2.9	3.3	3.5	3.7	3.9		3.4	3.9	4.0	4.3	4.5		3.9	4.4	4.6	4.9	5.1		5.0	5.7	6.0	6.3	6.6		6.3	7.2	7.6	8.0	8.5	
	25	2.2	2.5	2.6	2.8	2.9		2.6	3.0	3.1	3.3	3.5		3.1	3.5	3.7	3.9	4.1		4.1	4.7	5.0	5.2	5.5		5.4	6.2	6.5	6.8	7.2	
	30	1.5	1.7	1.8	1.9	2.1		1.9	2.2	2.3	2.4	2.6		2.3	2.7	2.9	3.0	3.2		3.3	3.8	4.0	4.3	4.5		4.5	5.2	5.5	5.8	6.1	
	31	1.3	1.6	1.7	1.8	1.9		1.7	2.0	2.1	2.3	2.4		2.2	2.5	2.7	2.8	3.0		3.2	3.7	3.9	4.1	4.3		4.3	5.0	5.3	5.5	5.8	
10000	-35	8.8	9.9	10.4	10.9	11.4		9.4	10.6	11.1	11.6	12.1		10.0	11.3	11.8	12.4	12.9		11.4	12.8	13.4	14.0	14.6		12.9	14.5	15.1	15.7	16.5	
	-30	8.6	9.7	10.1	10.6	11.1		9.2	10.4	10.8	11.3	11.9		9.8	11.1	11.6	12.1	12.7		11.2	12.6	13.1	13.7	14.3		12.7	14.2	14.8	15.5	16.2	
	-25	8.2	9.2	9.7	10.1	10.6		8.8	9.9	10.4	10.8	11.4		9.4	10.6	11.1	11.6	12.1		10.7	12.1	12.6	13.2	13.8		12.2	13.8	14.3	15.0	15.7	
	-20	7.7	8.7	9.1	9.6	10.0		8.3	9.4	9.8	10.3	10.8		8.9	10.1	10.5	11.0	11.6		10.3	11.6	12.1	12.6	13.2		11.8	13.2	13.8	14.4	15.1	
	-15	7.2	8.2	8.5	8.9	9.4		7.8	8.8	9.2	9.6	10.1		8.4	9.5	9.9	10.4	10.9		9.7	11.0	11.5	12.0	12.6		11.2	12.6	13.2	13.8	14.4	
	-10	6.8	7.7	8.1	8.4	8.9		7.4	8.4	8.7	9.2	9.6		8.0	9.0	9.5	9.9	10.4		9.3	10.5	11.0	11.5	12.0		10.8	12.1	12.7	13.2	13.9	
	-5	6.2	7.1	7.4	7.7	8.1		6.8	7.7	8.1	8.5	8.9		7.4	8.4	8.8	9.2	9.7		8.7	9.9	10.3	10.8	11.3		10.2	11.5	12.0	12.5	13.1	
	0	5.4	6.1	6.4	6.7	7.1		6.0	6.8	7.1	7.4	7.8		6.6	7.5	7.8	8.2	8.6		7.9	8.9	9.3	9.8	10.3		9.3	10.5	11.0	11.5	12.1	
	5	4.6	5.2	5.5	5.8	6.0		5.1	5.8	6.1	6.4	6.7		5.7	6.5	6.8	7.1	7.5		7.0	8.0	8.3	8.8	9.2		8.4	9.5	10.0	10.5	11.0	
	10	3.8	4.4	4.6	4.8	5.0		4.3	4.9	5.2	5.4	5.7		4.9	5.5	5.8	6.1	6.4		6.1	6.9	7.3	7.6	8.0		7.5	8.5	8.9	9.4	9.9	
	15	3.0	3.5	3.6	3.8	4.0		3.5	4.0	4.2	4.4	4.6		4.0	4.6	4.8	5.0	5.3		5.2	5.9	6.2	6.5	6.8		6.5	7.4	7.8	8.2	8.7	
	20	2.3	2.7	2.8	2.9	3.1		2.8	3.2	3.3	3.5	3.7		3.2	3.7	3.9	4.1	4.3		4.3	4.9	5.2	5.4	5.7		5.6	6.4	6.7	7.1	7.4	
	25	1.6	1.8	1.9	2.1	2.2		2.0	2.3	2.4	2.6	2.7		2.5	2.8	3.0	3.1	3.3		3.5	4.0	4.2	4.4	4.6		4.7	5.4	5.6	5.9	6.2	
	29	1.1	1.3	1.3	1.4	1.5		1.5	1.7	1.8	1.9	2.0		1.9	2.2	2.3	2.5	2.6		2.9	3.3	3.5	3.7	3.9		4.0	4.6	4.8	5.1	5.4	
	11000	-35	7.9	9.0	9.4	9.8	10.3		8.5	9.7	10.1	10.6	11.1		9.2	10.4	10.8	11.3	11.8		10.5	11.8	12.4	12.9	13.5		12.0	13.5	14.1	14.7	15.4
-30		7.6	8.5	8.9	9.4	9.8		8.1	9.2	9.6	10.1	10.6		8.8	9.9	10.3	10.8	11.3		10.1	11.4	11.9	12.4	13.0		11.6	13.0	13.6	14.2	14.8	
-25		7.2	8.1	8.5	8.9	9.3		7.8	8.8	9.2	9.6	10.1		8.4	9.5	9.9	10.3	10.9		9.7	10.9	11.4	11.9	12.5		11.2	12.6	13.1	13.7	14.3	
-20		6.7	7.6	8.0	8.3	8.8		7.3	8.3	8.6	9.1	9.5		7.9	8.9	9.4	9.8	10.3		9.2	10.4	10.9	11.4	11.9		10.7	12.0	12.6	13.1	13.8	
-15		6.2	7.0	7.3	7.7	8.1		6.8	7.7	8.0	8.4	8.9		7.4	8.4	8.8	9.2														

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		16830					16500					16000					15500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	5.1	5.9	6.2	6.6	7.0	5.4	6.2	6.6	7.0	7.4	5.8	6.8	7.2	7.6	8.1	6.3	7.4	7.8	8.3	8.8
	-30	5.1	5.9	6.2	6.6	7.0	5.4	6.3	6.6	7.0	7.4	5.9	6.8	7.2	7.6	8.1	6.4	7.4	7.9	8.3	8.8
	-25	5.1	5.9	6.3	6.6	7.0	5.4	6.3	6.6	7.0	7.5	5.9	6.9	7.2	7.7	8.1	6.4	7.5	7.9	8.4	8.9
	-20	5.2	6.0	6.3	6.7	7.1	5.5	6.3	6.7	7.1	7.5	5.9	6.9	7.3	7.7	8.2	6.5	7.5	7.9	8.4	8.9
	-15	5.2	6.0	6.3	6.7	7.1	5.5	6.4	6.7	7.1	7.5	6.0	6.9	7.3	7.7	8.2	6.5	7.6	8.0	8.4	8.9
	-10	5.2	6.1	6.4	6.7	7.1	5.6	6.4	6.8	7.1	7.6	6.0	7.0	7.4	7.8	8.2	6.6	7.6	8.0	8.5	9.0
	-5	5.3	6.1	6.4	6.8	7.2	5.6	6.5	6.8	7.2	7.6	6.1	7.0	7.4	7.8	8.3	6.6	7.6	8.1	8.5	9.0
	0	5.3	6.1	6.5	6.8	7.2	5.6	6.5	6.8	7.2	7.6	6.1	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.6	9.1
	5	5.4	6.2	6.5	6.8	7.2	5.7	6.5	6.9	7.3	7.7	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.6	9.1
	10	5.3	6.1	6.5	6.8	7.2	5.7	6.5	6.8	7.2	7.6	6.2	7.1	7.4	7.8	8.3	6.7	7.7	8.1	8.5	9.0
10	-35	5.3	6.2	6.5	6.9	7.3	5.6	6.5	6.9	7.3	7.7	6.1	7.1	7.5	7.9	8.4	6.6	7.7	8.2	8.6	9.2
	-30	5.4	6.2	6.5	6.9	7.3	5.7	6.6	6.9	7.3	7.8	6.2	7.1	7.5	8.0	8.4	6.7	7.8	8.2	8.7	9.2
	-25	5.4	6.2	6.6	6.9	7.4	5.7	6.6	7.0	7.3	7.8	6.2	7.2	7.6	8.0	8.5	6.7	7.8	8.2	8.7	9.2
	-20	5.4	6.3	6.6	7.0	7.4	5.7	6.6	7.0	7.4	7.8	6.2	7.2	7.6	8.0	8.5	6.8	7.8	8.3	8.7	9.3
	-15	5.5	6.3	6.7	7.0	7.4	5.8	6.7	7.0	7.4	7.9	6.3	7.3	7.7	8.1	8.5	6.8	7.9	8.3	8.8	9.3
	-10	5.5	6.4	6.7	7.1	7.5	5.8	6.7	7.1	7.5	7.9	6.3	7.3	7.7	8.1	8.6	6.9	7.9	8.3	8.8	9.3
	-5	5.6	6.4	6.7	7.1	7.5	5.9	6.8	7.1	7.5	7.9	6.4	7.4	7.7	8.2	8.6	6.9	8.0	8.4	8.9	9.4
	0	5.6	6.5	6.8	7.1	7.5	5.9	6.8	7.2	7.6	8.0	6.4	7.4	7.8	8.2	8.7	7.0	8.0	8.4	8.9	9.4
	5	5.6	6.5	6.8	7.2	7.6	6.0	6.8	7.2	7.6	8.0	6.5	7.4	7.8	8.2	8.7	7.0	8.0	8.4	8.9	9.4
	10	5.1	5.9	6.2	6.5	6.8	5.4	6.2	6.5	6.9	7.3	5.9	6.8	7.1	7.5	7.9	6.4	7.4	7.8	8.2	8.6
20	-35	5.6	6.4	6.8	7.2	7.6	5.9	6.8	7.2	7.6	8.0	6.4	7.4	7.8	8.2	8.7	6.9	8.0	8.4	8.9	9.4
	-30	5.6	6.5	6.8	7.2	7.6	5.9	6.8	7.2	7.6	8.0	6.4	7.4	7.8	8.3	8.7	6.9	8.0	8.5	8.9	9.5
	-25	5.6	6.5	6.8	7.2	7.6	6.0	6.9	7.2	7.6	8.1	6.5	7.5	7.9	8.3	8.8	7.0	8.1	8.5	9.0	9.5
	-20	5.7	6.6	6.9	7.3	7.7	6.0	6.9	7.3	7.7	8.1	6.5	7.5	7.9	8.3	8.8	7.0	8.1	8.5	9.0	9.5
	-15	5.7	6.6	6.9	7.3	7.7	6.1	7.0	7.3	7.7	8.2	6.6	7.6	8.0	8.4	8.9	7.1	8.2	8.6	9.1	9.6
	-10	5.8	6.6	7.0	7.4	7.8	6.1	7.0	7.4	7.8	8.2	6.6	7.6	8.0	8.4	8.9	7.1	8.2	8.6	9.1	9.6
	-5	5.8	6.7	7.0	7.4	7.8	6.2	7.1	7.4	7.8	8.3	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.1	9.6
	0	5.9	6.7	7.1	7.4	7.8	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7
	5	5.3	6.1	6.4	6.8	7.1	5.7	6.5	6.8	7.2	7.6	6.2	7.1	7.4	7.8	8.2	6.7	7.7	8.1	8.5	9.0
	10	4.5	5.1	5.4	5.7	6.0	4.8	5.5	5.8	6.1	6.4	5.2	6.0	6.3	6.7	7.0	5.7	6.6	6.9	7.3	7.7
30	-35	5.8	6.7	7.0	7.4	7.8	6.1	7.0	7.4	7.8	8.3	6.6	7.6	8.0	8.5	9.0	7.1	8.2	8.7	9.1	9.7
	-30	5.8	6.7	7.1	7.4	7.9	6.1	7.1	7.4	7.8	8.3	6.6	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.7
	-25	5.9	6.7	7.1	7.5	7.9	6.2	7.1	7.5	7.9	8.3	6.7	7.7	8.1	8.6	9.0	7.2	8.3	8.7	9.2	9.7
	-20	5.9	6.8	7.1	7.5	7.9	6.2	7.2	7.5	7.9	8.4	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.3	9.8
	-15	6.0	6.8	7.2	7.6	8.0	6.3	7.2	7.6	8.0	8.4	6.8	7.8	8.2	8.7	9.1	7.3	8.4	8.8	9.3	9.8
	-10	6.0	6.9	7.2	7.6	8.0	6.4	7.3	7.6	8.0	8.5	6.9	7.9	8.3	8.7	9.2	7.4	8.5	8.9	9.3	9.9
	-5	6.1	7.0	7.3	7.7	8.1	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.8	9.2	7.5	8.5	8.9	9.4	9.9
	0	5.6	6.4	6.7	7.0	7.4	5.9	6.7	7.1	7.4	7.8	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.8	9.3
	5	4.7	5.4	5.7	6.0	6.3	5.0	5.8	6.0	6.4	6.7	5.5	6.3	6.6	7.0	7.3	6.0	6.9	7.2	7.6	8.0
	10	3.9	4.4	4.7	4.9	5.2	4.1	4.7	5.0	5.3	5.5	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.8
40	-35	6.0	6.9	7.3	7.7	8.1	6.3	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.8	9.3	7.4	8.5	8.9	9.4	9.9
	-30	6.1	7.0	7.3	7.7	8.1	6.4	7.3	7.7	8.1	8.6	6.9	7.9	8.3	8.8	9.3	7.4	8.5	9.0	9.4	10.0
	-25	6.1	7.0	7.4	7.7	8.2	6.4	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.8	9.3	7.5	8.6	9.0	9.5	10.0
	-20	6.2	7.1	7.4	7.8	8.2	6.5	7.4	7.8	8.2	8.7	7.0	8.0	8.4	8.9	9.4	7.5	8.6	9.0	9.5	10.0
	-15	6.2	7.1	7.5	7.8	8.3	6.5	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1
	-10	6.3	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.4	7.6	8.7	9.1	9.6	10.1
	-5	5.9	6.7	7.0	7.4	7.7	6.2	7.1	7.4	7.8	8.2	6.7	7.6	8.0	8.4	8.9	7.2	8.2	8.6	9.1	9.6
	0	5.0	5.7	6.0	6.3	6.6	5.3	6.0	6.3	6.6	7.0	5.8	6.6	6.9	7.3	7.7	6.3	7.2	7.5	7.9	8.4
	5	4.1	4.7	5.0	5.2	5.5	4.4	5.1	5.3	5.6	5.9	4.9	5.6	5.9	6.2	6.5	5.4	6.1	6.4	6.8	7.1
	10	3.3	3.7	3.9	4.1	4.4	3.5	4.1	4.3	4.5	4.7	4.0	4.5	4.8	5.0	5.3	4.4	5.1	5.3	5.6	5.9
50	-35	6.2	7.1	7.5	7.9	8.3	6.5	7.5	7.9	8.3	8.7	7.0	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1
	-30	6.2	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.5	7.6	8.7	9.1	9.6	10.1
	-25	6.3	7.2	7.6	8.0	8.4	6.6	7.6	8.0	8.4	8.8	7.1	8.2	8.6	9.0	9.5	7.7	8.8	9.2	9.7	10.2
	-20	6.4	7.3	7.6	8.0	8.4	6.7	7.7	8.0	8.4	8.9	7.2	8.2	8.6	9.1	9.6	7.7	8.8	9.3	9.7	10.2
	-15	6.4	7.3	7.7	8.1	8.5	6.8	7.7	8.1	8.5	9.0	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3
	-10	6.0	6.8	7.1	7.5	7.9	6.3	7.2	7.5	7.9	8.3	6.8	7.8	8.1	8.5	9.0	7.3	8.3	8.7	9.2	9.7
	-5	5.1	5.8	6.1	6.4	6.8	5.4	6.2	6.5	6.8	7.2	5.9	6.8	7.1	7.5	7.8	6.4	7.4	7.7	8.1	8.6
	0	4.3	4.9	5.1	5.4	5.7	4.6	5.2	5.5	5.7	6.0	5.0	5.7	6.0	6.3	6.7	5.5	6.3	6.6	7.0	7.3
	5	3.4	3.9	4.1	4.4	4.6	3.7	4.3	4.5	4.7	5.0	4.2	4.8	5.0	5.3	5.5	4.6	5.3	5.6	5.8	6.2
	10	2.6	3.0	3.2	3.3	3.5	2.9	3.3	3.5	3.6	3.8	3.3	3.8	3.9	4.2	4.4	3.7	4.3	4.5	4.7	5.0

56FMC-00-00

Figure 4-39 (Sheet 1 of 4)

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	7.4	8.7	9.2	9.7	10.3	8.0	9.3	9.9	10.4	11.1	8.6	10.0	10.6	11.2	11.9	9.9	11.5	12.1	12.9	13.6	11.4	13.1	13.9	14.6	15.5	11.4	13.1	13.9	14.6	15.5
	-30	7.5	8.7	9.2	9.7	10.3	8.1	9.4	9.9	10.5	11.1	8.7	10.0	10.6	11.2	11.9	10.0	11.5	12.2	12.9	13.6	11.4	13.2	13.9	14.7	15.5	11.4	13.2	13.9	14.7	15.5
	-25	7.5	8.7	9.2	9.8	10.4	8.1	9.4	9.9	10.5	11.1	8.7	10.1	10.6	11.3	11.9	10.0	11.6	12.2	12.9	13.7	11.5	13.2	13.9	14.7	15.5	11.5	13.2	13.9	14.7	15.5
	-20	7.6	8.8	9.3	9.8	10.4	8.1	9.4	9.9	10.5	11.2	8.8	10.1	10.7	11.3	12.0	10.1	11.6	12.2	12.9	13.7	11.5	13.2	13.9	14.7	15.5	11.5	13.2	13.9	14.7	15.5
	-15	7.6	8.8	9.3	9.8	10.4	8.2	9.5	10.0	10.6	11.2	8.8	10.2	10.7	11.3	12.0	10.1	11.7	12.3	12.9	13.7	11.6	13.3	14.0	14.7	15.6	11.6	13.3	14.0	14.7	15.6
	-10	7.7	8.9	9.3	9.9	10.4	8.2	9.5	10.0	10.6	11.2	8.9	10.2	10.8	11.4	12.0	10.2	11.7	12.3	13.0	13.7	11.6	13.3	14.0	14.8	15.6	11.6	13.3	14.0	14.8	15.6
	-5	7.7	8.9	9.4	9.9	10.5	8.3	9.6	10.1	10.6	11.2	8.9	10.3	10.8	11.4	12.0	10.2	11.7	12.4	13.0	13.8	11.7	13.4	14.1	14.8	15.6	11.7	13.4	14.1	14.8	15.6
	0	7.8	8.9	9.4	9.9	10.5	8.3	9.6	10.1	10.7	11.3	9.0	10.3	10.8	11.4	12.1	10.3	11.8	12.4	13.1	13.8	11.7	13.4	14.1	14.8	15.6	11.7	13.4	14.1	14.8	15.6
	5	7.8	9.0	9.4	10.0	10.5	8.4	9.6	10.1	10.7	11.3	9.0	10.3	10.9	11.5	12.1	10.3	11.8	12.4	13.1	13.8	11.8	13.5	14.1	14.9	15.7	11.8	13.5	14.1	14.9	15.7
	10	7.8	8.9	9.4	9.9	10.5	8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.4	12.0	10.3	11.8	12.4	13.0	13.7	11.8	13.4	14.1	14.8	15.6	11.8	13.4	14.1	14.8	15.6
	1	-35	7.7	9.0	9.5	10.0	10.6	8.3	9.6	10.2	10.8	11.4	8.9	10.3	10.9	11.5	12.2	10.2	11.8	12.5	13.2	13.9	11.7	13.5	14.2	14.9	15.8	11.7	13.5	14.2	14.9
-30		7.8	9.0	9.5	10.0	10.6	8.4	9.7	10.2	10.8	11.4	9.0	10.4	10.9	11.5	12.2	10.3	11.9	12.5	13.2	13.9	11.7	13.5	14.2	15.0	15.8	11.7	13.5	14.2	15.0	15.8
-25		7.8	9.0	9.5	10.1	10.7	8.4	9.7	10.2	10.8	11.4	9.0	10.4	11.0	11.6	12.2	10.3	11.9	12.5	13.2	14.0	11.8	13.5	14.2	15.0	15.8	11.8	13.5	14.2	15.0	15.8
-20		7.9	9.1	9.6	10.1	10.7	8.5	9.7	10.3	10.8	11.5	9.1	10.4	11.0	11.6	12.3	10.4	11.9	12.5	13.2	14.0	11.8	13.6	14.3	15.0	15.9	11.8	13.6	14.3	15.0	15.9
-15		7.9	9.1	9.6	10.1	10.7	8.5	9.8	10.3	10.9	11.5	9.1	10.5	11.0	11.6	12.3	10.4	12.0	12.6	13.3	14.0	11.9	13.6	14.3	15.0	15.9	11.9	13.6	14.3	15.0	15.9
-10		8.0	9.2	9.7	10.2	10.8	8.6	9.8	10.4	10.9	11.5	9.2	10.5	11.1	11.7	12.3	10.5	12.0	12.6	13.3	14.0	12.0	13.7	14.3	15.1	15.9	12.0	13.7	14.3	15.1	15.9
-5		8.0	9.2	9.7	10.2	10.8	8.6	9.9	10.4	11.0	11.6	9.2	10.6	11.1	11.7	12.4	10.6	12.1	12.7	13.3	14.1	12.0	13.7	14.4	15.1	15.9	12.0	13.7	14.4	15.1	15.9
0		8.1	9.3	9.7	10.3	10.8	8.7	9.9	10.4	11.0	11.6	9.3	10.6	11.2	11.8	12.4	10.6	12.1	12.7	13.4	14.1	12.1	13.8	14.4	15.2	16.0	12.1	13.8	14.4	15.2	16.0
5		8.1	9.3	9.8	10.3	10.8	8.7	10.0	10.5	11.0	11.6	9.3	10.7	11.2	11.8	12.4	10.6	12.1	12.7	13.4	14.1	12.1	13.8	14.4	15.2	16.0	12.1	13.8	14.4	15.2	16.0
10		7.5	8.7	9.1	9.6	10.1	8.1	9.3	9.8	10.3	10.9	8.7	10.0	10.5	11.1	11.7	10.0	11.5	12.1	12.7	13.4	11.5	13.1	13.8	14.5	15.2	12.0	13.7	14.4	15.2	16.1
2		-35	8.0	9.2	9.7	10.3	10.9	8.6	9.9	10.4	11.0	11.7	9.2	10.6	11.2	11.8	12.5	10.5	12.1	12.7	13.4	14.2	12.0	13.7	14.4	15.2	16.1	12.0	13.7	14.4	15.2
	-30	8.0	9.3	9.8	10.3	10.9	8.6	9.9	10.5	11.0	11.7	9.2	10.6	11.2	11.8	12.5	10.6	12.1	12.8	13.4	14.2	12.0	13.8	14.5	15.2	16.1	12.0	13.8	14.5	15.2	16.1
	-25	8.1	9.3	9.8	10.3	10.9	8.7	10.0	10.5	11.1	11.7	9.3	10.7	11.2	11.8	12.5	10.6	12.2	12.8	13.5	14.2	12.1	13.8	14.5	15.3	16.1	12.1	13.8	14.5	15.3	16.1
	-20	8.1	9.4	9.8	10.4	11.0	8.7	10.0	10.5	11.1	11.7	9.3	10.7	11.3	11.9	12.5	10.7	12.2	12.8	13.5	14.2	12.1	13.9	14.5	15.3	16.1	12.1	13.9	14.5	15.3	16.1
	-15	8.2	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.2	11.8	9.4	10.8	11.3	11.9	12.6	10.7	12.3	12.9	13.5	14.3	12.2	13.9	14.6	15.3	16.1	12.2	13.9	14.6	15.3	16.1
	-10	8.3	9.5	9.9	10.5	11.0	8.8	10.1	10.6	11.2	11.8	9.5	10.8	11.4	12.0	12.6	10.8	12.3	12.9	13.6	14.3	12.3	14.0	14.6	15.4	16.2	12.3	14.0	14.6	15.4	16.2
	-5	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.2	11.9	9.5	10.9	11.4	12.0	12.7	10.9	12.4	13.0	13.6	14.3	12.3	14.0	14.7	15.4	16.2	12.3	14.0	14.7	15.4	16.2
	0	8.4	9.6	10.0	10.5	11.1	8.9	10.2	10.7	11.3	11.9	9.6	10.9	11.5	12.0	12.7	10.9	12.4	13.0	13.7	14.4	12.4	14.1	14.7	15.4	16.2	12.4	14.1	14.7	15.4	16.2
	5	7.8	8.9	9.4	9.9	10.4	8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.3	12.0	10.3	11.8	12.3	13.0	13.7	11.8	13.4	14.0	14.7	15.5	11.8	13.4	14.0	14.7	15.5
	10	6.8	7.9	8.3	8.7	9.2	7.4	8.5	9.0	9.4	10.0	8.0	9.2	9.7	10.2	10.8	9.3	10.7	11.2	11.8	12.4	10.8	12.3	12.9	13.6	14.3	10.8	12.3	12.9	13.6	14.3
	3	-35	8.2	9.5	10.0	10.5	11.1	8.8	10.1	10.7	11.3	11.9	9.4	10.8	11.4	12.0	12.7	10.8	12.3	13.0	13.6	14.4	12.2	14.0	14.7	15.4	16.3	12.2	14.0	14.7	15.4
-30		8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.3	11.9	9.5	10.9	11.4	12.0	12.7	10.8	12.4	13.0	13.7	14.4	12.3	14.0	14.7	15.5	16.3	12.3	14.0	14.7	15.5	16.3
-25		8.3	9.6	10.0	10.6	11.2	8.9	10.2	10.7	11.3	11.9	9.5	10.9	11.5	12.1	12.7	10.9	12.4	13.0	13.7	14.4	12.3	14.1	14.7	15.5	16.3	12.3	14.1	14.7	15.5	16.3
-20		8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.4	12.0	9.6	11.0	11.5	12.1	12.8	10.9	12.5	13.1	13.7	14.5	12.4	14.1	14.8	15.5	16.3	12.4	14.1	14.8	15.5	16.3
-15		8.4	9.7	10.1	10.7	11.3	9.0	10.3	10.8	11.4	12.0	9.7	11.0	11.6	12.2	12.8	11.0	12.5	13.1	13.8	14.5	12.5	14.2	14.8	15.6	16.4	12.5	14.2	14.8	15.6	16.4
-10		8.5	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.5	12.1	9.7	11.1	11.6	12.2	12.9	11.1	12.6	13.2	13.8	14.6	12.5	14.2	14.9	15.6	16.4	12.5	14.2	14.9	15.6	16.4
-5		8.6	9.8	10.3	10.8	11.3	9.2	10.4	11.0	11.5	12.1	9.8	11.2	11.7	12.3	12.9	11.1	12.6	13.2	13.9	14.6	12.6	14.3	14.9	15.7	16.5	12.6	14.3	14.9	15.7	16.5
0		8.0	9.2	9.6	10.1	10.7	8.6	9.9	10.3	10.9	11.4	9.3	10.6	11.1	11.6	12.2	10.6	12.0	12.6	13.2	13.9	12.1	13.7	14.3	15.0	15.8	12.1	13.7	14.3	15.0	15.8
5		7.1	8.2	8.6	9.0	9.5	7.7	8.8	9.3	9.7	10.3	8.3	9.5	10.0	10.5	11.1	9.6	11.0	11.5	12.1	12.8	11.1	12.6	13.2	13.9	14.6	11.1	12.6	13.2	13.9	14.6
10		6.1	7.0	7.4	7.8	8.2	6.7	7.7	8.1	8.6	9.0	7.3	8.4	8.8	9.3	9.8	8.6	9.8	10.3	10.9	11.5	10.0	11.5	12.0	12.7	13.4	10.0	11.5	12.0	12.7	13.4
4		-35	8.5	9.7	10.2	10.8	11.4	9.1	10.4	10.9	11.5	12.1	9.7	11.1	11.7	12.3	13.0	11.0	12.6	13.2	13.9	14.6	12.5	14.2	14.9	15.7	16.5	12.5	14.2	14.9	15.7
	-30	8.5	9.8	10.3	10.8	11.4	9.1	10.5	11.0	11.5	12.2	9.8	11.2	11.7	12																

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		16830					16500					16000					15500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6000	-35	6.3	7.2	7.6	8.0	8.4	6.7	7.6	8.0	8.4	8.9	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.2	9.7	10.2
	-30	6.4	7.3	7.6	8.0	8.5	6.7	7.7	8.0	8.5	8.9	7.2	8.2	8.6	9.1	9.6	7.7	8.8	9.3	9.7	10.2
	-25	6.4	7.3	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3
	-20	6.5	7.4	7.7	8.1	8.5	6.8	7.7	8.1	8.5	9.0	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3
	-15	6.0	6.9	7.2	7.5	7.9	6.4	7.2	7.6	8.0	8.4	6.9	7.8	8.2	8.6	9.1	7.4	8.4	8.8	9.3	9.7
	-10	5.3	6.0	6.3	6.6	6.9	5.6	6.3	6.6	7.0	7.3	6.1	6.9	7.2	7.6	8.0	6.6	7.5	7.9	8.3	8.7
	-5	4.4	5.1	5.3	5.6	5.8	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.9	5.7	6.5	6.8	7.2	7.5
	0	3.6	4.1	4.3	4.5	4.8	3.9	4.4	4.7	4.9	5.1	4.3	4.9	5.2	5.4	5.7	4.8	5.5	5.7	6.0	6.4
	5	2.8	3.2	3.4	3.5	3.7	3.0	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.7	4.9	5.2
	10	2.0	2.3	2.4	2.5	2.7	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.2	3.3	3.5	3.0	3.5	3.6	3.8	4.1
7000	-35	6.2	7.1	7.4	7.8	8.2	6.5	7.5	7.8	8.2	8.7	7.1	8.1	8.4	8.9	9.3	7.6	8.6	9.1	9.5	10.0
	-30	6.3	7.1	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1
	-25	6.2	7.1	7.4	7.8	8.2	6.5	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.8	9.3	7.6	8.6	9.0	9.5	10.0
	-20	5.9	6.7	7.0	7.4	7.8	6.2	7.1	7.4	7.8	8.2	6.7	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6
	-15	5.3	6.1	6.4	6.7	7.0	5.7	6.4	6.7	7.1	7.4	6.2	7.0	7.3	7.7	8.1	6.7	7.6	8.0	8.4	8.8
	-10	4.6	5.2	5.5	5.7	6.0	4.9	5.6	5.8	6.1	6.4	5.3	6.1	6.4	6.7	7.0	5.8	6.7	7.0	7.3	7.7
	-5	3.8	4.3	4.5	4.7	5.0	4.0	4.6	4.8	5.1	5.4	4.5	5.1	5.4	5.6	5.9	5.0	5.7	5.9	6.2	6.6
	0	3.0	3.4	3.6	3.8	4.0	3.2	3.7	3.9	4.1	4.3	3.7	4.2	4.4	4.6	4.9	4.1	4.7	4.9	5.2	5.4
	5	2.2	2.5	2.6	2.8	2.9	2.4	2.8	2.9	3.1	3.3	2.8	3.2	3.4	3.6	3.8	3.2	3.7	3.9	4.1	4.3
	10	1.4	1.6	1.7	1.8	1.9	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.5	2.7	2.3	2.7	2.9	3.0	3.2
8000	-35	6.3	7.2	7.6	7.9	8.3	6.7	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.2	9.6	10.1
	-30	6.0	6.8	7.2	7.5	7.9	6.3	7.2	7.6	7.9	8.3	6.8	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.2	9.7
	-25	5.6	6.4	6.7	7.0	7.4	5.9	6.8	7.1	7.4	7.8	6.4	7.3	7.7	8.1	8.5	7.0	7.9	8.3	8.7	9.2
	-20	5.3	6.0	6.3	6.6	6.9	5.6	6.4	6.7	7.0	7.3	6.1	6.9	7.2	7.6	8.0	6.6	7.5	7.9	8.3	8.7
	-15	4.7	5.3	5.6	5.9	6.2	5.0	5.7	6.0	6.2	6.6	5.5	6.2	6.5	6.8	7.2	6.0	6.8	7.1	7.5	7.9
	-10	3.9	4.5	4.7	4.9	5.2	4.2	4.8	5.0	5.3	5.6	4.7	5.3	5.6	5.8	6.1	5.1	5.9	6.1	6.5	6.8
	-5	3.1	3.6	3.8	4.0	4.2	3.4	3.9	4.1	4.3	4.5	3.8	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.4	5.7
	0	2.3	2.7	2.8	3.0	3.2	2.6	3.0	3.1	3.3	3.5	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.6
	5	1.6	1.8	1.9	2.0	2.2	1.8	2.1	2.2	2.3	2.5	2.2	2.5	2.6	2.8	2.9	2.6	3.0	3.1	3.3	3.5
	10	0.8	0.9	1.0	1.1	1.2	1.0	1.2	1.3	1.4	1.4	1.3	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.2	2.4
9000	-35	5.8	6.6	6.9	7.2	7.6	6.1	7.0	7.3	7.6	8.0	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4
	-30	5.4	6.2	6.4	6.8	7.1	5.7	6.5	6.8	7.2	7.5	6.2	7.1	7.4	7.8	8.2	6.7	7.7	8.1	8.4	8.9
	-25	5.0	5.7	6.0	6.3	6.6	5.3	6.1	6.3	6.6	7.0	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.5	7.9	8.3
	-20	4.7	5.4	5.6	5.9	6.2	5.0	5.7	6.0	6.3	6.6	5.5	6.2	6.5	6.9	7.2	6.0	6.8	7.1	7.5	7.9
	-15	4.1	4.7	4.9	5.2	5.4	4.4	5.0	5.3	5.5	5.8	4.9	5.6	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.0
	-10	3.4	3.9	4.1	4.3	4.5	3.7	4.2	4.4	4.6	4.8	4.1	4.7	4.9	5.1	5.4	4.6	5.2	5.5	5.7	6.0
	-5	2.6	3.0	3.2	3.3	3.5	2.9	3.3	3.5	3.7	3.9	3.3	3.8	4.0	4.2	4.4	3.7	4.3	4.5	4.7	5.0
	0	1.9	2.2	2.3	2.4	2.6	2.1	2.5	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.4	2.9	3.3	3.5	3.7	3.9
	5	1.1	1.3	1.4	1.5	1.6	1.3	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.2	2.3	2.1	2.4	2.5	2.7	2.8
	10	0.4	0.5	0.5	0.6	0.7	0.6	0.7	0.8	0.9	0.9	0.9	1.1	1.2	1.3	1.4	1.3	1.5	1.6	1.7	1.8
10000	-35	5.2	5.9	6.2	6.5	6.8	5.5	6.3	6.6	6.9	7.2	6.0	6.8	7.1	7.5	7.9	6.5	7.4	7.8	8.1	8.6
	-30	4.8	5.5	5.7	6.0	6.3	5.1	5.8	6.1	6.4	6.7	5.6	6.4	6.7	7.0	7.4	6.1	7.0	7.3	7.6	8.0
	-25	4.5	5.1	5.3	5.6	5.8	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.5
	-20	4.2	4.7	4.9	5.2	5.4	4.4	5.1	5.3	5.5	5.8	4.9	5.6	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.1
	-15	3.6	4.1	4.3	4.5	4.7	3.9	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.4	5.7	4.8	5.4	5.7	6.0	6.3
	-10	2.9	3.3	3.5	3.6	3.8	3.1	3.6	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.7	4.0	4.6	4.8	5.0	5.3
	-5	2.2	2.5	2.6	2.7	2.9	2.4	2.8	2.9	3.0	3.2	2.8	3.2	3.4	3.5	3.7	3.2	3.7	3.8	4.0	4.3
	0	1.4	1.7	1.8	1.9	2.0	1.7	1.9	2.0	2.2	2.3	2.0	2.4	2.5	2.6	2.7	2.4	2.8	2.9	3.1	3.3
	5	0.7	0.9	0.9	1.0	1.1	0.9	1.1	1.2	1.3	1.3	1.3	1.5	1.6	1.7	1.8	1.6	1.9	2.0	2.1	2.2
	10	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.7	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.3
11000	-35	4.3	4.9	5.1	5.3	5.6	4.6	5.2	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.6	5.5	6.3	6.6	6.9	7.2
	-30	3.9	4.4	4.6	4.9	5.1	4.2	4.8	5.0	5.2	5.5	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7
	-25	3.5	4.0	4.2	4.4	4.6	3.8	4.3	4.5	4.8	5.0	4.3	4.8	5.1	5.3	5.6	4.7	5.4	5.6	5.9	6.2
	-20	3.2	3.6	3.8	4.0	4.2	3.5	3.9	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.4	5.7
	-15	2.5	2.9	3.0	3.2	3.3	2.8	3.2	3.3	3.5	3.7	3.2	3.6	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.7
	-10	1.8	2.1	2.2	2.3	2.4	2.0	2.3	2.4	2.6	2.7	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.4	3.5	3.7
	-5	1.0	1.2	1.3	1.4	1.5	1.3	1.5	1.6	1.7	1.8	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.6	2.7
	0	0.3	0.4	0.5	0.5	0.6	0.5	0.7	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7
	5	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	0.0	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.8
	10	-1.0	-1.1	-1.1	-1.1	-1.1	-0.9	-0.9	-0.9	-0.9	-0.9	-0.6	-0.5	-0.5	-0.5	-0.5	-0.3	-0.2	-0.2	-0.2	-0.1

56FMC-00-00

Figure 4-39 (Sheet 3)

FIRST SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500				14000				13500				12500				11500			
		WIND KNOTS				WIND KNOTS				WIND KNOTS				WIND KNOTS				WIND KNOTS			
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6	-35	8.8	10.0	10.5	11.1	11.6	9.4	10.7	11.2	11.8	12.4	10.0	11.4	12.0	12.6	13.2	11.4	12.9	13.5	14.2	14.9
0	-30	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.5	10.1	11.5	12.0	12.6	13.3	11.5	13.0	13.6	14.2	14.9
0	-25	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.9	12.5	10.2	11.5	12.1	12.6	13.3	11.5	13.0	13.6	14.3	15.0
0	-20	9.0	10.2	10.6	11.2	11.7	9.6	10.9	11.4	11.9	12.5	10.2	11.6	12.1	12.7	13.3	11.5	13.1	13.6	14.3	15.0
0	-15	8.5	9.7	10.1	10.6	11.2	9.1	10.4	10.8	11.4	11.9	9.7	11.1	11.6	12.1	12.7	11.1	12.5	13.1	13.7	14.4
0	-10	7.7	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.7	10.2	11.6	12.1	12.7	13.4
0	-5	6.8	7.8	8.1	8.6	9.0	7.4	8.4	8.8	9.3	9.8	8.0	9.1	9.5	10.0	10.6	9.3	10.6	11.1	11.6	12.2
0	0	5.8	6.7	7.0	7.4	7.8	6.4	7.3	7.7	8.1	8.5	7.0	8.0	8.4	8.9	9.4	8.3	9.5	9.9	10.4	11.0
0	5	4.9	5.6	5.9	6.2	6.5	5.4	6.2	6.5	6.9	7.2	6.0	6.9	7.2	7.6	8.0	7.3	8.3	8.8	9.2	9.8
0	10	3.9	4.5	4.7	5.0	5.3	4.4	5.1	5.3	5.6	5.9	5.0	5.7	6.0	6.3	6.7	6.2	7.1	7.5	7.9	8.4
7	-35	8.7	9.9	10.4	10.9	11.5	9.3	10.6	11.1	11.6	12.2	9.9	11.3	11.8	12.4	13.0	11.3	12.8	13.4	14.0	14.7
0	-30	8.8	10.0	10.4	10.9	11.5	9.4	10.6	11.1	11.7	12.3	10.0	11.3	11.9	12.4	13.1	11.3	12.8	13.4	14.0	14.7
0	-25	8.7	9.9	10.3	10.8	11.4	9.3	10.5	11.0	11.6	12.1	9.9	11.3	11.8	12.3	12.9	11.3	12.7	13.3	13.9	14.6
0	-20	8.4	9.5	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	12.0	12.6	11.0	12.4	13.0	13.6	14.2
0	-15	7.8	8.9	9.3	9.7	10.3	8.4	9.5	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.8	10.3	11.7	12.2	12.8	13.5
0	-10	7.0	7.9	8.3	8.8	9.2	7.5	8.6	9.0	9.5	10.0	8.1	9.3	9.7	10.2	10.7	9.5	10.7	11.2	11.8	12.4
0	-5	6.0	6.9	7.2	7.6	8.0	6.6	7.5	7.9	8.3	8.8	7.2	8.2	8.6	9.1	9.6	8.5	9.7	10.1	10.7	11.2
0	0	5.1	5.8	6.1	6.4	6.8	5.6	6.5	6.8	7.1	7.5	6.2	7.1	7.5	7.9	8.3	7.5	8.6	9.0	9.5	10.0
0	5	4.2	4.8	5.0	5.3	5.6	4.7	5.4	5.6	5.9	6.2	5.2	6.0	6.3	6.6	7.0	6.5	7.4	7.8	8.2	8.7
0	10	3.2	3.7	3.9	4.1	4.3	3.7	4.3	4.5	4.7	5.0	4.2	4.8	5.1	5.4	5.7	5.4	6.2	6.5	6.9	7.2
8	-35	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.7	12.3	10.1	11.4	11.9	12.5	13.1	11.4	12.9	13.5	14.1	14.8
0	-30	8.5	9.6	10.1	10.6	11.1	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.1	12.7	11.1	12.5	13.1	13.7	14.4
0	-25	8.1	9.2	9.6	10.1	10.6	8.7	9.8	10.3	10.8	11.4	9.3	10.5	11.0	11.6	12.1	10.6	12.0	12.6	13.2	13.8
0	-20	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.7	10.3	11.6	12.1	12.7	13.4
0	-15	7.1	8.1	8.5	8.9	9.4	7.7	8.7	9.1	9.6	10.1	8.3	9.4	9.9	10.3	10.9	9.6	10.9	11.4	11.9	12.5
0	-10	6.2	7.1	7.4	7.8	8.2	6.8	7.8	8.1	8.6	9.0	7.4	8.4	8.8	9.3	9.8	8.7	9.9	10.4	10.9	11.4
0	-5	5.3	6.0	6.3	6.7	7.0	5.8	6.7	7.0	7.4	7.8	6.4	7.4	7.7	8.1	8.6	7.7	8.8	9.3	9.7	10.2
0	0	4.4	5.0	5.2	5.5	5.8	4.9	5.6	5.9	6.2	6.5	5.4	6.2	6.6	6.9	7.3	6.7	7.7	8.1	8.5	9.0
0	5	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.8	5.0	5.3	4.5	5.1	5.4	5.7	6.0	5.6	6.5	6.8	7.2	7.6
0	10	2.5	2.9	3.1	3.3	3.4	3.0	3.5	3.6	3.8	4.0	3.5	4.0	4.2	4.5	4.7	4.6	5.3	5.5	5.8	6.2
9	-35	8.3	9.4	9.8	10.3	10.8	8.9	10.1	10.5	11.0	11.6	9.5	10.8	11.3	11.8	12.4	10.8	12.3	12.8	13.4	14.1
0	-30	7.9	8.9	9.3	9.8	10.3	8.5	9.6	10.0	10.5	11.1	9.1	10.3	10.8	11.3	11.8	10.4	11.8	12.3	12.9	13.5
0	-25	7.4	8.4	8.8	9.3	9.8	8.0	9.1	9.5	10.0	10.5	8.6	9.8	10.2	10.7	11.3	10.0	11.3	11.8	12.4	13.0
0	-20	7.1	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.1	8.3	9.4	9.9	10.3	10.9	9.6	10.9	11.4	11.9	12.5
0	-15	6.4	7.3	7.7	8.1	8.5	7.0	8.0	8.4	8.8	9.3	7.6	8.7	9.1	9.6	10.0	8.9	10.1	10.6	11.1	11.7
0	-10	5.6	6.4	6.7	7.0	7.4	6.2	7.0	7.4	7.7	8.1	6.8	7.7	8.1	8.5	9.0	8.0	9.2	9.6	10.1	10.6
0	-5	4.7	5.4	5.6	5.9	6.2	5.2	6.0	6.3	6.6	6.9	5.8	6.6	7.0	7.3	7.7	7.1	8.1	8.5	9.0	9.4
0	0	3.8	4.4	4.6	4.8	5.1	4.3	5.0	5.2	5.5	5.8	4.9	5.6	5.8	6.1	6.5	6.1	7.0	7.3	7.7	8.1
0	5	2.9	3.4	3.6	3.7	3.9	3.4	3.9	4.1	4.3	4.6	3.9	4.5	4.7	5.0	5.2	5.0	5.8	6.1	6.4	6.8
0	10	2.1	2.4	2.5	2.7	2.8	2.5	2.9	3.1	3.2	3.4	3.0	3.4	3.6	3.8	4.0	4.0	4.7	4.9	5.2	5.4
1	-35	7.6	8.7	9.1	9.5	10.0	8.2	9.3	9.8	10.2	10.8	8.8	10.0	10.5	11.0	11.5	10.2	11.5	12.0	12.6	13.2
0	-30	7.2	8.2	8.6	9.0	9.5	7.8	8.9	9.3	9.7	10.2	8.4	9.6	10.0	10.5	11.0	9.7	11.0	11.5	12.1	12.7
0	-25	6.8	7.7	8.1	8.5	8.9	7.4	8.4	8.8	9.2	9.7	8.0	9.1	9.5	10.0	10.5	9.3	10.5	11.0	11.5	12.1
0	-20	6.5	7.3	7.7	8.1	8.5	7.0	8.0	8.4	8.8	9.3	7.6	8.7	9.1	9.5	10.0	8.9	10.1	10.6	11.1	11.7
0	-15	5.8	6.6	6.9	7.3	7.6	6.4	7.3	7.6	8.0	8.4	7.0	8.0	8.4	8.8	9.2	8.3	9.4	9.8	10.3	10.9
0	-10	5.0	5.7	6.0	6.2	6.6	5.5	6.3	6.6	6.9	7.3	6.1	7.0	7.3	7.7	8.1	7.4	8.4	8.8	9.3	9.8
0	-5	4.1	4.7	4.9	5.2	5.5	4.6	5.3	5.6	5.8	6.1	5.2	5.9	6.2	6.5	6.9	6.4	7.4	7.7	8.1	8.6
0	0	3.3	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.8	5.0	4.3	4.9	5.2	5.4	5.7	5.5	6.3	6.6	6.9	7.3
0	5	2.4	2.8	3.0	3.1	3.3	2.9	3.3	3.5	3.7	3.9	3.4	3.9	4.1	4.3	4.5	4.5	5.1	5.4	5.7	6.0
0	10	1.6	1.9	2.0	2.1	2.2	2.0	2.4	2.5	2.6	2.8	2.5	2.9	3.0	3.2	3.4	3.5	4.0	4.3	4.5	4.7
1	-35	6.6	7.5	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.4	7.8	8.8	9.3	9.7	10.2	9.1	10.3	10.8	11.3	11.9
0	-30	6.1	7.0	7.3	7.7	8.1	6.7	7.7	8.0	8.4	8.9	7.3	8.3	8.7	9.2	9.6	8.6	9.8	10.2	10.7	11.3
0	-25	5.7	6.5	6.8	7.2	7.5	6.3	7.2	7.5	7.9	8.3	6.9	7.9	8.2	8.6	9.1	8.2	9.3	9.7	10.2	10.7
0	-20	5.3	6.1	6.3	6.6	7.0	5.9	6.7	7.0	7.3	7.7	6.5	7.4	7.7	8.1	8.5	7.7	8.8	9.2	9.7	10.2
0	-15	4.6	5.2	5.4	5.7	6.0	5.1	5.8	6.1	6.4	6.7	5.7	6.4	6.8	7.1	7.5	6.9	7.9	8.3	8.7	9.2
0	-10	3.7	4.2	4.4	4.6	4.9	4.2	4.8	5.0	5.3	5.5	4.7	5.4	5.6	5.9	6.2	5.9	6.8	7.1	7.4	7.8
0	-5	2.8	3.3	3.4	3.6	3.8	3.3	3.8	4.0	4.2	4.4	3.8	4.4	4.6	4.8	5.1	4.9	5.6	5.9	6.2	6.5
0	0	2.0	2.3	2.4	2.6	2.7	2.4	2.8	3.0	3.1	3.3	2.9	3.3	3.5	3.7	3.9	4.0	4.5	4.8	5.0	5.3
0	5	1.2	1.4	1.5	1.6	1.7	1.6	1.9	2.0	2.1	2.2	2.0	2.4	2.5	2.6	2.8	3.0	3.5	3.7	3.9	4.1
0	10	0.4	0.6	0.6	0.7	0.7	0.8	1.0	1.1	1.1	1.2	1.2	1.4	1.5	1.6	1.7	2.1	2.5	2.6	2.8	2.9

56FMC-00-00

Figure 4-39 (Sheet 4)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																														
		16830					16500					16000					15500					15000										
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS										
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
0	-25	7.1	8.1	8.5	9.0	9.5	7.4	8.5	8.9	9.4	9.9	7.9	9.0	9.5	10.0	10.6	8.4	9.7	10.2	10.7	11.3	9.0	10.3	10.9	11.5	12.1	9.0	10.3	10.9	11.5	12.1	
	-20	7.1	8.1	8.6	9.0	9.5	7.4	8.5	8.9	9.4	9.9	7.9	9.1	9.5	10.1	10.6	8.4	9.7	10.2	10.7	11.3	9.0	10.4	10.9	11.5	12.1	9.0	10.4	10.9	11.5	12.1	
	-15	7.1	8.2	8.6	9.0	9.5	7.5	8.5	9.0	9.4	10.0	8.0	9.1	9.6	10.1	10.6	8.5	9.7	10.2	10.8	11.4	9.1	10.4	10.9	11.5	12.2	9.1	10.4	10.9	11.5	12.2	
	-10	7.2	8.2	8.6	9.1	9.6	7.5	8.6	9.0	9.5	10.0	8.0	9.2	9.6	10.1	10.7	8.5	9.8	10.3	10.8	11.4	9.1	10.4	11.0	11.6	12.2	9.1	10.4	11.0	11.6	12.2	
	-5	7.2	8.3	8.7	9.1	9.6	7.6	8.6	9.1	9.5	10.0	8.1	9.2	9.7	10.2	10.7	8.6	9.8	10.3	10.9	11.5	9.2	10.5	11.0	11.6	12.2	9.2	10.5	11.0	11.6	12.2	
	0	7.3	8.3	8.7	9.2	9.6	7.6	8.7	9.1	9.6	10.1	8.1	9.3	9.7	10.2	10.8	8.6	9.9	10.4	10.9	11.5	9.2	10.5	11.1	11.6	12.3	9.2	10.5	11.1	11.6	12.3	
	5	7.3	8.4	8.7	9.2	9.7	7.7	8.7	9.1	9.6	10.1	8.2	9.3	9.8	10.2	10.8	8.7	9.9	10.4	10.9	11.5	9.3	10.6	11.1	11.7	12.3	9.3	10.6	11.1	11.7	12.3	
	10	7.4	8.4	8.8	9.2	9.7	7.7	8.7	9.2	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.7	10.0	10.4	11.0	11.5	9.3	10.6	11.1	11.7	12.3	9.3	10.6	11.1	11.7	12.3	
	15	7.4	8.4	8.8	9.2	9.7	7.7	8.8	9.2	9.6	10.1	8.2	9.4	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.5	9.3	10.6	11.2	11.7	12.3	9.3	10.6	11.2	11.7	12.3	
	20	7.4	8.4	8.8	9.2	9.7	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.7	12.3	9.4	10.7	11.2	11.7	12.3	
0	25	7.0	7.9	8.3	8.7	9.2	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3	8.4	9.5	10.0	10.5	11.0	8.9	10.2	10.7	11.2	11.8	8.9	10.2	10.7	11.2	11.8	
	30	6.2	7.0	7.4	7.7	8.1	6.5	7.4	7.7	8.1	8.5	7.0	7.9	8.3	8.7	9.2	7.5	8.5	8.9	9.4	9.8	8.0	9.2	9.6	10.1	10.6	8.0	9.2	9.6	10.1	10.6	
	35	5.4	6.2	6.4	6.8	7.1	5.7	6.5	6.8	7.1	7.5	6.2	7.0	7.3	7.7	8.1	6.6	7.6	7.9	8.3	8.7	7.2	8.2	8.5	9.0	9.4	6.2	7.2	8.2	8.5	9.0	
	40	4.8	5.4	5.7	5.9	6.2	5.0	5.7	6.0	6.3	6.6	5.5	6.2	6.5	6.8	7.2	5.9	6.7	7.1	7.4	7.8	6.4	7.3	7.7	8.0	8.5	5.7	6.5	6.8	7.1	7.5	
	45	4.1	4.7	4.9	5.1	5.4	4.3	5.0	5.2	5.5	5.7	4.8	5.4	5.7	6.0	6.3	5.2	5.9	6.2	6.5	6.9	5.7	6.5	6.8	7.1	7.5	5.7	6.5	6.8	7.1	7.5	
	50	3.4	3.9	4.1	4.3	4.6	3.7	4.2	4.4	4.6	4.9	4.1	4.7	4.9	5.1	5.4	4.5	5.1	5.4	5.6	5.9	4.9	5.6	5.9	6.2	6.5	4.9	5.6	5.9	6.2	6.5	
	54	2.9	3.3	3.5	3.7	3.9	3.1	3.6	3.8	4.0	4.2	3.5	4.0	4.2	4.5	4.7	3.9	4.5	4.7	4.9	5.2	4.3	5.0	5.2	5.5	5.8	4.3	5.0	5.2	5.5	5.8	
	1	7.3	8.4	8.8	9.2	9.7	7.6	8.7	9.2	9.7	10.2	8.1	9.3	9.8	10.3	10.9	8.7	9.9	10.5	11.0	11.6	9.2	10.6	11.2	11.7	12.4	9.3	10.7	11.2	11.8	12.4	
	0	-20	7.4	8.4	8.8	9.3	9.8	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.8	10.3	10.9	8.7	10.0	10.5	11.0	11.6	9.3	10.7	11.2	11.8	12.4	9.3	10.7	11.2	11.8	12.4
	0	-15	7.4	8.4	8.9	9.3	9.8	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.9	10.4	10.9	8.8	10.0	10.5	11.1	11.7	9.3	10.7	11.2	11.8	12.5	9.3	10.7	11.2	11.8	12.5
0	-10	7.5	8.5	8.9	9.3	9.8	7.8	8.9	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.7	9.4	10.7	11.3	11.9	12.5	9.4	10.7	11.3	11.9	12.5	
	-5	7.5	8.5	8.9	9.4	9.9	7.8	8.9	9.3	9.8	10.3	8.3	9.5	10.0	10.5	11.0	8.9	10.1	10.6	11.2	11.8	9.5	10.8	11.3	11.9	12.5	9.5	10.8	11.3	11.9	12.5	
	0	7.5	8.6	9.0	9.4	9.9	7.9	9.0	9.4	9.8	10.3	8.4	9.5	10.0	10.5	11.0	8.9	10.2	10.7	11.2	11.8	9.5	10.8	11.4	11.9	12.6	9.5	10.8	11.4	11.9	12.6	
	5	7.6	8.6	9.0	9.5	9.9	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.0	10.5	11.1	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	12.0	12.6	9.6	10.9	11.4	12.0	12.6	
	10	7.6	8.6	9.0	9.5	10.0	7.9	9.0	9.4	9.9	10.4	8.5	9.6	10.1	10.6	11.1	9.0	10.2	10.7	11.3	11.8	9.6	10.9	11.4	12.0	12.6	9.6	10.9	11.4	12.0	12.6	
	15	7.7	8.7	9.1	9.5	10.0	8.0	9.0	9.5	9.9	10.4	8.5	9.6	10.1	10.6	11.1	9.0	10.3	10.8	11.3	11.9	9.6	10.9	11.4	12.0	12.6	9.6	10.9	11.4	12.0	12.6	
	20	7.2	8.1	8.5	8.9	9.4	7.5	8.5	8.9	9.3	9.8	8.0	9.1	9.5	10.0	10.5	8.6	9.7	10.2	10.7	11.2	9.1	10.4	10.9	11.4	12.0	9.1	10.4	10.9	11.4	12.0	
	25	6.4	7.2	7.6	7.9	8.3	6.7	7.6	7.9	8.3	8.7	7.2	8.1	8.5	8.9	9.4	7.7	8.7	9.1	9.6	10.1	8.2	9.4	9.8	10.3	10.8	8.2	9.4	9.8	10.3	10.8	
	30	5.6	6.3	6.6	7.0	7.3	5.9	6.7	7.0	7.3	7.7	6.3	7.2	7.5	7.9	8.3	6.8	7.8	8.1	8.5	9.0	7.3	8.4	8.8	9.2	9.7	7.3	8.4	8.8	9.2	9.7	
	0	35	4.9	5.5	5.8	6.1	6.4	5.1	5.8	6.1	6.4	6.7	5.6	6.3	6.6	6.9	7.3	6.0	6.9	7.2	7.5	7.9	6.5	7.4	7.8	8.2	8.6	6.5	7.4	7.8	8.2	8.6
40		4.2	4.8	5.0	5.2	5.5	4.4	5.1	5.3	5.6	5.8	4.9	5.5	5.8	6.1	6.4	5.3	6.0	6.3	6.6	7.0	5.8	6.6	6.9	7.2	7.6	5.8	6.6	6.9	7.2	7.6	
45		3.5	4.0	4.2	4.4	4.7	3.8	4.3	4.5	4.7	5.0	4.2	4.7	5.0	5.2	5.5	4.6	5.2	5.5	5.7	6.0	5.0	5.7	6.0	6.3	6.6	5.0	5.7	6.0	6.3	6.6	
50		2.9	3.3	3.4	3.6	3.8	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	3.9	4.4	4.6	4.9	5.1	4.3	4.9	5.1	5.4	5.7	4.3	4.9	5.1	5.4	5.7	
52		2.6	3.0	3.1	3.3	3.5	2.8	3.2	3.4	3.6	3.8	3.2	3.7	3.8	4.0	4.3	3.6	4.1	4.3	4.5	4.8	4.0	4.6	4.8	5.0	5.3	4.0	4.6	4.8	5.0	5.3	
2		7.5	8.6	9.0	9.5	10.0	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.0	10.6	11.1	8.9	10.2	10.7	11.3	11.9	9.5	10.9	11.4	12.0	12.7	9.6	10.9	11.4	12.0	12.7	
0		-20	7.6	8.6	9.1	9.5	10.0	7.9	9.0	9.5	9.9	10.5	8.4	9.6	10.1	10.6	11.2	9.0	10.2	10.8	11.3	11.9	9.6	10.9	11.4	12.0	12.7	9.6	10.9	11.4	12.0	12.7
0		-15	7.6	8.7	9.1	9.6	10.0	8.0	9.1	9.5	10.0	10.5	8.5	9.7	10.1	10.6	11.2	9.0	10.3	10.8	11.3	11.9	9.6	11.0	11.5	12.1	12.7	9.6	11.0	11.5	12.1	12.7
-10		7.7	8.7	9.1	9.6	10.1	8.0	9.1	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.2	9.1	10.3	10.8	11.4	12.0	9.7	11.0	11.5	12.1	12.7	9.7	11.0	11.5	12.1	12.7	
-5		7.7	8.8	9.2	9.6	10.1	8.1	9.2	9.6	10.0	10.6	8.6	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.4	12.0	9.7	11.1	11.6	12.1	12.8	9.7	11.1	11.6	12.1	12.8	
0	7.8	8.8	9.2	9.7	10.1	8.1	9.2	9.6	10.1	10.6	8.6	9.8	10.3	10.7	11.3	9.2	10.4	10.9	11.5	12.0	9.8	11.1	11.6	12.2	12.8	9.8	11.1	11.6	12.2	12.8		
0	5	7.8	8.9	9.3	9.7	10.2	8.1	9.2	9.7	10.1	10.6	8.7	9.8	10.3	10.8	11.3	9.2	10.5	11.0	11.5	12.1	9.8	11.1	11.7	12.2	12.8	9.8	11.1	11.7	12.2	12.8	
	10	7.9	8.9	9.3	9.7	10.2	8.2	9.3	9.7	10.1	10.6	8.7	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.1	9.9	11.2	11.7	12.2	12.8	9.9	11.2	11.7	12.2	12.8	
	15	7.4	8.3	8.7	9.1	9.6	7.7	8.7	9.1	9.5	10.0	8.2	9.3	9.7	10.2	10.7	8.8	9.9	10.4</													

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500						14000						13500						12500						11500					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
0	-25	9.6	11.0	11.6	12.2	12.9	10.2	11.7	12.3	13.0	13.7	10.9	12.5	13.1	13.8	14.6	12.3	14.1	14.8	15.6	16.5	14.0	16.0	16.8	17.6	18.6	14.0	16.0	16.8	17.7	18.6
	-20	9.6	11.0	11.6	12.2	12.9	10.3	11.8	12.4	13.0	13.8	10.9	12.5	13.2	13.9	14.6	12.4	14.2	14.9	15.6	16.5	14.0	16.0	16.8	17.7	18.6	14.0	16.0	16.8	17.7	18.6
	-15	9.7	11.1	11.7	12.3	13.0	10.3	11.8	12.4	13.1	13.8	11.0	12.6	13.2	13.9	14.7	12.4	14.2	14.9	15.7	16.5	14.1	16.1	16.8	17.7	18.6	14.1	16.1	16.8	17.7	18.6
	-10	9.7	11.1	11.7	12.3	13.0	10.4	11.9	12.5	13.1	13.8	11.0	12.6	13.2	13.9	14.7	12.5	14.3	15.0	15.7	16.6	14.2	16.1	16.9	17.7	18.7	14.2	16.1	16.9	17.7	18.7
	-5	9.8	11.2	11.7	12.4	13.0	10.4	11.9	12.5	13.1	13.9	11.1	12.7	13.3	14.0	14.7	12.6	14.3	15.0	15.8	16.6	14.2	16.2	16.9	17.8	18.7	14.2	16.2	16.9	17.8	18.7
	0	9.8	11.2	11.8	12.4	13.1	10.5	12.0	12.5	13.2	13.9	11.2	12.7	13.3	14.0	14.8	12.6	14.4	15.1	15.8	16.6	14.3	16.2	17.0	17.8	18.7	14.3	16.2	17.0	17.8	18.7
	5	9.9	11.3	11.8	12.4	13.1	10.5	12.0	12.6	13.2	13.9	11.2	12.8	13.4	14.0	14.8	12.7	14.4	15.1	15.8	16.6	14.4	16.3	17.0	17.9	18.8	14.4	16.3	17.0	17.9	18.8
	10	9.9	11.3	11.9	12.4	13.1	10.6	12.0	12.6	13.2	13.9	11.3	12.8	13.4	14.1	14.8	12.7	14.4	15.1	15.9	16.7	14.4	16.3	17.1	17.9	18.8	14.4	16.3	17.1	17.9	18.8
	15	10.0	11.3	11.9	12.5	13.1	10.6	12.1	12.6	13.2	13.9	11.3	12.8	13.4	14.1	14.8	12.8	14.5	15.1	15.9	16.7	14.4	16.3	17.1	17.9	18.8	14.4	16.3	17.1	17.9	18.8
	20	10.0	11.4	11.9	12.5	13.1	10.6	12.1	12.7	13.3	13.9	11.3	12.8	13.4	14.1	14.8	12.8	14.5	15.2	15.9	16.7	14.5	16.4	17.1	17.9	18.8	14.5	16.4	17.1	17.9	18.8
	25	9.5	10.9	11.4	11.9	12.6	10.2	11.6	12.1	12.7	13.4	10.9	12.3	12.9	13.5	14.2	12.3	13.9	14.6	15.3	16.1	13.9	15.8	16.5	17.3	18.1	13.9	15.8	16.5	17.3	18.1
	30	8.6	9.8	10.3	10.8	11.4	9.2	10.5	11.1	11.6	12.2	9.9	11.3	11.8	12.4	13.1	11.3	12.9	13.5	14.1	14.9	12.9	14.6	15.3	16.1	16.9	12.9	14.6	15.3	16.1	16.9
	35	7.7	8.8	9.2	9.7	10.2	8.3	9.5	9.9	10.4	11.0	8.9	10.2	10.7	11.3	11.9	10.3	11.8	12.3	13.0	13.7	11.9	13.5	14.2	14.9	15.7	11.9	13.5	14.2	14.9	15.7
	40	6.9	7.9	8.3	8.7	9.2	7.5	8.6	9.0	9.4	9.9	8.1	9.3	9.7	10.2	10.8	9.4	10.8	11.3	11.9	12.6	11.0	12.5	13.1	13.8	14.6	11.0	12.5	13.1	13.8	14.6
	45	6.2	7.0	7.4	7.7	8.2	6.7	7.6	8.0	8.4	8.9	7.3	8.3	8.7	9.2	9.7	8.5	9.8	10.3	10.8	11.4	10.0	11.5	12.1	12.7	13.4	10.0	11.5	12.1	12.7	13.4
	50	5.4	6.2	6.5	6.8	7.2	5.9	6.7	7.1	7.4	7.8	6.4	7.4	7.7	8.1	8.6	7.7	8.8	9.2	9.7	10.3	9.1	10.4	11.0	11.6	12.3	9.1	10.4	11.0	11.6	12.3
	54	4.8	5.5	5.8	6.0	6.4	5.3	6.0	6.3	6.7	7.0	5.8	6.6	7.0	7.3	7.7	6.9	8.0	8.4	8.8	9.3	8.3	9.6	10.1	10.6	11.2	8.3	9.6	10.1	10.6	11.2
10	-25	9.9	11.3	11.9	12.5	13.2	10.5	12.0	12.6	13.3	14.0	11.2	12.8	13.4	14.1	14.9	12.6	14.4	15.1	15.9	16.8	14.3	16.3	17.1	17.9	18.9	14.3	16.3	17.1	17.9	18.9
	-20	9.9	11.3	11.9	12.5	13.2	10.6	12.1	12.7	13.3	14.0	11.2	12.8	13.5	14.2	14.9	12.7	14.5	15.2	15.9	16.8	14.4	16.3	17.1	18.0	18.9	14.4	16.3	17.1	18.0	18.9
	-15	10.0	11.4	11.9	12.6	13.2	10.6	12.1	12.7	13.4	14.1	11.3	12.9	13.5	14.2	14.9	12.8	14.5	15.2	16.0	16.8	14.4	16.4	17.2	18.0	18.9	14.4	16.4	17.2	18.0	18.9
	-10	10.0	11.4	12.0	12.6	13.3	10.7	12.2	12.8	13.4	14.1	11.3	12.9	13.5	14.2	15.0	12.8	14.6	15.3	16.0	16.9	14.5	16.5	17.2	18.1	19.0	14.5	16.5	17.2	18.1	19.0
	-5	10.1	11.5	12.0	12.6	13.3	10.7	12.2	12.8	13.4	14.1	11.4	13.0	13.6	14.3	15.0	12.9	14.6	15.3	16.1	16.9	14.6	16.5	17.3	18.1	19.0	14.6	16.5	17.3	18.1	19.0
	0	10.1	11.5	12.1	12.7	13.3	10.8	12.3	12.8	13.5	14.2	11.5	13.0	13.6	14.3	15.0	13.0	14.7	15.4	16.1	16.9	14.6	16.6	17.3	18.1	19.0	14.6	16.6	17.3	18.1	19.0
	5	10.2	11.6	12.1	12.7	13.4	10.8	12.3	12.9	13.5	14.2	11.5	13.1	13.7	14.3	15.1	13.0	14.7	15.4	16.1	16.9	14.7	16.6	17.4	18.2	19.1	14.7	16.6	17.4	18.2	19.1
	10	10.2	11.6	12.1	12.7	13.4	10.9	12.3	12.9	13.5	14.2	11.6	13.1	13.7	14.4	15.1	13.1	14.8	15.4	16.2	17.0	14.7	16.6	17.4	18.2	19.1	14.7	16.6	17.4	18.2	19.1
	15	10.3	11.6	12.2	12.8	13.4	10.9	12.4	12.9	13.5	14.2	11.6	13.1	13.7	14.4	15.1	13.1	14.8	15.5	16.2	17.0	14.8	16.7	17.4	18.2	19.1	14.8	16.7	17.4	18.2	19.1
	20	9.7	11.1	11.6	12.1	12.8	10.4	11.8	12.3	12.9	13.6	11.1	12.5	13.1	13.7	14.4	12.5	14.2	14.8	15.5	16.3	14.2	16.0	16.7	17.5	18.3	14.2	16.0	16.7	17.5	18.3
	25	8.8	10.0	10.5	11.0	11.6	9.5	10.8	11.3	11.8	12.4	10.1	11.5	12.0	12.6	13.3	11.5	13.1	13.7	14.4	15.1	13.1	14.9	15.6	16.3	17.1	13.1	14.9	15.6	16.3	17.1
	30	7.9	9.0	9.4	9.9	10.4	8.5	9.7	10.2	10.7	11.2	9.1	10.4	10.9	11.5	12.1	10.5	12.0	12.6	13.2	13.9	12.1	13.7	14.4	15.1	15.9	12.1	13.7	14.4	15.1	15.9
	35	7.1	8.0	8.4	8.8	9.3	7.6	8.7	9.1	9.6	10.1	8.2	9.4	9.9	10.4	10.9	9.6	10.9	11.5	12.1	12.7	11.1	12.7	13.3	14.0	14.7	10.1	12.7	13.3	14.0	14.7
	40	6.3	7.2	7.5	7.9	8.3	6.8	7.8	8.2	8.6	9.0	7.4	8.4	8.9	9.3	9.8	8.7	9.9	10.4	11.0	11.6	10.2	11.6	12.2	12.9	13.6	10.2	11.6	12.2	12.9	13.6
	45	5.5	6.3	6.6	6.9	7.3	6.0	6.9	7.2	7.6	8.0	6.6	7.5	7.9	8.3	8.7	7.8	8.9	9.4	9.9	10.4	9.2	10.6	11.1	11.7	12.4	9.2	10.6	11.1	11.7	12.4
	50	4.7	5.4	5.7	6.0	6.3	5.2	6.0	6.3	6.6	6.9	5.7	6.6	6.9	7.2	7.6	6.9	7.9	8.3	8.7	9.2	8.3	9.5	10.0	10.5	11.1	8.3	9.5	10.0	10.5	11.1
	52	4.4	5.1	5.3	5.6	5.9	4.9	5.6	5.9	6.2	6.5	5.4	6.2	6.5	6.8	7.2	6.5	7.5	7.9	8.3	8.8	7.9	9.0	9.5	10.0	10.6	7.9	9.0	9.5	10.0	10.6
20	-25	10.1	11.6	12.1	12.8	13.4	10.8	12.3	12.9	13.5	14.3	11.5	13.1	13.7	14.4	15.1	12.9	14.7	15.4	16.2	17.0	14.6	16.6	17.4	18.2	19.2	14.6	16.6	17.4	18.2	19.2
	-20	10.2	11.6	12.2	12.8	13.5	10.8	12.3	12.9	13.6	14.3	11.5	13.1	13.7	14.4	15.2	13.0	14.8	15.5	16.2	17.1	14.7	16.6	17.4	18.3	19.2	14.7	16.6	17.4	18.3	19.2
	-15	10.2	11.7	12.2	12.8	13.5	10.9	12.4	13.0	13.6	14.3	11.6	13.1	13.8	14.4	15.2	13.1	14.8	15.5	16.3	17.1	14.7	16.7	17.5	18.3	19.2	14.7	16.7	17.5	18.3	19.2
	-10	10.3	11.7	12.3	12.9	13.5	10.9	12.4	13.0	13.7	14.4	11.6	13.2	13.8	14.5	15.2	13.1	14.9	15.5	16.3	17.1	14.8	16.7	17.5	18.3	19.2	14.8	16.7	17.5	18.3	19.2
	-5	10.3	11.7	12.3	12.9	13.6	11.0	12.5	13.1	13.7	14.4	11.7	13.2	13.9	14.5	15.3	13.2	14.9	15.6	16.3	17.1	14.9	16.8	17.5	18.4	19.3	14.9	16.8	17.5	18.4	19.3
	0	10.4	11.8	12.3	12.9	13.6	11.0	12.5	13.1	13.7	14.4	11.7	13.3	13.9	14.6	15.3	13.2	15.0	15.6	16.4	17.2	14.9	16.8	17.6	18.4	19.3	14.9	16.8	17.6	18.4	19.3
	5	10.4	11.8	12.4	13.0	13.6	11.1	12.6	13.1	13.8	14.5	11.8	13.3	13.9	14.6	15.3	13.3	15.0	15.7	16.4											

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		16830					16500					16000					15500					15000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
4000	-30	8.0	9.1	9.5	10.0	10.5	8.3	9.5	9.9	10.4	10.9	8.8	10.1	10.5	11.1	11.6	9.4	10.7	11.2	11.8	12.4	10.0	11.4	11.9	12.5	13.1
	-25	8.0	9.1	9.5	10.0	10.5	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.7	9.4	10.7	11.2	11.8	12.4	10.0	11.4	11.9	12.5	13.2
	-20	8.1	9.1	9.6	10.0	10.5	8.4	9.5	10.0	10.4	11.0	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4	10.1	11.5	12.0	12.6	13.2
	-15	8.1	9.2	9.6	10.1	10.6	8.5	9.6	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.7	9.6	10.8	11.3	11.9	12.5	10.2	11.5	12.0	12.6	13.2
	-10	8.2	9.2	9.7	10.1	10.6	8.5	9.6	10.1	10.5	11.1	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.4	11.9	12.5	10.2	11.6	12.1	12.6	13.3
	-5	8.2	9.3	9.7	10.2	10.6	8.6	9.7	10.1	10.6	11.1	9.1	10.3	10.8	11.3	11.8	9.7	10.9	11.4	12.0	12.5	10.3	11.6	12.1	12.7	13.3
	0	8.3	9.3	9.7	10.2	10.7	8.6	9.7	10.1	10.6	11.1	9.1	10.3	10.8	11.3	11.8	9.7	11.0	11.5	12.0	12.6	10.3	11.6	12.2	12.7	13.3
	5	7.8	8.8	9.2	9.6	10.0	8.1	9.1	9.5	10.0	10.5	8.6	9.8	10.2	10.7	11.2	9.2	10.4	10.9	11.4	11.9	9.8	11.1	11.6	12.1	12.7
	10	6.9	7.8	8.1	8.5	8.9	7.2	8.2	8.5	8.9	9.3	7.7	8.7	9.1	9.5	10.0	8.3	9.3	9.8	10.2	10.7	8.8	10.0	10.5	10.9	11.5
	15	6.1	6.9	7.2	7.6	7.9	6.4	7.3	7.6	7.9	8.3	6.9	7.8	8.2	8.5	9.0	7.4	8.4	8.8	9.2	9.6	8.0	9.0	9.4	9.9	10.4
20	5.4	6.1	6.3	6.6	7.0	5.7	6.4	6.7	7.0	7.3	6.1	6.9	7.2	7.6	7.9	6.6	7.5	7.8	8.2	8.6	7.1	8.0	8.4	8.8	9.2	
25	4.6	5.2	5.4	5.7	6.0	4.9	5.5	5.8	6.0	6.3	5.3	6.0	6.3	6.6	6.9	5.8	6.5	6.8	7.1	7.5	6.2	7.1	7.4	7.8	8.1	
30	3.9	4.4	4.6	4.8	5.1	4.1	4.7	4.9	5.2	5.4	4.6	5.2	5.4	5.7	5.9	5.0	5.7	5.9	6.2	6.5	5.4	6.2	6.5	6.8	7.1	
35	3.2	3.7	3.8	4.0	4.2	3.5	3.9	4.1	4.3	4.5	3.8	4.4	4.6	4.8	5.0	4.2	4.8	5.1	5.3	5.6	4.7	5.3	5.6	5.8	6.1	
40	2.6	2.9	3.1	3.2	3.4	2.8	3.2	3.3	3.5	3.7	3.1	3.6	3.8	4.0	4.2	3.5	4.0	4.2	4.4	4.7	3.9	4.5	4.7	4.9	5.2	
45	1.9	2.2	2.3	2.5	2.6	2.1	2.5	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.3	2.9	3.3	3.4	3.6	3.8	3.2	3.7	3.9	4.1	4.3	
5000	-35	8.2	9.3	9.7	10.2	10.7	8.5	9.6	10.1	10.6	11.1	9.0	10.2	10.7	11.3	11.8	9.6	10.9	11.4	12.0	12.6	10.2	11.6	12.1	12.7	13.3
	-30	8.2	9.3	9.7	10.2	10.7	8.5	9.7	10.1	10.6	11.1	9.1	10.3	10.8	11.3	11.9	9.6	10.9	11.4	12.0	12.6	10.2	11.6	12.1	12.7	13.3
	-25	8.2	9.3	9.8	10.2	10.7	8.6	9.7	10.2	10.6	11.2	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.0	12.6	10.3	11.6	12.2	12.7	13.4
	-20	8.3	9.4	9.8	10.3	10.8	8.6	9.8	10.2	10.7	11.2	9.2	10.4	10.9	11.4	11.9	9.7	11.0	11.5	12.1	12.7	10.3	11.7	12.2	12.8	13.4
	-15	8.4	9.4	9.9	10.3	10.8	8.7	9.8	10.3	10.7	11.3	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.1	12.7	10.4	11.8	12.3	12.8	13.5
	-10	8.4	9.5	9.9	10.4	10.8	8.7	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.1	11.6	12.2	12.7	10.5	11.8	12.3	12.9	13.5
	-5	8.4	9.5	9.9	10.4	10.9	8.8	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.2	11.6	12.2	12.8	10.5	11.8	12.3	12.9	13.5
	0	7.9	8.9	9.3	9.7	10.1	8.2	9.3	9.7	10.1	10.6	8.8	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.2	11.7	12.2	12.8
	5	7.1	8.0	8.3	8.7	9.1	7.4	8.3	8.7	9.1	9.5	7.9	8.9	9.3	9.7	10.2	8.5	9.5	10.0	10.4	10.9	9.0	10.2	10.7	11.2	11.8
	10	6.2	7.0	7.4	7.7	8.1	6.5	7.4	7.7	8.1	8.4	7.0	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.3	9.8	8.1	9.1	9.6	10.0	10.5
15	5.5	6.2	6.5	6.8	7.1	5.8	6.5	6.8	7.1	7.5	6.2	7.0	7.4	7.7	8.1	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.4	
20	4.7	5.4	5.6	5.9	6.1	5.0	5.7	5.9	6.2	6.5	5.4	6.2	6.4	6.7	7.1	5.9	6.7	7.0	7.3	7.7	6.4	7.2	7.6	7.9	8.3	
25	4.0	4.5	4.7	5.0	5.2	4.3	4.8	5.0	5.3	5.5	4.7	5.3	5.5	5.8	6.1	5.1	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.3	
30	3.3	3.8	4.0	4.2	4.4	3.6	4.1	4.2	4.5	4.7	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.4	5.7	4.8	5.5	5.7	6.0	6.3	
35	2.7	3.0	3.2	3.3	3.5	2.9	3.3	3.5	3.6	3.8	3.3	3.7	3.9	4.1	4.3	3.6	4.1	4.3	4.6	4.8	4.1	4.6	4.8	5.1	5.3	
40	2.1	2.4	2.5	2.6	2.8	2.3	2.6	2.7	2.9	3.0	2.6	3.0	3.1	3.3	3.5	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.0	4.2	4.5	
42	1.8	2.1	2.2	2.3	2.4	2.0	2.3	2.4	2.6	2.7	2.4	2.7	2.8	3.0	3.1	2.7	3.1	3.3	3.4	3.6	3.1	3.5	3.7	3.9	4.1	
6000	-35	8.2	9.3	9.8	10.2	10.7	8.6	9.7	10.2	10.6	11.2	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.0	12.6	10.3	11.6	12.2	12.8	13.4
	-30	8.3	9.4	9.8	10.2	10.7	8.6	9.7	10.2	10.7	11.2	9.1	10.4	10.8	11.3	11.9	9.7	11.0	11.5	12.0	12.6	10.3	11.7	12.2	12.8	13.4
	-25	8.3	9.4	9.8	10.3	10.8	8.7	9.8	10.2	10.7	11.2	9.2	10.4	10.9	11.4	11.9	9.8	11.0	11.5	12.1	12.7	10.4	11.7	12.2	12.8	13.4
	-20	8.4	9.4	9.8	10.3	10.8	8.7	9.8	10.3	10.7	11.2	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.1	12.7	10.4	11.8	12.3	12.8	13.4
	-15	8.4	9.5	9.9	10.3	10.8	8.7	9.9	10.3	10.8	11.3	9.3	10.5	10.9	11.4	12.0	9.9	11.1	11.6	12.1	12.7	10.5	11.8	12.3	12.9	13.5
	-10	8.4	9.5	9.9	10.3	10.8	8.7	9.9	10.3	10.7	11.2	9.3	10.5	10.9	11.4	12.0	9.9	11.1	11.6	12.1	12.7	10.5	11.8	12.3	12.8	13.4
	-5	8.0	9.0	9.4	9.8	10.2	8.3	9.4	9.8	10.2	10.7	8.8	10.0	10.4	10.9	11.4	9.4	10.6	11.1	11.6	12.1	10.0	11.3	11.8	12.3	12.9
	0	7.2	8.1	8.5	8.8	9.2	7.5	8.5	8.8	9.2	9.7	8.0	9.1	9.4	9.9	10.3	8.6	9.7	10.1	10.6	11.1	9.2	10.3	10.8	11.3	11.8
	5	6.4	7.2	7.5	7.8	8.2	6.7	7.5	7.9	8.2	8.6	7.2	8.1	8.4	8.8	9.2	7.7	8.7	9.1	9.5	9.9	8.2	9.3	9.7	10.2	10.7
	10	5.6	6.3	6.6	6.9	7.2	5.9	6.6	6.9	7.2	7.6	6.4	7.2	7.5	7.8	8.2	6.8	7.7	8.1	8.4	8.8	7.4	8.3	8.7	9.1	9.5
15	4.9	5.5	5.7	6.0	6.3	5.1	5.8	6.1	6.3	6.6	5.6	6.3	6.6	6.9	7.2	6.0	6.8	7.1	7.5	7.8	6.5	7.4	7.7	8.1	8.5	
20	4.1	4.7	4.9	5.1	5.4	4.4	5.0	5.2	5.4	5.7	4.8	5.4	5.7	5.9	6.2	5.3	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.4	
25	3.4	3.9	4.1	4.3	4.5	3.7	4.2	4.4	4.6	4.8	4.1	4.6	4.8	5.1	5.3	4.5	5.1	5.3	5.6	5.8	4.9	5.6	5.9	6.1	6.4	
30	2.8	3.2	3.3	3.5	3.7	3.0	3.4	3.6	3.8	3.9	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9	4.2	4.8	5.0	5.2	5.5	
35	2.1	2.5	2.6	2.7	2.9	2.4	2.7	2.8	3.0	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.1	4.4	4.6	
39	1.7	1.9	2.0	2.1	2.3	1.9	2.2	2.3	2.4	2.5	2.2	2.5	2.7	2.8	3.0	2.6	2.9	3.1	3.2	3.4	2.9	3.4	3.5	3.7	3.9	
7000	-35	8.2	9.3	9.7	10.1	10.6	8.5	9.6	10.1	10.5	11.1	9.1	10.2	10.7	11.2	11.8	9.6	10.9	11.4	11.9	12.5	10.2	11.6	12.1	12.6	13.3
	-30	8.2	9.3	9.7	10.1	10.6	8.6	9.7	10.1	10.6	11.1	9.1	10.3	10.7	11.2	11.8	9.7	10.9	11.4	11.9</						

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
4	-30	10.6	12.1	12.6	13.3	13.9	11.3	12.8	13.4	14.1	14.8	12.0	13.6	14.2	14.9	15.6	13.5	15.3	15.9	16.7	17.5	15.2	17.2	17.9	18.8	19.7	15.2	17.2	17.9	18.8	19.7
	-25	10.7	12.1	12.7	13.3	14.0	11.3	12.8	13.4	14.1	14.8	12.0	13.6	14.2	14.9	15.7	13.5	15.3	16.0	16.7	17.6	15.2	17.2	18.0	18.8	19.7	15.2	17.2	18.0	18.8	19.7
	-20	10.7	12.2	12.7	13.3	14.0	11.4	12.9	13.5	14.1	14.8	12.1	13.7	14.3	15.0	15.7	13.6	15.3	16.0	16.8	17.6	15.3	17.3	18.0	18.8	19.7	15.3	17.3	18.0	18.8	19.7
	-15	10.8	12.2	12.8	13.4	14.0	11.4	12.9	13.5	14.2	14.8	12.1	13.7	14.3	15.0	15.7	13.7	15.4	16.1	16.8	17.6	15.4	17.3	18.1	18.9	19.8	15.4	17.3	18.1	18.9	19.8
	-10	10.8	12.3	12.8	13.4	14.1	11.5	13.0	13.6	14.2	14.9	12.2	13.8	14.4	15.0	15.8	13.7	15.5	16.1	16.9	17.7	15.5	17.4	18.1	18.9	19.8	15.5	17.4	18.1	18.9	19.8
	-5	10.9	12.3	12.9	13.4	14.1	11.6	13.0	13.6	14.2	14.9	12.3	13.8	14.4	15.1	15.8	13.8	15.5	16.2	16.9	17.7	15.5	17.4	18.2	19.0	19.8	15.5	17.4	18.2	19.0	19.8
	0	11.0	12.3	12.9	13.5	14.1	11.6	13.1	13.7	14.3	14.9	12.3	13.9	14.5	15.1	15.8	13.9	15.6	16.2	16.9	17.7	15.6	17.5	18.2	19.0	19.9	15.6	17.5	18.2	19.0	19.9
	5	10.4	11.7	12.3	12.8	13.4	11.1	12.5	13.0	13.6	14.3	11.7	13.2	13.8	14.4	15.1	13.2	14.9	15.5	16.2	17.0	14.9	16.8	17.5	18.2	19.1	14.9	16.8	17.5	18.2	19.1
	10	9.4	10.7	11.2	11.7	12.3	10.1	11.4	11.9	12.5	13.1	10.7	12.1	12.7	13.3	13.9	12.2	13.8	14.4	15.0	15.7	13.8	15.6	16.3	17.0	17.8	13.8	15.6	16.3	17.0	17.8
	15	8.5	9.7	10.1	10.6	11.1	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.2	12.8	11.2	12.7	13.3	13.9	14.6	12.8	14.5	15.1	15.8	16.6	12.8	14.5	15.1	15.8	16.6
20	7.7	8.7	9.1	9.5	10.0	8.2	9.4	9.8	10.3	10.8	8.9	10.1	10.6	11.1	11.6	10.3	11.6	12.2	12.8	13.4	11.8	13.4	14.0	14.7	15.4	11.8	13.4	14.0	14.7	15.4	
25	6.8	7.7	8.0	8.4	8.8	7.3	8.3	8.7	9.1	9.6	7.9	9.0	9.4	9.9	10.4	9.3	10.5	11.0	11.6	12.2	10.8	12.2	12.8	13.5	14.1	10.8	12.2	12.8	13.5	14.1	
30	5.9	6.7	7.1	7.4	7.8	6.5	7.3	7.7	8.1	8.5	7.0	8.0	8.4	8.8	9.2	8.3	9.5	9.9	10.4	11.0	9.8	11.2	11.7	12.3	12.9	9.8	11.2	11.7	12.3	12.9	
35	5.1	5.9	6.1	6.4	6.8	5.6	6.4	6.7	7.1	7.4	6.2	7.0	7.4	7.7	8.1	7.4	8.4	8.8	9.3	9.8	8.8	10.0	10.5	11.1	11.7	8.8	10.0	10.5	11.1	11.7	
40	4.4	5.0	5.2	5.5	5.8	4.9	5.5	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.1	6.5	7.4	7.8	8.2	8.6	7.8	9.0	9.4	9.9	10.4	7.8	9.0	9.4	9.9	10.4	
45	3.7	4.2	4.4	4.6	4.8	4.1	4.7	4.9	5.2	5.4	4.6	5.2	5.5	5.8	6.1	5.7	6.5	6.8	7.1	7.5	6.9	7.9	8.3	8.7	9.2	6.9	7.9	8.3	8.7	9.2	
5	-35	10.8	12.3	12.8	13.4	14.1	11.5	13.0	13.6	14.2	15.0	12.2	13.8	14.4	15.1	15.8	13.7	15.5	16.2	16.9	17.7	15.4	17.4	18.2	19.0	19.9	15.4	17.4	18.2	19.0	19.9
	-30	10.9	12.3	12.9	13.5	14.1	11.5	13.0	13.6	14.3	15.0	12.2	13.8	14.4	15.1	15.9	13.7	15.5	16.2	16.9	17.8	15.5	17.4	18.2	19.0	19.9	15.5	17.4	18.2	19.0	19.9
	-25	10.9	12.3	12.9	13.5	14.2	11.6	13.1	13.7	14.3	15.0	12.3	13.9	14.5	15.2	15.9	13.8	15.6	16.2	17.0	17.8	15.5	17.5	18.2	19.1	19.9	15.5	17.5	18.2	19.1	19.9
	-20	11.0	12.4	13.0	13.6	14.2	11.6	13.1	13.7	14.4	15.0	12.4	13.9	14.5	15.2	15.9	13.9	15.6	16.3	17.0	17.8	15.6	17.5	18.3	19.1	20.0	15.6	17.5	18.3	19.1	20.0
	-15	11.0	12.5	13.0	13.6	14.3	11.7	13.2	13.8	14.4	15.1	12.4	14.0	14.6	15.3	16.0	14.0	15.7	16.4	17.1	17.9	15.7	17.6	18.3	19.2	20.0	15.7	17.6	18.3	19.2	20.0
	-10	11.1	12.5	13.1	13.7	14.3	11.8	13.3	13.8	14.5	15.1	12.5	14.0	14.6	15.3	16.0	14.0	15.7	16.4	17.1	17.9	15.8	17.7	18.4	19.2	20.1	15.8	17.7	18.4	19.2	20.1
	-5	11.1	12.5	13.1	13.7	14.3	11.8	13.3	13.9	14.5	15.1	12.5	14.1	14.7	15.3	16.0	14.1	15.8	16.4	17.1	17.9	15.8	17.7	18.4	19.2	20.1	15.8	17.7	18.4	19.2	20.1
	0	10.5	11.9	12.4	13.0	13.6	11.2	12.6	13.1	13.7	14.4	11.9	13.4	13.9	14.6	15.2	13.4	15.0	15.7	16.4	17.1	15.1	16.9	17.6	18.4	19.2	15.1	16.9	17.6	18.4	19.2
	5	9.6	10.9	11.4	11.9	12.5	10.3	11.6	12.1	12.7	13.3	11.0	12.4	12.9	13.5	14.1	12.4	14.0	14.6	15.2	16.0	14.1	15.8	16.5	17.2	18.0	14.1	15.8	16.5	17.2	18.0
	10	8.7	9.8	10.3	10.7	11.3	9.3	10.5	11.0	11.5	12.1	10.0	11.3	11.8	12.3	12.9	11.4	12.8	13.4	14.0	14.7	13.0	14.6	15.3	16.0	16.7	13.0	14.6	15.3	16.0	16.7
15	7.8	8.8	9.2	9.7	10.1	8.4	9.5	9.9	10.4	10.9	9.0	10.2	10.7	11.2	11.8	10.4	11.8	12.3	12.9	13.6	12.0	13.5	14.2	14.8	15.5	12.0	13.5	14.2	14.8	15.5	
20	6.9	7.8	8.2	8.6	9.0	7.5	8.5	8.9	9.3	9.8	8.1	9.2	9.6	10.1	10.6	9.4	10.7	11.2	11.8	12.4	11.0	12.4	13.0	13.6	14.3	11.0	12.4	13.0	13.6	14.3	
25	6.1	6.9	7.2	7.5	7.9	6.6	7.5	7.8	8.2	8.6	7.2	8.1	8.5	8.9	9.4	8.4	9.6	10.1	10.6	11.1	9.9	11.3	11.8	12.4	13.1	9.9	11.3	11.8	12.4	13.1	
30	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.5	7.9	8.3	7.5	8.6	9.0	9.4	9.9	9.0	10.2	10.7	11.3	11.9	9.0	10.2	10.7	11.3	11.9	
35	4.5	5.1	5.4	5.6	5.9	5.0	5.7	5.9	6.2	6.5	5.5	6.2	6.5	6.9	7.2	6.6	7.6	7.9	8.3	8.8	8.0	9.1	9.6	10.1	10.6	8.0	9.1	9.6	10.1	10.6	
40	3.8	4.3	4.5	4.8	5.0	4.3	4.8	5.1	5.3	5.6	4.7	5.4	5.7	5.9	6.2	5.8	6.6	7.0	7.3	7.7	7.1	8.1	8.5	8.9	9.4	7.1	8.1	8.5	8.9	9.4	
42	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.7	5.0	5.2	4.4	5.1	5.3	5.6	5.8	5.5	6.3	6.6	6.9	7.3	6.7	7.7	8.1	8.5	8.9	6.7	7.7	8.1	8.5	8.9	
6	-35	10.9	12.4	12.9	13.5	14.2	11.6	13.1	13.7	14.3	15.0	12.3	13.9	14.5	15.2	15.9	13.8	15.6	16.2	17.0	17.8	15.5	17.5	18.2	19.1	20.0	15.5	17.5	18.2	19.1	20.0
	-30	11.0	12.4	12.9	13.5	14.2	11.6	13.1	13.7	14.3	15.0	12.3	13.9	14.5	15.2	15.9	13.9	15.6	16.3	17.0	17.8	15.6	17.5	18.3	19.1	20.0	15.6	17.5	18.3	19.1	20.0
	-25	11.0	12.4	13.0	13.6	14.2	11.7	13.2	13.7	14.4	15.0	12.4	13.9	14.5	15.2	15.9	13.9	15.6	16.3	17.0	17.8	15.6	17.6	18.3	19.1	20.0	15.6	17.6	18.3	19.1	20.0
	-20	11.1	12.5	13.0	13.6	14.2	11.7	13.2	13.8	14.4	15.1	12.4	14.0	14.6	15.2	15.9	14.0	15.7	16.3	17.1	17.8	15.7	17.6	18.3	19.1	20.0	15.7	17.6	18.3	19.1	20.0
	-15	11.1	12.5	13.0	13.6	14.3	11.8	13.2	13.8	14.4	15.1	12.5	14.0	14.6	15.3	16.0	14.0	15.7	16.4	17.1	17.9	15.8	17.6	18.4	19.2	20.0	15.8	17.6	18.4	19.2	20.0
	-10	11.1	12.5	13.0	13.6	14.2	11.8	13.2	13.8	14.4	15.1	12.5	14.0	14.6	15.2	15.9	14.0	15.7	16.4	17.1	17.8	15.8	17.6	18.4	19.1	20.0	15.8	17.6	18.4	19.1	20.0
	-5	10.6	12.0	12.5	13.0	13.6	11.3	12.7	13.2	13.8	14.5	12.0	13.5	14.0	14.6	15.3	13.5	15.1	15.8	16.4	17.2	15.2	17.0	17.7	18.5	19.3	15.2	17.0	17.7	18.5	19.3
	0	9.8	11.0																												

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7⁰CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		16830					16500					16000					15500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8000	-35	8.4	9.5	9.9	10.3	10.8	8.7	9.9	10.3	10.8	11.3	9.3	10.5	10.9	11.4	12.0	9.9	11.1	11.6	12.1	12.7
	-30	8.4	9.5	9.9	10.4	10.8	8.8	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.1	11.6	12.2	12.7
	-25	8.4	9.5	9.9	10.3	10.8	8.8	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.1	11.6	12.1	12.7
	-20	8.1	9.1	9.5	9.9	10.4	8.5	9.5	9.9	10.3	10.8	9.0	10.1	10.5	11.0	11.5	9.6	10.8	11.2	11.7	12.3
	-15	7.6	8.5	8.9	9.3	9.7	7.9	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.8	9.0	10.1	10.6	11.1	11.6
	-10	7.2	8.1	8.5	8.8	9.2	7.5	8.5	8.8	9.2	9.6	8.0	9.1	9.4	9.9	10.3	8.6	9.7	10.1	10.5	11.0
	-5	6.7	7.5	7.8	8.1	8.5	7.0	7.8	8.2	8.5	8.9	7.5	8.4	8.7	9.1	9.5	8.0	9.0	9.4	9.8	10.2
	0	5.9	6.6	6.9	7.2	7.6	6.2	7.0	7.3	7.6	7.9	6.7	7.5	7.8	8.2	8.5	7.2	8.1	8.4	8.8	9.2
	5	5.1	5.8	6.0	6.3	6.6	5.4	6.1	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.5	6.3	7.1	7.4	7.8	8.1
	10	4.4	5.0	5.2	5.4	5.7	4.7	5.3	5.5	5.7	6.0	5.1	5.7	6.0	6.2	6.5	5.5	6.2	6.5	6.8	7.1
	15	3.7	4.2	4.4	4.6	4.8	3.9	4.5	4.7	4.9	5.1	4.3	4.9	5.1	5.4	5.6	4.8	5.4	5.6	5.9	6.2
	20	3.0	3.4	3.6	3.7	3.9	3.2	3.7	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.7	4.0	4.6	4.8	5.0	5.2
	25	2.4	2.7	2.8	3.0	3.1	2.6	2.9	3.1	3.2	3.4	2.9	3.3	3.5	3.7	3.8	3.3	3.8	3.9	4.1	4.3
	30	1.7	2.0	2.1	2.2	2.3	1.9	2.2	2.3	2.4	2.6	2.3	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.4
	33	1.4	1.6	1.7	1.8	1.9	1.6	1.8	1.9	2.0	2.1	1.9	2.2	2.3	2.4	2.6	2.2	2.6	2.7	2.8	3.0
9000	-35	8.3	9.3	9.7	10.1	10.6	8.6	9.7	10.1	10.5	11.0	9.1	10.3	10.7	11.2	11.7	9.7	10.9	11.4	11.9	12.5
	-30	8.3	9.3	9.7	10.1	10.6	8.6	9.7	10.1	10.5	11.0	9.1	10.3	10.7	11.2	11.7	9.7	10.9	11.4	11.9	12.4
	-25	7.9	8.9	9.3	9.7	10.1	8.3	9.3	9.7	10.1	10.6	8.8	9.9	10.3	10.8	11.3	9.4	10.5	11.0	11.5	12.0
	-20	7.4	8.4	8.7	9.1	9.5	7.8	8.7	9.1	9.5	9.9	8.3	9.3	9.7	10.1	10.6	8.8	9.9	10.4	10.8	11.3
	-15	7.0	7.8	8.2	8.5	8.9	7.3	8.2	8.5	8.9	9.3	7.8	8.7	9.1	9.5	10.0	8.3	9.3	9.7	10.2	10.7
	-10	6.6	7.4	7.7	8.1	8.4	6.9	7.8	8.1	8.4	8.8	7.4	8.3	8.7	9.0	9.4	7.9	8.9	9.3	9.7	10.1
	-5	6.0	6.7	7.0	7.3	7.7	6.3	7.1	7.4	7.7	8.0	6.8	7.6	7.9	8.3	8.7	7.3	8.2	8.5	8.9	9.3
	0	5.3	5.9	6.2	6.5	6.7	5.6	6.3	6.5	6.8	7.1	6.0	6.8	7.0	7.4	7.7	6.5	7.3	7.6	7.9	8.3
	5	4.5	5.1	5.3	5.5	5.8	4.8	5.4	5.6	5.9	6.1	5.2	5.9	6.1	6.4	6.7	5.7	6.4	6.7	7.0	7.3
	10	3.8	4.3	4.5	4.7	4.9	4.1	4.6	4.8	5.0	5.2	4.5	5.1	5.3	5.5	5.8	4.9	5.5	5.8	6.0	6.3
	15	3.1	3.6	3.7	3.9	4.1	3.4	3.8	4.0	4.2	4.4	3.8	4.2	4.4	4.6	4.9	4.2	4.7	4.9	5.1	5.4
	20	2.5	2.8	3.0	3.1	3.3	2.7	3.1	3.2	3.4	3.5	3.1	3.5	3.6	3.8	4.0	3.5	3.9	4.1	4.3	4.5
	25	1.8	2.1	2.2	2.3	2.5	2.1	2.4	2.5	2.6	2.7	2.4	2.7	2.9	3.0	3.2	2.8	3.1	3.3	3.4	3.6
	30	1.3	1.5	1.6	1.6	1.7	1.5	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4	2.1	2.4	2.6	2.7	2.8
	31	1.1	1.3	1.4	1.5	1.6	1.3	1.6	1.6	1.7	1.8	1.7	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.5	2.7
10000	-35	8.0	8.9	9.3	9.7	10.2	8.3	9.3	9.7	10.1	10.6	8.8	9.9	10.3	10.8	11.3	9.4	10.5	11.0	11.5	12.0
	-30	7.7	8.6	9.0	9.4	9.8	8.0	9.0	9.4	9.8	10.2	8.5	9.6	10.0	10.4	10.9	9.1	10.2	10.6	11.1	11.6
	-25	7.3	8.2	8.5	8.9	9.3	7.6	8.5	8.9	9.3	9.7	8.1	9.1	9.5	9.9	10.4	8.6	9.7	10.1	10.6	11.1
	-20	6.8	7.6	8.0	8.3	8.7	7.1	8.0	8.3	8.7	9.1	7.6	8.6	8.9	9.3	9.7	8.1	9.2	9.5	10.0	10.4
	-15	6.4	7.1	7.4	7.7	8.1	6.7	7.5	7.8	8.1	8.5	7.1	8.0	8.3	8.7	9.1	7.6	8.6	9.0	9.3	9.8
	-10	6.0	6.7	7.0	7.3	7.6	6.3	7.1	7.4	7.7	8.0	6.8	7.6	7.9	8.2	8.6	7.3	8.1	8.5	8.9	9.3
	-5	5.4	6.1	6.3	6.6	6.9	5.7	6.4	6.6	6.9	7.2	6.1	6.9	7.2	7.5	7.8	6.6	7.4	7.7	8.1	8.4
	0	4.7	5.3	5.5	5.7	6.0	4.9	5.6	5.8	6.0	6.3	5.4	6.0	6.3	6.6	6.9	5.8	6.6	6.8	7.1	7.5
	5	4.0	4.5	4.6	4.8	5.1	4.2	4.7	4.9	5.2	5.4	4.6	5.2	5.4	5.7	5.9	5.0	5.7	5.9	6.2	6.5
	10	3.3	3.7	3.9	4.0	4.2	3.5	4.0	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.0	4.3	4.9	5.1	5.3	5.6
	15	2.6	3.0	3.1	3.2	3.4	2.8	3.2	3.4	3.5	3.7	3.2	3.6	3.8	4.0	4.1	3.6	4.1	4.2	4.4	4.6
	20	2.0	2.3	2.4	2.5	2.6	2.2	2.5	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.3	2.9	3.3	3.4	3.6	3.8
	25	1.3	1.6	1.6	1.7	1.8	1.5	1.8	1.9	2.0	2.1	1.9	2.2	2.3	2.4	2.5	2.2	2.5	2.7	2.8	2.9
	29	0.9	1.1	1.1	1.2	1.3	1.1	1.3	1.4	1.4	1.5	1.4	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.2	2.3
11000	-35	7.4	8.3	8.6	9.0	9.4	7.7	8.7	9.0	9.4	9.8	8.2	9.2	9.6	10.0	10.5	8.8	9.9	10.3	10.7	11.2
	-30	7.0	7.9	8.2	8.6	8.9	7.3	8.2	8.6	9.0	9.4	7.8	8.8	9.2	9.6	10.0	8.4	9.4	9.8	10.2	10.7
	-25	6.7	7.5	7.8	8.1	8.5	7.0	7.8	8.2	8.5	8.9	7.5	8.4	8.7	9.1	9.5	8.0	9.0	9.3	9.8	10.2
	-20	6.2	7.0	7.2	7.6	7.9	6.5	7.3	7.6	7.9	8.3	7.0	7.8	8.2	8.5	8.9	7.5	8.4	8.8	9.1	9.6
	-15	5.8	6.5	6.7	7.0	7.3	6.1	6.8	7.1	7.4	7.7	6.5	7.3	7.6	7.9	8.3	7.0	7.9	8.2	8.5	8.9
	-10	5.4	6.1	6.3	6.6	6.9	5.7	6.4	6.7	7.0	7.3	6.2	6.9	7.2	7.5	7.8	6.6	7.5	7.8	8.1	8.5
	-5	4.8	5.4	5.7	5.9	6.2	5.1	5.7	6.0	6.2	6.5	5.5	6.2	6.5	6.8	7.1	6.0	6.7	7.0	7.3	7.7
	0	4.2	4.7	4.9	5.1	5.3	4.4	5.0	5.2	5.4	5.6	4.8	5.4	5.7	5.9	6.2	5.3	5.9	6.2	6.4	6.7
	5	3.5	3.9	4.1	4.3	4.5	3.7	4.2	4.4	4.6	4.8	4.1	4.6	4.8	5.1	5.3	4.5	5.1	5.3	5.6	5.8
	10	2.8	3.2	3.3	3.5	3.6	3.1	3.5	3.6	3.8	3.9	3.4	3.9	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9
	15	2.2	2.5	2.6	2.7	2.9	2.4	2.7	2.9	3.0	3.1	2.7	3.1	3.3	3.4	3.6	3.1	3.5	3.7	3.9	4.0
	20	1.6	1.8	1.9	2.0	2.1	1.8	2.0	2.1	2.2	2.4	2.1	2.4	2.5	2.6	2.8	2.5	2.8	2.9	3.1	3.2
	25	1.0	1.2	1.2	1.3	1.4	1.2	1.4	1.5	1.5	1.6	1.5	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4
	27	0.8	0.9	1.0	1.0	1.1	0.9	1.1	1.2	1.3	1.3	1.3	1.5	1.5	1.6	1.7	1.6	1.8	1.9	2.0	2.1

56FMC-00-00

Figure 4-40 (Sheet 5)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																																																											
		14500												14000												13500												12500												11500											
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS																																			
-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30																											
8	-35	11.1	12.5	13.0	13.6	14.3	11.8	13.2	13.8	14.4	15.1	12.5	14.0	14.6	15.3	16.0	14.0	15.7	16.4	17.1	17.9	15.8	17.6	18.4	19.2	20.0	15.8	17.7	18.4	19.2	20.0	15.8	17.6	18.4	19.2	20.0	15.8	17.7	18.4	19.2	20.0																				
	-30	11.1	12.5	13.1	13.6	14.3	11.8	13.3	13.8	14.4	15.1	12.5	14.1	14.6	15.3	16.0	14.1	15.8	16.4	17.1	17.9	15.8	17.7	18.4	19.2	20.0	15.8	17.7	18.4	19.2	20.0	15.8	17.7	18.4	19.2	20.0	15.8	17.7	18.4	19.2	20.0																				
	-25	11.2	12.5	13.1	13.6	14.3	11.8	13.3	13.8	14.4	15.1	12.5	14.0	14.6	15.3	16.0	14.1	15.7	16.4	17.1	17.8	15.8	17.7	18.4	19.1	20.0	15.8	17.7	18.4	19.1	20.0	15.8	17.7	18.4	19.1	20.0	15.8	17.7	18.4	19.1	20.0																				
	-20	10.8	12.1	12.6	13.2	13.8	11.5	12.9	13.4	14.0	14.6	12.1	13.6	14.2	14.8	15.5	13.7	15.3	15.9	16.6	17.3	15.4	17.2	17.9	18.6	19.5	15.4	17.2	17.9	18.6	19.5	15.4	17.2	17.9	18.6	19.5	15.4	17.2	17.9	18.6	19.5																				
	-15	10.2	11.5	12.0	12.5	13.1	10.9	12.2	12.7	13.3	13.9	11.6	13.0	13.5	14.1	14.8	13.0	14.6	15.2	15.9	16.6	14.7	16.5	17.2	17.9	18.7	14.7	16.5	17.2	17.9	18.7	14.7	16.5	17.2	17.9	18.7	14.7	16.5	17.2	17.9	18.7																				
	-10	9.8	11.0	11.5	12.0	12.6	10.4	11.7	12.2	12.8	13.4	11.1	12.5	13.0	13.6	14.2	12.6	14.1	14.7	15.3	16.0	14.3	16.0	16.6	17.3	18.1	14.3	16.0	16.6	17.3	18.1	14.3	16.0	16.6	17.3	18.1	14.3	16.0	16.6	17.3	18.1																				
	-5	9.1	10.3	10.7	11.2	11.8	9.8	11.0	11.5	12.0	12.6	10.4	11.7	12.2	12.8	13.4	11.9	13.3	13.9	14.5	15.2	13.5	15.2	15.8	16.5	17.2	13.5	15.2	15.8	16.5	17.2	13.5	15.2	15.8	16.5	17.2	13.5	15.2	15.8	16.5	17.2																				
	0	8.3	9.3	9.7	10.2	10.7	8.9	10.0	10.5	10.9	11.5	9.5	10.8	11.2	11.7	12.3	10.9	12.3	12.9	13.4	14.1	12.5	14.1	14.7	15.3	16.1	12.5	14.1	14.7	15.3	16.1	12.5	14.1	14.7	15.3	16.1	12.5	14.1	14.7	15.3	16.1																				
	5	7.4	8.3	8.7	9.1	9.5	7.9	9.0	9.4	9.8	10.3	8.6	9.7	10.1	10.6	11.1	9.9	11.2	11.7	12.3	12.9	11.5	13.0	13.5	14.2	14.8	11.5	13.0	13.5	14.2	14.8	11.5	13.0	13.5	14.2	14.8	11.5	13.0	13.5	14.2	14.8																				
	10	10	6.5	7.4	7.7	8.0	8.4	7.1	8.0	8.3	8.7	9.1	7.7	8.7	9.0	9.5	9.9	9.0	10.2	10.6	11.1	11.7	10.5	11.9	12.4	13.0	13.6	10.5	11.9	12.4	13.0	13.6	10.5	11.9	12.4	13.0	13.6	10.5	11.9	12.4	13.0	13.6																			
15		5.7	6.4	6.7	7.0	7.4	6.2	7.0	7.4	7.7	8.1	6.8	7.7	8.0	8.4	8.8	8.0	9.1	9.5	10.0	10.5	9.5	10.8	11.3	11.8	12.4	9.5	10.8	11.3	11.8	12.4	9.5	10.8	11.3	11.8	12.4	9.5	10.8	11.3	11.8	12.4																				
20		4.9	5.6	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.0	7.3	7.7	7.1	8.1	8.4	8.8	9.3	8.5	9.7	10.1	10.6	11.2	8.5	9.7	10.1	10.6	11.2	8.5	9.7	10.1	10.6	11.2	8.5	9.7	10.1	10.6	11.2																				
25		4.1	4.7	4.9	5.2	5.4	4.6	5.2	5.5	5.7	6.0	5.1	5.8	6.1	6.4	6.7	6.2	7.1	7.4	7.8	8.1	7.5	8.6	9.0	9.4	9.9	7.5	8.6	9.0	9.4	9.9	7.5	8.6	9.0	9.4	9.9	7.5	8.6	9.0	9.4	9.9																				
30		3.4	3.9	4.1	4.2	4.5	3.8	4.4	4.6	4.8	5.0	4.3	4.9	5.1	5.4	5.6	5.4	6.1	6.4	6.7	7.0	6.6	7.5	7.9	8.3	8.7	6.6	7.5	7.9	8.3	8.7	6.6	7.5	7.9	8.3	8.7	6.6	7.5	7.9	8.3	8.7																				
33		3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.9	4.4	4.6	4.9	5.1	4.9	5.6	5.9	6.1	6.5	6.1	7.0	7.3	7.7	8.1	6.1	7.0	7.3	7.7	8.1	6.1	7.0	7.3	7.7	8.1	6.1	7.0	7.3	7.7	8.1																				
9		-35	10.9	12.3	12.8	13.4	14.0	11.6	13.0	13.6	14.2	14.8	12.3	13.8	14.4	15.0	15.7	13.8	15.5	16.1	16.8	17.6	15.6	17.4	18.1	18.9	19.7	15.6	17.4	18.1	18.9	19.7	15.6	17.4	18.1	18.9	19.7	15.6	17.4	18.1	18.9	19.7																			
		-30	11.0	12.3	12.8	13.4	14.0	11.6	13.0	13.6	14.2	14.8	12.3	13.8	14.4	15.0	15.7	13.9	15.5	16.1	16.8	17.6	15.6	17.4	18.1	18.9	19.7	15.6	17.4	18.1	18.9	19.7	15.6	17.4	18.1	18.9	19.7	15.6	17.4	18.1	18.9	19.7																			
		-25	10.6	11.9	12.4	12.9	13.5	11.2	12.6	13.1	13.7	14.3	11.9	13.4	13.9	14.5	15.2	13.4	15.0	15.7	16.3	17.1	15.2	16.9	17.6	18.4	19.2	15.2	16.9	17.6	18.4	19.2	15.2	16.9	17.6	18.4	19.2	15.2	16.9	17.6	18.4	19.2																			
		-20	10.0	11.3	11.8	12.3	12.9	10.7	12.0	12.5	13.1	13.7	11.4	12.8	13.3	13.9	14.5	12.9	14.4	15.0	15.6	16.3	14.5	16.3	16.9	17.6	18.4	14.5	16.3	16.9	17.6	18.4	14.5	16.3	16.9	17.6	18.4	14.5	16.3	16.9	17.6	18.4																			
	-15	9.5	10.7	11.1	11.6	12.2	10.1	11.4	11.9	12.4	13.0	10.8	12.1	12.7	13.2	13.8	12.3	13.8	14.3	15.0	15.6	13.9	15.6	16.2	16.9	17.7	13.9	15.6	16.2	16.9	17.7	13.9	15.6	16.2	16.9	17.7	13.9	15.6	16.2	16.9	17.7																				
	-10	9.1	10.2	10.6	11.1	11.6	9.7	10.9	11.4	11.9	12.4	10.4	11.6	12.1	12.7	13.3	11.8	13.2	13.8	14.4	15.1	13.4	15.1	15.7	16.4	17.1	13.4	15.1	15.7	16.4	17.1	13.4	15.1	15.7	16.4	17.1	13.4	15.1	15.7	16.4	17.1																				
	-5	8.4	9.4	9.9	10.3	10.8	9.0	10.1	10.6	11.1	11.6	9.7	10.9	11.4	11.9	12.4	11.1	12.5	13.0	13.6	14.2	12.7	14.2	14.8	15.5	16.2	12.7	14.2	14.8	15.5	16.2	12.7	14.2	14.8	15.5	16.2	12.7	14.2	14.8	15.5	16.2																				
	0	7.5	8.5	8.9	9.3	9.7	8.1	9.2	9.6	10.0	10.5	8.8	9.9	10.3	10.8	11.3	10.1	11.4	11.9	12.5	13.1	11.7	13.2	13.7	14.4	15.0	11.7	13.2	13.7	14.4	15.0	11.7	13.2	13.7	14.4	15.0	11.7	13.2	13.7	14.4	15.0																				
	5	6.7	7.5	7.8	8.2	8.6	7.2	8.1	8.5	8.9	9.3	7.8	8.8	9.2	9.6	10.1	9.1	10.3	10.8	11.3	11.9	10.7	12.0	12.6	13.2	13.8	10.7	12.0	12.6	13.2	13.8	10.7	12.0	12.6	13.2	13.8	10.7	12.0	12.6	13.2	13.8																				
	10	10	5.9	6.6	6.9	7.2	7.5	6.4	7.2	7.5	7.9	8.2	6.9	7.8	8.2	8.6	9.0	8.2	9.3	9.7	10.2	10.7	9.7	11.0	11.5	12.0	12.6	9.7	11.0	11.5	12.0	12.6	9.7	11.0	11.5	12.0	12.6	9.7	11.0	11.5	12.0	12.6																			
15		5.1	5.7	6.0	6.2	6.5	5.6	6.3	6.6	6.9	7.2	6.1	6.9	7.2	7.5	7.9	7.3	8.2	8.6	9.0	9.5	8.7	9.9	10.3	10.8	11.4	8.7	9.9	10.3	10.8	11.4	8.7	9.9	10.3	10.8	11.4	8.7	9.9	10.3	10.8	11.4																				
20		4.3	4.9	5.1	5.3	5.6	4.8	5.4	5.6	5.9	6.2	5.3	6.0	6.2	6.5	6.8	6.4	7.3	7.6	7.9	8.3	7.7	8.8	9.2	9.6	10.1	7.7	8.8	9.2	9.6	10.1	7.7	8.8	9.2	9.6	10.1	7.7	8.8	9.2	9.6	10.1																				
25		3.6	4.0	4.2	4.4	4.6	4.0	4.5	4.7	5.0	5.2	4.5	5.1	5.3	5.6	5.8	5.5	6.3	6.6	6.9	7.2	6.8	7.7	8.1	8.5	8.9	6.8	7.7	8.1	8.5	8.9	6.8	7.7	8.1	8.5	8.9	6.8	7.7	8.1	8.5	8.9																				
30		2.9	3.3	3.4	3.6	3.8	3.3	3.8	3.9	4.1	4.3	3.7	4.3	4.5	4.7	4.9	4.7	5.4	5.7	5.9	6.2	5.9	6.8	7.1	7.4	7.8	5.8	6.8	7.1	7.4	7.8	5.8	6.8	7.1	7.4	7.8	5.8	6.8	7.1	7.4	7.8																				
31		2.7	3.1	3.3	3.4	3.6	3.1	3.6	3.8	3.9	4.1	3.6	4.1	4.3	4.5	4.7	4.6	5.2	5.5	5.7	6.0	5.8	6.5	6.9	7.2	7.6	5.6	6.5	6.9	7.2	7.6	5.6	6.5	6.9	7.2	7.6	5.6	6.5	6.9	7.2	7.6																				
1		-35	10.6	11.9	12.4	13.0	13.6	11.3	12.6	13.2	13.8	14.4	12.0	13.4	14.0	14.6	15.2	13.5	15.1	15.7	16.4	17.1	15.2	17.0	17.7	18.4	19.2	15.2	17.0	17.7	18.4	19.2	15.2	17.0	17.7	18.4	19.2	15.2	17.0	17.7	18.4	19.2																			
		-30	10.3	11.6	12.0	12.6	13.2	10.9	12.3	12.8	13.4	14.0	11.6	13.0	13.6	14.2	14.8	13.1	14.7	15.3	16.0	16.7	14.8	16.6	17.2	18.0	18.7	14.8	16.6	17.2	18.0	18.7	14.8	16.6	17.2	18.0	18.7	14.8	16.6	17.2	18.0	18.7																			
		-25	9.8	11.1	11.5	12.0	12.6	10.5	11.8																																																				

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		16830					16500					16000					15500					15000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
1	-35	6.8	7.6	7.9	8.3	8.6	7.1	8.0	8.3	8.6	9.0	7.6	8.5	8.9	9.3	9.7	8.1	9.1	9.5	9.9	10.4	8.7	9.7	10.1	10.6	11.1
2	-30	6.4	7.2	7.5	7.8	8.1	6.7	7.5	7.8	8.2	8.5	7.2	8.1	8.4	8.8	9.2	7.7	8.6	9.0	9.4	9.8	8.2	9.3	9.6	10.1	10.5
0	-25	6.1	6.8	7.1	7.4	7.7	6.4	7.1	7.4	7.7	8.1	6.8	7.7	8.0	8.3	8.7	7.3	8.2	8.6	8.9	9.3	7.9	8.8	9.2	9.6	10.0
0	-20	5.6	6.3	6.6	6.8	7.1	5.9	6.6	6.9	7.2	7.5	6.4	7.1	7.4	7.7	8.1	6.8	7.7	8.0	8.3	8.7	7.4	8.3	8.6	9.0	9.4
0	-15	5.2	5.8	6.1	6.3	6.6	5.5	6.1	6.4	6.7	7.0	5.9	6.6	6.9	7.2	7.5	6.4	7.2	7.5	7.8	8.1	6.9	7.7	8.1	8.4	8.8
	-10	4.9	5.5	5.7	5.9	6.2	5.1	5.8	6.0	6.3	6.5	5.6	6.2	6.5	6.8	7.1	6.0	6.8	7.0	7.3	7.7	6.5	7.3	7.6	8.0	8.3
	-5	4.3	4.8	5.0	5.2	5.5	4.6	5.1	5.3	5.6	5.8	5.0	5.6	5.8	6.1	6.3	5.4	6.1	6.3	6.6	6.9	5.9	6.6	6.9	7.2	7.5
	0	3.7	4.1	4.3	4.5	4.7	3.9	4.4	4.6	4.8	5.0	4.3	4.8	5.0	5.3	5.5	4.7	5.3	5.5	5.8	6.0	5.2	5.8	6.1	6.3	6.6
	5	3.0	3.4	3.5	3.7	3.9	3.2	3.7	3.8	4.0	4.2	3.6	4.1	4.3	4.4	4.6	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.5	5.7
	10	2.4	2.7	2.8	2.9	3.1	2.6	2.9	3.1	3.2	3.3	2.9	3.3	3.5	3.6	3.8	3.3	3.7	3.9	4.1	4.3	3.7	4.2	4.4	4.6	4.8
	15	1.8	2.0	2.1	2.2	2.3	2.0	2.3	2.4	2.5	2.6	2.3	2.6	2.7	2.9	3.0	2.7	3.0	3.2	3.3	3.5	3.0	3.5	3.6	3.8	4.0
	20	1.2	1.4	1.4	1.5	1.6	1.4	1.6	1.7	1.8	1.8	1.7	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.5	2.7	2.4	2.7	2.8	3.0	3.1
	25	0.6	0.8	0.8	0.9	0.9	0.8	1.0	1.0	1.1	1.2	1.1	1.3	1.4	1.5	1.6	1.4	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4
1	-35	6.2	6.9	7.2	7.5	7.8	6.5	7.2	7.5	7.9	8.2	6.9	7.8	8.1	8.4	8.8	7.4	8.3	8.7	9.1	9.5	8.0	8.9	9.3	9.7	10.2
3	-30	5.8	6.5	6.8	7.1	7.4	6.1	6.8	7.1	7.4	7.7	6.6	7.4	7.7	8.0	8.3	7.1	7.9	8.2	8.6	9.0	7.6	8.5	8.9	9.2	9.7
0	-25	5.5	6.1	6.4	6.7	7.0	5.8	6.5	6.7	7.0	7.3	6.2	7.0	7.2	7.6	7.9	6.7	7.5	7.8	8.1	8.5	7.2	8.1	8.4	8.8	9.2
0	-20	5.1	5.7	5.9	6.1	6.4	5.3	6.0	6.2	6.5	6.8	5.8	6.5	6.7	7.0	7.3	6.2	7.0	7.3	7.6	7.9	6.7	7.5	7.9	8.2	8.6
0	-15	4.7	5.2	5.4	5.7	5.9	4.9	5.5	5.7	6.0	6.2	5.3	6.0	6.2	6.5	6.8	5.8	6.5	6.8	7.1	7.4	6.3	7.0	7.3	7.6	8.0
	-10	4.3	4.9	5.1	5.3	5.5	4.6	5.1	5.4	5.6	5.8	5.0	5.6	5.8	6.1	6.4	5.4	6.1	6.4	6.6	6.9	5.9	6.6	6.9	7.2	7.5
	-5	3.8	4.3	4.4	4.6	4.8	4.0	4.5	4.7	4.9	5.1	4.4	5.0	5.2	5.4	5.6	4.9	5.5	5.7	5.9	6.2	5.3	6.0	6.2	6.5	6.8
	0	3.2	3.6	3.7	3.9	4.1	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.4	4.6	4.8	4.2	4.7	4.9	5.1	5.3	4.6	5.2	5.4	5.6	5.9
	5	2.5	2.9	3.0	3.1	3.3	2.8	3.1	3.3	3.4	3.6	3.1	3.5	3.7	3.8	4.0	3.5	4.0	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.0
	10	1.9	2.2	2.3	2.4	2.5	2.1	2.4	2.5	2.7	2.8	2.5	2.8	2.9	3.1	3.2	2.8	3.2	3.4	3.5	3.7	3.2	3.7	3.8	4.0	4.2
	15	1.4	1.6	1.6	1.7	1.8	1.6	1.8	1.9	2.0	2.1	1.9	2.1	2.2	2.4	2.5	2.2	2.5	2.6	2.8	2.9	2.6	2.9	3.1	3.2	3.4
	20	0.8	0.9	1.0	1.1	1.1	1.0	1.1	1.2	1.3	1.4	1.3	1.5	1.6	1.6	1.7	1.6	1.8	1.9	2.0	2.1	1.9	2.2	2.3	2.5	2.6
	23	0.5	0.6	0.6	0.7	0.7	0.6	0.8	0.8	0.9	1.0	0.9	1.1	1.2	1.2	1.3	1.2	1.5	1.5	1.6	1.7	1.6	1.8	1.9	2.0	2.1
1	-35	5.6	6.2	6.5	6.8	7.1	5.9	6.6	6.8	7.1	7.4	6.3	7.1	7.4	7.7	8.0	6.8	7.6	7.9	8.3	8.6	7.3	8.2	8.5	8.9	9.3
4	-30	5.2	5.9	6.1	6.4	6.6	5.5	6.2	6.4	6.7	7.0	6.0	6.7	6.9	7.2	7.5	6.4	7.2	7.5	7.8	8.2	6.9	7.8	8.1	8.4	8.8
0	-25	4.9	5.5	5.7	6.0	6.2	5.2	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.8	7.1	6.1	6.8	7.1	7.4	7.7	6.6	7.4	7.7	8.0	8.3
0	-20	4.5	5.0	5.2	5.5	5.7	4.8	5.3	5.6	5.8	6.0	5.2	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.8	7.1	6.1	6.8	7.1	7.4	7.8
0	-15	4.1	4.6	4.8	5.0	5.2	4.4	4.9	5.1	5.3	5.5	4.8	5.4	5.6	5.8	6.1	5.2	5.8	6.1	6.3	6.6	5.7	6.4	6.6	6.9	7.2
	-10	3.8	4.3	4.5	4.7	4.9	4.1	4.6	4.8	5.0	5.2	4.5	5.0	5.2	5.5	5.7	4.9	5.5	5.7	6.0	6.2	5.4	6.0	6.3	6.5	6.8
	-5	3.3	3.7	3.8	4.0	4.2	3.5	4.0	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.0	4.3	4.9	5.1	5.3	5.5	4.8	5.3	5.6	5.8	6.1
	0	2.7	3.0	3.2	3.3	3.5	2.9	3.3	3.4	3.6	3.7	3.3	3.7	3.9	4.0	4.2	3.7	4.1	4.3	4.5	4.7	4.1	4.6	4.8	5.0	5.2
	5	2.1	2.4	2.5	2.6	2.7	2.3	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.4	3.0	3.4	3.6	3.7	3.9	3.4	3.8	4.0	4.2	4.4
	10	1.5	1.7	1.8	1.9	2.0	1.7	2.0	2.1	2.2	2.3	2.0	2.3	2.4	2.6	2.7	2.4	2.7	2.8	3.0	3.1	2.8	3.1	3.3	3.4	3.6
	15	1.0	1.1	1.2	1.3	1.3	1.1	1.3	1.4	1.5	1.6	1.5	1.7	1.8	1.9	2.0	1.8	2.1	2.1	2.3	2.4	2.1	2.4	2.6	2.7	2.8
	20	0.4	0.5	0.6	0.6	0.7	0.6	0.7	0.8	0.9	0.9	0.9	1.1	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7	1.6	1.8	1.9	2.0	2.1
	21	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.8	0.9	1.0	1.0	1.1	1.1	1.3	1.3	1.4	1.5	1.4	1.6	1.7	1.8	1.9

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Figure 4-40 (Sheet 7)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
1	-35	9.3	10.4	10.9	11.3	11.9	9.9	11.1	11.6	12.1	12.7	10.6	11.9	12.4	12.9	13.5	12.0	13.5	14.0	14.6	15.3	13.7	15.3	15.9	16.6	17.3	13.2	14.8	15.4	16.0	16.7
2	-30	8.8	9.9	10.3	10.8	11.3	9.4	10.6	11.1	11.6	12.1	10.1	11.4	11.8	12.4	12.9	11.5	13.0	13.5	14.1	14.7	13.2	14.8	15.4	16.0	16.7	13.2	14.8	15.4	16.0	16.7
0	-25	8.4	9.5	9.9	10.3	10.8	9.0	10.2	10.6	11.1	11.6	9.7	10.9	11.4	11.9	12.4	11.1	12.5	13.0	13.6	14.2	12.7	14.2	14.8	15.5	16.2	12.7	14.2	14.8	15.5	16.2
0	-20	7.9	8.9	9.3	9.7	10.1	8.5	9.6	10.0	10.4	10.9	9.1	10.3	10.7	11.2	11.7	10.5	11.9	12.4	12.9	13.5	12.1	13.6	14.2	14.8	15.5	12.1	13.6	14.2	14.8	15.5
0	-15	7.4	8.3	8.7	9.1	9.5	8.0	9.0	9.4	9.8	10.2	8.6	9.7	10.1	10.6	11.1	10.0	11.2	11.7	12.2	12.8	11.5	13.0	13.5	14.1	14.8	11.5	13.0	13.5	14.1	14.8
0	-10	7.0	7.9	8.2	8.6	9.0	7.6	8.5	8.9	9.3	9.7	8.2	9.2	9.6	10.1	10.5	9.6	10.8	11.2	11.7	12.3	11.1	12.5	13.0	13.6	14.2	11.1	12.5	13.0	13.6	14.2
	-5	6.4	7.2	7.5	7.8	8.2	6.9	7.8	8.1	8.5	8.9	7.5	8.5	8.8	9.2	9.7	8.8	10.0	10.4	10.9	11.4	10.3	11.6	12.2	12.7	13.3	10.3	11.6	12.2	12.7	13.3
	0	5.7	6.4	6.6	6.9	7.2	6.2	6.9	7.2	7.6	7.9	6.7	7.6	7.9	8.2	8.6	8.0	9.0	9.4	9.8	10.3	9.4	10.6	11.1	11.6	12.2	9.4	10.6	11.1	11.6	12.2
	5	4.9	5.5	5.8	6.0	6.3	5.4	6.1	6.3	6.6	6.9	5.9	6.7	7.0	7.3	7.6	7.1	8.0	8.4	8.7	9.1	8.5	9.6	10.0	10.5	11.0	8.5	9.6	10.0	10.5	11.0
	10	4.2	4.7	4.9	5.1	5.3	4.6	5.2	5.4	5.7	5.9	5.1	5.8	6.0	6.3	6.6	6.2	7.0	7.3	7.7	8.0	7.5	8.5	8.9	9.3	9.8	7.5	8.5	8.9	9.3	9.8
	15	3.5	3.9	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.0	4.4	4.9	5.2	5.4	5.6	5.4	6.1	6.4	6.7	7.0	6.7	7.5	7.9	8.2	8.7	6.7	7.5	7.9	8.2	8.7
	20	2.8	3.1	3.3	3.4	3.6	3.2	3.6	3.8	4.0	4.1	3.6	4.1	4.3	4.5	4.7	4.6	5.2	5.5	5.7	6.0	5.8	6.6	6.9	7.2	7.5	5.8	6.6	6.9	7.2	7.5
	25	2.1	2.5	2.6	2.7	2.8	2.5	2.9	3.0	3.2	3.3	3.0	3.4	3.5	3.7	3.9	3.9	4.4	4.6	4.8	5.1	5.0	5.7	5.9	6.2	6.5	5.0	5.7	5.9	6.2	6.5
1	-35	8.5	9.6	10.0	10.4	10.9	9.1	10.3	10.7	11.2	11.7	9.8	11.0	11.5	12.0	12.5	11.2	12.6	13.1	13.7	14.3	12.8	14.4	15.0	15.6	16.3	12.8	14.4	15.0	15.6	16.3
3	-30	8.1	9.1	9.5	9.9	10.4	8.7	9.8	10.2	10.7	11.2	9.4	10.5	11.0	11.5	12.0	10.8	12.1	12.6	13.2	13.8	12.4	13.9	14.4	15.1	15.7	12.4	13.9	14.4	15.1	15.7
0	-25	7.7	8.7	9.1	9.5	9.9	8.3	9.4	9.8	10.2	10.7	9.0	10.1	10.5	11.0	11.5	10.4	11.6	12.1	12.7	13.2	11.9	13.4	13.9	14.5	15.2	11.9	13.4	13.9	14.5	15.2
0	-20	7.3	8.1	8.5	8.9	9.3	7.8	8.8	9.2	9.6	10.0	8.4	9.5	9.9	10.3	10.8	9.8	11.0	11.5	12.0	12.6	11.4	12.7	13.3	13.9	14.5	11.4	12.7	13.3	13.9	14.5
0	-15	6.8	7.6	7.9	8.3	8.7	7.3	8.2	8.6	9.0	9.4	7.9	8.9	9.3	9.7	10.1	9.3	10.4	10.9	11.4	11.9	10.8	12.1	12.6	13.2	13.8	10.8	12.1	12.6	13.2	13.8
0	-10	6.4	7.2	7.5	7.8	8.2	7.0	7.8	8.1	8.5	8.9	7.5	8.5	8.8	9.2	9.6	8.8	9.9	10.4	10.8	11.3	10.3	11.6	12.1	12.7	13.3	10.3	11.6	12.1	12.7	13.3
	-5	5.8	6.5	6.8	7.1	7.4	6.3	7.1	7.4	7.7	8.1	6.9	7.7	8.1	8.4	8.8	8.1	9.2	9.6	10.0	10.5	9.6	10.8	11.3	11.8	12.4	9.6	10.8	11.3	11.8	12.4
	0	5.1	5.7	6.0	6.2	6.5	5.6	6.3	6.5	6.8	7.1	6.1	6.9	7.2	7.5	7.8	7.3	8.2	8.6	9.0	9.4	8.7	9.8	10.3	10.7	11.3	8.7	9.8	10.3	10.7	11.3
	5	4.4	4.9	5.1	5.3	5.6	4.8	5.4	5.7	5.9	6.2	5.3	6.0	6.3	6.5	6.8	6.5	7.3	7.6	7.9	8.3	7.8	8.8	9.2	9.6	10.1	7.8	8.8	9.2	9.6	10.1
	10	3.7	4.1	4.3	4.5	4.7	4.1	4.6	4.8	5.0	5.3	4.6	5.2	5.4	5.6	5.9	5.6	6.4	6.6	6.9	7.3	6.9	7.8	8.1	8.5	8.9	6.9	7.8	8.1	8.5	8.9
	15	3.0	3.4	3.5	3.7	3.9	3.4	3.9	4.0	4.2	4.4	3.9	4.4	4.6	4.8	5.0	4.9	5.5	5.7	6.0	6.3	6.1	6.8	7.2	7.5	7.9	6.1	6.8	7.2	7.5	7.9
	20	2.3	2.6	2.8	2.9	3.0	2.7	3.1	3.2	3.4	3.5	3.1	3.6	3.7	3.9	4.1	4.1	4.6	4.8	5.1	5.3	5.2	5.9	6.2	6.5	6.8	5.2	5.9	6.2	6.5	6.8
	23	1.9	2.2	2.3	2.5	2.6	2.3	2.7	2.8	2.9	3.1	2.7	3.1	3.3	3.4	3.6	3.7	4.2	4.3	4.5	4.8	4.7	5.4	5.6	5.9	6.2	4.7	5.4	5.6	5.9	6.2
1	-35	7.9	8.8	9.2	9.6	10.0	8.4	9.5	9.9	10.3	10.8	9.1	10.2	10.6	11.1	11.6	10.5	11.8	12.3	12.8	13.4	12.1	13.5	14.1	14.7	15.3	12.1	13.5	14.1	14.7	15.3
4	-30	7.5	8.4	8.7	9.1	9.5	8.0	9.0	9.4	9.8	10.2	8.6	9.7	10.1	10.6	11.1	10.0	11.3	11.7	12.3	12.8	11.6	13.0	13.5	14.1	14.8	11.6	13.0	13.5	14.1	14.8
0	-25	7.1	8.0	8.3	8.6	9.0	7.7	8.6	8.9	9.3	9.8	8.3	9.3	9.7	10.1	10.6	9.6	10.8	11.3	11.8	12.3	11.1	12.5	13.0	13.6	14.2	11.1	12.5	13.0	13.6	14.2
0	-20	6.6	7.4	7.7	8.1	8.4	7.2	8.0	8.4	8.7	9.1	7.8	8.7	9.1	9.5	9.9	9.1	10.2	10.6	11.1	11.6	10.6	11.9	12.4	13.0	13.5	10.6	11.9	12.4	13.0	13.5
0	-15	6.2	6.9	7.2	7.5	7.8	6.7	7.5	7.8	8.2	8.5	7.3	8.2	8.5	8.9	9.3	8.5	9.6	10.0	10.5	11.0	10.0	11.3	11.8	12.3	12.9	10.0	11.3	11.8	12.3	12.9
0	-10	5.8	6.6	6.8	7.1	7.4	6.4	7.1	7.4	7.7	8.1	6.9	7.8	8.1	8.4	8.8	8.2	9.2	9.6	10.0	10.4	9.6	10.8	11.3	11.8	12.4	9.6	10.8	11.3	11.8	12.4
	-5	5.2	5.9	6.1	6.4	6.7	5.7	6.4	6.7	7.0	7.3	6.3	7.0	7.3	7.6	8.0	7.5	8.4	8.8	9.1	9.6	8.9	10.0	10.5	10.9	11.4	8.9	10.0	10.5	10.9	11.4
	0	4.5	5.1	5.3	5.5	5.8	5.0	5.6	5.9	6.1	6.4	5.5	6.2	6.5	6.7	7.0	6.7	7.5	7.8	8.2	8.5	8.0	9.0	9.4	9.8	10.3	8.0	9.0	9.4	9.8	10.3
	5	3.8	4.3	4.5	4.7	4.9	4.3	4.8	5.0	5.2	5.5	4.8	5.4	5.6	5.8	6.1	5.8	6.6	6.9	7.2	7.5	7.1	8.0	8.4	8.8	9.2	7.1	8.0	8.4	8.8	9.2
	10	3.2	3.6	3.7	3.9	4.1	3.6	4.1	4.2	4.4	4.6	4.1	4.6	4.8	5.0	5.2	5.1	5.7	6.0	6.2	6.5	6.3	7.1	7.4	7.7	8.1	6.3	7.1	7.4	7.7	8.1
	15	2.5	2.9	3.0	3.1	3.3	2.9	3.3	3.5	3.6	3.8	3.4	3.8	4.0	4.2	4.3	4.3	4.9	5.1	5.3	5.6	5.5	6.2	6.5	6.8	7.1	5.5	6.2	6.5	6.8	7.1
	20	1.9	2.2	2.3	2.4	2.5	2.3	2.6	2.7	2.9	3.0	2.7	3.1	3.2	3.4	3.5	3.6	4.1	4.3	4.5	4.7	4.7	5.3	5.6	5.8	6.1	4.7	5.3	5.6	5.8	6.1
	21	1.8	2.0	2.1	2.2	2.3	2.1	2.4	2.6	2.7	2.8	2.5	2.9	3.0	3.2	3.3	3.5	3.9	4.1	4.3	4.5	4.5	5.1	5.3	5.6	5.9	4.5	5.1	5.3	5.6	5.9

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Figure 4-40 (Sheet 8)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7⁰CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		16830					16500					16000					15500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	6.8	7.8	8.2	8.7	9.2	7.1	8.2	8.6	9.1	9.6	7.6	8.7	9.2	9.7	10.3	8.1	9.4	9.9	10.4	11.0
	-30	6.8	7.9	8.3	8.7	9.2	7.1	8.2	8.6	9.1	9.6	7.6	8.8	9.2	9.7	10.3	8.1	9.4	9.9	10.4	11.0
	-25	6.9	7.9	8.3	8.7	9.2	7.2	8.2	8.7	9.1	9.6	7.7	8.8	9.3	9.8	10.3	8.2	9.4	9.9	10.4	11.0
	-20	6.9	7.9	8.3	8.8	9.2	7.2	8.3	8.7	9.2	9.7	7.7	8.9	9.3	9.8	10.3	8.2	9.5	9.9	10.5	11.1
	-15	7.0	8.0	8.4	8.8	9.3	7.3	8.3	8.7	9.2	9.7	7.8	8.9	9.3	9.8	10.4	8.3	9.5	10.0	10.5	11.1
	-10	7.0	8.0	8.4	8.8	9.3	7.3	8.4	8.8	9.2	9.7	7.8	8.9	9.4	9.9	10.4	8.3	9.6	10.0	10.6	11.1
	-5	7.1	8.1	8.5	8.9	9.4	7.4	8.4	8.8	9.3	9.8	7.9	9.0	9.4	9.9	10.5	8.4	9.6	10.1	10.6	11.2
	0	7.1	8.1	8.5	8.9	9.4	7.4	8.5	8.9	9.3	9.8	7.9	9.0	9.5	10.0	10.5	8.4	9.7	10.1	10.6	11.2
	5	7.1	8.1	8.5	8.9	9.4	7.5	8.5	8.9	9.4	9.8	8.0	9.1	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.3
	10	7.1	8.1	8.4	8.9	9.3	7.4	8.4	8.8	9.3	9.7	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.1	10.6	11.2
10	-35	7.1	8.1	8.5	9.0	9.5	7.4	8.5	8.9	9.4	9.9	7.9	9.1	9.5	10.0	10.6	8.4	9.7	10.2	10.7	11.3
	-30	7.1	8.2	8.6	9.0	9.5	7.4	8.5	8.9	9.4	9.9	7.9	9.1	9.6	10.1	10.6	8.5	9.7	10.2	10.8	11.4
	-25	7.2	8.2	8.6	9.0	9.5	7.5	8.6	9.0	9.5	10.0	8.0	9.1	9.6	10.1	10.7	8.5	9.8	10.2	10.8	11.4
	-20	7.2	8.2	8.6	9.1	9.6	7.5	8.6	9.0	9.5	10.0	8.0	9.2	9.6	10.1	10.7	8.6	9.8	10.3	10.8	11.4
	-15	7.3	8.3	8.7	9.1	9.6	7.6	8.6	9.1	9.5	10.0	8.1	9.2	9.7	10.2	10.7	8.6	9.8	10.3	10.9	11.5
	-10	7.3	8.3	8.7	9.2	9.6	7.6	8.7	9.1	9.6	10.1	8.1	9.3	9.7	10.2	10.8	8.7	9.9	10.4	10.9	11.5
	-5	7.4	8.4	8.8	9.2	9.7	7.7	8.7	9.2	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.7	10.0	10.4	11.0	11.6
	0	7.4	8.4	8.8	9.2	9.7	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.6
	5	7.4	8.4	8.8	9.2	9.7	7.7	8.8	9.2	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.4	11.0	11.5
	10	6.5	7.4	7.8	8.1	8.6	6.8	7.8	8.1	8.5	9.0	7.3	8.3	8.7	9.2	9.6	7.8	8.9	9.4	9.8	10.3
20	-35	7.3	8.4	8.8	9.3	9.8	7.6	8.8	9.2	9.7	10.2	8.1	9.3	9.8	10.3	10.9	8.7	10.0	10.5	11.0	11.6
	-30	7.4	8.4	8.8	9.3	9.8	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.8	10.4	10.9	8.7	10.0	10.5	11.1	11.7
	-25	7.4	8.5	8.9	9.3	9.8	7.7	8.8	9.3	9.7	10.3	8.2	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.7
	-20	7.5	8.5	8.9	9.4	9.9	7.8	8.9	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.7
	-15	7.5	8.6	9.0	9.4	9.9	7.8	8.9	9.4	9.8	10.3	8.4	9.5	10.0	10.5	11.0	8.9	10.2	10.6	11.2	11.8
	-10	7.6	8.6	9.0	9.5	9.9	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.0	10.5	11.1	9.0	10.2	10.7	11.2	11.8
	-5	7.6	8.7	9.1	9.5	10.0	8.0	9.0	9.5	9.9	10.4	8.5	9.6	10.1	10.6	11.1	9.0	10.3	10.8	11.3	11.9
	0	7.6	8.6	9.0	9.5	9.9	7.9	9.0	9.4	9.9	10.4	8.5	9.6	10.1	10.6	11.1	9.0	10.3	10.7	11.3	11.8
	5	6.8	7.7	8.0	8.4	8.8	7.1	8.0	8.4	8.8	9.3	7.6	8.6	9.0	9.4	9.9	8.1	9.2	9.6	10.1	10.6
	10	5.9	6.7	7.0	7.3	7.7	6.2	7.0	7.3	7.7	8.1	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4
30	-35	7.6	8.6	9.1	9.5	10.0	7.9	9.0	9.5	9.9	10.5	8.4	9.6	10.1	10.6	11.2	9.0	10.2	10.8	11.3	11.9
	-30	7.6	8.7	9.1	9.6	10.1	7.9	9.1	9.5	10.0	10.5	8.5	9.7	10.1	10.6	11.2	9.0	10.3	10.8	11.4	12.0
	-25	7.7	8.7	9.1	9.6	10.1	8.0	9.1	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.2	9.1	10.3	10.8	11.4	12.0
	-20	7.7	8.8	9.2	9.7	10.1	8.1	9.2	9.6	10.1	10.6	8.6	9.8	10.2	10.7	11.3	9.1	10.4	10.9	11.5	12.1
	-15	7.8	8.9	9.3	9.7	10.2	8.1	9.2	9.7	10.1	10.6	8.6	9.8	10.3	10.8	11.4	9.2	10.5	11.0	11.5	12.1
	-10	7.9	8.9	9.3	9.8	10.3	8.2	9.3	9.7	10.2	10.7	8.7	9.9	10.4	10.9	11.4	9.3	10.5	11.0	11.6	12.2
	-5	7.9	8.9	9.3	9.8	10.2	8.2	9.3	9.7	10.2	10.7	8.7	9.9	10.4	10.9	11.4	9.3	10.5	11.0	11.6	12.2
	0	7.0	7.9	8.3	8.7	9.1	7.3	8.3	8.7	9.1	9.5	7.8	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.9
	5	6.1	7.0	7.3	7.6	8.0	6.4	7.3	7.6	8.0	8.4	6.9	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.3	9.7
	10	5.2	6.0	6.2	6.5	6.9	5.5	6.3	6.6	6.9	7.2	6.0	6.8	7.1	7.5	7.8	6.5	7.3	7.7	8.1	8.5
40	-35	7.8	8.9	9.3	9.8	10.3	8.1	9.3	9.7	10.2	10.7	8.7	9.9	10.3	10.9	11.4	9.2	10.5	11.0	11.6	12.2
	-30	7.9	8.9	9.4	9.8	10.3	8.2	9.3	9.8	10.2	10.8	8.7	9.9	10.4	10.9	11.5	9.3	10.6	11.1	11.6	12.2
	-25	7.9	9.0	9.4	9.9	10.4	8.2	9.4	9.8	10.3	10.8	8.8	10.0	10.4	11.0	11.5	9.3	10.6	11.1	11.7	12.3
	-20	8.0	9.0	9.5	9.9	10.4	8.3	9.4	9.9	10.3	10.8	8.8	10.0	10.5	11.0	11.6	9.4	10.7	11.2	11.7	12.3
	-15	8.0	9.1	9.5	10.0	10.4	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.5	11.1	11.6	9.5	10.7	11.2	11.8	12.4
	-10	8.1	9.1	9.5	10.0	10.4	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.6	9.5	10.7	11.2	11.8	12.4
	-5	7.3	8.2	8.6	9.0	9.4	7.6	8.6	9.0	9.4	9.9	8.1	9.2	9.6	10.0	10.5	8.6	9.8	10.3	10.7	11.3
	0	6.4	7.2	7.6	7.9	8.3	6.7	7.6	7.9	8.3	8.7	7.2	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.0
	5	5.5	6.3	6.5	6.8	7.2	5.8	6.6	6.9	7.2	7.6	6.3	7.1	7.4	7.8	8.2	6.7	7.7	8.0	8.4	8.8
	10	4.6	5.3	5.5	5.8	6.1	4.9	5.6	5.8	6.1	6.4	5.3	6.1	6.3	6.6	7.0	5.8	6.6	6.9	7.2	7.6
50	-35	8.0	9.1	9.5	10.0	10.5	8.3	9.5	9.9	10.4	10.9	8.9	10.1	10.5	11.1	11.6	9.4	10.7	11.2	11.8	12.4
	-30	8.1	9.1	9.6	10.0	10.5	8.4	9.5	10.0	10.4	11.0	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4
	-25	8.1	9.2	9.6	10.1	10.6	8.5	9.6	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.7	9.6	10.8	11.3	11.9	12.5
	-20	8.2	9.3	9.7	10.1	10.6	8.5	9.6	10.1	10.6	11.1	9.0	10.3	10.7	11.2	11.8	9.6	10.9	11.4	11.9	12.5
	-15	8.1	9.2	9.6	10.0	10.5	8.5	9.6	10.0	10.5	11.0	9.0	10.2	10.6	11.2	11.7	9.6	10.8	11.3	11.8	12.4
	-10	7.4	8.4	8.7	9.1	9.6	7.7	8.7	9.1	9.5	10.0	8.2	9.3	9.7	10.2	10.7	8.8	9.9	10.4	10.9	11.4
	-5	6.5	7.4	7.7	8.1	8.5	6.9	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.5	7.9	8.9	9.3	9.8	10.2
	0	5.7	6.4	6.7	7.0	7.4	6.0	6.8	7.1	7.4	7.8	6.4	7.3	7.6	8.0	8.4	6.9	7.9	8.2	8.6	9.0
	5	4.8	5.5	5.7	6.0	6.3	5.1	5.8	6.0	6.3	6.6	5.5	6.3	6.6	6.9	7.2	6.0	6.8	7.1	7.5	7.8
	10	4.0	4.5	4.7	4.9	5.2	4.2	4.8	5.0	5.3	5.5	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.0	6.3	6.6

56FMC-00-00

Figure 4-41 (Sheet 1 of 6)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	9.2	10.7	11.3	11.9	12.6	9.9	11.4	12.0	12.7	13.4	10.5	12.2	12.8	13.5	14.3	12.0	13.8	14.5	15.3	16.2	13.6	15.6	16.4	17.3	18.3	13.6	15.6	16.4	17.3	18.3
	-30	9.3	10.7	11.3	11.9	12.6	9.9	11.4	12.0	12.7	13.4	10.6	12.2	12.8	13.5	14.3	12.0	13.8	14.5	15.3	16.2	13.7	15.7	16.4	17.3	18.3	13.7	15.7	16.4	17.3	18.3
	-25	9.3	10.8	11.3	11.9	12.6	10.0	11.5	12.1	12.7	13.5	10.6	12.2	12.9	13.6	14.3	12.1	13.9	14.6	15.3	16.2	13.7	15.7	16.5	17.3	18.3	13.7	15.7	16.5	17.3	18.3
	-20	9.4	10.8	11.4	12.0	12.7	10.0	11.5	12.1	12.8	13.5	10.7	12.3	12.9	13.6	14.4	12.1	13.9	14.6	15.4	16.2	13.8	15.7	16.5	17.4	18.3	13.8	15.7	16.5	17.4	18.3
	-15	9.4	10.8	11.4	12.0	12.7	10.1	11.6	12.2	12.8	13.5	10.7	12.3	12.9	13.6	14.4	12.2	14.0	14.6	15.4	16.3	13.8	15.8	16.6	17.4	18.4	13.8	15.8	16.6	17.4	18.4
	-10	9.5	10.9	11.5	12.1	12.7	10.1	11.6	12.2	12.8	13.6	10.8	12.4	13.0	13.7	14.4	12.3	14.0	14.7	15.5	16.3	13.9	15.9	16.6	17.5	18.4	13.9	15.9	16.6	17.5	18.4
	-5	9.6	10.9	11.5	12.1	12.8	10.2	11.7	12.2	12.9	13.6	10.9	12.4	13.0	13.7	14.5	12.3	14.1	14.7	15.5	16.3	14.0	15.9	16.7	17.5	18.4	14.0	15.9	16.7	17.5	18.4
	0	9.6	11.0	11.5	12.1	12.8	10.3	11.7	12.3	12.9	13.6	10.9	12.5	13.1	13.7	14.5	12.4	14.1	14.8	15.5	16.3	14.0	16.0	16.7	17.5	18.5	14.0	16.0	16.7	17.5	18.5
	5	9.7	11.0	11.6	12.2	12.8	10.3	11.8	12.3	13.0	13.6	11.0	12.5	13.1	13.8	14.5	12.4	14.2	14.8	15.6	16.4	14.1	16.0	16.8	17.6	18.5	14.1	16.0	16.8	17.6	18.5
	10	9.6	11.0	11.5	12.1	12.7	10.2	11.7	12.2	12.9	13.5	10.9	12.4	13.0	13.7	14.4	12.4	14.1	14.7	15.5	16.3	14.0	15.9	16.7	17.5	18.4	14.0	15.9	16.7	17.5	18.4
1	-35	9.6	11.0	11.6	12.2	12.9	10.2	11.7	12.4	13.0	13.8	10.9	12.5	13.1	13.8	14.6	12.3	14.1	14.9	15.6	16.5	14.0	16.0	16.8	17.7	18.6	14.0	16.0	16.8	17.7	18.6
	-30	9.6	11.1	11.6	12.3	13.0	10.3	11.8	12.4	13.0	13.8	10.9	12.5	13.2	13.9	14.6	12.4	14.2	14.9	15.7	16.5	14.0	16.0	16.8	17.7	18.6	14.0	16.0	16.8	17.7	18.6
	-25	9.7	11.1	11.7	12.3	13.0	10.3	11.8	12.4	13.1	13.8	11.0	12.6	13.2	13.9	14.7	12.4	14.2	14.9	15.7	16.5	14.1	16.1	16.9	17.7	18.7	14.1	16.1	16.9	17.7	18.7
	-20	9.7	11.1	11.7	12.3	13.0	10.4	11.9	12.5	13.1	13.8	11.0	12.6	13.3	13.9	14.7	12.5	14.3	15.0	15.7	16.6	14.2	16.1	16.9	17.7	18.7	14.2	16.1	16.9	17.7	18.7
	-15	9.8	11.2	11.8	12.4	13.0	10.4	11.9	12.5	13.2	13.9	11.1	12.7	13.3	14.0	14.7	12.6	14.3	15.0	15.8	16.6	14.2	16.2	16.9	17.8	18.7	14.2	16.2	16.9	17.8	18.7
	-10	9.8	11.3	11.8	12.4	13.1	10.5	12.0	12.6	13.2	13.9	11.2	12.7	13.3	14.0	14.8	12.6	14.4	15.1	15.8	16.6	14.3	16.2	17.0	17.8	18.8	14.3	16.2	17.0	17.8	18.8
	-5	9.9	11.3	11.9	12.5	13.1	10.6	12.0	12.6	13.2	13.9	11.2	12.8	13.4	14.1	14.8	12.7	14.4	15.1	15.9	16.7	14.4	16.3	17.1	17.9	18.8	14.4	16.3	17.1	17.9	18.8
	0	10.0	11.4	11.9	12.5	13.1	10.6	12.1	12.7	13.3	14.0	11.3	12.8	13.4	14.1	14.8	12.8	14.5	15.2	15.9	16.7	14.4	16.4	17.1	17.9	18.8	14.4	16.4	17.1	17.9	18.8
	5	9.9	11.3	11.9	12.4	13.1	10.6	12.0	12.6	13.2	13.9	11.3	12.8	13.4	14.1	14.8	12.7	14.5	15.1	15.8	16.6	14.4	16.3	17.1	17.9	18.7	14.4	16.3	17.1	17.9	18.7
	10	9.0	10.3	10.8	11.3	11.9	9.6	11.0	11.5	12.1	12.7	10.3	11.7	12.3	12.9	13.6	11.7	13.3	13.9	14.6	15.4	13.3	15.1	15.8	16.6	17.4	14.3	15.1	15.8	16.6	17.4
2	-35	9.9	11.3	11.9	12.5	13.2	10.5	12.0	12.6	13.3	14.0	11.2	12.8	13.4	14.1	14.9	12.7	14.4	15.2	15.9	16.8	14.3	16.3	17.1	18.0	18.9	14.3	16.3	17.1	18.0	18.9
	-30	9.9	11.4	11.9	12.5	13.2	10.6	12.1	12.7	13.3	14.1	11.2	12.8	13.5	14.2	14.9	12.7	14.5	15.2	16.0	16.8	14.4	16.4	17.1	18.0	18.9	14.4	16.4	17.1	18.0	18.9
	-25	10.0	11.4	12.0	12.6	13.3	10.6	12.1	12.7	13.4	14.1	11.3	12.9	13.5	14.2	15.0	12.8	14.5	15.2	16.0	16.8	14.4	16.4	17.2	18.0	19.0	14.4	16.4	17.2	18.0	19.0
	-20	10.0	11.5	12.0	12.6	13.3	10.7	12.2	12.8	13.4	14.1	11.4	12.9	13.6	14.2	15.0	12.8	14.6	15.3	16.0	16.9	14.5	16.5	17.2	18.1	19.0	14.5	16.5	17.2	18.1	19.0
	-15	10.1	11.5	12.1	12.7	13.3	10.7	12.2	12.8	13.5	14.2	11.4	13.0	13.6	14.3	15.0	12.9	14.7	15.3	16.1	16.9	14.6	16.5	17.3	18.1	19.0	14.6	16.5	17.3	18.1	19.0
	-10	10.2	11.6	12.1	12.7	13.4	10.8	12.3	12.9	13.5	14.2	11.5	13.1	13.7	14.3	15.1	13.0	14.7	15.4	16.1	17.0	14.7	16.6	17.3	18.2	19.1	14.7	16.6	17.3	18.2	19.1
	-5	10.2	11.6	12.2	12.8	13.4	10.9	12.4	12.9	13.6	14.3	11.6	13.1	13.7	14.4	15.1	13.1	14.8	15.5	16.2	17.0	14.7	16.7	17.4	18.2	19.1	14.7	16.7	17.4	18.2	19.1
	0	10.2	11.6	12.1	12.7	13.4	10.9	12.3	12.9	13.5	14.2	11.6	13.1	13.7	14.4	15.1	13.0	14.8	15.4	16.1	16.9	14.7	16.6	17.4	18.2	19.1	14.7	16.6	17.4	18.2	19.1
	5	9.3	10.6	11.1	11.6	12.2	9.9	11.3	11.8	12.4	13.0	10.6	12.0	12.6	13.2	13.9	12.0	13.6	14.2	14.9	15.7	13.6	15.4	16.1	16.9	17.7	13.6	15.4	16.1	16.9	17.7
	10	8.2	9.4	9.8	10.3	10.9	8.8	10.1	10.6	11.1	11.7	9.5	10.8	11.4	11.9	12.6	10.9	12.4	13.0	13.7	14.4	12.5	14.2	14.8	15.6	16.4	12.5	14.2	14.8	15.6	16.4
3	-35	10.2	11.6	12.2	12.8	13.5	10.8	12.3	12.9	13.6	14.3	11.5	13.1	13.7	14.4	15.2	13.0	14.8	15.5	16.2	17.1	14.6	16.6	17.4	18.3	19.2	14.6	16.6	17.4	18.3	19.2
	-30	10.2	11.6	12.2	12.8	13.5	10.9	12.4	13.0	13.6	14.3	11.5	13.1	13.8	14.5	15.2	13.0	14.8	15.5	16.3	17.1	14.7	16.7	17.5	18.3	19.2	14.7	16.7	17.5	18.3	19.2
	-25	10.3	11.7	12.3	12.9	13.5	10.9	12.4	13.0	13.7	14.4	11.6	13.2	13.8	14.5	15.2	13.1	14.9	15.5	16.3	17.1	14.8	16.7	17.5	18.3	19.3	14.8	16.7	17.5	18.3	19.3
	-20	10.3	11.8	12.3	12.9	13.6	11.0	12.5	13.1	13.7	14.4	11.7	13.3	13.9	14.6	15.3	13.2	14.9	15.6	16.4	17.2	14.9	16.8	17.6	18.4	19.3	14.9	16.8	17.6	18.4	19.3
	-15	10.4	11.8	12.4	13.0	13.7	11.1	12.6	13.1	13.8	14.5	11.8	13.3	13.9	14.6	15.3	13.3	15.0	15.7	16.4	17.2	15.0	16.9	17.6	18.5	19.4	15.0	16.9	17.6	18.5	19.4
	-10	10.5	11.9	12.4	13.0	13.7	11.1	12.6	13.2	13.8	14.5	11.8	13.4	14.0	14.7	15.4	13.3	15.1	15.7	16.5	17.3	15.0	17.0	17.7	18.5	19.4	15.0	17.0	17.7	18.5	19.4
	-5	10.5	11.9	12.4	13.0	13.7	11.2	12.6	13.2	13.8	14.5	11.9	13.4	14.0	14.7	15.4	13.4	15.1	15.7	16.5	17.3	15.0	17.0	17.7	18.5	19.4	15.0	17.0	17.7	18.5	19.4
	0	9.5	10.8	11.3	11.9	12.5	10.2	11.6	12.1	12.7	13.3	10.8	12.3	12.9	13.5	14.2	12.3	13.9	14.6	15.2	16.0	13.9	15.7	16.5	17.2	18.1	13.9	15.7	16.5	17.2	18.1
	5	8.5	9.7	10.2	10.7	11.2	9.2	10.4	10.9	11.5	12.1	9.8	11.2	11.7	12.3	12.9	11.2	12.7	13.3	14.0	14.7	12.8	14.5	15.2	15.9	16.7	12.8	14.5	15.2	15.9	16.7
	10	7.5	8.6	9.0	9.4	9.9	8.1	9.2	9.7	10.2	10.7	8.7	10.0	10.4	11.0	11.6	10.1	11.5	12.1	12.7	13.4	11.6	13.3	13.9	14.6	15.3	11.6	13.3	13.9	14.6	15.3
4	-35	10.4	11.9	12.4	13.1	13.7	11.1	12.6	13.2	13.9	14.6	11.8	13.4	14.0	14.7	15.4	13.3	15.0	15.7	16.5	1										

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		16830					16500					16000					15500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6000	-35	8.1	9.1	9.5	10.0	10.5	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4
	-30	8.1	9.2	9.6	10.0	10.5	8.4	9.5	10.0	10.4	11.0	9.0	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4
	-25	8.1	9.2	9.6	10.1	10.5	8.5	9.6	10.0	10.5	11.0	9.0	10.2	10.6	11.1	11.7	9.6	10.8	11.3	11.8	12.4
	-20	8.1	9.1	9.5	10.0	10.4	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.6	9.5	10.8	11.2	11.8	12.3
	-15	7.5	8.5	8.8	9.2	9.7	7.8	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8	8.9	10.1	10.5	11.0	11.5
	-10	6.7	7.6	7.9	8.2	8.6	7.0	7.9	8.3	8.6	9.0	7.5	8.5	8.8	9.3	9.7	8.0	9.1	9.5	9.9	10.4
	-5	5.8	6.6	6.9	7.2	7.5	6.1	6.9	7.2	7.6	7.9	6.6	7.5	7.8	8.2	8.6	7.1	8.0	8.4	8.8	9.2
	0	5.0	5.7	5.9	6.2	6.5	5.3	6.0	6.2	6.5	6.9	5.7	6.5	6.8	7.1	7.4	6.2	7.0	7.3	7.7	8.1
	5	4.2	4.7	4.9	5.2	5.4	4.4	5.0	5.2	5.5	5.8	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.3	6.6	6.9
	10	3.3	3.8	4.0	4.2	4.4	3.6	4.1	4.2	4.5	4.7	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.5	5.7
7000	-35	8.0	9.0	9.4	9.9	10.3	8.3	9.4	9.8	10.3	10.8	8.8	10.0	10.4	10.9	11.5	9.4	10.6	11.1	11.6	12.2
	-30	8.0	9.0	9.4	9.8	10.3	8.3	9.4	9.8	10.3	10.7	8.8	10.0	10.4	10.9	11.5	9.4	10.6	11.1	11.6	12.2
	-25	7.8	8.8	9.2	9.6	10.1	8.1	9.2	9.6	10.0	10.5	8.7	9.8	10.2	10.7	11.2	9.2	10.4	10.9	11.4	12.0
	-20	7.5	8.4	8.8	9.2	9.6	7.8	8.8	9.2	9.6	10.0	8.3	9.4	9.8	10.2	10.7	8.8	10.0	10.4	10.9	11.4
	-15	6.8	7.7	8.0	8.4	8.8	7.1	8.0	8.4	8.8	9.2	7.6	8.6	9.0	9.4	9.8	8.1	9.2	9.6	10.1	10.6
	-10	6.0	6.8	7.1	7.4	7.8	6.3	7.1	7.4	7.8	8.1	6.8	7.7	8.0	8.4	8.8	7.3	8.2	8.6	9.0	9.4
	-5	5.2	5.8	6.1	6.4	6.7	5.4	6.2	6.4	6.7	7.0	5.9	6.7	7.0	7.3	7.6	6.4	7.2	7.5	7.9	8.3
	0	4.4	4.9	5.2	5.4	5.7	4.6	5.2	5.5	5.7	6.0	5.0	5.7	6.0	6.2	6.5	5.5	6.2	6.5	6.8	7.1
	5	3.5	4.0	4.2	4.4	4.6	3.8	4.3	4.5	4.7	4.9	4.2	4.7	5.0	5.2	5.4	4.6	5.2	5.4	5.7	6.0
	10	2.7	3.1	3.2	3.4	3.6	2.9	3.4	3.5	3.7	3.9	3.3	3.8	3.9	4.1	4.4	3.7	4.2	4.4	4.6	4.9
8000	-35	8.0	9.0	9.4	9.8	10.3	8.3	9.4	9.8	10.3	10.8	8.9	10.0	10.5	10.9	11.5	9.4	10.6	11.1	11.6	12.2
	-30	7.6	8.6	8.9	9.3	9.8	7.9	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.9	9.0	10.1	10.6	11.1	11.6
	-25	7.2	8.1	8.5	8.8	9.3	7.5	8.5	8.8	9.2	9.7	8.0	9.0	9.4	9.9	10.3	8.5	9.6	10.1	10.5	11.1
	-20	6.8	7.7	8.0	8.4	8.8	7.1	8.1	8.4	8.8	9.2	7.6	8.6	9.0	9.4	9.9	8.2	9.2	9.6	10.1	10.6
	-15	6.1	6.9	7.2	7.6	7.9	6.4	7.3	7.6	7.9	8.3	6.9	7.8	8.1	8.5	8.9	7.4	8.4	8.8	9.2	9.6
	-10	5.4	6.0	6.3	6.6	6.9	5.6	6.4	6.6	6.9	7.3	6.1	6.9	7.2	7.5	7.9	6.6	7.4	7.8	8.1	8.5
	-5	4.5	5.1	5.4	5.6	5.9	4.8	5.4	5.7	5.9	6.2	5.2	5.9	6.2	6.5	6.8	5.7	6.4	6.7	7.0	7.4
	0	3.7	4.2	4.4	4.6	4.9	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.4	5.7	4.8	5.5	5.7	6.0	6.3
	5	2.9	3.3	3.5	3.7	3.8	3.2	3.6	3.8	3.9	4.1	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.7	4.9	5.1
	10	2.1	2.4	2.6	2.7	2.8	2.3	2.7	2.8	3.0	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.8	4.0
9000	-35	7.4	8.3	8.7	9.1	9.5	7.7	8.7	9.1	9.5	9.9	8.2	9.3	9.7	10.1	10.6	8.8	9.9	10.3	10.8	11.3
	-30	7.0	7.9	8.2	8.6	9.0	7.3	8.2	8.6	9.0	9.4	7.8	8.8	9.2	9.6	10.0	8.3	9.4	9.8	10.3	10.7
	-25	6.6	7.4	7.7	8.1	8.5	6.9	7.8	8.1	8.5	8.9	7.4	8.3	8.7	9.1	9.5	7.9	8.9	9.3	9.7	10.2
	-20	6.3	7.0	7.3	7.7	8.0	6.6	7.4	7.7	8.0	8.4	7.0	7.9	8.3	8.6	9.0	7.5	8.5	8.9	9.3	9.7
	-15	5.6	6.3	6.6	6.9	7.2	5.9	6.6	6.9	7.2	7.5	6.3	7.1	7.4	7.8	8.1	6.8	7.7	8.0	8.4	8.8
	-10	4.8	5.4	5.7	5.9	6.2	5.1	5.8	6.0	6.3	6.6	5.5	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.4	7.7
	-5	4.0	4.6	4.8	5.0	5.2	4.3	4.9	5.1	5.3	5.6	4.7	5.3	5.6	5.8	6.1	5.1	5.8	6.1	6.4	6.7
	0	3.3	3.7	3.9	4.1	4.2	3.5	4.0	4.2	4.3	4.6	3.9	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.3	5.6
	5	2.5	2.8	3.0	3.1	3.3	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.8	4.0	3.5	3.9	4.1	4.3	4.5
	10	1.7	2.0	2.1	2.2	2.3	1.9	2.2	2.3	2.5	2.6	2.3	2.6	2.7	2.9	3.0	2.6	3.0	3.2	3.3	3.5
10000	-35	6.8	7.6	8.0	8.3	8.7	7.1	8.0	8.3	8.7	9.1	7.6	8.5	8.9	9.3	9.8	8.1	9.1	9.5	10.0	10.5
	-30	6.4	7.2	7.5	7.8	8.2	6.7	7.5	7.9	8.2	8.6	7.2	8.1	8.4	8.8	9.2	7.7	8.7	9.0	9.5	9.9
	-25	6.0	6.8	7.1	7.4	7.7	6.3	7.1	7.4	7.7	8.1	6.8	7.6	8.0	8.3	8.7	7.3	8.2	8.6	8.9	9.4
	-20	5.7	6.4	6.7	6.9	7.3	6.0	6.7	7.0	7.3	7.6	6.4	7.2	7.5	7.9	8.2	6.9	7.8	8.1	8.5	8.9
	-15	5.0	5.7	5.9	6.2	6.5	5.3	6.0	6.2	6.5	6.8	5.8	6.5	6.8	7.1	7.4	6.2	7.0	7.3	7.7	8.0
	-10	4.3	4.9	5.1	5.3	5.6	4.6	5.2	5.4	5.6	5.9	5.0	5.6	5.9	6.1	6.4	5.4	6.1	6.4	6.7	7.0
	-5	3.5	4.0	4.2	4.4	4.6	3.8	4.3	4.5	4.7	4.9	4.2	4.7	4.9	5.2	5.4	4.6	5.2	5.4	5.7	6.0
	0	2.8	3.2	3.3	3.5	3.7	3.0	3.5	3.6	3.8	4.0	3.4	3.9	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9
	5	2.1	2.4	2.5	2.6	2.7	2.3	2.6	2.7	2.9	3.0	2.6	3.0	3.1	3.3	3.4	3.0	3.4	3.6	3.7	3.9
	10	1.3	1.6	1.6	1.7	1.8	1.5	1.8	1.9	2.0	2.1	1.9	2.1	2.3	2.4	2.5	2.2	2.5	2.7	2.8	2.9
11000	-35	6.2	7.0	7.3	7.6	7.9	6.5	7.3	7.6	7.9	8.3	7.0	7.8	8.2	8.5	8.9	7.5	8.4	8.8	9.2	9.6
	-30	5.8	6.5	6.8	7.1	7.4	6.0	6.8	7.1	7.4	7.7	6.5	7.3	7.6	8.0	8.3	7.0	7.9	8.2	8.6	9.0
	-25	5.4	6.1	6.3	6.6	6.9	5.7	6.4	6.7	7.0	7.3	6.1	6.9	7.2	7.5	7.8	6.6	7.4	7.7	8.1	8.5
	-20	5.0	5.6	5.9	6.1	6.4	5.3	5.9	6.2	6.5	6.8	5.7	6.4	6.7	7.0	7.3	6.2	7.0	7.3	7.6	7.9
	-15	4.3	4.8	5.0	5.2	5.5	4.5	5.1	5.3	5.6	5.8	5.0	5.6	5.8	6.1	6.4	5.4	6.1	6.3	6.6	6.9
	-10	3.5	4.0	4.2	4.3	4.6	3.8	4.3	4.4	4.6	4.9	4.2	4.7	4.9	5.1	5.4	4.6	5.2	5.4	5.6	5.9
	-5	2.8	3.1	3.3	3.4	3.6	3.0	3.4	3.6	3.7	3.9	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9
	0	2.0	2.3	2.4	2.6	2.7	2.3	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.4	3.0	3.4	3.5	3.7	3.9
	5	1.3	1.5	1.6	1.7	1.8	1.5	1.8	1.9	2.0	2.1	1.8	2.1	2.2	2.3	2.5	2.2	2.5	2.6	2.8	2.9
	10	0.6	0.8	0.8	0.9	1.0	0.8	1.0	1.1	1.1	1.2	1.1	1.3	1.4	1.5	1.6	1.5	1.7	1.8	1.9	2.0

56FMC-00-00

Figure 4-41 (Sheet 3)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6	-35	10.7	12.1	12.7	13.3	13.9	11.4	12.9	13.4	14.1	14.8	12.1	13.6	14.3	14.9	15.6	13.6	15.3	16.0	16.7	17.5
0	-30	10.8	12.2	12.7	13.3	14.0	11.4	12.9	13.5	14.1	14.8	12.1	13.7	14.3	14.9	15.7	13.6	15.4	16.0	16.8	17.6
0	-25	10.8	12.2	12.7	13.3	14.0	11.5	12.9	13.5	14.1	14.8	12.2	13.7	14.3	15.0	15.7	13.7	15.4	16.1	16.8	17.6
0	-20	10.7	12.1	12.7	13.2	13.9	11.4	12.9	13.4	14.0	14.7	12.1	13.6	14.2	14.9	15.6	13.6	15.3	16.0	16.7	17.4
	-15	10.1	11.4	11.9	12.5	13.1	10.7	12.1	12.7	13.2	13.9	11.4	12.9	13.4	14.1	14.7	12.9	14.5	15.2	15.8	16.6
	-10	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.2	12.8	10.5	11.8	12.4	13.0	13.6	11.9	13.5	14.1	14.7	15.4
	-5	8.2	9.3	9.7	10.2	10.7	8.8	10.0	10.5	11.0	11.5	9.5	10.7	11.2	11.8	12.4	10.9	12.3	12.9	13.5	14.1
	0	7.2	8.2	8.6	9.0	9.4	7.8	8.9	9.3	9.7	10.2	8.4	9.6	10.0	10.5	11.0	9.8	11.1	11.6	12.2	12.8
	5	6.3	7.1	7.4	7.8	8.2	6.8	7.7	8.1	8.5	8.9	7.4	8.4	8.8	9.2	9.7	8.7	9.9	10.4	10.9	11.5
	10	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.6	7.9	8.3	7.5	8.6	9.0	9.5	10.0
7	-35	10.6	12.0	12.5	13.1	13.8	11.3	12.7	13.3	13.9	14.6	12.0	13.5	14.1	14.7	15.4	13.5	15.2	15.8	16.6	17.3
0	-30	10.6	12.0	12.5	13.1	13.7	11.3	12.7	13.3	13.9	14.6	12.0	13.5	14.1	14.7	15.4	13.5	15.2	15.8	16.5	17.3
0	-25	10.4	11.8	12.3	12.9	13.5	11.1	12.5	13.1	13.7	14.3	11.8	13.3	13.9	14.5	15.2	13.3	15.0	15.6	16.3	17.0
0	-20	10.0	11.3	11.8	12.4	13.0	10.7	12.0	12.6	13.2	13.8	11.4	12.8	13.4	14.0	14.6	12.8	14.5	15.1	15.8	16.5
	-15	9.3	10.5	11.0	11.5	12.1	9.9	11.2	11.8	12.3	12.9	10.6	12.0	12.5	13.1	13.7	12.1	13.6	14.2	14.8	15.6
	-10	8.4	9.5	9.9	10.4	10.9	9.0	10.2	10.7	11.2	11.7	9.7	10.9	11.4	12.0	12.6	11.1	12.5	13.1	13.7	14.4
	-5	7.4	8.4	8.8	9.2	9.7	8.0	9.1	9.5	9.9	10.4	8.6	9.8	10.2	10.7	11.3	10.0	11.3	11.9	12.4	13.1
	0	6.5	7.3	7.7	8.0	8.4	7.0	8.0	8.3	8.7	9.2	7.6	8.6	9.0	9.5	10.0	8.9	10.2	10.6	11.2	11.8
	5	5.5	6.3	6.6	6.9	7.2	6.0	6.9	7.2	7.5	7.9	6.6	7.5	7.8	8.2	8.6	7.8	8.9	9.3	9.8	10.3
	10	4.6	5.2	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.6	5.6	6.3	6.6	7.0	7.3	6.7	7.7	8.0	8.4	8.9
8	-35	10.6	12.0	12.5	13.1	13.7	11.3	12.7	13.3	13.9	14.6	12.0	13.5	14.1	14.7	15.4	13.5	15.2	15.8	16.5	17.3
0	-30	10.2	11.5	12.0	12.6	13.2	10.8	12.2	12.8	13.3	14.0	11.5	13.0	13.5	14.2	14.8	13.0	14.6	15.3	15.9	16.7
0	-25	9.7	11.0	11.5	12.0	12.6	10.4	11.7	12.2	12.8	13.4	11.1	12.5	13.0	13.6	14.2	12.5	14.1	14.7	15.4	16.1
0	-20	9.3	10.5	11.0	11.5	12.1	10.0	11.3	11.8	12.3	12.9	10.6	12.0	12.5	13.1	13.7	12.1	13.6	14.2	14.8	15.5
	-15	8.5	9.7	10.1	10.6	11.1	9.2	10.4	10.8	11.4	11.9	9.8	11.1	11.6	12.1	12.7	11.2	12.7	13.2	13.9	14.5
	-10	7.6	8.6	9.0	9.4	9.9	8.2	9.3	9.7	10.2	10.7	8.9	10.0	10.5	11.0	11.6	10.2	11.6	12.1	12.7	13.3
	-5	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.4	7.8	8.9	9.3	9.7	10.2	9.2	10.4	10.9	11.4	12.0
	0	5.8	6.5	6.8	7.1	7.5	6.3	7.1	7.4	7.8	8.2	6.8	7.8	8.1	8.5	8.9	8.1	9.2	9.6	10.1	10.6
	5	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.3	7.6	7.0	8.0	8.4	8.8	9.2
	10	3.9	4.4	4.6	4.9	5.1	4.3	4.9	5.2	5.4	5.7	4.8	5.5	5.8	6.0	6.4	5.9	6.8	7.1	7.4	7.8
9	-35	10.0	11.2	11.7	12.3	12.9	10.6	12.0	12.5	13.1	13.7	11.3	12.7	13.3	13.9	14.5	12.8	14.4	15.0	15.6	16.4
0	-30	9.5	10.7	11.2	11.7	12.3	10.1	11.4	11.9	12.5	13.1	10.8	12.2	12.7	13.3	13.9	12.3	13.8	14.4	15.0	15.8
0	-25	9.0	10.2	10.7	11.2	11.7	9.7	10.9	11.4	11.9	12.5	10.3	11.7	12.2	12.7	13.3	11.8	13.3	13.8	14.5	15.1
0	-20	8.7	9.8	10.2	10.7	11.2	9.3	10.5	11.0	11.5	12.0	9.9	11.2	11.7	12.3	12.9	11.4	12.8	13.4	14.0	14.7
	-15	7.9	8.9	9.3	9.7	10.2	8.5	9.6	10.0	10.5	11.0	9.1	10.3	10.8	11.3	11.9	10.5	11.9	12.4	13.0	13.6
	-10	7.0	7.9	8.3	8.7	9.1	7.6	8.6	9.0	9.4	9.8	8.2	9.3	9.7	10.2	10.7	9.5	10.8	11.3	11.9	12.5
	-5	6.1	6.9	7.2	7.6	7.9	6.6	7.5	7.9	8.2	8.6	7.2	8.2	8.6	9.0	9.4	8.5	9.7	10.1	10.6	11.1
	0	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.4	6.2	7.1	7.4	7.8	8.1	7.5	8.5	8.9	9.3	9.8
	5	4.3	4.9	5.1	5.4	5.6	4.8	5.4	5.7	5.9	6.2	5.3	6.0	6.3	6.6	6.9	6.4	7.3	7.6	8.0	8.4
	10	3.4	3.9	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.1	4.3	4.9	5.2	5.4	5.7	5.4	6.1	6.4	6.8	7.1
1	-35	9.3	10.5	10.9	11.4	12.0	9.9	11.2	11.7	12.2	12.8	10.6	11.9	12.4	13.0	13.6	12.0	13.5	14.1	14.7	15.4
0	-30	8.8	10.0	10.4	10.9	11.4	9.4	10.7	11.1	11.7	12.2	10.1	11.4	11.9	12.4	13.0	11.5	13.0	13.6	14.2	14.8
0	-25	8.4	9.4	9.9	10.3	10.8	9.0	10.1	10.6	11.1	11.6	9.6	10.9	11.4	11.9	12.5	11.0	12.5	13.0	13.6	14.2
0	-20	8.0	9.0	9.4	9.8	10.3	8.6	9.7	10.1	10.6	11.1	9.2	10.4	10.9	11.4	11.9	10.6	12.0	12.5	13.1	13.7
	-15	7.3	8.2	8.6	9.0	9.4	7.8	8.9	9.2	9.7	10.1	8.5	9.6	10.0	10.5	11.0	9.8	11.1	11.6	12.2	12.7
	-10	6.4	7.2	7.6	7.9	8.3	7.0	7.9	8.2	8.6	9.0	7.5	8.5	8.9	9.3	9.8	8.9	10.0	10.5	11.0	11.6
	-5	5.5	6.3	6.5	6.8	7.2	6.0	6.8	7.1	7.5	7.8	6.6	7.5	7.8	8.2	8.6	7.8	8.9	9.3	9.7	10.2
	0	4.7	5.3	5.5	5.8	6.1	5.2	5.8	6.1	6.4	6.7	5.7	6.4	6.7	7.0	7.4	6.8	7.8	8.1	8.5	8.9
	5	3.8	4.3	4.5	4.7	5.0	4.3	4.8	5.1	5.3	5.6	4.7	5.4	5.6	5.9	6.2	5.8	6.6	6.9	7.3	7.6
	10	3.0	3.4	3.6	3.7	3.9	3.4	3.9	4.1	4.3	4.5	3.8	4.4	4.6	4.8	5.1	4.9	5.5	5.8	6.1	6.4
1	-35	8.6	9.7	10.1	10.6	11.1	9.2	10.4	10.8	11.3	11.9	9.8	11.1	11.6	12.1	12.7	11.3	12.7	13.2	13.8	14.5
0	-30	8.1	9.1	9.5	9.9	10.4	8.7	9.8	10.2	10.7	11.2	9.3	10.5	11.0	11.5	12.1	10.7	12.1	12.6	13.2	13.8
0	-25	7.6	8.6	9.0	9.4	9.9	8.2	9.3	9.7	10.1	10.6	8.8	10.0	10.4	10.9	11.5	10.2	11.5	12.1	12.6	13.2
0	-20	7.2	8.1	8.5	8.9	9.3	7.8	8.8	9.2	9.6	10.0	8.4	9.5	9.9	10.4	10.9	9.8	11.0	11.5	12.1	12.6
	-15	6.4	7.2	7.5	7.9	8.2	6.9	7.8	8.2	8.5	8.9	7.5	8.5	8.9	9.3	9.7	8.8	10.0	10.4	10.9	11.5
	-10	5.5	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.4	7.8	6.6	7.4	7.8	8.1	8.5	7.8	8.8	9.2	9.7	10.1
	-5	4.6	5.2	5.5	5.7	6.0	5.1	5.8	6.0	6.3	6.6	5.6	6.4	6.7	7.0	7.3	6.8	7.7	8.0	8.4	8.8
	0	3.8	4.3	4.5	4.7	4.9	4.2	4.8	5.0	5.3	5.5	4.7	5.4	5.6	5.9	6.2	5.8	6.6	6.9	7.2	7.6
	5	2.9	3.4	3.5	3.7	3.9	3.4	3.8	4.0	4.2	4.4	3.8	4.4	4.6	4.8	5.0	4.8	5.5	5.8	6.0	6.3
	10	2.2	2.5	2.6	2.8	2.9	2.6	2.9	3.1	3.2	3.4	3.0	3.4	3.6	3.8	3.9	3.9	4.5	4.7	4.9	5.

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
1	-35	5.6	6.2	6.5	6.8	7.1	5.8	6.6	6.8	7.1	7.5	6.3	7.1	7.4	7.7	8.1	6.8	7.6	7.9	8.3	8.7	7.3	8.2	8.6	8.9	9.4	7.3	8.2	8.6	8.9	9.4
2	-30	5.2	5.8	6.0	6.3	6.6	5.4	6.1	6.4	6.6	6.9	5.9	6.6	6.9	7.2	7.5	6.3	7.1	7.4	7.8	8.1	6.8	7.7	8.0	8.4	8.8	6.8	7.7	8.0	8.4	8.8
0	-25	4.8	5.4	5.6	5.9	6.1	5.1	5.7	5.9	6.2	6.5	5.5	6.2	6.4	6.7	7.0	5.9	6.7	7.0	7.3	7.6	6.4	7.2	7.5	7.9	8.3	6.4	7.2	7.5	7.9	8.3
0	-20	4.3	4.8	5.1	5.3	5.5	4.6	5.1	5.4	5.6	5.9	5.0	5.6	5.9	6.1	6.4	5.4	6.1	6.4	6.7	7.0	5.9	6.6	6.9	7.2	7.6	5.9	6.6	6.9	7.2	7.6
0	-15	3.6	4.0	4.2	4.4	4.6	3.8	4.3	4.5	4.7	4.9	4.2	4.7	4.9	5.2	5.4	4.6	5.2	5.4	5.7	5.9	5.1	5.7	6.0	6.2	6.5	5.1	5.7	6.0	6.2	6.5
	-10	2.8	3.1	3.3	3.4	3.6	3.0	3.4	3.6	3.7	3.9	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9	4.2	4.7	4.9	5.2	5.4	4.2	4.7	4.9	5.2	5.4
	-5	2.0	2.3	2.4	2.6	2.7	2.3	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.2	3.4	3.0	3.4	3.5	3.7	3.9	3.4	3.8	4.0	4.2	4.4	3.4	3.8	4.0	4.2	4.4
	0	1.3	1.5	1.6	1.7	1.8	1.5	1.8	1.8	1.9	2.1	1.8	2.1	2.2	2.3	2.5	2.2	2.5	2.6	2.8	2.9	2.6	2.9	3.1	3.2	3.4	2.6	2.9	3.1	3.2	3.4
	5	0.6	0.8	0.8	0.9	1.0	0.8	1.0	1.1	1.1	1.2	1.1	1.3	1.4	1.5	1.6	1.5	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4	1.8	2.1	2.2	2.3	2.4
	10	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.0	1.1	1.1	1.3	1.3	1.4	1.5	1.1	1.3	1.3	1.4	1.5
1	-35	5.0	5.6	5.8	6.1	6.4	5.2	5.9	6.1	6.4	6.7	5.7	6.4	6.7	6.9	7.3	6.1	6.9	7.2	7.5	7.9	6.6	7.5	7.8	8.1	8.5	6.6	7.5	7.8	8.1	8.5
3	-30	4.6	5.2	5.4	5.6	5.9	4.9	5.5	5.7	5.9	6.2	5.3	5.9	6.2	6.5	6.7	5.7	6.4	6.7	7.0	7.3	6.2	7.0	7.3	7.6	8.0	6.2	7.0	7.3	7.6	8.0
0	-25	4.3	4.8	5.0	5.2	5.4	4.5	5.1	5.3	5.5	5.8	4.9	5.5	5.8	6.0	6.3	5.4	6.0	6.3	6.6	6.9	5.8	6.6	6.8	7.1	7.5	5.8	6.6	6.8	7.1	7.5
0	-20	3.8	4.3	4.4	4.6	4.8	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.4	5.7	4.9	5.5	5.7	6.0	6.2	5.3	6.0	6.2	6.5	6.8	5.3	6.0	6.2	6.5	6.8
0	-15	3.1	3.5	3.6	3.8	3.9	3.3	3.7	3.9	4.1	4.2	3.7	4.1	4.3	4.5	4.7	4.1	4.6	4.8	5.0	5.2	4.5	5.1	5.3	5.5	5.8	4.5	5.1	5.3	5.5	5.8
	-10	2.3	2.6	2.8	2.9	3.0	2.5	2.9	3.0	3.2	3.3	2.9	3.3	3.4	3.6	3.8	3.3	3.7	3.9	4.1	4.2	3.7	4.2	4.3	4.5	4.8	3.7	4.2	4.3	4.5	4.8
	-5	1.6	1.9	1.9	2.0	2.2	1.8	2.1	2.2	2.3	2.4	2.1	2.5	2.6	2.7	2.8	2.5	2.9	3.0	3.1	3.3	2.9	3.3	3.4	3.6	3.8	2.9	3.3	3.4	3.6	3.8
	0	0.9	1.1	1.2	1.2	1.3	1.1	1.3	1.4	1.5	1.5	1.4	1.6	1.7	1.8	1.9	1.8	2.0	2.1	2.2	2.3	2.1	2.4	2.5	2.7	2.8	2.1	2.4	2.5	2.7	2.8
	5	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.9	1.0	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.4	1.6	1.7	1.8	1.9	1.4	1.6	1.7	1.8	1.9
	10	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0	0.7	0.8	0.9	0.9	1.0
1	-35	4.5	5.0	5.2	5.4	5.7	4.7	5.3	5.5	5.8	6.0	5.1	5.8	6.0	6.3	6.6	5.6	6.3	6.5	6.8	7.1	6.0	6.8	7.1	7.4	7.7	6.0	6.8	7.1	7.4	7.7
4	-30	4.1	4.6	4.8	5.0	5.2	4.3	4.8	5.1	5.3	5.5	4.7	5.3	5.5	5.8	6.0	5.1	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.2	5.6	6.3	6.6	6.9	7.2
0	-25	3.7	4.2	4.4	4.6	4.8	4.0	4.5	4.7	4.9	5.1	4.4	4.9	5.1	5.4	5.6	4.8	5.4	5.6	5.9	6.1	5.2	5.9	6.1	6.4	6.7	5.2	5.9	6.1	6.4	6.7
0	-20	3.3	3.7	3.8	4.0	4.2	3.5	4.0	4.1	4.3	4.5	3.9	4.4	4.6	4.8	5.0	4.3	4.8	5.1	5.3	5.5	4.7	5.3	5.6	5.8	6.1	4.7	5.3	5.6	5.8	6.1
0	-15	2.6	2.9	3.1	3.2	3.4	2.8	3.2	3.3	3.5	3.6	3.2	3.6	3.7	3.9	4.1	3.6	4.0	4.2	4.4	4.6	4.0	4.5	4.7	4.9	5.1	4.0	4.5	4.7	4.9	5.1
	-10	1.9	2.2	2.3	2.4	2.5	2.1	2.4	2.5	2.6	2.8	2.4	2.8	2.9	3.0	3.2	2.8	3.2	3.3	3.5	3.6	3.2	3.6	3.8	4.0	4.1	3.2	3.6	3.8	4.0	4.1
	-5	1.2	1.4	1.5	1.6	1.6	1.4	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.2	2.3	2.1	2.4	2.5	2.6	2.7	2.4	2.8	2.9	3.0	3.2	2.4	2.8	2.9	3.0	3.2
	0	0.5	0.7	0.7	0.8	0.8	0.7	0.9	0.9	1.0	1.1	1.0	1.2	1.3	1.4	1.4	1.3	1.6	1.7	1.7	1.8	1.7	1.9	2.0	2.1	2.3	1.7	1.9	2.0	2.1	2.3
	5	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.0	1.2	1.2	1.3	1.4	1.0	1.2	1.2	1.3	1.4
	10	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.5	-0.5	-0.5	-0.5	-0.3	-0.2	-0.2	-0.2	-0.2	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.3	0.4	0.4	0.5	0.5

56FMC-00-00

Figure 4-41 (Sheet 5)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 7°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
1	-35		7.8	8.8	9.2	9.6	10.1		8.4	9.5	9.9	10.4	10.9		9.0	10.2	10.7	11.2	11.7		10.4	11.8	12.3	12.9	13.5		12.0	13.5	14.1	14.7	15.4
2	-30		7.4	8.3	8.7	9.1	9.5		7.9	8.9	9.3	9.8	10.2		8.5	9.7	10.1	10.5	11.1		9.9	11.2	11.7	12.2	12.8		11.5	12.9	13.5	14.1	14.8
0	-25		6.9	7.8	8.2	8.5	8.9		7.5	8.5	8.8	9.2	9.7		8.1	9.1	9.5	10.0	10.5		9.4	10.7	11.1	11.7	12.2		11.0	12.4	12.9	13.5	14.2
0	-20		6.4	7.2	7.5	7.9	8.2		7.0	7.8	8.2	8.6	9.0		7.5	8.5	8.9	9.3	9.7		8.8	10.0	10.5	10.9	11.5		10.3	11.7	12.2	12.8	13.4
0	-15		5.5	6.2	6.5	6.8	7.1		6.1	6.8	7.1	7.5	7.8		6.6	7.5	7.8	8.1	8.5		7.8	8.9	9.3	9.7	10.2		9.3	10.5	11.0	11.5	12.1
0	-10		4.6	5.2	5.5	5.7	6.0		5.1	5.8	6.0	6.3	6.6		5.6	6.4	6.7	7.0	7.3		6.8	7.7	8.0	8.4	8.8		8.2	9.3	9.7	10.1	10.7
	-5		3.8	4.3	4.5	4.7	4.9		4.2	4.8	5.0	5.2	5.5		4.7	5.3	5.6	5.8	6.1		5.8	6.6	6.9	7.2	7.6		7.1	8.0	8.4	8.8	9.3
	0		2.9	3.4	3.5	3.7	3.9		3.4	3.8	4.0	4.2	4.4		3.8	4.3	4.5	4.8	5.0		4.8	5.5	5.7	6.0	6.3		6.0	6.8	7.2	7.5	7.9
	5		2.2	2.5	2.6	2.7	2.9		2.6	2.9	3.1	3.2	3.4		3.0	3.4	3.6	3.7	3.9		3.9	4.5	4.7	4.9	5.2		5.0	5.7	6.0	6.3	6.6
	10		1.4	1.7	1.7	1.8	2.0		1.8	2.1	2.2	2.3	2.4		2.2	2.5	2.6	2.8	2.9		3.1	3.5	3.7	3.9	4.1		4.1	4.7	4.9	5.2	5.4
1	-35		7.2	8.1	8.4	8.8	9.2		7.7	8.7	9.1	9.5	9.9		8.3	9.4	9.8	10.3	10.7		9.7	10.9	11.4	11.9	12.5		11.2	12.6	13.2	13.8	14.5
3	-30		6.7	7.6	7.9	8.2	8.6		7.3	8.2	8.5	8.9	9.3		7.9	8.9	9.2	9.7	10.1		9.2	10.4	10.8	11.3	11.9		10.7	12.1	12.6	13.2	13.8
0	-25		6.3	7.1	7.4	7.8	8.1		6.9	7.7	8.1	8.4	8.8		7.4	8.4	8.7	9.1	9.6		8.7	9.8	10.3	10.8	11.3		10.2	11.5	12.0	12.6	13.2
0	-20		5.8	6.5	6.8	7.1	7.4		6.3	7.1	7.4	7.8	8.1		6.9	7.8	8.1	8.5	8.9		8.1	9.2	9.6	10.0	10.5		9.6	10.8	11.3	11.9	12.4
0	-15		5.0	5.6	5.8	6.1	6.4		5.5	6.2	6.4	6.7	7.0		6.0	6.8	7.0	7.4	7.7		7.2	8.1	8.5	8.9	9.3		8.6	9.7	10.1	10.6	11.2
0	-10		4.1	4.6	4.9	5.1	5.3		4.6	5.2	5.4	5.6	5.9		5.1	5.7	6.0	6.3	6.6		6.2	7.0	7.3	7.6	8.0		7.5	8.5	8.9	9.3	9.8
	-5		3.3	3.7	3.9	4.1	4.3		3.7	4.2	4.4	4.6	4.8		4.2	4.7	5.0	5.2	5.4		5.2	5.9	6.2	6.5	6.8		6.4	7.3	7.7	8.0	8.4
	0		2.5	2.8	3.0	3.1	3.3		2.9	3.3	3.4	3.6	3.8		3.3	3.8	4.0	4.1	4.4		4.3	4.9	5.1	5.4	5.6		5.4	6.2	6.5	6.8	7.1
	5		1.7	2.0	2.1	2.2	2.3		2.1	2.4	2.6	2.7	2.8		2.5	2.9	3.0	3.2	3.3		3.4	3.9	4.1	4.3	4.5		4.5	5.1	5.4	5.6	5.9
	10		1.0	1.2	1.3	1.3	1.4		1.3	1.6	1.7	1.8	1.9		1.7	2.0	2.1	2.2	2.3		2.6	3.0	3.1	3.3	3.4		3.6	4.1	4.3	4.5	4.7
1	-35		6.5	7.4	7.7	8.0	8.4		7.1	8.0	8.3	8.7	9.1		7.7	8.6	9.0	9.4	9.9		9.0	10.1	10.6	11.1	11.6		10.5	11.8	12.3	12.9	13.5
4	-30		6.1	6.9	7.1	7.5	7.8		6.6	7.5	7.8	8.1	8.5		7.2	8.1	8.4	8.8	9.2		8.4	9.5	10.0	10.4	10.9		9.9	11.2	11.7	12.2	12.8
0	-25		5.7	6.4	6.7	7.0	7.3		6.2	7.0	7.3	7.6	8.0		6.8	7.6	8.0	8.3	8.7		8.0	9.0	9.4	9.9	10.3		9.4	10.7	11.2	11.7	12.3
0	-20		5.2	5.9	6.1	6.4	6.7		5.7	6.4	6.7	7.0	7.3		6.2	7.0	7.3	7.7	8.0		7.5	8.4	8.8	9.2	9.6		8.9	10.0	10.5	11.0	11.5
0	-15		4.4	5.0	5.2	5.4	5.7		4.9	5.5	5.8	6.0	6.3		5.4	6.1	6.4	6.6	7.0		6.5	7.4	7.7	8.1	8.4		7.9	8.9	9.3	9.7	10.2
0	-10		3.6	4.1	4.3	4.5	4.7		4.1	4.6	4.8	5.0	5.2		4.5	5.1	5.3	5.6	5.9		5.6	6.3	6.6	6.9	7.2		6.8	7.8	8.1	8.5	8.9
	-5		2.8	3.2	3.3	3.5	3.7		3.2	3.7	3.8	4.0	4.2		3.7	4.2	4.3	4.6	4.8		4.7	5.3	5.5	5.8	6.1		5.8	6.6	6.9	7.3	7.6
	0		2.0	2.4	2.5	2.6	2.7		2.4	2.8	2.9	3.1	3.2		2.9	3.3	3.4	3.6	3.8		3.8	4.3	4.5	4.7	5.0		4.9	5.6	5.8	6.1	6.4
	5		1.3	1.5	1.6	1.7	1.8		1.7	1.9	2.0	2.2	2.3		2.1	2.4	2.5	2.6	2.8		2.9	3.4	3.5	3.7	3.9		4.0	4.5	4.7	5.0	5.2
	10		0.6	0.7	0.8	0.9	0.9		0.9	1.1	1.2	1.3	1.3		1.3	1.5	1.6	1.7	1.8		2.1	2.4	2.5	2.7	2.8		3.1	3.5	3.7	3.9	4.1

56FMC-00-00

Figure 4-41 (Sheet 6)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
	-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		
0	-25	6.5	7.5	7.9	8.3	8.8	6.8	7.8	8.2	8.7	9.2	7.3	8.4	8.9	9.4	9.9	7.8	9.0	9.5	10.1	10.7	8.4	9.7	10.2	10.8	11.5	8.4	9.7	10.2	10.8	11.5
	-20	6.5	7.5	7.9	8.3	8.8	6.8	7.9	8.3	8.7	9.3	7.3	8.4	8.9	9.4	10.0	7.8	9.1	9.6	10.1	10.7	8.4	9.7	10.2	10.8	11.5	8.4	9.7	10.2	10.8	11.5
	-15	6.5	7.5	7.9	8.4	8.9	6.8	7.9	8.3	8.8	9.3	7.3	8.5	8.9	9.4	10.0	7.9	9.1	9.6	10.1	10.7	8.4	9.8	10.3	10.9	11.5	8.6	9.9	10.4	10.9	11.5
	-10	6.6	7.6	8.0	8.4	8.9	6.9	7.9	8.4	8.8	9.3	7.4	8.5	9.0	9.5	10.0	7.9	9.1	9.6	10.2	10.8	8.5	9.8	10.3	10.9	11.5	8.6	9.9	10.4	10.9	11.5
	-5	6.6	7.6	8.0	8.5	8.9	6.9	8.0	8.4	8.9	9.4	7.4	8.6	9.0	9.5	10.1	8.0	9.2	9.7	10.2	10.8	8.6	9.9	10.4	10.9	11.6	8.6	9.9	10.4	10.9	11.6
	0	6.7	7.7	8.1	8.5	9.0	7.0	8.0	8.4	8.9	9.4	7.5	8.6	9.1	9.6	10.1	8.0	9.2	9.7	10.3	10.8	8.6	9.9	10.4	11.0	11.6	8.7	10.0	10.5	11.0	11.6
	5	6.7	7.7	8.1	8.5	9.0	7.0	8.1	8.5	8.9	9.4	7.5	8.7	9.1	9.6	10.1	8.1	9.3	9.8	10.3	10.9	8.7	9.9	10.5	11.0	11.6	8.7	9.9	10.5	11.0	11.6
	10	6.7	7.7	8.1	8.5	9.0	7.1	8.1	8.5	9.0	9.5	7.6	8.7	9.1	9.6	10.2	8.1	9.3	9.8	10.3	10.9	8.7	10.0	10.5	11.0	11.7	8.7	10.0	10.5	11.0	11.7
	15	6.8	7.8	8.1	8.6	9.0	7.1	8.1	8.5	9.0	9.5	7.6	8.7	9.1	9.6	10.2	8.1	9.3	9.8	10.3	10.9	8.7	10.0	10.5	11.1	11.7	8.7	10.0	10.5	11.1	11.7
	20	6.8	7.8	8.2	8.6	9.0	7.1	8.1	8.6	9.0	9.5	7.6	8.7	9.2	9.7	10.2	8.2	9.4	9.8	10.3	10.9	8.8	10.0	10.5	11.1	11.7	8.8	10.0	10.5	11.1	11.7
	25	6.4	7.3	7.7	8.1	8.5	6.7	7.7	8.1	8.5	9.0	7.2	8.3	8.7	9.2	9.6	7.8	8.9	9.4	9.9	10.4	8.4	9.6	10.0	10.6	11.1	8.4	9.6	10.0	10.6	11.1
	30	5.6	6.4	6.7	7.1	7.5	5.9	6.8	7.1	7.5	7.9	6.4	7.3	7.7	8.1	8.5	6.9	7.9	8.3	8.8	9.2	7.5	8.6	9.0	9.5	10.0	7.5	8.6	9.0	9.5	10.0
	35	4.8	5.5	5.8	6.1	6.4	5.1	5.9	6.2	6.5	6.8	5.6	6.4	6.7	7.1	7.4	6.1	6.9	7.3	7.7	8.1	6.6	7.5	7.9	8.3	8.8	6.6	7.5	7.9	8.3	8.8
	40	4.2	4.8	5.0	5.3	5.6	4.4	5.1	5.4	5.6	5.9	4.9	5.6	5.9	6.2	6.5	5.3	6.1	6.4	6.8	7.1	5.8	6.7	7.0	7.4	7.8	5.8	6.7	7.0	7.4	7.8
	45	3.5	4.0	4.2	4.5	4.7	3.8	4.3	4.6	4.8	5.1	4.2	4.8	5.0	5.3	5.6	4.6	5.3	5.6	5.9	6.2	5.1	5.8	6.1	6.5	6.8	5.1	5.8	6.1	6.5	6.8
	50	2.9	3.3	3.5	3.7	3.9	3.1	3.6	3.8	4.0	4.2	3.5	4.0	4.2	4.5	4.7	3.9	4.5	4.7	5.0	5.3	4.3	5.0	5.3	5.5	5.9	4.3	5.0	5.3	5.5	5.9
	54	2.3	2.7	2.9	3.0	3.2	2.6	3.0	3.1	3.3	3.5	2.9	3.4	3.6	3.8	4.0	3.3	3.8	4.1	4.3	4.5	3.8	4.3	4.6	4.8	5.1	3.8	4.3	4.6	4.8	5.1
10	-25	6.7	7.7	8.1	8.6	9.1	7.0	8.1	8.5	9.0	9.5	7.5	8.7	9.1	9.7	10.2	8.1	9.3	9.8	10.4	11.0	8.6	10.0	10.5	11.1	11.7	8.6	10.0	10.5	11.1	11.7
	-20	6.7	7.8	8.2	8.6	9.1	7.1	8.1	8.6	9.0	9.6	7.6	8.7	9.2	9.7	10.3	8.1	9.4	9.8	10.4	11.0	8.7	10.0	10.5	11.1	11.8	8.7	10.0	10.5	11.1	11.8
	-15	6.8	7.8	8.2	8.7	9.1	7.1	8.2	8.6	9.1	9.6	7.6	8.8	9.2	9.7	10.3	8.2	9.4	9.9	10.4	11.0	8.7	10.1	10.6	11.2	11.8	8.7	10.1	10.6	11.2	11.8
	-10	6.8	7.8	8.3	8.7	9.2	7.2	8.2	8.6	9.1	9.6	7.7	8.8	9.3	9.8	10.3	8.2	9.4	9.9	10.5	11.1	8.8	10.1	10.6	11.2	11.8	8.8	10.1	10.6	11.2	11.8
	-5	6.9	7.9	8.3	8.7	9.2	7.2	8.3	8.7	9.1	9.7	7.7	8.9	9.3	9.8	10.4	8.3	9.5	10.0	10.5	11.1	8.8	10.2	10.7	11.2	11.9	8.8	10.2	10.7	11.2	11.9
	0	6.9	7.9	8.3	8.8	9.2	7.2	8.3	8.7	9.2	9.7	7.8	8.9	9.4	9.9	10.4	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.3	11.9	8.9	10.2	10.7	11.3	11.9
	5	7.0	8.0	8.4	8.8	9.3	7.3	8.3	8.8	9.2	9.7	7.8	8.9	9.4	9.9	10.4	8.4	9.6	10.1	10.6	11.2	9.0	10.2	10.8	11.3	11.9	9.0	10.2	10.8	11.3	11.9
	10	7.0	8.0	8.4	8.8	9.3	7.3	8.4	8.8	9.2	9.7	7.8	9.0	9.4	9.9	10.5	8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.3	11.9	9.0	10.3	10.8	11.3	11.9
	15	7.0	8.0	8.4	8.8	9.3	7.4	8.4	8.8	9.3	9.8	7.9	9.0	9.4	9.9	10.5	8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.3	12.0	9.0	10.3	10.8	11.3	12.0
	20	6.6	7.5	7.9	8.3	8.7	6.9	7.9	8.3	8.7	9.2	7.4	8.5	8.9	9.4	9.9	8.0	9.1	9.6	10.1	10.6	8.6	9.8	10.3	10.8	11.4	8.6	9.8	10.3	10.8	11.4
	25	5.8	6.6	6.9	7.3	7.7	6.1	7.0	7.3	7.7	8.1	6.6	7.5	7.9	8.3	8.8	7.1	8.1	8.5	9.0	9.5	7.6	8.8	9.2	9.7	10.2	7.6	8.8	9.2	9.7	10.2
	30	5.0	5.7	6.0	6.3	6.6	5.3	6.1	6.4	6.7	7.0	5.8	6.6	6.9	7.3	7.7	6.2	7.1	7.5	7.9	8.3	6.8	7.8	8.1	8.6	9.0	6.8	7.8	8.1	8.6	9.0
	35	4.3	4.9	5.1	5.4	5.7	4.5	5.2	5.5	5.8	6.1	5.0	5.7	6.0	6.3	6.6	5.4	6.2	6.6	6.9	7.3	5.9	6.8	7.2	7.5	8.0	5.9	6.8	7.2	7.5	8.0
	40	3.6	4.1	4.4	4.6	4.8	3.9	4.4	4.7	4.9	5.2	4.3	4.9	5.2	5.4	5.7	4.7	5.4	5.7	6.0	6.3	5.2	6.0	6.3	6.6	7.0	5.2	6.0	6.3	6.6	7.0
	45	2.9	3.4	3.6	3.8	4.0	3.2	3.7	3.9	4.1	4.3	3.6	4.1	4.3	4.6	4.8	4.0	4.6	4.8	5.1	5.4	4.4	5.1	5.4	5.7	6.0	4.4	5.1	5.4	5.7	6.0
	50	2.3	2.7	2.8	3.0	3.1	2.5	2.9	3.1	3.2	3.4	2.9	3.3	3.5	3.7	3.9	3.3	3.8	4.0	4.2	4.4	3.7	4.3	4.5	4.7	5.0	3.7	4.3	4.5	4.7	5.0
	52	2.0	2.4	2.5	2.6	2.8	2.2	2.6	2.8	2.9	3.1	2.6	3.0	3.2	3.4	3.6	3.0	3.5	3.7	3.9	4.1	3.4	3.9	4.1	4.4	4.6	3.4	3.9	4.1	4.4	4.6
20	-25	6.9	8.0	8.4	8.8	9.3	7.2	8.3	8.8	9.2	9.8	7.8	8.9	9.4	9.9	10.5	8.3	9.6	10.1	10.6	11.2	8.9	10.2	10.8	11.3	12.0	8.9	10.2	10.8	11.3	12.0
	-20	7.0	8.0	8.4	8.9	9.4	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.4	10.0	10.5	8.4	9.6	10.1	10.6	11.3	8.9	10.3	10.8	11.4	12.0	8.9	10.3	10.8	11.4	12.0
	-15	7.0	8.0	8.5	8.9	9.4	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.5	10.0	10.5	8.4	9.7	10.1	10.7	11.3	9.0	10.3	10.8	11.4	12.0	9.0	10.3	10.8	11.4	12.0
	-10	7.1	8.1	8.5	8.9	9.4	7.4	8.5	8.9	9.4	9.9	7.9	9.1	9.5	10.0	10.6	8.5	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.5	12.1	9.1	10.4	10.9	11.5	12.1
	-5	7.1	8.1	8.5	9.0	9.5	7.4	8.5	8.9	9.4	9.9	8.0	9.1	9.6	10.1	10.6	8.5	9.7	10.2	10.8	11.3	9.1	10.4	10.9	11.5	12.1	9.1	10.4	10.9	11.5	12.1
	0	7.2	8.2	8.6	9.0	9.5	7.5	8.5	9.0	9.4	9.9	8.0	9.2	9.6	10.1	10.7	8.6	9.8	10.3	10.8	11.4	9.2	10.5	11.0	11.5	12.1	9.2	10.5	11.0	11.5	12.1
	5	7.2	8.2	8.6	9.0	9.5	7.5	8.6	9.0	9.5	10.0	8.0	9.2	9.6	10.1	10.7	8.6	9.8	10.3	10.8	11.4	9.2	10.5	11.0	11.6	12.2	9.2	10.5	11.0	11.6	12.2
	10	7.2	8.2	8.6	9.1	9.5	7.6	8.6	9.0	9.5	10.0	8.1	9.2	9.7	10.2	10.7	8.6	9.9	10.3	10.9	11.4	9.2	10.5	11.0	11.6	12.2	9.2	10.5	11.0	11.6	12.2
	15	6.8	7.7	8.1	8.5	8.9	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.6	8.8	10.0	10.5	11.0	11.6
	20	6.0	6.8	7.1	7.5	7.9	6.3	7.2	7.5	7.9	8.3																				

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		14500					14000					13500					12500					11500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-25	9.0	10.4	10.9	11.6	12.3	9.6	11.1	11.7	12.4	13.1	10.3	11.8	12.5	13.2	14.0	11.7	13.5	14.2	15.0	15.9	13.3	15.3	16.1	17.0	18.0
	-20	9.0	10.4	11.0	11.6	12.3	9.6	11.1	11.7	12.4	13.1	10.3	11.9	12.5	13.2	14.0	11.8	13.5	14.2	15.0	15.9	13.4	15.4	16.2	17.0	18.0
	-15	9.1	10.4	11.0	11.6	12.3	9.7	11.2	11.8	12.4	13.1	10.4	11.9	12.6	13.3	14.0	11.8	13.6	14.3	15.1	15.9	13.4	15.4	16.2	17.1	18.0
	-10	9.1	10.5	11.1	11.7	12.3	9.8	11.2	11.8	12.5	13.2	10.4	12.0	12.6	13.3	14.1	11.9	13.6	14.3	15.1	15.9	13.5	15.5	16.2	17.1	18.0
	-5	9.2	10.5	11.1	11.7	12.4	9.8	11.3	11.9	12.5	13.2	10.5	12.0	12.7	13.3	14.1	11.9	13.7	14.4	15.1	16.0	13.6	15.6	16.3	17.1	18.1
	0	9.2	10.6	11.1	11.7	12.4	9.9	11.3	11.9	12.5	13.2	10.5	12.1	12.7	13.4	14.1	12.0	13.7	14.4	15.2	16.0	13.6	15.6	16.3	17.2	18.1
5	5	9.3	10.6	11.2	11.8	12.4	9.9	11.4	11.9	12.6	13.3	10.6	12.1	12.7	13.4	14.1	12.1	13.8	14.5	15.2	16.0	13.7	15.6	16.4	17.2	18.1
	10	9.3	10.7	11.2	11.8	12.4	10.0	11.4	12.0	12.6	13.3	10.6	12.2	12.8	13.4	14.2	12.1	13.8	14.5	15.2	16.0	13.8	15.7	16.4	17.2	18.1
	15	9.3	10.7	11.2	11.8	12.5	10.0	11.4	12.0	12.6	13.3	10.7	12.2	12.8	13.4	14.2	12.1	13.8	14.5	15.2	16.0	13.8	15.7	16.4	17.2	18.1
	20	9.4	10.7	11.2	11.8	12.5	10.0	11.4	12.0	12.6	13.3	10.7	12.2	12.8	13.5	14.2	12.2	13.9	14.5	15.3	16.1	13.8	15.7	16.5	17.3	18.1
	25	9.0	10.2	10.8	11.3	11.9	9.6	11.0	11.5	12.1	12.8	10.3	11.7	12.3	12.9	13.6	11.7	13.4	14.0	14.7	15.5	13.3	15.2	15.9	16.7	17.5
	30	8.0	9.2	9.7	10.2	10.8	8.7	9.9	10.4	11.0	11.6	9.3	10.7	11.2	11.8	12.4	10.7	12.3	12.9	13.5	14.3	12.3	14.1	14.7	15.5	16.3
10	35	7.1	8.2	8.6	9.1	9.6	7.7	8.9	9.3	9.8	10.4	8.3	9.6	10.1	10.6	11.2	9.7	11.2	11.7	12.4	13.1	11.3	12.9	13.6	14.3	15.1
	40	6.3	7.3	7.7	8.1	8.5	6.9	8.0	8.4	8.8	9.3	7.5	8.7	9.1	9.6	10.2	8.9	10.2	10.7	11.3	12.0	10.4	11.9	12.5	13.2	14.0
	45	5.6	6.4	6.7	7.1	7.5	6.1	7.0	7.4	7.8	8.3	6.7	7.7	8.1	8.6	9.0	8.0	9.2	9.7	10.2	10.8	9.4	10.9	11.5	12.1	12.8
	50	4.8	5.5	5.8	6.2	6.5	5.3	6.1	6.4	6.8	7.2	5.9	6.8	7.1	7.5	7.9	7.1	8.2	8.6	9.1	9.6	8.5	9.8	10.4	11.0	11.6
	54	4.2	4.8	5.1	5.4	5.7	4.7	5.4	5.7	6.0	6.3	5.2	6.0	6.3	6.7	7.1	6.4	7.4	7.7	8.2	8.7	7.7	9.0	9.5	10.0	10.6
	58	3.7	4.3	4.6	4.9	5.2	4.2	4.9	5.2	5.5	5.9	4.8	5.6	5.9	6.2	6.5	6.0	6.9	7.3	7.7	8.1	7.3	8.5	8.9	9.4	10.0
1	-25	9.2	10.7	11.2	11.9	12.5	9.9	11.4	12.0	12.7	13.4	10.6	12.2	12.8	13.5	14.3	12.0	13.8	14.5	15.3	16.2	13.7	15.6	16.4	17.3	18.3
	-20	9.3	10.7	11.3	11.9	12.6	9.9	11.4	12.0	12.7	13.4	10.6	12.2	12.8	13.5	14.3	12.1	13.8	14.6	15.3	16.2	13.7	15.7	16.5	17.3	18.3
	-15	9.4	10.7	11.3	11.9	12.6	10.0	11.5	12.1	12.7	13.4	10.7	12.2	12.9	13.6	14.3	12.1	13.9	14.6	15.4	16.2	13.8	15.7	16.5	17.4	18.3
	-10	9.4	10.8	11.4	12.0	12.6	10.1	11.5	12.1	12.8	13.5	10.7	12.3	12.9	13.6	14.3	12.2	13.9	14.6	15.4	16.2	13.8	15.8	16.6	17.4	18.3
	-5	9.5	10.8	11.4	12.0	12.7	10.1	11.6	12.2	12.8	13.5	10.8	12.3	13.0	13.6	14.4	12.3	14.0	14.7	15.4	16.3	13.9	15.9	16.6	17.4	18.4
	0	9.5	10.9	11.4	12.0	12.7	10.2	11.6	12.2	12.8	13.5	10.9	12.4	13.0	13.7	14.4	12.3	14.1	14.7	15.5	16.3	14.0	15.9	16.7	17.5	18.4
0	5	9.6	10.9	11.5	12.1	12.7	10.2	11.7	12.2	12.9	13.6	10.9	12.4	13.0	13.7	14.4	12.4	14.1	14.8	15.5	16.3	14.0	15.9	16.7	17.5	18.4
	10	9.6	11.0	11.5	12.1	12.7	10.3	11.7	12.3	12.9	13.6	10.9	12.5	13.1	13.7	14.5	12.4	14.1	14.8	15.5	16.3	14.1	16.0	16.7	17.5	18.4
	15	9.6	11.0	11.5	12.1	12.8	10.3	11.7	12.3	12.9	13.6	11.0	12.5	13.1	13.7	14.5	12.5	14.2	14.8	15.5	16.3	14.1	16.0	16.7	17.6	18.4
	20	9.2	10.5	11.0	11.5	12.1	9.8	11.2	11.7	12.3	13.0	10.5	11.9	12.5	13.1	13.8	11.9	13.6	14.2	14.9	15.7	13.6	15.4	16.1	16.9	17.7
	25	8.2	9.4	9.9	10.4	11.0	8.9	10.1	10.7	11.2	11.8	9.5	10.9	11.4	12.0	12.7	11.0	12.5	13.1	13.8	14.5	12.6	14.3	15.0	15.7	16.5
	30	7.3	8.4	8.8	9.3	9.8	7.9	9.1	9.6	10.1	10.6	8.6	9.8	10.3	10.9	11.5	9.9	11.4	12.0	12.6	13.3	11.5	13.2	13.8	14.5	15.3
0	35	6.5	7.4	7.8	8.2	8.7	7.0	8.1	8.5	9.0	9.5	7.6	8.8	9.3	9.8	10.3	9.0	10.3	10.9	11.5	12.1	10.5	12.1	12.7	13.4	14.1
	40	5.7	6.5	6.9	7.2	7.6	6.2	7.2	7.5	7.9	8.4	6.8	7.8	8.2	8.7	9.2	8.1	9.3	9.8	10.4	11.0	9.6	11.0	11.6	12.2	12.9
	45	4.9	5.7	5.9	6.3	6.6	5.4	6.2	6.6	6.9	7.3	6.0	6.9	7.2	7.6	8.1	7.2	8.3	8.8	9.2	9.8	8.6	10.0	10.5	11.1	11.8
	50	4.2	4.8	5.0	5.3	5.6	4.6	5.4	5.6	5.9	6.3	5.2	6.0	6.3	6.6	7.0	6.3	7.3	7.7	8.1	8.6	7.7	8.9	9.4	9.9	10.5
	52	3.9	4.4	4.7	4.9	5.2	4.3	5.0	5.3	5.5	5.9	4.8	5.6	5.9	6.2	6.5	6.0	6.9	7.3	7.7	8.1	7.3	8.5	8.9	9.4	10.0
	56	3.4	4.0	4.3	4.5	4.8	4.0	4.6	4.9	5.1	5.4	4.5	5.2	5.5	5.7	6.1	5.6	6.5	6.8	7.2	7.6	6.9	8.0	8.4	8.9	9.4
2	-25	9.5	10.9	11.5	12.1	12.8	10.2	11.7	12.3	12.9	13.6	10.8	12.4	13.1	13.8	14.5	12.3	14.1	14.8	15.6	16.4	14.0	15.9	16.7	17.6	18.5
	-20	9.6	11.0	11.5	12.1	12.8	10.2	11.7	12.3	12.9	13.7	10.9	12.5	13.1	13.8	14.5	12.4	14.1	14.8	15.6	16.4	14.0	16.0	16.8	17.6	18.5
	-15	9.6	11.0	11.6	12.2	12.8	10.3	11.7	12.3	13.0	13.7	10.9	12.5	13.1	13.8	14.6	12.4	14.2	14.9	15.6	16.5	14.1	16.0	16.8	17.6	18.6
	-10	9.7	11.1	11.6	12.2	12.9	10.3	11.8	12.4	13.0	13.7	11.0	12.6	13.2	13.9	14.6	12.5	14.2	14.9	15.7	16.5	14.1	16.1	16.8	17.7	18.6
	-5	9.7	11.1	11.7	12.3	12.9	10.4	11.8	12.4	13.1	13.8	11.1	12.6	13.2	13.9	14.6	12.5	14.3	15.0	15.7	16.5	14.2	16.1	16.9	17.7	18.6
	0	9.8	11.2	11.7	12.3	12.9	10.4	11.9	12.5	13.1	13.8	11.1	12.7	13.3	13.9	14.7	12.6	14.3	15.0	15.7	16.5	14.3	16.2	16.9	17.7	18.6
0	5	9.8	11.2	11.7	12.3	13.0	10.5	11.9	12.5	13.1	13.8	11.2	12.7	13.3	14.0	14.7	12.7	14.4	15.0	15.8	16.6	14.3	16.2	17.0	17.8	18.7
	10	9.9	11.2	11.8	12.3	13.0	10.5	12.0	12.5	13.1	13.8	11.2	12.7	13.3	14.0	14.7	12.7	14.4	15.1	15.8	16.6	14.4	16.3	17.0	17.8	18.7
	15	9.4	10.7	11.2	11.7	12.4	10.0	11.4	11.9	12.5	13.2	10.7	12.2	12.7	13.4	14.0	12.2	13.8	14.4	15.1	15.9	13.8	15.6	16.3	17.1	18.0
	20	8.4	9.7	10.1	10.7	11.2	9.1	10.4	10.9	11.4	12.0	9.7	11.1	11.7	12.2	12.9	11.2	12.7	13.3	14.0	14.7	12.8	14.5	15.2	15.9	16.8
	25	7.5	8.6	9.1	9.5	10.1	8.1	9.3	9.8	10.3	10.9	8.8	10.1	10.6	11.1	11.7	10.2	11.6	12.2	12.8	13.5	11.8	13.4	14.1	14.8	15.6
	30	6.6	7.6	8.0	8.4	8.9	7.2	8.3	8.7	9.1	9.7	7.8	9.0	9.4	9.9	10.5	9.2	10.5	11.1	11.6	12.3	10.7	12.3	12.9	13.5	14.3
0	35	5.8	6.7	7.0	7.4	7.8	6.4	7.3	7.7	8.1	8.5	7.0	8.0	8.												

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
4000	-30	7.4	8.4	8.8	9.3	9.8	7.7	8.8	9.3	9.7	10.3	8.2	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.7	9.4	10.7	11.3	11.8	12.5	9.4	10.7	11.3	11.8	12.5
	-25	7.4	8.5	8.9	9.3	9.8	7.7	8.8	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.7	9.4	10.8	11.3	11.9	12.5	9.4	10.8	11.3	11.9	12.5
	-20	7.4	8.5	8.9	9.4	9.9	7.8	8.9	9.3	9.8	10.3	8.3	9.5	10.0	10.5	11.0	8.9	10.1	10.6	11.2	11.8	9.5	10.8	11.3	11.9	12.5	9.5	10.8	11.3	11.9	12.5
	-15	7.5	8.6	9.0	9.4	9.9	7.8	8.9	9.4	9.8	10.4	8.4	9.6	10.0	10.5	11.1	8.9	10.2	10.7	11.2	11.8	9.5	10.9	11.4	12.0	12.6	9.5	10.9	11.4	12.0	12.6
	-10	7.5	8.6	9.0	9.5	10.0	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.1	10.6	11.1	9.0	10.2	10.7	11.3	11.8	9.6	10.9	11.4	12.0	12.6	9.6	10.9	11.4	12.0	12.6
	-5	7.6	8.6	9.1	9.5	10.0	7.9	9.0	9.5	9.9	10.4	8.5	9.6	10.1	10.6	11.1	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.0	12.6	9.7	11.0	11.5	12.0	12.6
	0	7.6	8.7	9.1	9.5	10.0	8.0	9.1	9.5	10.0	10.5	8.5	9.7	10.1	10.6	11.2	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.1	12.7	9.7	11.0	11.5	12.1	12.7
	5	7.2	8.2	8.5	9.0	9.4	7.5	8.5	8.9	9.4	9.9	8.0	9.2	9.6	10.1	10.6	8.6	9.8	10.2	10.7	11.3	9.2	10.5	10.9	11.5	12.0	9.2	10.5	10.9	11.5	12.0
	10	6.3	7.2	7.5	7.9	8.3	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	8.9	9.4	7.7	8.7	9.2	9.6	10.1	8.2	9.4	9.8	10.3	10.9	8.2	9.4	9.8	10.3	10.9
	15	5.6	6.3	6.6	6.9	7.3	5.9	6.7	7.0	7.3	7.7	6.3	7.2	7.5	7.9	8.3	6.8	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.3	9.8	7.4	8.4	8.8	9.3	9.8
	20	4.8	5.5	5.7	6.0	6.3	5.1	5.8	6.0	6.3	6.7	5.5	6.3	6.6	6.9	7.3	6.0	6.8	7.2	7.5	7.9	6.5	7.4	7.8	8.2	8.6	6.5	7.4	7.8	8.2	8.6
	25	4.0	4.6	4.8	5.0	5.3	4.3	4.9	5.1	5.4	5.7	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.5	5.7	6.5	6.8	7.1	7.5
	30	3.3	3.8	4.0	4.2	4.4	3.6	4.1	4.3	4.5	4.7	4.0	4.5	4.8	5.0	5.3	4.4	5.0	5.3	5.6	5.8	4.9	5.6	5.8	6.1	6.5	4.9	5.6	5.8	6.1	6.5
	35	2.6	3.0	3.2	3.4	3.5	2.9	3.3	3.5	3.6	3.8	3.3	3.7	3.9	4.1	4.3	3.7	4.2	4.4	4.6	4.9	4.1	4.7	4.9	5.2	5.5	4.1	4.7	4.9	5.2	5.5
	40	2.0	2.3	2.4	2.6	2.7	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.5	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.4	3.9	4.1	4.3	4.5
	45	1.4	1.6	1.7	1.8	1.9	1.6	1.8	1.9	2.1	2.2	1.9	2.2	2.4	2.5	2.6	2.3	2.6	2.8	2.9	3.1	2.7	3.1	3.2	3.4	3.6	2.7	3.1	3.2	3.4	3.6
5000	-35	7.5	8.6	9.0	9.5	10.0	7.9	9.0	9.4	9.9	10.5	8.4	9.6	10.1	10.6	11.2	9.0	10.2	10.7	11.3	11.9	9.6	10.9	11.5	12.0	12.7	9.6	10.9	11.5	12.0	12.7
	-30	7.6	8.6	9.1	9.5	10.0	7.9	9.0	9.5	10.0	10.5	8.4	9.6	10.1	10.6	11.2	9.0	10.3	10.8	11.3	11.9	9.6	11.0	11.5	12.1	12.7	9.6	11.0	11.5	12.1	12.7
	-25	7.6	8.7	9.1	9.6	10.1	7.9	9.1	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.2	9.1	10.3	10.8	11.4	12.0	9.7	11.0	11.5	12.1	12.7	9.7	11.0	11.5	12.1	12.7
	-20	7.7	8.7	9.1	9.6	10.1	8.0	9.1	9.6	10.0	10.6	8.6	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.4	12.0	9.7	11.1	11.6	12.1	12.8	9.7	11.1	11.6	12.1	12.8
	-15	7.7	8.8	9.2	9.7	10.2	8.1	9.2	9.6	10.1	10.6	8.6	9.8	10.3	10.8	11.3	9.2	10.4	10.9	11.5	12.0	9.8	11.1	11.6	12.2	12.8	9.8	11.1	11.6	12.2	12.8
	-10	7.8	8.8	9.2	9.7	10.2	8.1	9.2	9.7	10.1	10.6	8.7	9.8	10.3	10.8	11.3	9.2	10.5	11.0	11.5	12.1	9.9	11.2	11.7	12.2	12.8	9.9	11.2	11.7	12.2	12.8
	-5	7.8	8.9	9.3	9.7	10.2	8.2	9.3	9.7	10.2	10.7	8.7	9.9	10.3	10.8	11.4	9.3	10.5	11.0	11.5	12.1	9.9	11.2	11.7	12.3	12.9	9.9	11.2	11.7	12.3	12.9
	0	7.3	8.3	8.7	9.1	9.5	7.6	8.7	9.1	9.5	10.0	8.2	9.3	9.7	10.2	10.7	8.7	9.9	10.4	10.9	11.4	9.3	10.6	11.1	11.6	12.2	9.3	10.6	11.1	11.6	12.2
	5	6.5	7.4	7.7	8.1	8.5	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.1	9.6	7.9	8.9	9.4	9.8	10.3	8.4	9.6	10.0	10.5	11.1	8.4	9.6	10.0	10.5	11.1
	10	5.7	6.4	6.7	7.1	7.4	6.0	6.8	7.1	7.4	7.8	6.4	7.3	7.7	8.0	8.5	7.0	7.9	8.3	8.7	9.1	7.5	8.5	9.0	9.4	9.9	7.5	8.5	9.0	9.4	9.9
	15	4.9	5.6	5.8	6.1	6.4	5.2	5.9	6.2	6.5	6.8	5.7	6.4	6.7	7.1	7.4	6.1	7.0	7.3	7.7	8.1	6.7	7.6	7.9	8.3	8.8	6.7	7.6	7.9	8.3	8.8
	20	4.2	4.7	5.0	5.2	5.5	4.4	5.0	5.3	5.5	5.8	4.9	5.5	5.8	6.1	6.4	5.3	6.1	6.4	6.7	7.0	5.8	6.6	7.0	7.3	7.7	5.8	6.6	7.0	7.3	7.7
	25	3.4	3.9	4.1	4.3	4.5	3.7	4.2	4.4	4.6	4.9	4.1	4.7	4.9	5.1	5.4	4.5	5.2	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.6	5.0	5.7	6.0	6.3	6.6
	30	2.8	3.2	3.3	3.5	3.7	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.8	4.3	4.6	4.8	5.0	4.2	4.8	5.1	5.3	5.6	4.2	4.8	5.1	5.3	5.6
	35	2.1	2.4	2.5	2.7	2.8	2.3	2.7	2.8	3.0	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	3.5	4.0	4.2	4.4	4.6
	40	1.5	1.7	1.8	1.9	2.1	1.7	2.0	2.1	2.2	2.3	2.0	2.4	2.5	2.6	2.8	2.4	2.8	2.9	3.1	3.3	2.8	3.2	3.4	3.6	3.8	2.8	3.2	3.4	3.6	3.8
42	1.2	1.5	1.5	1.6	1.7	1.4	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.4	2.1	2.5	2.6	2.8	2.9	2.5	2.9	3.1	3.2	3.4	2.5	2.9	3.1	3.2	3.4	
6000	-35	7.6	8.7	9.1	9.6	10.1	7.9	9.1	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.2	9.1	10.3	10.8	11.4	12.0	9.7	11.0	11.5	12.1	12.7	9.7	11.0	11.5	12.1	12.7
	-30	7.6	8.7	9.1	9.6	10.1	8.0	9.1	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.2	9.1	10.4	10.8	11.4	12.0	9.7	11.0	11.6	12.1	12.7	9.7	11.0	11.6	12.1	12.7
	-25	7.7	8.7	9.2	9.6	10.1	8.0	9.1	9.6	10.0	10.6	8.6	9.7	10.2	10.7	11.3	9.1	10.4	10.9	11.4	12.0	9.7	11.1	11.6	12.1	12.8	9.7	11.1	11.6	12.1	12.8
	-20	7.7	8.8	9.2	9.6	10.1	8.1	9.2	9.6	10.1	10.6	8.6	9.8	10.2	10.7	11.3	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.2	12.8	9.8	11.1	11.6	12.2	12.8
	-15	7.8	8.8	9.2	9.7	10.1	8.1	9.2	9.6	10.1	10.6	8.7	9.8	10.3	10.8	11.3	9.2	10.5	10.9	11.5	12.0	9.8	11.1	11.6	12.2	12.8	9.8	11.1	11.6	12.2	12.8
	-10	7.8	8.8	9.2	9.7	10.1	8.1	9.2	9.6	10.1	10.6	8.7	9.8	10.3	10.8	11.3	9.3	10.5	10.9	11.5	12.0	9.9	11.1	11.6	12.2	12.8	9.9	11.1	11.6	12.2	12.8
	-5	7.4	8.4	8.7	9.2	9.6	7.7	8.7	9.1	9.6	10.1	8.2	9.4	9.8	10.3	10.8	8.8	10.0	10.4	10.9	11.5	9.4	10.7	11.1	11.7	12.2	9.4	10.7	11.1	11.7	12.2
	0	6.6	7.5	7.8	8.2	8.6	6.9	7.9	8.2	8.6	9.0	7.4	8.4	8.8	9.3	9.7	8.0	9.1	9.5	10.0	10.5	8.6	9.7	10.2	10.7	11.2	8.6	9.7	10.2	10.7	11.2
	5	5.8	6.6	6.9	7.2	7.6	6.1	6.9	7.2	7.6	8.0	6.6	7.5	7.8	8.2	8.6	7.1	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.1	7.7	8.7	9.1	9.6	10.1
	10	5.0	5.7	6.0	6.2	6.6	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.5	6.3	7.1	7.4	7.8	8.2	6.8	7.7	8.1	8.5	8.9	6.8	7.7	8.1	8.5	8.9
	15	4.3	4.9	5.1	5.3	5.6	4.																								

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500						14000						13500						12500						11500					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
4	-30	10.0	11.4	12.0	12.6	13.3		10.7	12.2	12.8	13.4	14.1		11.4	13.0	13.6	14.3	15.0		12.8	14.6	15.3	16.1	16.9		14.5	16.5	17.3	18.1	19.0	
	0	-25	10.1	11.5	12.0	12.6	13.3		10.7	12.2	12.8	13.4	14.2		11.4	13.0	13.6	14.3	15.0		12.9	14.7	15.3	16.1	16.9		14.6	16.5	17.3	18.1	19.0
	0	-20	10.1	11.5	12.1	12.7	13.3		10.8	12.3	12.8	13.5	14.2		11.5	13.0	13.7	14.3	15.1		13.0	14.7	15.4	16.1	17.0		14.6	16.6	17.3	18.2	19.1
	0	-15	10.2	11.6	12.1	12.7	13.4		10.8	12.3	12.9	13.5	14.2		11.5	13.1	13.7	14.4	15.1		13.0	14.8	15.4	16.2	17.0		14.7	16.6	17.4	18.2	19.1
	0	-10	10.2	11.6	12.2	12.8	13.4		10.9	12.4	12.9	13.6	14.3		11.6	13.1	13.7	14.4	15.1		13.1	14.8	15.5	16.2	17.0		14.8	16.7	17.4	18.2	19.1
	0	-5	10.3	11.7	12.2	12.8	13.5		11.0	12.4	13.0	13.6	14.3		11.6	13.2	13.8	14.5	15.2		13.2	14.9	15.5	16.3	17.1		14.8	16.7	17.5	18.3	19.2
	0	0	10.3	11.7	12.3	12.8	13.5		11.0	12.5	13.0	13.6	14.3		11.7	13.2	13.8	14.5	15.2		13.2	14.9	15.6	16.3	17.1		14.9	16.8	17.5	18.3	19.2
	5	5	9.8	11.1	11.7	12.2	12.8		10.5	11.9	12.4	13.0	13.7		11.2	12.6	13.2	13.9	14.5		12.6	14.3	14.9	15.6	16.4		14.3	16.1	16.8	17.6	18.5
	10	10	8.9	10.1	10.6	11.1	11.7		9.5	10.8	11.3	11.9	12.5		10.2	11.5	12.1	12.7	13.3		11.6	13.2	13.8	14.4	15.2		13.2	15.0	15.7	16.4	17.2
	15	15	8.0	9.1	9.5	10.0	10.5		8.6	9.8	10.3	10.8	11.3		9.2	10.5	11.0	11.6	12.2		10.7	12.1	12.7	13.3	14.0		12.2	13.9	14.5	15.3	16.0
20	20	7.1	8.1	8.5	8.9	9.4		7.7	8.8	9.2	9.7	10.2		8.3	9.5	9.9	10.5	11.0		9.7	11.0	11.6	12.2	12.8		11.2	12.8	13.4	14.1	14.8	
25	25	6.2	7.1	7.4	7.8	8.2		6.7	7.7	8.1	8.5	9.0		7.3	8.4	8.8	9.3	9.8		8.7	9.9	10.4	11.0	11.6		10.2	11.6	12.2	12.9	13.5	
30	30	5.4	6.1	6.4	6.8	7.1		5.9	6.7	7.1	7.4	7.8		6.4	7.4	7.8	8.2	8.6		7.7	8.9	9.3	9.8	10.4		9.2	10.5	11.1	11.7	12.3	
35	35	4.6	5.2	5.5	5.8	6.1		5.1	5.8	6.1	6.4	6.8		5.6	6.4	6.7	7.1	7.5		6.8	7.8	8.2	8.7	9.1		8.2	9.4	9.9	10.5	11.1	
40	40	3.8	4.4	4.6	4.8	5.1		4.3	4.9	5.2	5.4	5.7		4.8	5.5	5.8	6.1	6.4		5.9	6.8	7.2	7.5	8.0		7.2	8.4	8.8	9.3	9.8	
45	45	3.1	3.6	3.7	3.9	4.2		3.5	4.1	4.3	4.5	4.8		4.0	4.6	4.9	5.1	5.4		5.1	5.8	6.2	6.5	6.9		6.3	7.3	7.7	8.1	8.6	
5	-35	10.2	11.6	12.2	12.8	13.5		10.9	12.4	13.0	13.6	14.3		11.5	13.1	13.8	14.5	15.2		13.0	14.8	15.5	16.3	17.1		14.7	16.7	17.5	18.3	19.2	
	0	-30	10.2	11.7	12.2	12.8	13.5		10.9	12.4	13.0	13.6	14.3		11.6	13.2	13.8	14.5	15.2		13.1	14.9	15.5	16.3	17.1		14.8	16.7	17.5	18.3	19.2
	0	-25	10.3	11.7	12.3	12.9	13.5		11.0	12.5	13.0	13.7	14.4		11.7	13.2	13.8	14.5	15.3		13.2	14.9	15.6	16.3	17.1		14.9	16.8	17.5	18.4	19.3
	0	-20	10.4	11.8	12.3	12.9	13.6		11.0	12.5	13.1	13.7	14.4		11.7	13.3	13.9	14.6	15.3		13.2	15.0	15.6	16.4	17.2		14.9	16.8	17.6	18.4	19.3
	0	-15	10.4	11.8	12.4	13.0	13.6		11.1	12.6	13.1	13.8	14.5		11.8	13.3	14.0	14.6	15.3		13.3	15.0	15.7	16.4	17.2		15.0	16.9	17.6	18.5	19.3
	0	-10	10.5	11.9	12.4	13.0	13.7		11.2	12.6	13.2	13.8	14.5		11.9	13.4	14.0	14.7	15.4		13.4	15.1	15.7	16.5	17.3		15.1	17.0	17.7	18.5	19.4
	0	-5	10.5	11.9	12.4	13.0	13.7		11.2	12.7	13.2	13.8	14.5		11.9	13.4	14.0	14.7	15.4		13.4	15.1	15.8	16.5	17.3		15.1	17.0	17.7	18.5	19.4
	0	0	10.0	11.3	11.8	12.3	13.0		10.6	12.0	12.6	13.1	13.8		11.3	12.8	13.4	14.0	14.7		12.8	14.4	15.1	15.8	16.5		14.4	16.3	17.0	17.7	18.6
	5	5	9.1	10.3	10.8	11.3	11.9		9.7	11.0	11.5	12.1	12.7		10.4	11.8	12.3	12.9	13.5		11.8	13.4	14.0	14.6	15.4		13.5	15.2	15.9	16.6	17.4
	10	10	8.1	9.2	9.7	10.1	10.7		8.7	9.9	10.4	10.9	11.5		9.4	10.7	11.2	11.7	12.3		10.8	12.3	12.8	13.4	14.1		12.4	14.0	14.7	15.4	16.2
15	15	7.2	8.2	8.6	9.1	9.5		7.8	8.9	9.3	9.8	10.3		8.4	9.6	10.1	10.6	11.2		9.8	11.2	11.7	12.3	13.0		11.4	13.0	13.6	14.2	15.0	
20	20	6.3	7.2	7.6	8.0	8.4		6.9	7.9	8.3	8.7	9.2		7.5	8.6	9.0	9.5	10.0		8.9	10.1	10.6	11.2	11.8		10.4	11.8	12.4	13.0	13.7	
25	25	5.5	6.3	6.6	6.9	7.3		6.0	6.9	7.2	7.6	8.0		6.6	7.5	7.9	8.3	8.8		7.9	9.0	9.5	10.0	10.5		9.3	10.7	11.2	11.8	12.5	
30	30	4.7	5.4	5.6	5.9	6.3		5.2	6.0	6.3	6.6	6.9		5.7	6.6	6.9	7.3	7.7		7.0	8.0	8.4	8.8	9.3		8.4	9.6	10.1	10.7	11.3	
35	35	3.9	4.5	4.7	5.0	5.2		4.4	5.0	5.3	5.6	5.9		4.9	5.6	5.9	6.2	6.6		6.1	7.0	7.3	7.7	8.1		7.4	8.5	9.0	9.5	10.0	
40	40	3.2	3.7	3.9	4.1	4.3		3.7	4.2	4.4	4.7	4.9		4.2	4.8	5.0	5.3	5.6		5.2	6.0	6.3	6.7	7.0		6.5	7.5	7.9	8.3	8.8	
42	42	2.9	3.4	3.6	3.8	4.0		3.4	3.9	4.1	4.3	4.5		3.8	4.4	4.7	4.9	5.2		4.9	5.6	5.9	6.3	6.6		6.1	7.1	7.5	7.9	8.3	
6	-35	10.3	11.7	12.3	12.9	13.5		11.0	12.4	13.0	13.7	14.4		11.7	13.2	13.8	14.5	15.3		13.2	14.9	15.6	16.3	17.1		14.9	16.8	17.5	18.4	19.3	
	0	-30	10.3	11.7	12.3	12.9	13.5		11.0	12.5	13.1	13.7	14.4		11.7	13.3	13.9	14.5	15.3		13.2	14.9	15.6	16.3	17.2		14.9	16.8	17.6	18.4	19.3
	0	-25	10.4	11.8	12.3	12.9	13.6		11.0	12.5	13.1	13.7	14.4		11.7	13.3	13.9	14.6	15.3		13.3	15.0	15.6	16.4	17.2		15.0	16.9	17.6	18.4	19.3
	0	-20	10.4	11.8	12.4	12.9	13.6		11.1	12.6	13.1	13.7	14.4		11.8	13.3	13.9	14.6	15.3		13.3	15.0	15.7	16.4	17.2		15.0	16.9	17.6	18.4	19.3
	0	-15	10.5	11.8	12.4	13.0	13.6		11.1	12.6	13.2	13.8	14.4		11.8	13.4	14.0	14.6	15.3		13.4	15.1	15.7	16.4	17.2		15.1	16.9	17.7	18.5	19.3
	0	-10	10.5	11.9	12.4	13.0	13.6		11.2	12.6	13.2	13.8	14.4		11.9	13.4	14.0	14.6	15.3		13.4	15.1	15.7	16.4	17.2		15.1	16.9	17.7	18.4	19.3
	0	-5	10.0	11.4	11.9	12.4	13.0		10.7	12.1	12.6	13.2	13.9		11.4	12.9	13.4	14.1	14.7		12.9	14.5	15.1	15.8	16.6		14.6	16.4	17.1	17.8	18.7
	0	0	9.2	10.4	10.9	11.4	12.0		9.8	11.1	11.6	12.2	12.8		10.5	11.9	12.4	13.0	13.7		12.0	13.5	14.1	14.8	15.5		13.6	15.3	16.0	16.7	17.5
	5	5	8.3	9.4	9.8	10.3	10.9		8.9	10.1	10.6	11.1	11.7		9.5	10.8	11.3	11.9	12.5		11.0	12.4	13.0	13.6	14.3		12.6	14.2	14.9	15.6	16.3
	10	10	7.3	8.4	8.8	9.2	9.7		7.9	9.0	9.5	10.0	10.5		8.6	9.8	10.2	10.8	11.3		10.0	11.3	11.9	12.5	13.1		11.5	13.1	13.7	14.4	15.1
15	15	6.5	7.4	7.7	8.1	8.6		7.1	8.0	8.4	8.9	9.3		7.7	8.8	9.2	9.7	10.2													

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		16830					16500					16000					15500					15000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8000	-35	7.7	8.8	9.2	9.7	10.1	8.1	9.2	9.6	10.1	10.6	8.6	9.8	10.3	10.8	11.3	9.2	10.5	10.9	11.5	12.0	9.8	11.1	11.6	12.2	12.8
	-30	7.8	8.8	9.2	9.7	10.2	8.1	9.2	9.6	10.1	10.6	8.7	9.8	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.2	11.7	12.2	12.8
	-25	7.8	8.8	9.3	9.7	10.2	8.2	9.2	9.7	10.1	10.6	8.7	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.0	9.9	11.2	11.7	12.2	12.8
	-20	7.5	8.5	8.9	9.3	9.7	7.8	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.6	9.5	10.8	11.3	11.8	12.4
	-15	7.0	7.9	8.3	8.6	9.1	7.3	8.3	8.7	9.1	9.5	7.8	8.9	9.3	9.7	10.2	8.4	9.5	9.9	10.4	10.9	9.0	10.2	10.6	11.1	11.7
	-10	6.6	7.5	7.8	8.2	8.6	6.9	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.2	9.7	8.0	9.0	9.4	9.9	10.4	8.5	9.7	10.1	10.6	11.1
	-5	6.1	6.8	7.2	7.5	7.8	6.4	7.2	7.5	7.9	8.3	6.9	7.8	8.1	8.5	8.9	7.4	8.4	8.7	9.2	9.6	7.9	9.0	9.4	9.9	10.4
	0	5.3	6.0	6.3	6.6	6.9	5.6	6.3	6.6	6.9	7.3	6.1	6.9	7.2	7.5	7.9	6.6	7.5	7.8	8.2	8.6	7.1	8.1	8.4	8.8	9.3
	5	4.5	5.1	5.4	5.6	5.9	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.2	6.5	6.9	5.7	6.5	6.8	7.1	7.5	6.2	7.1	7.4	7.8	8.2
	10	3.8	4.3	4.5	4.7	5.0	4.1	4.6	4.8	5.1	5.3	4.5	5.1	5.3	5.6	5.9	4.9	5.6	5.9	6.2	6.5	5.4	6.2	6.4	6.8	7.1
	15	3.1	3.5	3.7	3.9	4.1	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9	4.2	4.8	5.0	5.2	5.5	4.6	5.3	5.5	5.8	6.1
	20	2.4	2.8	2.9	3.1	3.2	2.7	3.0	3.2	3.4	3.5	3.0	3.5	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.9	4.4	4.6	4.9	5.1
9000	-35	1.8	2.1	2.2	2.3	2.4	2.0	2.3	2.4	2.6	2.7	2.4	2.7	2.8	3.0	3.1	2.7	3.1	3.3	3.5	3.6	3.1	3.6	3.8	4.0	4.2
	-30	1.1	1.3	1.4	1.5	1.6	1.3	1.6	1.7	1.8	1.9	1.7	1.9	2.1	2.2	2.3	2.0	2.4	2.5	2.6	2.8	2.4	2.8	2.9	3.1	3.2
	-25	0.8	1.0	1.0	1.1	1.2	1.0	1.2	1.3	1.4	1.4	1.3	1.6	1.6	1.7	1.9	1.7	1.9	2.1	2.2	2.3	2.0	2.4	2.5	2.6	2.8
	-20	7.6	8.6	9.0	9.4	9.9	7.9	9.0	9.4	9.9	10.3	8.5	9.6	10.0	10.5	11.0	9.1	10.3	10.7	11.2	11.8	9.7	10.9	11.4	12.0	12.5
	-15	7.6	8.6	9.0	9.4	9.9	8.0	9.0	9.4	9.9	10.3	8.5	9.6	10.1	10.5	11.0	9.1	10.3	10.7	11.2	11.8	9.7	10.9	11.4	12.0	12.5
	-10	7.3	8.3	8.6	9.0	9.5	7.6	8.6	9.0	9.5	9.9	8.2	9.2	9.7	10.1	10.6	8.7	9.9	10.3	10.8	11.3	9.3	10.5	11.0	11.5	12.1
	-5	6.8	7.7	8.1	8.4	8.9	7.2	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.5	10.0	8.2	9.3	9.7	10.2	10.7	8.8	10.0	10.4	10.9	11.4
	0	6.4	7.2	7.5	7.9	8.2	6.7	7.5	7.9	8.2	8.6	7.2	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.5	10.0	8.3	9.4	9.8	10.3	10.8
	5	6.0	6.8	7.1	7.4	7.7	6.3	7.1	7.4	7.8	8.1	6.8	7.7	8.0	8.4	8.8	7.3	8.3	8.6	9.0	9.5	7.8	8.9	9.3	9.7	10.2
	10	5.4	6.1	6.4	6.7	7.0	5.7	6.5	6.7	7.1	7.4	6.2	7.0	7.3	7.6	8.0	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.4
	15	4.7	5.3	5.5	5.8	6.1	5.0	5.6	5.9	6.1	6.4	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.0	7.3	7.7	6.4	7.3	7.6	8.0	8.3
	20	3.9	4.5	4.7	4.9	5.1	4.2	4.8	5.0	5.2	5.5	4.6	5.2	5.5	5.7	6.0	5.1	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.3
10000	-35	3.2	3.7	3.9	4.0	4.2	3.5	4.0	4.2	4.4	4.6	3.9	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.4	5.6	4.8	5.4	5.7	6.0	6.3
	-30	2.6	2.9	3.1	3.2	3.4	2.8	3.2	3.3	3.5	3.7	3.2	3.6	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.7	4.0	4.6	4.8	5.0	5.3
	-25	1.9	2.2	2.3	2.4	2.6	2.1	2.4	2.6	2.7	2.8	2.5	2.9	3.0	3.1	3.3	2.9	3.3	3.4	3.6	3.8	3.3	3.7	3.9	4.1	4.3
	-20	1.3	1.5	1.6	1.7	1.8	1.5	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.3	2.5	2.2	2.5	2.6	2.8	2.9	2.6	2.9	3.1	3.3	3.4
	-15	0.7	0.8	0.9	1.0	1.0	0.9	1.1	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7	1.5	1.8	1.9	2.0	2.1	1.9	2.2	2.3	2.5	2.6
	-10	0.6	0.7	0.8	0.8	0.9	0.8	0.9	1.0	1.1	1.1	1.1	1.3	1.4	1.4	1.5	1.4	1.7	1.7	1.9	2.0	1.8	2.1	2.2	2.3	2.4
	-5	7.3	8.3	8.7	9.1	9.5	7.6	8.7	9.1	9.5	9.9	8.2	9.3	9.7	10.1	10.6	8.8	9.9	10.3	10.8	11.4	9.4	10.6	11.0	11.6	12.1
	0	7.0	8.0	8.3	8.7	9.1	7.4	8.3	8.7	9.1	9.6	7.9	8.9	9.3	9.8	10.3	8.5	9.6	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.7
	5	6.7	7.5	7.9	8.2	8.6	7.0	7.9	8.2	8.6	9.0	7.5	8.5	8.8	9.3	9.7	8.0	9.1	9.5	9.9	10.4	8.6	9.7	10.2	10.6	11.2
	10	6.2	7.0	7.3	7.7	8.0	6.5	7.4	7.7	8.0	8.4	7.0	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.3	9.8	8.1	9.2	9.6	10.0	10.5
	15	5.7	6.5	6.8	7.1	7.4	6.0	6.8	7.1	7.5	7.8	6.5	7.4	7.7	8.1	8.4	7.0	7.9	8.3	8.7	9.1	7.6	8.6	9.0	9.4	9.8
	20	5.4	6.1	6.4	6.6	7.0	5.7	6.4	6.7	7.0	7.3	6.1	6.9	7.3	7.6	7.9	6.6	7.5	7.8	8.2	8.6	7.2	8.1	8.5	8.9	9.3
11000	-35	4.8	5.4	5.7	5.9	6.2	5.1	5.7	6.0	6.3	6.6	5.5	6.3	6.5	6.8	7.2	6.0	6.8	7.1	7.4	7.8	6.5	7.4	7.7	8.1	8.5
	-30	4.1	4.6	4.8	5.1	5.3	4.4	4.9	5.2	5.4	5.6	4.8	5.4	5.7	5.9	6.2	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.4
	-25	3.4	3.8	4.0	4.2	4.4	3.6	4.1	4.3	4.5	4.7	4.0	4.6	4.8	5.0	5.2	4.5	5.1	5.3	5.5	5.8	4.9	5.6	5.8	6.1	6.4
	-20	2.7	3.1	3.2	3.4	3.5	2.9	3.3	3.5	3.7	3.8	3.3	3.8	4.0	4.1	4.3	3.7	4.2	4.4	4.6	4.9	4.2	4.7	5.0	5.2	5.4
	-15	2.0	2.3	2.4	2.6	2.7	2.3	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.5	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5
	-10	1.4	1.6	1.7	1.8	1.9	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.5	2.6	2.3	2.7	2.8	2.9	3.1	2.7	3.1	3.3	3.4	3.6
	-5	0.8	0.9	1.0	1.1	1.1	1.0	1.2	1.2	1.3	1.4	1.3	1.5	1.6	1.7	1.8	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.6	2.7
	0	0.3	0.4	0.5	0.5	0.6	0.5	0.7	0.7	0.8	0.8	0.8	1.0	1.1	1.1	1.2	1.2	1.4	1.5	1.5	1.6	1.5	1.8	1.9	2.0	2.1
	5	6.8	7.6	8.0	8.4	8.8	7.1	8.0	8.4	8.8	9.2	7.6	8.6	9.0	9.4	9.9	8.1	9.2	9.6	10.1	10.6	8.7	9.9	10.3	10.8	11.3
	10	6.4	7.2	7.6	7.9	8.3	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.5	8.9	9.4	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.8
	15	6.1	6.8	7.1	7.5	7.8	6.4	7.2	7.5	7.8	8.2	6.8	7.7	8.1	8.5	8.9	7.4	8.3	8.7	9.1	9.6	7.9	9.0	9.4	9.8	10.3
	20	5.6	6.3	6.6	6.9	7.2	5.9	6.7	7.0	7.3	7.6	6.4	7.2	7.5	7.9	8.2	6.9	7.8	8.1	8.5	8.9	7.4	8.4	8.8	9.2	9.6
12000	-35	5.2	5.8	6.1	6.4	6.6	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.0	7.3	7.6	6.4	7.2	7.5	7.9	8.3	6.9	7.8	8.2	8.5	9.0
	-30	4.8	5.5	5.7	5.9	6.2	5.1	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.8	7.2	6.0	6.8	7.1	7.4	7.8	6.5	7.4	7.7	8.1	8.5
	-25	4.2	4.8	5.0	5.2	5.5	4.5	5.1	5.3	5.6	5.8	5.0	5.6	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.0	7.3	7.7
	-20	3.6	4.0	4.2	4.4	4.6	3.8	4.3	4.5	4.7	5.0	4.2	4.8	5.0	5.2	5.5	4.7	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7
	-15	2.9	3.3	3.5	3.6	3.8	3.1	3.6	3.7	3.9	4.1	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.7	4.9	5.1	4.4	5.0	5.2	5.5	5.7
	-10	2.2	2.6	2.7																						

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8000	-35	10.5	11.8	12.4	13.0	13.6	11.1	12.6	13.2	13.8	14.4	11.8	13.4	14.0	14.6	15.3	13.4	15.1	15.7	16.4	17.2
	-30	10.5	11.9	12.4	13.0	13.6	11.2	12.6	13.2	13.8	14.5	11.9	13.4	14.0	14.6	15.3	13.4	15.1	15.7	16.5	17.2
	-25	10.5	11.9	12.4	13.0	13.6	11.2	12.6	13.2	13.8	14.5	11.9	13.4	14.0	14.6	15.3	13.4	15.1	15.7	16.4	17.2
	-20	10.2	11.5	12.0	12.6	13.2	10.8	12.2	12.8	13.4	14.0	11.5	13.0	13.6	14.2	14.9	13.0	14.7	15.3	16.0	16.7
	-15	9.6	10.9	11.3	11.9	12.4	10.3	11.6	12.1	12.7	13.3	10.9	12.3	12.9	13.5	14.1	12.4	14.0	14.6	15.3	16.0
	-10	9.2	10.4	10.8	11.3	11.9	9.8	11.1	11.6	12.1	12.7	10.5	11.8	12.4	12.9	13.6	12.0	13.5	14.1	14.7	15.4
	-5	8.5	9.7	10.1	10.6	11.1	9.2	10.4	10.9	11.4	11.9	9.8	11.1	11.6	12.2	12.8	11.3	12.7	13.3	13.9	14.6
	0	7.7	8.7	9.1	9.6	10.1	8.3	9.4	9.9	10.3	10.9	8.9	10.1	10.6	11.1	11.7	10.4	11.7	12.3	12.8	13.5
	5	6.8	7.7	8.1	8.5	8.9	7.4	8.4	8.8	9.2	9.7	8.0	9.1	9.5	10.0	10.5	9.4	10.6	11.1	11.7	12.3
	10	5.9	6.7	7.1	7.4	7.8	6.5	7.4	7.7	8.1	8.5	7.1	8.1	8.4	8.9	9.3	8.4	9.6	10.0	10.5	11.1
	15	5.1	5.8	6.1	6.4	6.7	5.6	6.4	6.7	7.1	7.4	6.2	7.1	7.4	7.8	8.2	7.4	8.5	8.9	9.4	9.9
	20	4.3	4.9	5.2	5.4	5.7	4.8	5.5	5.8	6.0	6.4	5.3	6.1	6.4	6.7	7.1	6.5	7.5	7.8	8.2	8.7
9000	-35	10.3	11.6	12.2	12.7	13.3	11.0	12.4	12.9	13.5	14.2	11.7	13.2	13.7	14.4	15.1	13.2	14.8	15.5	16.2	16.9
	-30	10.3	11.6	12.2	12.7	13.3	11.0	12.4	12.9	13.5	14.2	11.7	13.2	13.7	14.4	15.0	13.2	14.8	15.5	16.2	16.9
	-25	10.0	11.2	11.7	12.3	12.9	10.6	12.0	12.5	13.1	13.7	11.3	12.8	13.3	13.9	14.6	12.8	14.4	15.0	15.7	16.4
	-20	9.4	10.7	11.1	11.6	12.2	10.1	11.4	11.9	12.4	13.0	10.8	12.1	12.7	13.3	13.9	12.2	13.8	14.4	15.0	15.7
	-15	8.9	10.0	10.5	11.0	11.5	9.5	10.8	11.2	11.8	12.3	10.2	11.5	12.0	12.6	13.2	11.7	13.1	13.7	14.3	15.0
	-10	8.4	9.6	10.0	10.5	11.0	9.1	10.3	10.7	11.2	11.8	9.7	11.0	11.5	12.1	12.6	11.2	12.6	13.2	13.8	14.5
	-5	7.8	8.8	9.2	9.7	10.2	8.4	9.5	10.0	10.5	11.0	9.1	10.3	10.7	11.2	11.8	10.5	11.9	12.4	13.0	13.6
	0	7.0	7.9	8.3	8.6	9.1	7.5	8.6	9.0	9.4	9.9	8.2	9.3	9.7	10.2	10.7	9.6	10.8	11.3	11.9	12.5
	5	6.1	6.9	7.2	7.6	7.9	6.6	7.5	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.5	8.6	9.7	10.2	10.7	11.3
	10	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.6	6.4	7.2	7.6	8.0	8.4	7.6	8.7	9.1	9.6	10.1
	15	4.5	5.1	5.3	5.6	5.9	5.0	5.7	5.9	6.2	6.5	5.5	6.3	6.6	6.9	7.2	6.7	7.6	8.0	8.4	8.9
	20	3.7	4.2	4.4	4.7	4.9	4.2	4.8	5.0	5.3	5.5	4.7	5.4	5.6	5.9	6.2	5.8	6.6	7.0	7.3	7.7
	25	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.9	4.5	4.7	4.9	5.2	5.0	5.7	6.0	6.3	6.6
10000	-35	10.0	11.3	11.8	12.3	12.9	10.6	12.0	12.5	13.1	13.7	11.3	12.8	13.3	13.9	14.6	12.8	14.4	15.1	15.7	16.5
	-30	9.7	10.9	11.4	11.9	12.5	10.3	11.6	12.2	12.7	13.3	11.0	12.4	13.0	13.5	14.2	12.5	14.1	14.7	15.3	16.0
	-25	9.2	10.4	10.9	11.4	11.9	9.9	11.1	11.6	12.2	12.8	10.5	11.9	12.4	13.0	13.6	12.0	13.5	14.1	14.8	15.5
	-20	8.7	9.8	10.3	10.8	11.3	9.3	10.6	11.0	11.5	12.1	10.0	11.3	11.8	12.4	13.0	11.5	12.9	13.5	14.1	14.8
	-15	8.2	9.2	9.7	10.1	10.6	8.8	9.9	10.4	10.9	11.4	9.4	10.7	11.2	11.7	12.2	10.9	12.3	12.8	13.4	14.1
	-10	7.7	8.8	9.2	9.6	10.1	8.3	9.5	9.9	10.4	10.9	9.0	10.2	10.6	11.1	11.7	10.4	11.8	12.3	12.9	13.5
	-5	7.1	8.0	8.4	8.8	9.2	7.7	8.7	9.1	9.5	10.0	8.3	9.4	9.9	10.3	10.8	9.7	11.0	11.5	12.0	12.6
	0	6.3	7.1	7.4	7.8	8.1	6.8	7.7	8.1	8.5	8.9	7.4	8.4	8.8	9.2	9.7	8.8	9.9	10.4	10.9	11.5
	5	5.4	6.1	6.4	6.7	7.1	6.0	6.8	7.1	7.4	7.8	6.5	7.4	7.8	8.1	8.5	7.8	8.9	9.3	9.8	10.3
	10	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7	5.7	6.5	6.8	7.1	7.4	6.9	7.8	8.2	8.6	9.1
	15	3.9	4.4	4.6	4.8	5.1	4.3	4.9	5.2	5.4	5.7	4.8	5.5	5.8	6.1	6.4	6.0	6.8	7.1	7.5	7.9
	20	3.1	3.6	3.7	3.9	4.1	3.6	4.1	4.3	4.5	4.7	4.1	4.6	4.9	5.1	5.4	5.1	5.9	6.1	6.5	6.8
11000	-35	9.3	10.6	11.0	11.5	12.1	10.0	11.3	11.8	12.3	12.9	10.7	12.0	12.6	13.1	13.8	12.2	13.7	14.3	14.9	15.6
	-30	8.9	10.1	10.5	11.0	11.6	9.6	10.8	11.3	11.8	12.4	10.2	11.6	12.1	12.6	13.2	11.7	13.2	13.8	14.4	15.1
	-25	8.5	9.6	10.1	10.5	11.1	9.2	10.3	10.8	11.3	11.9	9.8	11.1	11.6	12.1	12.7	11.3	12.7	13.3	13.9	14.5
	-20	8.0	9.1	9.5	9.9	10.4	8.6	9.8	10.2	10.7	11.2	9.3	10.5	11.0	11.5	12.0	10.7	12.1	12.6	13.2	13.8
	-15	7.5	8.4	8.8	9.2	9.7	8.1	9.1	9.6	10.0	10.5	8.7	9.9	10.3	10.8	11.3	10.1	11.4	11.9	12.5	13.1
	-10	7.1	8.0	8.4	8.8	9.2	7.7	8.7	9.1	9.5	10.0	8.3	9.4	9.8	10.3	10.8	9.7	11.0	11.5	12.0	12.6
	-5	6.4	7.3	7.6	8.0	8.3	7.0	7.9	8.3	8.7	9.1	7.6	8.6	9.0	9.5	9.9	9.0	10.2	10.6	11.1	11.7
	0	5.6	6.4	6.7	7.0	7.3	6.2	7.0	7.3	7.7	8.1	6.8	7.7	8.0	8.4	8.8	8.1	9.2	9.6	10.1	10.6
	5	4.9	5.5	5.8	6.0	6.3	5.4	6.1	6.4	6.7	7.0	5.9	6.7	7.0	7.4	7.7	7.2	8.1	8.5	8.9	9.4
	10	4.1	4.7	4.9	5.1	5.4	4.6	5.2	5.4	5.7	6.0	5.1	5.8	6.1	6.4	6.7	6.3	7.1	7.5	7.8	8.2
	15	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.8	5.0	4.3	4.9	5.1	5.4	5.7	5.4	6.2	6.4	6.8	7.1
	20	2.7	3.0	3.2	3.3	3.5	3.1	3.5	3.7	3.9	4.1	3.5	4.0	4.2	4.5	4.7	4.6	5.2	5.5	5.8	6.1
	25	2.0	2.3	2.4	2.5	2.7	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.4	3.6	3.8	3.8	4.3	4.6	4.8	5.0
	27	1.7	2.0	2.1	2.2	2.3	2.1	2.4	2.6	2.7	2.8	2.5	2.9	3.1	3.2	3.4	3.5	4.0	4.2	4.4	4.6

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Figure 4-42 (Sheet 6)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT
FLAPS - 15°CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
1	-35	6.2	7.0	7.3	7.6	8.0		6.5	7.3	7.6	8.0	8.4		7.0	7.9	8.2	8.6	9.0		7.5	8.5	8.8	9.2	9.7		8.0	9.1	9.5	10.0	10.4	
2	-30	5.8	6.5	6.8	7.1	7.5		6.1	6.9	7.2	7.5	7.9		6.6	7.4	7.7	8.1	8.5		7.1	8.0	8.3	8.7	9.2		7.6	8.6	9.0	9.4	9.9	
0	-25	5.5	6.1	6.4	6.7	7.0		5.7	6.5	6.8	7.1	7.4		6.2	7.0	7.3	7.6	8.0		6.7	7.6	7.9	8.3	8.7		7.2	8.2	8.5	8.9	9.4	
0	-20	5.0	5.7	5.9	6.2	6.5		5.3	6.0	6.2	6.5	6.8		5.8	6.5	6.8	7.1	7.4		6.2	7.0	7.4	7.7	8.1		6.8	7.6	8.0	8.3	8.7	
0	-15	4.6	5.2	5.4	5.7	5.9		4.9	5.5	5.7	6.0	6.3		5.3	6.0	6.3	6.5	6.8		5.8	6.5	6.8	7.1	7.5		6.3	7.1	7.4	7.7	8.1	
0	-10	4.3	4.8	5.0	5.3	5.5		4.5	5.1	5.3	5.6	5.8		5.0	5.6	5.9	6.1	6.4		5.4	6.1	6.4	6.7	7.0		5.9	6.7	7.0	7.3	7.6	
	-5	3.7	4.2	4.4	4.6	4.8		4.0	4.5	4.7	4.9	5.1		4.4	5.0	5.2	5.4	5.7		4.8	5.5	5.7	6.0	6.2		5.3	6.0	6.3	6.6	6.9	
	0	3.1	3.5	3.6	3.8	4.0		3.3	3.8	3.9	4.1	4.3		3.7	4.2	4.4	4.6	4.8		4.1	4.7	4.9	5.1	5.4		4.6	5.2	5.4	5.7	5.9	
	5	2.4	2.8	2.9	3.0	3.2		2.7	3.0	3.2	3.3	3.5		3.0	3.4	3.6	3.8	4.0		3.4	3.9	4.1	4.3	4.5		3.9	4.4	4.6	4.8	5.0	
	10	1.8	2.0	2.2	2.3	2.4		2.0	2.3	2.4	2.5	2.7		2.4	2.7	2.8	3.0	3.1		2.7	3.1	3.3	3.4	3.6		3.1	3.6	3.7	3.9	4.1	
	15	1.2	1.4	1.5	1.5	1.6		1.4	1.6	1.7	1.8	1.9		1.7	2.0	2.1	2.2	2.3		2.1	2.4	2.5	2.6	2.8		2.5	2.8	3.0	3.1	3.3	
	20	0.6	0.7	0.8	0.8	0.9		0.8	1.0	1.0	1.1	1.2		1.1	1.3	1.4	1.5	1.6		1.4	1.7	1.8	1.9	2.0		1.8	2.1	2.2	2.3	2.4	
	25	0.1	0.1	0.2	0.2	0.2		0.2	0.4	0.4	0.4	0.5		0.5	0.7	0.7	0.8	0.9		0.9	1.0	1.1	1.2	1.3		1.2	1.4	1.5	1.6	1.7	
1	-35	5.5	6.3	6.5	6.8	7.1		5.8	6.6	6.9	7.2	7.5		6.3	7.1	7.4	7.8	8.1		6.8	7.7	8.0	8.4	8.8		7.3	8.3	8.7	9.1	9.5	
3	-30	5.2	5.9	6.1	6.4	6.7		5.5	6.2	6.5	6.7	7.1		5.9	6.7	7.0	7.3	7.7		6.4	7.3	7.6	7.9	8.3		7.0	7.9	8.2	8.6	9.0	
0	-25	4.9	5.5	5.7	6.0	6.3		5.2	5.8	6.1	6.3	6.6		5.6	6.3	6.6	6.9	7.2		6.1	6.9	7.2	7.5	7.8		6.6	7.4	7.8	8.1	8.5	
0	-20	4.5	5.0	5.2	5.5	5.7		4.7	5.3	5.6	5.8	6.1		5.2	5.8	6.1	6.3	6.6		5.6	6.3	6.6	6.9	7.3		6.1	6.9	7.2	7.5	7.9	
0	-15	4.1	4.6	4.8	5.0	5.2		4.3	4.9	5.1	5.3	5.6		4.7	5.3	5.6	5.8	6.1		5.2	5.9	6.1	6.4	6.7		5.7	6.4	6.7	7.0	7.3	
0	-10	3.7	4.2	4.4	4.6	4.8		4.0	4.5	4.7	4.9	5.1		4.4	5.0	5.2	5.4	5.7		4.8	5.5	5.7	6.0	6.2		5.3	6.0	6.3	6.5	6.8	
	-5	3.2	3.6	3.8	4.0	4.1		3.5	3.9	4.1	4.3	4.5		3.9	4.4	4.5	4.7	5.0		4.3	4.8	5.0	5.3	5.5		4.7	5.3	5.6	5.8	6.1	
	0	2.6	2.9	3.1	3.2	3.4		2.8	3.2	3.3	3.5	3.7		3.2	3.6	3.8	4.0	4.2		3.6	4.1	4.3	4.5	4.7		4.0	4.6	4.8	5.0	5.2	
	5	2.0	2.2	2.4	2.5	2.6		2.2	2.5	2.6	2.7	2.9		2.5	2.9	3.0	3.2	3.3		2.9	3.3	3.5	3.6	3.8		3.3	3.8	4.0	4.1	4.3	
	10	1.3	1.6	1.7	1.7	1.8		1.6	1.8	1.9	2.0	2.1		1.9	2.2	2.3	2.4	2.5		2.3	2.6	2.7	2.8	3.0		2.7	3.0	3.2	3.3	3.5	
	15	0.8	0.9	1.0	1.1	1.1		1.0	1.2	1.2	1.3	1.4		1.3	1.5	1.6	1.7	1.8		1.6	1.9	2.0	2.1	2.2		2.0	2.3	2.4	2.5	2.7	
	20	0.2	0.3	0.3	0.4	0.4		0.4	0.5	0.6	0.6	0.7		0.7	0.9	0.9	1.0	1.0		1.0	1.2	1.3	1.4	1.4		1.4	1.6	1.7	1.8	1.9	
	23	-0.1	-0.1	0.0	0.0	0.0		0.1	0.2	0.2	0.2	0.3		0.4	0.5	0.5	0.6	0.6		0.7	0.8	0.9	0.9	1.0		1.0	1.2	1.3	1.3	1.4	
1	-35	5.0	5.6	5.8	6.1	6.4		5.2	5.9	6.2	6.4	6.7		5.7	6.4	6.7	7.0	7.3		6.2	7.0	7.3	7.6	8.0		6.7	7.5	7.9	8.2	8.6	
4	-30	4.6	5.2	5.4	5.7	5.9		4.9	5.5	5.8	6.0	6.3		5.3	6.0	6.3	6.6	6.9		5.8	6.5	6.8	7.1	7.5		6.3	7.1	7.4	7.8	8.1	
0	-25	4.3	4.9	5.1	5.3	5.5		4.6	5.2	5.4	5.6	5.9		5.0	5.6	5.9	6.2	6.4		5.5	6.2	6.4	6.7	7.0		6.0	6.7	7.0	7.3	7.7	
0	-20	3.9	4.4	4.6	4.8	5.0		4.2	4.7	4.9	5.1	5.4		4.6	5.2	5.4	5.6	5.9		5.0	5.7	5.9	6.2	6.5		5.5	6.2	6.5	6.8	7.1	
0	-15	3.5	4.0	4.1	4.3	4.5		3.8	4.3	4.4	4.6	4.9		4.2	4.7	4.9	5.1	5.4		4.6	5.2	5.4	5.7	5.9		5.1	5.7	6.0	6.2	6.5	
0	-10	3.2	3.7	3.8	4.0	4.2		3.5	3.9	4.1	4.3	4.5		3.9	4.4	4.6	4.8	5.0		4.3	4.9	5.1	5.3	5.5		4.8	5.4	5.6	5.8	6.1	
	-5	2.7	3.1	3.2	3.3	3.5		2.9	3.3	3.5	3.6	3.8		3.3	3.8	3.9	4.1	4.3		3.7	4.2	4.4	4.6	4.8		4.2	4.7	4.9	5.1	5.4	
	0	2.1	2.4	2.5	2.6	2.8		2.3	2.7	2.8	2.9	3.1		2.7	3.1	3.2	3.4	3.5		3.1	3.5	3.7	3.8	4.0		3.5	4.0	4.1	4.3	4.5	
	5	1.5	1.7	1.8	1.9	2.0		1.7	2.0	2.1	2.2	2.3		2.1	2.4	2.5	2.6	2.7		2.4	2.8	2.9	3.0	3.2		2.8	3.2	3.4	3.5	3.7	
	10	0.9	1.1	1.2	1.2	1.3		1.1	1.3	1.4	1.5	1.6		1.5	1.7	1.8	1.9	2.0		1.8	2.1	2.2	2.3	2.4		2.2	2.5	2.6	2.7	2.9	
	15	0.4	0.5	0.5	0.6	0.6		0.6	0.7	0.8	0.8	0.9		0.9	1.1	1.1	1.2	1.3		1.2	1.4	1.5	1.6	1.7		1.6	1.8	1.9	2.0	2.1	
	20	-0.2	-0.1	-0.1	0.0	0.0		0.0	0.1	0.1	0.2	0.2		0.3	0.4	0.5	0.5	0.6		0.6	0.8	0.8	0.9	1.0		1.0	1.2	1.2	1.3	1.4	
	21	-0.3	-0.2	-0.2	-0.2	-0.2		-0.1	0.0	0.0	0.0	0.1		0.2	0.3	0.3	0.4	0.4		0.5	0.6	0.7	0.7	0.8		0.8	1.0	1.1	1.1	1.2	

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Figure 4-42 (Sheet 7)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V2

SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		14500					14000					13500					12500					11500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
1	-35	8.6	9.8	10.2	10.7	11.2	9.3	10.5	10.9	11.5	12.0	9.9	11.2	11.7	12.3	12.9	11.4	12.9	13.4	14.0	14.7	13.0	14.7	15.3	16.0	16.7	13.0	14.7	15.3	16.0	16.7
2	-30	8.2	9.3	9.7	10.2	10.6	8.8	10.0	10.4	10.9	11.4	9.5	10.7	11.2	11.7	12.3	10.9	12.3	12.9	13.5	14.1	12.5	14.1	14.7	15.4	16.1	12.5	14.1	14.7	15.4	16.1
0	-25	7.8	8.8	9.2	9.7	10.1	8.4	9.5	9.9	10.4	10.9	9.1	10.3	10.7	11.2	11.8	10.5	11.8	12.4	12.9	13.5	12.1	13.6	14.2	14.9	15.6	12.1	13.6	14.2	14.9	15.6
0	-20	7.3	8.3	8.6	9.0	9.5	7.9	8.9	9.3	9.8	10.3	8.5	9.7	10.1	10.6	11.1	9.9	11.2	11.7	12.3	12.9	11.5	13.0	13.6	14.2	14.9	11.5	13.0	13.6	14.2	14.9
0	-15	6.8	7.7	8.0	8.4	8.8	7.4	8.4	8.7	9.1	9.6	8.0	9.1	9.5	9.9	10.4	9.4	10.6	11.1	11.6	12.2	10.9	12.3	12.9	13.5	14.1	10.9	12.3	12.9	13.5	14.1
0	-10	6.4	7.3	7.6	8.0	8.3	7.0	7.9	8.3	8.7	9.1	7.6	8.6	9.0	9.4	9.9	9.0	10.1	10.6	11.1	11.6	10.5	11.9	12.4	13.0	13.6	10.5	11.9	12.4	13.0	13.6
0	-5	5.8	6.6	6.9	7.2	7.5	6.4	7.2	7.5	7.9	8.2	6.9	7.9	8.2	8.6	9.0	8.2	9.4	9.8	10.3	10.8	9.8	11.0	11.5	12.1	12.7	9.8	11.0	11.5	12.1	12.7
0	0	5.1	5.7	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.2	6.1	6.9	7.3	7.6	8.0	7.4	8.4	8.8	9.2	9.7	8.8	10.0	10.5	11.0	11.6	8.8	10.0	10.5	11.0	11.6
0	5	4.3	4.9	5.1	5.4	5.6	4.8	5.4	5.7	6.0	6.3	5.3	6.0	6.3	6.6	6.9	6.5	7.4	7.7	8.1	8.5	7.9	9.0	9.4	9.9	10.4	7.9	9.0	9.4	9.9	10.4
0	10	3.6	4.1	4.2	4.4	4.7	4.0	4.6	4.8	5.0	5.3	4.5	5.1	5.4	5.6	5.9	5.6	6.4	6.7	7.0	7.4	7.0	7.9	8.3	8.7	9.2	7.0	7.9	8.3	8.7	9.2
0	15	2.9	3.3	3.4	3.6	3.8	3.3	3.8	4.0	4.1	4.4	3.8	4.3	4.5	4.7	5.0	4.8	5.5	5.8	6.0	6.4	6.1	6.9	7.3	7.6	8.0	6.1	6.9	7.3	7.6	8.0
0	20	2.2	2.5	2.6	2.8	2.9	2.6	3.0	3.1	3.3	3.5	3.0	3.5	3.6	3.8	4.0	4.0	4.6	4.8	5.1	5.3	5.2	5.9	6.2	6.5	6.9	5.2	5.9	6.2	6.5	6.9
0	25	1.6	1.8	1.9	2.0	2.1	2.0	2.3	2.4	2.5	2.6	2.4	2.7	2.9	3.0	3.2	3.3	3.8	4.0	4.2	4.4	4.4	5.1	5.3	5.6	5.9	4.4	5.1	5.3	5.6	5.9
1	-35	7.9	8.9	9.3	9.8	10.3	8.5	9.6	10.1	10.5	11.1	9.2	10.4	10.8	11.3	11.9	10.6	12.0	12.5	13.1	13.7	12.2	13.7	14.3	15.0	15.7	12.2	13.7	14.3	15.0	15.7
3	-30	7.5	8.5	8.9	9.3	9.7	8.1	9.2	9.6	10.0	10.5	8.8	9.9	10.3	10.8	11.4	10.2	11.5	12.0	12.5	13.1	11.8	13.2	13.8	14.4	15.1	11.8	13.2	13.8	14.4	15.1
0	-25	7.1	8.0	8.4	8.8	9.2	7.7	8.7	9.1	9.5	10.0	8.3	9.4	9.9	10.3	10.8	9.7	11.0	11.5	12.0	12.6	11.3	12.7	13.3	13.9	14.6	11.3	12.7	13.3	13.9	14.6
0	-20	6.6	7.5	7.8	8.2	8.6	7.2	8.2	8.5	8.9	9.4	7.8	8.9	9.3	9.7	10.2	9.2	10.4	10.9	11.4	11.9	10.7	12.1	12.7	13.2	13.9	10.7	12.1	12.7	13.2	13.9
0	-15	6.2	7.0	7.3	7.6	8.0	6.7	7.6	7.9	8.3	8.7	7.3	8.3	8.7	9.1	9.5	8.6	9.8	10.2	10.7	11.2	10.2	11.5	12.0	12.6	13.2	10.2	11.5	12.0	12.6	13.2
0	-10	5.8	6.6	6.8	7.2	7.5	6.3	7.2	7.5	7.8	8.2	6.9	7.8	8.2	8.6	9.0	8.2	9.3	9.7	10.2	10.7	9.7	11.0	11.5	12.0	12.6	9.7	11.0	11.5	12.0	12.6
0	-5	5.2	5.9	6.2	6.4	6.7	5.7	6.5	6.8	7.1	7.4	6.3	7.1	7.4	7.8	8.2	7.5	8.6	9.0	9.4	9.8	9.0	10.2	10.7	11.2	11.8	9.0	10.2	10.7	11.2	11.8
0	0	4.5	5.1	5.3	5.6	5.8	5.0	5.6	5.9	6.2	6.5	5.5	6.3	6.5	6.8	7.2	6.7	7.6	8.0	8.3	8.8	8.1	9.2	9.7	10.1	10.7	8.1	9.2	9.7	10.1	10.7
0	5	3.8	4.3	4.5	4.7	4.9	4.2	4.8	5.0	5.3	5.5	4.7	5.4	5.6	5.9	6.2	5.9	6.7	7.0	7.3	7.7	7.2	8.2	8.6	9.0	9.5	7.2	8.2	8.6	9.0	9.5
0	10	3.1	3.5	3.7	3.8	4.0	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.7	5.0	5.2	5.1	5.7	6.0	6.3	6.6	6.3	7.2	7.5	7.9	8.3	6.3	7.2	7.5	7.9	8.3
0	15	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.4	3.5	3.7	3.3	3.7	3.9	4.1	4.3	4.3	4.9	5.1	5.4	5.6	5.5	6.2	6.5	6.9	7.2	5.5	6.2	6.5	6.9	7.2
0	20	1.7	2.0	2.1	2.2	2.3	2.1	2.5	2.6	2.7	2.9	2.6	2.9	3.1	3.2	3.4	3.5	4.0	4.2	4.4	4.6	4.6	5.3	5.6	5.8	6.1	4.6	5.3	5.6	5.8	6.1
0	23	1.4	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.2	2.4	2.2	2.5	2.6	2.7	2.9	3.1	3.5	3.7	3.9	4.1	4.2	4.8	5.0	5.2	5.5	4.2	4.8	5.0	5.2	5.5
1	-35	7.2	8.2	8.5	8.9	9.4	7.8	8.8	9.2	9.7	10.1	8.5	9.6	10.0	10.5	11.0	9.9	11.1	11.6	12.2	12.7	11.4	12.9	13.4	14.1	14.7	11.4	12.9	13.4	14.1	14.7
4	-30	6.8	7.7	8.1	8.4	8.8	7.4	8.4	8.7	9.2	9.6	8.0	9.1	9.5	9.9	10.4	9.4	10.6	11.1	11.6	12.2	11.0	12.4	12.9	13.5	14.1	11.0	12.4	12.9	13.5	14.1
0	-25	6.5	7.3	7.6	8.0	8.4	7.0	7.9	8.3	8.7	9.1	7.6	8.6	9.0	9.4	9.9	9.0	10.2	10.6	11.1	11.6	10.5	11.9	12.4	13.0	13.6	10.5	11.9	12.4	13.0	13.6
0	-20	6.0	6.8	7.1	7.4	7.8	6.6	7.4	7.7	8.1	8.5	7.1	8.1	8.4	8.8	9.3	8.5	9.6	10.0	10.5	11.0	10.0	11.3	11.8	12.3	12.9	10.0	11.3	11.8	12.3	12.9
0	-15	5.6	6.3	6.6	6.9	7.2	6.1	6.9	7.2	7.5	7.9	6.7	7.5	7.9	8.2	8.6	7.9	9.0	9.4	9.8	10.3	9.4	10.6	11.1	11.6	12.2	9.4	10.6	11.1	11.6	12.2
0	-10	5.2	5.9	6.2	6.4	6.7	5.7	6.5	6.8	7.1	7.4	6.3	7.1	7.4	7.8	8.1	7.5	8.5	8.9	9.3	9.8	9.0	10.2	10.6	11.1	11.7	9.0	10.2	10.6	11.1	11.7
0	-5	4.6	5.2	5.5	5.7	6.0	5.1	5.8	6.1	6.3	6.6	5.7	6.4	6.7	7.0	7.3	6.9	7.8	8.1	8.5	8.9	8.3	9.4	9.8	10.3	10.8	8.3	9.4	9.8	10.3	10.8
0	0	3.9	4.5	4.7	4.9	5.1	4.4	5.0	5.2	5.5	5.7	4.9	5.6	5.8	6.1	6.4	6.1	6.9	7.2	7.5	7.9	7.4	8.4	8.8	9.2	9.7	7.4	8.4	8.8	9.2	9.7
0	5	3.2	3.7	3.8	4.0	4.2	3.7	4.2	4.4	4.6	4.8	4.2	4.7	4.9	5.2	5.4	5.3	6.0	6.2	6.5	6.9	6.5	7.4	7.8	8.1	8.6	6.5	7.4	7.8	8.1	8.6
0	10	2.6	2.9	3.1	3.2	3.4	3.0	3.4	3.6	3.8	3.9	3.5	3.9	4.1	4.3	4.5	4.5	5.1	5.3	5.6	5.9	5.7	6.5	6.8	7.1	7.5	5.7	6.5	6.8	7.1	7.5
0	15	1.9	2.2	2.3	2.5	2.6	2.3	2.7	2.8	3.0	3.1	2.8	3.2	3.3	3.5	3.7	3.7	4.3	4.5	4.7	4.9	4.9	5.6	5.8	6.1	6.4	4.9	5.6	5.8	6.1	6.4
0	20	1.3	1.6	1.6	1.7	1.8	1.7	2.0	2.1	2.2	2.3	2.1	2.4	2.6	2.7	2.8	3.0	3.5	3.6	3.8	4.0	4.1	4.7	4.9	5.2	5.4	4.1	4.7	4.9	5.2	5.4
0	21	1.2	1.4	1.5	1.6	1.6	1.6	1.8	1.9	2.0	2.1	2.0	2.3	2.4	2.5	2.6	2.9	3.3	3.4	3.6	3.8	3.9	4.5	4.7	4.9	5.2	3.9	4.5	4.7	4.9	5.2

56FMC-00-00

Figure 4-42 (Sheet 8)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15⁰

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		16830					16500					16000					15500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	6.2	7.2	7.6	8.0	8.5	6.5	7.5	8.0	8.4	8.9	7.0	8.1	8.6	9.1	9.6	7.5	8.7	9.2	9.8	10.4
	-30	6.2	7.2	7.6	8.0	8.5	6.5	7.6	8.0	8.4	9.0	7.0	8.1	8.6	9.1	9.6	7.5	8.7	9.2	9.8	10.4
	-25	6.3	7.2	7.6	8.1	8.5	6.6	7.6	8.0	8.5	9.0	7.1	8.2	8.6	9.1	9.7	7.6	8.8	9.3	9.8	10.4
	-20	6.3	7.3	7.7	8.1	8.6	6.6	7.6	8.1	8.5	9.0	7.1	8.2	8.7	9.2	9.7	7.6	8.8	9.3	9.8	10.4
	-15	6.3	7.3	7.7	8.1	8.6	6.7	7.7	8.1	8.5	9.0	7.1	8.3	8.7	9.2	9.7	7.7	8.9	9.4	9.9	10.5
	-10	6.4	7.4	7.8	8.2	8.6	6.7	7.7	8.1	8.6	9.1	7.2	8.3	8.7	9.2	9.8	7.7	8.9	9.4	9.9	10.5
	-5	6.4	7.4	7.8	8.2	8.7	6.8	7.8	8.2	8.6	9.1	7.2	8.4	8.8	9.3	9.8	7.8	9.0	9.4	10.0	10.6
	0	6.5	7.5	7.8	8.3	8.7	6.8	7.8	8.2	8.7	9.2	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.5	10.0	10.6
	5	6.5	7.5	7.9	8.3	8.7	6.8	7.9	8.3	8.7	9.2	7.3	8.4	8.9	9.3	9.9	7.9	9.1	9.5	10.0	10.6
	10	6.5	7.4	7.8	8.2	8.7	6.8	7.8	8.2	8.6	9.1	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.4	10.0	10.5
10	-35	6.5	7.5	7.9	8.3	8.8	6.8	7.8	8.3	8.7	9.3	7.3	8.4	8.9	9.4	10.0	7.8	9.0	9.5	10.1	10.7
	-30	6.5	7.5	7.9	8.4	8.8	6.8	7.9	8.3	8.8	9.3	7.3	8.5	8.9	9.4	10.0	7.8	9.1	9.6	10.1	10.7
	-25	6.5	7.5	7.9	8.4	8.9	6.9	7.9	8.3	8.8	9.3	7.4	8.5	9.0	9.5	10.0	7.9	9.1	9.6	10.2	10.8
	-20	6.6	7.6	8.0	8.4	8.9	6.9	8.0	8.4	8.8	9.3	7.4	8.5	9.0	9.5	10.0	7.9	9.2	9.7	10.2	10.8
	-15	6.6	7.6	8.0	8.5	8.9	7.0	8.0	8.4	8.9	9.4	7.4	8.6	9.0	9.5	10.1	8.0	9.2	9.7	10.2	10.8
	-10	6.7	7.7	8.1	8.5	9.0	7.0	8.1	8.5	8.9	9.4	7.5	8.6	9.1	9.6	10.1	8.0	9.3	9.7	10.3	10.9
	-5	6.7	7.7	8.1	8.6	9.0	7.1	8.1	8.5	9.0	9.5	7.6	8.7	9.1	9.6	10.2	8.1	9.3	9.8	10.3	10.9
	0	6.8	7.8	8.2	8.6	9.1	7.1	8.1	8.6	9.0	9.5	7.6	8.7	9.2	9.7	10.2	8.2	9.4	9.8	10.4	10.9
	5	6.8	7.7	8.1	8.6	9.0	7.1	8.1	8.5	9.0	9.5	7.6	8.7	9.1	9.6	10.2	8.1	9.3	9.8	10.3	10.9
	10	5.9	6.8	7.1	7.5	7.9	6.3	7.2	7.5	7.9	8.3	6.7	7.7	8.1	8.5	9.0	7.3	8.3	8.8	9.2	9.7
20	-35	6.7	7.7	8.2	8.6	9.1	7.0	8.1	8.5	9.0	9.5	7.5	8.7	9.2	9.7	10.3	8.1	9.3	9.8	10.4	11.0
	-30	6.8	7.8	8.2	8.6	9.1	7.1	8.1	8.6	9.0	9.6	7.6	8.7	9.2	9.7	10.3	8.1	9.4	9.9	10.4	11.0
	-25	6.8	7.8	8.2	8.7	9.2	7.1	8.2	8.6	9.1	9.6	7.6	8.8	9.2	9.8	10.3	8.2	9.4	9.9	10.5	11.1
	-20	6.9	7.9	8.3	8.7	9.2	7.2	8.2	8.7	9.1	9.6	7.7	8.8	9.3	9.8	10.4	8.2	9.5	10.0	10.5	11.1
	-15	6.9	7.9	8.3	8.8	9.2	7.2	8.3	8.7	9.2	9.7	7.7	8.9	9.3	9.8	10.4	8.3	9.5	10.0	10.5	11.1
	-10	7.0	8.0	8.4	8.8	9.3	7.3	8.3	8.8	9.2	9.7	7.8	8.9	9.4	9.9	10.4	8.3	9.6	10.1	10.6	11.2
	-5	7.0	8.0	8.4	8.9	9.3	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.4	9.9	10.5	8.4	9.6	10.1	10.6	11.2
	0	7.0	8.0	8.4	8.8	9.3	7.3	8.4	8.8	9.3	9.8	7.9	9.0	9.4	9.9	10.5	8.4	9.6	10.1	10.6	11.2
	5	6.2	7.1	7.4	7.8	8.2	6.5	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.8	9.3	7.5	8.6	9.0	9.5	10.0
	10	5.3	6.1	6.4	6.7	7.0	5.6	6.4	6.7	7.1	7.4	6.1	6.9	7.3	7.7	8.1	6.6	7.5	7.9	8.3	8.8
30	-35	7.0	8.0	8.4	8.9	9.4	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.4	10.0	10.5	8.3	9.6	10.1	10.7	11.3
	-30	7.0	8.0	8.5	8.9	9.4	7.3	8.4	8.8	9.3	9.8	7.8	9.0	9.5	10.0	10.6	8.4	9.6	10.1	10.7	11.3
	-25	7.1	8.1	8.5	8.9	9.4	7.4	8.5	8.9	9.4	9.9	7.9	9.1	9.5	10.0	10.6	8.5	9.7	10.2	10.7	11.3
	-20	7.1	8.1	8.6	9.0	9.5	7.4	8.5	9.0	9.4	9.9	8.0	9.1	9.6	10.1	10.7	8.5	9.8	10.3	10.8	11.4
	-15	7.2	8.2	8.6	9.1	9.5	7.5	8.6	9.0	9.5	10.0	8.0	9.2	9.6	10.2	10.7	8.6	9.8	10.3	10.9	11.4
	-10	7.2	8.3	8.7	9.1	9.6	7.6	8.6	9.1	9.5	10.1	8.1	9.3	9.7	10.2	10.8	8.7	9.9	10.4	10.9	11.5
	-5	7.3	8.3	8.7	9.1	9.6	7.6	8.7	9.1	9.6	10.1	8.1	9.3	9.7	10.2	10.8	8.7	9.9	10.4	10.9	11.5
	0	6.4	7.3	7.7	8.1	8.5	6.7	7.7	8.1	8.5	8.9	7.2	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.4
	5	5.6	6.3	6.7	7.0	7.4	5.9	6.7	7.0	7.4	7.8	6.3	7.2	7.6	8.0	8.4	6.8	7.8	8.2	8.6	9.1
	10	4.7	5.3	5.6	5.9	6.2	5.0	5.7	5.9	6.3	6.6	5.4	6.2	6.5	6.8	7.2	5.9	6.7	7.1	7.4	7.8
40	-35	7.2	8.3	8.7	9.1	9.6	7.5	8.6	9.1	9.6	10.1	8.0	9.2	9.7	10.2	10.8	8.6	9.9	10.4	10.9	11.5
	-30	7.2	8.3	8.7	9.2	9.7	7.6	8.7	9.1	9.6	10.1	8.1	9.3	9.7	10.3	10.8	8.7	9.9	10.4	11.0	11.6
	-25	7.3	8.3	8.8	9.2	9.7	7.6	8.7	9.2	9.6	10.2	8.2	9.3	9.8	10.3	10.9	8.7	10.0	10.5	11.0	11.6
	-20	7.3	8.4	8.8	9.3	9.7	7.7	8.8	9.2	9.7	10.2	8.2	9.4	9.8	10.4	10.9	8.8	10.0	10.5	11.1	11.6
	-15	7.4	8.5	8.9	9.3	9.8	7.7	8.8	9.3	9.7	10.3	8.3	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.7
	-10	7.4	8.5	8.9	9.3	9.8	7.8	8.9	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0	8.9	10.1	10.6	11.1	11.7
	-5	6.7	7.6	8.0	8.4	8.8	7.0	8.0	8.4	8.8	9.2	7.5	8.6	9.0	9.4	9.9	8.1	9.2	9.7	10.1	10.7
	0	5.8	6.6	6.9	7.3	7.7	6.1	7.0	7.3	7.7	8.1	6.6	7.5	7.9	8.3	8.7	7.1	8.1	8.5	9.0	9.4
	5	4.9	5.6	5.9	6.2	6.5	5.2	6.0	6.3	6.6	6.9	5.7	6.5	6.8	7.2	7.5	6.2	7.1	7.4	7.8	8.2
	10	4.1	4.6	4.9	5.1	5.4	4.3	5.0	5.2	5.5	5.8	4.8	5.4	5.7	6.0	6.3	5.2	6.0	6.3	6.6	6.9
50	-35	7.4	8.4	8.9	9.3	9.8	7.7	8.8	9.3	9.7	10.3	8.2	9.4	9.9	10.4	11.0	8.8	10.1	10.6	11.1	11.7
	-30	7.4	8.5	8.9	9.4	9.9	7.8	8.9	9.3	9.8	10.3	8.3	9.5	10.0	10.5	11.0	8.9	10.1	10.6	11.2	11.8
	-25	7.5	8.5	9.0	9.4	9.9	7.8	8.9	9.4	9.8	10.4	8.4	9.5	10.0	10.5	11.1	8.9	10.2	10.7	11.2	11.8
	-20	7.6	8.6	9.0	9.5	10.0	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.1	10.6	11.1	9.0	10.3	10.7	11.3	11.9
	-15	7.5	8.6	9.0	9.4	9.9	7.9	9.0	9.4	9.9	10.4	8.4	9.6	10.0	10.5	11.1	9.0	10.2	10.7	11.2	11.8
	-10	6.8	7.7	8.1	8.5	8.9	7.1	8.1	8.5	8.9	9.4	7.6	8.7	9.1	9.6	10.1	8.2	9.3	9.8	10.3	10.8
	-5	6.0	6.8	7.1	7.5	7.8	6.3	7.1	7.5	7.9	8.3	6.8	7.7	8.1	8.5	8.9	7.3	8.3	8.7	9.2	9.6
	0	5.1	5.8	6.1	6.4	6.7	5.4	6.1	6.4	6.8	7.1	5.9	6.7	7.0	7.4	7.7	6.3	7.2	7.6	8.0	8.4
	5	4.3	4.9	5.1	5.3	5.6	4.5	5.2	5.4	5.7	6.0	5.0	5.7	5.9	6.2	6.6	5.4	6.2	6.5	6.8	7.2
	10	3.4	3.9	4.1	4.3	4.5	3.6	4.2	4.4	4.6	4.9	4.1	4.6	4.9	5.1	5.4	4.5	5.1	5.4	5.7	6.0

56FMC-00-00

Figure 4-43 (Sheet 1 of 6)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																									
		14500					14000					13500					12500					11500					
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
0	-35		8.6	10.1	10.6	11.2	11.9	9.3	10.8	11.4	12.0	12.8	9.9	11.5	12.2	12.9	13.7	11.4	13.2	13.9	14.7	15.6	13.0	15.0	15.8	16.7	17.7
	-30		8.7	10.1	10.6	11.3	12.0	9.3	10.8	11.4	12.1	12.8	10.0	11.6	12.2	12.9	13.7	11.4	13.2	13.9	14.7	15.6	13.0	15.0	15.8	16.7	17.7
	-25		8.7	10.1	10.7	11.3	12.0	9.4	10.8	11.4	12.1	12.8	10.0	11.6	12.2	12.9	13.7	11.5	13.2	13.9	14.7	15.6	13.1	15.1	15.8	16.7	17.7
	-20		8.8	10.2	10.7	11.3	12.0	9.4	10.9	11.5	12.1	12.8	10.1	11.6	12.3	13.0	13.7	11.5	13.3	14.0	14.7	15.6	13.1	15.1	15.9	16.7	17.7
	-15		8.8	10.2	10.8	11.4	12.0	9.5	10.9	11.5	12.2	12.9	10.1	11.7	12.3	13.0	13.7	11.6	13.3	14.0	14.8	15.6	13.2	15.2	15.9	16.8	17.7
	-10		8.9	10.3	10.8	11.4	12.1	9.5	11.0	11.6	12.2	12.9	10.2	11.7	12.4	13.0	13.8	11.6	13.4	14.1	14.8	15.7	13.3	15.2	16.0	16.8	17.8
	-5		9.0	10.3	10.9	11.4	12.1	9.6	11.0	11.6	12.2	12.9	10.3	11.8	12.4	13.1	13.8	11.7	13.4	14.1	14.9	15.7	13.3	15.3	16.0	16.9	17.8
	0		9.0	10.4	10.9	11.5	12.1	9.6	11.1	11.7	12.3	13.0	10.3	11.8	12.4	13.1	13.8	11.8	13.5	14.2	14.9	15.7	13.4	15.3	16.1	16.9	17.8
	5		9.1	10.4	10.9	11.5	12.2	9.7	11.1	11.7	12.3	13.0	10.4	11.9	12.5	13.1	13.9	11.8	13.5	14.2	14.9	15.8	13.5	15.4	16.1	16.9	17.8
	10		9.0	10.3	10.9	11.4	12.1	9.6	11.0	11.6	12.2	12.9	10.3	11.8	12.4	13.1	13.8	11.8	13.4	14.1	14.8	15.6	13.4	15.3	16.0	16.8	17.7
1	-35		9.0	10.4	11.0	11.6	12.3	9.6	11.1	11.7	12.4	13.1	10.3	11.9	12.5	13.2	14.0	11.7	13.5	14.2	15.0	15.9	13.3	15.3	16.1	17.0	18.0
	-30		9.0	10.4	11.0	11.6	12.3	9.7	11.1	11.7	12.4	13.1	10.3	11.9	12.5	13.2	14.0	11.8	13.5	14.3	15.0	15.9	13.4	15.4	16.2	17.0	18.0
	-25		9.1	10.5	11.0	11.6	12.3	9.7	11.2	11.8	12.4	13.2	10.4	11.9	12.6	13.3	14.0	11.8	13.6	14.3	15.1	15.9	13.5	15.4	16.2	17.1	18.0
	-20		9.1	10.5	11.1	11.7	12.3	9.8	11.2	11.8	12.5	13.2	10.4	12.0	12.6	13.3	14.1	11.9	13.6	14.3	15.1	16.0	13.5	15.5	16.3	17.1	18.1
	-15		9.2	10.6	11.1	11.7	12.4	9.8	11.3	11.9	12.5	13.2	10.5	12.0	12.7	13.3	14.1	12.0	13.7	14.4	15.1	16.0	13.6	15.5	16.3	17.1	18.1
	-10		9.2	10.6	11.2	11.8	12.4	9.9	11.3	11.9	12.6	13.3	10.6	12.1	12.7	13.4	14.1	12.0	13.8	14.4	15.2	16.0	13.7	15.6	16.4	17.2	18.1
	-5		9.3	10.7	11.2	11.8	12.5	9.9	11.4	12.0	12.6	13.3	10.6	12.2	12.8	13.4	14.2	12.1	13.8	14.5	15.2	16.1	13.7	15.7	16.4	17.2	18.2
	0		9.4	10.7	11.3	11.8	12.5	10.0	11.4	12.0	12.6	13.3	10.7	12.2	12.8	13.5	14.2	12.1	13.9	14.5	15.3	16.1	13.8	15.7	16.5	17.3	18.2
	5		9.3	10.7	11.2	11.8	12.4	10.0	11.4	12.0	12.6	13.3	10.7	12.2	12.8	13.4	14.2	12.1	13.8	14.5	15.2	16.0	13.8	15.7	16.4	17.2	18.1
	10		8.4	9.7	10.2	10.7	11.3	9.0	10.4	10.9	11.5	12.1	9.7	11.1	11.7	12.3	13.0	11.1	12.7	13.4	14.1	14.8	12.7	14.5	15.2	16.0	16.9
2	-35		9.3	10.7	11.2	11.9	12.6	9.9	11.4	12.0	12.7	13.4	10.6	12.2	12.8	13.5	14.3	12.0	13.8	14.5	15.3	16.2	13.7	15.7	16.5	17.3	18.3
	-30		9.3	10.7	11.3	11.9	12.6	10.0	11.4	12.0	12.7	13.4	10.6	12.2	12.8	13.5	14.3	12.1	13.9	14.6	15.3	16.2	13.7	15.7	16.5	17.4	18.3
	-25		9.4	10.8	11.3	11.9	12.6	10.0	11.5	12.1	12.7	13.5	10.7	12.3	12.9	13.6	14.3	12.2	13.9	14.6	15.4	16.2	13.8	15.8	16.5	17.4	18.3
	-20		9.4	10.8	11.4	12.0	12.7	10.1	11.5	12.1	12.8	13.5	10.8	12.3	12.9	13.6	14.4	12.2	14.0	14.7	15.4	16.3	13.9	15.8	16.6	17.4	18.4
	-15		9.5	10.9	11.4	12.0	12.7	10.1	11.6	12.2	12.8	13.5	10.8	12.4	13.0	13.7	14.4	12.3	14.0	14.7	15.5	16.3	13.9	15.9	16.6	17.5	18.4
	-10		9.6	10.9	11.5	12.1	12.7	10.2	11.7	12.2	12.9	13.6	10.9	12.4	13.0	13.7	14.5	12.4	14.1	14.8	15.5	16.3	14.0	15.9	16.7	17.5	18.4
	-5		9.6	11.0	11.5	12.1	12.8	10.3	11.7	12.3	12.9	13.6	11.0	12.5	13.1	13.8	14.5	12.4	14.1	14.8	15.6	16.4	14.1	16.0	16.8	17.6	18.5
	0		9.6	11.0	11.5	12.1	12.8	10.3	11.7	12.3	12.9	13.6	11.0	12.5	13.1	13.7	14.5	12.4	14.1	14.8	15.5	16.3	14.1	16.0	16.7	17.5	18.4
	5		8.7	9.9	10.4	11.0	11.6	9.3	10.7	11.2	11.8	12.4	10.0	11.4	12.0	12.6	13.3	11.4	13.0	13.7	14.4	15.1	13.0	14.8	15.5	16.3	17.2
	10		7.7	8.8	9.3	9.8	10.3	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.8	11.3	12.0	10.3	11.8	12.4	13.1	13.8	11.9	13.6	14.3	15.0	15.8
3	-35		9.5	11.0	11.5	12.2	12.8	10.2	11.7	12.3	13.0	13.7	10.9	12.5	13.1	13.8	14.6	12.3	14.1	14.8	15.6	16.5	14.0	16.0	16.8	17.6	18.6
	-30		9.6	11.0	11.6	12.2	12.9	10.2	11.7	12.3	13.0	13.7	10.9	12.5	13.1	13.8	14.6	12.4	14.2	14.9	15.6	16.5	14.1	16.0	16.8	17.6	18.6
	-25		9.7	11.1	11.6	12.2	12.9	10.3	11.8	12.4	13.0	13.7	11.0	12.6	13.2	13.9	14.6	12.5	14.2	14.9	15.7	16.5	14.1	16.1	16.8	17.7	18.6
	-20		9.7	11.1	11.7	12.3	13.0	10.4	11.9	12.4	13.1	13.8	11.1	12.6	13.3	13.9	14.7	12.5	14.3	15.0	15.7	16.6	14.2	16.1	16.9	17.7	18.7
	-15		9.8	11.2	11.7	12.3	13.0	10.5	11.9	12.5	13.1	13.8	11.1	12.7	13.3	14.0	14.7	12.6	14.4	15.0	15.8	16.6	14.3	16.2	17.0	17.8	18.7
	-10		9.9	11.3	11.8	12.4	13.1	10.5	12.0	12.6	13.2	13.9	11.2	12.8	13.4	14.1	14.8	12.7	14.4	15.1	15.9	16.7	14.4	16.3	17.0	17.9	18.8
	-5		9.9	11.3	11.8	12.4	13.1	10.6	12.0	12.6	13.2	13.9	11.3	12.8	13.4	14.1	14.8	12.7	14.4	15.1	15.8	16.7	14.4	16.3	17.0	17.9	18.7
	0		9.0	10.2	10.7	11.3	11.9	9.6	11.0	11.5	12.1	12.7	10.3	11.7	12.3	12.9	13.6	11.7	13.3	14.0	14.7	15.4	13.3	15.1	15.8	16.6	17.5
	5		8.0	9.1	9.6	10.1	10.7	8.6	9.8	10.3	10.9	11.5	9.2	10.6	11.1	11.7	12.3	10.6	12.2	12.8	13.4	14.1	12.2	13.9	14.6	15.3	16.2
	10		6.9	8.0	8.4	8.8	9.3	7.5	8.6	9.1	9.6	10.1	8.1	9.4	9.8	10.4	11.0	9.5	10.9	11.5	12.1	12.8	11.1	12.7	13.3	14.0	14.8
4	-35		9.8	11.2	11.8	12.4	13.1	10.5	12.0	12.6	13.2	13.9	11.2	12.8	13.4	14.1	14.8	12.6	14.4	15.1	15.9	16.7	14.3	16.3	17.0	17.9	18.8
	-30		9.9	11.3	11.8	12.5	13.1	10.5	12.0	12.6	13.3	14.0	11.2	12.8	13.4	14.1	14.9	12.7	14.5	15.2	15.9	16.7	14.4	16.3	17.1	17.9	18.9
	-25		9.9	11.3	11.9	12.5	13.2	10.6	12.1	12.7	13.3	14.0	11.3	12.9	13.5	14.1	14.9	12.8	14.5	15.2	15.9	16.8	14.4	16.4	17.1	18.0	18.9
	-20		10.0	11.4	11.9	12.5	13.2	10.7	12.1	12.7	13.4	14.1	11.4	12.9	13.5	14.2	14.9	12.8	14.6	15.3	16.0	16.8	14.5	16.4	17.2	18.0	18.9
	-15		10.1	11.5	12.0	12.6	13.3	10.7	12.2	12.8	13.4	14.1	11.4	13.0	13.6	14.3	15.0	12.9	14.6	15.3	16.1	16.9	14.6	16.5	17.3	18.1	19.0
	-10		10.1	11.5	12.0	12.6	13.3	10.8	12.2	12.8	13.4	14.1	11.5	13.0	13.6	14.3	15.0	13.0	14.7	15.3	16.1	16.9	14.6	16.5	17.3	18.1	19.0
	-5		9.3	10.5	11.1	11.6	12.2	9.9	11.3	11.8	12.4	13.0	10.6	12.0	12.6	13.2	13.9	12.0	13.7	14.3	15.0	15.8	13.7	15.5	16.2	17.0	17.8
	0		8.2	9.4	9.9	10.4	11.0	8.9	10.1	10.6	11.2	11.8	9.5	10.9	11.4	1											

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE - WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
6000	-35	7.4	8.5	8.9	9.3	9.8	7.8	8.9	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.9	12.5	9.5	10.8	11.3	11.9	12.5
	-30	7.5	8.5	8.9	9.4	9.8	7.8	8.9	9.3	9.8	10.3	8.3	9.5	10.0	10.5	11.0	8.9	10.1	10.6	11.2	11.7	9.5	10.8	11.3	11.9	12.5	9.5	10.8	11.3	11.9	12.5
	-25	7.5	8.5	8.9	9.4	9.9	7.8	8.9	9.4	9.8	10.3	8.4	9.5	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.8	9.5	10.8	11.4	11.9	12.5	9.5	10.8	11.4	11.9	12.5
	-20	7.5	8.5	8.9	9.3	9.8	7.8	8.9	9.3	9.8	10.3	8.3	9.5	9.9	10.4	11.0	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.3	11.8	12.4	9.5	10.8	11.3	11.8	12.4
	-15	6.9	7.8	8.2	8.6	9.0	7.2	8.2	8.6	9.0	9.5	7.7	8.8	9.2	9.7	10.2	8.3	9.4	9.9	10.4	10.9	8.9	10.1	10.6	11.1	11.7	8.9	10.1	10.6	11.1	11.7
	-10	6.1	6.9	7.3	7.6	8.0	6.4	7.3	7.6	8.0	8.4	6.9	7.9	8.2	8.6	9.1	7.4	8.5	8.9	9.3	9.8	8.0	9.1	9.6	10.0	10.6	8.0	9.1	9.6	10.0	10.6
	-5	5.3	6.0	6.3	6.6	6.9	5.5	6.3	6.6	6.9	7.3	6.0	6.9	7.2	7.5	7.9	6.5	7.4	7.8	8.2	8.6	7.0	8.0	8.4	8.9	9.3	6.1	7.0	7.3	7.7	8.1
	0	4.4	5.0	5.3	5.5	5.8	4.7	5.4	5.6	5.9	6.2	5.1	5.9	6.1	6.4	6.8	5.6	6.4	6.7	7.0	7.4	6.1	7.0	7.3	7.7	8.1	5.2	5.9	6.2	6.5	6.9
	5	3.6	4.1	4.3	4.5	4.8	3.8	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.4	5.6	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.9	4.5	5.1	5.4	5.6	5.9
	10	2.7	3.2	3.3	3.5	3.7	3.0	3.4	3.6	3.8	4.0	3.4	3.9	4.1	4.3	4.5	3.8	4.4	4.6	4.8	5.1	4.2	4.9	5.1	5.4	5.6	4.2	4.9	5.1	5.4	5.6
7000	-35	7.3	8.3	8.7	9.2	9.7	7.7	8.7	9.1	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.4	11.0	11.5	9.4	10.6	11.1	11.7	12.3	9.4	10.6	11.1	11.7	12.3
	-30	7.3	8.3	8.7	9.2	9.6	7.7	8.7	9.1	9.6	10.1	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.4	11.0	11.5	9.4	10.6	11.1	11.7	12.3	9.4	10.6	11.1	11.7	12.3
	-25	7.2	8.2	8.6	9.0	9.4	7.5	8.6	9.0	9.4	9.9	8.1	9.2	9.6	10.1	10.6	8.6	9.8	10.3	10.8	11.3	9.2	10.5	10.9	11.5	12.1	9.2	10.5	10.9	11.5	12.1
	-20	6.8	7.8	8.1	8.5	8.9	7.2	8.1	8.5	8.9	9.4	7.7	8.7	9.1	9.6	10.1	8.2	9.4	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.6	8.8	10.0	10.5	11.0	11.6
	-15	6.2	7.1	7.4	7.7	8.1	6.5	7.4	7.8	8.1	8.6	7.0	8.0	8.4	8.8	9.2	7.6	8.6	9.0	9.5	9.9	8.1	9.3	9.7	10.2	10.7	8.1	9.3	9.7	10.2	10.7
	-10	5.4	6.2	6.4	6.8	7.1	5.7	6.5	6.8	7.1	7.5	6.2	7.0	7.4	7.7	8.1	6.7	7.6	8.0	8.4	8.8	7.2	8.2	8.6	9.1	9.5	7.2	8.2	8.6	9.1	9.5
	-5	4.6	5.2	5.5	5.7	6.0	4.9	5.5	5.8	6.1	6.4	5.3	6.0	6.3	6.6	7.0	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.5	7.9	8.3	5.4	6.1	6.4	6.8	7.1
	0	3.8	4.3	4.5	4.7	5.0	4.0	4.6	4.8	5.1	5.3	4.5	5.1	5.3	5.6	5.9	4.9	5.6	5.9	6.2	6.5	5.4	6.1	6.4	6.8	7.1	4.5	5.1	5.4	5.6	5.9
	5	3.0	3.4	3.6	3.7	3.9	3.2	3.7	3.8	4.0	4.3	3.6	4.1	4.3	4.5	4.8	4.0	4.6	4.8	5.1	5.3	4.5	5.1	5.4	5.6	5.9	4.5	5.1	5.4	5.6	5.9
	10	2.1	2.5	2.6	2.7	2.9	2.4	2.7	2.9	3.0	3.2	2.7	3.1	3.3	3.5	3.7	3.1	3.6	3.8	4.0	4.2	3.5	4.1	4.3	4.5	4.7	3.5	4.1	4.3	4.5	4.7
8000	-35	7.4	8.4	8.8	9.2	9.7	7.7	8.8	9.2	9.6	10.1	8.2	9.4	9.8	10.3	10.8	8.8	10.0	10.5	11.0	11.5	9.4	10.7	11.2	11.7	12.3	9.4	10.7	11.2	11.7	12.3
	-30	7.0	7.9	8.3	8.7	9.1	7.3	8.3	8.7	9.1	9.6	7.8	8.9	9.3	9.8	10.3	8.4	9.5	10.0	10.4	11.0	9.0	10.2	10.6	11.2	11.7	9.0	10.2	10.6	11.2	11.7
	-25	6.6	7.5	7.8	8.2	8.6	6.9	7.8	8.2	8.6	9.0	7.4	8.4	8.8	9.2	9.7	7.9	9.0	9.4	9.9	10.4	8.5	9.7	10.1	10.6	11.2	8.5	9.7	10.1	10.6	11.2
	-20	6.2	7.1	7.4	7.7	8.1	6.5	7.4	7.8	8.1	8.5	7.0	8.0	8.4	8.8	9.2	7.6	8.6	9.0	9.4	9.9	8.1	9.2	9.7	10.1	10.7	8.1	9.2	9.7	10.1	10.7
	-15	5.6	6.3	6.6	6.9	7.3	5.9	6.6	7.0	7.3	7.6	6.3	7.2	7.5	7.9	8.3	6.8	7.8	8.1	8.5	9.0	7.4	8.4	8.8	9.2	9.7	7.4	8.4	8.8	9.2	9.7
	-10	4.8	5.4	5.7	5.9	6.2	5.1	5.7	6.0	6.3	6.6	5.5	6.3	6.6	6.9	7.2	6.0	6.8	7.1	7.5	7.9	6.5	7.4	7.8	8.1	8.6	6.5	7.4	7.8	8.1	8.6
	-5	4.0	4.5	4.7	4.9	5.2	4.2	4.8	5.0	5.3	5.5	4.6	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7	5.6	6.4	6.7	7.0	7.4	5.6	6.4	6.7	7.0	7.4
	0	3.2	3.6	3.8	4.0	4.2	3.4	3.9	4.1	4.3	4.5	3.8	4.3	4.6	4.8	5.0	4.2	4.8	5.1	5.3	5.6	4.7	5.4	5.6	5.9	6.2	4.7	5.4	5.6	5.9	6.2
	5	2.4	2.7	2.8	3.0	3.2	2.6	3.0	3.1	3.3	3.5	3.0	3.4	3.6	3.7	3.9	3.4	3.9	4.0	4.2	4.5	3.8	4.3	4.6	4.8	5.0	3.8	4.3	4.6	4.8	5.0
	10	1.5	1.8	1.9	2.0	2.1	1.8	2.1	2.2	2.3	2.4	2.1	2.5	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.4	2.9	3.3	3.5	3.7	3.9	2.9	3.3	3.5	3.7	3.9
9000	-35	6.8	7.7	8.0	8.4	8.8	7.1	8.1	8.4	8.8	9.3	7.6	8.6	9.0	9.5	10.0	8.1	9.3	9.7	10.2	10.7	8.7	9.9	10.4	10.9	11.4	8.7	9.9	10.4	10.9	11.4
	-30	6.4	7.2	7.6	7.9	8.3	6.7	7.6	7.9	8.3	8.7	7.2	8.1	8.5	8.9	9.4	7.7	8.8	9.2	9.6	10.1	8.3	9.4	9.8	10.3	10.9	8.3	9.4	9.8	10.3	10.9
	-25	6.0	6.8	7.1	7.4	7.8	6.3	7.1	7.4	7.8	8.2	6.8	7.7	8.0	8.4	8.8	7.3	8.3	8.6	9.1	9.5	7.8	8.9	9.3	9.8	10.3	7.8	8.9	9.3	9.8	10.3
	-20	5.7	6.4	6.7	7.0	7.4	6.0	6.8	7.1	7.4	7.8	6.4	7.3	7.6	8.0	8.4	6.9	7.9	8.2	8.6	9.1	7.5	8.5	8.9	9.3	9.8	7.5	8.5	8.9	9.3	9.8
	-15	5.0	5.7	5.9	6.2	6.5	5.3	6.0	6.3	6.6	6.9	5.7	6.5	6.8	7.1	7.5	6.2	7.1	7.4	7.8	8.1	6.7	7.7	8.0	8.4	8.8	6.7	7.7	8.0	8.4	8.8
	-10	4.2	4.8	5.0	5.3	5.5	4.5	5.1	5.4	5.6	5.9	5.0	5.6	5.9	6.2	6.5	5.4	6.2	6.4	6.8	7.1	5.9	6.7	7.0	7.4	7.8	5.9	6.7	7.0	7.4	7.8
	-5	3.5	3.9	4.1	4.3	4.6	3.7	4.2	4.4	4.7	4.9	4.1	4.7	4.9	5.2	5.4	4.6	5.2	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.6	5.0	5.7	6.0	6.3	6.6
	0	2.7	3.1	3.2	3.4	3.6	2.9	3.3	3.5	3.7	3.9	3.3	3.8	4.0	4.2	4.4	3.7	4.2	4.4	4.7	4.9	4.2	4.7	5.0	5.2	5.5	4.2	4.7	5.0	5.2	5.5
	5	1.9	2.2	2.3	2.5	2.6	2.1	2.5	2.6	2.7	2.9	2.5	2.9	3.0	3.2	3.3	2.9	3.3	3.5	3.6	3.8	3.3	3.8	4.0	4.2	4.4	3.3	3.8	4.0	4.2	4.4
	10	1.2	1.4	1.5	1.5	1.6	1.4	1.6	1.7	1.8	1.9	1.7	2.0	2.1	2.2	2.3	2.1	2.4	2.5	2.7	2.8	2.4	2.8	3.0	3.1	3.3	2.4	2.8	3.0	3.1	3.3
10000	-35	6.2	7.0	7.3	7.7	8.0	6.5	7.3	7.7	8.1	8.5	7.0	7.9	8.3	8.7	9.1	7.5	8.5	8.9	9.3	9.8	8.0	9.1	9.6	10.0	10.6	8.0	9.1	9.6	10.0	10.6
	-30	5.8	6.6	6.9	7.2	7.5	6.1	6.9	7.2	7.6	7.9	6.6	7.4	7.8	8.2	8.6	7.1	8.0	8.4	8.8	9.3	7.6	8.7	9.1	9.5	10.0	7.6	8.7	9.1	9.5	10.0
	-25	5.4	6.1	6.4	6.7	7.0	5.7	6.5	6.8	7.1	7.4	6.2	7.0	7.3	7.7	8.0	6.7	7.6	7.9	8.3	8.7	7.2	8.2	8.5	9.0	9.4	7.2	8.2	8.5	9.0	9.4
	-20	5.1	5.7	6.0	6.3	6.6	5.4	6.1	6.3	6.6	7.0	5.8	6.6	6.9	7.2	7.6	6.3	7.1	7.5	7.8	8.2	6.8	7.7	8.1	8.5	8.9	6.8	7.7	8.1	8.5	8.9
	-15	4.5	5.1	5.3	5.5	5.8	4.7	5.4	5.6	5.9	6.2	5.2	5.9	6.1	6.4	6.7	5.6	6													

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
60	-35	10.1	11.5	12.0	12.6	13.3	10.7	12.2	12.8	13.4	14.1	11.4	13.0	13.6	14.3	15.0	12.9	14.7	15.3	16.1	16.9
	-30	10.1	11.5	12.1	12.7	13.3	10.8	12.3	12.8	13.5	14.1	11.5	13.0	13.6	14.3	15.0	13.0	14.7	15.4	16.1	16.9
	-25	10.2	11.6	12.1	12.7	13.3	10.8	12.3	12.9	13.5	14.2	11.5	13.1	13.7	14.3	15.0	13.0	14.7	15.4	16.1	16.9
	-20	10.1	11.5	12.0	12.6	13.2	10.8	12.2	12.8	13.4	14.1	11.5	13.0	13.6	14.2	15.0	13.0	14.7	15.3	16.0	16.8
	-15	9.5	10.8	11.3	11.9	12.5	10.2	11.5	12.1	12.6	13.3	10.8	12.3	12.8	13.5	14.1	12.3	13.9	14.6	15.2	16.0
	-10	8.6	9.8	10.3	10.8	11.3	9.2	10.5	11.0	11.6	12.2	9.9	11.3	11.8	12.4	13.0	11.3	12.9	13.5	14.1	14.8
	-5	7.6	8.7	9.1	9.6	10.1	8.2	9.4	9.9	10.4	10.9	8.9	10.1	10.6	11.2	11.7	10.3	11.7	12.3	12.9	13.6
	0	6.6	7.6	8.0	8.4	8.8	7.2	8.3	8.7	9.1	9.6	7.8	9.0	9.4	9.9	10.5	9.2	10.5	11.0	11.6	12.2
	5	5.7	6.5	6.8	7.2	7.6	6.2	7.1	7.5	7.9	8.3	6.8	7.8	8.2	8.6	9.1	8.1	9.3	9.8	10.3	10.9
	10	4.7	5.4	5.7	6.0	6.3	5.2	6.0	6.3	6.6	7.0	5.8	6.6	6.9	7.3	7.7	7.0	8.0	8.4	8.9	9.4
70	-35	10.0	11.3	11.9	12.5	13.1	10.6	12.1	12.6	13.3	13.9	11.3	12.9	13.5	14.1	14.8	12.8	14.5	15.2	15.9	16.7
	-30	10.0	11.3	11.9	12.4	13.1	10.7	12.1	12.6	13.2	13.9	11.3	12.9	13.4	14.1	14.8	12.8	14.5	15.2	15.9	16.7
	-25	9.8	11.2	11.7	12.2	12.9	10.5	11.9	12.4	13.0	13.7	11.2	12.7	13.2	13.9	14.6	12.7	14.3	15.0	15.7	16.4
	-20	9.4	10.7	11.2	11.7	12.3	10.1	11.4	12.0	12.5	13.2	10.8	12.2	12.8	13.4	14.0	12.2	13.8	14.5	15.1	15.9
	-15	8.7	9.9	10.4	10.9	11.5	9.4	10.6	11.1	11.7	12.3	10.0	11.4	11.9	12.5	13.1	11.5	13.0	13.6	14.3	15.0
	-10	7.8	8.9	9.3	9.8	10.3	8.4	9.6	10.1	10.6	11.1	9.1	10.3	10.8	11.4	12.0	10.5	11.9	12.5	13.1	13.8
	-5	6.8	7.8	8.2	8.6	9.0	7.4	8.5	8.9	9.3	9.8	8.0	9.2	9.7	10.1	10.7	9.4	10.7	11.3	11.8	12.5
	0	5.9	6.7	7.1	7.4	7.8	6.4	7.4	7.7	8.1	8.6	7.0	8.0	8.4	8.9	9.4	8.3	9.6	10.0	10.6	11.1
	5	4.9	5.7	5.9	6.2	6.6	5.5	6.2	6.6	6.9	7.3	6.0	6.9	7.2	7.6	8.0	7.2	8.3	8.7	9.2	9.7
	10	4.0	4.6	4.8	5.1	5.3	4.5	5.1	5.4	5.7	6.0	5.0	5.7	6.0	6.3	6.7	6.1	7.1	7.4	7.8	8.3
80	-35	10.0	11.4	11.9	12.5	13.1	10.7	12.1	12.7	13.3	13.9	11.4	12.9	13.5	14.1	14.8	12.9	14.5	15.2	15.9	16.7
	-30	9.6	10.9	11.4	11.9	12.5	10.2	11.6	12.1	12.7	13.3	10.9	12.4	12.9	13.5	14.2	12.4	14.0	14.6	15.3	16.1
	-25	9.1	10.4	10.8	11.4	11.9	9.8	11.1	11.6	12.1	12.8	10.4	11.8	12.4	13.0	13.6	11.9	13.5	14.1	14.7	15.5
	-20	8.7	9.9	10.4	10.9	11.4	9.4	10.6	11.1	11.7	12.3	10.0	11.4	11.9	12.5	13.1	11.5	13.0	13.6	14.2	14.9
	-15	8.0	9.1	9.5	10.0	10.5	8.6	9.8	10.2	10.7	11.3	9.2	10.5	11.0	11.5	12.1	10.7	12.1	12.7	13.3	13.9
	-10	7.0	8.0	8.4	8.8	9.3	7.6	8.7	9.1	9.6	10.1	8.3	9.4	9.9	10.4	10.9	9.7	11.0	11.5	12.1	12.7
	-5	6.1	7.0	7.3	7.7	8.1	6.7	7.6	8.0	8.4	8.8	7.3	8.3	8.7	9.1	9.6	8.6	9.8	10.3	10.8	11.4
	0	5.2	5.9	6.2	6.5	6.9	5.7	6.5	6.8	7.2	7.6	6.3	7.2	7.5	7.9	8.3	7.5	8.6	9.0	9.5	10.0
	5	4.2	4.9	5.1	5.4	5.6	4.7	5.4	5.7	6.0	6.3	5.3	6.0	6.3	6.6	7.0	6.4	7.4	7.8	8.2	8.6
	10	3.3	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.8	5.0	4.3	4.9	5.1	5.4	5.7	5.4	6.2	6.5	6.8	7.2
90	-35	9.3	10.6	11.1	11.6	12.2	10.0	11.3	11.8	12.4	13.0	10.7	12.1	12.6	13.2	13.9	12.2	13.7	14.4	15.0	15.8
	-30	8.9	10.1	10.6	11.1	11.6	9.5	10.8	11.3	11.8	12.4	10.2	11.6	12.1	12.7	13.3	11.7	13.2	13.8	14.4	15.1
	-25	8.4	9.6	10.0	10.5	11.0	9.1	10.3	10.8	11.3	11.9	9.7	11.0	11.5	12.1	12.7	11.2	12.6	13.2	13.8	14.5
	-20	8.1	9.2	9.6	10.1	10.6	8.7	9.9	10.3	10.8	11.4	9.3	10.6	11.1	11.6	12.2	10.8	12.2	12.8	13.4	14.0
	-15	7.3	8.3	8.7	9.1	9.6	7.9	9.0	9.4	9.9	10.4	8.5	9.7	10.2	10.7	11.2	9.9	11.3	11.8	12.4	13.0
	-10	6.4	7.3	7.7	8.0	8.5	7.0	8.0	8.4	8.8	9.2	7.6	8.7	9.1	9.6	10.1	9.0	10.2	10.7	11.2	11.8
	-5	5.5	6.3	6.6	6.9	7.3	6.1	6.9	7.2	7.6	8.0	6.6	7.6	7.9	8.3	8.8	7.9	9.1	9.5	10.0	10.5
	0	4.6	5.3	5.5	5.8	6.1	5.1	5.9	6.1	6.4	6.8	5.7	6.5	6.8	7.1	7.5	6.9	7.9	8.3	8.7	9.2
	5	3.7	4.3	4.5	4.7	5.0	4.2	4.8	5.0	5.3	5.6	4.7	5.4	5.7	5.9	6.3	5.8	6.7	7.0	7.4	7.8
	10	2.9	3.3	3.5	3.6	3.8	3.3	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.8	5.0	4.8	5.5	5.8	6.1	6.5
100	-35	8.7	9.8	10.3	10.8	11.3	9.3	10.5	11.0	11.6	12.1	10.0	11.3	11.8	12.4	13.0	11.4	12.9	13.5	14.1	14.8
	-30	8.2	9.3	9.8	10.2	10.8	8.8	10.0	10.5	11.0	11.6	9.5	10.8	11.3	11.8	12.4	10.9	12.4	12.9	13.5	14.2
	-25	7.7	8.8	9.2	9.7	10.2	8.4	9.5	10.0	10.4	11.0	9.0	10.2	10.7	11.2	11.8	10.4	11.8	12.4	13.0	13.6
	-20	7.4	8.4	8.8	9.2	9.7	8.0	9.1	9.5	10.0	10.5	8.6	9.8	10.2	10.7	11.3	10.0	11.4	11.9	12.4	13.1
	-15	6.7	7.6	7.9	8.3	8.8	7.3	8.2	8.6	9.1	9.5	7.9	9.0	9.4	9.9	10.4	9.2	10.5	11.0	11.5	12.1
	-10	5.8	6.6	6.9	7.3	7.7	6.4	7.3	7.6	8.0	8.4	7.0	7.9	8.3	8.7	9.2	8.3	9.4	9.9	10.4	10.9
	-5	5.0	5.6	5.9	6.2	6.5	5.5	6.2	6.5	6.8	7.2	6.0	6.9	7.2	7.5	7.9	7.3	8.3	8.7	9.1	9.6
	0	4.1	4.7	4.9	5.1	5.4	4.6	5.2	5.5	5.8	6.1	5.1	5.8	6.1	6.4	6.7	6.3	7.2	7.5	7.9	8.3
	5	3.2	3.7	3.9	4.1	4.3	3.7	4.2	4.4	4.6	4.9	4.2	4.8	5.0	5.3	5.5	5.3	6.0	6.3	6.6	7.0
	10	2.4	2.8	2.9	3.1	3.2	2.8	3.2	3.4	3.6	3.8	3.3	3.8	4.0	4.2	4.4	4.3	4.9	5.2	5.4	5.7
110	-35	8.0	9.0	9.5	9.9	10.4	8.6	9.7	10.2	10.7	11.2	9.2	10.5	11.0	11.5	12.1	10.7	12.1	12.6	13.2	13.9
	-30	7.4	8.5	8.9	9.3	9.8	8.0	9.2	9.6	10.1	10.6	8.7	9.9	10.3	10.8	11.4	10.1	11.5	12.0	12.6	13.2
	-25	7.0	8.0	8.3	8.8	9.2	7.6	8.6	9.1	9.5	10.0	8.2	9.4	9.8	10.3	10.8	9.6	10.9	11.4	12.0	12.6
	-20	6.6	7.5	7.9	8.2	8.7	7.2	8.2	8.6	9.0	9.4	7.8	8.9	9.3	9.8	10.3	9.2	10.4	10.9	11.4	12.0
	-15	5.8	6.6	6.9	7.2	7.6	6.3	7.2	7.5	7.9	8.3	6.9	7.9	8.2	8.7	9.1	8.2	9.4	9.8	10.3	10.9
	-10	4.9	5.6	5.9	6.1	6.5	5.4	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.5	7.9	7.2	8.2	8.6	9.1	9.5
	-5	4.1	4.6	4.8	5.1	5.3	4.5	5.2	5.4	5.7	6.0	5.0	5.8	6.0	6.3	6.7	6.2	7.1	7.4	7.8	8.2
	0	3.2	3.7	3.9	4.0	4.3	3.7	4.2	4.4	4.6	4.9	4.1	4.7	5.0	5.2	5.5	5.2	6.0	6.3	6.6	6.9
	5	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.4	3.6	3.7	3.3	3.7	3.9	4.1	4.3	4.3	4.9	5.1	5.4	5.7</

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V₂SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830					16500					16000					15500					15000									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
1	-35	4.9	5.6	5.9	6.1	6.4	5.2	5.9	6.2	6.5	6.8	5.7	6.4	6.7	7.0	7.4	6.2	7.0	7.3	7.6	8.0	6.7	7.6	7.9	8.3	8.7					
	-30	4.5	5.1	5.4	5.6	5.9	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.5	6.2	7.1	7.4	7.7	8.1					
	-25	4.2	4.7	5.0	5.2	5.4	4.5	5.0	5.3	5.5	5.8	4.9	5.5	5.8	6.0	6.3	5.3	6.0	6.3	6.6	6.9	5.8	6.6	6.9	7.2	7.6					
	-20	3.7	4.2	4.4	4.6	4.8	4.0	4.5	4.7	4.9	5.2	4.4	5.0	5.2	5.5	5.7	4.8	5.5	5.7	6.0	6.3	5.3	6.0	6.3	6.6	6.9					
	-15	3.0	3.4	3.5	3.7	3.9	3.2	3.7	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.7	4.0	4.6	4.8	5.0	5.3	4.5	5.1	5.3	5.6	5.8					
	-10	2.2	2.5	2.6	2.8	2.9	2.4	2.8	2.9	3.1	3.2	2.8	3.2	3.3	3.5	3.7	3.2	3.6	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.7					
	-5	1.5	1.7	1.8	1.9	2.0	1.7	1.9	2.0	2.2	2.3	2.0	2.3	2.4	2.6	2.7	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.3	3.5	3.7					
	0	0.7	0.9	1.0	1.0	1.1	0.9	1.1	1.2	1.3	1.4	1.3	1.5	1.6	1.7	1.8	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.5	2.7					
	5	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.8	0.9	0.9	1.1	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7					
	10	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.7	0.8	0.8				
3	-35	4.4	4.9	5.2	5.4	5.7	4.6	5.3	5.5	5.7	6.0	5.1	5.7	6.0	6.3	6.6	5.5	6.3	6.5	6.9	7.2	6.0	6.8	7.1	7.5	7.8					
	-30	4.0	4.5	4.7	4.9	5.2	4.3	4.8	5.0	5.3	5.5	4.7	5.3	5.5	5.8	6.1	5.1	5.8	6.1	6.3	6.7	5.6	6.3	6.6	6.9	7.3					
	-25	3.7	4.1	4.3	4.5	4.7	3.9	4.4	4.6	4.8	5.1	4.3	4.9	5.1	5.3	5.6	4.8	5.4	5.6	5.9	6.2	5.2	5.9	6.2	6.5	6.8					
	-20	3.2	3.6	3.8	4.0	4.2	3.4	3.9	4.1	4.3	4.5	3.8	4.4	4.6	4.8	5.0	4.3	4.8	5.1	5.3	5.6	4.7	5.4	5.6	5.9	6.1					
	-15	2.5	2.8	3.0	3.1	3.3	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.0	3.5	4.0	4.2	4.4	4.6	3.9	4.5	4.7	4.9	5.1					
	-10	1.7	2.0	2.1	2.2	2.3	2.0	2.3	2.4	2.5	2.6	2.3	2.7	2.8	2.9	3.1	2.7	3.1	3.2	3.4	3.6	3.1	3.5	3.7	3.9	4.1					
	-5	1.0	1.2	1.3	1.4	1.5	1.2	1.5	1.5	1.6	1.7	1.6	1.8	1.9	2.0	2.1	1.9	2.2	2.3	2.5	2.6	2.3	2.6	2.8	2.9	3.1					
	0	0.3	0.5	0.5	0.6	0.6	0.5	0.7	0.7	0.8	0.8	0.8	1.0	1.1	1.2	1.2	1.2	1.4	1.5	1.6	1.7	1.5	1.8	1.9	2.0	2.1					
	5	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.8	1.0	1.1	1.1	1.2					
	10	-0.9	-0.9	-1.0	-1.0	-1.0	-0.8	-0.8	-0.8	-0.8	-0.8	-0.5	-0.5	-0.5	-0.4	-0.4	-0.2	-0.1	-0.1	-0.1	-0.1	0.1	0.2	0.2	0.3	0.3					
4	-35	3.9	4.4	4.6	4.8	5.0	4.1	4.7	4.9	5.1	5.3	4.5	5.1	5.4	5.6	5.9	5.0	5.6	5.9	6.1	6.4	5.4	6.2	6.4	6.7	7.1					
	-30	3.5	3.9	4.1	4.3	4.5	3.7	4.2	4.4	4.6	4.8	4.1	4.7	4.9	5.1	5.3	4.5	5.1	5.4	5.6	5.9	5.0	5.7	5.9	6.2	6.5					
	-25	3.1	3.6	3.7	3.9	4.1	3.4	3.8	4.0	4.2	4.4	3.8	4.3	4.5	4.7	4.9	4.2	4.7	5.0	5.2	5.4	4.6	5.3	5.5	5.7	6.0					
	-20	2.7	3.1	3.2	3.4	3.5	2.9	3.3	3.5	3.6	3.8	3.3	3.8	3.9	4.1	4.3	3.7	4.2	4.4	4.6	4.8	4.2	4.7	4.9	5.2	5.4					
	-15	2.0	2.3	2.4	2.5	2.7	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.4	3.0	3.4	3.6	3.7	3.9	3.4	3.9	4.0	4.2	4.4					
	-10	1.3	1.5	1.6	1.7	1.8	1.5	1.8	1.9	2.0	2.1	1.9	2.1	2.3	2.4	2.5	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.1	3.3	3.5					
	-5	0.6	0.8	0.8	0.9	0.9	0.8	1.0	1.1	1.1	1.2	1.1	1.3	1.4	1.5	1.6	1.5	1.7	1.8	1.9	2.0	1.8	2.1	2.2	2.4	2.5					
	0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.3	1.4	1.5	1.6					
	5	-0.7	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.4	-0.4	-0.4	-0.2	-0.1	-0.1	-0.1	-0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.7					
	10	-1.3	-1.3	-1.3	-1.4	-1.4	-1.1	-1.2	-1.2	-1.2	-1.2	-0.9	-0.9	-0.9	-0.9	-0.9	-0.6	-0.6	-0.6	-0.5	-0.5	-0.3	-0.2	-0.2	-0.2	-0.2					

56FMC-00-00

Figure 4-43 (Sheet 5)

SECOND SEGMENT TAKEOFF NET CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V2SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
1	-35	7.2	8.2	8.6	9.0	9.4	7.8	8.9	9.3	9.7	10.2	8.4	9.6	10.0	10.5	11.1	9.8	11.1	11.7	12.2	12.8
2	-30	6.8	7.7	8.0	8.4	8.8	7.3	8.3	8.7	9.1	9.6	7.9	9.0	9.5	9.9	10.4	9.3	10.6	11.1	11.6	12.2
0	-25	6.3	7.2	7.5	7.9	8.3	6.9	7.8	8.2	8.6	9.0	7.5	8.5	8.9	9.3	9.8	8.8	10.0	10.5	11.0	11.6
0	-20	5.8	6.6	6.9	7.2	7.6	6.4	7.2	7.6	7.9	8.3	6.9	7.9	8.3	8.7	9.1	8.3	9.4	9.8	10.3	10.9
0	-15	5.0	5.6	5.9	6.2	6.5	5.5	6.2	6.5	6.8	7.2	6.0	6.8	7.2	7.5	7.9	7.3	8.3	8.7	9.1	9.6
0	-10	4.1	4.6	4.8	5.1	5.3	4.5	5.2	5.4	5.7	6.0	5.1	5.8	6.0	6.3	6.6	6.2	7.1	7.4	7.8	8.2
	-5	3.2	3.7	3.8	4.0	4.2	3.7	4.2	4.4	4.6	4.8	4.1	4.7	4.9	5.2	5.5	5.2	6.0	6.3	6.6	6.9
	0	2.4	2.7	2.9	3.0	3.2	2.8	3.2	3.4	3.5	3.7	3.2	3.7	3.9	4.1	4.3	4.3	4.9	5.1	5.4	5.7
	5	1.6	1.9	2.0	2.1	2.2	2.0	2.3	2.4	2.6	2.7	2.4	2.8	2.9	3.1	3.2	3.4	3.9	4.0	4.3	4.5
	10	0.8	1.0	1.1	1.2	1.3	1.2	1.4	1.5	1.6	1.7	1.6	1.9	2.0	2.1	2.2	2.5	2.9	3.0	3.2	3.4
1	-35	6.5	7.4	7.8	8.1	8.5	7.1	8.1	8.4	8.8	9.3	7.7	8.8	9.2	9.6	10.1	9.1	10.3	10.8	11.3	11.9
3	-30	6.1	6.9	7.2	7.6	8.0	6.7	7.5	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.5	8.6	9.7	10.2	10.7	11.2
0	-25	5.7	6.5	6.8	7.1	7.4	6.2	7.1	7.4	7.8	8.1	6.8	7.7	8.1	8.5	8.9	8.1	9.2	9.6	10.1	10.6
0	-20	5.2	5.9	6.2	6.5	6.8	5.7	6.5	6.8	7.1	7.5	6.3	7.1	7.5	7.8	8.2	7.5	8.6	9.0	9.4	9.9
0	-15	4.4	5.0	5.2	5.5	5.7	4.9	5.5	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.1	6.6	7.5	7.9	8.2	8.7
0	-10	3.5	4.0	4.2	4.4	4.6	4.0	4.5	4.8	5.0	5.2	4.5	5.1	5.4	5.6	5.9	5.6	6.4	6.7	7.0	7.4
	-5	2.7	3.1	3.3	3.4	3.6	3.1	3.6	3.8	4.0	4.2	3.6	4.1	4.3	4.5	4.8	4.6	5.3	5.6	5.8	6.1
	0	1.9	2.2	2.3	2.5	2.6	2.3	2.7	2.8	2.9	3.1	2.7	3.2	3.3	3.5	3.7	3.7	4.3	4.5	4.7	4.9
	5	1.2	1.4	1.5	1.6	1.7	1.5	1.8	1.9	2.0	2.1	1.9	2.3	2.4	2.5	2.7	2.9	3.3	3.5	3.6	3.8
	10	0.4	0.6	0.6	0.7	0.7	0.8	1.0	1.0	1.1	1.2	1.2	1.4	1.5	1.6	1.7	2.0	2.3	2.5	2.6	2.7
1	-35	5.9	6.7	7.0	7.4	7.7	6.5	7.3	7.7	8.0	8.4	7.1	8.0	8.4	8.8	9.2	8.4	9.5	9.9	10.4	11.0
4	-30	5.5	6.2	6.5	6.8	7.1	6.0	6.8	7.1	7.5	7.8	6.6	7.5	7.8	8.2	8.6	7.8	8.9	9.3	9.8	10.3
0	-25	5.1	5.8	6.1	6.3	6.6	5.6	6.4	6.7	7.0	7.3	6.2	7.0	7.3	7.7	8.0	7.4	8.4	8.8	9.2	9.7
0	-20	4.6	5.2	5.5	5.7	6.0	5.1	5.8	6.1	6.4	6.7	5.7	6.4	6.7	7.0	7.4	6.9	7.8	8.2	8.6	9.0
0	-15	3.8	4.4	4.6	4.8	5.0	4.3	4.9	5.1	5.4	5.6	4.8	5.5	5.7	6.0	6.3	6.0	6.8	7.1	7.4	7.8
0	-10	3.0	3.5	3.6	3.8	4.0	3.5	4.0	4.1	4.3	4.6	3.9	4.5	4.7	4.9	5.2	5.0	5.7	6.0	6.3	6.6
	-5	2.2	2.6	2.7	2.8	3.0	2.6	3.0	3.2	3.3	3.5	3.1	3.5	3.7	3.9	4.1	4.1	4.7	4.9	5.1	5.4
	0	1.5	1.7	1.8	1.9	2.0	1.9	2.2	2.3	2.4	2.5	2.3	2.6	2.8	2.9	3.1	3.2	3.7	3.9	4.1	4.3
	5	0.7	0.9	1.0	1.0	1.1	1.1	1.3	1.4	1.5	1.6	1.5	1.8	1.9	2.0	2.1	2.4	2.7	2.9	3.0	3.2
	10	0.0	0.1	0.1	0.2	0.2	0.4	0.5	0.5	0.6	0.6	0.7	0.9	1.0	1.0	1.1	1.5	1.8	1.9	2.0	2.1

56FMC-00-00

Figure 4-43 (Sheet 6)

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT
FLAPS - UPCONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V_{ENR} (160 KIAS)SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		16830						16500						16000						15500						15000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
	-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		
0	-20	6.3	7.1	7.4	7.7	8.0	6.6	7.4	7.7	8.0	8.3	7.0	7.8	8.1	8.4	8.8	7.4	8.2	8.6	8.9	9.3	7.8	8.7	9.0	9.4	9.8					
	-15	6.4	7.1	7.4	7.7	8.0	6.6	7.4	7.7	8.0	8.3	7.0	7.8	8.1	8.5	8.8	7.4	8.3	8.6	8.9	9.3	7.8	8.7	9.1	9.4	9.8					
	-10	6.4	7.2	7.4	7.7	8.1	6.7	7.4	7.7	8.0	8.4	7.0	7.9	8.2	8.5	8.8	7.5	8.3	8.6	9.0	9.3	7.9	8.8	9.1	9.5	9.9					
	-5	6.4	7.2	7.5	7.8	8.1	6.7	7.5	7.8	8.1	8.4	7.1	7.9	8.2	8.5	8.9	7.5	8.3	8.7	9.0	9.4	7.9	8.8	9.2	9.5	9.9					
	0	6.5	7.2	7.5	7.8	8.1	6.7	7.5	7.8	8.1	8.4	7.1	7.9	8.2	8.5	8.9	7.5	8.4	8.7	9.0	9.4	8.0	8.9	9.2	9.5	9.9					
	5	6.5	7.3	7.5	7.8	8.1	6.8	7.5	7.8	8.1	8.4	7.2	8.0	8.3	8.6	8.9	7.6	8.4	8.7	9.1	9.4	8.0	8.9	9.2	9.6	10.0					
	10	6.5	7.3	7.6	7.8	8.2	6.8	7.5	7.8	8.1	8.5	7.2	8.0	8.3	8.6	8.9	7.6	8.4	8.7	9.1	9.4	8.0	8.9	9.2	9.6	10.0					
	15	6.5	7.3	7.5	7.8	8.1	6.8	7.5	7.8	8.1	8.4	7.2	8.0	8.3	8.6	8.9	7.6	8.4	8.7	9.1	9.4	8.0	8.9	9.2	9.6	10.0					
	20	6.0	6.7	7.0	7.2	7.5	6.3	7.0	7.2	7.5	7.8	6.7	7.4	7.7	7.9	8.3	7.0	7.8	8.1	8.4	8.7	7.5	8.3	8.6	8.9	9.2					
	25	5.2	5.8	6.0	6.2	6.5	5.4	6.0	6.3	6.5	6.8	5.8	6.4	6.7	6.9	7.2	6.1	6.8	7.1	7.3	7.6	6.5	7.2	7.5	7.8	8.1					
30	4.4	4.9	5.1	5.3	5.5	4.6	5.2	5.4	5.6	5.8	5.0	5.5	5.7	5.9	6.2	5.3	5.9	6.1	6.3	6.6	5.7	6.3	6.5	6.8	7.0						
35	3.7	4.1	4.3	4.5	4.6	3.9	4.3	4.5	4.7	4.9	4.2	4.7	4.8	5.0	5.2	4.5	5.0	5.2	5.4	5.6	4.8	5.4	5.6	5.8	6.0						
40	3.0	3.3	3.5	3.6	3.8	3.1	3.5	3.7	3.8	4.0	3.4	3.8	4.0	4.1	4.3	3.7	4.1	4.3	4.5	4.7	4.0	4.5	4.6	4.8	5.0						
45	2.2	2.5	2.6	2.8	2.9	2.4	2.7	2.8	2.9	3.1	2.6	3.0	3.1	3.2	3.4	2.9	3.3	3.4	3.5	3.7	3.2	3.6	3.7	3.9	4.0						
50	1.5	1.8	1.9	2.0	2.1	1.7	1.9	2.0	2.1	2.2	1.9	2.2	2.3	2.4	2.5	2.2	2.5	2.6	2.7	2.8	2.4	2.7	2.8	3.0	3.1						
54	1.0	1.2	1.3	1.4	1.5	1.2	1.4	1.5	1.5	1.6	1.4	1.6	1.7	1.8	1.9	1.6	1.9	2.0	2.1	2.2	1.9	2.1	2.2	2.3	2.4						
5	-30	7.3	8.1	8.4	8.7	9.0	7.6	8.4	8.7	9.0	9.4	8.0	8.8	9.2	9.5	9.9	8.4	9.3	9.7	10.0	10.4	8.9	9.8	10.2	10.6	11.0					
	-25	7.3	8.1	8.4	8.7	9.1	7.6	8.4	8.7	9.1	9.4	8.0	8.9	9.2	9.5	9.9	8.5	9.4	9.7	10.1	10.4	8.9	9.9	10.2	10.6	11.0					
	-20	7.4	8.2	8.5	8.8	9.1	7.7	8.5	8.8	9.1	9.4	8.1	8.9	9.2	9.6	9.9	8.5	9.4	9.7	10.1	10.5	9.0	9.9	10.3	10.7	11.0					
	-15	7.4	8.2	8.5	8.8	9.2	7.7	8.5	8.8	9.1	9.5	8.1	9.0	9.3	9.6	10.0	8.6	9.5	9.8	10.2	10.5	9.1	10.0	10.3	10.7	11.1					
	-10	7.5	8.3	8.6	8.9	9.2	7.8	8.6	8.9	9.2	9.5	8.2	9.0	9.4	9.7	10.0	8.6	9.5	9.9	10.2	10.6	9.1	10.0	10.4	10.8	11.2					
	-5	7.4	8.2	8.5	8.8	9.1	7.7	8.5	8.8	9.1	9.4	8.1	8.9	9.2	9.6	9.9	8.6	9.4	9.7	10.1	10.5	9.0	9.9	10.3	10.6	11.0					
	0	6.8	7.5	7.8	8.0	8.3	7.0	7.8	8.0	8.3	8.6	7.4	8.2	8.5	8.8	9.1	7.9	8.7	9.0	9.3	9.6	8.3	9.2	9.5	9.8	10.2					
	5	5.9	6.6	6.8	7.0	7.3	6.2	6.8	7.1	7.3	7.6	6.6	7.2	7.5	7.7	8.0	6.9	7.7	7.9	8.2	8.5	7.4	8.1	8.4	8.7	9.0					
	10	5.1	5.7	5.9	6.1	6.3	5.4	5.9	6.1	6.4	6.6	5.7	6.3	6.5	6.8	7.0	6.1	6.7	6.9	7.2	7.5	6.5	7.1	7.4	7.6	7.9					
	15	4.4	4.8	5.0	5.2	5.4	4.6	5.0	5.2	5.4	5.6	4.9	5.4	5.6	5.8	6.0	5.2	5.8	6.0	6.2	6.4	5.6	6.2	6.4	6.6	6.8					
20	3.6	4.0	4.1	4.3	4.5	3.8	4.2	4.3	4.5	4.7	4.1	4.5	4.7	4.9	5.0	4.4	4.9	5.0	5.2	5.4	4.7	5.2	5.4	5.6	5.8						
25	2.9	3.2	3.3	3.5	3.6	3.0	3.4	3.5	3.7	3.8	3.3	3.7	3.8	4.0	4.1	3.6	4.0	4.2	4.3	4.5	3.9	4.3	4.5	4.7	4.8						
30	2.2	2.5	2.6	2.7	2.8	2.4	2.7	2.8	2.9	3.0	2.6	3.0	3.1	3.2	3.3	2.9	3.2	3.4	3.5	3.6	3.2	3.5	3.7	3.8	4.0						
35	1.6	1.8	1.9	2.0	2.1	1.7	2.0	2.1	2.2	2.3	2.0	2.2	2.3	2.4	2.5	2.2	2.5	2.6	2.7	2.8	2.5	2.8	2.9	3.0	3.1						
40	1.0	1.1	1.2	1.3	1.3	1.1	1.3	1.4	1.4	1.5	1.3	1.5	1.6	1.7	1.8	1.5	1.8	1.8	1.9	2.0	1.8	2.0	2.1	2.2	2.3						
42	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.1	1.1	1.2	1.1	1.2	1.3	1.4	1.4	1.3	1.5	1.5	1.6	1.7	1.5	1.7	1.8	1.9	2.0						
1	-45	7.8	8.6	8.9	9.2	9.6	8.1	8.9	9.2	9.5	9.9	8.5	9.4	9.7	10.0	10.4	9.0	9.9	10.2	10.6	11.0	9.5	10.4	10.8	11.1	11.5					
	-40	7.8	8.6	8.9	9.2	9.6	8.1	8.9	9.2	9.5	9.9	8.6	9.4	9.7	10.1	10.4	9.0	9.9	10.2	10.6	11.0	9.5	10.4	10.8	11.1	11.5					
	-35	7.6	8.4	8.7	9.0	9.3	7.9	8.7	9.0	9.3	9.6	8.3	9.2	9.5	9.8	10.1	8.8	9.7	10.0	10.3	10.7	9.3	10.2	10.5	10.9	11.3					
	-30	7.3	8.0	8.3	8.6	8.9	7.6	8.3	8.6	8.9	9.2	8.0	8.7	9.0	9.3	9.7	8.4	9.2	9.5	9.9	10.2	8.9	9.7	10.1	10.4	10.8					
	-25	6.8	7.5	7.8	8.0	8.3	7.1	7.8	8.1	8.3	8.6	7.5	8.2	8.5	8.8	9.1	7.9	8.7	9.0	9.3	9.6	8.4	9.2	9.5	9.8	10.1					
	-20	6.4	7.0	7.3	7.5	7.8	6.6	7.3	7.5	7.8	8.1	7.0	7.7	8.0	8.2	8.5	7.4	8.2	8.4	8.7	9.0	7.9	8.6	8.9	9.2	9.5					
	-15	6.0	6.6	6.8	7.1	7.3	6.3	6.9	7.1	7.3	7.6	6.6	7.3	7.5	7.8	8.0	7.0	7.7	8.0	8.2	8.5	7.4	8.2	8.4	8.7	9.0					
	-10	5.5	6.0	6.2	6.5	6.7	5.7	6.3	6.5	6.7	6.9	6.1	6.7	6.9	7.1	7.4	6.5	7.1	7.3	7.6	7.8	6.9	7.5	7.8	8.0	8.3					
	-5	4.8	5.3	5.5	5.7	5.9	5.0	5.5	5.7	5.9	6.1	5.4	5.9	6.1	6.3	6.5	5.7	6.3	6.5	6.7	6.9	6.1	6.7	6.9	7.1	7.4					
	0	4.1	4.5	4.7	4.8	5.0	4.3	4.7	4.9	5.1	5.2	4.6	5.1	5.2	5.4	5.6	4.9	5.4	5.6	5.8	6.0	5.3	5.8	6.0	6.2	6.4					
5	3.4	3.8	3.9	4.0	4.2	3.6	4.0	4.1	4.3	4.4	3.9	4.3	4.4	4.6	4.8	4.2	4.6	4.8	4.9	5.1	4.5	5.0	5.1	5.3	5.5						
10	2.8	3.1	3.2	3.3	3.4	2.9	3.2	3.4	3.5	3.6	3.2	3.5	3.7	3.8	3.9	3.5	3.8	4.0	4.1	4.3	3.8	4.2	4.3	4.5	4.6						
15	2.1	2.3	2.4	2.5	2.6	2.3	2.5	2.6	2.7	2.8	2.5	2.8	2.9	3.0	3.1	2.8	3.1	3.2	3.3	3.4	3.0	3.4	3.5	3.6	3.7						
20	1.5	1.7	1.8	1.8	1.9	1.6	1.8	1.9	2.0	2.1	1.9	2.1	2.2	2.3	2.4	2.1	2.3	2.4	2.5	2.6	2.4	2.6	2.7	2.8	2.9						
25	0.9	1.1	1.1	1.2	1.2	1.0	1.2	1.3	1.3	1.4	1.2	1.4	1.5	1.6	1.6	1.5	1.7	1.7	1.8	1.9	1.7	1.9	2.0	2.1	2.2						
29	0.4	0.5	0.6	0.6	0.7	0.5	0.7	0.7	0.8	0.8	0.7	0.9	0.9	1.0	1.0	0.9	1.1	1.2	1.2	1.3	1.2	1.3	1.4	1.5	1.5						
1	-54	5.4	5.9	6.1	6.3	6.6	5.6	6.2	6.4	6.6	6.8	6.0	6.6	6.8	7.0	7.2	6.3	7.0	7.2	7.4	7.7	6.7	7.4	7.6	7.9	8.1					
	-50	5.4	5.9	6.1	6.3	6.6	5.6	6.2	6.4	6.6	6.8	6.0	6.6	6.8	7																

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT FLAPS - UP

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V_{ENR} (160 KIAS)

SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		14500					14000					13500					12500					11500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-20	8.3	9.2	9.6	9.9	10.4	8.7	9.7	10.1	10.5	11.0	9.3	10.3	10.7	11.1	11.6	10.4	11.6	12.0	12.5	13.0	11.7	13.0	13.5	14.0	14.6
	-15	8.3	9.2	9.6	10.0	10.4	8.8	9.8	10.1	10.6	11.0	9.3	10.3	10.7	11.2	11.6	10.4	11.6	12.0	12.5	13.0	11.8	13.1	13.5	14.1	14.6
	-10	8.3	9.3	9.6	10.0	10.4	8.8	9.8	10.2	10.6	11.0	9.3	10.4	10.8	11.2	11.7	10.5	11.6	12.1	12.6	13.1	11.8	13.1	13.6	14.1	14.7
	-5	8.4	9.3	9.7	10.1	10.5	8.9	9.9	10.2	10.6	11.1	9.4	10.4	10.8	11.2	11.7	10.5	11.7	12.1	12.6	13.1	11.9	13.2	13.7	14.2	14.7
	0	8.4	9.4	9.7	10.1	10.5	8.9	9.9	10.3	10.7	11.1	9.4	10.5	10.9	11.3	11.7	10.6	11.7	12.2	12.6	13.1	11.9	13.2	13.7	14.2	14.8
	5	8.5	9.4	9.7	10.1	10.5	9.0	9.9	10.3	10.7	11.1	9.5	10.5	10.9	11.3	11.8	10.6	11.8	12.2	12.7	13.2	12.0	13.3	13.7	14.3	14.8
	10	8.5	9.4	9.8	10.1	10.5	9.0	10.0	10.3	10.7	11.1	9.5	10.5	10.9	11.3	11.8	10.7	11.8	12.2	12.7	13.2	12.0	13.3	13.8	14.3	14.8
	15	8.5	9.4	9.8	10.1	10.5	9.0	10.0	10.3	10.7	11.1	9.5	10.5	10.9	11.3	11.8	10.7	11.8	12.2	12.7	13.2	12.0	13.3	13.8	14.3	14.8
	20	7.9	8.8	9.1	9.4	9.8	8.4	9.3	9.6	10.0	10.4	8.9	9.8	10.2	10.6	11.0	10.0	11.0	11.4	11.9	12.3	11.3	12.4	12.9	13.4	13.9
	25	6.9	7.7	8.0	8.3	8.6	7.4	8.2	8.5	8.8	9.1	7.8	8.7	9.0	9.3	9.7	8.9	9.8	10.1	10.5	10.9	10.0	11.1	11.5	11.9	12.3
30	6.0	6.7	6.9	7.2	7.5	6.4	7.1	7.4	7.7	8.0	6.9	7.6	7.9	8.2	8.5	7.8	8.6	8.9	9.3	9.6	8.9	9.8	10.2	10.5	10.9	
35	5.2	5.7	6.0	6.2	6.4	5.5	6.1	6.4	6.6	6.9	5.9	6.6	6.8	7.1	7.3	6.8	7.5	7.8	8.1	8.4	7.8	8.6	8.9	9.2	9.6	
40	4.3	4.8	5.0	5.2	5.4	4.7	5.2	5.4	5.6	5.8	5.0	5.6	5.8	6.0	6.2	5.8	6.4	6.7	6.9	7.2	6.7	7.4	7.7	8.0	8.3	
45	3.5	3.9	4.0	4.2	4.4	3.8	4.2	4.4	4.6	4.8	4.1	4.6	4.8	4.9	5.1	4.8	5.4	5.6	5.8	6.0	5.6	6.3	6.5	6.7	7.0	
50	2.7	3.0	3.1	3.3	3.4	3.0	3.3	3.5	3.6	3.8	3.3	3.6	3.8	3.9	4.1	3.9	4.4	4.5	4.7	4.9	4.6	5.2	5.3	5.5	5.8	
54	2.1	2.4	2.5	2.6	2.7	2.4	2.7	2.8	2.9	3.0	2.6	3.0	3.1	3.2	3.4	3.2	3.6	3.8	3.9	4.1	3.9	4.4	4.5	4.7	4.9	
5	-30	9.4	10.4	10.7	11.1	11.6	9.9	10.9	11.3	11.8	12.2	10.5	11.6	12.0	12.4	12.9	11.7	12.9	13.4	13.9	14.4	13.1	14.5	15.0	15.6	16.1
	-25	9.4	10.4	10.8	11.2	11.6	10.0	11.0	11.4	11.8	12.2	10.5	11.6	12.0	12.5	12.9	11.8	13.0	13.4	13.9	14.4	13.2	14.6	15.1	15.6	16.2
	0	9.5	10.5	10.8	11.2	11.7	10.0	11.0	11.4	11.8	12.3	10.6	11.7	12.1	12.5	13.0	11.8	13.0	13.5	14.0	14.5	13.3	14.6	15.1	15.7	16.2
	10	9.6	10.5	10.9	11.3	11.7	10.1	11.1	11.5	11.9	12.3	10.7	11.7	12.1	12.6	13.0	11.9	13.1	13.6	14.0	14.5	13.4	14.7	15.2	15.7	16.3
	-10	9.6	10.6	11.0	11.3	11.8	10.2	11.2	11.6	12.0	12.4	10.7	11.8	12.2	12.6	13.1	12.0	13.2	13.6	14.1	14.6	13.5	14.8	15.3	15.8	16.4
	-5	9.5	10.5	10.8	11.2	11.6	10.1	11.1	11.4	11.8	12.3	10.6	11.7	12.1	12.5	12.9	11.9	13.1	13.5	14.0	14.5	13.3	14.6	15.1	15.7	16.2
	0	8.8	9.7	10.0	10.4	10.7	9.3	10.2	10.6	10.9	11.3	9.8	10.8	11.2	11.6	12.0	11.0	12.1	12.5	12.9	13.4	12.4	13.6	14.1	14.5	15.1
	5	7.8	8.6	8.9	9.2	9.5	8.3	9.1	9.4	9.7	10.1	8.8	9.6	10.0	10.3	10.7	9.9	10.8	11.2	11.6	12.0	11.1	12.2	12.6	13.1	13.5
	10	6.9	7.6	7.8	8.1	8.4	7.3	8.0	8.3	8.6	8.9	7.8	8.5	8.8	9.1	9.5	8.8	9.7	10.0	10.3	10.7	10.0	10.9	11.3	11.7	12.1
	15	6.0	6.6	6.8	7.0	7.3	6.4	7.0	7.2	7.5	7.8	6.8	7.5	7.7	8.0	8.3	7.7	8.5	8.8	9.1	9.4	8.8	9.6	10.0	10.3	10.7
20	5.1	5.6	5.8	6.0	6.2	5.4	6.0	6.2	6.4	6.7	5.8	6.4	6.6	6.9	7.1	6.7	7.3	7.6	7.8	8.1	7.7	8.4	8.7	9.0	9.3	
25	4.2	4.7	4.9	5.0	5.2	4.6	5.1	5.2	5.4	5.6	4.9	5.4	5.6	5.8	6.0	5.7	6.3	6.5	6.7	7.0	6.6	7.3	7.5	7.8	8.0	
30	3.5	3.9	4.0	4.2	4.3	3.8	4.2	4.3	4.5	4.7	4.1	4.5	4.7	4.9	5.1	4.8	5.3	5.5	5.7	5.9	5.6	6.2	6.4	6.6	6.9	
35	2.7	3.1	3.2	3.3	3.4	3.0	3.4	3.5	3.6	3.8	3.3	3.7	3.8	4.0	4.1	4.0	4.4	4.6	4.7	4.9	4.7	5.2	5.4	5.6	5.8	
40	2.0	2.3	2.4	2.5	2.6	2.3	2.6	2.7	2.8	2.9	2.6	2.9	3.0	3.1	3.2	3.1	3.5	3.6	3.8	3.9	3.8	4.2	4.4	4.5	4.7	
42	1.7	2.0	2.0	2.1	2.2	2.0	2.2	2.3	2.4	2.5	2.2	2.5	2.6	2.7	2.8	2.8	3.1	3.2	3.4	3.5	3.4	3.8	3.9	4.1	4.3	
10	-45	10.0	11.0	11.3	11.7	12.2	10.5	11.6	12.0	12.4	12.8	11.1	12.2	12.6	13.1	13.5	12.4	13.6	14.1	14.6	15.1	13.9	15.3	15.8	16.3	16.9
	-40	10.0	11.0	11.4	11.7	12.2	10.6	11.6	12.0	12.4	12.8	11.2	12.2	12.6	13.1	13.5	12.5	13.6	14.1	14.6	15.1	14.0	15.3	15.8	16.3	16.9
	-35	9.8	10.7	11.1	11.5	11.9	10.3	11.3	11.7	12.1	12.5	10.9	12.0	12.3	12.8	13.2	12.2	13.3	13.8	14.2	14.7	13.7	15.0	15.4	16.0	16.5
	-30	9.4	10.3	10.6	11.0	11.3	9.9	10.8	11.2	11.6	12.0	10.5	11.5	11.8	12.2	12.6	11.7	12.8	13.2	13.7	14.1	13.1	14.4	14.8	15.3	15.8
	-25	8.9	9.7	10.0	10.4	10.7	9.4	10.3	10.6	10.9	11.3	9.9	10.8	11.2	11.6	12.0	11.1	12.1	12.5	12.9	13.4	12.5	13.6	14.1	14.5	15.0
	-20	8.3	9.1	9.4	9.7	10.1	8.8	9.7	10.0	10.3	10.6	9.3	10.2	10.5	10.9	11.3	10.5	11.5	11.8	12.2	12.6	11.8	12.9	13.3	13.7	14.2
	-15	7.9	8.6	8.9	9.2	9.5	8.4	9.1	9.4	9.8	10.1	8.9	9.7	10.0	10.3	10.7	10.0	10.9	11.2	11.6	12.0	11.2	12.3	12.7	13.1	13.5
	-10	7.3	8.0	8.2	8.5	8.8	7.7	8.5	8.7	9.0	9.3	8.2	9.0	9.3	9.6	9.9	9.3	10.1	10.4	10.8	11.1	10.5	11.4	11.8	12.2	12.6
	-5	6.5	7.1	7.3	7.6	7.8	6.9	7.6	7.8	8.0	8.3	7.3	8.0	8.3	8.6	8.8	8.3	9.1	9.4	9.7	10.0	9.5	10.3	10.6	11.0	11.3
	0	5.6	6.2	6.4	6.6	6.8	6.0	6.6	6.8	7.1	7.3	6.4	7.1	7.3	7.5	7.8	7.4	8.0	8.3	8.6	8.8	8.4	9.2	9.4	9.8	10.1
5	4.9	5.3	5.5	5.7	5.9	5.2	5.7	5.9	6.1	6.3	5.6	6.1	6.3	6.5	6.8	6.4	7.0	7.3	7.5	7.8	7.4	8.1	8.3	8.6	8.9	
10	4.1	4.5	4.7	4.8	5.0	4.4	4.9	5.0	5.2	5.4	4.8	5.2	5.4	5.6	5.8	5.5	6.1	6.3	6.5	6.7	6.4	7.0	7.2	7.5	7.7	
15	3.3	3.7	3.8	3.9	4.1	3.6	4.0	4.1	4.3	4.4	4.0	4.4	4.5	4.7	4.8	4.7	5.1	5.3	5.5	5.6	5.5	6.0	6.2	6.4	6.6	
20	2.6	2.9	3.0	3.1	3.2	2.9	3.2	3.3	3.4	3.6	3.2	3.5	3.6	3.8	3.9	3.8	4.2	4.4	4.5	4.7	4.6	5.0	5.2	5.3	5.5	
25	1.9	2.2	2.3	2.3	2.4	2.2	2.4	2.5	2.6	2.7	2.5	2.7	2.8	2.9	3.1	3.0	3.4	3.5	3.6	3.7	3.7	4.1	4.2	4.4	4.5	
29	1.4	1.6	1.6	1.7	1.8	1.6	1.8	1.9	2.0	2.1	1.9	2.1	2.2	2.3	2.3	2.4	2.7	2.8	2.9	3.0	3.0	3.3	3.4	3.5	3.7	
15	-54	7.2	7.8	8.1	8.4	8.6	7.6	8.3	8.6	8.9	9.2	8.1	8.8	9.1	9.4	9.7	9.1	10.0	10.3	10.6	10.9	10.3	11.3	11.6	12.0	12.4
	-50	7.2	7.8	8.1	8.4	8.6	7.6	8.3	8.6	8.9	9.2	8.1	8.8	9.1	9.4	9.7	9.1	10.0	10.3	10.6	10.9	10.3	11.3	11.6	12.0	12.4
	0	7.0	7.7	7.9	8.2	8.4	7.5	8.1	8.4	8.7	9.0	7.9	8.6	8.9	9.2	9.5										

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT
FLAPS - UP

CONDITIONS: ANTI-ICE SYSTEMS - OFF

LANDING GEAR - UP

AIRSPEED - V_{ENR} (160 KIAS)

SPEEDBRAKES - RETRACT

INOPERATIVE ENGINE- WINDMILLING

OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		16830					16500					16000					15500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
2	-54	2.9	3.2	3.3	3.4	3.5	3.0	3.4	3.5	3.6	3.7	3.3	3.6	3.8	3.9	4.0	3.6	4.0	4.1	4.2	4.4
0	-50	2.8	3.1	3.2	3.4	3.5	3.0	3.3	3.4	3.6	3.7	3.3	3.6	3.7	3.9	4.0	3.6	3.9	4.1	4.2	4.3
0	-45	2.7	3.0	3.1	3.2	3.3	2.9	3.2	3.3	3.4	3.5	3.2	3.5	3.6	3.7	3.8	3.5	3.8	3.9	4.0	4.2
0	-40	2.5	2.8	2.9	3.0	3.1	2.7	2.9	3.0	3.1	3.2	2.9	3.2	3.3	3.4	3.6	3.2	3.5	3.6	3.7	3.9
0	-35	2.2	2.5	2.6	2.7	2.8	2.4	2.6	2.7	2.8	2.9	2.6	2.9	3.0	3.1	3.2	2.9	3.2	3.3	3.4	3.5
0	-30	2.0	2.2	2.2	2.3	2.4	2.1	2.3	2.4	2.5	2.6	2.4	2.6	2.7	2.8	2.9	2.6	2.9	3.0	3.1	3.2
0	-25	1.6	1.8	1.9	1.9	2.0	1.8	2.0	2.0	2.1	2.2	2.0	2.2	2.3	2.4	2.5	2.2	2.5	2.6	2.6	2.7
0	-20	1.4	1.5	1.6	1.7	1.7	1.5	1.7	1.8	1.8	1.9	1.7	1.9	2.0	2.1	2.2	2.0	2.2	2.3	2.3	2.4
0	-15	1.0	1.1	1.2	1.2	1.3	1.1	1.3	1.3	1.4	1.4	1.3	1.5	1.6	1.6	1.7	1.6	1.7	1.8	1.9	1.9
0	-10	0.5	0.6	0.7	0.7	0.7	0.6	0.8	0.8	0.8	0.9	0.8	1.0	1.0	1.1	1.1	1.0	1.2	1.2	1.3	1.3
0	-5	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7
0	0	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.1	0.1
5	-54	-1.0	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.5	-0.5	-0.5	-0.5
5	-50	-1.4	-1.4	-1.4	-1.4	-1.5	-1.3	-1.3	-1.3	-1.3	-1.4	-1.2	-1.2	-1.2	-1.2	-1.2	-1.0	-1.0	-1.0	-1.0	-1.0
5	-45	0.8	1.0	1.0	1.1	1.1	1.0	1.1	1.2	1.2	1.3	1.2	1.3	1.4	1.5	1.5	1.4	1.6	1.6	1.7	1.8
5	-50	0.8	0.9	1.0	1.0	1.1	0.9	1.1	1.1	1.2	1.2	1.2	1.3	1.4	1.4	1.5	1.4	1.5	1.6	1.7	1.7
5	-45	0.7	0.8	0.8	0.9	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.2	1.2	1.3	1.2	1.3	1.4	1.5	1.5
0	-40	0.4	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.2	1.2
0	-35	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.7	0.8	0.9	0.9	1.0
0	-30	-0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.6
0	-25	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3
0	-20	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	0.0
0	-15	-1.0	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.5	-0.5	-0.5
0	-10	-1.4	-1.4	-1.4	-1.4	-1.4	-1.3	-1.3	-1.3	-1.3	-1.3	-1.2	-1.2	-1.2	-1.2	-1.2	-1.0	-1.0	-1.0	-1.0	-1.0
0	-5	-1.8	-1.9	-1.9	-1.9	-1.9	-1.7	-1.8	-1.8	-1.8	-1.8	-1.6	-1.6	-1.7	-1.7	-1.7	-1.5	-1.5	-1.5	-1.5	-1.5
0	0	-2.2	-2.3	-2.3	-2.3	-2.3	-2.1	-2.2	-2.2	-2.2	-2.2	-2.0	-2.1	-2.1	-2.1	-2.1	-1.9	-1.9	-2.0	-2.0	-2.0
3	-54	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-0.3	-0.3	-0.3	-0.3
0	-50	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4
0	-45	-1.0	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.6	-0.6	-0.6	-0.6	-0.6
0	-40	-1.2	-1.2	-1.2	-1.2	-1.2	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-1.0	-1.0	-1.0	-1.0	-0.8	-0.8	-0.8	-0.8	-0.8
0	-35	-1.4	-1.4	-1.5	-1.5	-1.5	-1.3	-1.4	-1.4	-1.4	-1.4	-1.2	-1.2	-1.2	-1.2	-1.2	-1.1	-1.1	-1.1	-1.1	-1.1
0	-30	-1.6	-1.7	-1.7	-1.7	-1.7	-1.6	-1.6	-1.6	-1.6	-1.6	-1.4	-1.4	-1.5	-1.5	-1.5	-1.3	-1.3	-1.3	-1.3	-1.3
0	-25	-1.9	-1.9	-1.9	-2.0	-2.0	-1.8	-1.8	-1.9	-1.9	-1.9	-1.7	-1.7	-1.7	-1.7	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6
0	-20	-2.2	-2.3	-2.3	-2.3	-2.3	-2.1	-2.2	-2.2	-2.2	-2.2	-2.0	-2.1	-2.1	-2.1	-2.1	-1.9	-1.9	-2.0	-2.0	-2.0
0	-15	-2.6	-2.6	-2.7	-2.7	-2.7	-2.5	-2.6	-2.6	-2.6	-2.7	-2.4	-2.5	-2.5	-2.5	-2.5	-2.3	-2.4	-2.4	-2.4	-2.4
0	-11	-2.9	-3.0	-3.0	-3.1	-3.1	-2.8	-2.9	-3.0	-3.0	-3.0	-2.7	-2.8	-2.9	-2.9	-2.9	-2.6	-2.7	-2.8	-2.8	-2.8
3	-54	-2.1	-2.2	-2.2	-2.2	-2.2	-2.0	-2.1	-2.1	-2.1	-2.1	-1.9	-2.0	-2.0	-2.0	-2.0	-1.8	-1.8	-1.8	-1.9	-1.9
5	-50	-2.2	-2.3	-2.3	-2.3	-2.3	-2.1	-2.2	-2.2	-2.2	-2.3	-2.0	-2.1	-2.1	-2.1	-2.1	-1.9	-2.0	-2.0	-2.0	-2.0
0	-45	-2.4	-2.4	-2.4	-2.5	-2.5	-2.3	-2.4	-2.4	-2.4	-2.4	-2.2	-2.2	-2.3	-2.3	-2.3	-2.1	-2.1	-2.1	-2.2	-2.2
0	-40	-2.5	-2.6	-2.6	-2.7	-2.7	-2.5	-2.5	-2.6	-2.6	-2.6	-2.4	-2.4	-2.5	-2.5	-2.5	-2.3	-2.3	-2.4	-2.4	-2.4
0	-35	-2.7	-2.8	-2.8	-2.9	-2.9	-2.7	-2.8	-2.8	-2.8	-2.8	-2.6	-2.7	-2.7	-2.7	-2.7	-2.5	-2.6	-2.6	-2.6	-2.6
0	-30	-3.0	-3.1	-3.1	-3.1	-3.2	-2.9	-3.0	-3.0	-3.1	-3.1	-2.8	-2.9	-2.9	-3.0	-3.0	-2.7	-2.8	-2.8	-2.9	-2.9
0	-25	-3.3	-3.4	-3.4	-3.4	-3.5	-3.2	-3.3	-3.4	-3.4	-3.4	-3.1	-3.2	-3.3	-3.3	-3.3	-3.1	-3.2	-3.2	-3.2	-3.3
0	-21	-3.5	-3.7	-3.7	-3.7	-3.8	-3.5	-3.6	-3.7	-3.7	-3.7	-3.4	-3.5	-3.6	-3.6	-3.6	-3.4	-3.5	-3.5	-3.6	-3.6
4	-54	-3.2	-3.3	-3.3	-3.3	-3.4	-3.1	-3.2	-3.2	-3.3	-3.3	-3.0	-3.1	-3.1	-3.2	-3.2	-2.9	-3.0	-3.1	-3.1	-3.1
0	-50	-3.3	-3.4	-3.4	-3.4	-3.5	-3.2	-3.3	-3.4	-3.4	-3.4	-3.1	-3.2	-3.3	-3.3	-3.3	-3.1	-3.2	-3.2	-3.2	-3.3
0	-45	-3.4	-3.5	-3.6	-3.6	-3.7	-3.4	-3.5	-3.5	-3.6	-3.6	-3.3	-3.4	-3.4	-3.5	-3.5	-3.2	-3.3	-3.4	-3.4	-3.4
0	-40	-3.6	-3.7	-3.8	-3.8	-3.8	-3.6	-3.7	-3.7	-3.8	-3.8	-3.5	-3.6	-3.6	-3.7	-3.7	-3.4	-3.5	-3.6	-3.6	-3.7
0	-35	-3.8	-3.9	-4.0	-4.0	-4.1	-3.8	-3.9	-3.9	-4.0	-4.0	-3.7	-3.8	-3.9	-3.9	-4.0	-3.7	-3.8	-3.8	-3.9	-3.9
0	-30	-4.1	-4.2	-4.3	-4.3	-4.4	-4.0	-4.2	-4.2	-4.3	-4.3	-4.0	-4.1	-4.2	-4.2	-4.3	-3.9	-4.1	-4.1	-4.2	-4.2
0	-28	-4.2	-4.4	-4.4	-4.5	-4.5	-4.2	-4.3	-4.4	-4.4	-4.5	-4.1	-4.3	-4.3	-4.4	-4.4	-4.1	-4.2	-4.3	-4.3	-4.4
4	-54	-3.9	-4.1	-4.1	-4.2	-4.2	-3.9	-4.0	-4.1	-4.1	-4.2	-3.9	-4.0	-4.0	-4.1	-4.1	-3.8	-3.9	-4.0	-4.0	-4.0
5	-50	-4.1	-4.2	-4.2	-4.3	-4.3	-4.0	-4.2	-4.2	-4.3	-4.3	-4.0	-4.1	-4.2	-4.2	-4.2	-3.9	-4.1	-4.1	-4.2	-4.2
0	-45	-4.2	-4.4	-4.4	-4.5	-4.5	-4.2	-4.3	-4.4	-4.4	-4.5	-4.2	-4.3	-4.3	-4.4	-4.4	-4.1	-4.2	-4.3	-4.3	-4.4
0	-40	-4.5	-4.6	-4.7	-4.7	-4.8	-4.4	-4.6	-4.6	-4.7	-4.7	-4.4	-4.5	-4.6	-4.6	-4.7	-4.4	-4.5	-4.6	-4.6	-4.7
0	-35	-4.7	-4.8	-4.9	-4.9	-5.0	-4.6	-4.8	-4.8	-4.9	-5.0	-4.6	-4.8	-4.8	-4.9	-4.9	-4.6	-4.7	-4.8	-4.8	-4.9
0	-34	-4.7	-4.9	-4.9	-5.0	-5.0	-4.7	-4.9	-4.9	-5.0	-5.0	-4.7	-4.8	-4.9	-4.9	-5.0	-4.7	-4.8	-4.9	-4.9	-5.0

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Figure 4-44 (Sheet 3)

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT FLAPS - UP

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - V_{ENR} (160 KIAS)

SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
2	-54	4.2	4.6	4.8	4.9	5.1	4.6	5.0	5.1	5.3	5.5	4.9	5.4	5.5	5.7	5.9	5.7	6.2	6.4	6.6	6.8
0	-50	4.2	4.6	4.7	4.9	5.0	4.5	4.9	5.1	5.3	5.4	4.9	5.3	5.5	5.7	5.8	5.7	6.2	6.3	6.5	6.7
0	-45	4.1	4.4	4.6	4.7	4.9	4.4	4.8	4.9	5.1	5.3	4.7	5.2	5.3	5.5	5.7	5.5	6.0	6.2	6.3	6.5
0	-40	3.8	4.1	4.3	4.4	4.6	4.1	4.5	4.6	4.8	4.9	4.5	4.9	5.0	5.2	5.3	5.2	5.6	5.8	6.0	6.2
0	-35	3.5	3.8	3.9	4.1	4.2	3.8	4.1	4.3	4.4	4.5	4.1	4.5	4.6	4.8	4.9	4.8	5.3	5.4	5.6	5.7
0	-30	3.2	3.5	3.6	3.7	3.8	3.5	3.8	3.9	4.0	4.1	3.8	4.1	4.2	4.4	4.5	4.5	4.8	5.0	5.1	5.3
0	-25	2.8	3.0	3.1	3.2	3.3	3.1	3.3	3.4	3.6	3.7	3.4	3.7	3.8	3.9	4.0	4.0	4.4	4.5	4.6	4.8
0	-20	2.5	2.7	2.8	2.9	3.0	2.8	3.0	3.1	3.2	3.3	3.0	3.3	3.4	3.5	3.7	3.7	4.0	4.1	4.2	4.4
0	-15	2.0	2.2	2.3	2.4	2.5	2.3	2.5	2.6	2.7	2.8	2.6	2.8	2.9	3.0	3.1	3.1	3.4	3.5	3.7	3.8
0	-10	1.5	1.7	1.7	1.8	1.9	1.7	1.9	2.0	2.1	2.1	2.0	2.2	2.3	2.3	2.4	2.5	2.8	2.8	2.9	3.0
0	-5	0.9	1.0	1.1	1.1	1.2	1.1	1.3	1.3	1.4	1.4	1.3	1.5	1.6	1.6	1.7	1.8	2.0	2.1	2.2	2.3
0	0	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.2	1.3	1.4	1.4	1.5
0	5	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.5	0.6	0.6	0.7	0.7
0	9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.3	-0.3	-0.1	0.0	0.0	0.0	0.1
2	-54	1.9	2.1	2.1	2.2	2.3	2.1	2.3	2.4	2.5	2.6	2.4	2.6	2.7	2.8	2.9	3.0	3.2	3.3	3.4	3.5
0	-50	1.8	2.0	2.1	2.2	2.2	2.1	2.3	2.4	2.4	2.5	2.3	2.6	2.7	2.7	2.8	2.9	3.2	3.3	3.4	3.5
0	-45	1.6	1.8	1.9	2.0	2.0	1.9	2.1	2.2	2.2	2.3	2.1	2.4	2.4	2.5	2.6	2.7	2.9	3.0	3.1	3.2
0	-40	1.4	1.6	1.6	1.7	1.7	1.6	1.8	1.9	1.9	2.0	1.9	2.1	2.1	2.2	2.3	2.4	2.6	2.7	2.8	2.9
0	-35	1.1	1.3	1.3	1.4	1.5	1.4	1.5	1.6	1.7	1.7	1.6	1.8	1.8	1.9	2.0	2.1	2.3	2.4	2.5	2.6
0	-30	0.8	0.9	1.0	1.0	1.1	1.0	1.2	1.2	1.3	1.3	1.3	1.4	1.5	1.5	1.6	1.7	1.9	2.0	2.0	2.1
0	-25	0.5	0.6	0.7	0.7	0.8	0.7	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.4	1.6	1.6	1.7	1.8
0	-20	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	1.0	1.1	1.2	1.2	1.3
0	-15	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.5	0.6	0.6	0.7	0.7
0	-10	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.3	-0.3	-0.1	0.0	0.0	0.0	0.1
0	-5	-1.2	-1.2	-1.2	-1.2	-1.2	-1.1	-1.1	-1.1	-1.1	-1.1	-0.9	-0.9	-0.9	-0.9	-0.9	-0.6	-0.6	-0.6	-0.6	-0.6
0	0	-1.6	-1.7	-1.7	-1.7	-1.7	-1.5	-1.5	-1.6	-1.6	-1.6	-1.4	-1.4	-1.4	-1.4	-1.4	-1.1	-1.1	-1.1	-1.1	-1.1
3	-54	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.7	0.8	0.9	0.9	1.0
0	-50	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.6	0.8	0.8	0.8	0.9
0	-45	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.5	0.5	0.6	0.6
0	-40	-0.5	-0.5	-0.5	-0.5	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	0.2	0.3	0.3	0.3	0.3
0	-35	-0.8	-0.8	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.1	0.0	0.0	0.0	0.0
0	-30	-1.0	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.4	-0.3	-0.3	-0.3	-0.3
0	-25	-1.3	-1.3	-1.3	-1.3	-1.3	-1.2	-1.2	-1.2	-1.2	-1.2	-1.0	-1.0	-1.0	-1.0	-1.0	-0.7	-0.7	-0.7	-0.7	-0.7
0	-20	-1.7	-1.7	-1.7	-1.7	-1.7	-1.5	-1.6	-1.6	-1.6	-1.6	-1.4	-1.4	-1.4	-1.4	-1.4	-1.1	-1.1	-1.1	-1.1	-1.1
0	-15	-2.1	-2.1	-2.2	-2.2	-2.2	-2.0	-2.0	-2.0	-2.1	-2.1	-1.9	-1.9	-1.9	-1.9	-1.9	-1.6	-1.6	-1.7	-1.7	-1.7
0	-11	-2.5	-2.5	-2.6	-2.6	-2.6	-2.4	-2.4	-2.4	-2.5	-2.5	-2.3	-2.3	-2.3	-2.4	-2.4	-2.1	-2.1	-2.1	-2.1	-2.2
3	-54	-1.6	-1.6	-1.6	-1.6	-1.6	-1.4	-1.4	-1.4	-1.5	-1.5	-1.3	-1.3	-1.3	-1.3	-1.3	-1.0	-1.0	-1.0	-1.0	-1.0
0	-50	-1.7	-1.7	-1.7	-1.7	-1.7	-1.6	-1.6	-1.6	-1.6	-1.6	-1.4	-1.5	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2	-1.2	-1.2
0	-45	-1.9	-1.9	-1.9	-1.9	-1.9	-1.7	-1.8	-1.8	-1.8	-1.8	-1.6	-1.6	-1.7	-1.7	-1.7	-1.4	-1.4	-1.4	-1.4	-1.4
0	-40	-2.1	-2.1	-2.1	-2.2	-2.2	-2.0	-2.0	-2.0	-2.0	-2.0	-1.8	-1.9	-1.9	-1.9	-1.9	-1.6	-1.6	-1.6	-1.7	-1.7
0	-35	-2.3	-2.3	-2.4	-2.4	-2.4	-2.2	-2.2	-2.3	-2.3	-2.3	-2.1	-2.1	-2.1	-2.2	-2.2	-1.9	-1.9	-1.9	-1.9	-1.9
0	-30	-2.6	-2.6	-2.7	-2.7	-2.7	-2.5	-2.5	-2.6	-2.6	-2.6	-2.4	-2.4	-2.5	-2.5	-2.5	-2.2	-2.2	-2.2	-2.3	-2.3
0	-25	-2.9	-3.0	-3.0	-3.1	-3.1	-2.8	-2.9	-2.9	-3.0	-3.0	-2.7	-2.8	-2.8	-2.9	-2.9	-2.6	-2.6	-2.7	-2.7	-2.7
0	-21	-3.2	-3.3	-3.4	-3.4	-3.4	-3.2	-3.3	-3.3	-3.3	-3.4	-3.1	-3.2	-3.2	-3.3	-3.3	-2.9	-3.0	-3.1	-3.1	-3.1
4	-54	-2.8	-2.9	-2.9	-2.9	-3.0	-2.7	-2.8	-2.8	-2.8	-2.9	-2.6	-2.7	-2.7	-2.7	-2.8	-2.4	-2.5	-2.5	-2.6	-2.6
0	-50	-2.9	-3.0	-3.0	-3.1	-3.1	-2.8	-2.9	-2.9	-3.0	-3.0	-2.8	-2.8	-2.9	-2.9	-2.9	-2.6	-2.7	-2.7	-2.7	-2.7
0	-45	-3.1	-3.2	-3.2	-3.3	-3.3	-3.0	-3.1	-3.1	-3.2	-3.2	-2.9	-3.0	-3.1	-3.1	-3.1	-2.8	-2.9	-2.9	-2.9	-3.0
0	-40	-3.3	-3.4	-3.4	-3.5	-3.5	-3.2	-3.3	-3.4	-3.4	-3.4	-3.2	-3.3	-3.3	-3.3	-3.4	-3.0	-3.1	-3.2	-3.2	-3.2
0	-35	-3.5	-3.7	-3.7	-3.7	-3.8	-3.5	-3.6	-3.6	-3.7	-3.7	-3.4	-3.5	-3.6	-3.6	-3.7	-3.3	-3.4	-3.5	-3.5	-3.5
0	-30	-3.8	-4.0	-4.0	-4.1	-4.1	-3.8	-3.9	-4.0	-4.0	-4.1	-3.8	-3.9	-3.9	-4.0	-4.0	-3.7	-3.8	-3.8	-3.9	-3.9
0	-28	-4.0	-4.1	-4.2	-4.2	-4.3	-4.0	-4.1	-4.1	-4.2	-4.2	-3.9	-4.1	-4.1	-4.2	-4.2	-3.9	-4.0	-4.0	-4.1	-4.1
4	-54	-3.7	-3.8	-3.8	-3.9	-3.9	-3.6	-3.8	-3.8	-3.8	-3.9	-3.6	-3.7	-3.7	-3.8	-3.8	-3.5	-3.6	-3.7	-3.7	-3.7
5	-50	-3.9	-4.0	-4.0	-4.1	-4.1	-3.8	-3.9	-4.0	-4.0	-4.0	-3.8	-3.9	-3.9	-4.0	-4.0	-3.7	-3.8	-3.8	-3.9	-3.9
0	-45	-4.0	-4.2	-4.2	-4.3	-4.3	-4.0	-4.1	-4.2	-4.2	-4.3	-4.0	-4.1	-4.1	-4.2	-4.2	-3.9	-4.0	-4.1	-4.1	-4.1
0	-40	-4.3	-4.4	-4.5	-4.5	-4.6	-4.3	-4.4	-4.5	-4.5	-4.6	-4.3	-4.4	-4.4	-4.5	-4.5	-4.2	-4.3	-4.4	-4.4	-4.5
0	-35	-4.5	-4.7	-4.7	-4.8	-4.8	-4.5	-4.7	-4.7	-4.8	-4.8	-4.5	-4.6	-4.7	-4.7	-4.8	-4.5	-4.6	-4.7	-4.7	-4.8
0	-34	-4.6	-4.8	-4.8	-4.9	-4.9	-4.6	-4.7	-4.8	-4.8	-4.9	-4.6	-4.7	-4.8	-4.8	-4.9	-4.6	-4.7	-4.8	-4.8	-4.9

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Figure 4-44 (Sheet 4)

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT
FLAPS - UPCONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V_{ENR} (160 KIAS)SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		16830					16500					16000					15500					15000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-54	6.2	7.0	7.3	7.7	8.0	6.5	7.3	7.6	8.0	8.3	6.9	7.7	8.1	8.4	8.8	7.3	8.2	8.5	8.9	9.3	7.7	8.6	9.0	9.4	9.8
	-50	6.3	7.1	7.4	7.7	8.0	6.5	7.3	7.6	8.0	8.3	6.9	7.7	8.1	8.4	8.8	7.3	8.2	8.5	8.9	9.3	7.7	8.7	9.0	9.4	9.8
	-45	6.3	7.1	7.4	7.7	8.1	6.5	7.4	7.7	8.0	8.4	6.9	7.8	8.1	8.5	8.8	7.3	8.2	8.6	8.9	9.3	7.8	8.7	9.1	9.5	9.9
	-40	6.3	7.1	7.4	7.8	8.1	6.6	7.4	7.7	8.0	8.4	7.0	7.8	8.2	8.5	8.9	7.4	8.3	8.6	9.0	9.4	7.8	8.8	9.1	9.5	9.9
	-35	6.4	7.2	7.5	7.8	8.1	6.6	7.4	7.7	8.1	8.4	7.0	7.9	8.2	8.5	8.9	7.4	8.3	8.7	9.0	9.4	7.9	8.8	9.2	9.5	10.0
	-30	6.4	7.2	7.5	7.8	8.2	6.7	7.5	7.8	8.1	8.5	7.1	7.9	8.2	8.6	9.0	7.5	8.4	8.7	9.1	9.5	7.9	8.9	9.2	9.6	10.0
	-25	6.5	7.3	7.6	7.9	8.2	6.7	7.5	7.8	8.2	8.5	7.1	8.0	8.3	8.6	9.0	7.5	8.4	8.8	9.1	9.5	8.0	8.9	9.3	9.6	10.0
	-20	6.6	7.3	7.6	7.9	8.3	6.8	7.6	7.9	8.2	8.6	7.2	8.0	8.4	8.7	9.1	7.6	8.5	8.8	9.2	9.6	8.0	9.0	9.3	9.7	10.1
	-15	6.6	7.4	7.7	8.0	8.3	6.9	7.7	8.0	8.3	8.6	7.3	8.1	8.4	8.8	9.1	7.7	8.6	8.9	9.3	9.6	8.1	9.0	9.4	9.8	10.2
	-10	6.7	7.5	7.7	8.1	8.4	6.9	7.7	8.0	8.4	8.7	7.3	8.2	8.5	8.8	9.2	7.8	8.6	9.0	9.3	9.7	8.2	9.1	9.5	9.8	10.2
5	-5	6.7	7.5	7.8	8.1	8.5	7.0	7.8	8.1	8.4	8.8	7.4	8.2	8.5	8.9	9.3	7.8	8.7	9.0	9.4	9.8	8.3	9.2	9.5	9.9	10.3
	0	6.8	7.6	7.8	8.2	8.5	7.0	7.8	8.1	8.5	8.8	7.4	8.3	8.6	8.9	9.3	7.9	8.7	9.1	9.4	9.8	8.3	9.2	9.6	10.0	10.4
	5	6.7	7.5	7.8	8.1	8.4	7.0	7.8	8.1	8.4	8.7	7.4	8.2	8.5	8.9	9.2	7.8	8.7	9.0	9.4	9.7	8.3	9.2	9.5	9.9	10.3
	10	6.4	7.1	7.4	7.7	8.0	6.6	7.4	7.7	8.0	8.3	7.0	7.8	8.1	8.4	8.8	7.4	8.3	8.6	8.9	9.3	7.9	8.7	9.1	9.4	9.8
	15	7.2	8.1	8.4	8.7	9.1	7.5	8.4	8.7	9.0	9.4	7.9	8.8	9.2	9.5	9.9	8.4	9.3	9.7	10.0	10.5	8.8	9.8	10.2	10.6	11.0
	20	7.3	8.1	8.4	8.8	9.1	7.5	8.4	8.7	9.1	9.4	8.0	8.9	9.2	9.6	9.9	8.4	9.3	9.7	10.1	10.5	8.9	9.9	10.2	10.6	11.0
	25	7.3	8.2	8.5	8.8	9.2	7.6	8.4	8.8	9.1	9.5	8.0	8.9	9.2	9.6	10.0	8.5	9.4	9.7	10.1	10.5	8.9	9.9	10.3	10.7	11.1
	30	7.4	8.2	8.5	8.8	9.3	7.7	8.5	8.8	9.2	9.5	8.1	9.0	9.3	9.7	10.1	8.5	9.4	9.8	10.2	10.6	9.0	10.0	10.3	10.7	11.1
	35	7.5	8.3	8.6	8.9	9.2	7.7	8.6	8.9	9.2	9.6	8.1	9.0	9.4	9.7	10.1	8.6	9.5	9.9	10.2	10.6	9.1	10.0	10.4	10.8	11.2
	40	7.5	8.3	8.6	9.0	9.3	7.8	8.6	8.9	9.3	9.6	8.2	9.1	9.4	9.8	10.2	8.7	9.6	9.9	10.3	10.7	9.1	10.1	10.5	10.9	11.3
10	-25	7.6	8.4	8.7	9.0	9.4	7.9	8.7	9.0	9.3	9.7	8.3	9.2	9.5	9.8	10.2	8.7	9.7	10.0	10.4	10.8	9.2	10.2	10.5	10.9	11.3
	-20	7.7	8.5	8.8	9.1	9.5	7.9	8.8	9.1	9.4	9.8	8.4	9.2	9.6	9.9	10.3	8.8	9.7	10.1	10.5	10.8	9.3	10.3	10.6	11.0	11.4
	-15	7.6	8.4	8.7	9.0	9.3	7.8	8.7	9.0	9.3	9.6	8.3	9.1	9.5	9.8	10.2	8.7	9.6	10.0	10.3	10.7	9.2	10.1	10.5	10.9	11.3
	-10	7.1	7.8	8.1	8.4	8.7	7.3	8.1	8.4	8.7	9.0	7.7	8.5	8.8	9.2	9.5	8.2	9.0	9.3	9.7	10.0	8.6	9.5	9.8	10.2	10.6
	-5	6.2	6.8	7.1	7.3	7.6	6.4	7.1	7.4	7.6	7.9	6.8	7.5	7.8	8.1	8.4	7.2	8.0	8.2	8.5	8.9	7.6	8.4	8.7	9.0	9.4
	0	5.3	5.9	6.1	6.3	6.6	5.5	6.1	6.4	6.6	6.8	5.9	6.5	6.8	7.0	7.3	6.3	6.9	7.2	7.4	7.7	6.7	7.4	7.6	7.9	8.2
	5	4.4	4.9	5.1	5.3	5.5	4.7	5.2	5.3	5.5	5.8	5.0	5.5	5.7	5.9	6.1	5.3	5.9	6.1	6.3	6.6	5.7	6.3	6.5	6.7	7.0
	10	3.6	4.0	4.1	4.3	4.5	3.8	4.2	4.3	4.5	4.7	4.0	4.5	4.7	4.8	5.0	4.4	4.8	5.0	5.2	5.4	4.7	5.2	5.4	5.6	5.8
	15	7.7	8.5	8.8	9.1	9.5	8.0	8.8	9.1	9.5	9.8	8.4	9.3	9.6	10.0	10.3	8.9	9.8	10.1	10.5	10.9	9.4	10.3	10.7	11.1	11.5
	20	7.6	8.4	8.7	9.0	9.3	7.9	8.7	9.0	9.3	9.7	8.3	9.2	9.5	9.8	10.2	8.8	9.7	10.0	10.3	10.7	9.3	10.2	10.5	10.9	11.3
15	-45	7.4	8.1	8.4	8.7	9.0	7.6	8.4	8.7	9.0	9.3	8.1	8.9	9.2	9.5	9.8	8.5	9.4	9.7	10.0	10.4	9.0	9.9	10.2	10.6	10.9
	-40	7.0	7.8	8.0	8.3	8.6	7.3	8.0	8.3	8.6	8.9	7.7	8.5	8.8	9.1	9.4	8.1	9.0	9.3	9.6	9.9	8.6	9.4	9.8	10.1	10.5
	-35	6.7	7.3	7.6	7.8	8.1	6.9	7.6	7.9	8.1	8.4	7.3	8.0	8.3	8.6	8.9	7.7	8.5	8.8	9.1	9.4	8.2	9.0	9.3	9.6	9.9
	-30	6.3	6.9	7.1	7.4	7.6	6.5	7.2	7.4	7.7	7.9	6.9	7.6	7.8	8.1	8.4	7.3	8.0	8.3	8.6	8.9	7.7	8.5	8.8	9.1	9.4
	-25	5.9	6.5	6.7	7.0	7.2	6.1	6.8	7.0	7.2	7.5	6.5	7.2	7.4	7.7	7.9	6.9	7.6	7.8	8.1	8.4	7.3	8.0	8.3	8.6	8.9
	-20	5.5	6.0	6.2	6.4	6.7	5.7	6.3	6.5	6.7	6.9	6.0	6.6	6.9	7.1	7.4	6.4	7.1	7.3	7.5	7.8	6.8	7.5	7.7	8.0	8.3
	-15	4.8	5.2	5.4	5.6	5.8	5.0	5.5	5.7	5.9	6.1	5.3	5.8	6.0	6.2	6.5	5.7	6.2	6.4	6.6	6.9	6.0	6.6	6.8	7.1	7.3
	-10	4.0	4.4	4.6	4.8	4.9	4.2	4.6	4.8	5.0	5.2	4.5	5.0	5.2	5.3	5.5	4.8	5.3	5.5	5.7	5.9	5.2	5.7	5.9	6.1	6.3
	-5	3.2	3.6	3.7	3.9	4.0	3.4	3.8	3.9	4.1	4.2	3.7	4.1	4.3	4.4	4.6	4.0	4.4	4.6	4.8	4.9	4.3	4.8	4.9	5.1	5.3
	0	2.5	2.8	2.9	3.0	3.1	2.7	3.0	3.1	3.2	3.3	2.9	3.2	3.4	3.5	3.6	3.2	3.5	3.7	3.8	3.9	3.5	3.8	4.0	4.1	4.3
20	5	1.7	1.9	2.0	2.1	2.2	1.9	2.1	2.2	2.3	2.4	2.1	2.4	2.5	2.6	2.7	2.4	2.6	2.7	2.8	3.0	2.6	2.9	3.0	3.1	3.3
	10	1.0	1.1	1.2	1.3	1.3	1.1	1.3	1.4	1.4	1.5	1.3	1.5	1.6	1.7	1.7	1.5	1.8	1.8	1.9	2.0	1.8	2.0	2.1	2.2	2.3
	15	4.9	5.4	5.6	5.8	6.0	5.1	5.6	5.8	6.0	6.2	5.5	6.0	6.2	6.4	6.6	5.8	6.4	6.6	6.8	7.1	6.2	6.8	7.0	7.3	7.5
	20	4.7	5.2	5.4	5.6	5.8	5.0	5.4	5.6	5.8	6.0	5.3	5.8	6.0	6.2	6.4	5.6	6.2	6.4	6.6	6.8	6.0	6.6	6.8	7.0	7.3
	25	4.4	4.9	5.1	5.2	5.4	4.6	5.1	5.3	5.5	5.7	5.0	5.5	5.6	5.8	6.0	5.3	5.8	6.0	6.2	6.4	5.7	6.2	6.4	6.6	6.9
	30	4.1	4.5	4.7	4.9	5.0	4.3	4.8	4.9	5.1	5.3	4.6	5.1	5.3	5.5	5.6	5.0	5.5	5.6	5.8	6.0	5.3	5.8	6.0	6.2	6.4
	35	3.8	4.2	4.3	4.5	4.7	4.0	4.4	4.6	4.7	4.9	4.3	4.7	4.9	5.1	5.2	4.6	5.1	5.3	5.4	5.6	5.0	5.4	5.6	5.8	6.0
	40	3.5	3.8	4.0	4.1	4.2	3.7	4.0	4.2	4.3	4.5	4.0	4.3	4.5	4.6	4.8	4.3	4.7	4.8	5.0	5.2	4.6	5.0	5.2	5.4	5.5
	45	3.1	3.5	3.6	3.7	3.8	3.3	3.7	3.8	3.9	4.1	3.6	4.0	4.1	4.2	4.4	3.9	4.3	4.4	4.6	4.7	4.2	4.6	4.8	4.9	5.1
	50	2.6	2.8	2.9	3.0	3.2	2.7	3.0	3.1	3.2	3.3	3.0	3.3	3.4	3.5	3.7	3.3	3.6	3.7	3.8	4.0	3.6	3.9	4.0	4.2	4.3
25	-15	1.9	2.1	2.2	2.3	2.4	2.0	2.3	2.4	2.5	2.5	2.3	2.5	2.6	2.7	2.8	2.5	2.8	2.9	3.0	3.1	2.8	3.1	3.2	3.3	3.4
	-10	1.2	1.4	1.4	1.5	1.6	1.3	1.5	1.6	1.7	1.7	1.6	1.8	1.8	1.9	2.0	1.8	2.0	2.1	2.2	2.3	2.0	2.3	2.3	2.4	2.5
	-5	0.5	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.1	1.2	1.3	1.3	1.4	1.3	1.5	1.5	1.6	1.7
	0	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4											

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT
FLAPS - UPCONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V_{ENR} (160 KIAS)SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																									
		14500					14000					13500					12500					11500					
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30		
0	-54	8.1	9.1	9.5	9.9	10.4	8.6	9.7	10.1	10.5	11.0	9.1	10.2	10.7	11.1	11.6	10.3	11.5	12.0	12.5	13.0	11.6	12.9	13.5	14.0	14.7	
	-50	8.2	9.2	9.6	10.0	10.4	8.6	9.7	10.1	10.5	11.0	9.2	10.3	10.7	11.1	11.6	10.3	11.5	12.0	12.5	13.0	11.6	13.0	13.5	14.1	14.7	
	-45	8.2	9.2	9.6	10.0	10.4	8.7	9.7	10.1	10.6	11.0	9.2	10.3	10.7	11.2	11.7	10.3	11.6	12.0	12.5	13.1	11.7	13.0	13.5	14.1	14.7	
	-40	8.3	9.3	9.6	10.0	10.5	8.7	9.8	10.2	10.6	11.1	9.3	10.4	10.8	11.2	11.7	10.4	11.6	12.1	12.6	13.1	11.7	13.1	13.6	14.2	14.8	
	-35	8.3	9.3	9.7	10.1	10.5	8.8	9.8	10.2	10.7	11.1	9.3	10.4	10.8	11.3	11.8	10.5	11.7	12.1	12.6	13.2	11.8	13.1	13.7	14.2	14.8	
	-30	8.4	9.4	9.7	10.1	10.6	8.9	9.9	10.3	10.7	11.2	9.4	10.5	10.9	11.3	11.8	10.5	11.7	12.2	12.7	13.2	11.9	13.2	13.7	14.3	14.9	
	-25	8.4	9.4	9.8	10.2	10.6	8.9	10.0	10.3	10.8	11.2	9.5	10.5	10.9	11.4	11.9	10.6	11.8	12.3	12.8	13.3	11.9	13.3	13.8	14.3	14.9	
	-20	8.5	9.5	9.9	10.3	10.7	9.0	10.0	10.4	10.8	11.3	9.5	10.6	11.0	11.5	11.9	10.7	11.9	12.3	12.8	13.4	12.0	13.4	13.9	14.4	15.0	
	-15	8.6	9.6	9.9	10.3	10.7	9.1	10.1	10.5	10.9	11.4	9.6	10.7	11.1	11.5	12.0	10.8	12.0	12.4	12.9	13.4	12.1	13.5	14.0	14.5	15.1	
	-10	8.7	9.6	10.0	10.4	10.8	9.2	10.2	10.6	11.0	11.4	9.7	10.8	11.2	11.6	12.1	10.9	12.1	12.5	13.0	13.5	12.2	13.6	14.1	14.6	15.2	
5	-5	8.7	9.7	10.1	10.5	10.9	9.2	10.3	10.6	11.1	11.5	9.8	10.8	11.2	11.7	12.1	11.0	12.1	12.6	13.1	13.6	12.3	13.7	14.2	14.7	15.3	
	0	8.8	9.8	10.1	10.5	10.9	9.3	10.3	10.7	11.1	11.5	9.8	10.9	11.3	11.7	12.2	11.0	12.2	12.7	13.1	13.6	12.4	13.7	14.2	14.8	15.3	
	5	8.7	9.7	10.1	10.4	10.8	9.2	10.2	10.6	11.0	11.5	9.8	10.8	11.2	11.7	12.1	11.0	12.1	12.6	13.0	13.5	12.3	13.6	14.1	14.7	15.2	
	10	8.3	9.2	9.6	9.9	10.3	8.8	9.8	10.1	10.5	10.9	9.3	10.3	10.7	11.1	11.6	10.5	11.6	12.0	12.5	13.0	11.8	13.1	13.5	14.0	14.6	
	15	9.3	10.4	10.8	11.2	11.6	9.8	10.9	11.3	11.8	12.3	10.4	11.5	12.0	12.4	12.9	11.6	12.9	13.4	13.9	14.5	13.1	14.5	15.0	15.6	16.2	
	20	9.4	10.4	10.8	11.2	11.7	9.9	11.0	11.4	11.8	12.3	10.4	11.6	12.0	12.5	13.0	11.7	12.9	13.4	13.9	14.5	13.1	14.5	15.1	15.6	16.3	
	25	9.4	10.5	10.8	11.3	11.7	10.0	11.0	11.4	11.9	12.3	10.5	11.6	12.1	12.5	13.0	11.8	13.0	13.5	14.0	14.5	13.2	14.6	15.1	15.7	16.3	
	30	9.5	10.5	10.9	11.3	11.8	10.0	11.1	11.5	11.9	12.4	10.6	11.7	12.1	12.6	13.1	11.8	13.1	13.6	14.1	14.6	13.3	14.7	15.2	15.8	16.4	
	35	9.6	10.6	11.0	11.4	11.8	10.1	11.2	11.6	12.0	12.5	10.7	11.8	12.2	12.7	13.2	11.9	13.2	13.6	14.1	14.7	13.4	14.8	15.3	15.9	16.5	
	40	9.6	10.7	11.0	11.4	11.9	10.2	11.2	11.6	12.1	12.5	10.7	11.9	12.3	12.7	13.2	12.0	13.3	13.7	14.2	14.8	13.5	14.9	15.4	16.0	16.5	
10	-25	9.7	10.7	11.1	11.5	12.0	10.3	11.3	11.7	12.2	12.6	10.8	12.0	12.4	12.8	13.3	12.1	13.4	13.8	14.3	14.8	13.6	15.0	15.5	16.0	16.6	
	-20	9.8	10.8	11.2	11.6	12.0	10.4	11.4	11.8	12.2	12.7	10.9	12.1	12.5	12.9	13.4	12.2	13.5	13.9	14.4	14.9	13.7	15.1	15.6	16.2	16.7	
	-15	9.7	10.7	11.1	11.5	11.9	10.2	11.3	11.7	12.1	12.5	10.8	11.9	12.3	12.8	13.2	12.1	13.3	13.8	14.2	14.8	13.6	14.9	15.4	16.0	16.5	
	-10	9.1	10.0	10.4	10.8	11.2	9.6	10.6	11.0	11.4	11.8	10.2	11.2	11.6	12.0	12.4	11.4	12.5	13.0	13.4	13.9	12.8	14.1	14.6	15.1	15.6	
	-5	8.1	8.9	9.2	9.6	9.9	8.6	9.4	9.8	10.1	10.5	9.1	10.0	10.3	10.7	11.1	10.2	11.2	11.6	12.0	12.4	11.5	12.6	13.1	13.5	14.0	
	0	7.1	7.8	8.1	8.4	8.7	7.5	8.3	8.6	8.9	9.2	8.0	8.8	9.1	9.4	9.8	9.0	9.9	10.3	10.6	11.0	10.2	11.2	11.6	12.0	12.4	
	5	6.7	7.6	7.9	8.2	8.4	6.5	7.4	7.7	8.0	8.3	6.9	7.6	7.9	8.1	8.4	7.8	8.6	8.9	9.2	9.6	8.9	9.8	10.1	10.5	10.9	
	10	5.0	5.6	5.8	6.0	6.2	5.4	6.0	6.2	6.4	6.6	5.8	6.4	6.6	6.8	7.1	6.6	7.3	7.6	7.8	8.1	7.6	8.4	8.7	9.0	9.3	
	15	-54	9.9	10.9	11.2	11.6	12.1	10.4	11.5	11.9	12.3	12.7	11.0	12.1	12.5	13.0	13.4	12.3	13.5	14.0	14.5	15.0	13.8	15.1	15.7	16.2	16.8
		-50	9.8	10.7	11.1	11.5	11.9	10.3	11.3	11.7	12.1	12.6	10.9	12.0	12.4	12.8	13.2	12.2	13.4	13.8	14.3	14.8	13.6	15.0	15.5	16.0	16.6
-45		9.5	10.4	10.8	11.1	11.5	10.0	11.0	11.3	11.7	12.2	10.6	11.6	12.0	12.4	12.8	11.8	13.0	13.4	13.8	14.3	13.3	14.5	15.0	15.5	16.1	
-40		9.1	10.0	10.3	10.7	11.0	9.6	10.5	10.9	11.3	11.7	10.1	11.1	11.5	11.9	12.3	11.4	12.5	12.9	13.3	13.8	12.8	14.0	14.5	14.9	15.5	
-35		8.6	9.5	9.8	10.1	10.5	9.1	10.0	10.3	10.7	11.1	9.7	10.6	10.9	11.3	11.7	10.8	11.9	12.3	12.7	13.1	12.2	13.3	13.8	14.2	14.7	
-30		8.2	9.0	9.3	9.6	9.9	8.7	9.5	9.8	10.1	10.5	9.2	10.0	10.4	10.7	11.1	10.3	11.3	11.6	12.0	12.4	11.6	12.7	13.1	13.5	14.0	
-25		7.8	8.5	8.8	9.1	9.4	8.2	9.0	9.3	9.6	10.0	8.7	9.6	9.9	10.2	10.5	9.8	10.7	11.1	11.5	11.8	11.1	12.1	12.5	12.9	13.3	
-20		7.2	7.9	8.2	8.5	8.8	7.7	8.4	8.7	9.0	9.3	8.2	8.9	9.2	9.5	9.9	9.2	10.1	10.4	10.7	11.1	10.4	11.4	11.8	12.1	12.5	
-15		6.4	7.0	7.3	7.5	7.8	6.8	7.5	7.7	8.0	8.3	7.3	8.0	8.2	8.5	8.8	8.2	9.0	9.3	9.6	9.9	9.4	10.2	10.6	10.9	11.3	
-10		5.6	6.1	6.3	6.5	6.7	5.9	6.5	6.7	7.0	7.2	6.3	7.0	7.2	7.4	7.7	7.2	7.9	8.2	8.5	8.7	8.3	9.1	9.3	9.6	10.0	
20	-5	4.7	5.1	5.3	5.5	5.7	5.0	5.5	5.7	5.9	6.1	5.4	5.9	6.1	6.3	6.5	6.2	6.8	7.0	7.3	7.5	7.1	7.8	8.1	8.3	8.6	
	0	3.8	4.2	4.3	4.5	4.6	4.1	4.5	4.7	4.8	5.0	4.4	4.9	5.1	5.2	5.4	5.2	5.7	5.9	6.1	6.3	6.0	6.6	6.8	7.0	7.3	
	5	2.9	3.2	3.3	3.5	3.6	3.2	3.5	3.6	3.8	3.9	3.5	3.9	4.0	4.1	4.3	4.1	4.6	4.7	4.9	5.1	4.9	5.4	5.6	5.8	6.0	
	10	2.0	2.3	2.4	2.5	2.6	2.3	2.6	2.7	2.8	2.9	2.6	2.8	3.0	3.1	3.2	3.1	3.5	3.6	3.7	3.9	3.8	4.2	4.3	4.5	4.7	
	15	6.6	7.2	7.5	7.7	8.0	7.0	7.7	7.9	8.2	8.5	7.5	8.2	8.4	8.7	9.0	8.5	9.2	9.5	9.8	10.2	9.6	10.5	10.8	11.2	11.5	
	20	6.4	7.0	7.2	7.5	7.7	6.8	7.5	7.7	7.9	8.2	7.3	7.9	8.2	8.5	8.7	8.2	9.0	9.3	9.6	9.9	9.3	10.2	10.5	10.8	11.2	
	25	6.1	6.6	6.8	7.1	7.3	6.5	7.1	7.3	7.5	7.8	6.9	7.5	7.8	8.0	8.3	7.8	8.5	8.8	9.1	9.4	8.9	9.7	10.0	10.3	10.7	
	30	5.7	6.2	6.4	6.6	6.9	6.1	6.7	6.9	7.1	7.3	6.5	7.1	7.3	7.6	7.8	7.4	8.1	8.3	8.6	8.9	8.5	9.2	9.5	9.8	10.1	
	35	5.3	5.8	6.0	6.2	6.4	5.7	6.2	6.4	6.6	6.9	6.1	6.7	6.9	7.1	7.3	7.0	7.6	7.9	8.1	8.4	8.0	8.7	9.0	9.2	9.5	
	40	4.9	5.4	5.6	5.8	5.9	5.3	5.8	6.0	6.2	6.4	5.7	6.2	6.4	6.6	6.8	6.5	7.1	7.3	7.6	7.8	7.5	8.2	8.4	8.7	8.9	
25	-25	4.5	5.0	5.1	5.3	5.5	4.9	5.4	5.5	5.7	5.9	5.3	5.7	5.9	6.1	6.3	6.1	6.6	6.8	7.0	7.3	7.0	7.6	7.8	8.1	8.3	
	-20	3.9	4.2	4.4	4.5	4.7	4.2	4.6	4.7	4.9	5.1	4.5	5.0	5.1	5.3	5.4	5.3	5.8	5.9	6.1	6.3	6.1	6.7	6.9	7.1	7.3	
	-15	3.1	3.4	3.5	3.6	3.8	3.4	3.7	3.8	4.0	4.1	3.7	4.0	4.2	4.3	4.5	4										

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT FLAPS - UP

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V_{ENR} (160 KIAS)SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																																					
		16830					16500					16000					15500					15000																	
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS																	
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30								
2 0 0 0 0 0 0 0 0 0	-54	2.4	2.6	2.7	2.8	2.9	2.5	2.8	2.9	3.0	3.1	2.8	3.1	3.2	3.3	3.4	3.1	3.4	3.5	3.6	3.7	3.4	3.7	3.8	3.9	4.1	3.4	3.7	3.8	3.9	4.1								
	-50	2.2	2.5	2.6	2.7	2.8	2.4	2.7	2.8	2.9	3.0	2.7	2.9	3.0	3.1	3.3	2.9	3.2	3.3	3.4	3.6	3.2	3.5	3.6	3.8	3.9	3.2	3.5	3.6	3.8	3.9								
	-45	2.0	2.2	2.3	2.4	2.5	2.2	2.4	2.5	2.6	2.7	2.4	2.7	2.8	2.9	3.0	2.7	3.0	3.1	3.2	3.3	2.9	3.2	3.3	3.5	3.6	2.9	3.2	3.3	3.5	3.6								
	-40	1.7	1.9	2.0	2.1	2.2	1.9	2.1	2.2	2.3	2.4	2.1	2.4	2.4	2.5	2.6	2.4	2.6	2.7	2.8	2.9	2.6	2.9	3.0	3.1	3.2	2.6	2.9	3.0	3.1	3.2								
	-35	1.4	1.6	1.7	1.8	1.8	1.6	1.8	1.8	1.9	2.0	1.8	2.0	2.1	2.2	2.3	2.1	2.3	2.4	2.4	2.5	2.3	2.5	2.6	2.7	2.8	2.3	2.5	2.6	2.7	2.8								
	-30	1.2	1.3	1.4	1.4	1.5	1.3	1.5	1.5	1.6	1.7	1.7	1.5	1.7	1.8	1.9	1.9	1.8	2.0	2.0	2.1	2.2	2.0	2.2	2.3	2.4	2.5	2.0	2.2	2.3	2.4	2.5							
	-25	0.8	0.9	1.0	1.0	1.1	0.9	1.1	1.1	1.2	1.2	1.1	1.3	1.3	1.4	1.5	1.1	1.3	1.5	1.6	1.6	1.7	1.6	1.8	1.8	1.9	2.0	1.6	1.8	1.8	1.9	2.0							
	-20	0.3	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.0	1.1	1.2	1.2	1.3	1.0	1.1	1.2	1.2	1.3							
	-15	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.4	0.5	0.5	0.5	0.6							
	-10	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.5	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1						
-5	-1.3	-1.4	-1.4	-1.4	-1.4	-1.4	-1.3	-1.3	-1.3	-1.3	-1.3	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-1.0	-1.0	-1.0	-1.0	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8		
0	-1.8	-1.8	-1.9	-1.9	-1.9	-1.9	-1.7	-1.8	-1.8	-1.8	-1.8	-1.6	-1.6	-1.6	-1.7	-1.7	-1.5	-1.5	-1.5	-1.5	-1.5	-1.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.3	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	
2 0 0 0 0 0 0 0 0 0	5	-2.2	-2.3	-2.3	-2.3	-2.4	-2.1	-2.2	-2.2	-2.2	-2.3	-2.0	-2.1	-2.1	-2.1	-2.1	-1.9	-2.0	-2.0	-2.0	-2.0	-1.8	-1.8	-1.8	-1.9	-1.9	-1.8	-1.8	-1.8	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	
	9	-2.5	-2.6	-2.7	-2.7	-2.8	-2.5	-2.6	-2.6	-2.6	-2.7	-2.4	-2.5	-2.5	-2.5	-2.6	-2.4	-2.5	-2.4	-2.4	-2.4	-2.2	-2.2	-2.3	-2.3	-2.3	-2.3	-2.2	-2.2	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	
	-54	0.3	0.4	0.4	0.5	0.5	0.4	0.5	0.6	0.6	0.7	0.6	0.7	0.8	0.8	0.9	0.8	1.0	1.0	1.1	1.1	1.0	1.2	1.2	1.3	1.3	0.9	1.0	1.0	1.1	1.1	0.9	1.0	1.0	1.1	1.1			
	-50	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	0.9	1.0	1.0	1.1	1.1	0.9	1.0	1.0	1.1	1.1		
	-45	-0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.6	0.7	0.8	0.8	0.8	0.6	0.7	0.8	0.8	0.8			
	-40	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.3	0.4	0.5	0.5	0.5	0.3	0.4	0.5	0.5	0.5		
	-35	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2			
	-30	-0.9	-0.9	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2		
	-25	-1.3	-1.3	-1.3	-1.3	-1.3	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.1	-1.1	-1.1	-1.1	-1.1	-0.9	-0.9	-0.9	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.7	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8		
	-20	-1.8	-1.8	-1.8	-1.8	-1.9	-1.7	-1.7	-1.7	-1.8	-1.8	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.4	-1.5	-1.5	-1.5	-1.5	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	
-15	-2.2	-2.3	-2.3	-2.3	-2.4	-2.2	-2.2	-2.2	-2.3	-2.3	-2.3	-2.0	-2.1	-2.1	-2.1	-2.2	-1.9	-2.0	-2.0	-2.0	-2.0	-1.8	-1.9	-1.9	-1.9	-1.9	-1.9	-1.8	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9		
-10	-2.7	-2.8	-2.8	-2.9	-2.9	-2.6	-2.7	-2.8	-2.8	-2.8	-2.8	-2.5	-2.6	-2.7	-2.7	-2.7	-2.4	-2.5	-2.5	-2.6	-2.6	-2.3	-2.4	-2.4	-2.5	-2.5	-2.5	-2.3	-2.4	-2.4	-2.5	-2.5	-2.3	-2.4	-2.4	-2.5	-2.5		
-5	-3.2	-3.3	-3.4	-3.4	-3.5	-3.1	-3.3	-3.3	-3.4	-3.4	-3.4	-3.1	-3.2	-3.2	-3.3	-3.3	-3.0	-3.1	-3.1	-3.2	-3.2	-2.9	-3.0	-3.0	-3.1	-3.1	-2.9	-3.0	-3.0	-3.1	-3.1	-2.9	-3.0	-3.0	-3.1	-3.1			
0	0	-3.6	-3.8	-3.8	-3.9	-3.9	-3.6	-3.7	-3.8	-3.8	-3.9	-3.5	-3.7	-3.7	-3.8	-3.8	-3.4	-3.6	-3.6	-3.7	-3.7	-3.4	-3.5	-3.6	-3.6	-3.7	-3.4	-3.5	-3.6	-3.6	-3.7	-3.4	-3.5	-3.6	-3.6	-3.7	-3.4	-3.5	-3.6
3 0 0 0 0 0 0 0 0 0	54	-1.3	-1.3	-1.4	-1.4	-1.4	-1.2	-1.3	-1.3	-1.3	-1.3	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-1.0	-0.9	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-1.0	-1.0	-1.0	-1.0	-1.0	-0.8	-0.8	-0.8	-0.8	-0.8			
	-50	-1.5	-1.5	-1.5	-1.5	-1.5	-1.4	-1.4	-1.4	-1.4	-1.4	-1.3	-1.3	-1.3	-1.3	-1.3	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-1.0	-1.0	-1.0	-1.0			
	-45	-1.7	-1.7	-1.7	-1.8	-1.8	-1.6	-1.6	-1.7	-1.7	-1.7	-1.5	-1.5	-1.5	-1.5	-1.5	-1.4	-1.4	-1.4	-1.4	-1.4	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2		
	-40	-1.9	-1.9	-1.9	-2.0	-2.0	-1.8	-1.8	-1.9	-1.9	-1.9	-1.7	-1.7	-1.7	-1.7	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.4	-1.5	-1.5	-1.5	-1.5	-1.4	-1.5	-1.5	-1.5	-1.5	-1.4	-1.5	-1.5	-1.5	-1.5			
	-35	-2.2	-2.2	-2.3	-2.3	-2.3	-2.1	-2.2	-2.2	-2.2	-2.2	-2.0	-2.0	-2.1	-2.1	-2.1	-1.9	-1.9	-1.9	-2.0	-2.0	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8		
	-30	-2.6	-2.7	-2.7	-2.7	-2.7	-2.5	-2.6	-2.6	-2.6	-2.7	-2.7	-2.4	-2.5	-2.5	-2.5	-2.6	-2.3	-2.4	-2.4	-2.4	-2.4	-2.2	-2.3	-2.3	-2.3	-2.3	-2.2	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3		
	-25	-3.1	-3.2	-3.2	-3.3	-3.3	-3.0	-3.1	-3.2	-3.2	-3.2	-3.2	-2.9	-3.0	-3.1	-3.1	-3.1	-2.8	-2.9	-3.0	-3.0	-3.1	-2.8	-2.9	-2.9	-2.9	-3.0	-2.8	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9		
	-20	-3.6	-3.7	-3.8	-3.8	-3.9	-3.5	-3.7	-3.7	-3.8	-3.8	-3.9	-3.5	-3.6	-3.6	-3.7	-3.7	-3.4	-3.5	-3.6	-3.6	-3.7	-3.3	-3.4	-3.5	-3.5	-3.6	-3.3	-3.4	-3.5	-3.5	-3.6	-3.3	-3.4	-3.5	-3.5	-3.6		
	-15	-4.0	-4.2	-4.2	-4.3	-4.3	-4.0	-4.1	-4.2	-4.2	-4.2	-4.3	-3.9	-4.1	-4.1	-4.2	-4.2	-3.9	-4.0	-4.1	-4.1	-4.2	-3.8	-3.9	-4.0	-4.1	-4.1	-3.8	-3.9	-4.0	-4.1	-4.1	-3.8	-3.9	-4.0	-4.1	-4.1		
	-11	-4.4	-4.5	-4.6	-4.7	-4.7	-4.3	-4.5	-4.6	-4.6	-4.7	-4.7	-4.3	-4.5	-4.5	-4.6	-4.7	-4.2	-4.4	-4.5	-4.5	-4.6	-4.2	-4.4	-4.4	-4.5	-4.6	-4.2	-4.4	-4.4	-4.5	-4.6	-4.2	-4.4	-4.4	-4.5	-4.6		
3 5 0 0 0 0 0 0 0 0	54	-2.5	-2.6	-2.6	-2.6	-2.7	-2.5	-2.5	-2.6	-2.6	-2.6	-2.4	-2.4	-2.4	-2.5	-2.5	-2.2	-2.3	-2.3	-2.4	-2.4	-2.1	-2.2	-2.2	-2.2	-2.3	-2.1	-2.2	-2.2	-2.2	-2.2	-2.1	-2.2	-2.2	-2.2	-2.3	-2.1		
	-50	-2.7	-2.8	-2.8	-2.8	-2.9	-2.6	-2.7	-2.7	-2.8	-2.8	-2.5	-2.6	-2.6	-2.7	-2.7	-2.4	-2.5	-2.5	-2.6	-2.6	-2.3	-2.4	-2.4	-2.4	-2.5	-2.3	-2.4	-2.4	-2.4	-2.4	-2.3	-2.4	-2.4	-2.4	-2.5	-2.3		
	-45	-2.9	-3.0	-3.0	-3.0	-3.1	-2.8	-2.9	-3.0	-3.0	-3.0	-2.7	-2.8	-2.9	-2.9	-2.9	-2.6	-2.7	-2.8	-2.8	-2.8	-2.6	-2.6	-2.7	-2.7	-2.7	-2.6	-2.6	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7		

SINGLE ENGINE ENROUTE NET CLIMB GRADIENT - PERCENT FLAPS - UP

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - V_{ENR} (160 KIAS)

SPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - MAXIMUM CONTINUOUS THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		14500					14000					13500					12500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
2	-54	3.7	4.0	4.1	4.3	4.4	4.0	4.3	4.5	4.6	4.8	4.3	4.7	4.8	5.0	5.2	5.0	5.5	5.6	5.8	6.0
0	-50	3.5	3.8	4.0	4.1	4.2	3.8	4.2	4.3	4.4	4.6	4.1	4.5	4.7	4.8	5.0	4.9	5.3	5.5	5.6	5.8
0	-45	3.2	3.5	3.7	3.8	3.9	3.5	3.9	4.0	4.1	4.3	3.8	4.2	4.3	4.5	4.6	4.5	5.0	5.1	5.3	5.4
0	-40	2.9	3.2	3.3	3.4	3.5	3.2	3.5	3.6	3.7	3.9	3.5	3.8	4.0	4.1	4.2	4.2	4.5	4.7	4.8	5.0
0	-35	2.6	2.8	2.9	3.0	3.1	2.8	3.1	3.2	3.3	3.4	3.1	3.4	3.5	3.7	3.8	3.8	4.1	4.2	4.4	4.5
0	-30	2.2	2.5	2.6	2.7	2.8	2.5	2.8	2.9	3.0	3.1	2.8	3.1	3.2	3.3	3.4	3.4	3.7	3.8	4.0	4.1
	-25	1.8	2.0	2.1	2.2	2.2	2.1	2.3	2.4	2.4	2.5	2.3	2.6	2.6	2.7	2.8	2.9	3.2	3.3	3.4	3.5
	-20	1.2	1.4	1.4	1.5	1.5	1.4	1.6	1.7	1.7	1.8	1.7	1.9	1.9	2.0	2.1	2.2	2.4	2.5	2.6	2.7
	-15	0.6	0.7	0.7	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.6	1.7	1.7	1.8
	-10	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.7	0.8	0.9	0.9	1.0
	-5	-0.7	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	0.0	0.1	0.1	0.1	0.2
	0	-1.2	-1.2	-1.2	-1.2	-1.2	-1.1	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.6	-0.6	-0.5	-0.5	-0.5
	5	-1.7	-1.7	-1.7	-1.7	-1.7	-1.5	-1.6	-1.6	-1.6	-1.6	-1.4	-1.4	-1.4	-1.4	-1.4	-1.1	-1.1	-1.1	-1.1	-1.1
	9	-2.1	-2.1	-2.1	-2.2	-2.2	-2.0	-2.0	-2.0	-2.0	-2.1	-1.8	-1.9	-1.9	-1.9	-1.9	-1.6	-1.6	-1.6	-1.7	-1.7
2	-54	1.3	1.4	1.5	1.5	1.6	1.5	1.7	1.7	1.8	1.9	1.7	1.9	2.0	2.1	2.1	2.2	2.5	2.6	2.6	2.7
5	-50	1.1	1.2	1.3	1.3	1.4	1.3	1.5	1.5	1.6	1.6	1.5	1.7	1.8	1.8	1.9	2.0	2.2	2.3	2.4	2.5
0	-45	0.8	0.9	1.0	1.0	1.1	1.0	1.2	1.2	1.3	1.3	1.2	1.4	1.5	1.5	1.6	1.7	1.9	2.0	2.1	2.1
0	-40	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.9	0.9	1.0	0.9	1.1	1.1	1.2	1.2	1.4	1.6	1.6	1.7	1.7
0	-35	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.1	1.2	1.3	1.3	1.4
0	-30	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.6	0.8	0.8	0.8	0.9
	-25	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	0.1	0.1	0.2	0.2	0.2
	-20	-1.2	-1.2	-1.2	-1.2	-1.2	-1.0	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-0.8	-0.6	-0.5	-0.5	-0.5	-0.5
	-15	-1.7	-1.7	-1.7	-1.8	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.4	-1.5	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2	-1.2	-1.2
	-10	-2.2	-2.3	-2.3	-2.4	-2.4	-2.1	-2.2	-2.2	-2.2	-2.3	-2.0	-2.1	-2.1	-2.1	-2.1	-1.8	-1.8	-1.9	-1.9	-1.9
	-5	-2.8	-2.9	-3.0	-3.0	-3.0	-2.7	-2.8	-2.9	-2.9	-2.9	-2.6	-2.7	-2.8	-2.8	-2.8	-2.5	-2.6	-2.6	-2.6	-2.6
	0	-3.3	-3.4	-3.5	-3.5	-3.6	-3.2	-3.4	-3.4	-3.5	-3.5	-3.2	-3.3	-3.3	-3.4	-3.4	-3.0	-3.2	-3.2	-3.2	-3.3
3	-54	-0.7	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	0.0	0.1	0.1	0.1	0.2
5	-50	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-0.5	-0.4	-0.2	-0.1	-0.1	-0.1	-0.1
0	-45	-1.1	-1.1	-1.1	-1.1	-1.1	-0.9	-0.9	-0.9	-0.9	-0.9	-0.8	-0.8	-0.8	-0.7	-0.7	-0.5	-0.4	-0.4	-0.4	-0.4
0	-40	-1.3	-1.3	-1.3	-1.3	-1.3	-1.2	-1.2	-1.2	-1.2	-1.2	-1.0	-1.0	-1.0	-1.0	-1.0	-0.7	-0.7	-0.7	-0.7	-0.7
0	-35	-1.6	-1.7	-1.7	-1.8	-1.8	-1.5	-1.5	-1.6	-1.6	-1.6	-1.4	-1.4	-1.4	-1.4	-1.4	-1.1	-1.1	-1.1	-1.1	-1.1
0	-30	-2.1	-2.2	-2.2	-2.2	-2.2	-2.0	-2.0	-2.1	-2.1	-2.1	-1.9	-1.9	-1.9	-1.9	-2.0	-1.6	-1.7	-1.7	-1.7	-1.7
	-25	-2.7	-2.8	-2.8	-2.8	-2.9	-2.6	-2.7	-2.7	-2.7	-2.8	-2.5	-2.6	-2.6	-2.6	-2.7	-2.3	-2.4	-2.4	-2.4	-2.5
	-20	-3.3	-3.4	-3.4	-3.5	-3.5	-3.2	-3.3	-3.3	-3.4	-3.4	-3.1	-3.2	-3.3	-3.3	-3.4	-3.0	-3.1	-3.1	-3.2	-3.2
	-15	-3.7	-3.9	-3.9	-4.0	-4.1	-3.7	-3.8	-3.9	-3.9	-4.0	-3.7	-3.8	-3.8	-3.9	-3.9	-3.6	-3.7	-3.7	-3.8	-3.8
	-11	-4.2	-4.3	-4.4	-4.5	-4.5	-4.1	-4.3	-4.4	-4.4	-4.5	-4.1	-4.3	-4.3	-4.4	-4.5	-4.1	-4.2	-4.3	-4.3	-4.4
3	-54	-2.0	-2.1	-2.1	-2.1	-2.1	-1.9	-2.0	-2.0	-2.0	-2.0	-1.8	-1.9	-1.9	-1.9	-1.9	-1.6	-1.6	-1.6	-1.6	-1.6
5	-50	-2.2	-2.3	-2.3	-2.3	-2.4	-2.1	-2.2	-2.2	-2.2	-2.2	-2.0	-2.1	-2.1	-2.1	-2.1	-1.8	-1.8	-1.9	-1.9	-1.9
0	-45	-2.5	-2.5	-2.6	-2.6	-2.6	-2.4	-2.4	-2.5	-2.5	-2.5	-2.3	-2.3	-2.4	-2.4	-2.4	-2.1	-2.1	-2.1	-2.2	-2.2
0	-40	-2.8	-2.9	-2.9	-2.9	-3.0	-2.7	-2.8	-2.8	-2.8	-2.9	-2.6	-2.7	-2.7	-2.8	-2.8	-2.4	-2.5	-2.5	-2.6	-2.6
0	-35	-3.2	-3.3	-3.3	-3.4	-3.4	-3.1	-3.2	-3.3	-3.3	-3.3	-3.1	-3.2	-3.2	-3.2	-3.3	-2.9	-3.0	-3.0	-3.1	-3.1
0	-30	-3.6	-3.7	-3.8	-3.8	-3.9	-3.5	-3.7	-3.7	-3.8	-3.8	-3.5	-3.6	-3.7	-3.7	-3.7	-3.4	-3.5	-3.5	-3.6	-3.6
	-25	-4.0	-4.1	-4.2	-4.2	-4.3	-4.0	-4.1	-4.1	-4.2	-4.3	-3.9	-4.1	-4.1	-4.2	-4.2	-3.8	-4.0	-4.0	-4.1	-4.1
	-21	-4.3	-4.5	-4.6	-4.6	-4.7	-4.3	-4.5	-4.5	-4.6	-4.7	-4.3	-4.4	-4.5	-4.6	-4.6	-4.2	-4.4	-4.4	-4.5	-4.6
4	-54	-3.4	-3.5	-3.5	-3.6	-3.6	-3.3	-3.4	-3.5	-3.5	-3.6	-3.3	-3.4	-3.4	-3.5	-3.5	-3.2	-3.3	-3.3	-3.3	-3.4
0	-50	-3.6	-3.7	-3.7	-3.8	-3.8	-3.5	-3.6	-3.7	-3.7	-3.8	-3.5	-3.6	-3.6	-3.7	-3.7	-3.4	-3.5	-3.5	-3.6	-3.6
0	-45	-3.9	-4.1	-4.1	-4.2	-4.2	-3.9	-4.0	-4.1	-4.1	-4.2	-3.8	-4.0	-4.0	-4.1	-4.1	-3.8	-3.9	-3.9	-4.0	-4.0
0	-40	-4.3	-4.4	-4.5	-4.5	-4.6	-4.2	-4.4	-4.4	-4.5	-4.5	-4.2	-4.3	-4.4	-4.4	-4.5	-4.2	-4.3	-4.3	-4.4	-4.4
0	-35	-4.6	-4.7	-4.8	-4.8	-4.9	-4.5	-4.7	-4.8	-4.8	-4.9	-4.5	-4.7	-4.7	-4.8	-4.9	-4.5	-4.7	-4.7	-4.8	-4.8
0	-30	-4.8	-5.0	-5.1	-5.1	-5.2	-4.8	-5.0	-5.1	-5.1	-5.2	-4.8	-5.0	-5.1	-5.1	-5.2	-4.8	-5.0	-5.1	-5.1	-5.2
	-28	-5.0	-5.2	-5.2	-5.3	-5.4	-5.0	-5.2	-5.2	-5.3	-5.4	-5.0	-5.2	-5.2	-5.3	-5.4	-5.1	-5.2	-5.3	-5.4	-5.4
4	-54	-4.4	-4.5	-4.6	-4.6	-4.7	-4.4	-4.5	-4.6	-4.6	-4.7	-4.3	-4.5	-4.5	-4.6	-4.6	-4.3	-4.5	-4.5	-4.6	-4.6
5	-50	-4.6	-4.8	-4.8	-4.9	-4.9	-4.6	-4.8	-4.8	-4.9	-4.9	-4.6	-4.7	-4.8	-4.8	-4.9	-4.6	-4.7	-4.8	-4.8	-4.9
0	-45	-4.9	-5.0	-5.1	-5.2	-5.2	-4.9	-5.0	-5.1	-5.2	-5.2	-4.9	-5.0	-5.1	-5.1	-5.2	-4.9	-5.0	-5.1	-5.2	-5.2
0	-40	-5.2	-5.3	-5.4	-5.5	-5.5	-5.2	-5.3	-5.4	-5.5	-5.5	-5.2	-5.3	-5.4	-5.5	-5.5	-5.2	-5.4	-5.4	-5.5	-5.6
0	-35	-5.4	-5.5	-5.6	-5.7	-5.7	-5.4	-5.6	-5.6	-5.7	-5.7	-5.4	-5.6	-5.6	-5.7	-5.8	-5.4	-5.6	-5.7	-5.8	-5.8
0	-34	-5.4	-5.6	-5.7	-5.8	-5.8	-5.5	-5.6	-5.7	-5.8	-5.8	-5.5	-5.7	-5.7	-5.8	-5.9	-5.5	-5.7	-5.8	-5.8	-5.9

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Figure 4-45 (Sheet 4)

APPROACH AND LANDING
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**PROCEDURES FOR USE OF APPROACH AND LANDING
PERFORMANCE TABLES**

1. Determine gross weight of airplane at the time of arrival at the destination airport.
2. Obtain airport information; i.e., active runway, available runway length, temperature, altitude, wind, icing conditions and runway gradient if applicable. Some performance data provided in this section are outside of operating temperature limits. Determine that the temperature is within the ambient temperature limits found in Section II, Limitations.
3. Determine wind component parallel to active runway from the crosswind component chart (Figure 4-15).
4. Check the maximum landing weight permitted by climb requirements and the brake energy limits (Figure 4-47, if anti-ice systems are OFF; Figures 4-46 and 4-47, if anti-ice systems are ON). If these limitations restrict the landing weight, the pilot must burn off fuel prior to landing.
5. Determine the landing distance, V_{APP} and V_{REF} , from Figure 4-48, then apply the appropriate factors from the note below. If the available runway length is less than the landing distance required, the airplane landing weight must be reduced.

NOTE

- Multiply the landing distance by 1.20 for -1% (downhill) runway gradient, by 1.65 for -2% (downhill) runway gradient. For positive (uphill) runway gradients, use the landing distance obtained from Figure 4-48.
 - For inoperative antiskid system, multiply the landing distance obtained from Figure 4-48 by 1.6.
 - For operational requirements, adjust the landing distance obtained from Figure 4-48 by the appropriate factor.
6. The approach climb and landing climb gradient tables are presented in Figures 4-49, 4-50, 4-51 and 4-52.

NOTE

These procedures apply for normal landings at or below 15,200 pounds. Performance above 15,200 pounds is provided as additional information, for use in an emergency which requires a landing at a weight in excess of the maximum design landing weight of 15,200 pounds.

**MAXIMUM LANDING WEIGHT - POUNDS PERMITTED BY CLIMB
REQUIREMENTS OR BRAKE ENERGY LIMITS**

The maximum allowable landing weight with anti-ice OFF and for brake energy limits is determined from Figure 4-47 for a given set of conditions. Figure 4-46 does not include data for brake energy limits, therefore, when determining maximum landing weight with anti-ice ON, determine the maximum weight from both Figure 4-47 and Figure 4-46, and use the lesser of the two weights.

EXAMPLE: Anti-Ice - ON

Ambient Temperature = 5°C	From Figure 4-46, Maximum Weight = 15,200 POUNDS
Pressure Altitude = 8000 FEET	From Figure 4-47, Maximum Weight = 13,250 POUNDS
Wind = -10 KNOTS (TAILWIND)	Therefore, Maximum Weight = 13,250 POUNDS
Runway Gradient = -2% (DOWNHILL)	

MAXIMUM LANDING WEIGHT CONDITIONS:			
	APPROACH CLIMB	LANDING CLIMB	LANDING
LANDING GEAR WING FLAP DEGREES SPEEDBRAKES ENGINE(S) AIRSPEED	UP 15 RETRACT T.O. THRUST / WINDMILLING V _{APP}	DOWN LAND RETRACT T.O. THRUST V _{REF}	DOWN LAND EXTEND AFTER TOUCHDOWN IDLE AT 50 FEET V _{REF} AT 50 FEET

**MAXIMUM LANDING WEIGHT
PERMITTED BY CLIMB REQUIREMENTS - POUNDS**
APPROACH FLAPS - 15° / LANDING FLAPS - LAND

CONDITIONS: REFER TO TABLE ABOVE

ANTI-ICE SYSTEMS - ON

ALTITUDE - FEET			
S.L. TO 9000		10,000	
TEMP DEG. C	MAXIMUM LANDING WEIGHT	TEMP DEG. C	MAXIMUM LANDING WEIGHT
-54 TO 10	15200	-54 TO 7	15200
		10	14740

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Figure 4-46

APPROACH FLAPS - 15°
LANDING FLAPS - LAND

ALT FT	TEMP DEG C	WIND - KNOTS																			
		-10				0				10				20				30			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
2	-25	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-20	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-15	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-10	15160	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	15030	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	14900	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
5	10	14770	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10	14640	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
15	14520	15190	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
20	14400	15070	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
25	14280	14940	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
30	14170	14820	15160	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
35	14060	14710	15140	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
40	13950	14590	14920	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
45	13850	14480	14810	15150	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
50	13740	14370	14700	15030	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200

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**MAXIMUM LANDING WEIGHT PERMITTED BY CLIMB REQUIREMENTS
OR BRAKE ENERGY LIMITS - POUNDS**

ANTI-ICE SYSTEMS - OFF

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

APPROACH FLAPS - 15°
LANDING FLAPS - LAND

ALT FT	TEMP DEG C	WIND - KNOTS															
		-10				0				10				20			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
3	-30	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-25	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-20	15180	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-15	15040	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-10	14900	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-5	14760	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
5	0	14630	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10	5	14510	15180	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10	10	14390	15050	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
15	15	14260	14920	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
20	20	14150	14800	15140	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
25	25	14030	14680	15010	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
30	30	13920	14560	14890	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
35	35	13810	14450	14770	15110	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
40	40	13710	14330	14660	14990	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
45	45	13600	14220	14550	14880	15160	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
48	48	13540	14160	14480	14810	15080	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200

ALT FT	TEMP DEG C	WIND - KNOTS															
		-10				0				10				20			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
4	-30	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-25	15050	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-20	14910	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-15	14770	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-10	14630	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-5	14500	15180	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
5	0	14380	15040	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10	5	14250	14910	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10	10	14130	14780	15120	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
15	15	14010	14660	14990	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
20	20	13900	14540	14870	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
25	25	13790	14420	14750	15090	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
30	30	13680	14300	14630	14960	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
35	35	13570	14190	14510	14840	15120	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
40	40	13470	14080	14400	14730	15000	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
45	45	13360	13970	14280	14610	14870	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200

ALT FT	TEMP DEG C	WIND - KNOTS															
		-10				0				10				20			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
5	-35	15080	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-30	14930	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-25	14780	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-20	14640	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-15	14510	15180	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-10	14380	15040	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
5	-5	14250	14910	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10	0	14120	14770	15110	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10	5	14000	14640	14980	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
15	15	13880	14520	14850	15190	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
20	20	13760	14400	14720	15060	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
25	25	13650	14280	14600	14940	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
30	30	13540	14160	14480	14810	15090	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
35	35	13430	14050	14360	14690	14960	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
40	40	13330	13930	14250	14580	14830	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
45	45	13230	13830	14140	14460	14710	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
48	48	13180	13780	14090	14410	14660	15200	15200	15200	15190	15200	15200	15200	15200	15200	15200	15200

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Figure 4-47 (Sheet 2)

APPROACH FLAPS - 15°
LANDING FLAPS - LAND

LANDING FLAPS - LAND

ALT FT	TEMP DEG C	WIND - KNOTS																			
		-10				0				10				20				30			
		RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
8	-35	14280	14940	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
0	-30	14130	14790	15140	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
0	-25	14000	14650	14990	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
0	-20	13870	14510	14840	15190	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	-15	13740	14370	14700	15040	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	-10	13610	14240	14570	14900	15170	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	-5	13490	14110	14430	14770	15030	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	0	13370	13980	14300	14630	14890	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	5	13250	13860	14180	14500	14750	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	10	13140	13740	14050	14380	14620	15200	15200	15200	15200	15150	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	15	13030	13630	13930	14250	14490	15120	15200	15200	15200	15010	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	20	12930	13510	13820	14130	14360	14990	15200	15200	15200	14880	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	25	12820	13400	13700	14020	14240	14860	15180	15200	15200	14750	15200	15200	15200	15200	15200	15200	15200	15200	15200	
	30	12720	13290	13590	13900	14120	14730	15050	15200	15200	14620	15200	15200	15200	15200	15140	15200	15200	15200	15200	
	33	12620	13230	13530	13830	14040	14650	14970	15200	15200	14540	15170	15200	15200	15200	15060	15200	15200	15200	15200	

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MAXIMUM LANDING WEIGHT PERMITTED BY CLIMB REQUIREMENTS OR BRAKE ENERGY LIMITS - POUNDS

ANTI-ICE SYSTEMS - OFF

APPROACH FLAPS - 15°
LANDING FLAPS - LAND

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

ALT FT	TEMP DEG C	WIND - KNOTS																			
		-10				0				10				20				30			
		RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
9	-35	14010	14670	15010	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-30	13880	14520	14860	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-25	13740	14380	14710	15060	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-20	13610	14240	14570	14910	15170	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-15	13480	14110	14430	14770	15020	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	13360	13980	14300	14630	14870	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	13240	13850	14170	14490	14730	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	13120	13720	14040	14360	14600	15200	15200	15200	15120	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	13010	13600	13910	14230	14460	15100	15200	15200	14980	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10		12900	13490	13790	14110	14330	14960	15200	15200	14840	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
15		12790	13370	13680	13990	14200	14830	15150	15200	14710	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
20		12680	13260	13560	13870	14080	14690	15010	15200	14580	15200	15200	15200	15100	15200	15200	15200	15200	15200	15200	15200
25		12580	13150	13450	13760	13960	14570	14880	15200	14450	15070	15200	15200	14960	15200	15200	15200	15200	15200	15200	15200
30		12480	13050	13340	13650	13840	14440	14760	15080	14330	14940	15200	15200	14830	15200	15200	15200	15200	15200	15200	15200
31		12460	13020	13320	13620	13810	14420	14730	15050	14300	14910	15200	15200	14800	15200	15200	15200	15200	15200	15200	15200

ALT FT	TEMP DEG C	WIND - KNOTS																			
		-10				0				10				20				30			
		RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT				RNWY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
1	-35	13760	14400	14730	15080	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-30	13620	14250	14580	14920	15180	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-25	13490	14110	14440	14770	15030	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-20	13360	13980	14300	14630	14870	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
0	-15	13230	13840	14160	14490	14730	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	13110	13720	14030	14350	14580	15200	15200	15200	15110	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	12990	13590	13900	14220	14440	15080	15200	15200	14960	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	12880	13470	13780	14090	14310	14940	15200	15200	14820	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	12760	13350	13650	13970	14170	14800	15120	15200	14680	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
10		12660	13240	13540	13850	14050	14660	14990	15200	14550	15180	15200	15200	15060	15200	15200	15200	15200	15200	15200	15200
15		12550	13120	13420	13730	13920	14530	14850	15180	14410	15040	15200	15200	14920	15200	15200	15200	15200	15200	15200	15200
20		12450	13010	13310	13610	13800	14400	14720	15040	14290	14900	15200	15200	14790	15200	15200	15200	15200	15200	15200	15200
25		12350	12910	13200	13500	13680	14280	14590	14910	14160	14770	15090	15200	14660	15200	15200	15200	15170	15200	15200	15200
29		12270	12820	13110	13410	13590	14180	14490	14800	14060	14660	14980	15200	14550	15170	15200	15200	15060	15200	15200	15200

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Figure 4-47 (Sheet 4)

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LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
SEA LEVEL**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS VREF = 113 KIAS VAPP = 119 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	3420	2690	2520	2370	2220
-20	3480	2730	2550	2400	2250
-15	3540	2780	2590	2440	2290
-10	3610	2830	2630	2470	2320
-5	3670	2880	2670	2510	2360
0	3740	2930	2720	2540	2390
5	3800	2980	2770	2580	2430
10	3870	3040	2820	2620	2460
15	3940	3090	2870	2660	2500
20	4010	3140	2920	2710	2530
25	4080	3200	2960	2750	2570
30	4150	3250	3010	2800	2600
35	4230	3310	3070	2840	2640
40	4300	3360	3120	2890	2690
45	4380	3420	3170	2940	2730
50	4450	3470	3220	2990	2770
54	4520	3520	3260	3030	2810

WEIGHT = 15200 POUNDS VREF = 108 KIAS VAPP = 114 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	3060	2500	2350	2200	2060
-20	3110	2530	2380	2230	2090
-15	3160	2560	2410	2260	2120
-10	3210	2600	2440	2300	2150
-5	3260	2630	2480	2330	2180
0	3310	2670	2510	2360	2210
5	3360	2700	2550	2390	2250
10	3420	2740	2580	2430	2280
15	3470	2770	2610	2460	2310
20	3520	2800	2650	2490	2340
25	3580	2840	2680	2520	2370
30	3630	2890	2710	2560	2410
35	3690	2930	2750	2590	2440
40	3740	2970	2780	2620	2470
45	3800	3020	2810	2650	2500
50	3860	3060	2850	2690	2530
54	3900	3100	2890	2710	2560

WEIGHT = 15000 POUNDS VREF = 107 KIAS VAPP = 113 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	3020	2470	2320	2180	2040
-20	3070	2510	2360	2210	2070
-15	3120	2540	2390	2240	2100
-10	3170	2580	2420	2270	2130
-5	3220	2610	2460	2310	2160
0	3270	2640	2490	2340	2190
5	3320	2680	2520	2370	2220
10	3370	2710	2560	2400	2260
15	3420	2740	2590	2440	2290
20	3470	2780	2620	2470	2320
25	3520	2810	2650	2500	2350
30	3580	2850	2690	2530	2380
35	3630	2890	2720	2560	2410
40	3680	2930	2750	2600	2440
45	3740	2970	2780	2630	2470
50	3790	3020	2820	2660	2510
54	3840	3050	2840	2690	2530

WEIGHT = 14500 POUNDS VREF = 105 KIAS VAPP = 111 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	2940	2420	2270	2120	1980
-20	2970	2450	2300	2160	2010
-15	3010	2480	2330	2190	2040
-10	3060	2520	2370	2220	2080
-5	3110	2550	2400	2250	2110
0	3150	2580	2430	2280	2140
5	3200	2620	2460	2310	2170
10	3250	2650	2490	2340	2200
15	3300	2680	2530	2380	2230
20	3340	2710	2560	2410	2260
25	3390	2750	2590	2440	2290
30	3440	2780	2620	2470	2320
35	3490	2810	2650	2500	2350
40	3540	2850	2690	2530	2380
45	3590	2880	2720	2560	2410
50	3640	2910	2750	2590	2440
54	3680	2940	2780	2620	2470

WEIGHT = 14000 POUNDS VREF = 104 KIAS VAPP = 109 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	2880	2360	2220	2070	1930
-20	2910	2390	2250	2100	1960
-15	2940	2430	2280	2130	1990
-10	2980	2460	2310	2160	2020
-5	3010	2490	2340	2190	2050
0	3050	2520	2370	2220	2080
5	3090	2550	2400	2250	2110
10	3130	2590	2430	2280	2140
15	3180	2620	2460	2320	2170
20	3220	2650	2500	2350	2200
25	3270	2680	2530	2380	2230
30	3310	2710	2560	2410	2260
35	3360	2740	2590	2440	2290
40	3410	2780	2620	2470	2320
45	3450	2810	2650	2500	2350
50	3500	2840	2680	2530	2380
54	3540	2870	2710	2550	2400

WEIGHT = 13500 POUNDS VREF = 102 KIAS VAPP = 108 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	2820	2310	2160	2020	1880
-20	2850	2340	2190	2050	1910
-15	2880	2370	2220	2080	1940
-10	2910	2400	2250	2110	1970
-5	2950	2430	2280	2140	1990
0	2980	2460	2310	2170	2020
5	3010	2490	2340	2200	2050
10	3050	2520	2370	2220	2080
15	3080	2550	2400	2250	2110
20	3110	2580	2430	2280	2140
25	3150	2620	2460	2310	2170
30	3190	2650	2490	2340	2200
35	3240	2680	2520	2370	2220
40	3280	2710	2550	2400	2250
45	3320	2740	2580	2430	2280
50	3370	2770	2610	2460	2310
54	3400	2790	2640	2480	2330

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 1 of 22)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
SEA LEVEL**

CONDITIONS: **LANDING GEAR - DOWN** **ANTI-ICE SYSTEMS - ON OR OFF**
SPEED BRAKES - EXTEND AFTER TOUCHDOWN **THRUST - IDLE**
AIRSPEED - VREF AT 50 FEET

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS					
VREF = 100 KIAS		VAPP = 106 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2760	2250	2110	1960	1830
-20	2790	2280	2130	1990	1860
-15	2820	2310	2160	2020	1880
-10	2850	2340	2190	2050	1910
-5	2880	2370	2220	2080	1940
0	2920	2400	2250	2110	1970
5	2950	2430	2280	2140	1990
10	2980	2460	2310	2160	2020
15	3010	2490	2340	2190	2050
20	3040	2520	2370	2220	2080
25	3070	2550	2400	2250	2110
30	3110	2580	2430	2280	2130
35	3140	2610	2460	2310	2160
40	3170	2640	2480	2330	2190
45	3200	2670	2510	2360	2220
50	3240	2700	2540	2390	2240
54	3270	2720	2570	2410	2270

WEIGHT = 12500 POUNDS					
VREF = 99 KIAS		VAPP = 104 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2700	2190	2050	1910	1770
-20	2730	2220	2080	1940	1800
-15	2760	2250	2110	1960	1830
-10	2790	2280	2130	1990	1860
-5	2820	2310	2160	2020	1880
0	2850	2340	2190	2050	1910
5	2880	2370	2220	2080	1940
10	2910	2400	2250	2100	1960
15	2940	2420	2280	2130	1990
20	2970	2450	2300	2160	2020
25	3000	2480	2330	2190	2040
30	3030	2510	2360	2210	2070
35	3060	2540	2390	2240	2100
40	3090	2570	2420	2270	2120
45	3130	2600	2440	2300	2150
50	3160	2630	2470	2320	2180
54	3180	2650	2490	2340	2200

WEIGHT = 12000 POUNDS					
VREF = 97 KIAS		VAPP = 102 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2630	2130	1990	1850	1720
-20	2660	2160	2020	1880	1740
-15	2690	2190	2050	1910	1770
-10	2720	2220	2070	1930	1800
-5	2750	2240	2100	1960	1820
0	2780	2270	2130	1990	1850
5	2810	2300	2150	2010	1870
10	2840	2330	2180	2040	1900
15	2870	2360	2210	2070	1930
20	2900	2380	2240	2090	1950
25	2930	2410	2260	2120	1980
30	2960	2440	2290	2150	2000
35	2990	2470	2320	2170	2030
40	3020	2500	2340	2200	2060
45	3050	2520	2370	2220	2080
50	3080	2550	2400	2250	2110
54	3100	2570	2420	2270	2130

WEIGHT = 11500 POUNDS					
VREF = 95 KIAS		VAPP = 100 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2570	2070	1930	1800	1660
-20	2590	2100	1960	1820	1690
-15	2620	2130	1980	1850	1710
-10	2650	2150	2010	1870	1740
-5	2680	2180	2040	1900	1760
0	2710	2210	2060	1920	1790
5	2740	2230	2090	1950	1810
10	2770	2260	2120	1970	1840
15	2790	2290	2140	2000	1860
20	2820	2310	2170	2030	1890
25	2850	2340	2190	2050	1910
30	2880	2370	2220	2080	1940
35	2910	2390	2250	2100	1960
40	2940	2420	2270	2130	1990
45	2960	2450	2300	2150	2010
50	2990	2470	2320	2180	2040
54	3020	2500	2340	2200	2060

WEIGHT = 11000 POUNDS					
VREF = 93 KIAS		VAPP = 98 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2500	2010	1870	1740	1610
-20	2530	2040	1900	1760	1630
-15	2550	2060	1920	1790	1650
-10	2580	2090	1950	1810	1680
-5	2610	2110	1970	1840	1700
0	2640	2140	2000	1860	1730
5	2660	2170	2020	1880	1750
10	2690	2190	2050	1910	1770
15	2720	2220	2070	1930	1800
20	2750	2240	2100	1960	1820
25	2770	2270	2120	1980	1850
30	2800	2290	2150	2010	1870
35	2830	2320	2170	2030	1890
40	2860	2350	2200	2060	1920
45	2880	2370	2220	2080	1940
50	2910	2400	2250	2110	1970
54	2930	2420	2270	2120	1980

WEIGHT = 10500 POUNDS					
VREF = 91 KIAS		VAPP = 96 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2440	1950	1810	1680	1550
-20	2460	1970	1840	1700	1570
-15	2490	2000	1860	1730	1600
-10	2510	2020	1880	1750	1620
-5	2540	2050	1910	1770	1640
0	2570	2070	1930	1800	1660
5	2590	2100	1960	1820	1690
10	2620	2120	1980	1840	1710
15	2640	2150	2010	1870	1730
20	2670	2170	2030	1890	1760
25	2700	2200	2050	1910	1780
30	2720	2220	2080	1940	1800
35	2750	2250	2100	1960	1830
40	2780	2270	2130	1980	1850
45	2800	2300	2150	2010	1870
50	2830	2320	2170	2030	1890
54	2850	2340	2190	2050	1910

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 2)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
1000 FEET**

CONDITIONS: LANDING GEAR - DOWN

SPEED BRAKES - EXTEND AFTER TOUCHDOWN

AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF

THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS			VAPP = 119 KIAS		
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	3540	2780	2590	2430	2290
-20	3600	2830	2630	2470	2320
-15	3670	2880	2670	2510	2360
-10	3740	2930	2720	2540	2390
-5	3810	2990	2770	2580	2430
0	3880	3040	2820	2620	2470
5	3950	3090	2870	2660	2500
10	4020	3150	2920	2710	2540
15	4090	3210	2970	2760	2570
20	4170	3260	3030	2810	2610
25	4240	3320	3080	2860	2650
30	4320	3380	3130	2900	2700
35	4400	3430	3180	2950	2740
40	4480	3490	3240	3000	2790
45	4560	3550	3290	3060	2840
50	4650	3610	3350	3110	2880
52	4680	3640	3370	3130	2900

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS			VAPP = 114 KIAS		
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	3160	2560	2410	2260	2120
-20	3210	2600	2440	2290	2150
-15	3260	2630	2480	2330	2180
-10	3310	2670	2510	2360	2220
-5	3370	2700	2550	2400	2250
0	3420	2740	2580	2430	2280
5	3480	2770	2620	2460	2310
10	3530	2810	2650	2500	2350
15	3590	2850	2690	2530	2380
20	3650	2900	2720	2560	2410
25	3700	2940	2750	2600	2450
30	3760	2990	2790	2630	2480
35	3820	3030	2820	2660	2510
40	3880	3080	2870	2700	2540
45	3940	3130	2910	2730	2580
50	4000	3170	2960	2760	2610
52	4020	3190	2970	2780	2620

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS			VAPP = 113 KIAS		
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	3110	2540	2390	2240	2100
-20	3160	2570	2420	2270	2130
-15	3210	2610	2460	2310	2160
-10	3270	2640	2490	2340	2190
-5	3320	2680	2520	2370	2230
0	3370	2710	2560	2410	2260
5	3430	2750	2590	2440	2290
10	3480	2780	2630	2470	2320
15	3530	2820	2660	2510	2360
20	3590	2850	2690	2540	2390
25	3640	2900	2730	2570	2420
30	3700	2940	2760	2610	2450
35	3760	2990	2800	2640	2490
40	3810	3030	2830	2670	2520
45	3870	3080	2870	2700	2550
50	3930	3130	2910	2740	2580
52	3960	3140	2930	2750	2590

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS			VAPP = 111 KIAS		
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	3010	2480	2330	2190	2040
-20	3060	2520	2360	2220	2070
-15	3110	2550	2400	2250	2110
-10	3150	2580	2430	2280	2140
-5	3200	2620	2460	2310	2170
0	3250	2650	2500	2350	2200
5	3300	2690	2530	2380	2230
10	3350	2720	2560	2410	2260
15	3400	2750	2600	2440	2300
20	3450	2790	2630	2480	2330
25	3500	2820	2660	2510	2360
30	3560	2850	2700	2540	2390
35	3610	2890	2730	2570	2420
40	3660	2920	2760	2600	2450
45	3720	2970	2790	2640	2480
50	3770	3010	2830	2670	2510
52	3790	3030	2840	2680	2530

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS			VAPP = 109 KIAS		
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	2940	2430	2280	2130	1990
-20	2980	2460	2310	2160	2020
-15	3010	2490	2340	2190	2050
-10	3050	2520	2370	2220	2080
-5	3090	2560	2400	2260	2110
0	3140	2590	2440	2290	2140
5	3180	2620	2470	2320	2170
10	3230	2660	2500	2350	2200
15	3280	2690	2530	2380	2230
20	3330	2720	2570	2410	2270
25	3370	2750	2600	2440	2300
30	3420	2790	2630	2480	2330
35	3470	2820	2660	2510	2360
40	3520	2850	2690	2540	2390
45	3570	2880	2720	2570	2420
50	3620	2920	2760	2600	2450
52	3640	2930	2770	2610	2460

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS			VAPP = 108 KIAS		
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-25	2880	2370	2220	2080	1940
-20	2920	2400	2250	2110	1970
-15	2950	2430	2280	2140	1990
-10	2980	2460	2310	2170	2020
-5	3020	2490	2340	2200	2050
0	3050	2530	2370	2230	2080
5	3090	2560	2410	2260	2110
10	3120	2590	2440	2290	2140
15	3160	2620	2470	2320	2170
20	3200	2650	2500	2350	2200
25	3250	2690	2530	2380	2230
30	3290	2720	2560	2410	2260
35	3340	2750	2590	2440	2290
40	3380	2780	2620	2470	2320
45	3430	2810	2650	2500	2350
50	3470	2840	2690	2530	2380
52	3490	2860	2700	2540	2390

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 3)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
1000 FEET

CONDITIONS: LANDING GEAR - DOWN ANTI-ICE SYSTEMS - ON OR OFF
SPEED BRAKES - EXTEND AFTER TOUCHDOWN THRUST - IDLE
AIRSPEED - VREF AT 50 FEET

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS						WEIGHT = 12500 POUNDS					
VREF = 100 KIAS		VAPP = 106 KIAS				VREF = 99 KIAS		VAPP = 104 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS			TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS				10 KTS	20 KTS	30 KTS
-25	2820	2310	2160	2020	1880	-25	2760	2250	2110	1960	1830
-20	2850	2340	2190	2050	1910	-20	2790	2280	2130	1990	1850
-15	2880	2370	2220	2080	1940	-15	2820	2310	2160	2020	1880
-10	2920	2400	2250	2110	1970	-10	2850	2340	2190	2050	1910
-5	2950	2430	2280	2140	2000	-5	2880	2370	2220	2080	1940
0	2980	2460	2310	2170	2030	0	2910	2400	2250	2110	1970
5	3020	2490	2340	2200	2050	5	2950	2430	2280	2130	1990
10	3050	2520	2370	2230	2080	10	2980	2460	2310	2160	2020
15	3080	2560	2400	2260	2110	15	3010	2490	2340	2190	2050
20	3110	2590	2430	2280	2140	20	3040	2520	2370	2220	2080
25	3150	2620	2460	2310	2170	25	3070	2550	2400	2250	2100
30	3180	2650	2490	2340	2200	30	3110	2580	2430	2280	2130
35	3210	2680	2520	2370	2230	35	3140	2610	2450	2300	2160
40	3250	2710	2550	2400	2250	40	3170	2640	2480	2330	2190
45	3300	2740	2580	2430	2280	45	3200	2670	2510	2360	2210
50	3340	2770	2610	2460	2310	50	3230	2700	2540	2390	2240
52	3360	2780	2630	2470	2320	52	3240	2710	2550	2400	2250

WEIGHT = 12000 POUNDS						WEIGHT = 11500 POUNDS					
VREF = 97 KIAS		VAPP = 102 KIAS				VREF = 95 KIAS		VAPP = 100 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS			TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS				10 KTS	20 KTS	30 KTS
-25	2690	2190	2050	1910	1770	-25	2620	2130	1980	1850	1710
-20	2720	2220	2070	1930	1800	-20	2650	2150	2010	1870	1740
-15	2750	2250	2100	1960	1820	-15	2680	2180	2040	1900	1760
-10	2780	2270	2130	1990	1850	-10	2710	2210	2060	1920	1790
-5	2810	2300	2160	2010	1880	-5	2740	2240	2090	1950	1810
0	2840	2330	2190	2040	1900	0	2770	2260	2120	1980	1840
5	2870	2360	2210	2070	1930	5	2800	2290	2150	2000	1870
10	2900	2390	2240	2100	1960	10	2830	2320	2170	2030	1890
15	2930	2420	2270	2120	1980	15	2860	2350	2200	2060	1920
20	2970	2450	2300	2150	2010	20	2890	2370	2230	2080	1940
25	3000	2480	2330	2180	2040	25	2920	2400	2250	2110	1970
30	3030	2500	2350	2210	2060	30	2950	2430	2280	2140	1990
35	3060	2530	2380	2230	2090	35	2980	2460	2310	2160	2020
40	3090	2560	2410	2260	2120	40	3010	2480	2330	2190	2050
45	3120	2590	2440	2290	2140	45	3030	2510	2360	2210	2070
50	3150	2620	2470	2320	2170	50	3060	2540	2390	2240	2100
52	3160	2630	2480	2330	2180	52	3080	2550	2400	2250	2110

WEIGHT = 11000 POUNDS						WEIGHT = 10500 POUNDS					
VREF = 93 KIAS		VAPP = 98 KIAS				VREF = 91 KIAS		VAPP = 96 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS			TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS				10 KTS	20 KTS	30 KTS
-25	2560	2060	1920	1790	1650	-25	2490	2000	1860	1730	1600
-20	2580	2090	1950	1810	1680	-20	2510	2020	1890	1750	1620
-15	2610	2120	1970	1840	1700	-15	2540	2050	1910	1770	1640
-10	2640	2140	2000	1860	1730	-10	2570	2070	1930	1800	1670
-5	2670	2170	2030	1890	1750	-5	2600	2100	1960	1820	1690
0	2700	2200	2050	1910	1780	0	2620	2130	1980	1850	1710
5	2720	2220	2080	1940	1800	5	2650	2150	2010	1870	1740
10	2750	2250	2100	1960	1830	10	2680	2180	2030	1900	1760
15	2780	2280	2130	1990	1850	15	2700	2200	2060	1920	1780
20	2810	2300	2160	2010	1880	20	2730	2230	2080	1940	1810
25	2840	2330	2180	2040	1900	25	2760	2250	2110	1970	1830
30	2870	2350	2210	2060	1930	30	2790	2280	2130	1990	1860
35	2890	2380	2230	2090	1950	35	2810	2300	2160	2020	1880
40	2920	2410	2260	2110	1970	40	2840	2330	2180	2040	1900
45	2950	2430	2280	2140	2000	45	2870	2350	2210	2070	1930
50	2980	2460	2310	2170	2020	50	2890	2380	2230	2090	1950
52	2990	2470	2320	2180	2030	52	2900	2390	2240	2100	1960

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 4)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
2000 FEET**

CONDITIONS: LANDING GEAR - DOWN

SPEED BRAKES - EXTEND AFTER TOUCHDOWN

AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF

THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	3670	2880	2670	2510	2360
-20	3740	2930	2720	2540	2390
-15	3810	2990	2770	2580	2430
-10	3880	3040	2820	2620	2470
-5	3950	3100	2870	2670	2500
0	4030	3150	2930	2720	2540
5	4100	3210	2980	2760	2580
10	4180	3270	3030	2810	2610
15	4260	3330	3090	2860	2660
20	4340	3390	3140	2920	2710
25	4420	3450	3200	2970	2750
30	4510	3510	3250	3020	2800
35	4590	3570	3310	3070	2850
40	4680	3640	3370	3120	2900
45	4770	3700	3430	3180	2950
50	4860	3770	3490	3230	3000

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	3260	2630	2480	2330	2180
-20	3310	2670	2510	2360	2210
-15	3370	2700	2550	2400	2250
-10	3420	2740	2580	2430	2280
-5	3480	2780	2620	2470	2320
0	3540	2810	2650	2500	2350
5	3600	2860	2690	2540	2380
10	3660	2900	2730	2570	2420
15	3720	2950	2760	2600	2450
20	3780	3000	2800	2640	2490
25	3840	3050	2840	2670	2520
30	3900	3090	2880	2710	2550
35	3960	3140	2930	2740	2590
40	4020	3190	2970	2780	2620
45	4090	3240	3020	2810	2650
50	4150	3290	3060	2850	2690

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	3210	2610	2450	2300	2160
-20	3270	2640	2490	2340	2190
-15	3320	2680	2520	2370	2230
-10	3370	2720	2560	2410	2260
-5	3430	2750	2590	2440	2290
0	3490	2790	2630	2480	2330
5	3540	2820	2670	2510	2360
10	3600	2860	2700	2540	2390
15	3660	2910	2740	2580	2430
20	3710	2950	2770	2610	2460
25	3770	3000	2810	2650	2490
30	3830	3050	2840	2680	2530
35	3890	3100	2880	2720	2560
40	3950	3140	2930	2750	2590
45	4020	3190	2970	2780	2630
50	4080	3240	3020	2820	2660

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	3100	2550	2400	2250	2100
-20	3150	2580	2430	2280	2140
-15	3200	2620	2460	2310	2170
-10	3250	2650	2500	2350	2200
-5	3310	2690	2530	2380	2230
0	3360	2720	2570	2420	2270
5	3410	2760	2600	2450	2300
10	3460	2790	2640	2480	2330
15	3520	2830	2670	2520	2360
20	3570	2860	2700	2550	2400
25	3620	2900	2740	2580	2430
30	3680	2940	2770	2610	2460
35	3730	2980	2810	2650	2490
40	3790	3030	2840	2680	2530
45	3850	3070	2870	2710	2560
50	3900	3120	2910	2750	2590

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	3010	2490	2340	2190	2050
-20	3050	2520	2370	2220	2080
-15	3090	2560	2400	2260	2110
-10	3140	2590	2440	2290	2140
-5	3190	2630	2470	2320	2180
0	3240	2660	2500	2350	2210
5	3280	2690	2540	2390	2240
10	3330	2730	2570	2420	2270
15	3380	2760	2600	2450	2300
20	3430	2790	2640	2480	2330
25	3480	2830	2670	2520	2360
30	3530	2860	2700	2550	2400
35	3590	2900	2740	2580	2430
40	3640	2930	2770	2610	2460
45	3690	2960	2800	2640	2490
50	3740	3000	2830	2680	2520

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2950	2430	2280	2140	1990
-20	2980	2460	2310	2170	2020
-15	3020	2500	2340	2200	2050
-10	3050	2530	2380	2230	2090
-5	3090	2560	2410	2260	2120
0	3120	2590	2440	2290	2150
5	3170	2630	2470	2320	2180
10	3210	2660	2510	2350	2210
15	3260	2690	2540	2390	2240
20	3300	2730	2570	2420	2270
25	3350	2760	2600	2450	2300
30	3400	2790	2630	2480	2330
35	3450	2820	2670	2510	2360
40	3490	2860	2700	2540	2390
45	3540	2890	2730	2570	2420
50	3590	2920	2760	2600	2450

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 5)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
2000 FEET**

CONDITIONS: **LANDING GEAR - DOWN**
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS					
VREF = 100 KIAS		VAPP = 106 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2890	2370	2220	2080	1940
-20	2920	2400	2250	2110	1970
-15	2950	2430	2280	2140	2000
-10	2990	2460	2310	2170	2030
-5	3020	2500	2350	2200	2060
0	3050	2530	2380	2230	2090
5	3090	2560	2410	2260	2120
10	3120	2590	2440	2290	2150
15	3160	2620	2470	2320	2170
20	3190	2660	2500	2350	2200
25	3220	2690	2530	2380	2230
30	3270	2720	2560	2410	2260
35	3310	2750	2590	2440	2290
40	3360	2780	2630	2470	2320
45	3400	2810	2660	2500	2350
50	3450	2850	2690	2530	2380

WEIGHT = 12500 POUNDS					
VREF = 99 KIAS		VAPP = 104 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2820	2310	2160	2020	1880
-20	2850	2340	2190	2050	1910
-15	2880	2370	2220	2080	1940
-10	2920	2400	2250	2110	1970
-5	2950	2430	2280	2140	2000
0	2980	2460	2310	2170	2020
5	3020	2490	2340	2200	2050
10	3050	2520	2370	2230	2080
15	3080	2560	2400	2250	2110
20	3110	2590	2430	2280	2140
25	3150	2620	2460	2310	2170
30	3180	2650	2490	2340	2200
35	3210	2680	2520	2370	2220
40	3240	2710	2550	2400	2250
45	3280	2740	2580	2430	2280
50	3310	2770	2610	2460	2310

WEIGHT = 12000 POUNDS					
VREF = 97 KIAS		VAPP = 102 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2750	2250	2100	1960	1820
-20	2780	2280	2130	1990	1850
-15	2810	2300	2160	2020	1880
-10	2850	2330	2190	2040	1910
-5	2880	2360	2220	2070	1930
0	2910	2390	2250	2100	1960
5	2940	2420	2270	2130	1990
10	2970	2450	2300	2160	2020
15	3000	2480	2330	2190	2040
20	3040	2510	2360	2210	2070
25	3070	2540	2390	2240	2100
30	3100	2570	2420	2270	2130
35	3130	2600	2450	2300	2150
40	3160	2630	2480	2330	2180
45	3190	2660	2500	2350	2210
50	3220	2690	2530	2380	2240

WEIGHT = 11500 POUNDS					
VREF = 95 KIAS		VAPP = 100 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2680	2180	2040	1900	1760
-20	2710	2210	2070	1930	1790
-15	2740	2240	2090	1950	1820
-10	2770	2270	2120	1980	1840
-5	2800	2290	2150	2010	1870
0	2830	2320	2180	2030	1900
5	2860	2350	2200	2060	1920
10	2890	2380	2230	2090	1950
15	2930	2410	2260	2120	1980
20	2960	2440	2290	2140	2000
25	2990	2470	2320	2170	2030
30	3020	2490	2340	2200	2050
35	3050	2520	2370	2220	2080
40	3080	2550	2400	2250	2110
45	3110	2580	2430	2280	2130
50	3140	2610	2450	2310	2160

WEIGHT = 11000 POUNDS					
VREF = 93 KIAS		VAPP = 98 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2610	2120	1970	1840	1700
-20	2640	2140	2000	1860	1730
-15	2670	2170	2030	1890	1750
-10	2700	2200	2050	1910	1780
-5	2730	2230	2080	1940	1800
0	2760	2250	2110	1970	1830
5	2790	2280	2130	1990	1860
10	2820	2310	2160	2020	1880
15	2850	2330	2190	2050	1910
20	2870	2360	2210	2070	1930
25	2900	2390	2240	2100	1960
30	2930	2420	2270	2120	1980
35	2960	2440	2290	2150	2010
40	2990	2470	2320	2180	2030
45	3020	2500	2350	2200	2060
50	3050	2530	2370	2230	2080

WEIGHT = 10500 POUNDS					
VREF = 91 KIAS		VAPP = 96 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2540	2050	1910	1770	1640
-20	2570	2080	1940	1800	1670
-15	2600	2100	1960	1820	1690
-10	2630	2130	1990	1850	1710
-5	2650	2160	2010	1870	1740
0	2680	2180	2040	1900	1760
5	2710	2210	2060	1920	1790
10	2740	2230	2090	1950	1810
15	2770	2260	2120	1970	1840
20	2790	2290	2140	2000	1860
25	2820	2310	2170	2020	1890
30	2850	2340	2190	2050	1910
35	2880	2360	2220	2070	1930
40	2910	2390	2240	2100	1960
45	2930	2420	2270	2120	1980
50	2960	2440	2290	2150	2010

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 6)

LANDING DISTANCE - FEET

ACTUAL DISTANCE

FLAPS - LAND
3000 FEET

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	3730	2930	2710	2540	2390
-25	3800	2980	2770	2580	2430
-20	3880	3040	2820	2620	2470
-15	3950	3100	2870	2670	2500
-10	4030	3160	2930	2720	2540
-5	4110	3220	2980	2770	2580
0	4190	3280	3040	2820	2620
5	4270	3340	3090	2870	2670
10	4360	3400	3150	2920	2710
15	4440	3460	3210	2980	2760
20	4530	3530	3270	3030	2810
25	4620	3590	3330	3090	2860
30	4710	3660	3390	3140	2920
35	4800	3720	3450	3200	2970
40	4890	3790	3510	3250	3020
45	4990	3860	3570	3310	3070
48	5050	3900	3610	3350	3100

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	3310	2670	2510	2360	2210
-25	3370	2700	2550	2390	2250
-20	3420	2740	2580	2430	2280
-15	3480	2780	2620	2470	2320
-10	3540	2810	2660	2500	2350
-5	3600	2860	2690	2540	2390
0	3660	2910	2730	2570	2420
5	3720	2960	2770	2610	2460
10	3790	3010	2800	2650	2490
15	3850	3060	2840	2680	2530
20	3910	3110	2890	2720	2560
25	3980	3160	2940	2750	2600
30	4040	3210	2990	2790	2630
35	4110	3260	3030	2820	2670
40	4180	3310	3080	2870	2700
45	4250	3370	3130	2920	2740
48	4290	3400	3160	2940	2760

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	3260	2640	2490	2340	2190
-25	3320	2680	2520	2370	2220
-20	3370	2720	2560	2410	2260
-15	3430	2750	2600	2440	2290
-10	3490	2790	2630	2480	2330
-5	3550	2830	2670	2510	2360
0	3610	2870	2700	2550	2400
5	3670	2910	2740	2580	2430
10	3730	2960	2780	2620	2470
15	3790	3010	2810	2660	2500
20	3850	3060	2850	2690	2540
25	3910	3110	2900	2730	2570
30	3970	3160	2940	2760	2600
35	4040	3210	2990	2800	2640
40	4100	3260	3040	2830	2670
45	4170	3310	3080	2870	2710
48	4210	3340	3110	2900	2730

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	3150	2580	2430	2280	2130
-25	3200	2620	2460	2310	2170
-20	3250	2650	2500	2350	2200
-15	3310	2690	2530	2380	2230
-10	3360	2730	2570	2420	2270
-5	3410	2760	2600	2450	2300
0	3470	2800	2640	2490	2340
5	3520	2830	2680	2520	2370
10	3580	2870	2710	2550	2400
15	3640	2910	2750	2590	2440
20	3690	2950	2780	2620	2470
25	3750	2990	2820	2660	2500
30	3810	3040	2850	2690	2540
35	3870	3090	2890	2730	2570
40	3930	3130	2920	2760	2600
45	3990	3180	2970	2790	2640
48	4020	3210	2990	2820	2660

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	3050	2520	2370	2220	2080
-25	3090	2560	2400	2260	2110
-20	3140	2590	2440	2290	2140
-15	3190	2630	2470	2320	2180
-10	3240	2660	2510	2360	2210
-5	3290	2700	2540	2390	2240
0	3340	2730	2580	2420	2270
5	3390	2770	2610	2460	2310
10	3440	2800	2640	2490	2340
15	3500	2840	2680	2520	2370
20	3550	2870	2710	2560	2400
25	3600	2910	2750	2590	2440
30	3650	2940	2780	2620	2470
35	3710	2980	2810	2660	2500
40	3760	3010	2850	2690	2530
45	3820	3060	2880	2720	2570
48	3850	3090	2900	2740	2590

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2980	2460	2310	2170	2020
-25	3020	2500	2340	2200	2050
-20	3060	2530	2380	2230	2090
-15	3090	2560	2410	2260	2120
-10	3130	2600	2440	2290	2150
-5	3170	2630	2480	2330	2180
0	3220	2660	2510	2360	2210
5	3270	2700	2540	2390	2240
10	3310	2730	2580	2420	2280
15	3360	2770	2610	2460	2310
20	3410	2800	2640	2490	2340
25	3460	2830	2680	2520	2370
30	3510	2870	2710	2550	2400
35	3560	2900	2740	2580	2430
40	3610	2930	2770	2620	2460
45	3660	2970	2810	2650	2500
48	3690	2990	2830	2670	2510

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 7)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
3000 FEET**

CONDITIONS: **LANDING GEAR - DOWN**
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS VREF = 100 KIAS VAPP = 106 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2920	2400	2250 2110 1970		
-25	2950	2430	2280 2140 2000		
-20	2990	2470	2320 2170 2030		
-15	3020	2500	2350 2200 2060		
-10	3060	2530	2380 2230 2090		
-5	3090	2560	2410 2260 2120		
0	3130	2600	2440 2290 2150		
5	3160	2630	2480 2330 2180		
10	3200	2660	2510 2360 2210		
15	3240	2700	2540 2390 2240		
20	3280	2730	2570 2420 2270		
25	3330	2760	2600 2450 2300		
30	3370	2790	2640 2480 2330		
35	3420	2830	2670 2510 2360		
40	3460	2860	2700 2540 2390		
45	3510	2890	2730 2580 2420		
48	3540	2910	2750 2590 2440		

WEIGHT = 12500 POUNDS VREF = 99 KIAS VAPP = 104 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2850	2340	2190 2050 1910		
-25	2890	2370	2220 2080 1940		
-20	2920	2400	2250 2110 1970		
-15	2950	2430	2280 2140 2000		
-10	2990	2470	2310 2170 2030		
-5	3020	2500	2350 2200 2060		
0	3050	2530	2380 2230 2090		
5	3090	2560	2410 2260 2120		
10	3120	2590	2440 2290 2140		
15	3160	2620	2470 2320 2170		
20	3190	2660	2500 2350 2200		
25	3220	2690	2530 2380 2230		
30	3260	2720	2560 2410 2260		
35	3290	2750	2590 2440 2290		
40	3330	2780	2620 2470 2320		
45	3370	2810	2650 2500 2350		
48	3400	2830	2670 2520 2370		

WEIGHT = 12000 POUNDS VREF = 97 KIAS VAPP = 102 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2780	2280	2130 1990 1850		
-25	2820	2310	2160 2020 1880		
-20	2850	2340	2190 2040 1910		
-15	2880	2370	2220 2070 1930		
-10	2910	2400	2250 2100 1960		
-5	2950	2430	2280 2130 1990		
0	2980	2460	2310 2160 2020		
5	3010	2490	2340 2190 2050		
10	3040	2520	2370 2220 2080		
15	3080	2550	2400 2250 2110		
20	3110	2580	2430 2280 2130		
25	3140	2610	2460 2310 2160		
30	3170	2640	2490 2340 2190		
35	3210	2670	2520 2370 2220		
40	3240	2700	2550 2390 2250		
45	3270	2730	2580 2420 2280		
48	3290	2750	2590 2440 2290		

WEIGHT = 11500 POUNDS VREF = 95 KIAS VAPP = 100 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2720	2210	2070 1920 1790		
-25	2750	2240	2090 1950 1820		
-20	2780	2270	2120 1980 1840		
-15	2810	2300	2150 2010 1870		
-10	2840	2330	2180 2040 1900		
-5	2870	2360	2210 2060 1920		
0	2900	2390	2240 2090 1950		
5	2930	2410	2270 2120 1980		
10	2960	2440	2290 2150 2010		
15	2990	2470	2320 2180 2030		
20	3030	2500	2350 2200 2060		
25	3060	2530	2380 2230 2090		
30	3090	2560	2410 2260 2120		
35	3120	2590	2440 2290 2140		
40	3150	2620	2470 2320 2170		
45	3180	2650	2490 2340 2200		
48	3200	2670	2510 2360 2210		

WEIGHT = 11000 POUNDS VREF = 93 KIAS VAPP = 98 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2640	2140	2000 1860 1730		
-25	2670	2170	2030 1890 1750		
-20	2700	2200	2060 1920 1780		
-15	2730	2230	2080 1940 1810		
-10	2760	2260	2110 1970 1830		
-5	2790	2280	2140 2000 1860		
0	2820	2310	2170 2020 1880		
5	2850	2340	2190 2050 1910		
10	2880	2370	2220 2080 1940		
15	2910	2400	2250 2100 1960		
20	2940	2430	2280 2130 1990		
25	2970	2450	2300 2160 2020		
30	3000	2480	2330 2180 2040		
35	3030	2510	2360 2210 2070		
40	3060	2540	2390 2240 2090		
45	3090	2570	2410 2270 2120		
48	3110	2580	2430 2280 2140		

WEIGHT = 10500 POUNDS VREF = 91 KIAS VAPP = 96 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2570	2080	1940 1800 1670		
-25	2600	2100	1960 1820 1690		
-20	2630	2130	1990 1850 1720		
-15	2660	2160	2010 1880 1740		
-10	2690	2180	2040 1900 1770		
-5	2710	2210	2070 1930 1790		
0	2740	2240	2090 1950 1820		
5	2770	2270	2120 1980 1840		
10	2800	2290	2150 2010 1870		
15	2830	2320	2170 2030 1890		
20	2860	2350	2200 2060 1920		
25	2890	2370	2230 2080 1940		
30	2920	2400	2250 2110 1970		
35	2950	2430	2280 2130 1990		
40	2970	2450	2310 2160 2020		
45	3000	2480	2330 2190 2040		
48	3020	2500	2350 2200 2060		

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 8)

LANDING DISTANCE - FEET

ACTUAL DISTANCE

FLAPS - LAND
4000 FEETCONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEETANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-30	3870	3040	2820	2620	2460
-25	3950	3090	2870	2660	2500
-20	4030	3160	2930	2720	2540
-15	4110	3220	2980	2770	2580
-10	4190	3280	3040	2820	2620
-5	4280	3340	3100	2880	2670
0	4370	3410	3160	2930	2720
5	4450	3470	3220	2990	2770
10	4540	3540	3280	3040	2820
15	4640	3610	3340	3100	2880
20	4730	3670	3400	3160	2930
25	4830	3740	3470	3210	2980
30	4920	3810	3530	3270	3040
35	5020	3890	3600	3330	3090
40	5130	3960	3660	3390	3150
45	5230	4030	3730	3450	3200

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-30	3420	2740	2580	2430	2280
-25	3480	2780	2620	2470	2320
-20	3540	2820	2660	2500	2350
-15	3600	2860	2690	2540	2390
-10	3670	2910	2730	2580	2420
-5	3730	2960	2770	2610	2460
0	3800	3010	2810	2650	2500
5	3860	3060	2850	2690	2530
10	3930	3120	2900	2720	2570
15	3990	3170	2950	2760	2600
20	4060	3220	3000	2800	2640
25	4130	3280	3050	2840	2680
30	4200	3330	3100	2890	2710
35	4270	3390	3150	2930	2750
40	4350	3440	3200	2980	2780
45	4420	3500	3250	3030	2820

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-30	3370	2710	2560	2410	2260
-25	3430	2750	2600	2440	2290
-20	3490	2790	2630	2480	2330
-15	3550	2830	2670	2510	2360
-10	3610	2870	2710	2550	2400
-5	3670	2920	2740	2590	2440
0	3730	2970	2780	2620	2470
5	3800	3020	2820	2660	2510
10	3860	3070	2860	2700	2540
15	3930	3120	2910	2730	2580
20	3990	3170	2950	2770	2610
25	4060	3220	3000	2810	2650
30	4130	3280	3050	2840	2680
35	4200	3330	3100	2890	2720
40	4260	3380	3150	2930	2760
45	4340	3440	3200	2980	2790

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-30	3250	2650	2500	2350	2200
-25	3310	2690	2530	2380	2230
-20	3360	2730	2570	2420	2270
-15	3420	2760	2610	2450	2300
-10	3470	2800	2640	2490	2340
-5	3530	2840	2680	2520	2370
0	3590	2880	2720	2560	2410
5	3650	2910	2750	2600	2440
10	3710	2960	2790	2630	2480
15	3770	3000	2820	2670	2510
20	3830	3050	2860	2700	2550
25	3890	3100	2900	2740	2580
30	3950	3150	2940	2770	2620
35	4010	3200	2980	2810	2650
40	4070	3250	3030	2840	2680
45	4140	3300	3080	2880	2720

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-30	3140	2590	2440	2290	2140
-25	3190	2630	2470	2320	2180
-20	3240	2660	2510	2360	2210
-15	3290	2700	2540	2390	2240
-10	3340	2730	2580	2420	2280
-5	3400	2770	2610	2460	2310
0	3450	2810	2650	2490	2340
5	3500	2840	2680	2530	2380
10	3560	2880	2720	2560	2410
15	3610	2910	2750	2600	2440
20	3670	2950	2790	2630	2480
25	3730	2990	2820	2670	2510
30	3780	3030	2860	2700	2550
35	3840	3080	2890	2730	2580
40	3900	3120	2930	2770	2610
45	3960	3170	2960	2800	2650

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-30	3060	2530	2380	2230	2080
-25	3090	2560	2410	2260	2120
-20	3130	2600	2440	2290	2150
-15	3170	2630	2480	2330	2180
-10	3220	2670	2510	2360	2210
-5	3270	2700	2550	2390	2250
0	3320	2740	2580	2430	2280
5	3370	2770	2620	2460	2310
10	3420	2810	2650	2500	2340
15	3470	2840	2680	2530	2380
20	3520	2880	2720	2560	2410
25	3580	2910	2750	2590	2440
30	3630	2950	2790	2630	2470
35	3680	2980	2820	2660	2510
40	3730	3020	2850	2690	2540
45	3790	3050	2890	2730	2570

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*TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 9)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
4000 FEET

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS					
VREF = 100 KIAS		VAPP = 106 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2990	2470	2320	2170	2030
-25	3020	2500	2350	2200	2060
-20	3060	2530	2380	2230	2090
-15	3100	2570	2410	2260	2120
-10	3130	2600	2450	2300	2150
-5	3170	2630	2480	2330	2180
0	3200	2670	2510	2360	2210
5	3240	2700	2550	2390	2250
10	3290	2740	2580	2430	2280
15	3340	2770	2610	2460	2310
20	3390	2800	2640	2490	2340
25	3430	2840	2680	2520	2370
30	3480	2870	2710	2560	2400
35	3530	2900	2740	2590	2440
40	3580	2940	2780	2620	2470
45	3630	2970	2810	2650	2500

WEIGHT = 12500 POUNDS					
VREF = 99 KIAS		VAPP = 104 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2920	2400	2250	2110	1970
-25	2960	2430	2280	2140	2000
-20	2990	2470	2320	2170	2030
-15	3020	2500	2350	2200	2060
-10	3060	2530	2380	2230	2090
-5	3090	2560	2410	2260	2120
0	3130	2600	2440	2290	2150
5	3160	2630	2480	2330	2180
10	3200	2660	2510	2360	2210
15	3230	2700	2540	2390	2240
20	3270	2730	2570	2420	2270
25	3300	2760	2600	2450	2300
30	3340	2790	2640	2480	2330
35	3390	2830	2670	2510	2360
40	3430	2860	2700	2540	2390
45	3480	2890	2730	2570	2420

WEIGHT = 12000 POUNDS					
VREF = 97 KIAS		VAPP = 102 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2850	2340	2190	2040	1910
-25	2880	2370	2220	2070	1930
-20	2920	2400	2250	2100	1960
-15	2950	2430	2280	2130	1990
-10	2980	2460	2310	2160	2020
-5	3020	2490	2340	2190	2050
0	3050	2520	2370	2220	2080
5	3080	2560	2400	2250	2110
10	3120	2590	2430	2280	2140
15	3150	2620	2460	2310	2170
20	3180	2650	2500	2340	2200
25	3220	2680	2530	2370	2230
30	3250	2710	2560	2400	2260
35	3280	2740	2590	2430	2290
40	3320	2780	2620	2460	2320
45	3350	2810	2650	2490	2340

WEIGHT = 11500 POUNDS					
VREF = 95 KIAS		VAPP = 100 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2780	2270	2120	1980	1840
-25	2810	2300	2150	2010	1870
-20	2840	2330	2180	2040	1900
-15	2870	2360	2210	2070	1930
-10	2900	2390	2240	2100	1950
-5	2940	2420	2270	2120	1980
0	2970	2450	2300	2150	2010
5	3000	2480	2330	2180	2040
10	3030	2510	2360	2210	2070
15	3070	2540	2390	2240	2100
20	3100	2570	2420	2270	2120
25	3130	2600	2450	2300	2150
30	3160	2630	2480	2330	2180
35	3190	2660	2510	2360	2210
40	3230	2690	2540	2380	2240
45	3260	2720	2570	2410	2270

WEIGHT = 11000 POUNDS					
VREF = 93 KIAS		VAPP = 98 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2710	2200	2060	1920	1780
-25	2740	2230	2080	1940	1810
-20	2770	2260	2110	1970	1830
-15	2800	2290	2140	2000	1860
-10	2830	2320	2170	2030	1890
-5	2860	2340	2200	2050	1910
0	2890	2370	2230	2080	1940
5	2920	2400	2250	2110	1970
10	2950	2430	2280	2140	2000
15	2980	2460	2310	2170	2020
20	3010	2490	2340	2190	2050
25	3040	2520	2370	2220	2080
30	3070	2550	2400	2250	2100
35	3110	2580	2420	2280	2130
40	3140	2610	2450	2300	2160
45	3170	2630	2480	2330	2190

WEIGHT = 10500 POUNDS					
VREF = 91 KIAS		VAPP = 96 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2630	2130	1990	1850	1720
-25	2660	2160	2020	1880	1740
-20	2690	2190	2040	1900	1770
-15	2720	2210	2070	1930	1790
-10	2750	2240	2100	1960	1820
-5	2780	2270	2120	1980	1850
0	2810	2300	2150	2010	1870
5	2840	2330	2180	2040	1900
10	2870	2350	2210	2060	1920
15	2900	2380	2230	2090	1950
20	2930	2410	2260	2120	1980
25	2960	2440	2290	2140	2000
30	2990	2470	2320	2170	2030
35	3020	2490	2340	2200	2050
40	3040	2520	2370	2220	2080
45	3070	2550	2400	2250	2110

56FMC-00-00
TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 10)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
5000 FEET**

CONDITIONS: **LANDING GEAR - DOWN**
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3950	3090	2860	2660	2500
-30	4030	3150	2920	2710	2540
-25	4110	3210	2980	2770	2580
-20	4200	3280	3040	2820	2620
-15	4280	3340	3100	2880	2670
-10	4370	3410	3160	2930	2720
-5	4460	3480	3220	2990	2780
0	4560	3550	3290	3050	2830
5	4650	3620	3350	3110	2880
10	4750	3690	3420	3170	2940
15	4850	3760	3480	3230	2990
20	4950	3830	3550	3290	3050
25	5060	3910	3620	3350	3110
30	5160	3980	3680	3410	3170
35	5270	4060	3750	3480	3220
40	5380	4140	3820	3540	3280
42	5430	4170	3850	3570	3310

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3480	2770	2620	2460	2310
-30	3540	2810	2660	2500	2350
-25	3600	2860	2690	2540	2390
-20	3670	2910	2730	2580	2420
-15	3730	2960	2770	2610	2460
-10	3800	3020	2810	2650	2500
-5	3870	3070	2860	2690	2540
0	3940	3120	2910	2730	2570
5	4010	3180	2960	2770	2610
10	4080	3230	3010	2810	2650
15	4150	3290	3060	2850	2690
20	4220	3350	3110	2900	2720
25	4300	3400	3170	2950	2760
30	4370	3460	3220	3000	2800
35	4450	3520	3270	3050	2840
40	4530	3580	3330	3100	2880
42	4560	3600	3350	3120	2900

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3430	2750	2590	2440	2290
-30	3490	2790	2630	2480	2330
-25	3550	2830	2670	2510	2360
-20	3610	2870	2710	2550	2400
-15	3670	2920	2750	2590	2440
-10	3740	2970	2790	2630	2470
-5	3810	3020	2820	2670	2510
0	3870	3080	2860	2700	2550
5	3940	3130	2910	2740	2580
10	4010	3180	2960	2780	2620
15	4080	3240	3010	2820	2660
20	4150	3290	3070	2850	2700
25	4220	3350	3120	2900	2730
30	4290	3400	3170	2950	2770
35	4360	3460	3220	3000	2810
40	4440	3520	3270	3050	2840
42	4470	3540	3300	3070	2860

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3300	2690	2530	2380	2230
-30	3360	2730	2570	2420	2270
-25	3420	2760	2610	2450	2300
-20	3470	2800	2640	2490	2340
-15	3530	2840	2680	2530	2370
-10	3590	2880	2720	2560	2410
-5	3650	2920	2760	2600	2450
0	3720	2960	2790	2640	2480
5	3780	3010	2830	2670	2520
10	3840	3060	2870	2710	2550
15	3900	3110	2910	2750	2590
20	3970	3160	2950	2780	2630
25	4030	3220	3000	2820	2660
30	4100	3270	3050	2860	2700
35	4170	3320	3090	2890	2730
40	4230	3370	3140	2930	2770
42	4260	3390	3160	2950	2780

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3190	2630	2470	2320	2170
-30	3240	2660	2510	2360	2210
-25	3290	2700	2540	2390	2240
-20	3350	2740	2580	2430	2280
-15	3400	2770	2620	2460	2310
-10	3460	2810	2650	2500	2350
-5	3510	2850	2690	2530	2380
0	3570	2890	2720	2570	2420
5	3630	2920	2760	2600	2450
10	3680	2960	2800	2640	2490
15	3740	3000	2830	2680	2520
20	3800	3040	2870	2710	2560
25	3860	3090	2910	2750	2590
30	3920	3140	2940	2780	2620
35	3980	3190	2980	2820	2660
40	4040	3240	3020	2850	2690
42	4070	3260	3040	2870	2710

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3090	2560	2410	2260	2110
-30	3130	2600	2440	2290	2150
-25	3170	2630	2480	2330	2180
-20	3220	2670	2510	2360	2210
-15	3270	2710	2550	2400	2250
-10	3330	2740	2580	2430	2280
-5	3380	2780	2620	2470	2320
0	3430	2810	2660	2500	2350
5	3480	2850	2690	2530	2380
10	3540	2890	2730	2570	2420
15	3590	2920	2760	2600	2450
20	3640	2960	2800	2640	2480
25	3700	2990	2830	2670	2520
30	3750	3030	2870	2710	2550
35	3810	3070	2900	2740	2590
40	3870	3110	2940	2780	2620
42	3890	3130	2950	2790	2630

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 11)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
5000 FEET

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS					
VREF = 100 KIAS		VAPP = 106 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3020	2500	2350	2200	2060
-30	3060	2530	2380	2230	2090
-25	3100	2570	2410	2270	2120
-20	3130	2600	2450	2300	2150
-15	3170	2640	2480	2330	2180
-10	3210	2670	2520	2360	2220
-5	3250	2710	2550	2400	2250
0	3300	2740	2580	2430	2280
5	3350	2780	2620	2470	2320
10	3400	2810	2650	2500	2350
15	3450	2850	2690	2530	2380
20	3500	2880	2720	2570	2410
25	3550	2920	2750	2600	2450
30	3600	2950	2790	2630	2480
35	3650	2990	2820	2660	2510
40	3700	3020	2860	2700	2540
42	3720	3030	2870	2710	2560

WEIGHT = 12500 POUNDS					
VREF = 99 KIAS		VAPP = 104 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2960	2430	2280	2140	2000
-30	2990	2470	2320	2170	2030
-25	3030	2500	2350	2200	2060
-20	3060	2530	2380	2230	2090
-15	3100	2570	2410	2270	2120
-10	3130	2600	2450	2300	2150
-5	3170	2640	2480	2330	2180
0	3200	2670	2510	2360	2220
5	3240	2700	2550	2400	2250
10	3280	2740	2580	2430	2280
15	3310	2770	2610	2460	2310
20	3360	2800	2650	2490	2340
25	3400	2840	2680	2520	2370
30	3450	2870	2710	2560	2400
35	3500	2900	2740	2590	2440
40	3550	2940	2780	2620	2470
42	3570	2950	2790	2630	2480

WEIGHT = 12000 POUNDS					
VREF = 97 KIAS		VAPP = 102 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2880	2370	2220	2070	1930
-30	2920	2400	2250	2100	1960
-25	2950	2430	2280	2130	1990
-20	2990	2460	2310	2170	2020
-15	3020	2500	2340	2200	2050
-10	3050	2530	2380	2230	2080
-5	3090	2560	2410	2260	2110
0	3120	2590	2440	2290	2150
5	3160	2630	2470	2320	2180
10	3190	2660	2500	2350	2210
15	3230	2690	2530	2380	2240
20	3260	2720	2570	2410	2270
25	3300	2760	2600	2450	2300
30	3330	2790	2630	2480	2330
35	3360	2820	2660	2510	2360
40	3400	2850	2690	2540	2390
42	3420	2870	2710	2550	2400

WEIGHT = 11500 POUNDS					
VREF = 95 KIAS		VAPP = 100 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2810	2300	2150	2010	1870
-30	2840	2330	2180	2040	1900
-25	2880	2360	2210	2070	1930
-20	2910	2390	2240	2100	1960
-15	2940	2420	2270	2130	1990
-10	2970	2450	2300	2160	2010
-5	3010	2480	2330	2190	2040
0	3040	2520	2360	2220	2070
5	3070	2550	2400	2250	2100
10	3110	2580	2430	2280	2130
15	3140	2610	2460	2310	2160
20	3170	2640	2490	2340	2190
25	3210	2670	2520	2370	2220
30	3240	2700	2550	2400	2250
35	3270	2730	2580	2430	2280
40	3310	2770	2610	2460	2310
42	3320	2780	2620	2470	2320

WEIGHT = 11000 POUNDS					
VREF = 93 KIAS		VAPP = 98 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2740	2230	2080	1940	1810
-30	2770	2260	2110	1970	1830
-25	2800	2290	2140	2000	1860
-20	2830	2320	2170	2030	1890
-15	2860	2350	2200	2060	1920
-10	2890	2380	2230	2090	1950
-5	2930	2410	2260	2110	1970
0	2960	2440	2290	2140	2000
5	2990	2470	2320	2170	2030
10	3020	2500	2350	2200	2060
15	3050	2530	2380	2230	2090
20	3090	2560	2410	2260	2110
25	3120	2590	2440	2290	2140
30	3150	2620	2460	2310	2170
35	3180	2650	2490	2340	2200
40	3210	2680	2520	2370	2220
42	3230	2690	2530	2380	2240

WEIGHT = 10500 POUNDS					
VREF = 91 KIAS		VAPP = 96 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2660	2160	2020	1880	1740
-30	2690	2190	2040	1900	1770
-25	2720	2220	2070	1930	1790
-20	2750	2250	2100	1960	1820
-15	2780	2270	2130	1990	1850
-10	2810	2300	2160	2010	1870
-5	2840	2330	2180	2040	1900
0	2870	2360	2210	2070	1930
5	2910	2390	2240	2100	1960
10	2940	2420	2270	2120	1980
15	2970	2450	2300	2150	2010
20	3000	2480	2320	2180	2040
25	3030	2500	2350	2210	2060
30	3060	2530	2380	2230	2090
35	3090	2560	2410	2260	2120
40	3120	2590	2440	2290	2140
42	3130	2600	2450	2300	2150

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 12)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
6000 FEET

CONDITIONS: LANDING GEAR - DOWN

SPEED BRAKES - EXTEND AFTER TOUCHDOWN

AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF

THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-35	4100	3210	2980	2760	2580
-30	4190	3280	3040	2820	2620
-25	4280	3340	3100	2870	2670
-20	4370	3410	3160	2930	2720
-15	4470	3480	3230	2990	2780
-10	4570	3550	3290	3050	2830
-5	4670	3630	3360	3110	2890
0	4770	3700	3420	3180	2950
5	4870	3770	3490	3240	3000
10	4980	3850	3560	3300	3060
15	5090	3930	3630	3370	3120
20	5200	4010	3700	3430	3180
25	5310	4090	3780	3500	3240
30	5430	4170	3850	3560	3300
35	5550	4250	3930	3630	3370
39	5650	4320	3990	3690	3420

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-35	3600	2860	2690	2540	2380
-30	3670	2910	2730	2580	2420
-25	3730	2960	2770	2620	2460
-20	3800	3020	2810	2650	2500
-15	3870	3070	2860	2690	2540
-10	3940	3130	2910	2730	2580
-5	4020	3180	2960	2770	2620
0	4090	3240	3020	2810	2650
5	4170	3300	3070	2860	2690
10	4240	3360	3130	2910	2730
15	4320	3420	3180	2960	2770
20	4400	3480	3240	3010	2810
25	4480	3540	3290	3060	2850
30	4560	3600	3350	3120	2900
35	4640	3660	3410	3170	2950
39	4710	3710	3450	3210	2990

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-35	3550	2830	2670	2510	2360
-30	3610	2870	2710	2550	2400
-25	3680	2920	2750	2590	2440
-20	3740	2970	2790	2630	2470
-15	3810	3030	2830	2670	2510
-10	3880	3080	2870	2710	2550
-5	3950	3140	2920	2750	2590
0	4020	3190	2970	2790	2630
5	4090	3250	3020	2820	2670
10	4160	3310	3080	2870	2700
15	4240	3360	3130	2910	2740
20	4310	3420	3180	2970	2780
25	4390	3480	3240	3020	2820
30	4470	3540	3290	3070	2860
35	4550	3600	3350	3120	2900
39	4610	3650	3400	3160	2940

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-35	3410	2760	2600	2450	2300
-30	3470	2800	2640	2490	2340
-25	3530	2840	2680	2530	2370
-20	3600	2880	2720	2560	2410
-15	3660	2920	2760	2600	2450
-10	3720	2970	2800	2640	2490
-5	3790	3020	2840	2680	2520
0	3850	3070	2880	2720	2560
5	3920	3120	2910	2750	2600
10	3980	3180	2960	2790	2630
15	4050	3230	3010	2830	2670
20	4120	3280	3060	2870	2710
25	4190	3340	3110	2900	2740
30	4260	3390	3160	2950	2780
35	4330	3450	3210	3000	2820
39	4390	3490	3260	3040	2850

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-35	3290	2700	2540	2390	2240
-30	3350	2740	2580	2430	2280
-25	3400	2770	2620	2460	2310
-20	3460	2810	2650	2500	2350
-15	3520	2850	2690	2540	2380
-10	3570	2890	2730	2570	2420
-5	3630	2930	2770	2610	2460
0	3690	2970	2800	2650	2490
5	3750	3000	2840	2680	2530
10	3820	3050	2880	2720	2560
15	3880	3100	2920	2760	2600
20	3940	3150	2950	2790	2640
25	4000	3200	2990	2830	2670
30	4070	3250	3040	2870	2710
35	4130	3310	3080	2900	2740
39	4190	3350	3120	2930	2770

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
			10 KTS	20 KTS	30 KTS
-35	3170	2630	2480	2330	2180
-30	3220	2670	2510	2360	2210
-25	3280	2710	2550	2400	2250
-20	3330	2740	2590	2430	2280
-15	3380	2780	2620	2470	2320
-10	3440	2820	2660	2500	2350
-5	3490	2860	2700	2540	2390
0	3550	2890	2730	2580	2420
5	3600	2930	2770	2610	2460
10	3660	2970	2800	2650	2490
15	3710	3000	2840	2680	2530
20	3770	3040	2880	2720	2560
25	3830	3080	2910	2750	2600
30	3890	3120	2950	2790	2630
35	3950	3170	2990	2820	2670
39	4000	3210	3020	2850	2690

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 13)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
6000 FEET**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS VREF = 100 KIAS VAPP = 106 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
	10 KTS	10 KTS	20 KTS	30 KTS	
-35	3100	2570	2410	2260	2120
-30	3140	2600	2450	2300	2150
-25	3170	2640	2480	2330	2190
-20	3210	2670	2520	2370	2220
-15	3250	2710	2550	2400	2250
-10	3300	2750	2590	2440	2290
-5	3360	2780	2620	2470	2320
0	3410	2820	2660	2500	2350
5	3460	2850	2690	2540	2390
10	3510	2890	2730	2570	2420
15	3560	2930	2770	2610	2450
20	3620	2960	2800	2640	2490
25	3670	3000	2840	2680	2520
30	3720	3030	2870	2710	2560
35	3780	3070	2910	2750	2590
39	3820	3100	2930	2770	2620

WEIGHT = 12500 POUNDS VREF = 99 KIAS VAPP = 104 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
	10 KTS	10 KTS	20 KTS	30 KTS	
-35	3030	2500	2350	2200	2060
-30	3060	2540	2380	2230	2090
-25	3100	2570	2420	2270	2120
-20	3140	2600	2450	2300	2150
-15	3170	2640	2480	2330	2190
-10	3210	2670	2520	2370	2220
-5	3250	2710	2550	2400	2250
0	3280	2740	2590	2430	2280
5	3320	2780	2620	2470	2320
10	3370	2810	2650	2500	2350
15	3420	2850	2690	2530	2380
20	3470	2880	2720	2570	2410
25	3520	2920	2760	2600	2450
30	3570	2950	2790	2630	2480
35	3620	2990	2820	2670	2510
39	3660	3010	2850	2690	2540

WEIGHT = 12000 POUNDS VREF = 97 KIAS VAPP = 102 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
	10 KTS	10 KTS	20 KTS	30 KTS	
-35	2950	2430	2280	2130	1990
-30	2990	2460	2310	2170	2020
-25	3020	2500	2350	2200	2050
-20	3060	2530	2380	2230	2090
-15	3090	2560	2410	2260	2120
-10	3130	2600	2440	2290	2150
-5	3170	2630	2480	2330	2180
0	3200	2660	2510	2360	2210
5	3240	2700	2540	2390	2240
10	3270	2730	2580	2420	2270
15	3310	2770	2610	2450	2310
20	3340	2800	2640	2490	2340
25	3380	2830	2670	2520	2370
30	3410	2870	2710	2550	2400
35	3460	2900	2740	2580	2430
39	3500	2930	2770	2610	2460

WEIGHT = 11500 POUNDS VREF = 95 KIAS VAPP = 100 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
	10 KTS	10 KTS	20 KTS	30 KTS	
-35	2880	2360	2210	2070	1930
-30	2910	2390	2240	2100	1960
-25	2950	2420	2270	2130	1990
-20	2980	2460	2310	2160	2020
-15	3010	2490	2340	2190	2050
-10	3050	2520	2370	2220	2080
-5	3080	2550	2400	2250	2110
0	3120	2590	2430	2280	2140
5	3150	2620	2460	2310	2170
10	3180	2650	2500	2340	2200
15	3220	2680	2530	2380	2230
20	3250	2710	2560	2410	2260
25	3290	2750	2590	2440	2290
30	3320	2780	2620	2470	2320
35	3350	2810	2650	2500	2350
39	3380	2840	2680	2520	2370

WEIGHT = 11000 POUNDS VREF = 93 KIAS VAPP = 98 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
	10 KTS	10 KTS	20 KTS	30 KTS	
-35	2800	2290	2140	2000	1860
-30	2830	2320	2170	2030	1890
-25	2870	2350	2200	2060	1920
-20	2900	2380	2230	2090	1950
-15	2930	2410	2260	2120	1980
-10	2960	2440	2290	2150	2000
-5	3000	2470	2320	2180	2030
0	3030	2510	2350	2210	2060
5	3060	2540	2380	2240	2090
10	3100	2570	2410	2270	2120
15	3130	2600	2440	2300	2150
20	3160	2630	2470	2320	2180
25	3190	2660	2510	2350	2210
30	3230	2690	2540	2380	2240
35	3260	2720	2570	2410	2270
39	3290	2750	2590	2440	2290

WEIGHT = 10500 POUNDS VREF = 91 KIAS VAPP = 96 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS		
	10 KTS	10 KTS	20 KTS	30 KTS	
-35	2730	2220	2070	1930	1790
-30	2760	2250	2100	1960	1820
-25	2790	2280	2130	1990	1850
-20	2820	2310	2160	2020	1880
-15	2850	2340	2190	2040	1900
-10	2880	2370	2220	2070	1930
-5	2910	2390	2250	2100	1960
0	2940	2420	2280	2130	1990
5	2980	2450	2300	2160	2020
10	3010	2480	2330	2190	2040
15	3040	2510	2360	2210	2070
20	3070	2540	2390	2240	2100
25	3100	2570	2420	2270	2130
30	3130	2600	2450	2300	2150
35	3160	2630	2480	2330	2180
39	3190	2660	2500	2350	2200

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 14)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
7000 FEET

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	4280	3340	3090	2870	2660
-30	4370	3410	3160	2930	2720
-25	4470	3480	3230	2990	2780
-20	4570	3550	3290	3050	2830
-15	4670	3630	3360	3120	2890
-10	4780	3710	3430	3180	2950
-5	4880	3780	3500	3250	3010
0	5000	3860	3570	3310	3070
5	5110	3940	3650	3380	3130
10	5220	4030	3720	3450	3200
15	5340	4110	3800	3510	3260
20	5470	4190	3870	3590	3320
25	5590	4280	3950	3660	3390
30	5720	4370	4030	3730	3450
34	5830	4440	4100	3790	3510

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3730	2960	2770	2610	2460
-30	3800	3020	2810	2650	2500
-25	3870	3070	2860	2690	2540
-20	3950	3130	2910	2730	2580
-15	4020	3190	2970	2780	2620
-10	4100	3250	3020	2820	2660
-5	4180	3310	3080	2860	2700
0	4260	3370	3130	2920	2740
5	4340	3430	3190	2970	2780
10	4420	3490	3250	3020	2820
15	4500	3560	3310	3080	2870
20	4580	3620	3370	3130	2920
25	4670	3680	3430	3190	2970
30	4760	3750	3490	3240	3020
35	4840	3820	3550	3300	3070
36	4870	3830	3560	3310	3080

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3670	2920	2750	2590	2430
-30	3740	2970	2790	2630	2470
-25	3810	3030	2830	2670	2510
-20	3880	3080	2870	2710	2550
-15	3950	3140	2920	2750	2590
-10	4030	3200	2980	2790	2630
-5	4100	3260	3030	2830	2670
0	4180	3320	3090	2870	2710
5	4260	3370	3140	2930	2750
10	4330	3440	3200	2980	2790
15	4410	3500	3250	3030	2830
20	4490	3560	3310	3080	2870
25	4580	3620	3370	3140	2920
30	4660	3680	3430	3190	2970
35	4740	3750	3490	3250	3020
36	4760	3760	3500	3260	3030

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3530	2840	2680	2520	2370
-30	3600	2880	2720	2560	2410
-25	3660	2920	2760	2600	2450
-20	3720	2970	2800	2640	2490
-15	3790	3020	2840	2680	2530
-10	3860	3080	2880	2720	2560
-5	3930	3130	2920	2760	2600
0	4000	3190	2970	2800	2640
5	4070	3240	3020	2840	2680
10	4140	3300	3070	2880	2720
15	4210	3350	3120	2920	2760
20	4280	3410	3180	2960	2790
25	4360	3470	3230	3010	2830
30	4430	3530	3290	3060	2870
35	4510	3590	3340	3110	2910
36	4530	3600	3350	3130	2920

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3400	2770	2610	2460	2310
-30	3460	2810	2650	2500	2350
-25	3520	2850	2690	2540	2380
-20	3580	2890	2730	2570	2420
-15	3640	2930	2770	2610	2460
-10	3700	2970	2810	2650	2500
-5	3760	3010	2850	2690	2530
0	3830	3060	2890	2730	2570
5	3890	3110	2930	2760	2610
10	3960	3170	2960	2800	2640
15	4020	3220	3000	2840	2680
20	4090	3270	3050	2880	2720
25	4160	3320	3100	2920	2760
30	4220	3380	3150	2950	2790
35	4290	3430	3200	2990	2830
36	4310	3450	3210	3000	2840

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3270	2710	2550	2400	2250
-30	3330	2740	2590	2430	2280
-25	3380	2780	2620	2470	2320
-20	3440	2820	2660	2510	2360
-15	3500	2860	2700	2540	2390
-10	3550	2900	2740	2580	2430
-5	3610	2940	2770	2620	2460
0	3670	2970	2810	2650	2500
5	3730	3010	2850	2690	2540
10	3790	3050	2890	2730	2570
15	3850	3090	2920	2760	2610
20	3910	3140	2960	2800	2640
25	3970	3190	3000	2840	2680
30	4030	3240	3040	2870	2710
35	4100	3290	3070	2910	2750
36	4110	3300	3080	2920	2760

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 15)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
7000 FEET

CONDITIONS: LANDING GEAR - DOWN ANTI-ICE SYSTEMS - ON OR OFF
 SPEED BRAKES - EXTEND AFTER TOUCHDOWN THRUST - IDLE
 AIRSPEED - VREF AT 50 FEET

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS VREF = 100 KIAS VAPP = 106 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3170	2640	2480	2330	2180
-30	3210	2680	2520	2370	2220
-25	3260	2710	2560	2400	2250
-20	3310	2750	2590	2440	2290
-15	3360	2790	2630	2470	2320
-10	3410	2820	2660	2510	2360
-5	3470	2860	2700	2540	2390
0	3520	2900	2740	2580	2430
5	3580	2940	2770	2620	2460
10	3630	2970	2810	2650	2500
15	3690	3010	2850	2690	2530
20	3740	3050	2880	2720	2570
25	3800	3080	2920	2760	2600
30	3850	3120	2950	2790	2640
35	3910	3160	2990	2830	2670
36	3920	3170	3000	2840	2680

WEIGHT = 12500 POUNDS VREF = 99 KIAS VAPP = 104 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3100	2570	2420	2270	2120
-30	3140	2610	2450	2300	2150
-25	3180	2640	2490	2330	2190
-20	3210	2680	2520	2370	2220
-15	3250	2710	2560	2400	2250
-10	3290	2750	2590	2440	2290
-5	3330	2780	2630	2470	2320
0	3380	2820	2660	2510	2360
5	3430	2860	2700	2540	2390
10	3480	2890	2730	2580	2420
15	3530	2930	2770	2610	2460
20	3580	2960	2800	2640	2490
25	3640	3000	2840	2680	2520
30	3690	3040	2870	2710	2560
35	3740	3070	2910	2750	2590
36	3750	3080	2910	2750	2600

WEIGHT = 12000 POUNDS VREF = 97 KIAS VAPP = 102 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3020	2500	2350	2200	2050
-30	3060	2530	2380	2230	2090
-25	3100	2570	2410	2260	2120
-20	3130	2600	2450	2300	2150
-15	3170	2640	2480	2330	2180
-10	3210	2670	2510	2360	2220
-5	3240	2700	2550	2400	2250
0	3280	2740	2580	2430	2280
5	3320	2770	2620	2460	2310
10	3350	2810	2650	2500	2350
15	3390	2840	2680	2530	2380
20	3430	2880	2720	2560	2410
25	3480	2910	2750	2590	2440
30	3530	2950	2790	2630	2470
35	3570	2980	2820	2660	2510
36	3590	2990	2830	2670	2510

WEIGHT = 11500 POUNDS VREF = 95 KIAS VAPP = 100 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	2950	2430	2270	2130	1990
-30	2980	2460	2310	2160	2020
-25	3020	2490	2340	2190	2050
-20	3050	2520	2370	2220	2080
-15	3090	2560	2400	2250	2110
-10	3120	2590	2440	2290	2140
-5	3160	2620	2470	2320	2170
0	3190	2660	2500	2350	2200
5	3230	2690	2530	2380	2240
10	3260	2720	2570	2410	2270
15	3300	2760	2600	2450	2300
20	3330	2790	2630	2480	2330
25	3370	2820	2660	2510	2360
30	3400	2860	2700	2540	2390
35	3440	2890	2730	2570	2420
36	3450	2900	2740	2580	2430

WEIGHT = 11000 POUNDS VREF = 93 KIAS VAPP = 98 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	2870	2350	2200	2060	1920
-30	2900	2380	2230	2090	1950
-25	2940	2420	2270	2120	1980
-20	2970	2450	2300	2150	2010
-15	3000	2480	2330	2180	2040
-10	3040	2510	2360	2210	2070
-5	3070	2540	2390	2240	2100
0	3100	2570	2420	2270	2130
5	3140	2610	2450	2300	2160
10	3170	2640	2480	2330	2190
15	3210	2670	2520	2360	2220
20	3240	2700	2550	2390	2250
25	3270	2730	2580	2420	2280
30	3310	2770	2610	2460	2310
35	3340	2800	2640	2490	2340
36	3350	2800	2650	2490	2340

WEIGHT = 10500 POUNDS VREF = 91 KIAS VAPP = 96 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	2790	2280	2130	1990	1850
-30	2820	2310	2160	2020	1880
-25	2850	2340	2190	2050	1910
-20	2890	2370	2220	2080	1940
-15	2920	2400	2250	2100	1960
-10	2950	2430	2280	2130	1990
-5	2980	2460	2310	2160	2020
0	3020	2490	2340	2190	2050
5	3050	2520	2370	2220	2080
10	3080	2550	2400	2250	2110
15	3110	2580	2430	2280	2140
20	3150	2610	2460	2310	2160
25	3180	2640	2490	2340	2190
30	3210	2670	2520	2370	2220
35	3240	2710	2550	2400	2250
36	3250	2710	2560	2400	2260

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 16)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
8000 FEET**

CONDITIONS: LANDING GEAR - DOWN

SPEED BRAKES - EXTEND AFTER TOUCHDOWN

AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF

THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	4470	3480	3220	2990	2770
-30	4570	3550	3290	3050	2830
-25	4670	3630	3360	3120	2890
-20	4780	3710	3430	3180	2950
-15	4890	3790	3510	3250	3010
-10	5010	3870	3580	3320	3080
-5	5130	3960	3660	3390	3140
0	5250	4040	3730	3460	3210
5	5370	4130	3810	3530	3270
10	5500	4220	3890	3600	3340
15	5630	4310	3980	3680	3410
20	5770	4400	4060	3750	3470
25	5900	4490	4140	3830	3540
30	6050	4590	4230	3910	3620

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3870	3070	2860	2690	2540
-30	3950	3130	2910	2730	2580
-25	4030	3190	2970	2780	2620
-20	4100	3250	3020	2820	2660
-15	4180	3310	3080	2870	2700
-10	4270	3380	3140	2920	2740
-5	4350	3440	3200	2980	2780
0	4430	3500	3260	3030	2830
5	4520	3570	3320	3090	2880
10	4610	3640	3380	3150	2930
15	4700	3700	3440	3200	2980
20	4790	3770	3510	3260	3040
25	4880	3840	3570	3320	3090
30	4970	3910	3630	3380	3150
33	5030	3960	3680	3420	3180

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3810	3020	2830	2670	2510
-30	3880	3080	2870	2710	2550
-25	3960	3140	2920	2750	2590
-20	4030	3200	2980	2790	2630
-15	4110	3260	3030	2830	2670
-10	4190	3320	3090	2880	2720
-5	4270	3380	3150	2930	2760
0	4350	3450	3210	2990	2800
5	4430	3510	3270	3040	2840
10	4520	3570	3330	3100	2880
15	4600	3640	3390	3150	2940
20	4690	3710	3450	3210	2990
25	4780	3770	3510	3270	3040
30	4870	3840	3570	3320	3100
33	4930	3880	3610	3360	3130

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3660	2920	2760	2600	2450
-30	3730	2970	2800	2640	2490
-25	3790	3020	2840	2680	2530
-20	3860	3080	2880	2720	2570
-15	3930	3130	2920	2760	2610
-10	4010	3190	2970	2800	2650
-5	4080	3250	3030	2840	2690
0	4150	3310	3080	2880	2720
5	4230	3370	3140	2930	2760
10	4300	3430	3190	2980	2800
15	4380	3490	3250	3030	2840
20	4460	3550	3300	3080	2880
25	4540	3610	3360	3130	2920
30	4620	3670	3420	3190	2970
33	4670	3710	3460	3220	3000

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3520	2850	2690	2540	2380
-30	3580	2890	2730	2570	2420
-25	3640	2930	2770	2610	2460
-20	3710	2970	2810	2650	2500
-15	3770	3020	2850	2690	2540
-10	3840	3070	2890	2730	2570
-5	3900	3120	2930	2770	2610
0	3970	3180	2970	2810	2650
5	4040	3230	3010	2850	2690
10	4110	3290	3070	2890	2730
15	4180	3340	3120	2930	2770
20	4250	3400	3170	2970	2810
25	4320	3450	3220	3010	2840
30	4390	3510	3280	3060	2880
33	4440	3550	3310	3090	2910

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3380	2780	2620	2470	2320
-30	3440	2820	2660	2510	2360
-25	3500	2860	2700	2540	2390
-20	3560	2900	2740	2580	2430
-15	3620	2940	2780	2620	2470
-10	3680	2980	2820	2660	2500
-5	3740	3020	2860	2700	2540
0	3800	3060	2900	2740	2580
5	3860	3100	2930	2770	2620
10	3930	3150	2970	2810	2650
15	3990	3200	3010	2850	2690
20	4060	3260	3050	2890	2730
25	4120	3310	3090	2920	2760
30	4190	3360	3140	2960	2800
33	4230	3400	3170	2990	2820

56FMC-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 17)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
8000 FEET**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS VREF = 100 KIAS VAPP = 106 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-35	3260	2710	2550 2400 2250		
-30	3310	2750	2590 2440 2290		
-25	3360	2790	2630 2480 2320		
-20	3420	2830	2670 2510 2360		
-15	3470	2870	2700 2550 2400		
-10	3530	2900	2740 2590 2430		
-5	3590	2940	2780 2620 2470		
0	3640	2980	2820 2660 2500		
5	3700	3020	2860 2700 2540		
10	3760	3060	2890 2730 2580		
15	3820	3100	2930 2770 2610		
20	3880	3130	2970 2810 2650		
25	3940	3170	3010 2840 2680		
30	4000	3220	3040 2880 2720		
33	4030	3250	3070 2900 2740		

WEIGHT = 12500 POUNDS VREF = 99 KIAS VAPP = 104 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-35	3180	2640	2490 2330 2190		
-30	3220	2680	2520 2370 2220		
-25	3260	2720	2560 2410 2260		
-20	3300	2750	2590 2440 2290		
-15	3340	2790	2630 2480 2330		
-10	3390	2830	2670 2510 2360		
-5	3440	2860	2700 2550 2400		
0	3490	2900	2740 2580 2430		
5	3550	2940	2780 2620 2470		
10	3600	2970	2810 2650 2500		
15	3650	3010	2850 2690 2530		
20	3710	3050	2890 2730 2570		
25	3760	3090	2920 2760 2600		
30	3820	3120	2960 2800 2640		
33	3850	3150	2980 2820 2660		

WEIGHT = 12000 POUNDS VREF = 97 KIAS VAPP = 102 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-35	3100	2570	2410 2260 2120		
-30	3140	2600	2450 2300 2150		
-25	3170	2640	2480 2330 2180		
-20	3210	2670	2520 2370 2220		
-15	3250	2710	2550 2400 2250		
-10	3290	2750	2590 2430 2290		
-5	3330	2780	2620 2470 2320		
0	3360	2820	2660 2500 2350		
5	3400	2850	2690 2540 2390		
10	3450	2890	2730 2570 2420		
15	3490	2920	2760 2610 2450		
20	3540	2960	2800 2640 2490		
25	3600	3000	2830 2670 2520		
30	3650	3030	2870 2710 2550		
33	3680	3050	2890 2730 2570		

WEIGHT = 11500 POUNDS VREF = 95 KIAS VAPP = 100 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-35	3020	2490	2340 2190 2050		
-30	3060	2530	2370 2220 2080		
-25	3090	2560	2410 2260 2110		
-20	3130	2590	2440 2290 2140		
-15	3160	2630	2470 2320 2180		
-10	3200	2660	2510 2360 2210		
-5	3240	2700	2540 2390 2240		
0	3270	2730	2580 2420 2270		
5	3310	2770	2610 2460 2310		
10	3350	2800	2640 2490 2340		
15	3380	2840	2680 2520 2370		
20	3420	2870	2710 2550 2400		
25	3460	2900	2740 2590 2430		
30	3490	2940	2780 2620 2470		
33	3510	2960	2800 2640 2490		

WEIGHT = 11000 POUNDS VREF = 93 KIAS VAPP = 98 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-35	2940	2420	2270 2120 1980		
-30	2970	2450	2300 2150 2010		
-25	3010	2480	2330 2180 2040		
-20	3040	2510	2360 2210 2070		
-15	3080	2550	2390 2250 2100		
-10	3110	2580	2430 2280 2130		
-5	3150	2610	2460 2310 2160		
0	3180	2650	2490 2340 2190		
5	3220	2680	2520 2370 2220		
10	3250	2710	2560 2400 2260		
15	3290	2750	2590 2440 2290		
20	3320	2780	2620 2470 2320		
25	3360	2810	2650 2500 2350		
30	3390	2840	2690 2530 2380		
33	3410	2870	2710 2550 2400		

WEIGHT = 10500 POUNDS VREF = 91 KIAS VAPP = 96 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-35	2860	2340	2190 2050 1910		
-30	2890	2370	2220 2080 1940		
-25	2920	2400	2250 2110 1970		
-20	2960	2430	2280 2140 2000		
-15	2990	2470	2310 2170 2030		
-10	3020	2500	2350 2200 2050		
-5	3060	2530	2380 2230 2080		
0	3090	2560	2410 2260 2110		
5	3120	2590	2440 2290 2140		
10	3160	2620	2470 2320 2170		
15	3190	2660	2500 2350 2200		
20	3220	2690	2530 2380 2230		
25	3260	2720	2560 2410 2260		
30	3290	2750	2590 2440 2290		
33	3310	2770	2610 2460 2310		

56FMC-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 18)

LANDING DISTANCE - FEET

ACTUAL DISTANCE

FLAPS - LAND 9000 FEET

CONDITIONS: LANDING GEAR - DOWN

SPEED BRAKES - EXTEND AFTER TOUCHDOWN

AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF

THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	4670	3630	3360	3110	2890
-30	4780	3710	3430	3180	2950
-25	4900	3790	3510	3250	3020
-20	5020	3880	3590	3320	3080
-15	5150	3970	3670	3400	3150
-10	5270	4060	3750	3470	3220
-5	5410	4150	3830	3550	3290
0	5540	4240	3920	3620	3360
5	5680	4340	4000	3700	3430
10	5820	4440	4090	3780	3500
15	5970	4540	4180	3860	3570
20		4640	4270	3940	3650
25		4740	4360	4030	3720
26		4760	4380	4040	3740

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	4020	3190	2960	2780	2620
-30	4100	3250	3020	2820	2660
-25	4190	3320	3080	2870	2700
-20	4280	3380	3150	2930	2750
-15	4360	3450	3210	2990	2790
-10	4450	3520	3270	3040	2830
-5	4540	3590	3340	3100	2890
0	4640	3660	3400	3160	2950
5	4730	3730	3470	3220	3000
10	4830	3800	3530	3290	3060
15	4930	3870	3600	3350	3110
20	5020	3950	3670	3410	3170
25	5130	4020	3730	3470	3230
30	5230	4100	3800	3540	3290
31	5250	4120	3820	3550	3300

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3960	3140	2920	2750	2590
-30	4030	3200	2980	2790	2630
-25	4120	3260	3040	2840	2680
-20	4200	3330	3100	2880	2720
-15	4280	3390	3160	2940	2760
-10	4370	3460	3220	3000	2810
-5	4460	3530	3280	3050	2850
0	4550	3600	3340	3110	2900
5	4640	3660	3410	3170	2950
10	4730	3730	3470	3230	3010
15	4820	3800	3540	3290	3060
20	4920	3870	3600	3350	3120
25	5010	3950	3670	3410	3180
30	5110	4020	3730	3470	3230
31	5130	4040	3750	3490	3250

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3790	3020	2840	2680	2530
-30	3860	3080	2880	2720	2570
-25	3940	3140	2930	2770	2610
-20	4020	3200	2980	2810	2650
-15	4090	3260	3040	2850	2690
-10	4170	3320	3090	2890	2730
-5	4250	3380	3150	2940	2780
0	4330	3450	3210	2990	2820
5	4410	3510	3270	3050	2860
10	4500	3570	3330	3100	2900
15	4580	3640	3390	3160	2940
20	4660	3700	3450	3210	2990
25	4750	3770	3510	3270	3050
30	4840	3830	3570	3330	3100
31	4860	3850	3580	3340	3110

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3640	2930	2770	2610	2460
-30	3710	2980	2810	2650	2500
-25	3780	3020	2860	2700	2540
-20	3850	3070	2900	2740	2580
-15	3920	3130	2940	2780	2620
-10	3990	3190	2980	2820	2660
-5	4060	3250	3030	2860	2700
0	4130	3300	3080	2900	2740
5	4210	3360	3140	2940	2780
10	4280	3420	3190	2980	2820
15	4360	3480	3250	3030	2860
20	4430	3540	3300	3080	2900
25	4510	3600	3360	3130	2940
30	4590	3660	3420	3190	2980
31	4610	3680	3430	3200	2990

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3500	2860	2700	2540	2390
-30	3560	2900	2740	2580	2430
-25	3620	2940	2780	2620	2470
-20	3690	2990	2820	2660	2510
-15	3750	3030	2860	2700	2550
-10	3820	3070	2910	2740	2590
-5	3880	3120	2950	2780	2630
0	3950	3170	2990	2820	2670
5	4020	3230	3030	2860	2700
10	4090	3280	3070	2900	2740
15	4150	3330	3110	2940	2780
20	4220	3390	3160	2980	2820
25	4290	3450	3220	3020	2860
30	4370	3500	3270	3060	2900
31	4380	3520	3280	3070	2910

56FMC-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 19)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
9000 FEET**

CONDITIONS: **LANDING GEAR - DOWN**
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS VREF = 100 KIAS VAPP = 106 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3360	2790	2630	2480	2320
-30	3420	2830	2670	2510	2360
-25	3480	2870	2710	2550	2400
-20	3540	2910	2750	2590	2440
-15	3600	2950	2790	2630	2480
-10	3660	2990	2830	2670	2510
-5	3720	3030	2870	2710	2550
0	3780	3070	2910	2750	2590
5	3840	3110	2950	2790	2630
10	3900	3150	2990	2820	2660
15	3970	3200	3030	2860	2700
20	4030	3250	3060	2900	2740
25	4090	3300	3100	2940	2780
30	4160	3350	3140	2980	2810
31	4170	3360	3150	2980	2820

WEIGHT = 12500 POUNDS VREF = 99 KIAS VAPP = 104 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3260	2720	2560	2410	2260
-30	3300	2750	2600	2440	2290
-25	3340	2790	2630	2480	2330
-20	3400	2830	2670	2520	2370
-15	3450	2870	2710	2550	2400
-10	3510	2910	2750	2590	2440
-5	3560	2950	2790	2630	2480
0	3620	2990	2830	2670	2510
5	3680	3030	2870	2710	2550
10	3730	3070	2900	2740	2590
15	3790	3110	2940	2780	2620
20	3850	3140	2980	2820	2660
25	3910	3180	3020	2850	2690
30	3970	3220	3050	2890	2730
31	3980	3230	3060	2900	2740

WEIGHT = 12000 POUNDS VREF = 97 KIAS VAPP = 102 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3180	2640	2480	2330	2180
-30	3220	2680	2520	2370	2220
-25	3260	2710	2560	2400	2250
-20	3300	2750	2590	2440	2290
-15	3340	2790	2630	2480	2330
-10	3380	2830	2670	2510	2360
-5	3420	2870	2710	2550	2400
0	3470	2900	2740	2590	2430
5	3520	2940	2780	2620	2470
10	3570	2980	2820	2660	2500
15	3620	3020	2850	2690	2540
20	3680	3050	2890	2730	2570
25	3730	3090	2920	2760	2610
30	3780	3130	2960	2800	2640
31	3800	3140	2970	2810	2650

WEIGHT = 11500 POUNDS VREF = 95 KIAS VAPP = 100 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3090	2560	2410	2260	2110
-30	3130	2600	2440	2290	2150
-25	3170	2630	2480	2330	2180
-20	3210	2670	2510	2360	2210
-15	3250	2710	2550	2400	2250
-10	3290	2740	2590	2430	2280
-5	3330	2780	2620	2470	2320
0	3360	2820	2660	2500	2350
5	3400	2850	2690	2540	2380
10	3440	2890	2730	2570	2420
15	3480	2920	2760	2610	2450
20	3520	2960	2800	2640	2480
25	3560	3000	2830	2670	2520
30	3610	3030	2870	2710	2550
31	3620	3040	2880	2720	2560

WEIGHT = 11000 POUNDS VREF = 93 KIAS VAPP = 98 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3010	2480	2330	2180	2040
-30	3050	2520	2360	2220	2070
-25	3080	2550	2400	2250	2100
-20	3120	2590	2430	2280	2140
-15	3160	2620	2470	2320	2170
-10	3200	2660	2500	2350	2200
-5	3230	2690	2540	2380	2240
0	3270	2730	2570	2420	2270
5	3310	2760	2610	2450	2300
10	3340	2800	2640	2480	2330
15	3380	2830	2670	2520	2370
20	3420	2870	2710	2550	2400
25	3450	2900	2740	2580	2430
30	3490	2930	2770	2610	2460
31	3500	2940	2780	2620	2470

WEIGHT = 10500 POUNDS VREF = 91 KIAS VAPP = 96 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2930	2410	2250	2110	1970
-30	2960	2440	2290	2140	2000
-25	3000	2470	2320	2170	2030
-20	3030	2500	2350	2200	2060
-15	3070	2540	2390	2240	2090
-10	3100	2570	2420	2270	2120
-5	3140	2610	2450	2300	2150
0	3180	2640	2480	2330	2190
5	3210	2670	2520	2370	2220
10	3250	2710	2550	2400	2250
15	3280	2740	2580	2430	2280
20	3320	2770	2610	2460	2310
25	3350	2800	2650	2490	2340
30	3390	2840	2680	2520	2370
31	3390	2840	2680	2530	2380

56FMC-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 20)

LANDING DISTANCE - FEET

ACTUAL DISTANCE

FLAPS - LAND 10,000 FEET

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPEED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
VREF = 113 KIAS		VAPP = 119 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	4950	3830	3540	3280	3040
-30	5070	3920	3620	3360	3110
-25	5210	4010	3710	3430	3180
-20	5340	4110	3800	3510	3260
-15	5480	4210	3880	3590	3330
-10	5630	4310	3970	3680	3410
-5	5780	4410	4070	3760	3480
0	5930	4510	4160	3840	3560
5	6090	4620	4260	3930	3640
10		4730	4350	4020	3720
15		4840	4450	4110	3800
20		4950	4550	4200	3880
22		5000	4590	4230	3910

WEIGHT = 15200 POUNDS					
VREF = 108 KIAS		VAPP = 114 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	4230	3350	3120	2900	2730
-30	4320	3420	3180	2960	2780
-25	4410	3490	3240	3020	2820
-20	4510	3560	3310	3080	2870
-15	4610	3640	3380	3150	2930
-10	4710	3710	3450	3210	2990
-5	4810	3790	3520	3270	3050
0	4910	3870	3590	3340	3110
5	5020	3940	3660	3410	3170
10	5130	4020	3730	3470	3230
15	5230	4100	3810	3540	3290
20	5340	4180	3880	3610	3360
25	5460	4260	3960	3680	3420
29	5550	4330	4020	3730	3470

WEIGHT = 15000 POUNDS					
VREF = 107 KIAS		VAPP = 113 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	4160	3300	3070	2870	2700
-30	4240	3360	3130	2910	2750
-25	4330	3430	3190	2970	2790
-20	4430	3500	3260	3030	2840
-15	4520	3580	3330	3100	2890
-10	4620	3650	3390	3160	2940
-5	4710	3720	3460	3220	3000
0	4810	3800	3530	3280	3060
5	4910	3870	3600	3350	3120
10	5010	3950	3670	3410	3180
15	5120	4020	3740	3480	3240
20	5220	4100	3810	3540	3300
25	5330	4180	3880	3610	3360
29	5420	4250	3940	3670	3410

WEIGHT = 14500 POUNDS					
VREF = 105 KIAS		VAPP = 111 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3980	3170	2960	2790	2640
-30	4060	3230	3010	2840	2680
-25	4140	3300	3070	2880	2720
-20	4230	3360	3130	2930	2770
-15	4310	3430	3190	2980	2810
-10	4400	3500	3260	3030	2860
-5	4490	3560	3320	3090	2900
0	4570	3630	3380	3150	2950
5	4660	3700	3450	3210	2990
10	4760	3770	3510	3270	3050
15	4850	3840	3580	3330	3100
20	4940	3910	3640	3390	3160
25	5040	3980	3710	3450	3220
29	5120	4040	3760	3500	3270

WEIGHT = 14000 POUNDS					
VREF = 104 KIAS		VAPP = 109 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3820	3050	2890	2720	2570
-30	3890	3110	2930	2770	2610
-25	3960	3170	2970	2810	2650
-20	4040	3230	3020	2850	2690
-15	4120	3290	3070	2900	2740
-10	4200	3350	3130	2940	2780
-5	4280	3420	3190	2990	2820
0	4360	3480	3240	3030	2870
5	4440	3540	3300	3080	2910
10	4520	3610	3360	3140	2950
15	4600	3670	3420	3190	2990
20	4690	3740	3480	3250	3030
25	4770	3800	3540	3310	3080
29	4840	3860	3600	3350	3130

WEIGHT = 13500 POUNDS					
VREF = 102 KIAS		VAPP = 108 KIAS			
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	3660	2980	2810	2650	2500
-30	3730	3020	2850	2690	2540
-25	3800	3060	2900	2740	2580
-20	3870	3110	2940	2780	2620
-15	3940	3160	2990	2820	2660
-10	4010	3220	3030	2870	2700
-5	4080	3280	3070	2910	2750
0	4160	3330	3120	2950	2790
5	4230	3390	3170	2990	2830
10	4310	3450	3220	3030	2870
15	4380	3510	3280	3080	2910
20	4460	3570	3330	3120	2950
25	4530	3630	3390	3170	2990
29	4600	3680	3440	3210	3020

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-48 (Sheet 21)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
10,000 FEET**

CONDITIONS: **LANDING GEAR - DOWN**
SPEED BRAKES - EXTEND AFTER TOUCHDOWN
AIRSPED - VREF AT 50 FEET

ANTI-ICE SYSTEMS - ON OR OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS VREF = 100 KIAS VAPP = 106 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3520	2900	2740	2580	2420
-30	3580	2940	2780	2620	2460
-25	3640	2990	2820	2660	2500
-20	3700	3030	2860	2700	2550
-15	3770	3070	2910	2740	2590
-10	3840	3120	2950	2790	2630
-5	3900	3160	2990	2830	2670
0	3970	3200	3030	2870	2710
5	4040	3250	3080	2910	2750
10	4110	3310	3120	2950	2790
15	4170	3360	3160	2990	2830
20	4240	3420	3200	3030	2870
25	4310	3470	3250	3070	2900
29	4370	3520	3290	3100	2940

WEIGHT = 12500 POUNDS VREF = 99 KIAS VAPP = 104 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3380	2820	2660	2510	2350
-30	3430	2870	2700	2550	2390
-25	3490	2910	2740	2590	2430
-20	3550	2950	2790	2630	2470
-15	3610	2990	2830	2670	2510
-10	3670	3030	2870	2710	2550
-5	3740	3080	2910	2750	2590
0	3800	3120	2950	2790	2630
5	3860	3160	2990	2830	2670
10	3920	3200	3030	2870	2700
15	3980	3240	3070	2900	2740
20	4050	3280	3110	2940	2780
25	4110	3320	3150	2980	2820
29	4160	3360	3180	3010	2850

WEIGHT = 12000 POUNDS VREF = 97 KIAS VAPP = 102 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3290	2740	2590	2430	2280
-30	3330	2780	2620	2470	2320
-25	3380	2820	2660	2510	2350
-20	3420	2860	2700	2550	2390
-15	3470	2910	2740	2580	2430
-10	3520	2950	2780	2620	2470
-5	3570	2990	2820	2660	2510
0	3630	3030	2860	2700	2540
5	3690	3070	2900	2740	2580
10	3740	3110	2940	2780	2620
15	3800	3150	2980	2810	2650
20	3860	3180	3020	2850	2690
25	3920	3220	3050	2890	2730
29	3960	3260	3090	2920	2760

WEIGHT = 11500 POUNDS VREF = 95 KIAS VAPP = 100 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3210	2660	2510	2350	2200
-30	3250	2700	2540	2390	2240
-25	3290	2740	2580	2430	2280
-20	3330	2780	2620	2460	2310
-15	3370	2820	2660	2500	2350
-10	3410	2860	2700	2540	2390
-5	3460	2900	2730	2580	2420
0	3500	2940	2770	2610	2460
5	3540	2970	2810	2650	2490
10	3580	3010	2850	2690	2530
15	3630	3050	2880	2720	2560
20	3680	3090	2920	2760	2600
25	3730	3120	2960	2790	2630
29	3780	3160	2990	2820	2660

WEIGHT = 11000 POUNDS VREF = 93 KIAS VAPP = 98 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3120	2580	2430	2280	2130
-30	3160	2620	2460	2310	2160
-25	3200	2650	2500	2350	2200
-20	3240	2690	2540	2380	2230
-15	3280	2730	2570	2420	2270
-10	3320	2770	2610	2450	2300
-5	3360	2810	2650	2490	2340
0	3400	2840	2680	2530	2370
5	3440	2880	2720	2560	2410
10	3480	2920	2750	2600	2440
15	3520	2950	2790	2630	2470
20	3550	2990	2830	2660	2510
25	3590	3030	2860	2700	2540
29	3620	3060	2890	2730	2570

WEIGHT = 10500 POUNDS VREF = 91 KIAS VAPP = 96 KIAS					
TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	10 KTS	HEADWINDS 20 KTS 30 KTS	
-35	3030	2500	2350	2200	2050
-30	3070	2530	2380	2230	2080
-25	3110	2570	2410	2260	2120
-20	3150	2610	2450	2300	2150
-15	3180	2640	2490	2330	2190
-10	3220	2680	2520	2370	2220
-5	3260	2720	2560	2400	2250
0	3300	2750	2590	2440	2290
5	3340	2790	2630	2470	2320
10	3380	2820	2660	2500	2350
15	3410	2860	2700	2540	2380
20	3450	2890	2730	2570	2420
25	3490	2930	2760	2600	2450
29	3520	2950	2790	2630	2480

56FMC-00-00
 TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure 4-48 (Sheet 22)

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		* 16830					15200					15000					14500					14000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-25	7.3	8.3	8.7	9.1	9.6	8.9	10.2	10.7	11.3	11.9	9.2	10.5	11.0	11.6	12.2	9.7	11.2	11.8	12.4	13.1	10.4	11.9	12.6	13.3	14.0
	-20	7.3	8.3	8.7	9.1	9.6	9.0	10.2	10.8	11.3	11.9	9.2	10.5	11.0	11.6	12.3	9.8	11.2	11.8	12.4	13.1	10.4	12.0	12.6	13.3	14.1
	-15	7.4	8.3	8.7	9.2	9.6	9.0	10.3	10.8	11.4	12.0	9.2	10.6	11.1	11.7	12.3	9.9	11.3	11.8	12.5	13.2	10.5	12.0	12.7	13.3	14.1
	-10	7.4	8.4	8.8	9.2	9.7	9.1	10.3	10.8	11.4	12.0	9.3	10.6	11.1	11.7	12.3	9.9	11.3	11.9	12.5	13.2	10.6	12.1	12.7	13.4	14.1
	-5	7.4	8.4	8.8	9.2	9.7	9.1	10.4	10.9	11.4	12.1	9.4	10.7	11.2	11.8	12.4	10.0	11.4	11.9	12.6	13.2	10.6	12.1	12.8	13.4	14.2
	0	7.5	8.5	8.9	9.3	9.7	9.2	10.4	10.9	11.5	12.1	9.4	10.7	11.2	11.8	12.4	10.0	11.4	12.0	12.6	13.3	10.7	12.2	12.8	13.5	14.2
	5	7.5	8.5	8.9	9.3	9.8	9.2	10.5	11.0	11.5	12.1	9.5	10.7	11.3	11.8	12.5	10.1	11.5	12.0	12.6	13.3	10.7	12.2	12.8	13.5	14.3
	10	7.6	8.5	8.9	9.3	9.8	9.3	10.5	11.0	11.5	12.1	9.5	10.8	11.3	11.9	12.5	10.1	11.5	12.1	12.7	13.3	10.8	12.3	12.9	13.5	14.3
	15	7.6	8.6	8.9	9.3	9.8	9.3	10.5	11.0	11.6	12.2	9.5	10.8	11.3	11.9	12.5	10.1	11.5	12.1	12.7	13.3	10.8	12.3	12.9	13.6	14.3
	20	7.6	8.6	9.0	9.4	9.8	9.3	10.6	11.0	11.6	12.2	9.6	10.8	11.3	11.9	12.5	10.2	11.6	12.1	12.7	13.4	10.8	12.3	12.9	13.6	14.3
10	25	7.2	8.1	8.5	8.9	9.3	8.9	10.1	10.5	11.1	11.6	9.2	10.4	10.8	11.4	11.9	9.8	11.1	11.6	12.2	12.8	10.4	11.8	12.4	13.0	13.7
	30	6.4	7.2	7.5	7.9	8.2	8.0	9.1	9.5	9.9	10.4	8.3	9.3	9.8	10.2	10.7	8.8	10.0	10.5	11.0	11.5	9.5	10.7	11.2	11.8	12.4
	35	5.6	6.3	6.6	6.9	7.2	7.2	8.1	8.4	8.8	9.3	7.4	8.3	8.7	9.1	9.6	7.9	9.0	9.4	9.8	10.3	8.5	9.7	10.1	10.6	11.1
	40	5.0	5.6	5.8	6.1	6.4	6.4	7.2	7.6	7.9	8.3	6.6	7.5	7.8	8.2	8.6	7.2	8.1	8.5	8.9	9.3	7.7	8.7	9.1	9.6	10.1
	45	4.3	4.8	5.0	5.3	5.5	5.7	6.4	6.7	7.0	7.3	5.9	6.6	6.9	7.2	7.6	6.4	7.2	7.5	7.9	8.3	6.9	7.8	8.2	8.6	9.0
	50	3.7	4.1	4.3	4.4	4.7	5.0	5.6	5.8	6.1	6.4	5.1	5.8	6.0	6.3	6.6	5.6	6.3	6.6	6.9	7.3	6.1	6.9	7.2	7.6	8.0
	54	3.1	3.5	3.7	3.8	4.0	4.4	4.9	5.1	5.4	5.6	4.6	5.1	5.3	5.6	5.9	5.0	5.6	5.9	6.2	6.5	5.5	6.2	6.5	6.8	7.1
	58	2.5	2.9	3.1	3.2	3.4	3.9	4.3	4.5	4.8	5.0	4.0	4.5	4.7	4.9	5.2	4.3	4.8	5.1	5.4	5.7	4.7	5.2	5.5	5.8	6.1
	62	1.9	2.3	2.5	2.6	2.8	3.3	3.7	3.9	4.1	4.3	3.4	3.8	4.0	4.2	4.4	3.6	4.0	4.2	4.4	4.6	3.7	4.1	4.3	4.5	4.8
	66	1.3	1.7	1.9	2.0	2.2	2.7	3.1	3.3	3.5	3.7	2.8	3.2	3.4	3.6	3.8	3.0	3.4	3.6	3.8	4.0	3.1	3.5	3.7	3.9	4.2
20	-25	7.5	8.5	8.9	9.4	9.9	9.2	10.5	11.0	11.6	12.2	9.4	10.8	11.3	11.9	12.6	10.0	11.5	12.1	12.7	13.4	10.7	12.3	12.9	13.6	14.4
	-20	7.6	8.6	9.0	9.4	9.9	9.3	10.5	11.1	11.6	12.3	9.5	10.8	11.4	11.9	12.6	10.1	11.5	12.1	12.8	13.5	10.7	12.3	12.9	13.6	14.4
	-15	7.6	8.6	9.0	9.4	9.9	9.3	10.6	11.1	11.7	12.3	9.5	10.9	11.4	12.0	12.6	10.1	11.6	12.2	12.8	13.5	10.8	12.4	13.0	13.7	14.4
	-10	7.7	8.7	9.0	9.5	9.9	9.4	10.6	11.1	11.7	12.3	9.6	10.9	11.4	12.0	12.7	10.2	11.6	12.2	12.8	13.5	10.9	12.4	13.0	13.7	14.5
	-5	7.7	8.7	9.1	9.5	10.0	9.4	10.7	11.2	11.8	12.4	9.6	11.0	11.5	12.1	12.7	10.3	11.7	12.3	12.9	13.6	10.9	12.5	13.1	13.8	14.5
	0	7.7	8.7	9.1	9.6	10.0	9.5	10.7	11.2	11.8	12.4	9.7	11.0	11.5	12.1	12.7	10.3	11.7	12.3	12.9	13.6	11.0	12.5	13.1	13.8	14.6
	5	7.8	8.8	9.2	9.6	10.1	9.5	10.8	11.3	11.8	12.4	9.7	11.1	11.6	12.1	12.8	10.4	11.8	12.3	13.0	13.6	11.0	12.6	13.2	13.8	14.6
	10	7.8	8.8	9.2	9.6	10.1	9.5	10.8	11.3	11.9	12.5	9.8	11.1	11.6	12.2	12.8	10.4	11.8	12.4	13.0	13.7	11.1	12.6	13.2	13.9	14.6
	15	7.8	8.8	9.2	9.6	10.1	9.6	10.8	11.3	11.9	12.5	9.8	11.1	11.6	12.2	12.8	10.4	11.8	12.4	13.0	13.7	11.1	12.6	13.2	13.9	14.6
	20	7.4	8.3	8.7	9.1	9.5	9.1	10.3	10.8	11.3	11.8	9.4	10.6	11.1	11.6	12.2	10.0	11.3	11.8	12.4	13.0	10.6	12.1	12.6	13.3	14.0
30	25	6.6	7.4	7.7	8.1	8.4	8.2	9.3	9.7	10.2	10.7	8.5	9.5	10.0	10.5	11.0	9.0	10.2	10.7	11.2	11.8	9.7	11.0	11.5	12.0	12.7
	30	5.8	6.5	6.8	7.1	7.4	7.4	8.3	8.7	9.1	9.5	7.6	8.5	8.9	9.3	9.8	8.1	9.2	9.6	10.1	10.6	8.7	9.9	10.3	10.8	11.4
	35	5.1	5.7	5.9	6.2	6.5	6.5	7.4	7.7	8.0	8.4	6.7	7.6	7.9	8.3	8.7	7.3	8.2	8.6	9.0	9.4	7.8	8.9	9.3	9.7	10.2
	40	4.4	4.9	5.1	5.4	5.6	5.8	6.5	6.8	7.1	7.5	6.0	6.7	7.0	7.4	7.7	6.5	7.3	7.7	8.0	8.4	7.0	7.9	8.3	8.7	9.1
	45	3.7	4.2	4.4	4.5	4.7	5.1	5.7	5.9	6.2	6.5	5.2	5.9	6.2	6.4	6.7	5.7	6.4	6.7	7.0	7.4	6.2	7.0	7.4	7.7	8.1
	50	3.1	3.4	3.6	3.7	3.9	4.3	4.9	5.1	5.3	5.6	4.5	5.1	5.3	5.5	5.8	5.0	5.6	5.8	6.1	6.4	5.4	6.1	6.4	6.7	7.0
	52	2.8	3.2	3.3	3.4	3.6	4.0	4.5	4.7	4.9	5.2	4.2	4.7	4.9	5.2	5.4	4.7	5.2	5.5	5.7	6.0	5.1	5.8	6.0	6.3	6.6
	56	2.2	2.6	2.7	2.8	3.0	3.5	3.9	4.1	4.3	4.5	3.6	4.0	4.2	4.4	4.6	3.8	4.2	4.4	4.6	4.8	4.0	4.4	4.6	4.8	5.0
	60	1.6	2.0	2.1	2.2	2.4	2.9	3.3	3.5	3.7	3.9	3.0	3.4	3.6	3.8	4.0	3.2	3.6	3.8	4.0	4.2	3.4	3.8	4.0	4.2	4.4
	64	1.0	1.4	1.5	1.6	1.8	2.3	2.7	2.9	3.1	3.3	2.4	2.8	3.0	3.2	3.4	2.6	3.0	3.2	3.4	3.6	2.8	3.2	3.4	3.6	3.8
40	-25	7.7	8.8	9.2	9.6	10.1	9.5	10.8	11.3	11.9	12.5	9.7	11.0	11.6	12.2	12.8	10.3	11.8	12.4	13.0	13.7	11.0	12.6	13.2	13.9	14.7
	-20	7.8	8.8	9.2	9.6	10.1	9.5	10.8	11.3	11.9	12.5	9.7	11.1	11.6	12.2	12.9	10.4	11.8	12.4	13.0	13.7	11.0	12.6	13.2	13.9	14.7
	-15	7.8	8.8	9.2	9.7	10.2	9.6	10.9	11.4	11.9	12.6	9.8	11.1	11.7	12.3	12.9	10.4	11.9	12.4	13.1	13.8	11.1	12.6	13.3	14.0	14.7
	-10	7.9	8.9	9.3	9.7	10.2	9.6	10.9	11.4	12.0	12.6	9.8	11.2	11.7	12.3	12.9	10.5	11.9	12.5	13.1	13.8	11.1	12.7	13.3	14.0	14.8
	-5	7.9	8.9	9.3	9.8	10.2	9.7	11.0	11.5	12.0	12.6	9.9	11.2	11.8	12.3	13.0	10.5	12.0	12.5	13.2	13.9	11.2	12.8	13.4	14.1	14.8
	0	8.0	9.0	9.4	9.8	10.3	9.7	11.0	11.5	12.1	12.7	10.0	11.3	11.8	12.4	13.0	10.6	12.0	12.6	13.2	13.9	11.3	12.8	13.4	14.1	14.9
	5	8.0	9.0	9.4	9.8	10.3	9.8	11.0	11.5	12.1	12.7	10.0	11.3	11.8	12.4	13.0	10.6	12.1	12.6	13.2	13.9	11.3	12.9	13.5	14.1	14.9
	10	8.0	9.0	9.4	9.8	10.3	9.8	11.1	11.6	12.1	12.7	10.0	11.4	11.9	12.4	13.1	10.7	12.1	12.7	13.3	13.9	11.3	12.9	13.5	14.2	14.9
	15	7.6	8.5	8.9	9.3	9.7	9.3	10.5	11.0	11.5	12.1	9.6	10.8	11.3	11.8	12.4	10.2	11.5	12.1	12.6	13.3	10.9	12.3	12.9	13.5	14.2
	20	6.8	7.6	7.9	8.3	8.6	8.4	9.5	9.9	10.4	10.9	8.7	9.8	10.2	10.7	11.2	9.2	10.5	10.9	11.5	12.0	9.9	11.2	11.7	12.3	12.9
50	25	6.0	6.7	7.0	7.3	7.6	7.6	8.																		

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		13500						13000						12500						11500						10500					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
	-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		
0	-25	11.1	12.8	13.4	14.2	15.1	11.8	13.7	14.4	15.2	16.2	12.6	14.6	15.4	16.3	17.4	14.4	16.8	17.8	18.9	20.2	16.6	19.5	20.7	22.1	23.6	16.6	19.5	20.7	22.1	23.6
	-20	11.1	12.8	13.5	14.2	15.1	11.9	13.7	14.4	15.3	16.2	12.7	14.7	15.5	16.4	17.4	14.5	16.9	17.8	18.9	20.2	16.7	19.6	20.8	22.1	23.6	16.7	19.6	20.8	22.1	23.6
	-15	11.2	12.9	13.5	14.3	15.1	11.9	13.8	14.5	15.3	16.2	12.7	14.7	15.5	16.4	17.4	14.6	16.9	17.9	19.0	20.2	16.8	19.6	20.8	22.2	23.7	16.8	19.6	20.8	22.2	23.7
	-10	11.2	12.9	13.6	14.3	15.2	12.0	13.8	14.5	15.4	16.3	12.8	14.8	15.6	16.5	17.5	14.6	17.0	18.0	19.0	20.3	16.8	19.7	20.9	22.2	23.7	16.8	19.7	20.9	22.2	23.7
	-5	11.3	13.0	13.6	14.4	15.2	12.1	13.9	14.6	15.4	16.3	12.9	14.8	15.6	16.5	17.5	14.7	17.1	18.0	19.1	20.3	16.9	19.8	20.9	22.3	23.8	16.9	19.8	20.9	22.3	23.8
	0	11.4	13.0	13.7	14.4	15.2	12.1	13.9	14.6	15.4	16.3	12.9	14.9	15.7	16.6	17.6	14.8	17.1	18.1	19.1	20.3	17.0	19.8	21.0	22.3	23.8	17.0	19.8	21.0	22.3	23.8
	5	11.4	13.1	13.7	14.5	15.3	12.2	14.0	14.7	15.5	16.4	13.0	14.9	15.7	16.6	17.6	14.9	17.2	18.1	19.2	20.4	17.1	19.9	21.1	22.4	23.8	17.1	19.9	21.1	22.4	23.8
	10	11.5	13.1	13.8	14.5	15.3	12.2	14.0	14.7	15.5	16.4	13.0	15.0	15.8	16.6	17.6	14.9	17.2	18.2	19.2	20.4	17.2	20.0	21.1	22.4	23.8	17.2	20.0	21.1	22.4	23.8
	15	11.5	13.1	13.8	14.5	15.3	12.3	14.0	14.7	15.5	16.4	13.1	15.0	15.8	16.6	17.6	15.0	17.3	18.2	19.2	20.4	17.2	20.0	21.1	22.4	23.8	17.2	20.0	21.1	22.4	23.8
	20	11.5	13.2	13.8	14.5	15.3	12.3	14.1	14.8	15.5	16.4	13.1	15.0	15.8	16.7	17.6	15.0	17.3	18.2	19.2	20.4	17.2	20.0	21.2	22.4	23.9	17.2	20.0	21.2	22.4	23.9
	25	11.1	12.7	13.3	14.0	14.7	11.9	13.6	14.2	15.0	15.8	12.7	14.5	15.3	16.1	17.0	14.6	16.8	17.7	18.7	19.8	16.8	19.5	20.6	21.8	23.1	16.8	19.5	20.6	21.8	23.1
	30	10.1	11.5	12.1	12.7	13.4	10.8	12.4	13.0	13.6	14.4	11.6	13.3	14.0	14.7	15.5	13.4	15.4	16.2	17.1	18.1	15.5	17.9	18.9	20.0	21.3	15.5	17.9	18.9	20.0	21.3
	35	9.1	10.4	10.9	11.4	12.0	9.8	11.2	11.7	12.3	13.0	10.6	12.1	12.7	13.3	14.1	12.2	14.0	14.8	15.6	16.5	14.2	16.4	17.3	18.3	19.5	14.2	16.4	17.3	18.3	19.5
	40	8.3	9.4	9.9	10.4	10.9	9.0	10.2	10.7	11.2	11.8	9.7	11.0	11.6	12.2	12.8	11.2	12.9	13.6	14.3	15.1	13.1	15.2	16.0	16.9	17.9	13.1	15.2	16.0	16.9	17.9
	45	7.5	8.5	8.9	9.3	9.8	8.1	9.2	9.6	10.1	10.7	8.8	10.0	10.5	11.0	11.6	10.3	11.8	12.4	13.0	13.8	12.1	13.9	14.7	15.5	16.4	12.1	13.9	14.7	15.5	16.4
	50	6.7	7.5	7.9	8.3	8.7	7.2	8.2	8.6	9.0	9.5	7.9	9.0	9.4	9.9	10.4	9.3	10.6	11.2	11.8	12.4	11.0	12.7	13.3	14.1	14.9	11.0	12.7	13.3	14.1	14.9
	54	6.0	6.8	7.1	7.4	7.8	6.6	7.4	7.8	8.2	8.6	7.2	8.1	8.5	9.0	9.4	8.5	9.7	10.2	10.8	11.4	10.1	11.7	12.3	13.0	13.7	10.1	11.7	12.3	13.0	13.7
10	-25	11.4	13.1	13.8	14.6	15.4	12.1	14.0	14.8	15.6	16.5	13.0	15.0	15.8	16.7	17.8	14.8	17.2	18.2	19.3	20.6	17.0	19.9	21.1	22.5	24.1	17.0	19.9	21.1	22.5	24.1
	-20	11.4	13.1	13.8	14.6	15.4	12.2	14.1	14.8	15.6	16.6	13.0	15.0	15.8	16.8	17.8	14.9	17.3	18.3	19.4	20.6	17.1	20.0	21.2	22.6	24.1	17.1	20.0	21.2	22.6	24.1
	-15	11.5	13.2	13.9	14.6	15.5	12.3	14.1	14.8	15.7	16.6	13.1	15.1	15.9	16.8	17.8	14.9	17.3	18.3	19.4	20.6	17.2	20.1	21.3	22.6	24.1	17.2	20.1	21.3	22.6	24.1
	-10	11.6	13.3	13.9	14.7	15.5	12.3	14.2	14.9	15.7	16.6	13.2	15.1	16.0	16.8	17.8	15.0	17.4	18.4	19.5	20.7	17.3	20.1	21.3	22.7	24.2	17.3	20.1	21.3	22.7	24.2
	-5	11.6	13.3	14.0	14.7	15.6	12.4	14.2	15.0	15.8	16.7	13.2	15.2	16.0	16.9	17.9	15.1	17.5	18.4	19.5	20.7	17.3	20.2	21.4	22.7	24.2	17.3	20.2	21.4	22.7	24.2
	0	11.7	13.4	14.0	14.8	15.6	12.5	14.3	15.0	15.8	16.7	13.3	15.3	16.1	16.9	17.9	15.2	17.5	18.5	19.6	20.8	17.4	20.3	21.4	22.8	24.2	17.4	20.3	21.4	22.8	24.2
	5	11.7	13.4	14.1	14.8	15.6	12.5	14.3	15.0	15.8	16.7	13.3	15.3	16.1	17.0	18.0	15.2	17.6	18.5	19.6	20.8	17.5	20.3	21.5	22.8	24.3	17.5	20.3	21.5	22.8	24.3
	10	11.8	13.4	14.1	14.8	15.6	12.6	14.4	15.1	15.9	16.8	13.4	15.4	16.1	17.0	18.0	15.3	17.6	18.6	19.6	20.8	17.6	20.4	21.5	22.8	24.3	17.6	20.4	21.5	22.8	24.3
	15	11.8	13.5	14.1	14.9	15.7	12.6	14.4	15.1	15.9	16.8	13.4	15.4	16.2	17.0	18.0	15.3	17.7	18.6	19.6	20.8	17.6	20.4	21.6	22.9	24.3	17.6	20.4	21.6	22.9	24.3
	20	11.3	12.9	13.5	14.2	15.0	12.1	13.8	14.5	15.2	16.1	12.9	14.8	15.5	16.4	17.3	14.8	17.1	18.0	19.0	20.1	17.1	19.8	20.9	22.1	23.5	17.1	19.8	20.9	22.1	23.5
	25	10.3	11.8	12.3	12.9	13.6	11.1	12.6	13.2	13.9	14.7	11.9	13.5	14.2	15.0	15.8	13.7	15.7	16.5	17.4	18.4	15.8	18.3	19.3	20.4	21.6	15.8	18.3	19.3	20.4	21.6
	30	9.4	10.6	11.1	11.7	12.3	10.0	11.4	12.0	12.6	13.3	10.8	12.3	12.9	13.6	14.3	12.5	14.3	15.1	15.9	16.8	14.5	16.7	17.7	18.7	19.8	14.5	16.7	17.7	18.7	19.8
	35	8.4	9.6	10.0	10.5	11.1	9.1	10.3	10.8	11.4	12.0	9.8	11.2	11.7	12.3	13.0	11.4	13.1	13.7	14.5	15.3	13.3	15.4	16.2	17.1	18.1	13.3	15.4	16.2	17.1	18.1
	40	7.6	8.6	9.0	9.5	9.9	8.2	9.3	9.8	10.3	10.8	8.9	10.1	10.6	11.2	11.7	10.4	11.9	12.5	13.2	13.9	12.2	14.1	14.8	15.7	16.6	12.2	14.1	14.8	15.7	16.6
	45	6.8	7.7	8.0	8.4	8.8	7.4	8.4	8.7	9.2	9.6	8.0	9.1	9.5	10.0	10.5	9.4	10.8	11.3	11.9	12.6	11.2	12.8	13.5	14.2	15.1	11.2	12.8	13.5	14.2	15.1
	50	6.0	6.7	7.0	7.4	7.7	6.5	7.4	7.7	8.1	8.5	7.1	8.1	8.5	8.9	9.3	8.5	9.7	10.2	10.7	11.3	10.1	11.6	12.2	12.9	13.6	10.1	11.6	12.2	12.9	13.6
	52	5.6	6.4	6.6	7.0	7.3	6.2	7.0	7.3	7.7	8.1	6.8	7.7	8.0	8.4	8.9	8.1	9.2	9.7	10.2	10.7	9.7	11.1	11.7	12.3	13.0	9.7	11.1	11.7	12.3	13.0
20	-25	11.7	13.4	14.1	14.9	15.7	12.4	14.3	15.1	15.9	16.8	13.3	15.3	16.1	17.0	18.1	15.1	17.6	18.6	19.7	20.9	17.4	20.3	21.5	22.9	24.4	17.5	20.4	21.6	22.9	24.5
	-20	11.7	13.4	14.1	14.9	15.7	12.5	14.4	15.1	15.9	16.9	13.3	15.4	16.2	17.1	18.1	15.2	17.6	18.6	19.7	21.0	17.5	20.4	21.6	22.9	24.5	17.6	20.5	21.6	23.0	24.5
	-15	11.8	13.5	14.2	14.9	15.8	12.6	14.4	15.2	16.0	16.9	13.4	15.4	16.2	17.1	18.1	15.3	17.7	18.7	19.8	21.0	17.6	20.5	21.6	23.0	24.5	17.7	20.5	21.6	23.0	24.5
	-10	11.9	13.6	14.2	15.0	15.8	12.6	14.5	15.2	16.0	16.9	13.5	15.5	16.3	17.2	18.2	15.4	17.8	18.7	19.8	21.0	17.6	20.5	21.7	23.0	24.5	17.7	20.5	21.7	23.0	24.5
	-5	11.9	13.6	14.3	15.0	15.9	12.7	14.5	15.3	16.1	17.0	13.5	15.5	16.3	17.2	18.2	15.4	17.8	18.8	19.9	21.1	17.7	20.6	21.8	23.1	24.6	17.7	20.6	21.8	23.1	24.6
	0	12.0	13.7	14.3	15.1	15.9	12.8	14.6	15.3	16.1	17.0	13.6	15.6	16.4	17.3	18.3	15.5	17.9	18.8	19.9	21.1	17.8	20.7	21.8	23.1	24.6	17.8	20.7	21.8	23.1	24.6
	5	12.0	13.7	14.4	15.1	15.9	12.8	14.6	15.4	16.2	17.1	13.7	15.6	16.4	1																

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		* 16830						15200						15000						14500						14000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
4	-30	8.2	9.2	9.6	10.1	10.6	9.9	11.3	11.8	12.4	13.0	10.2	11.6	12.1	12.7	13.4	10.8	12.3	12.9	13.6	14.3	11.5	13.1	13.8	14.5	15.3	11.5	13.2	13.8	14.5	15.3
	-25	8.2	9.3	9.7	10.1	10.6	10.0	11.3	11.8	12.4	13.1	10.2	11.6	12.1	12.7	13.4	10.9	12.4	12.9	13.6	14.3	11.5	13.2	13.8	14.5	15.3	11.6	13.2	13.8	14.5	15.3
	-20	8.3	9.3	9.7	10.2	10.6	10.0	11.4	11.9	12.5	13.1	10.3	11.7	12.2	12.8	13.4	10.9	12.4	13.0	13.6	14.3	11.6	13.2	13.8	14.5	15.3	11.6	13.2	13.8	14.5	15.3
	-15	8.3	9.4	9.8	10.2	10.7	10.1	11.4	11.9	12.5	13.1	10.3	11.7	12.2	12.8	13.5	11.0	12.5	13.0	13.7	14.4	11.7	13.3	13.9	14.6	15.4	11.7	13.3	13.9	14.6	15.4
	-10	8.4	9.4	9.8	10.2	10.7	10.2	11.5	12.0	12.6	13.2	10.4	11.8	12.3	12.9	13.5	11.0	12.5	13.1	13.7	14.4	11.7	13.3	14.0	14.6	15.4	11.8	13.4	14.0	14.7	15.5
	-5	8.4	9.4	9.8	10.3	10.8	10.2	11.5	12.0	12.6	13.2	10.5	11.8	12.3	12.9	13.6	11.1	12.6	13.1	13.8	14.5	11.8	13.4	14.0	14.7	15.5	11.8	13.4	14.0	14.7	15.5
	0	8.5	9.5	9.9	10.3	10.8	10.3	11.6	12.1	12.6	13.3	10.5	11.9	12.4	13.0	13.6	11.2	12.6	13.2	13.8	14.5	11.9	13.4	14.1	14.7	15.5	11.9	13.4	14.1	14.7	15.5
	5	8.0	8.9	9.3	9.7	10.2	9.8	11.0	11.5	12.0	12.6	10.0	11.3	11.8	12.3	12.9	10.7	12.0	12.6	13.2	13.8	11.3	12.8	13.4	14.1	14.8	11.3	12.8	13.4	14.1	14.8
	10	7.1	8.0	8.3	8.7	9.1	8.8	9.9	10.3	10.8	11.3	9.0	10.2	10.6	11.1	11.7	9.7	10.9	11.4	11.9	12.5	10.3	11.7	12.2	12.8	13.4	10.3	11.7	12.2	12.8	13.4
	15	6.4	7.1	7.4	7.7	8.1	8.0	8.9	9.3	9.8	10.2	8.2	9.2	9.6	10.0	10.5	8.8	9.9	10.3	10.8	11.3	9.4	10.6	11.1	11.6	12.2	9.4	10.6	11.1	11.6	12.2
	20	5.6	6.2	6.5	6.8	7.1	7.1	8.0	8.3	8.7	9.1	7.3	8.2	8.6	9.0	9.4	7.9	8.9	9.2	9.7	10.1	8.5	9.5	10.0	10.4	10.9	8.5	9.5	10.0	10.4	10.9
	25	4.8	5.4	5.6	5.8	6.1	6.3	7.0	7.3	7.6	8.0	6.5	7.3	7.6	7.9	8.3	7.0	7.8	8.2	8.6	9.0	7.5	8.5	8.9	9.3	9.7	7.5	8.5	8.9	9.3	9.7
	30	4.1	4.6	4.8	5.0	5.2	5.5	6.1	6.4	6.7	7.0	5.7	6.4	6.6	6.9	7.2	6.2	6.9	7.2	7.5	7.9	6.7	7.5	7.9	8.2	8.6	6.7	7.5	7.9	8.2	8.6
	35	3.4	3.8	4.0	4.1	4.3	4.7	5.3	5.5	5.7	6.0	4.9	5.5	5.7	6.0	6.2	5.4	6.0	6.3	6.6	6.9	5.9	6.6	6.9	7.2	7.5	5.9	6.6	6.9	7.2	7.5
	40	2.8	3.1	3.2	3.3	3.5	4.0	4.5	4.7	4.9	5.1	4.2	4.7	4.9	5.1	5.3	4.6	5.2	5.4	5.6	5.9	5.1	5.7	5.9	6.2	6.5	5.1	5.7	5.9	6.2	6.5
	45	2.2	2.4	2.5	2.6	2.7	3.3	3.7	3.8	4.0	4.2	3.5	3.9	4.0	4.2	4.4	3.9	4.3	4.5	4.7	4.9	4.3	4.9	5.1	5.3	5.5	4.3	4.9	5.1	5.3	5.5
5	-35	8.3	9.4	9.8	10.3	10.8	10.1	11.5	12.0	12.6	13.3	10.4	11.8	12.3	12.9	13.6	11.0	12.5	13.1	13.8	14.5	11.7	13.3	14.0	14.7	15.5	11.7	13.3	14.0	14.7	15.5
	-30	8.4	9.4	9.9	10.3	10.8	10.2	11.5	12.0	12.6	13.3	10.4	11.8	12.4	13.0	13.6	11.1	12.6	13.2	13.8	14.5	11.7	13.4	14.0	14.7	15.5	11.7	13.4	14.0	14.7	15.5
	-25	8.4	9.5	9.9	10.3	10.8	10.2	11.6	12.1	12.7	13.3	10.5	11.9	12.4	13.0	13.7	11.1	12.6	13.2	13.9	14.6	11.8	13.4	14.1	14.8	15.6	11.8	13.4	14.1	14.8	15.6
	-20	8.5	9.5	9.9	10.4	10.9	10.3	11.6	12.1	12.7	13.4	10.5	11.9	12.5	13.0	13.7	11.2	12.7	13.3	13.9	14.6	11.9	13.5	14.1	14.8	15.6	11.9	13.5	14.1	14.8	15.6
	-15	8.5	9.6	10.0	10.4	10.9	10.3	11.7	12.2	12.8	13.4	10.6	12.0	12.5	13.1	13.7	11.2	12.7	13.3	14.0	14.7	11.9	13.5	14.2	14.9	15.6	11.9	13.5	14.2	14.9	15.6
	-10	8.6	9.6	10.0	10.5	11.0	10.4	11.7	12.3	12.8	13.4	10.7	12.0	12.6	13.1	13.8	11.3	12.8	13.4	14.0	14.7	12.0	13.6	14.2	14.9	15.7	12.0	13.6	14.2	14.9	15.7
	-5	8.6	9.7	10.1	10.5	11.0	10.5	11.8	12.3	12.9	13.5	10.7	12.1	12.6	13.2	13.8	11.4	12.8	13.4	14.0	14.7	12.1	13.7	14.3	15.0	15.7	12.1	13.7	14.3	15.0	15.7
	0	8.1	9.1	9.4	9.8	10.3	9.9	11.1	11.6	12.2	12.7	10.1	11.4	11.9	12.5	13.1	10.8	12.2	12.7	13.3	14.0	11.5	13.0	13.6	14.2	14.9	11.5	13.0	13.6	14.2	14.9
	5	7.3	8.2	8.5	8.9	9.3	9.0	10.1	10.6	11.0	11.6	9.2	10.4	10.8	11.3	11.9	9.9	11.1	11.6	12.1	12.7	10.5	11.9	12.4	13.0	13.6	10.5	11.9	12.4	13.0	13.6
	10	6.5	7.2	7.5	7.8	8.2	8.1	9.1	9.5	9.9	10.3	8.3	9.3	9.7	10.2	10.6	8.9	10.0	10.4	10.9	11.4	9.5	10.7	11.2	11.7	12.3	9.5	10.7	11.2	11.7	12.3
	15	5.7	6.4	6.6	6.9	7.2	7.2	8.1	8.5	8.8	9.2	7.5	8.4	8.7	9.1	9.5	8.0	9.0	9.4	9.8	10.3	8.6	9.7	10.1	10.6	11.1	8.6	9.7	10.1	10.6	11.1
	20	5.0	5.5	5.8	6.0	6.2	6.4	7.2	7.5	7.8	8.2	6.6	7.4	7.7	8.1	8.4	7.1	8.0	8.4	8.7	9.2	7.7	8.7	9.1	9.5	9.9	7.7	8.7	9.1	9.5	9.9
	25	4.2	4.7	4.9	5.1	5.3	5.6	6.3	6.5	6.8	7.1	5.8	6.5	6.8	7.0	7.4	6.3	7.1	7.4	7.7	8.0	6.8	7.7	8.0	8.4	8.8	6.8	7.7	8.0	8.4	8.8
	30	3.6	4.0	4.1	4.3	4.5	4.9	5.4	5.7	5.9	6.2	5.0	5.6	5.9	6.1	6.4	5.5	6.2	6.4	6.7	7.0	6.0	6.7	7.0	7.4	7.7	6.0	6.7	7.0	7.4	7.7
	35	2.9	3.2	3.3	3.5	3.6	4.1	4.6	4.8	5.0	5.2	4.3	4.8	5.0	5.2	5.4	4.7	5.3	5.5	5.8	6.0	5.2	5.8	6.1	6.4	6.6	5.2	5.8	6.1	6.4	6.6
	40	2.3	2.5	2.6	2.7	2.8	3.4	3.8	4.0	4.2	4.3	3.6	4.0	4.2	4.4	4.6	4.0	4.5	4.7	4.9	5.1	4.5	5.0	5.2	5.5	5.7	4.5	5.0	5.2	5.5	5.7
42	2.0	2.3	2.3	2.4	2.5	3.2	3.5	3.7	3.8	4.0	3.3	3.7	3.9	4.0	4.2	3.7	4.2	4.3	4.5	4.7	4.2	4.7	4.9	5.1	5.3	4.2	4.7	4.9	5.1	5.3	
6	-35	8.4	9.5	9.9	10.3	10.8	10.2	11.6	12.1	12.7	13.3	10.5	11.8	12.4	13.0	13.7	11.1	12.6	13.2	13.9	14.6	11.8	13.4	14.1	14.8	15.6	11.8	13.4	14.1	14.8	15.6
	-30	8.5	9.5	9.9	10.4	10.9	10.3	11.6	12.1	12.7	13.3	10.5	11.9	12.4	13.0	13.7	11.2	12.6	13.2	13.9	14.6	11.8	13.5	14.1	14.8	15.6	11.9	13.5	14.1	14.8	15.6
	-25	8.5	9.5	9.9	10.4	10.9	10.3	11.6	12.2	12.7	13.3	10.5	11.9	12.5	13.0	13.7	11.2	12.7	13.3	13.9	14.6	11.9	13.5	14.1	14.8	15.6	11.9	13.5	14.1	14.8	15.6
	-20	8.5	9.6	10.0	10.4	10.9	10.3	11.7	12.2	12.8	13.4	10.6	12.0	12.5	13.1	13.7	11.2	12.7	13.3	13.9	14.6	11.9	13.5	14.2	14.9	15.6	11.9	13.5	14.2	14.9	15.6
	-15	8.6	9.6	10.0	10.4	10.9	10.4	11.7	12.2	12.8	13.4	10.6	12.0	12.5	13.1	13.7	11.3	12.8	13.3	14.0	14.7	12.0	13.6	14.2	14.9	15.6	12.0	13.6	14.2	14.9	15.6
	-10	8.6	9.6	10.0	10.4	10.9	10.4	11.7	12.2	12.8	13.4	10.7	12.0	12.5	13.1	13.7	11.3	12.8	13.3	14.0	14.6	12.0	13.6	14.2	14.9	15.6	12.0	13.6	14.2	14.9	15.6
	-5	8.2	9.1	9.5	9.9	10.4	10.0	11.2	11.7	12.2	12.8	10.2	11.5	12.0	12.6	13.1	10.9	12.3	12.8	13.4	14.0	11.6	13.1	13.7	14.3	15.0	11.6	13.1	13.7	14.3	15.0
	0	7.4	8.3	8.6	9.0	9.4	9.1	10.3	10.7	11.2	11.7	9.4	10.5	11.0	11.5	12.0	10.0	11.2	11.7	12.3	12.9	10.7	12.0	12.6	13.1	13.8	10.7	12.0	12.6	13.1	13.8
	5	6.6	7.4	7.7	8.0	8.3	8.2	9.2	9.6	10.1	10.5	8.5	9.5	9.9	10.3	10.8	9.1	10.2	10.6	11.1	11.6	9.7	10.9	11.4	11.9	12.5	9.7	10.9	11.4	11.9	12.5
	10	5.8	6.5	6.7</																											

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																									
		13500					13000					12500					11500					10500					
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30		
4	-30	12.2	14.0	14.7	15.5	16.3	13.0	14.9	15.7	16.5	17.5	13.9	15.9	16.8	17.7	18.7	15.8	18.3	19.3	20.4	21.7	18.1	21.1	22.3	23.7	25.2	
	-25	12.3	14.0	14.7	15.5	16.4	13.1	15.0	15.7	16.6	17.5	13.9	16.0	16.8	17.7	18.8	15.9	18.3	19.3	20.4	21.7	18.2	21.2	22.4	23.7	25.3	
	-20	12.3	14.1	14.8	15.5	16.4	13.1	15.0	15.8	16.6	17.5	14.0	16.0	16.9	17.8	18.8	15.9	18.4	19.4	20.5	21.7	18.3	21.2	22.4	23.8	25.3	
	-15	12.4	14.1	14.8	15.6	16.4	13.2	15.1	15.8	16.7	17.6	14.1	16.1	16.9	17.8	18.8	16.0	18.5	19.4	20.5	21.8	18.4	21.3	22.5	23.8	25.3	
	-10	12.5	14.2	14.9	15.6	16.5	13.3	15.1	15.9	16.7	17.6	14.1	16.2	17.0	17.9	18.9	16.1	18.5	19.5	20.6	21.8	18.5	21.4	22.6	23.9	25.4	
	-5	12.5	14.3	14.9	15.7	16.5	13.3	15.2	15.9	16.8	17.7	14.2	16.2	17.0	17.9	18.9	16.2	18.6	19.6	20.6	21.8	18.5	21.5	22.6	24.0	25.4	
	0	12.6	14.3	15.0	15.7	16.6	13.4	15.3	16.0	16.8	17.7	14.3	16.3	17.1	18.0	19.0	16.3	18.7	19.6	20.7	21.9	18.6	21.5	22.7	24.0	25.5	
	5	12.1	13.7	14.4	15.1	15.8	12.9	14.7	15.4	16.1	17.0	13.8	15.7	16.4	17.3	18.2	15.7	18.0	18.9	20.0	21.1	18.1	20.9	22.0	23.2	24.6	
	10	11.0	12.5	13.1	13.7	14.4	11.8	13.4	14.0	14.7	15.5	12.6	14.3	15.0	15.8	16.6	14.4	16.5	17.4	18.3	19.3	16.7	19.2	20.2	21.4	22.6	
	15	10.0	11.4	11.9	12.5	13.1	10.8	12.2	12.8	13.4	14.1	11.5	13.1	13.7	14.4	15.2	13.3	15.2	16.0	16.8	17.7	15.4	17.7	18.6	19.7	20.8	
20	20	9.1	10.3	10.7	11.2	11.8	9.8	11.1	11.6	12.1	12.8	10.5	11.9	12.5	13.1	13.8	12.2	13.9	14.6	15.3	16.2	14.2	16.3	17.1	18.0	19.1	
	25	8.1	9.2	9.6	10.0	10.5	8.8	9.9	10.4	10.9	11.4	9.5	10.7	11.2	11.8	12.4	11.0	12.6	13.2	13.9	14.6	12.9	14.8	15.6	16.4	17.4	
	30	7.3	8.2	8.5	8.9	9.4	7.9	8.9	9.3	9.7	10.2	8.5	9.6	10.1	10.6	11.1	10.0	11.4	11.9	12.5	13.2	11.8	13.5	14.2	14.9	15.8	
	35	6.4	7.2	7.5	7.9	8.3	7.0	7.9	8.2	8.6	9.0	7.6	8.6	9.0	9.4	9.9	9.0	10.2	10.7	11.3	11.9	10.7	12.2	12.8	13.5	14.3	
	40	5.6	6.3	6.6	6.9	7.2	6.1	6.9	7.2	7.6	7.9	6.7	7.6	7.9	8.3	8.7	8.0	9.1	9.6	10.0	10.6	9.6	11.0	11.5	12.1	12.8	
	45	4.8	5.4	5.6	5.9	6.2	5.3	6.0	6.3	6.5	6.9	5.9	6.6	6.9	7.3	7.6	7.1	8.1	8.5	8.9	9.3	8.6	9.8	10.3	10.9	11.5	
	5	-35	12.4	14.2	14.9	15.7	16.6	13.2	15.2	15.9	16.8	17.7	14.1	16.2	17.0	18.0	19.0	16.0	18.5	19.5	20.7	21.9	18.4	21.4	22.6	24.0	25.6
		-30	12.5	14.2	15.0	15.7	16.6	13.3	15.2	16.0	16.8	17.7	14.2	16.2	17.1	18.0	19.0	16.1	18.6	19.6	20.7	22.0	18.5	21.4	22.7	24.0	25.6
		-25	12.6	14.3	15.0	15.8	16.6	13.4	15.3	16.0	16.9	17.8	14.2	16.3	17.1	18.0	19.1	16.2	18.7	19.6	20.8	22.0	18.5	21.5	22.7	24.1	25.6
		-20	12.6	14.4	15.1	15.8	16.7	13.4	15.3	16.1	16.9	17.8	14.3	16.4	17.2	18.1	19.1	16.3	18.7	19.7	20.8	22.0	18.6	21.6	22.8	24.1	25.7
-15		12.7	14.4	15.1	15.9	16.7	13.5	15.4	16.1	17.0	17.9	14.4	16.4	17.2	18.2	19.2	16.4	18.8	19.8	20.9	22.1	18.7	21.7	22.9	24.2	25.7	
-10		12.8	14.5	15.2	15.9	16.8	13.6	15.5	16.2	17.0	17.9	14.5	16.5	17.3	18.2	19.2	16.5	18.9	19.9	20.9	22.2	18.8	21.8	23.0	24.3	25.8	
-5		12.8	14.5	15.2	16.0	16.8	13.6	15.5	16.3	17.1	18.0	14.5	16.6	17.4	18.3	19.2	16.5	19.0	19.9	21.0	22.2	18.9	21.9	23.0	24.4	25.8	
0		12.2	13.9	14.5	15.2	16.0	13.0	14.8	15.5	16.3	17.1	13.9	15.8	16.6	17.5	18.4	15.9	18.2	19.1	20.1	21.3	18.3	21.1	22.2	23.4	24.8	
5		11.2	12.7	13.3	13.9	14.6	12.0	13.6	14.2	14.9	15.7	12.8	14.6	15.3	16.0	16.9	14.7	16.8	17.6	18.6	19.6	17.0	19.5	20.5	21.7	23.0	
10		10.2	11.5	12.0	12.6	13.2	10.9	12.4	12.9	13.6	14.2	11.7	13.3	13.9	14.6	15.3	13.5	15.4	16.1	17.0	17.9	15.6	17.9	18.8	19.9	21.0	
15	15	9.2	10.4	10.9	11.4	12.0	9.9	11.2	11.7	12.3	12.9	10.7	12.1	12.7	13.3	14.0	12.4	14.1	14.8	15.5	16.4	14.4	16.5	17.3	18.3	19.3	
	20	8.3	9.4	9.8	10.2	10.7	9.0	10.1	10.6	11.1	11.6	9.7	10.9	11.5	12.0	12.6	11.3	12.8	13.4	14.1	14.9	13.2	15.1	15.8	16.7	17.6	
	25	7.4	8.3	8.7	9.1	9.5	8.0	9.0	9.4	9.9	10.4	8.7	9.8	10.3	10.7	11.3	10.2	11.6	12.1	12.7	13.4	12.0	13.7	14.4	15.1	16.0	
	30	6.5	7.4	7.7	8.0	8.4	7.1	8.0	8.4	8.8	9.2	7.8	8.8	9.2	9.6	10.1	9.2	10.4	10.9	11.5	12.1	10.9	12.4	13.0	13.7	14.5	
	35	5.7	6.4	6.7	7.0	7.3	6.3	7.0	7.4	7.7	8.1	6.9	7.7	8.1	8.5	8.9	8.2	9.3	9.7	10.2	10.7	9.8	11.2	11.7	12.3	13.0	
	40	5.0	5.6	5.8	6.1	6.3	5.5	6.2	6.4	6.7	7.0	6.0	6.8	7.1	7.4	7.8	7.3	8.3	8.7	9.1	9.6	8.8	10.0	10.5	11.1	11.7	
	42	4.6	5.2	5.4	5.7	5.9	5.2	5.8	6.1	6.3	6.6	5.7	6.4	6.7	7.0	7.4	6.9	7.9	8.2	8.6	9.1	8.4	9.6	10.1	10.6	11.1	
	6	-35	12.5	14.3	15.0	15.8	16.6	13.3	15.3	16.0	16.9	17.8	14.2	16.3	17.1	18.0	19.1	16.2	18.7	19.6	20.8	22.0	18.5	21.5	22.7	24.1	25.6
		-30	12.6	14.3	15.0	15.8	16.6	13.4	15.3	16.0	16.9	17.8	14.3	16.3	17.1	18.1	19.1	16.2	18.7	19.7	20.8	22.0	18.6	21.6	22.8	24.1	25.6
		-25	12.6	14.4	15.1	15.8	16.7	13.5	15.3	16.1	16.9	17.8	14.3	16.4	17.2	18.1	19.1	16.3	18.7	19.7	20.8	22.0	18.7	21.6	22.8	24.1	25.6
-20		12.7	14.4	15.1	15.9	16.7	13.5	15.4	16.1	16.9	17.8	14.4	16.4	17.2	18.1	19.1	16.4	18.8	19.8	20.8	22.0	18.8	21.7	22.9	24.2	25.7	
-15		12.7	14.5	15.1	15.9	16.7	13.6	15.4	16.2	17.0	17.9	14.4	16.5	17.3	18.1	19.1	16.4	18.8	19.8	20.9	22.1	18.8	21.7	22.9	24.2	25.7	
-10		12.8	14.5	15.1	15.9	16.7	13.6	15.4	16.2	17.0	17.9	14.5	16.5	17.3	18.2	19.1	16.5	18.9	19.8	20.9	22.1	18.9	21.8	22.9	24.2	25.7	
-5		12.3	14.0	14.6	15.3	16.1	13.1	14.9	15.6	16.4	17.2	14.0	15.9	16.7	17.5	18.5	16.0	18.3	19.2	20.2	21.4	18.4	21.2	22.3	23.5	24.9	
0		11.4	12.9	13.4	14.1	14.8	12.1	13.8	14.4	15.1	15.9	13.0	14.7	15.4	16.2	17.1	14.9	17.0	17.8	18.8	19.8	17.1	19.7	20.7	21.9	23.1	
5		10.4	11.7	12.2	12.8	13.4	11.1	12.6	13.1	13.8	14.5	11.9	13.5	14.1	14.8	15.6	13.7	15.6	16.4	17.2	18.2	15.9	18.2	19.1	20.2	21.3	
10		9.4	10.6	11.0	11.6	12.1	10.1	11.4	11.9	12.5	13.1	10.8	12.3	12.8	13.4	14.1	12.5	14.3	14.9	15.7	16.5	14.5	16.7	17.5	18.5	19.5	
10	15	8.5	9.5	10.0	10.4	10.9	9.1	10.3	10.8	11.3	11.8	9.8	11.1	11.6	12.2	12.8	11.4	13.0	13.6	14.3	15.1	13.4	15.3	16.1	16.9	17.9	
	20	7.6	8.5	8.9	9.3	9.7	8.2	9.2	9.6	10.1	10.6	8.9	10.0	10.5	11.0	11.5	10.4	11.8	12.3	13.0	13.6	12.2	13.9	14.6	15.4	16.2	
	25	6.7	7.5	7.8	8.2	8.6	7.3	8.2	8.6	8.9	9.4	7.9	8.9	9.3	9.8	10.2	9.3	10.6	11.1	11.6	12.2	11.1	12.6	13.2	13.9	14.7	
	30	5.9	6.6	6.9	7.2	7.5	6.4	7.2	7.5	7.9	8.2	7.0	7.9	8.3	8.6												

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		* 16830					15200					15000					14500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8	-35	8.6	9.6	10.0	10.4	10.9	10.4	11.7	12.2	12.8	13.4	10.6	12.0	12.5	13.1	13.7	11.3	12.7	13.3	13.9	14.6
0	-30	8.6	9.6	10.0	10.5	10.9	10.4	11.7	12.2	12.8	13.4	10.7	12.0	12.5	13.1	13.7	11.3	12.8	13.3	14.0	14.7
0	-25	8.6	9.7	10.0	10.5	10.9	10.4	11.7	12.3	12.8	13.4	10.7	12.0	12.6	13.1	13.8	11.4	12.8	13.4	14.0	14.7
0	-20	8.3	9.3	9.7	10.1	10.5	10.1	11.3	11.8	12.4	12.9	10.4	11.6	12.1	12.7	13.3	11.0	12.4	12.9	13.5	14.2
0	-15	7.8	8.7	9.1	9.4	9.8	9.5	10.7	11.2	11.6	12.2	9.8	11.0	11.4	12.0	12.5	10.4	11.7	12.2	12.8	13.4
0	-10	7.4	8.3	8.6	9.0	9.3	9.1	10.2	10.6	11.1	11.6	9.3	10.5	10.9	11.4	11.9	10.0	11.2	11.7	12.2	12.8
0	-5	6.9	7.6	7.9	8.3	8.6	8.5	9.5	9.9	10.4	10.8	8.7	9.8	10.2	10.6	11.1	9.3	10.5	10.9	11.4	11.9
0	0	6.1	6.8	7.1	7.4	7.7	7.7	8.6	9.0	9.3	9.8	7.9	8.8	9.2	9.6	10.0	8.5	9.5	9.9	10.3	10.8
0	5	5.3	5.9	6.2	6.4	6.7	6.8	7.6	7.9	8.3	8.6	7.0	7.9	8.2	8.5	8.9	7.6	8.5	8.8	9.2	9.6
0	10	4.6	5.1	5.3	5.5	5.8	6.0	6.7	7.0	7.3	7.6	6.2	6.9	7.2	7.5	7.9	6.7	7.5	7.8	8.2	8.5
0	15	3.9	4.3	4.5	4.7	4.9	5.3	5.9	6.1	6.3	6.6	5.4	6.1	6.3	6.6	6.9	5.9	6.6	6.9	7.2	7.5
0	20	3.2	3.6	3.7	3.9	4.0	4.5	5.0	5.2	5.4	5.6	4.7	5.2	5.4	5.6	5.9	5.1	5.7	6.0	6.2	6.5
0	25	2.6	2.9	3.0	3.1	3.2	3.8	4.2	4.4	4.5	4.7	3.9	4.4	4.6	4.7	4.9	4.4	4.9	5.1	5.3	5.5
0	30	1.9	2.1	2.2	2.3	2.4	3.1	3.4	3.5	3.7	3.8	3.2	3.6	3.7	3.9	4.0	3.6	4.0	4.2	4.4	4.6
0	33	1.6	1.8	1.8	1.9	2.0	2.7	3.0	3.1	3.2	3.4	2.8	3.2	3.3	3.4	3.6	3.2	3.6	3.7	3.9	4.1
9	-35	8.4	9.4	9.8	10.2	10.7	10.2	11.5	12.0	12.5	13.1	10.4	11.7	12.3	12.8	13.4	11.1	12.5	13.1	13.7	14.3
0	-30	8.4	9.4	9.8	10.2	10.7	10.2	11.5	12.0	12.5	13.1	10.5	11.8	12.3	12.8	13.4	11.1	12.5	13.1	13.7	14.3
0	-25	8.1	9.1	9.4	9.8	10.3	9.9	11.1	11.6	12.1	12.6	10.1	11.4	11.9	12.4	13.0	10.8	12.1	12.6	13.2	13.8
0	-20	7.6	8.5	8.9	9.2	9.6	9.4	10.5	10.9	11.4	11.9	9.6	10.8	11.2	11.7	12.3	10.2	11.5	12.0	12.5	13.1
0	-15	7.2	8.0	8.3	8.6	9.0	8.8	9.9	10.3	10.7	11.2	9.1	10.2	10.6	11.0	11.5	9.7	10.9	11.3	11.8	12.4
0	-10	6.8	7.6	7.9	8.2	8.5	8.4	9.4	9.8	10.2	10.7	8.7	9.7	10.1	10.5	11.0	9.2	10.4	10.8	11.3	11.8
0	-5	6.2	6.9	7.2	7.5	7.8	7.8	8.7	9.1	9.5	9.9	8.0	9.0	9.3	9.7	10.2	8.6	9.6	10.0	10.5	10.9
0	0	5.5	6.1	6.3	6.6	6.9	7.0	7.8	8.1	8.5	8.8	7.2	8.0	8.4	8.7	9.1	7.8	8.7	9.0	9.4	9.8
0	5	4.7	5.3	5.5	5.7	5.9	6.2	6.9	7.1	7.4	7.8	6.4	7.1	7.4	7.7	8.0	6.9	7.7	8.0	8.3	8.7
0	10	4.0	4.5	4.7	4.8	5.0	5.4	6.0	6.2	6.5	6.8	5.6	6.2	6.5	6.7	7.0	6.1	6.8	7.0	7.3	7.7
0	15	3.4	3.7	3.9	4.0	4.2	4.6	5.2	5.4	5.6	5.8	4.8	5.4	5.6	5.8	6.0	5.3	5.9	6.1	6.4	6.6
0	20	2.7	3.0	3.1	3.2	3.4	3.9	4.4	4.5	4.7	4.9	4.1	4.5	4.7	4.9	5.1	4.5	5.0	5.2	5.4	5.7
0	25	2.1	2.3	2.4	2.5	2.6	3.2	3.6	3.7	3.8	4.0	3.4	3.7	3.9	4.0	4.2	3.8	4.2	4.4	4.5	4.7
0	30	1.5	1.6	1.7	1.8	1.8	2.6	2.8	2.9	3.1	3.2	2.7	3.0	3.1	3.2	3.4	3.1	3.4	3.6	3.7	3.9
0	31	1.4	1.5	1.6	1.6	1.7	2.4	2.7	2.8	2.9	3.0	2.6	2.9	3.0	3.1	3.2	3.0	3.3	3.4	3.6	3.7
1	-35	8.1	9.1	9.5	9.9	10.3	9.9	11.1	11.6	12.1	12.6	10.1	11.4	11.9	12.4	13.0	10.8	12.1	12.6	13.2	13.8
0	-30	7.9	8.8	9.1	9.5	9.9	9.6	10.8	11.2	11.7	12.2	9.8	11.0	11.5	12.0	12.6	10.5	11.8	12.3	12.8	13.4
0	-25	7.5	8.3	8.7	9.0	9.4	9.2	10.3	10.7	11.2	11.7	9.4	10.5	11.0	11.5	12.0	10.0	11.2	11.7	12.2	12.8
0	-20	7.0	7.8	8.1	8.4	8.8	8.7	9.7	10.1	10.5	11.0	8.9	10.0	10.4	10.8	11.3	9.5	10.7	11.1	11.6	12.1
0	-15	6.6	7.3	7.6	7.9	8.2	8.2	9.1	9.5	9.9	10.3	8.4	9.4	9.7	10.2	10.6	9.0	10.0	10.4	10.9	11.4
0	-10	6.2	6.9	7.2	7.4	7.7	7.8	8.7	9.0	9.4	9.8	8.0	8.9	9.3	9.7	10.1	8.5	9.6	9.9	10.4	10.8
0	-5	5.6	6.2	6.5	6.7	7.0	7.1	7.9	8.3	8.6	9.0	7.3	8.2	8.5	8.9	9.2	7.9	8.8	9.2	9.6	10.0
0	0	4.9	5.4	5.6	5.8	6.1	6.3	7.1	7.3	7.6	8.0	6.5	7.3	7.6	7.9	8.2	7.1	7.9	8.2	8.5	8.9
0	5	4.2	4.6	4.8	5.0	5.2	5.5	6.2	6.4	6.7	6.9	5.7	6.4	6.6	6.9	7.2	6.2	6.9	7.2	7.5	7.8
0	10	3.5	3.9	4.0	4.2	4.3	4.8	5.3	5.5	5.8	6.0	5.0	5.5	5.7	6.0	6.2	5.4	6.1	6.3	6.6	6.8
0	15	2.8	3.1	3.2	3.4	3.5	4.0	4.5	4.7	4.9	5.1	4.2	4.7	4.9	5.1	5.3	4.7	5.2	5.4	5.6	5.8
0	20	2.2	2.4	2.5	2.6	2.7	3.4	3.7	3.9	4.0	4.2	3.5	3.9	4.0	4.2	4.4	3.9	4.4	4.5	4.7	4.9
0	25	1.6	1.7	1.8	1.9	1.9	2.7	3.0	3.1	3.2	3.3	2.8	3.1	3.2	3.4	3.5	3.2	3.6	3.7	3.8	4.0
0	29	1.1	1.2	1.3	1.3	1.4	2.2	2.4	2.5	2.6	2.7	2.3	2.6	2.7	2.8	2.9	2.7	3.0	3.1	3.2	3.4
1	-35	7.6	8.4	8.8	9.1	9.5	9.3	10.4	10.8	11.3	11.8	9.5	10.7	11.1	11.6	12.1	10.1	11.4	11.9	12.4	13.0
1	-30	7.2	8.0	8.4	8.7	9.1	8.9	9.9	10.4	10.8	11.3	9.1	10.2	10.6	11.1	11.6	9.7	10.9	11.4	11.9	12.4
0	-25	6.9	7.6	7.9	8.3	8.6	8.5	9.5	9.9	10.3	10.8	8.7	9.8	10.2	10.6	11.1	9.3	10.4	10.9	11.3	11.9
0	-20	6.4	7.1	7.4	7.7	8.0	8.0	8.9	9.3	9.7	10.1	8.2	9.2	9.6	10.0	10.4	8.8	9.8	10.2	10.7	11.2
0	-15	6.0	6.6	6.9	7.1	7.4	7.5	8.4	8.7	9.1	9.5	7.7	8.6	9.0	9.3	9.7	8.3	9.2	9.6	10.0	10.5
0	-10	5.6	6.3	6.5	6.7	7.0	7.1	8.0	8.3	8.6	9.0	7.4	8.2	8.5	8.9	9.2	7.9	8.8	9.2	9.6	10.0
0	-5	5.1	5.6	5.8	6.0	6.3	6.5	7.2	7.5	7.8	8.2	6.7	7.5	7.8	8.1	8.4	7.2	8.1	8.4	8.7	9.1
0	0	4.4	4.8	5.0	5.2	5.4	5.8	6.4	6.7	6.9	7.2	6.0	6.6	6.9	7.2	7.5	6.5	7.2	7.5	7.8	8.1
0	5	3.7	4.1	4.2	4.4	4.6	5.0	5.6	5.8	6.0	6.3	5.2	5.8	6.0	6.2	6.5	5.7	6.3	6.6	6.8	7.1
0	10	3.0	3.4	3.5	3.6	3.8	4.3	4.8	4.9	5.1	5.3	4.5	4.9	5.1	5.3	5.6	4.9	5.5	5.7	5.9	6.1
0	15	2.4	2.7	2.7	2.8	3.0	3.6	4.0	4.1	4.3	4.4	3.7	4.1	4.3	4.5	4.7	4.2	4.6	4.8	5.0	5.2
0	20	1.8	2.0	2.0	2.1	2.2	2.9	3.2	3.3	3.5	3.6	3.1	3.4	3.5	3.6	3.8	3.5	3.8	4.0	4.1	4.3
0	25	1.2	1.3	1.4	1.4	1.5	2.3	2.5	2.6	2.7	2.8	2.4	2.7	2.8	2.9	3.0	2.8	3.1	3.2	3.3	3.5
0	27	1.0	1.1	1.1	1.2	1.2	2.0	2.2	2.3	2.4	2.5	2.2	2.4	2.5	2.6	2.7	2.5	2.8	2.9	3.0	3.1

56FMC-00-01

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-49 (Sheet 5)

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		13500					13000					12500					11500					10500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8000	-35	12.7	14.4	15.1	15.9	16.7	13.5	15.4	16.1	16.9	17.8	14.4	16.4	17.2	18.1	19.1	16.4	18.8	19.8	20.8	22.0	18.8	21.7	22.9	24.2	25.6
	-30	12.8	14.5	15.2	15.9	16.7	13.6	15.4	16.2	17.0	17.9	14.5	16.5	17.3	18.2	19.1	16.5	18.9	19.8	20.9	22.1	18.9	21.7	22.9	24.2	25.7
	-25	12.8	14.5	15.2	15.9	16.7	13.6	15.5	16.2	17.0	17.9	14.5	16.5	17.3	18.2	19.1	16.5	18.9	19.9	20.9	22.1	18.9	21.8	23.0	24.2	25.7
	-20	12.4	14.1	14.7	15.4	16.2	13.3	15.0	15.7	16.5	17.3	14.1	16.0	16.8	17.6	18.6	16.1	18.4	19.3	20.3	21.4	18.5	21.2	22.4	23.6	25.0
	-15	11.8	13.3	13.9	14.6	15.3	12.6	14.3	14.9	15.6	16.4	13.5	15.3	16.0	16.8	17.6	15.4	17.5	18.4	19.4	20.4	17.7	20.3	21.3	22.5	23.8
	-10	11.3	12.8	13.3	14.0	14.7	12.1	13.7	14.3	15.0	15.7	12.9	14.6	15.3	16.1	16.9	14.8	16.8	17.7	18.6	19.6	17.0	19.5	20.5	21.6	22.9
	-5	10.7	12.0	12.6	13.1	13.8	11.4	12.9	13.5	14.1	14.8	12.2	13.8	14.5	15.2	15.9	14.0	16.0	16.7	17.6	18.5	16.2	18.6	19.5	20.5	21.7
	0	9.7	11.0	11.4	12.0	12.5	10.5	11.8	12.3	12.9	13.5	11.2	12.7	13.3	13.9	14.6	13.0	14.7	15.4	16.2	17.0	15.0	17.2	18.0	19.0	20.0
	5	8.8	9.9	10.3	10.8	11.3	9.5	10.7	11.1	11.6	12.2	10.2	11.5	12.0	12.6	13.2	11.8	13.4	14.1	14.8	15.5	13.8	15.8	16.5	17.4	18.3
	10	7.9	8.8	9.2	9.6	10.1	8.5	9.6	10.0	10.4	10.9	9.2	10.4	10.8	11.3	11.9	10.7	12.2	12.7	13.4	14.0	12.6	14.3	15.1	15.8	16.7
	15	7.0	7.8	8.2	8.5	8.9	7.6	8.5	8.9	9.3	9.7	8.2	9.3	9.7	10.1	10.6	9.7	11.0	11.5	12.1	12.7	11.5	13.0	13.7	14.4	15.1
	20	6.1	6.9	7.2	7.5	7.8	6.7	7.5	7.9	8.2	8.6	7.3	8.2	8.6	9.0	9.4	8.7	9.8	10.3	10.8	11.3	10.4	11.8	12.3	13.0	13.6
9000	25	5.3	6.0	6.2	6.5	6.8	5.9	6.6	6.9	7.2	7.5	6.4	7.2	7.6	7.9	8.3	7.8	8.8	9.2	9.6	10.1	9.3	10.6	11.1	11.6	12.2
	30	4.5	5.1	5.3	5.5	5.7	5.0	5.6	5.9	6.1	6.4	5.6	6.3	6.5	6.8	7.1	6.8	7.7	8.0	8.4	8.8	8.3	9.4	9.8	10.3	10.8
	33	4.1	4.6	4.8	5.0	5.2	4.6	5.2	5.4	5.6	5.9	5.1	5.8	6.0	6.3	6.6	6.3	7.1	7.4	7.8	8.2	7.7	8.8	9.2	9.6	10.1
	-35	12.5	14.2	14.8	15.5	16.3	13.3	15.1	15.8	16.6	17.5	14.2	16.1	16.9	17.8	18.7	16.2	18.5	19.4	20.5	21.6	18.5	21.3	22.5	23.7	25.1
	-30	12.6	14.2	14.8	15.6	16.3	13.4	15.1	15.8	16.6	17.5	14.2	16.2	16.9	17.8	18.7	16.2	18.5	19.4	20.5	21.6	18.6	21.4	22.5	23.7	25.1
	-25	12.2	13.8	14.4	15.1	15.8	13.0	14.7	15.4	16.1	16.9	13.9	15.7	16.5	17.3	18.2	15.8	18.1	18.9	19.9	21.0	18.2	20.9	21.9	23.2	24.5
	-20	11.6	13.1	13.7	14.3	15.0	12.4	14.0	14.7	15.4	16.1	13.2	15.0	15.7	16.5	17.3	15.2	17.3	18.1	19.0	20.1	17.4	20.0	21.0	22.2	23.4
	-15	11.0	12.4	13.0	13.6	14.2	11.8	13.3	13.9	14.5	15.3	12.6	14.2	14.9	15.6	16.4	14.4	16.4	17.2	18.1	19.0	16.6	19.1	20.0	21.1	22.3
	-10	10.6	11.9	12.4	13.0	13.6	11.3	12.7	13.3	13.9	14.6	12.1	13.7	14.3	15.0	15.7	13.9	15.8	16.5	17.3	18.3	16.0	18.3	19.2	20.3	21.4
	-5	9.9	11.1	11.6	12.1	12.7	10.6	11.9	12.4	13.0	13.6	11.4	12.8	13.4	14.0	14.7	13.1	14.9	15.6	16.3	17.2	15.2	17.3	18.2	19.1	20.2
	0	9.0	10.1	10.5	11.0	11.5	9.6	10.9	11.3	11.8	12.4	10.4	11.7	12.2	12.8	13.4	12.0	13.6	14.3	15.0	15.7	14.0	16.0	16.8	17.6	18.6
	5	8.0	9.0	9.4	9.8	10.2	8.7	9.7	10.2	10.6	11.1	9.4	10.5	11.0	11.5	12.1	10.9	12.4	12.9	13.6	14.2	12.8	14.6	15.3	16.0	16.9
10000	10	7.2	8.0	8.4	8.7	9.1	7.8	8.7	9.1	9.5	9.9	8.4	9.5	9.9	10.3	10.8	9.9	11.2	11.7	12.3	12.9	11.7	13.3	13.9	14.6	15.4
	15	6.3	7.1	7.3	7.7	8.0	6.9	7.7	8.0	8.4	8.8	7.5	8.4	8.8	9.2	9.6	8.9	10.1	10.5	11.0	11.5	10.6	12.0	12.6	13.2	13.9
	20	5.5	6.1	6.4	6.7	7.0	6.0	6.8	7.0	7.3	7.7	6.6	7.4	7.7	8.1	8.5	7.9	9.0	9.4	9.8	10.3	9.5	10.8	11.3	11.9	12.5
	25	4.7	5.2	5.5	5.7	5.9	5.2	5.8	6.1	6.3	6.6	5.8	6.5	6.7	7.0	7.4	7.0	7.9	8.2	8.6	9.0	8.5	9.6	10.1	10.6	11.1
	30	4.0	4.4	4.6	4.8	5.0	4.4	5.0	5.2	5.4	5.6	5.0	5.6	5.8	6.1	6.3	6.2	6.9	7.2	7.6	7.9	7.6	8.5	8.9	9.4	9.8
	31	3.8	4.3	4.4	4.6	4.8	4.3	4.8	5.0	5.2	5.4	4.8	5.4	5.6	5.9	6.1	6.0	6.7	7.0	7.3	7.7	7.4	8.3	8.7	9.1	9.6
	-35	12.2	13.8	14.4	15.1	15.8	13.0	14.7	15.4	16.1	16.9	13.8	15.7	16.4	17.3	18.2	15.8	18.0	18.9	19.9	21.0	18.1	20.8	21.9	23.1	24.4
	-30	11.9	13.4	14.0	14.6	15.4	12.7	14.3	15.0	15.7	16.4	13.5	15.3	16.0	16.8	17.6	15.4	17.6	18.4	19.4	20.4	17.7	20.3	21.4	22.5	23.8
	-25	11.4	12.8	13.4	14.0	14.7	12.2	13.7	14.3	15.0	15.8	13.0	14.7	15.4	16.1	16.9	14.9	16.9	17.7	18.6	19.6	17.1	19.6	20.6	21.7	22.9
	-20	10.8	12.2	12.7	13.3	13.9	11.6	13.1	13.7	14.3	15.0	12.4	14.0	14.7	15.3	16.1	14.2	16.2	16.9	17.8	18.7	16.4	18.8	19.7	20.8	21.9
	-15	10.3	11.5	12.0	12.6	13.2	11.0	12.4	12.9	13.5	14.1	11.8	13.3	13.9	14.5	15.2	13.5	15.3	16.1	16.9	17.7	15.6	17.9	18.7	19.7	20.8
	-10	9.8	11.0	11.5	12.0	12.5	10.5	11.8	12.3	12.9	13.5	11.3	12.7	13.3	13.9	14.6	13.0	14.7	15.4	16.2	17.0	15.0	17.2	18.0	18.9	19.9
11000	-5	9.1	10.2	10.6	11.1	11.6	9.8	11.0	11.5	12.0	12.6	10.5	11.9	12.4	12.9	13.6	12.2	13.8	14.4	15.1	15.9	14.2	16.2	16.9	17.8	18.8
	0	8.2	9.2	9.6	10.0	10.5	8.9	10.0	10.4	10.8	11.3	9.6	10.8	11.2	11.7	12.3	11.2	12.6	13.2	13.8	14.5	13.0	14.8	15.5	16.3	17.2
	5	7.3	8.2	8.5	8.9	9.3	7.9	8.9	9.3	9.7	10.1	8.6	9.7	10.1	10.5	11.0	10.1	11.4	11.9	12.5	13.1	11.9	13.5	14.2	14.9	15.6
	10	6.5	7.2	7.5	7.9	8.2	7.1	7.9	8.2	8.6	9.0	7.7	8.6	9.0	9.4	9.8	9.1	10.3	10.7	11.2	11.8	10.8	12.3	12.8	13.5	14.1
	15	5.6	6.3	6.6	6.8	7.1	6.2	6.9	7.2	7.5	7.9	6.8	7.6	7.9	8.3	8.6	8.1	9.1	9.5	10.0	10.5	9.7	11.0	11.5	12.1	12.7
	20	4.9	5.4	5.6	5.9	6.1	5.4	6.0	6.3	6.5	6.8	5.9	6.6	6.9	7.2	7.6	7.2	8.1	8.5	8.8	9.3	8.7	9.8	10.3	10.8	11.3
	25	4.1	4.5	4.7	4.9	5.1	4.6	5.1	5.3	5.5	5.8	5.1	5.7	5.9	6.2	6.5	6.3	7.1	7.4	7.7	8.1	7.7	8.7	9.1	9.5	10.0
	29	3.5	3.9	4.1	4.2	4.4	4.0	4.5	4.6	4.8	5.0	4.5	5.0	5.2	5.5	5.7	5.6	6.3	6.6	6.9	7.2	7.0	7.9	8.2	8.6	9.1
	-35	11.5	13.0	13.5	14.2	14.8	12.3	13.9	14.5	15.2	15.9	13.1	14.8	15.5	16.3	17.1	15.0	17.1	17.9	18.8	19.8	17.2	19.7	20.8	21.9	23.1
	-30	11.1	12.5	13.0	13.6	14.2	11.8	13.3	13.9	14.6	15.3	12.6	14.3	14.9	15.6	16.4	14.5	16.4	17.2	18.1	19.0	16.7	19.1	20.0	21.1	22.3
	-25	10.6	12.0	12.5	13.0	13.6	11.4	12.8	13.4	14.0	14.7	12.2	13.7	14.3	15.0	15.8	14.0	15.8	16.6	17.4	18.3	16.1	18.4	19.3	20.3	21.4
	-20	10.1	11.3	11.8	12.3	12.9	10.8	12.2	12.7	13.3	13.9	11.6	13.1	13.6	14.3	15.0	13.3	15.1	15.8	16.6	17.4	15.4	17.6	18.5	19.4	20.5
-15	9.5	10.7	11.1	11.6	12.1	10.2	11.5	12.0	12.5	13.1	11.0	12.3	12.9	13.5	14.1	12.7	14.3	15.0	15.7	16.5	14.7	16.7	17.5	18.4	19.4	
-10	9.1	10.2	10.6	11.1	11.6	9.8	11.0	11.4	12.0	12.5	10.5	11.8	12.3	12.9	13.5	12.2	13.7	14.4	15.1	15.8	14.1	16.1</				

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		* 16830						15200						15000						14500						14000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
	-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		
1	-35	7.0	7.8	8.1	8.4	8.7	8.6	9.6	10.0	10.4	10.9	8.8	9.9	10.3	10.7	11.2	9.4	10.6	11.0	11.5	12.0	10.1	11.3	11.8	12.3	12.9	10.1	11.3	11.8	12.3	12.9
2	-30	6.6	7.3	7.6	7.9	8.2	8.2	9.2	9.5	9.9	10.4	8.4	9.4	9.8	10.2	10.7	9.0	10.1	10.5	10.9	11.4	9.6	10.8	11.2	11.7	12.3	9.6	10.8	11.2	11.7	12.3
0	-25	6.3	7.0	7.2	7.5	7.8	7.8	8.7	9.1	9.5	9.9	8.0	9.0	9.3	9.7	10.1	8.6	9.6	10.0	10.4	10.9	9.2	10.3	10.7	11.2	11.7	9.2	10.3	10.7	11.2	11.7
0	-20	5.8	6.5	6.7	7.0	7.2	7.4	8.2	8.5	8.9	9.2	7.6	8.4	8.8	9.1	9.5	8.1	9.1	9.4	9.8	10.2	8.7	9.7	10.1	10.6	11.0	8.7	9.7	10.1	10.6	11.0
0	-15	5.4	6.0	6.2	6.4	6.7	6.9	7.7	8.0	8.3	8.6	7.1	7.9	8.2	8.5	8.9	7.6	8.5	8.8	9.2	9.6	8.2	9.1	9.5	9.9	10.4	8.2	9.1	9.5	9.9	10.4
0	-10	5.1	5.6	5.8	6.0	6.3	6.5	7.3	7.5	7.8	8.2	6.7	7.5	7.8	8.1	8.4	7.3	8.1	8.4	8.7	9.1	7.8	8.7	9.1	9.4	9.9	7.8	8.7	9.1	9.4	9.9
0	-5	4.5	5.0	5.2	5.4	5.6	5.9	6.6	6.8	7.1	7.4	6.1	6.8	7.1	7.3	7.6	6.6	7.4	7.7	8.0	8.3	7.2	8.0	8.3	8.6	9.0	7.2	8.0	8.3	8.6	9.0
0	0	3.9	4.3	4.4	4.6	4.8	5.2	5.8	6.0	6.2	6.5	5.4	6.0	6.2	6.5	6.7	5.9	6.5	6.8	7.0	7.3	6.4	7.1	7.4	7.7	8.0	6.4	7.1	7.4	7.7	8.0
0	5	3.2	3.6	3.7	3.8	4.0	4.5	5.0	5.2	5.4	5.6	4.7	5.2	5.4	5.6	5.8	5.1	5.7	5.9	6.1	6.4	5.6	6.2	6.5	6.7	7.0	5.6	6.2	6.5	6.7	7.0
0	10	2.6	2.9	3.0	3.1	3.2	3.8	4.2	4.3	4.5	4.7	3.9	4.4	4.5	4.7	4.9	4.4	4.9	5.0	5.2	5.4	4.8	5.4	5.6	5.8	6.0	4.8	5.4	5.6	5.8	6.0
0	15	2.0	2.2	2.3	2.3	2.4	3.1	3.4	3.6	3.7	3.9	3.3	3.6	3.8	3.9	4.1	3.7	4.1	4.2	4.4	4.6	4.1	4.6	4.7	4.9	5.1	4.1	4.6	4.7	4.9	5.1
0	20	1.4	1.5	1.6	1.6	1.7	2.5	2.7	2.8	2.9	3.0	2.6	2.9	3.0	3.1	3.2	3.0	3.3	3.4	3.6	3.7	3.4	3.8	3.9	4.1	4.2	3.4	3.8	3.9	4.1	4.2
0	25	0.9	0.9	1.0	1.0	1.1	1.9	2.1	2.1	2.2	2.3	2.0	2.2	2.3	2.4	2.5	2.4	2.6	2.7	2.8	2.9	2.8	3.1	3.2	3.3	3.4	2.8	3.1	3.2	3.3	3.4
1	-35	6.4	7.1	7.3	7.6	7.9	7.9	8.8	9.2	9.6	10.0	8.1	9.1	9.5	9.8	10.3	8.7	9.7	10.1	10.6	11.0	9.3	10.4	10.9	11.3	11.9	9.3	10.4	10.9	11.3	11.9
3	-30	6.0	6.7	6.9	7.2	7.5	7.6	8.4	8.7	9.1	9.5	7.8	8.7	9.0	9.4	9.8	8.3	9.3	9.7	10.1	10.5	8.9	10.0	10.4	10.8	11.3	8.9	10.0	10.4	10.8	11.3
0	-25	5.7	6.3	6.5	6.8	7.1	7.2	8.0	8.3	8.6	9.0	7.4	8.2	8.6	8.9	9.3	7.9	8.9	9.2	9.6	10.0	8.5	9.5	9.9	10.3	10.8	8.5	9.5	9.9	10.3	10.8
0	-20	5.3	5.8	6.0	6.3	6.5	6.7	7.5	7.8	8.1	8.4	6.9	7.7	8.0	8.3	8.7	7.5	8.3	8.6	9.0	9.4	8.0	9.0	9.3	9.7	10.1	8.0	9.0	9.3	9.7	10.1
0	-15	4.9	5.4	5.6	5.8	6.0	6.3	7.0	7.2	7.5	7.8	6.5	7.2	7.5	7.8	8.1	7.0	7.8	8.1	8.4	8.8	7.5	8.4	8.7	9.1	9.5	7.5	8.4	8.7	9.1	9.5
0	-10	4.5	5.0	5.2	5.4	5.6	5.9	6.6	6.8	7.1	7.4	6.1	6.8	7.0	7.3	7.6	6.6	7.4	7.6	7.9	8.3	7.2	8.0	8.3	8.6	9.0	7.2	8.0	8.3	8.6	9.0
0	-5	4.0	4.4	4.6	4.7	4.9	5.4	5.9	6.2	6.4	6.6	5.5	6.1	6.4	6.6	6.9	6.0	6.7	6.9	7.2	7.5	6.5	7.3	7.6	7.9	8.2	6.5	7.3	7.6	7.9	8.2
0	0	3.4	3.7	3.9	4.0	4.2	4.7	5.2	5.4	5.6	5.8	4.8	5.4	5.6	5.8	6.0	5.3	5.9	6.1	6.3	6.6	5.8	6.4	6.7	7.0	7.2	5.8	6.4	6.7	7.0	7.2
0	5	2.8	3.0	3.2	3.3	3.4	4.0	4.4	4.6	4.7	4.9	4.1	4.6	4.8	4.9	5.1	4.6	5.1	5.3	5.5	5.7	5.0	5.6	5.8	6.0	6.3	5.0	5.6	5.8	6.0	6.3
0	10	2.2	2.4	2.5	2.5	2.6	3.3	3.6	3.8	3.9	4.1	3.5	3.8	4.0	4.1	4.3	3.9	4.3	4.4	4.6	4.8	4.3	4.8	5.0	5.2	5.4	4.3	4.8	5.0	5.2	5.4
0	15	1.6	1.7	1.8	1.9	1.9	2.7	2.9	3.0	3.2	3.3	2.8	3.1	3.2	3.3	3.5	3.2	3.5	3.7	3.8	4.0	3.6	4.0	4.2	4.3	4.5	3.6	4.0	4.2	4.3	4.5
0	20	1.0	1.1	1.1	1.2	1.2	2.0	2.2	2.3	2.4	2.5	2.2	2.4	2.5	2.6	2.7	2.5	2.8	2.9	3.0	3.1	2.9	3.3	3.4	3.5	3.6	2.9	3.3	3.4	3.5	3.6
0	23	0.7	0.8	0.8	0.8	0.8	1.7	1.8	1.9	2.0	2.1	1.8	2.0	2.1	2.1	2.2	2.2	2.4	2.5	2.6	2.7	2.5	2.8	2.9	3.0	3.2	2.5	2.8	2.9	3.0	3.2
1	-35	5.8	6.4	6.6	6.9	7.2	7.3	8.1	8.4	8.8	9.1	7.5	8.4	8.7	9.0	9.4	8.0	9.0	9.3	9.7	10.1	8.6	9.6	10.0	10.5	10.9	8.6	9.6	10.0	10.5	10.9
4	-30	5.4	6.0	6.2	6.5	6.7	6.9	7.7	8.0	8.3	8.6	7.1	7.9	8.2	8.6	8.9	7.6	8.5	8.9	9.2	9.6	8.2	9.2	9.5	9.9	10.4	8.2	9.2	9.5	9.9	10.4
0	-25	5.1	5.7	5.9	6.1	6.3	6.6	7.3	7.6	7.9	8.2	6.8	7.5	7.8	8.1	8.5	7.3	8.1	8.4	8.8	9.1	7.8	8.7	9.1	9.5	9.9	7.8	8.7	9.1	9.5	9.9
0	-20	4.7	5.2	5.4	5.6	5.8	6.1	6.8	7.0	7.3	7.6	6.3	7.0	7.3	7.6	7.9	6.8	7.6	7.9	8.2	8.5	7.4	8.2	8.5	8.9	9.3	7.4	8.2	8.5	8.9	9.3
0	-15	4.3	4.8	5.0	5.1	5.3	5.7	6.3	6.5	6.8	7.1	5.9	6.5	6.8	7.0	7.3	6.4	7.1	7.3	7.6	8.0	6.9	7.7	8.0	8.3	8.6	6.9	7.7	8.0	8.3	8.6
0	-10	4.1	4.5	4.6	4.8	5.0	5.4	6.0	6.2	6.4	6.7	5.6	6.2	6.4	6.6	6.9	6.0	6.7	7.0	7.2	7.5	6.6	7.3	7.6	7.9	8.2	6.6	7.3	7.6	7.9	8.2
0	-5	3.5	3.9	4.0	4.1	4.3	4.8	5.3	5.5	5.7	5.9	5.0	5.5	5.7	5.9	6.2	5.4	6.0	6.3	6.5	6.8	5.9	6.6	6.8	7.1	7.4	5.9	6.6	6.8	7.1	7.4
0	0	2.9	3.2	3.3	3.4	3.6	4.1	4.6	4.7	4.9	5.1	4.3	4.8	4.9	5.1	5.3	4.7	5.3	5.5	5.7	5.9	5.2	5.8	6.0	6.2	6.5	5.2	5.8	6.0	6.2	6.5
0	5	2.3	2.5	2.6	2.7	2.8	3.5	3.8	4.0	4.1	4.3	3.6	4.0	4.2	4.3	4.5	4.0	4.5	4.6	4.8	5.0	4.5	5.0	5.2	5.4	5.6	4.5	5.0	5.2	5.4	5.6
0	10	1.7	1.9	2.0	2.0	2.1	2.8	3.1	3.2	3.4	3.5	3.0	3.3	3.4	3.5	3.7	3.4	3.7	3.9	4.0	4.2	3.8	4.2	4.4	4.5	4.7	3.8	4.2	4.4	4.5	4.7
0	15	1.2	1.3	1.3	1.4	1.4	2.2	2.5	2.5	2.6	2.7	2.4	2.6	2.7	2.8	2.9	2.7	3.0	3.1	3.3	3.4	3.1	3.5	3.6	3.7	3.9	3.1	3.5	3.6	3.7	3.9
0	20	0.7	0.7	0.7	0.8	0.8	1.6	1.8	1.9	1.9	2.0	1.8	2.0	2.0	2.1	2.2	2.1	2.4	2.4	2.5	2.6	2.5	2.8	2.9	3.0	3.1	2.5	2.8	2.9	3.0	3.1
0	21	0.5	0.6	0.6	0.6	0.6	1.5	1.7	1.7	1.8	1.8	1.6	1.8	1.9	1.9	2.0	2.0	2.2	2.3	2.4	2.4	2.4	2.6	2.7	2.8	2.9	2.4	2.6	2.7	2.8	2.9

56FMC-00-01

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-49 (Sheet 7)

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		13500						13000						12500						11500						10500					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
1	-35	10.8	12.1	12.6	13.2	13.8	11.5	12.9	13.5	14.1	14.8	12.3	13.9	14.5	15.2	15.9	14.1	16.0	16.8	17.6	18.5	16.3	18.6	19.5	20.5	21.6	15.7	17.9	18.7	19.7	20.8
2	-30	10.3	11.6	12.0	12.6	13.2	11.0	12.4	12.9	13.5	14.2	11.8	13.3	13.9	14.5	15.2	13.6	15.4	16.1	16.9	17.7	15.7	17.9	18.7	19.7	20.8	15.1	17.2	18.1	19.0	20.0
0	-25	9.9	11.1	11.5	12.0	12.6	10.6	11.9	12.4	13.0	13.6	11.3	12.8	13.3	13.9	14.6	13.1	14.8	15.5	16.2	17.0	15.1	17.2	18.1	19.0	20.0	14.5	16.5	17.2	18.1	19.1
0	-20	9.3	10.5	10.9	11.4	11.9	10.0	11.3	11.7	12.3	12.8	10.8	12.1	12.6	13.2	13.8	12.5	14.1	14.7	15.4	16.2	14.5	16.5	17.2	18.1	19.1	13.8	15.6	16.4	17.2	18.1
0	-15	8.8	9.9	10.3	10.7	11.2	9.5	10.6	11.1	11.5	12.1	10.2	11.4	11.9	12.5	13.1	11.8	13.3	13.9	14.6	15.3	13.8	15.6	16.4	17.2	18.1	13.2	15.0	15.7	16.5	17.3
	-10	8.4	9.4	9.8	10.2	10.7	9.1	10.1	10.6	11.0	11.5	9.8	11.0	11.4	11.9	12.5	11.3	12.8	13.4	14.0	14.7	13.2	15.0	15.7	16.5	17.3	12.4	14.1	14.7	15.4	16.2
	-5	7.7	8.6	9.0	9.4	9.8	8.4	9.4	9.7	10.2	10.6	9.0	10.1	10.6	11.0	11.5	10.6	11.9	12.5	13.0	13.7	12.4	14.1	14.7	15.4	16.2	11.4	12.9	13.5	14.1	14.8
	0	6.9	7.7	8.0	8.4	8.7	7.5	8.4	8.8	9.1	9.5	8.2	9.2	9.5	10.0	10.4	9.6	10.8	11.3	11.8	12.4	11.4	12.9	13.5	14.1	14.8	10.3	11.7	12.2	12.8	13.4
	5	6.1	6.8	7.1	7.4	7.7	6.7	7.5	7.8	8.1	8.5	7.3	8.2	8.5	8.9	9.3	8.7	9.8	10.2	10.7	11.2	10.3	11.7	12.2	12.8	13.4	9.3	10.5	11.0	11.5	12.1
	10	5.3	5.9	6.2	6.4	6.7	5.9	6.5	6.8	7.1	7.4	6.4	7.2	7.5	7.8	8.2	7.8	8.7	9.1	9.5	9.9	9.3	10.5	11.0	11.5	12.1	8.4	9.4	9.8	10.3	10.8
	15	4.6	5.1	5.3	5.5	5.7	5.1	5.7	5.9	6.1	6.4	5.6	6.3	6.5	6.8	7.1	6.9	7.7	8.0	8.4	8.8	8.4	9.4	9.8	10.3	10.8	7.4	8.3	8.7	9.1	9.5
	20	3.8	4.3	4.4	4.6	4.8	4.3	4.8	5.0	5.2	5.4	4.8	5.4	5.6	5.9	6.1	6.0	6.7	7.0	7.3	7.7	7.4	8.3	8.7	9.1	9.5	6.5	7.4	7.7	8.0	8.4
	25	3.2	3.5	3.7	3.8	4.0	3.6	4.0	4.2	4.4	4.6	4.1	4.6	4.8	5.0	5.2	5.2	5.8	6.1	6.4	6.6	6.5	7.4	7.7	8.0	8.4	5.2	5.8	6.1	6.4	6.6
1	-35	10.0	11.2	11.7	12.2	12.7	10.7	12.0	12.5	13.1	13.7	11.4	12.9	13.5	14.1	14.8	13.2	14.9	15.6	16.4	17.2	15.2	17.4	18.2	19.1	20.2	14.7	16.7	17.5	18.4	19.4
3	-30	9.6	10.7	11.2	11.6	12.2	10.2	11.5	12.0	12.5	13.1	11.0	12.4	12.9	13.5	14.1	12.7	14.3	15.0	15.7	16.5	14.7	16.7	17.5	18.4	19.4	14.2	16.1	16.9	17.7	18.6
0	-25	9.1	10.2	10.7	11.1	11.6	9.8	11.0	11.5	12.0	12.5	10.5	11.8	12.4	12.9	13.5	12.2	13.8	14.4	15.1	15.8	14.2	16.1	16.9	17.7	18.6	13.6	15.4	16.1	16.9	17.8
0	-20	8.6	9.7	10.0	10.5	10.9	9.3	10.4	10.8	11.3	11.8	10.0	11.2	11.7	12.2	12.8	11.6	13.1	13.7	14.3	15.0	13.6	15.4	16.1	16.9	17.8	12.9	14.6	15.3	16.0	16.8
0	-15	8.1	9.1	9.4	9.8	10.3	8.8	9.8	10.2	10.6	11.1	9.4	10.6	11.0	11.5	12.1	11.0	12.4	12.9	13.5	14.2	12.9	14.6	15.3	16.0	16.8	12.4	14.0	14.6	15.3	16.1
	-10	7.7	8.6	9.0	9.3	9.7	8.3	9.3	9.7	10.1	10.6	9.0	10.1	10.5	11.0	11.5	10.5	11.9	12.4	12.9	13.6	12.4	14.0	14.6	15.3	16.1	11.6	13.1	13.7	14.3	15.1
	-5	7.1	7.9	8.2	8.6	8.9	7.7	8.6	8.9	9.3	9.7	8.4	9.3	9.7	10.1	10.6	9.8	11.0	11.5	12.0	12.6	11.6	13.1	13.7	14.3	15.1	10.6	12.0	12.5	13.1	13.7
	0	6.3	7.0	7.3	7.6	7.9	6.9	7.7	8.0	8.3	8.7	7.5	8.4	8.7	9.1	9.5	8.9	10.0	10.4	10.9	11.4	10.6	12.0	12.5	13.1	13.7	9.6	10.8	11.3	11.8	12.4
	5	5.6	6.2	6.4	6.7	7.0	6.1	6.8	7.1	7.3	7.7	6.7	7.5	7.8	8.1	8.4	8.0	9.0	9.4	9.8	10.2	9.6	10.8	11.3	11.8	12.4	8.6	9.7	10.1	10.6	11.1
	10	4.8	5.3	5.5	5.7	6.0	5.3	5.9	6.1	6.4	6.7	5.9	6.5	6.8	7.1	7.4	7.1	8.0	8.3	8.7	9.1	8.6	9.7	10.1	10.6	11.1	7.7	8.7	9.0	9.4	9.9
	15	4.1	4.5	4.7	4.9	5.1	4.6	5.1	5.3	5.5	5.7	5.1	5.7	5.9	6.1	6.4	6.3	7.0	7.3	7.6	8.0	7.7	8.7	9.0	9.4	9.9	6.8	7.6	7.9	8.3	8.7
	20	3.4	3.7	3.9	4.0	4.2	3.8	4.2	4.4	4.6	4.8	4.3	4.8	5.0	5.2	5.4	5.4	6.1	6.3	6.6	6.9	6.8	7.6	7.9	8.3	8.7	6.3	7.0	7.3	7.7	8.0
	23	3.0	3.3	3.4	3.5	3.7	3.4	3.8	3.9	4.1	4.2	3.9	4.3	4.5	4.7	4.9	5.0	5.5	5.8	6.0	6.3	6.3	7.0	7.3	7.7	8.0	5.2	5.8	6.1	6.4	6.6
1	-35	9.3	10.4	10.8	11.3	11.8	9.9	11.1	11.6	12.1	12.7	10.7	12.0	12.5	13.1	13.7	12.3	13.9	14.5	15.2	16.0	14.3	16.3	17.0	17.9	18.8	13.8	15.6	16.3	17.1	18.0
4	-30	8.8	9.9	10.3	10.7	11.2	9.5	10.6	11.1	11.6	12.1	10.2	11.5	11.9	12.5	13.1	11.8	13.3	13.9	14.6	15.3	13.8	15.6	16.3	17.1	18.0	13.3	15.0	15.7	16.5	17.3
0	-25	8.4	9.4	9.8	10.2	10.7	9.1	10.2	10.6	11.0	11.5	9.8	11.0	11.4	11.9	12.5	11.4	12.8	13.4	14.0	14.7	13.3	15.0	15.7	16.5	17.3	12.7	14.3	15.0	15.7	16.5
0	-20	8.0	8.9	9.2	9.6	10.0	8.6	9.6	10.0	10.4	10.9	9.3	10.4	10.8	11.3	11.8	10.8	12.2	12.7	13.3	13.9	12.7	14.3	15.0	15.7	16.5	12.0	13.6	14.2	14.9	15.6
0	-15	7.5	8.3	8.6	9.0	9.4	8.1	9.0	9.4	9.8	10.2	8.7	9.8	10.2	10.6	11.1	10.2	11.5	12.0	12.5	13.1	12.0	13.6	14.2	14.9	15.6	11.5	13.0	13.6	14.3	15.0
	-10	7.1	7.9	8.2	8.6	8.9	7.7	8.6	8.9	9.3	9.7	8.3	9.3	9.7	10.1	10.6	9.8	11.0	11.5	12.0	12.5	11.5	13.0	13.6	14.3	15.0	10.8	12.2	12.7	13.3	13.9
	-5	6.5	7.2	7.5	7.8	8.1	7.1	7.9	8.2	8.5	8.9	7.7	8.6	8.9	9.3	9.7	9.1	10.2	10.6	11.1	11.6	10.8	12.2	12.7	13.3	13.9	9.8	11.1	11.5	12.1	12.7
	0	5.7	6.4	6.6	6.9	7.2	6.3	7.0	7.3	7.6	7.9	6.9	7.7	8.0	8.3	8.7	8.2	9.2	9.6	10.0	10.5	9.8	11.1	11.5	12.1	12.7	8.9	10.0	10.4	10.9	11.4
	5	5.0	5.5	5.7	6.0	6.2	5.5	6.1	6.4	6.6	6.9	6.1	6.8	7.0	7.3	7.6	7.3	8.2	8.5	8.9	9.3	8.9	10.0	10.4	10.9	11.4	7.9	8.9	9.3	9.7	10.2
	10	4.3	4.7	4.9	5.1	5.3	4.8	5.3	5.5	5.7	5.9	5.3	5.9	6.1	6.4	6.6	6.5	7.3	7.6	7.9	8.2	7.1	7.9	8.3	8.6	9.0	6.2	7.0	7.3	7.6	7.9
	15	3.6	4.0	4.1	4.3	4.4	4.0	4.5	4.7	4.8	5.0	4.6	5.1	5.3	5.5	5.7	5.7	6.4	6.6	6.9	7.2	7.1	7.9	8.3	8.6	9.0	5.2	5.8	6.1	6.4	6.6
	20	2.9	3.2	3.4	3.5	3.6	3.4	3.7	3.9	4.0	4.2	3.8	4.3	4.4	4.6	4.8	4.9	5.5	5.7	5.9	6.2	6.2	7.0	7.3	7.6	7.9	4.7	5.3	5.5	5.7	6.0
	21	2.8	3.1	3.2	3.3	3.4	3.2	3.6	3.7	3.8	4.0	3.7	4.1	4.2	4.4	4.6	4.7	5.3	5.5	5.7	6.0	6.0	6.7	7.0	7.3	7.7	4.7	5.3	5.5	5.7	6.0

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Figure 4-49 (Sheet 8)

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		* 16830						15200						15000						14500						14000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	5.9	6.7	7.1	7.4	7.8	7.5	8.6	9.1	9.6	10.1	7.8	8.9	9.4	9.9	10.4	8.3	9.6	10.1	10.7	11.3	9.0	10.3	10.9	11.5	12.2	9.0	10.3	10.9	11.5	12.2
	-30	5.9	6.8	7.1	7.4	7.8	7.6	8.7	9.1	9.6	10.1	7.8	8.9	9.4	9.9	10.5	8.4	9.6	10.1	10.7	11.3	9.0	10.4	10.9	11.5	12.2	9.0	10.4	10.9	11.5	12.2
	-25	6.0	6.8	7.1	7.5	7.9	7.6	8.7	9.1	9.6	10.2	7.8	9.0	9.4	9.9	10.5	8.4	9.7	10.2	10.7	11.3	9.0	10.4	10.9	11.6	12.2	9.0	10.4	10.9	11.6	12.2
	-20	6.0	6.8	7.2	7.5	7.9	7.7	8.7	9.2	9.7	10.2	7.9	9.0	9.5	10.0	10.5	8.5	9.7	10.2	10.7	11.4	9.1	10.4	11.0	11.6	12.3	9.1	10.4	11.0	11.6	12.3
	-15	6.1	6.9	7.2	7.5	7.9	7.7	8.8	9.2	9.7	10.2	7.9	9.1	9.5	10.0	10.5	8.5	9.8	10.2	10.8	11.4	9.2	10.5	11.0	11.6	12.3	9.2	10.5	11.0	11.6	12.3
	-10	6.1	6.9	7.2	7.6	8.0	7.8	8.8	9.3	9.7	10.3	8.0	9.1	9.6	10.0	10.6	8.6	9.8	10.3	10.8	11.4	9.2	10.6	11.1	11.7	12.3	9.2	10.6	11.1	11.7	12.3
	-5	6.2	7.0	7.3	7.6	8.0	7.8	8.9	9.3	9.8	10.3	8.0	9.2	9.6	10.1	10.6	8.6	9.9	10.3	10.9	11.5	9.3	10.6	11.1	11.7	12.4	9.3	10.6	11.1	11.7	12.4
	0	6.2	7.0	7.3	7.7	8.1	7.9	8.9	9.4	9.8	10.3	8.1	9.2	9.6	10.1	10.7	8.7	9.9	10.4	10.9	11.5	9.3	10.7	11.2	11.8	12.4	9.3	10.7	11.2	11.8	12.4
	5	6.2	7.0	7.4	7.7	8.1	7.9	9.0	9.4	9.9	10.4	8.1	9.2	9.7	10.2	10.7	8.7	9.9	10.4	11.0	11.5	9.4	10.7	11.2	11.8	12.5	9.4	10.7	11.2	11.8	12.5
	10	6.2	7.0	7.3	7.6	8.0	7.8	8.9	9.3	9.8	10.3	8.1	9.2	9.6	10.1	10.6	8.7	9.9	10.3	10.9	11.4	9.3	10.6	11.1	11.7	12.4	9.3	10.6	11.1	11.7	12.4
1	-35	6.2	7.0	7.4	7.7	8.1	7.8	9.0	9.4	9.9	10.5	8.1	9.2	9.7	10.2	10.8	8.7	9.9	10.4	11.0	11.7	9.3	10.7	11.3	11.9	12.6	9.3	10.7	11.3	11.9	12.6
	-30	6.2	7.1	7.4	7.8	8.2	7.9	9.0	9.4	9.9	10.5	8.1	9.3	9.7	10.2	10.8	8.7	10.0	10.5	11.0	11.7	9.3	10.7	11.3	11.9	12.6	9.3	10.7	11.3	11.9	12.6
	-25	6.3	7.1	7.4	7.8	8.2	7.9	9.0	9.5	10.0	10.5	8.2	9.3	9.8	10.3	10.8	8.8	10.0	10.5	11.1	11.7	9.4	10.8	11.3	11.9	12.6	9.4	10.8	11.3	11.9	12.6
	-20	6.3	7.1	7.5	7.8	8.2	8.0	9.1	9.5	10.0	10.6	8.2	9.4	9.8	10.3	10.9	8.8	10.1	10.6	11.1	11.7	9.4	10.8	11.4	12.0	12.7	9.4	10.8	11.4	12.0	12.7
	-15	6.3	7.2	7.5	7.9	8.3	8.0	9.1	9.6	10.1	10.6	8.3	9.4	9.9	10.4	10.9	8.9	10.1	10.6	11.2	11.8	9.5	10.9	11.4	12.0	12.7	9.5	10.9	11.4	12.0	12.7
	-10	6.4	7.2	7.6	7.9	8.3	8.1	9.2	9.6	10.1	10.6	8.3	9.5	9.9	10.4	11.0	8.9	10.2	10.7	11.2	11.8	9.6	10.9	11.5	12.1	12.8	9.6	10.9	11.5	12.1	12.8
	-5	6.4	7.3	7.6	8.0	8.4	8.1	9.2	9.7	10.2	10.7	8.4	9.5	10.0	10.5	11.0	9.0	10.2	10.7	11.3	11.9	9.6	11.0	11.5	12.1	12.8	9.6	11.0	11.5	12.1	12.8
	0	6.5	7.3	7.7	8.0	8.4	8.2	9.3	9.7	10.2	10.7	8.4	9.6	10.0	10.5	11.1	9.0	10.3	10.8	11.3	11.9	9.7	11.0	11.6	12.2	12.8	9.7	11.0	11.6	12.2	12.8
	5	6.5	7.3	7.6	8.0	8.4	8.2	9.3	9.7	10.2	10.7	8.4	9.5	10.0	10.5	11.0	9.0	10.3	10.7	11.3	11.9	9.7	11.0	11.6	12.2	12.8	9.7	11.0	11.6	12.2	12.8
	10	5.6	6.3	6.6	6.9	7.3	7.3	8.2	8.6	9.0	9.5	7.5	8.5	8.9	9.3	9.8	8.1	9.2	9.6	10.1	10.6	8.7	9.9	10.4	10.9	11.5	9.7	9.9	10.4	10.9	11.5
2	-35	6.4	7.3	7.6	8.0	8.4	8.1	9.3	9.7	10.2	10.8	8.3	9.5	10.0	10.5	11.1	8.9	10.2	10.8	11.3	12.0	9.6	11.0	11.6	12.2	12.9	9.6	11.0	11.6	12.2	12.9
	-30	6.5	7.3	7.7	8.0	8.5	8.2	9.3	9.8	10.3	10.8	8.4	9.6	10.0	10.6	11.1	9.0	10.3	10.8	11.4	12.0	9.6	11.1	11.6	12.2	12.9	9.6	11.1	11.6	12.2	12.9
	-25	6.5	7.4	7.7	8.1	8.5	8.2	9.3	9.8	10.3	10.8	8.4	9.6	10.1	10.6	11.2	9.1	10.3	10.8	11.4	12.0	9.7	11.1	11.7	12.3	13.0	9.7	11.1	11.7	12.3	13.0
	-20	6.6	7.4	7.8	8.1	8.5	8.3	9.4	9.8	10.3	10.9	8.5	9.7	10.1	10.6	11.2	9.1	10.4	10.9	11.5	12.1	9.8	11.2	11.7	12.3	13.0	9.8	11.2	11.7	12.3	13.0
	-15	6.6	7.5	7.8	8.2	8.6	8.3	9.4	9.9	10.4	10.9	8.6	9.7	10.2	10.7	11.3	9.2	10.4	11.0	11.5	12.1	9.8	11.2	11.8	12.4	13.1	9.8	11.2	11.8	12.4	13.1
	-10	6.7	7.5	7.9	8.2	8.6	8.4	9.5	10.0	10.4	11.0	8.6	9.8	10.2	10.8	11.3	9.2	10.5	11.0	11.6	12.2	9.9	11.3	11.8	12.4	13.1	9.9	11.3	11.8	12.4	13.1
	-5	6.7	7.6	7.9	8.3	8.7	8.4	9.6	10.0	10.5	11.0	8.7	9.8	10.3	10.8	11.4	9.3	10.6	11.1	11.6	12.2	10.0	11.3	11.9	12.5	13.2	10.0	11.3	11.9	12.5	13.2
	0	6.7	7.6	7.9	8.2	8.6	8.4	9.6	10.0	10.5	11.0	8.7	9.8	10.3	10.8	11.3	9.3	10.6	11.1	11.6	12.2	10.0	11.4	11.9	12.5	13.2	10.0	11.4	11.9	12.5	13.2
	5	5.9	6.6	6.9	7.2	7.5	7.5	8.5	8.9	9.3	9.8	7.8	8.8	9.2	9.6	10.1	8.4	9.5	9.9	10.4	11.0	9.0	10.2	10.7	11.3	11.9	9.0	10.2	10.7	11.3	11.9
	10	5.0	5.6	5.8	6.1	6.4	6.6	7.4	7.7	8.1	8.5	6.8	7.7	8.0	8.4	8.8	7.3	8.3	8.7	9.1	9.6	7.9	9.0	9.4	9.9	10.4	7.9	9.0	9.4	9.9	10.4
3	-35	6.7	7.6	7.9	8.3	8.7	8.4	9.5	10.0	10.5	11.1	8.6	9.8	10.3	10.8	11.4	9.2	10.5	11.1	11.6	12.3	9.9	11.3	11.9	12.5	13.2	9.9	11.3	11.9	12.5	13.2
	-30	6.7	7.6	7.9	8.3	8.7	8.4	9.6	10.0	10.6	11.1	8.7	9.9	10.3	10.9	11.4	9.3	10.6	11.1	11.7	12.3	9.9	11.4	11.9	12.6	13.3	9.9	11.4	11.9	12.6	13.3
	-25	6.8	7.6	8.0	8.4	8.8	8.5	9.6	10.1	10.6	11.2	8.7	9.9	10.4	10.9	11.5	9.3	10.6	11.2	11.7	12.4	10.0	11.4	12.0	12.6	13.3	10.0	11.4	12.0	12.6	13.3
	-20	6.8	7.7	8.0	8.4	8.8	8.6	9.7	10.2	10.7	11.2	8.8	10.0	10.5	11.0	11.5	9.4	10.7	11.2	11.8	12.4	10.1	11.5	12.1	12.7	13.4	10.1	11.5	12.1	12.7	13.4
	-15	6.9	7.8	8.1	8.5	8.9	8.6	9.8	10.2	10.7	11.3	8.9	10.1	10.5	11.0	11.6	9.5	10.8	11.3	11.9	12.5	10.2	11.6	12.1	12.8	13.4	10.2	11.6	12.1	12.8	13.4
	-10	6.9	7.8	8.2	8.5	8.9	8.7	9.8	10.3	10.8	11.3	8.9	10.1	10.6	11.1	11.7	9.6	10.9	11.4	11.9	12.6	10.2	11.6	12.2	12.8	13.5	10.2	11.6	12.2	12.8	13.5
	-5	7.0	7.8	8.2	8.5	8.9	8.7	9.9	10.3	10.8	11.4	9.0	10.1	10.6	11.1	11.7	9.6	10.9	11.4	12.0	12.6	10.3	11.7	12.2	12.9	13.5	10.3	11.7	12.2	12.9	13.5
	0	6.1	6.9	7.2	7.5	7.8	7.8	8.8	9.2	9.6	10.1	8.0	9.1	9.5	9.9	10.4	8.6	9.8	10.2	10.7	11.3	9.3	10.6	11.1	11.6	12.2	9.3	10.6	11.1	11.6	12.2
	5	5.2	5.9	6.1	6.4	6.7	6.8	7.7	8.1	8.4	8.9	7.1	8.0	8.3	8.7	9.2	7.6	8.6	9.0	9.5	9.9	8.3	9.4	9.8	10.3	10.8	8.3	9.4	9.8	10.3	10.8
	10	4.4	4.9	5.1	5.3	5.6	5.9	6.6	6.9	7.2	7.6	6.1	6.9	7.2	7.5	7.9	6.6	7.5	7.8	8.2	8.6	7.2	8.2								
4	-35	6.9	7.8	8.2	8.5	9.0	8.6	9.8	10.3	10.8	11.4	8.9	10.1	10.6	11.1	11.7	9.5	10.8	11.4	11.9	12.6	10.2	11.6	12.2	12.8	13.5	10.2	11.6	12.2	12.8	13.5
	-30	7.0	7.8	8.2	8.6	9.0	8.7	9.9	10.3	10.8	11.4	8.9	10.1	10.6	11.2	11.7	9.6	10.9	11.4	12.0	12.6	10.2	11.7	12.3	12.9	13.6	10.2	11.7	12.3	12.9	13.6
	-25	7.0	7.9	8.2	8.6	9.0	8.8	9.9	10.4	10.9	11.4	9.0	10.2	10.7	11.2	11.8	9.6	10.9	11.5	12.0	12.7	10.3	11.7	12.3	12.9	13.6	10.3	11.7	12.3	12.9	13.6
	-20	7.1	7.9	8.3	8.7	9.1	8.8	10.0	10.4	10.9																					

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		13500					13000					12500					11500					10500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30					
0	-35		9.6	11.1	11.7	12.4	13.2		10.4	12.0	12.7	13.4	14.3		11.1	12.9	13.7	14.5	15.4		12.9	15.1	16.0	17.0	18.2		15.0	17.7	18.8	20.1	21.5
	-30		9.7	11.2	11.8	12.4	13.2		10.4	12.0	12.7	13.4	14.3		11.2	13.0	13.7	14.5	15.4		13.0	15.1	16.0	17.0	18.2		15.1	17.8	18.9	20.1	21.5
	-25		9.7	11.2	11.8	12.5	13.2		10.5	12.1	12.7	13.5	14.3		11.2	13.0	13.7	14.6	15.5		13.0	15.2	16.1	17.1	18.2		15.2	17.8	18.9	20.1	21.6
	-20		9.8	11.3	11.8	12.5	13.3		10.5	12.1	12.8	13.5	14.3		11.3	13.1	13.8	14.6	15.5		13.1	15.2	16.1	17.1	18.2		15.2	17.9	19.0	20.2	21.6
	-15		9.8	11.3	11.9	12.6	13.3		10.6	12.2	12.8	13.6	14.4		11.4	13.1	13.8	14.6	15.5		13.2	15.3	16.2	17.2	18.3		15.3	17.9	19.0	20.2	21.6
	-10		9.9	11.4	12.0	12.6	13.3		10.6	12.2	12.9	13.6	14.4		11.4	13.2	13.9	14.7	15.6		13.2	15.4	16.2	17.2	18.3		15.4	18.0	19.1	20.3	21.7
	-5		10.0	11.4	12.0	12.7	13.4		10.7	12.3	12.9	13.7	14.5		11.5	13.3	14.0	14.7	15.6		13.3	15.4	16.3	17.3	18.4		15.5	18.1	19.2	20.4	21.7
	0		10.0	11.5	12.1	12.7	13.4		10.8	12.4	13.0	13.7	14.5		11.6	13.3	14.0	14.8	15.7		13.4	15.5	16.4	17.3	18.4		15.6	18.2	19.2	20.4	21.8
	5		10.1	11.5	12.1	12.7	13.5		10.8	12.4	13.0	13.7	14.5		11.6	13.4	14.1	14.8	15.7		13.4	15.5	16.4	17.4	18.4		15.6	18.2	19.3	20.5	21.8
	10		10.0	11.4	12.0	12.6	13.3		10.8	12.3	12.9	13.6	14.4		11.6	13.3	14.0	14.7	15.6		13.4	15.5	16.3	17.2	18.3		15.6	18.1	19.2	20.3	21.7
1	-35		10.0	11.5	12.1	12.8	13.6		10.7	12.4	13.1	13.8	14.7		11.5	13.3	14.1	14.9	15.9		13.3	15.5	16.4	17.5	18.6		15.5	18.2	19.3	20.6	22.0
	-30		10.0	11.5	12.2	12.8	13.6		10.8	12.4	13.1	13.9	14.7		11.6	13.4	14.1	15.0	15.9		13.4	15.6	16.5	17.5	18.6		15.6	18.2	19.4	20.6	22.1
	-25		10.1	11.6	12.2	12.9	13.6		10.8	12.5	13.1	13.9	14.7		11.6	13.4	14.2	15.0	15.9		13.4	15.6	16.5	17.5	18.7		15.6	18.3	19.4	20.7	22.1
	-20		10.1	11.6	12.2	12.9	13.7		10.9	12.5	13.2	13.9	14.8		11.7	13.5	14.2	15.0	16.0		13.5	15.7	16.6	17.6	18.7		15.7	18.4	19.5	20.7	22.1
	-15		10.2	11.7	12.3	13.0	13.7		11.0	12.6	13.2	14.0	14.8		11.8	13.6	14.3	15.1	16.0		13.6	15.8	16.6	17.6	18.8		15.8	18.5	19.5	20.8	22.2
	-10		10.3	11.8	12.4	13.0	13.8		11.0	12.7	13.3	14.0	14.9		11.8	13.6	14.3	15.1	16.0		13.7	15.8	16.7	17.7	18.8		15.9	18.5	19.6	20.8	22.2
	-5		10.3	11.8	12.4	13.1	13.8		11.1	12.7	13.4	14.1	14.9		11.9	13.7	14.4	15.2	16.1		13.8	15.9	16.8	17.8	18.9		16.0	18.6	19.7	20.9	22.3
	0		10.4	11.9	12.5	13.1	13.9		11.2	12.8	13.4	14.1	14.9		12.0	13.7	14.5	15.3	16.1		13.8	16.0	16.8	17.8	18.9		16.1	18.7	19.8	21.0	22.3
	5		10.4	11.9	12.4	13.1	13.8		11.1	12.8	13.4	14.1	14.9		12.0	13.7	14.4	15.2	16.1		13.8	16.0	16.8	17.8	18.9		16.1	18.7	19.7	20.9	22.3
	10		9.4	10.7	11.3	11.8	12.5		10.1	11.6	12.2	12.8	13.5		10.9	12.5	13.2	13.9	14.7		12.7	14.7	15.5	16.3	17.3		14.9	17.3	18.2	19.3	20.6
2	-35		10.3	11.8	12.5	13.2	13.9		11.0	12.7	13.4	14.2	15.0		11.9	13.7	14.5	15.3	16.2		13.7	15.9	16.8	17.9	19.0		15.9	18.6	19.8	21.0	22.5
	-30		10.3	11.9	12.5	13.2	14.0		11.1	12.8	13.5	14.2	15.1		11.9	13.8	14.5	15.3	16.3		13.8	16.0	16.9	17.9	19.1		16.0	18.7	19.8	21.1	22.5
	-25		10.4	11.9	12.6	13.2	14.0		11.2	12.8	13.5	14.3	15.1		12.0	13.8	14.6	15.4	16.3		13.8	16.0	17.0	18.0	19.1		16.1	18.8	19.9	21.1	22.5
	-20		10.5	12.0	12.6	13.3	14.0		11.2	12.9	13.6	14.3	15.1		12.1	13.9	14.6	15.4	16.4		13.9	16.1	17.0	18.0	19.1		16.1	18.8	19.9	21.2	22.6
	-15		10.5	12.1	12.7	13.3	14.1		11.3	13.0	13.6	14.4	15.2		12.1	13.9	14.7	15.5	16.4		14.0	16.2	17.1	18.1	19.2		16.2	18.9	20.0	21.2	22.6
	-10		10.6	12.1	12.7	13.4	14.1		11.4	13.0	13.7	14.4	15.2		12.2	14.0	14.7	15.6	16.5		14.1	16.3	17.2	18.1	19.3		16.3	19.0	20.1	21.3	22.7
	-5		10.7	12.2	12.8	13.5	14.2		11.4	13.1	13.8	14.5	15.3		12.3	14.1	14.8	15.6	16.5		14.2	16.3	17.2	18.2	19.3		16.4	19.1	20.2	21.4	22.8
	0		10.7	12.2	12.8	13.5	14.2		11.5	13.1	13.8	14.5	15.3		12.3	14.1	14.8	15.6	16.5		14.2	16.4	17.3	18.2	19.3		16.5	19.1	20.2	21.4	22.8
	5		9.7	11.1	11.6	12.2	12.8		10.5	11.9	12.5	13.2	13.9		11.3	12.9	13.5	14.3	15.1		13.1	15.1	15.9	16.7	17.7		15.3	17.7	18.7	19.8	21.0
	10		8.6	9.8	10.3	10.8	11.3		9.3	10.6	11.1	11.7	12.3		10.1	11.5	12.1	12.7	13.4		11.8	13.5	14.3	15.0	15.9		13.8	16.0	16.9	17.9	19.0
3	-35		10.6	12.2	12.8	13.5	14.3		11.4	13.1	13.8	14.5	15.4		12.2	14.1	14.8	15.7	16.6		14.1	16.3	17.2	18.3	19.4		16.3	19.0	20.2	21.5	22.9
	-30		10.7	12.2	12.8	13.5	14.3		11.4	13.1	13.8	14.6	15.4		12.3	14.1	14.9	15.7	16.6		14.1	16.4	17.3	18.3	19.5		16.4	19.1	20.2	21.5	22.9
	-25		10.7	12.3	12.9	13.6	14.3		11.5	13.2	13.9	14.6	15.5		12.3	14.2	14.9	15.8	16.7		14.2	16.4	17.4	18.4	19.5		16.5	19.2	20.3	21.6	23.0
	-20		10.8	12.3	13.0	13.6	14.4		11.6	13.3	13.9	14.7	15.5		12.4	14.3	15.0	15.8	16.7		14.3	16.5	17.4	18.4	19.6		16.6	19.3	20.4	21.6	23.0
	-15		10.9	12.4	13.0	13.7	14.5		11.7	13.3	14.0	14.8	15.6		12.5	14.3	15.1	15.9	16.8		14.4	16.6	17.5	18.5	19.6		16.7	19.4	20.5	21.7	23.1
	-10		11.0	12.5	13.1	13.8	14.5		11.7	13.4	14.1	14.8	15.7		12.6	14.4	15.2	16.0	16.9		14.5	16.7	17.6	18.6	19.7		16.8	19.5	20.6	21.8	23.2
	-5		11.0	12.5	13.2	13.8	14.6		11.8	13.5	14.1	14.9	15.7		12.7	14.5	15.2	16.0	16.9		14.6	16.8	17.7	18.7	19.8		16.9	19.6	20.7	21.9	23.3
	0		10.0	11.4	11.9	12.5	13.2		10.8	12.3	12.9	13.5	14.3		11.6	13.2	13.9	14.6	15.4		13.4	15.4	16.3	17.2	18.2		15.7	18.1	19.1	20.2	21.5
	5		8.9	10.1	10.6	11.1	11.7		9.6	11.0	11.5	12.1	12.7		10.4	11.9	12.5	13.1	13.8		12.2	14.0	14.7	15.5	16.4		14.3	16.5	17.4	18.4	19.5
	10		7.8	8.9	9.3	9.8	10.3		8.5	9.7	10.1	10.6	11.2		9.2	10.5	11.0	11.6	12.2		10.9	12.5	13.1	13.8	14.6		12.8	14.8	15.6	16.5	17.5
4	-35		10.9	12.5	13.1	13.8	14.6		11.7	13.4	14.1	14.9	15.7		12.5	14.4	15.2	16.0	17.0		14.4	16.7	17.6	18.6	19.8		16.7	19.5	20.6	21.9	23.3
	-30		11.0	12.5	13.2	13.9	14.6		11.7	13.5	14.1	14.9	15.8		12.6	14.5	15.2	16.1	17.0		14.5	16.8	17.7	18.7	19.8		16.8	19.5	20.7	21.9	23.4
	-25		11.0	12.6	13.2	13.9	14.7		11.8	13.5	14.2	15.0	15.8		12.7	14.5	15.3	16.1	17.0		14.6	16.8	17.7	18.8	19.9		16.9	19.6	20.7	22.0	23.4
	-20		11.1	12.7	13.3	14.0	14.7		11.9	13.6	14.3	15.0	15.9		12.7	14.6	15.3	16.2	17.1		14.7	16.9	17.8	18.8	20.0		17.0	19.7	20.8	22.1	23.5
	-15		11.2	12.7	13.3	14.0	14.8		12.0</																						

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15°

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		* 16830						15200						15000						14500						14000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6	-35	7.1	8.0	8.4	8.8	9.2	8.9	10.1	10.5	11.0	11.6	9.1	10.4	10.8	11.4	11.9	9.8	11.1	11.6	12.2	12.8	10.5	11.9	12.5	13.1	13.8	10.5	11.9	12.5	13.1	13.8
	-30	7.2	8.1	8.4	8.8	9.2	8.9	10.1	10.6	11.1	11.6	9.2	10.4	10.9	11.4	12.0	9.8	11.1	11.6	12.2	12.8	10.5	11.9	12.5	13.1	13.8	10.5	11.9	12.5	13.1	13.8
	-25	7.2	8.1	8.4	8.8	9.2	9.0	10.1	10.6	11.1	11.6	9.2	10.4	10.9	11.4	12.0	9.9	11.2	11.7	12.2	12.9	10.6	12.0	12.5	13.1	13.8	10.6	12.0	12.5	13.1	13.8
	-20	7.2	8.0	8.4	8.7	9.1	8.9	10.1	10.5	11.0	11.6	9.2	10.4	10.8	11.3	11.9	9.8	11.1	11.6	12.2	12.8	10.5	11.9	12.5	13.1	13.8	10.5	11.9	12.5	13.1	13.8
	-15	6.6	7.4	7.7	8.0	8.4	8.3	9.4	9.8	10.2	10.7	8.6	9.7	10.1	10.6	11.1	9.2	10.4	10.9	11.4	11.9	9.9	11.2	11.7	12.2	12.9	9.9	11.2	11.7	12.2	12.9
	-10	5.8	6.5	6.7	7.0	7.4	7.5	8.4	8.7	9.1	9.6	7.7	8.6	9.0	9.4	9.9	8.3	9.3	9.8	10.2	10.7	8.9	10.1	10.5	11.0	11.6	8.9	10.1	10.5	11.0	11.6
	-5	4.9	5.5	5.8	6.0	6.3	6.5	7.3	7.6	8.0	8.3	6.7	7.6	7.9	8.3	8.6	7.3	8.2	8.6	9.0	9.4	7.9	8.9	9.3	9.8	10.2	7.9	8.9	9.3	9.8	10.2
	0	4.1	4.6	4.8	5.0	5.2	5.6	6.3	6.5	6.8	7.1	5.8	6.5	6.8	7.1	7.4	6.3	7.1	7.4	7.8	8.1	6.9	7.8	8.1	8.5	8.9	6.9	7.8	8.1	8.5	8.9
	5	3.3	3.7	3.8	4.0	4.1	4.7	5.2	5.5	5.7	6.0	4.9	5.5	5.7	5.9	6.2	5.4	6.0	6.3	6.6	6.9	5.9	6.6	6.9	7.3	7.6	5.9	6.6	6.9	7.3	7.6
	10	2.4	2.7	2.8	2.9	3.1	3.7	4.2	4.4	4.6	4.8	3.9	4.4	4.6	4.8	5.0	4.4	4.9	5.1	5.4	5.6	4.9	5.5	5.7	6.0	6.3	4.9	5.5	5.7	6.0	6.3
7	-35	7.0	7.9	8.2	8.6	9.0	8.8	9.9	10.4	10.9	11.4	9.0	10.2	10.7	11.2	11.7	9.7	10.9	11.4	12.0	12.6	10.3	11.7	12.3	12.9	13.6	10.3	11.7	12.3	12.9	13.6
	-30	7.1	7.9	8.2	8.6	9.0	8.8	9.9	10.4	10.9	11.4	9.1	10.2	10.7	11.2	11.7	9.7	11.0	11.5	12.0	12.6	10.4	11.8	12.3	12.9	13.6	10.4	11.8	12.3	12.9	13.6
	-25	6.9	7.7	8.1	8.4	8.8	8.7	9.7	10.2	10.6	11.2	8.9	10.0	10.5	11.0	11.5	9.5	10.8	11.3	11.8	12.4	10.2	11.6	12.1	12.7	13.3	10.2	11.6	12.1	12.7	13.3
	-20	6.5	7.3	7.6	8.0	8.3	8.3	9.3	9.7	10.1	10.6	8.5	9.6	10.0	10.4	10.9	9.1	10.3	10.7	11.2	11.8	9.8	11.1	11.6	12.1	12.7	9.8	11.1	11.6	12.1	12.7
	-15	5.9	6.6	6.9	7.2	7.5	7.6	8.5	8.9	9.3	9.7	7.8	8.8	9.2	9.6	10.0	8.4	9.5	9.9	10.3	10.8	9.1	10.2	10.7	11.2	11.7	9.1	10.2	10.7	11.2	11.7
	-10	5.1	5.7	5.9	6.2	6.5	6.7	7.5	7.8	8.2	8.6	6.9	7.8	8.1	8.5	8.9	7.5	8.4	8.8	9.2	9.6	8.1	9.1	9.5	10.0	10.5	8.1	9.1	9.5	10.0	10.5
	-5	4.3	4.8	5.0	5.2	5.4	5.8	6.5	6.7	7.0	7.4	6.0	6.7	7.0	7.3	7.6	6.5	7.3	7.6	8.0	8.4	7.1	8.0	8.3	8.7	9.1	7.1	8.0	8.3	8.7	9.1
	0	3.5	3.9	4.0	4.2	4.4	4.9	5.5	5.7	5.9	6.2	5.1	5.7	5.9	6.2	6.5	5.6	6.3	6.5	6.8	7.1	6.1	6.9	7.2	7.5	7.9	6.1	6.9	7.2	7.5	7.9
	5	2.6	2.9	3.1	3.2	3.3	4.0	4.4	4.6	4.8	5.0	4.2	4.6	4.8	5.0	5.3	4.6	5.2	5.4	5.6	5.9	5.1	5.8	6.0	6.3	6.6	5.1	5.8	6.0	6.3	6.6
	10	1.8	2.0	2.1	2.2	2.3	3.1	3.4	3.6	3.7	3.9	3.2	3.6	3.8	3.9	4.1	3.7	4.1	4.3	4.5	4.7	4.2	4.7	4.9	5.1	5.3	4.2	4.7	4.9	5.1	5.3
8	-35	7.1	7.9	8.3	8.6	9.0	8.8	10.0	10.4	10.9	11.4	9.1	10.3	10.7	11.2	11.7	9.7	11.0	11.5	12.0	12.6	10.4	11.8	12.3	12.9	13.6	10.4	11.8	12.3	12.9	13.6
	-30	6.7	7.5	7.8	8.1	8.5	8.4	9.5	9.9	10.3	10.8	8.6	9.7	10.2	10.6	11.1	9.3	10.5	10.9	11.4	12.0	9.9	11.2	11.7	12.3	12.9	9.9	11.2	11.7	12.3	12.9
	-25	6.3	7.0	7.3	7.6	8.0	8.0	8.9	9.3	9.7	10.2	8.2	9.2	9.6	10.0	10.5	8.8	9.9	10.4	10.8	11.4	9.5	10.7	11.2	11.7	12.3	9.5	10.7	11.2	11.7	12.3
	-20	5.9	6.6	6.9	7.2	7.5	7.6	8.5	8.9	9.3	9.7	7.8	8.8	9.1	9.6	10.0	8.4	9.5	9.9	10.3	10.8	9.0	10.2	10.7	11.1	11.7	9.0	10.2	10.7	11.1	11.7
	-15	5.3	5.9	6.1	6.3	6.6	6.8	7.7	8.0	8.4	8.7	7.1	7.9	8.3	8.6	9.0	7.6	8.6	9.0	9.4	9.8	8.3	9.3	9.7	10.2	10.7	8.3	9.3	9.7	10.2	10.7
	-10	4.5	5.0	5.2	5.4	5.6	6.0	6.7	7.0	7.3	7.6	6.2	6.9	7.2	7.5	7.9	6.7	7.6	7.9	8.2	8.6	7.3	8.2	8.6	9.0	9.4	7.3	8.2	8.6	9.0	9.4
	-5	3.7	4.1	4.2	4.4	4.6	5.1	5.7	5.9	6.2	6.4	5.3	5.9	6.1	6.4	6.7	5.8	6.5	6.8	7.1	7.4	6.3	7.1	7.4	7.8	8.1	6.3	7.1	7.4	7.8	8.1
	0	2.9	3.2	3.3	3.4	3.6	4.2	4.7	4.9	5.1	5.3	4.4	4.9	5.1	5.3	5.6	4.9	5.4	5.7	5.9	6.2	5.4	6.0	6.3	6.6	6.9	5.4	6.0	6.3	6.6	6.9
	5	2.0	2.3	2.4	2.5	2.6	3.3	3.7	3.8	4.0	4.2	3.5	3.9	4.0	4.2	4.4	3.9	4.4	4.6	4.8	5.0	4.4	5.0	5.2	5.4	5.6	4.4	5.0	5.2	5.4	5.6
	10	1.2	1.4	1.4	1.5	1.5	2.4	2.7	2.8	2.9	3.0	2.6	2.9	3.0	3.1	3.3	3.0	3.4	3.5	3.6	3.8	3.5	3.9	4.0	4.2	4.4	3.5	3.9	4.0	4.2	4.4
9	-35	6.5	7.2	7.5	7.9	8.2	8.2	9.2	9.6	10.0	10.5	8.4	9.5	9.9	10.3	10.8	9.0	10.2	10.6	11.1	11.7	9.7	10.9	11.4	12.0	12.6	9.7	10.9	11.4	12.0	12.6
	-30	6.1	6.8	7.1	7.4	7.7	7.7	8.7	9.1	9.5	9.9	8.0	8.9	9.3	9.7	10.2	8.6	9.6	10.1	10.5	11.0	9.2	10.4	10.8	11.4	11.9	9.2	10.4	10.8	11.4	11.9
	-25	5.7	6.3	6.6	6.9	7.2	7.3	8.2	8.5	8.9	9.3	7.5	8.4	8.8	9.2	9.6	8.1	9.1	9.5	9.9	10.4	8.7	9.8	10.3	10.7	11.3	8.7	9.8	10.3	10.7	11.3
	-20	5.4	6.0	6.2	6.5	6.8	7.0	7.8	8.1	8.5	8.9	7.2	8.0	8.4	8.8	9.2	7.8	8.7	9.1	9.5	9.9	8.4	9.4	9.8	10.3	10.8	8.4	9.4	9.8	10.3	10.8
	-15	4.7	5.2	5.4	5.7	5.9	6.2	7.0	7.2	7.6	7.9	6.4	7.2	7.5	7.8	8.2	7.0	7.8	8.2	8.5	8.9	7.6	8.5	8.9	9.3	9.7	7.6	8.5	8.9	9.3	9.7
	-10	3.9	4.4	4.6	4.7	4.9	5.4	6.0	6.3	6.5	6.8	5.6	6.3	6.5	6.8	7.1	6.1	6.9	7.1	7.5	7.8	6.7	7.5	7.8	8.2	8.6	6.7	7.5	7.8	8.2	8.6
	-5	3.2	3.5	3.6	3.8	4.0	4.5	5.1	5.3	5.5	5.7	4.7	5.3	5.5	5.7	6.0	5.2	5.8	6.1	6.3	6.6	5.7	6.4	6.7	7.0	7.3	5.7	6.4	6.7	7.0	7.3
	0	2.4	2.6	2.7	2.9	3.0	3.7	4.1	4.3	4.4	4.6	3.8	4.3	4.5	4.7	4.9	4.3	4.8	5.0	5.2	5.5	4.8	5.4	5.6	5.9	6.1	4.8	5.4	5.6	5.9	6.1
	5	1.6	1.8	1.8	1.9	2.0	2.8	3.1	3.3	3.4	3.5	3.0	3.3	3.5	3.6	3.8	3.4	3.8	4.0	4.1	4.3	3.9	4.3	4.5	4.7	4.9	3.9	4.3	4.5	4.7	4.9
	10	0.8	0.9	1.0	1.0	1.1	2.0	2.2	2.3	2.4	2.5	2.1	2.4	2.5	2.6	2.7	2.5	2.8	2.9	3.1	3.2	3.0	3.3	3.5	3.6	3.8	3.0	3.3	3.5	3.6	3.8
1	-35	5.9	6.6	6.8	7.1	7.4	7.5	8.4	8.8	9.2	9.6	7.7	8.7	9.1	9.5	9.9	8.3	9.4	9.8	10.2	10.7	9.0	10.1	10.5	11.0	11.6	9.0	10.1	10.5	11.0	11.6
	-30	5.5	6.1	6.4	6.6	6.9	7.1	7.9	8.3	8.6	9.0	7.3	8.2	8.5	8.9	9.3	7.9	8.9	9.2	9.7	10.1	8.5	9.6	10.0	10.4	10.9	8.5	9.6	10.0	10.4	10.9
	-25	5.1	5.7	5.9	6.2	6.4	6.7	7.5	7.8	8.1	8.5	6.9	7.7	8.0	8.4	8.8	7.4	8.3	8.7	9.1	9.5	8.0	9.0	9.4	9.9	10.3	8.0				

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		13500					13000					12500					11500					10500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
6000	-35	11.2	12.8	13.4	14.1	14.8	12.0	13.7	14.4	15.1	16.0	12.8	14.7	15.5	16.3	17.2	14.8	17.0	17.9	18.9	20.1	17.1	19.8	20.9	22.2	23.6
	-30	11.2	12.8	13.4	14.1	14.8	12.0	13.7	14.4	15.2	16.0	12.9	14.7	15.5	16.3	17.2	14.8	17.1	18.0	19.0	20.1	17.2	19.9	21.0	22.2	23.6
	-25	11.3	12.8	13.5	14.1	14.9	12.1	13.8	14.4	15.2	16.0	13.0	14.8	15.5	16.3	17.2	14.9	17.1	18.0	19.0	20.1	17.2	19.9	21.0	22.3	23.6
	-20	11.3	12.8	13.4	14.1	14.8	12.1	13.7	14.4	15.1	15.9	12.9	14.8	15.5	16.3	17.2	14.9	17.1	18.0	18.9	20.0	17.2	19.9	21.0	22.2	23.6
	-15	10.6	12.0	12.6	13.2	13.9	11.4	12.9	13.5	14.2	15.0	12.2	13.9	14.6	15.3	16.2	14.1	16.2	17.0	17.9	19.0	16.4	18.9	20.0	21.1	22.4
	-10	9.6	10.9	11.4	11.9	12.5	10.4	11.7	12.3	12.9	13.6	11.2	12.7	13.3	14.0	14.7	13.0	14.8	15.6	16.4	17.3	15.2	17.5	18.4	19.4	20.6
	-5	8.6	9.7	10.1	10.6	11.1	9.3	10.5	11.0	11.5	12.1	10.0	11.4	11.9	12.5	13.2	11.7	13.4	14.1	14.8	15.6	13.8	15.9	16.7	17.6	18.6
	0	7.5	8.5	8.9	9.3	9.8	8.2	9.3	9.7	10.1	10.7	8.9	10.1	10.6	11.1	11.7	10.5	12.0	12.6	13.2	14.0	12.4	14.3	15.0	15.8	16.8
	5	6.5	7.3	7.6	8.0	8.4	7.1	8.0	8.4	8.8	9.2	7.8	8.8	9.2	9.7	10.2	9.3	10.6	11.1	11.7	12.3	11.1	12.7	13.4	14.1	14.9
	10	5.4	6.1	6.4	6.7	7.0	6.0	6.8	7.1	7.4	7.8	6.6	7.5	7.9	8.3	8.7	8.1	9.2	9.6	10.1	10.7	9.8	11.2	11.7	12.4	13.1
7000	-35	11.1	12.6	13.2	13.9	14.6	11.9	13.5	14.2	14.9	15.7	12.7	14.5	15.2	16.0	16.9	14.6	16.8	17.7	18.7	19.8	16.9	19.6	20.7	21.9	23.2
	-30	11.1	12.6	13.2	13.9	14.6	11.9	13.5	14.2	14.9	15.7	12.8	14.5	15.3	16.1	16.9	14.7	16.9	17.7	18.7	19.8	17.0	19.6	20.7	21.9	23.3
	-25	10.9	12.4	13.0	13.6	14.3	11.7	13.3	14.0	14.7	15.4	12.6	14.3	15.0	15.8	16.7	14.5	16.6	17.5	18.4	19.5	16.8	19.4	20.5	21.6	22.9
	-20	10.5	11.9	12.4	13.1	13.7	11.3	12.8	13.4	14.1	14.8	12.1	13.8	14.4	15.2	16.0	14.0	16.0	16.8	17.7	18.7	16.3	18.7	19.7	20.9	22.1
	-15	9.7	11.0	11.5	12.1	12.7	10.5	11.9	12.5	13.1	13.7	11.3	12.8	13.5	14.1	14.9	13.1	15.0	15.8	16.6	17.5	15.3	17.6	18.6	19.6	20.7
	-10	8.8	9.9	10.3	10.8	11.4	9.5	10.7	11.2	11.8	12.4	10.2	11.6	12.2	12.8	13.4	12.0	13.7	14.3	15.1	15.9	14.1	16.1	17.0	17.9	19.0
	-5	7.7	8.7	9.1	9.5	10.0	8.4	9.5	9.9	10.4	10.9	9.1	10.3	10.8	11.3	11.9	10.8	12.3	12.9	13.5	14.2	12.7	14.6	15.3	16.2	17.1
	0	6.7	7.6	7.9	8.3	8.7	7.3	8.3	8.7	9.1	9.5	8.0	9.1	9.5	10.0	10.5	9.6	10.9	11.4	12.0	12.6	11.4	13.1	13.7	14.5	15.3
	5	5.7	6.4	6.7	7.0	7.3	6.3	7.1	7.4	7.8	8.1	6.9	7.8	8.2	8.6	9.0	8.4	9.5	10.0	10.5	11.0	10.1	11.5	12.1	12.8	13.5
	10	4.7	5.3	5.5	5.7	6.0	5.2	5.9	6.1	6.4	6.7	5.8	6.6	6.9	7.2	7.6	7.2	8.1	8.5	9.0	9.4	8.8	10.0	10.5	11.1	11.7
8000	-35	11.2	12.7	13.2	13.9	14.6	11.9	13.6	14.2	14.9	15.7	12.8	14.6	15.3	16.1	17.0	14.8	16.9	17.8	18.7	19.8	17.1	19.7	20.8	22.0	23.3
	-30	10.7	12.1	12.6	13.2	13.9	11.4	13.0	13.6	14.3	15.0	12.3	14.0	14.6	15.4	16.2	14.2	16.2	17.1	18.0	19.0	16.5	19.0	20.0	21.1	22.4
	-25	10.2	11.5	12.0	12.6	13.2	10.9	12.4	13.0	13.6	14.3	11.7	13.3	14.0	14.7	15.4	13.6	15.5	16.3	17.2	18.1	15.8	18.2	19.1	20.2	21.4
	-20	9.7	11.0	11.5	12.0	12.6	10.5	11.9	12.4	13.0	13.7	11.3	12.8	13.4	14.1	14.8	13.1	14.9	15.7	16.5	17.4	15.3	17.5	18.4	19.5	20.6
	-15	8.9	10.1	10.5	11.0	11.6	9.6	10.9	11.4	12.0	12.6	10.4	11.8	12.4	13.0	13.6	12.2	13.9	14.6	15.3	16.1	14.3	16.4	17.2	18.1	19.2
	-10	8.0	9.0	9.4	9.8	10.3	8.6	9.7	10.2	10.7	11.2	9.4	10.6	11.1	11.6	12.2	11.0	12.5	13.2	13.8	14.6	13.0	14.9	15.7	16.5	17.4
	-5	6.9	7.8	8.1	8.5	8.9	7.6	8.5	8.9	9.3	9.8	8.3	9.3	9.8	10.2	10.8	9.8	11.2	11.7	12.3	12.9	11.7	13.4	14.0	14.8	15.6
	0	5.9	6.7	7.0	7.3	7.6	6.5	7.4	7.7	8.1	8.4	7.2	8.1	8.5	8.9	9.3	8.7	9.8	10.3	10.8	11.4	10.1	11.9	12.5	13.1	13.9
	5	4.9	5.6	5.8	6.0	6.3	5.5	6.2	6.5	6.8	7.1	6.1	6.9	7.2	7.5	7.9	7.5	8.5	8.9	9.3	9.8	9.4	10.4	10.9	11.5	12.1
	10	3.9	4.4	4.6	4.8	5.0	4.5	5.0	5.2	5.5	5.7	5.0	5.7	5.9	6.2	6.5	6.3	7.2	7.5	7.9	8.3	7.9	8.9	9.4	9.9	10.4
9000	-35	10.4	11.8	12.3	12.9	13.6	11.2	12.7	13.3	13.9	14.6	12.0	13.6	14.3	15.0	15.8	13.9	15.9	16.7	17.5	18.5	16.1	18.6	19.5	20.6	21.8
	-30	9.9	11.2	11.7	12.3	12.9	10.7	12.1	12.6	13.2	13.9	11.5	13.0	13.6	14.3	15.1	13.3	15.2	15.9	16.8	17.7	15.5	17.8	18.7	19.8	20.9
	-25	9.4	10.6	11.1	11.6	12.2	10.1	11.5	12.0	12.6	13.2	10.9	12.4	13.0	13.6	14.3	12.7	14.5	15.2	16.0	16.8	14.8	17.0	17.9	18.9	20.0
	-20	9.0	10.2	10.6	11.1	11.7	9.7	11.0	11.5	12.1	12.6	10.5	11.9	12.5	13.1	13.7	12.3	14.0	14.6	15.4	16.2	14.3	16.4	17.3	18.2	19.2
	-15	8.2	9.3	9.7	10.1	10.6	8.9	10.1	10.5	11.0	11.5	9.7	10.9	11.4	12.0	12.6	11.3	12.9	13.5	14.2	14.9	13.4	15.3	16.0	16.9	17.8
	-10	7.3	8.2	8.6	8.9	9.4	7.9	9.0	9.3	9.8	10.3	8.6	9.8	10.2	10.7	11.2	10.2	11.6	12.2	12.8	13.5	12.2	13.9	14.6	15.3	16.2
	-5	6.3	7.1	7.4	7.7	8.1	6.9	7.8	8.1	8.5	8.9	7.6	8.6	9.0	9.4	9.8	9.1	10.3	10.8	11.3	11.9	10.9	12.4	13.0	13.7	14.5
	0	5.3	6.0	6.3	6.5	6.8	5.9	6.7	7.0	7.3	7.6	6.6	7.4	7.7	8.1	8.5	8.0	9.0	9.4	9.9	10.4	9.7	11.0	11.5	12.1	12.8
	5	4.4	4.9	5.1	5.4	5.6	4.9	5.5	5.8	6.0	6.3	5.5	6.2	6.5	6.8	7.1	6.8	7.7	8.1	8.5	8.9	8.4	9.6	10.0	10.5	11.1
	10	3.4	3.9	4.0	4.2	4.4	4.0	4.4	4.6	4.8	5.1	4.5	5.1	5.3	5.5	5.8	5.7	6.5	6.8	7.1	7.5	7.2	8.2	8.6	9.0	9.5
10000	-35	9.7	10.9	11.4	11.9	12.5	10.4	11.8	12.3	12.9	13.5	11.2	12.7	13.3	13.9	14.7	13.0	14.8	15.5	16.4	17.2	15.2	17.4	18.3	19.3	20.4
	-30	9.2	10.3	10.8	11.3	11.9	9.9	11.2	11.7	12.2	12.9	10.7	12.1	12.6	13.3	13.9	12.4	14.2	14.9	15.6	16.4	14.6	16.7	17.5	18.5	19.5
	-25	8.7	9.8	10.2	10.7	11.2	9.4	10.6	11.1	11.6	12.2	10.2	11.5	12.0	12.6	13.2	11.9	13.5	14.1	14.9	15.6	13.9	15.9	16.7	17.6	18.6
	-20	8.3	9.3	9.7	10.2	10.7	9.0	10.1	10.6	11.1	11.6	9.7	11.0	11.5	12.0	12.6	11.4	13.0	13.6	14.2	15.0	13.4	15.3	16.1	16.9	17.9
	-15	7.5	8.5	8.8	9.2	9.7	8.2	9.2	9.7	10.1	10.6	8.9	10.1	10.5	11.0	11.6	10.5	12.0	12.5	13.1	13.8	12.5	14.2	14.9	15.7	16.6
	-10	6.6	7.5	7.8	8.1	8.5	7.3	8.2	8.5	8.9	9.3	8.0	9.0	9.4	9.8	10.3	9.5	10.7	11.2	11.8	12.4	11.3	12.9	13.5	14.2	15.0
	-5	5.7	6.4	6.7	7.0	7.3	6.3	7.1	7.4	7.7	8.1	6.9	7.8	8.1	8.5	8.9	8.4	9.5	9.9	10.4	10.9	10.1	11.5	12.1	12.7	13.3
	0	4.8	5.4	5.6	5.8	6.1	5.3	6.0	6.2	6.5	6.8	5.9	6.7	7.0	7.3	7.6	7.3	8.3	8.6	9.0	9.5	8.9	10.0	10.6	11.2	11.7
	5	3.8	4.3	4.5	4.7	4.9	4.4	4.9	5.1	5.3	5.6	4.9	5.5	5.8	6.0	6.3	6.2	7.0	7.3	7.7	8.0	7.7	8.8	9.2	9.6	10.1
	10	3.0	3.3	3.4	3.6	3.7	3.4	3.9	4.0	4.2	4.4	4.0	4.5	4.6	4.9	5.1	5.2	5.8	6.1	6.4	6					

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																														
		* 16830					15200					15000					14500					14000										
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS										
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
1	-35	4.7	5.2	5.4	5.6	5.8	6.2	6.9	7.2	7.5	7.8	6.4	7.1	7.4	7.7	8.1	6.9	7.7	8.1	8.4	8.8	7.5	8.4	8.8	9.1	9.6	7.5	8.4	8.8	9.1	9.6	
2	-30	4.3	4.7	4.9	5.1	5.3	5.7	6.4	6.6	6.9	7.2	5.9	6.6	6.9	7.2	7.5	6.4	7.2	7.5	7.8	8.2	7.0	7.9	8.2	8.5	8.9	7.0	7.9	8.2	8.5	8.9	
0	-25	3.9	4.3	4.5	4.7	4.9	5.3	5.9	6.2	6.4	6.7	5.5	6.2	6.4	6.7	7.0	6.0	6.7	7.0	7.3	7.6	6.6	7.4	7.7	8.0	8.4	6.6	7.4	7.7	8.0	8.4	
0	-20	3.4	3.8	3.9	4.1	4.3	4.8	5.4	5.6	5.8	6.0	5.0	5.6	5.8	6.0	6.3	5.5	6.2	6.4	6.7	7.0	6.1	6.8	7.0	7.3	7.7	6.1	6.8	7.0	7.3	7.7	
0	-15	2.7	3.0	3.1	3.2	3.3	4.0	4.4	4.6	4.8	5.0	4.2	4.6	4.8	5.0	5.2	4.6	5.2	5.4	5.6	5.8	5.2	5.8	6.0	6.2	6.5	5.2	5.8	6.0	6.2	6.5	
0	-10	1.9	2.1	2.2	2.3	2.3	3.1	3.5	3.6	3.8	3.9	3.3	3.7	3.8	4.0	4.1	3.7	4.2	4.3	4.5	4.7	4.2	4.7	4.9	5.1	5.3	4.2	4.7	4.9	5.1	5.3	
	-5	1.2	1.3	1.3	1.4	1.4	2.3	2.6	2.7	2.8	2.9	2.5	2.7	2.9	3.0	3.1	2.9	3.2	3.3	3.5	3.6	3.3	3.7	3.9	4.0	4.2	3.3	3.7	3.9	4.0	4.2	
	0	0.4	0.5	0.5	0.5	0.5	1.5	1.7	1.7	1.8	1.9	1.7	1.9	1.9	2.0	2.1	2.1	2.3	2.4	2.5	2.6	2.5	2.8	2.9	3.0	3.1	2.5	2.8	2.9	3.0	3.1	
	5	-0.2	-0.3	-0.3	-0.3	-0.3	0.8	0.9	0.9	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.3	1.4	1.5	1.5	1.6	1.7	1.9	1.9	2.0	2.0	1.7	1.9	1.9	2.0	2.0	
	10	-0.9	-1.0	-1.0	-1.0	-1.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.5	0.6	0.6	0.6	0.7	0.9	1.0	1.0	1.1	1.1	0.9	1.0	1.0	1.1	1.1	
	1	-35	4.1	4.5	4.7	4.9	5.1	5.5	6.2	6.4	6.7	7.0	5.7	6.4	6.6	6.9	7.2	6.2	7.0	7.3	7.6	7.9	6.8	7.6	7.9	8.3	8.6	6.8	7.6	7.9	8.3	8.6
3	-30	3.7	4.1	4.3	4.4	4.6	5.1	5.7	5.9	6.1	6.4	5.3	5.9	6.1	6.4	6.7	5.8	6.5	6.7	7.0	7.3	6.3	7.1	7.4	7.7	8.0	6.3	7.1	7.4	7.7	8.0	
0	-25	3.4	3.7	3.9	4.0	4.2	4.7	5.3	5.5	5.7	5.9	4.9	5.5	5.7	5.9	6.2	5.4	6.0	6.3	6.5	6.8	5.9	6.6	6.9	7.2	7.5	5.9	6.6	6.9	7.2	7.5	
0	-20	2.9	3.2	3.3	3.4	3.6	4.2	4.7	4.9	5.1	5.3	4.4	4.9	5.1	5.3	5.5	4.9	5.5	5.7	5.9	6.2	5.4	6.0	6.3	6.5	6.8	5.4	6.0	6.3	6.5	6.8	
0	-15	2.2	2.4	2.5	2.6	2.7	3.4	3.8	4.0	4.1	4.3	3.6	4.0	4.2	4.3	4.5	4.1	4.5	4.7	4.9	5.1	4.6	5.1	5.3	5.5	5.7	4.6	5.1	5.3	5.5	5.7	
0	-10	1.4	1.6	1.6	1.7	1.8	2.6	2.9	3.0	3.1	3.3	2.8	3.1	3.2	3.3	3.5	3.2	3.6	3.7	3.9	4.0	3.7	4.1	4.3	4.4	4.6	3.7	4.1	4.3	4.4	4.6	
	-5	0.7	0.8	0.8	0.9	0.9	1.8	2.0	2.1	2.2	2.3	2.0	2.2	2.3	2.4	2.5	2.4	2.7	2.8	2.9	3.0	2.8	3.1	3.3	3.4	3.5	2.8	3.1	3.3	3.4	3.5	
	0	0.0	0.0	0.0	0.0	0.0	1.1	1.2	1.2	1.3	1.3	1.2	1.4	1.4	1.5	1.5	1.6	1.8	1.8	1.9	2.0	2.0	2.2	2.3	2.4	2.5	2.0	2.2	2.3	2.4	2.5	
	5	-0.6	-0.7	-0.7	-0.7	-0.7	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.9	0.9	1.0	1.0	1.1	1.2	1.4	1.4	1.5	1.5	1.2	1.4	1.4	1.5	1.5	
	10	-1.2	-1.4	-1.4	-1.5	-1.5	-0.3	-0.4	-0.4	-0.4	-0.4	-0.2	-0.2	-0.2	-0.3	-0.3	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.6	0.6	
	1	-35	3.6	3.9	4.1	4.2	4.4	4.9	5.5	5.7	5.9	6.2	5.1	5.7	5.9	6.2	6.4	5.6	6.3	6.5	6.8	7.1	6.2	6.9	7.2	7.5	7.8	6.2	6.9	7.2	7.5	7.8
4	-30	3.2	3.5	3.6	3.8	3.9	4.5	5.0	5.2	5.4	5.6	4.7	5.2	5.4	5.6	5.9	5.2	5.8	6.0	6.2	6.5	5.7	6.4	6.6	6.9	7.2	5.7	6.4	6.6	6.9	7.2	
0	-25	2.8	3.1	3.3	3.4	3.5	4.2	4.6	4.8	5.0	5.2	4.3	4.8	5.0	5.2	5.4	4.8	5.4	5.6	5.8	6.0	5.3	5.9	6.2	6.4	6.7	5.3	5.9	6.2	6.4	6.7	
0	-20	2.4	2.6	2.7	2.8	2.9	3.7	4.1	4.2	4.4	4.6	3.9	4.3	4.4	4.6	4.8	4.3	4.8	5.0	5.2	5.4	4.8	5.4	5.6	5.8	6.0	4.8	5.4	5.6	5.8	6.0	
0	-15	1.7	1.9	2.0	2.0	2.1	2.9	3.2	3.4	3.5	3.6	3.1	3.4	3.6	3.7	3.8	3.5	3.9	4.1	4.2	4.4	4.0	4.4	4.6	4.8	5.0	4.0	4.4	4.6	4.8	5.0	
0	-10	1.0	1.1	1.2	1.2	1.2	2.1	2.4	2.5	2.6	2.7	2.3	2.6	2.6	2.8	2.9	2.7	3.0	3.1	3.3	3.4	3.2	3.5	3.6	3.8	3.9	3.2	3.5	3.6	3.8	3.9	
	-5	0.3	0.4	0.4	0.4	0.4	1.4	1.5	1.6	1.6	1.7	1.5	1.7	1.8	1.8	1.9	1.9	2.1	2.2	2.3	2.4	2.3	2.6	2.7	2.8	2.9	2.3	2.6	2.7	2.8	2.9	
	0	-0.3	-0.4	-0.4	-0.4	-0.4	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.2	1.3	1.3	1.4	1.4	1.5	1.7	1.8	1.9	1.9	1.5	1.7	1.8	1.9	1.9	
	5	-1.0	-1.1	-1.1	-1.1	-1.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.5	0.5	0.8	0.9	0.9	0.9	1.0	0.8	0.9	0.9	0.9	1.0	
	10	-1.6	-1.7	-1.8	-1.9	-1.9	-0.7	-0.8	-0.8	-0.9	-0.9	-0.6	-0.7	-0.7	-0.7	-0.7	-0.3	-0.3	-0.3	-0.3	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-50 (Sheet 5)

APPROACH GROSS CLIMB GRADIENT - PERCENT

FLAPS - 15⁰CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - UP
AIRSPEED - VAPPSPEEDBRAKES - RETRACT
INOPERATIVE ENGINE- WINDMILLING
OPERATIVE ENGINE - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		13500					13000					12500					11500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
1	-35	8.1	9.1	9.5	9.9	10.4	8.8	9.9	10.3	10.8	11.3	9.5	10.7	11.2	11.7	12.3	11.2	12.7	13.3	13.9	14.6
2	-30	7.6	8.6	8.9	9.3	9.8	8.3	9.3	9.7	10.2	10.6	9.0	10.1	10.6	11.1	11.6	10.6	12.0	12.6	13.2	13.9
0	-25	7.2	8.0	8.4	8.7	9.1	7.8	8.8	9.1	9.6	10.0	8.5	9.6	10.0	10.4	11.0	10.1	11.4	11.9	12.5	13.1
0	-20	6.6	7.4	7.7	8.1	8.4	7.3	8.1	8.5	8.9	9.3	7.9	8.9	9.3	9.7	10.2	9.5	10.7	11.2	11.7	12.3
0	-15	5.7	6.4	6.6	6.9	7.2	6.3	7.1	7.3	7.7	8.0	6.9	7.8	8.1	8.5	8.9	8.4	9.5	9.9	10.4	10.9
	-10	4.7	5.3	5.5	5.7	6.0	5.3	5.9	6.2	6.4	6.7	5.9	6.6	6.9	7.2	7.5	7.3	8.2	8.5	8.9	9.4
	-5	3.8	4.3	4.4	4.6	4.8	4.3	4.9	5.1	5.3	5.5	4.9	5.5	5.7	6.0	6.2	6.2	7.0	7.3	7.6	8.0
	0	2.9	3.3	3.4	3.5	3.7	3.4	3.8	4.0	4.1	4.3	3.9	4.4	4.6	4.8	5.0	5.1	5.8	6.0	6.3	6.6
	5	2.1	2.3	2.4	2.5	2.6	2.5	2.8	2.9	3.1	3.2	3.0	3.4	3.5	3.7	3.8	4.1	4.7	4.9	5.1	5.3
	10	1.3	1.4	1.5	1.5	1.6	1.7	1.9	2.0	2.1	2.2	2.2	2.4	2.5	2.6	2.7	3.2	3.6	3.7	3.9	4.1
1	-35	7.4	8.3	8.6	9.0	9.4	8.0	9.0	9.4	9.9	10.3	8.7	9.8	10.3	10.8	11.3	10.3	11.7	12.2	12.8	13.5
3	-30	6.9	7.8	8.1	8.4	8.8	7.6	8.5	8.8	9.2	9.7	8.2	9.3	9.7	10.1	10.6	9.8	11.1	11.6	12.1	12.7
0	-25	6.5	7.3	7.6	7.9	8.3	7.1	8.0	8.3	8.7	9.1	7.8	8.7	9.1	9.5	10.0	9.3	10.5	10.9	11.5	12.0
0	-20	6.0	6.7	6.9	7.2	7.6	6.6	7.4	7.7	8.0	8.4	7.2	8.1	8.4	8.8	9.2	8.7	9.8	10.2	10.7	11.2
0	-15	5.1	5.7	5.9	6.2	6.4	5.7	6.3	6.6	6.9	7.2	6.3	7.0	7.3	7.6	8.0	7.7	8.6	9.0	9.4	9.9
	-10	4.2	4.7	4.8	5.0	5.3	4.7	5.3	5.5	5.7	6.0	5.3	5.9	6.2	6.4	6.7	6.6	7.4	7.7	8.1	8.5
	-5	3.3	3.7	3.8	4.0	4.1	3.8	4.2	4.4	4.6	4.8	4.3	4.8	5.0	5.3	5.5	5.5	6.2	6.5	6.8	7.1
	0	2.4	2.7	2.8	2.9	3.0	2.9	3.2	3.4	3.5	3.6	3.4	3.8	4.0	4.1	4.3	4.5	5.1	5.3	5.6	5.8
	5	1.6	1.8	1.9	2.0	2.0	2.1	2.3	2.4	2.5	2.6	2.5	2.8	2.9	3.1	3.2	3.6	4.0	4.2	4.4	4.6
	10	0.8	0.9	1.0	1.0	1.0	1.2	1.4	1.4	1.5	1.6	1.7	1.9	1.9	2.0	2.1	2.7	3.0	3.1	3.3	3.4
1	-35	6.8	7.6	7.9	8.2	8.6	7.4	8.3	8.6	9.0	9.4	8.0	9.0	9.4	9.8	10.3	9.6	10.8	11.3	11.8	12.4
4	-30	6.3	7.0	7.3	7.6	7.9	6.9	7.7	8.0	8.4	8.7	7.5	8.4	8.8	9.2	9.6	9.0	10.1	10.6	11.1	11.6
0	-25	5.9	6.5	6.8	7.1	7.4	6.4	7.2	7.5	7.8	8.2	7.1	7.9	8.3	8.6	9.0	8.5	9.6	10.0	10.5	11.0
0	-20	5.3	6.0	6.2	6.5	6.7	5.9	6.6	6.9	7.2	7.5	6.5	7.3	7.6	8.0	8.3	8.0	8.9	9.3	9.8	10.2
0	-15	4.5	5.0	5.2	5.4	5.7	5.0	5.6	5.9	6.1	6.4	5.6	6.3	6.6	6.8	7.1	7.0	7.8	8.2	8.5	8.9
	-10	3.6	4.0	4.2	4.4	4.6	4.1	4.6	4.8	5.0	5.2	4.7	5.2	5.5	5.7	5.9	5.9	6.7	7.0	7.3	7.6
	-5	2.8	3.1	3.2	3.3	3.5	3.3	3.6	3.8	3.9	4.1	3.8	4.2	4.4	4.6	4.8	4.9	5.5	5.8	6.0	6.3
	0	2.0	2.2	2.3	2.4	2.5	2.4	2.7	2.8	2.9	3.0	2.9	3.2	3.4	3.5	3.6	4.0	4.5	4.7	4.9	5.1
	5	1.2	1.3	1.4	1.4	1.5	1.6	1.8	1.8	1.9	2.0	2.0	2.3	2.4	2.5	2.6	3.1	3.4	3.6	3.7	3.9
	10	0.4	0.4	0.5	0.5	0.5	0.8	0.9	0.9	0.9	1.0	1.2	1.3	1.4	1.5	1.5	2.2	2.4	2.5	2.6	2.7

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Figure 4-50 (Sheet 6)

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		* 16830						15200						15000						14500						14000					
		WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS						WIND KNOTS					
		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30		-10	0	10	20	30	
0	-25	19.0	21.8	22.9	24.1	25.5		22.4	25.9	27.4	28.9	30.7		22.9	26.5	28.0	29.6	31.5		24.2	28.1	29.6	31.4	33.4		25.6	29.7	31.5	33.4	35.6	
	-20	19.1	21.8	23.0	24.2	25.6		22.5	26.0	27.4	29.0	30.8		23.0	26.6	28.1	29.7	31.5		24.3	28.2	29.7	31.5	33.5		25.7	29.8	31.5	33.5	35.6	
	-15	19.2	21.9	23.0	24.3	25.6		22.6	26.1	27.5	29.1	30.8		23.1	26.7	28.1	29.8	31.6		24.4	28.3	29.8	31.6	33.5		25.8	29.9	31.6	33.5	35.7	
	-10	19.3	22.0	23.1	24.3	25.7		22.8	26.2	27.6	29.2	30.9		23.2	26.8	28.2	29.8	31.6		24.5	28.4	29.9	31.7	33.6		25.9	30.1	31.7	33.6	35.8	
	-5	19.4	22.1	23.2	24.4	25.8		22.9	26.3	27.7	29.3	31.0		23.4	26.9	28.3	29.9	31.7		24.7	28.5	30.0	31.8	33.7		26.1	30.2	31.9	33.7	35.8	
	0	19.5	22.2	23.3	24.5	25.8		23.0	26.4	27.8	29.3	31.1		23.5	27.0	28.4	30.0	31.8		24.8	28.6	30.1	31.8	33.8		26.2	30.3	32.0	33.8	35.9	
	5	19.6	22.3	23.4	24.6	25.9		23.1	26.5	27.9	29.4	31.1		23.6	27.1	28.5	30.1	31.8		24.9	28.7	30.2	31.9	33.8		26.3	30.4	32.0	33.9	36.0	
	10	19.6	22.3	23.4	24.6	25.9		23.2	26.6	27.9	29.5	31.1		23.7	27.2	28.6	30.1	31.9		25.0	28.8	30.3	32.0	33.9		26.4	30.5	32.1	33.9	36.0	
	15	19.7	22.4	23.5	24.6	25.9		23.3	26.6	28.0	29.5	31.1		23.7	27.2	28.6	30.2	31.9		25.1	28.8	30.3	32.0	33.9		26.5	30.5	32.2	34.0	36.1	
	20	19.8	22.4	23.5	24.7	26.0		23.3	26.7	28.0	29.5	31.2		23.8	27.3	28.7	30.2	31.9		25.1	28.9	30.4	32.0	33.9		26.6	30.6	32.2	34.0	36.0	
10	25	19.0	21.5	22.6	23.7	24.9		22.5	25.8	27.0	28.5	30.0		23.0	26.3	27.7	29.1	30.8		24.3	27.9	29.3	30.9	32.7		25.8	29.6	31.2	32.9	34.8	
	30	17.3	19.6	20.5	21.5	22.6		20.7	23.6	24.7	26.0	27.4		21.1	24.1	25.3	26.6	28.1		22.3	25.6	26.9	28.3	29.9		23.7	27.2	28.6	30.1	31.8	
	35	15.7	17.8	18.6	19.5	20.4		18.8	21.4	22.5	23.6	24.9		19.3	22.0	23.0	24.2	25.5		20.4	23.3	24.5	25.8	27.2		21.6	24.8	26.1	27.5	29.0	
	40	14.3	16.2	16.9	17.7	18.6		17.3	19.7	20.6	21.6	22.8		17.7	20.2	21.1	22.2	23.4		18.8	21.4	22.5	23.6	24.9		20.0	22.8	24.0	25.2	26.6	
	45	13.0	14.6	15.3	16.0	16.8		15.8	17.9	18.8	19.7	20.7		16.2	18.4	19.2	20.2	21.3		17.2	19.6	20.5	21.6	22.7		18.3	20.9	21.9	23.0	24.3	
	50	11.6	13.1	13.7	14.3	15.0		14.3	16.2	16.9	17.8	18.7		14.6	16.6	17.4	18.2	19.2		15.6	17.7	18.6	19.5	20.6		16.6	18.9	19.9	20.9	22.0	
	54	10.6	11.9	12.4	13.0	13.6		13.1	14.8	15.5	16.2	17.1		13.4	15.2	15.9	16.7	17.6		14.3	16.3	17.0	17.9	18.8		15.3	17.4	18.3	19.2	20.2	
	20	-25	19.5	22.3	23.5	24.7	26.1		23.0	26.6	28.0	29.6	31.4		23.5	27.2	28.7	30.3	32.1		24.8	28.7	30.3	32.1	34.1		26.2	30.5	32.2	34.1	36.3
		-20	19.6	22.4	23.5	24.8	26.2		23.1	26.7	28.1	29.7	31.4		23.6	27.3	28.7	30.4	32.2		24.9	28.8	30.4	32.2	34.2		26.4	30.6	32.3	34.2	36.4
		-15	19.7	22.5	23.6	24.8	26.2		23.2	26.8	28.2	29.7	31.5		23.8	27.4	28.8	30.4	32.3		25.1	28.9	30.5	32.3	34.2		26.5	30.7	32.4	34.3	36.4
-10		19.8	22.6	23.7	24.9	26.3		23.4	26.9	28.3	29.8	31.6		23.9	27.5	28.9	30.5	32.3		25.2	29.1	30.6	32.4	34.3		26.6	30.8	32.5	34.4	36.5	
-5		19.9	22.7	23.8	25.0	26.4		23.5	27.0	28.4	29.9	31.7		24.0	27.6	29.0	30.6	32.4		25.3	29.2	30.7	32.5	34.4		26.7	30.9	32.6	34.5	36.6	
0		20.0	22.8	23.9	25.1	26.4		23.6	27.1	28.5	30.0	31.7		24.1	27.7	29.1	30.7	32.5		25.4	29.3	30.8	32.6	34.5		26.9	31.0	32.7	34.6	36.7	
5		20.1	22.9	23.9	25.2	26.5		23.7	27.2	28.5	30.1	31.8		24.2	27.8	29.2	30.8	32.5		25.6	29.4	30.9	32.6	34.5		27.0	31.1	32.8	34.6	36.7	
10		20.2	22.9	24.0	25.2	26.5		23.8	27.2	28.6	30.1	31.8		24.3	27.8	29.3	30.8	32.6		25.6	29.4	31.0	32.7	34.6		27.1	31.2	32.9	34.7	36.8	
15		20.2	23.0	24.0	25.2	26.5		23.9	27.3	28.7	30.2	31.8		24.4	27.9	29.3	30.9	32.6		25.7	29.5	31.0	32.7	34.6		27.2	31.3	32.9	34.7	36.8	
20		19.4	21.9	23.0	24.1	25.3		23.0	26.2	27.5	28.9	30.5		23.5	26.8	28.1	29.6	31.3		24.8	28.4	29.8	31.4	33.2		26.2	30.1	31.7	33.4	35.4	
30	25	17.7	20.0	20.9	22.0	23.1		21.1	24.0	25.2	26.5	27.9		21.6	24.6	25.8	27.1	28.6		22.8	26.1	27.4	28.8	30.4		24.1	27.7	29.1	30.6	32.4	
	30	16.1	18.1	19.0	19.9	20.9		19.2	21.9	22.9	24.1	25.4		19.7	22.4	23.5	24.7	26.0		20.8	23.8	25.0	26.2	27.7		22.1	25.3	26.5	28.0	29.5	
	35	14.6	16.4	17.2	18.0	18.8		17.5	19.9	20.9	21.9	23.1		18.0	20.4	21.4	22.5	23.7		19.1	21.7	22.8	23.9	25.2		20.2	23.1	24.3	25.5	26.9	
	40	13.2	14.9	15.5	16.2	17.0		16.0	18.1	19.0	19.9	21.0		16.4	18.6	19.5	20.5	21.5		17.4	19.8	20.8	21.8	23.0		18.5	21.1	22.2	23.3	24.6	
	45	11.8	13.3	13.9	14.5	15.2		14.5	16.4	17.2	18.0	18.9		14.8	16.8	17.6	18.5	19.4		15.8	18.0	18.8	19.8	20.8		16.9	19.2	20.1	21.2	22.3	
	50	10.5	11.8	12.3	12.9	13.5		13.0	14.7	15.4	16.1	16.9		13.3	15.1	15.8	16.6	17.4		14.3	16.2	16.9	17.8	18.7		15.2	17.3	18.2	19.1	20.1	
	52	10.0	11.2	11.7	12.2	12.8		12.4	14.0	14.7	15.4	16.1		12.7	14.4	15.1	15.8	16.6		13.6	15.4	16.2	17.0	17.8		14.6	16.6	17.4	18.2	19.2	
	40	-25	20.0	22.8	24.0	25.2	26.6		23.6	27.2	28.6	30.2	32.0		24.1	27.8	29.2	30.9	32.7		25.4	29.4	31.0	32.8	34.8		26.8	31.1	32.8	34.8	37.0
		-20	20.1	22.9	24.0	25.3	26.7		23.7	27.2	28.7	30.3	32.0		24.2	27.8	29.3	31.0	32.8		25.5	29.5	31.0	32.8	34.8		27.0	31.2	32.9	34.9	37.0
		-15	20.2	23.0	24.1	25.4	26.7		23.8	27.3	28.8	30.3	32.1		24.3	27.9	29.4	31.0	32.9		25.6	29.6	31.1	32.9	34.9		27.1	31.3	33.0	34.9	37.1
-10		20.3	23.1	24.2	25.4	26.8		23.9	27.4	28.9	30.4	32.2		24.4	28.1	29.5	31.1	32.9		25.8	29.7	31.2	33.0	34.9		27.2	31.4	33.1	35.0	37.2	
-5		20.4	23.2	24.3	25.5	26.9		24.1	27.5	29.0	30.5	32.2		24.6	28.2	29.6	31.2	33.0		25.9	29.8	31.3	33.1	35.0		27.4	31.6	33.2	35.1	37.2	
0		20.5	23.3	24.4	25.6	26.9		24.2	27.6	29.0	30.6	32.3		24.7	28.3	29.7	31.3	33.1		26.0	29.9	31.4	33.2	35.1		27.5	31.7	33.3	35.2	37.3	
5		20.6	23.4	24.5	25.7	27.0		24.3	27.7	29.1	30.7	32.4		24.8	28.4	29.8	31.4	33.1		26.1	30.0	31.5	33.2	35.2		27.6	31.8	33.4	35.3	37.4	
10		20.7	23.4	24.5	25.7	27.0		24.4	27.8	29.2	30.7	32.4		24.9	28.4	29.8	31.4	33.2		26.2	30.1	31.6	33.3	35.2		27.7	31.8	33.5	35.3	37.4	
15		19.7	22.4	23.4	24.5	25.8		23.4	26.7	28.0	29.4	31.0		23.9	27.3	28.6	30.1	31.8		25.2	28.9	30.3	32.0	33.7		26.7	30.6	32.2	34.0	35.9	
20		18.1	20.4	21.4	22.4	23.5		21.5	24.5	25.7	27.0	28.4		22.0	25.0	26.3	27.6	29.1		23.2	26.5	27.9	29.3	30.9		24.6	28.2	29.6	31.		

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - VREF

SPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																													
		13500					13000					12500					11500					10500									
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS									
	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	
0	-25	27.0	31.6	33.4	35.6	37.9	28.7	33.6	35.6	37.9	40.6	30.5	35.8	38.1	40.6	43.5	34.6	41.1	43.8	47.0	50.6	39.8	47.8	51.3	55.2	59.9					
	-20	27.2	31.7	33.5	35.6	38.0	28.8	33.7	35.7	38.0	40.6	30.6	35.9	38.2	40.7	43.5	34.8	41.2	44.0	47.0	50.6	40.0	48.0	51.4	55.3	59.9					
	-15	27.3	31.8	33.6	35.7	38.0	28.9	33.8	35.8	38.1	40.7	30.7	36.1	38.3	40.8	43.6	35.0	41.4	44.1	47.1	50.7	40.2	48.2	51.5	55.4	60.0					
	-10	27.4	31.9	33.7	35.8	38.1	29.1	33.9	35.9	38.2	40.7	30.9	36.2	38.4	40.9	43.7	35.1	41.5	44.2	47.3	50.8	40.4	48.3	51.7	55.6	60.1					
	-5	27.6	32.0	33.9	35.9	38.2	29.2	34.1	36.1	38.3	40.8	31.1	36.3	38.5	41.0	43.8	35.3	41.7	44.4	47.4	50.9	40.7	48.5	51.9	55.7	60.2					
	0	27.7	32.2	34.0	36.0	38.3	29.4	34.2	36.2	38.4	40.9	31.2	36.5	38.6	41.1	43.9	35.5	41.9	44.5	47.5	51.0	40.9	48.7	52.0	55.9	60.3					
	5	27.8	32.3	34.1	36.1	38.3	29.5	34.3	36.3	38.5	41.0	31.4	36.6	38.7	41.2	43.9	35.7	42.0	44.6	47.6	51.0	41.1	48.9	52.2	56.0	60.4					
	10	27.9	32.3	34.1	36.1	38.4	29.6	34.4	36.3	38.5	41.0	31.5	36.7	38.8	41.2	43.9	35.8	42.1	44.7	47.7	51.1	41.2	49.0	52.3	56.0	60.4					
	15	28.0	32.4	34.2	36.2	38.4	29.7	34.4	36.4	38.6	41.0	31.6	36.7	38.9	41.2	43.9	35.9	42.2	44.8	47.7	51.0	41.3	49.1	52.3	56.1	60.4					
	20	28.1	32.5	34.2	36.2	38.4	29.8	34.5	36.4	38.6	41.0	31.7	36.8	38.9	41.3	44.0	36.0	42.2	44.8	47.7	51.1	41.5	49.2	52.4	56.1	60.4					
1	25	27.3	31.5	33.1	35.0	37.1	29.0	33.5	35.3	37.4	39.7	30.8	35.7	37.8	40.0	42.6	35.0	41.0	43.5	46.3	49.5	40.4	47.8	50.9	54.4	58.5					
	30	25.1	28.9	30.4	32.1	34.0	26.7	30.8	32.4	34.3	36.4	28.4	32.8	34.7	36.7	39.0	32.3	37.7	40.0	42.5	45.3	37.3	43.9	46.7	49.9	53.5					
	35	23.0	26.4	27.8	29.3	31.0	24.4	28.2	29.7	31.3	33.2	26.0	30.1	31.7	33.6	35.6	29.7	34.6	36.6	38.9	41.4	34.3	40.3	42.8	45.6	48.8					
	40	21.2	24.3	25.6	27.0	28.5	22.6	26.0	27.3	28.8	30.5	24.1	27.8	29.3	30.9	32.8	27.5	32.0	33.8	35.9	38.2	31.8	37.3	39.5	42.1	45.0					
	45	19.5	22.3	23.4	24.6	26.0	20.7	23.8	25.0	26.4	27.9	22.1	25.5	26.8	28.4	30.0	25.4	29.4	31.1	32.9	35.0	29.3	34.3	36.4	38.7	41.3					
	50	17.7	20.3	21.3	22.4	23.6	18.9	21.7	22.8	24.0	25.4	20.2	23.3	24.5	25.8	27.3	23.3	26.9	28.4	30.1	31.9	27.0	31.4	33.3	35.4	37.7					
	54	16.3	18.7	19.6	20.6	21.7	17.5	20.0	21.0	22.2	23.4	18.7	21.5	22.6	23.9	25.2	21.6	25.0	26.3	27.8	29.6	25.1	29.2	30.9	32.8	35.0					
	-25	27.8	32.3	34.2	36.3	38.7	29.4	34.4	36.4	38.8	41.4	31.2	36.7	38.9	41.5	44.4	35.5	42.1	44.8	48.0	51.6	40.9	49.0	52.4	56.4	61.1					
	-20	27.9	32.4	34.3	36.4	38.8	29.5	34.5	36.5	38.8	41.4	31.4	36.8	39.0	41.5	44.4	35.7	42.2	44.9	48.0	51.6	41.1	49.1	52.6	56.5	61.1					
	-15	28.0	32.5	34.4	36.5	38.8	29.7	34.6	36.6	38.9	41.5	31.5	36.9	39.1	41.6	44.5	35.9	42.3	45.1	48.1	51.7	41.3	49.3	52.7	56.6	61.2					
0	-10	28.2	32.7	34.5	36.6	38.9	29.8	34.7	36.8	39.0	41.6	31.7	37.0	39.2	41.7	44.6	36.0	42.5	45.2	48.3	51.8	41.5	49.5	52.9	56.8	61.3					
	-5	28.3	32.8	34.6	36.7	39.0	30.0	34.9	36.9	39.1	41.7	31.8	37.2	39.4	41.8	44.6	36.2	42.7	45.3	48.4	51.9	41.7	49.7	53.1	56.9	61.4					
	0	28.4	32.9	34.7	36.8	39.1	30.1	35.0	37.0	39.2	41.7	32.0	37.3	39.5	41.9	44.7	36.4	42.8	45.5	48.5	52.0	41.9	49.9	53.2	57.1	61.5					
	5	28.6	33.0	34.8	36.9	39.1	30.3	35.1	37.1	39.3	41.8	32.1	37.4	39.6	42.0	44.8	36.6	43.0	45.6	48.6	52.0	42.1	50.0	53.4	57.2	61.6					
	10	28.7	33.1	34.9	36.9	39.2	30.4	35.2	37.2	39.4	41.8	32.3	37.5	39.7	42.1	44.8	36.7	43.1	45.7	48.7	52.1	42.3	50.1	53.5	57.2	61.6					
	15	28.8	33.2	35.0	37.0	39.2	30.5	35.3	37.2	39.4	41.9	32.4	37.6	39.7	42.1	44.8	36.8	43.1	45.8	48.7	52.1	42.4	50.2	53.5	57.3	61.6					
	20	27.8	32.0	33.7	35.6	37.7	29.5	34.1	35.9	38.0	40.3	31.3	36.3	38.4	40.7	43.2	35.7	41.8	44.3	47.1	50.3	41.2	48.7	51.8	55.4	59.5					
	25	25.6	29.4	31.0	32.7	34.6	27.2	31.3	33.0	34.9	37.0	28.9	33.4	35.3	37.3	39.7	33.0	38.4	40.7	43.2	46.1	38.0	44.7	47.6	50.8	54.4					
	30	23.5	26.9	28.3	29.8	31.5	24.9	28.7	30.2	31.9	33.8	26.5	30.6	32.3	34.1	36.2	30.3	35.2	37.3	39.5	42.1	34.9	41.0	43.5	46.4	49.6					
	35	21.5	24.6	25.9	27.3	28.8	22.9	26.3	27.6	29.2	30.9	24.4	28.1	29.6	31.3	33.1	27.9	32.4	34.2	36.2	38.5	32.2	37.7	40.0	42.5	45.4					
40	19.7	22.6	23.7	24.9	26.3	21.0	24.1	25.3	26.7	28.2	22.4	25.8	27.2	28.7	30.3	25.7	29.8	31.4	33.3	35.3	29.7	34.7	36.7	39.1	41.7						
45	18.0	20.5	21.5	22.7	23.9	19.2	22.0	23.1	24.3	25.7	20.5	23.6	24.8	26.1	27.6	23.6	27.3	28.7	30.4	32.3	27.3	31.8	33.7	35.7	38.1						
50	16.3	18.6	19.5	20.5	21.6	17.4	19.9	20.9	22.0	23.2	18.7	21.4	22.5	23.7	25.1	21.5	24.8	26.2	27.7	29.3	25.0	29.1	30.7	32.6	34.7						
52	15.6	17.8	18.6	19.6	20.7	16.7	19.1	20.0	21.1	22.3	17.9	20.5	21.6	22.7	24.0	20.7	23.9	25.2	26.6	28.2	24.1	28.0	29.6	31.4	33.4						
2	-25	28.4	33.0	34.9	37.0	39.1	30.1	35.1	37.2	39.5	42.1	32.0	37.4	39.7	42.2	45.1	36.3	42.9	45.7	48.8	52.4	41.8	50.0	53.5	57.5	62.1					
	-20	28.5	33.1	35.0	37.1	39.5	30.2	35.2	37.3	39.6	42.2	32.1	37.5	39.8	42.3	45.2	36.4	43.1	45.8	48.9	52.5	42.0	50.1	53.6	57.6	62.2					
	-15	28.7	33.2	35.1	37.2	39.5	30.4	35.3	37.4	39.7	42.2	32.3	37.7	39.9	42.4	45.2	36.7	43.2	45.9	49.0	52.6	42.2	50.3	53.7	57.7	62.2					
	-10	28.8	33.4	35.2	37.3	39.6	30.5	35.5	37.5	39.8	42.3	32.4	37.8	40.0	42.5	45.3	36.9	43.4	46.1	49.1	52.7	42.4	50.5	53.9	57.8	62.3					
	-5	29.0	33.5	35.3	37.4	39.7	30.7	35.6	37.6	39.9	42.4	32.6	37.9	40.1	42.6	45.4	37.0	43.5	46.2	49.3	52.8	42.7	50.7	54.1	58.0	62.5					
	0	29.1	33.6	35.4	37.5	39.8	30.8	35.7	37.7	40.0	42.5	32.7	38.1	40.3	42.7	45.5	37.2	43.7	46.4	49.4	52.8	42.9	50.9	54.3	58.1	62.6					
	5	29.2	33.7	35.5	37.6	39.8	31.0	35.8	37.8	40.1	42.5	32.9	38.2	40.4	42.8	45.6	37.4	43.8	46.5	49.5	52.9	43.1	51.0	54.4	58.2	62.6					
	10	29.3	33.8	35.6	37.6	39.9	31.1	35.9	37.9	40.1	42.6	33.0	38.3	40.4	42.9	45.6	37.5	43.9	46.6	49.6	52.9	43.2	51.2	54.5	58.3	62.7					
	15	28.3	32.5	34.3	36.2	38.3	30.0	34.6	36.5	38.6	41.0	31.9	37.0	39.0	41.3	43.9	36.3	42.4	45.0	47.8	51.0	41.9	49.5	52.7	56.3	60.4					
	20	26.1	29.9	31.5	33.2	35.2	27.7	31.9	33.6	35.5																					

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																										
		* 16830					15200					15000					14500					14000						
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS						
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30		
4	-30	20.9	23.8	25.0	26.3	27.7	24.6	28.3	29.7	31.4	33.2	25.2	28.9	30.4	32.1	34.0	26.5	30.6	32.2	34.0	36.0	28.0	32.4	34.1	36.1	38.3		
	-25	21.0	23.9	25.0	26.3	27.7	24.7	28.4	29.8	31.4	33.2	25.3	29.0	30.5	32.1	34.0	26.6	30.7	32.3	34.1	36.1	28.1	32.5	34.2	36.2	38.4		
	0	-20	21.1	24.0	25.1	26.4	27.8	24.9	28.5	29.9	31.5	33.3	25.4	29.1	30.6	32.2	34.1	26.8	30.8	32.4	34.1	36.1	28.3	32.6	34.3	36.2	38.4	
	0	-15	21.2	24.1	25.2	26.5	27.8	25.0	28.6	30.0	31.6	33.4	25.5	29.2	30.7	32.3	34.1	26.9	30.9	32.5	34.2	36.2	28.4	32.7	34.4	36.4	38.5	
	0	-10	21.3	24.2	25.3	26.6	27.9	25.1	28.7	30.1	31.7	33.4	25.7	29.3	30.8	32.4	34.2	27.0	31.0	32.6	34.3	36.3	28.6	32.8	34.5	36.5	38.6	
	0	-5	21.4	24.3	25.4	26.6	28.0	25.3	28.8	30.2	31.8	33.5	25.8	29.4	30.9	32.5	34.3	27.2	31.1	32.7	34.5	36.4	28.7	33.0	34.7	36.6	38.7	
	0	0	21.5	24.4	25.5	26.7	28.1	25.4	28.9	30.3	31.9	33.6	25.9	29.5	31.0	32.6	34.4	27.3	31.2	32.8	34.5	36.5	28.8	33.1	34.8	36.7	38.8	
	0	5	20.6	23.3	24.4	25.5	26.8	24.4	27.8	29.1	30.6	32.2	24.9	28.4	29.8	31.3	33.0	26.3	30.0	31.5	33.2	35.0	27.8	31.8	33.5	35.2	37.8	
	0	10	18.8	21.2	22.2	23.2	24.3	22.3	25.4	26.6	27.9	29.4	22.8	26.0	27.2	28.6	30.1	24.1	27.5	28.8	30.3	32.0	25.5	29.2	30.6	32.2	34.0	
	0	15	17.2	19.4	20.2	21.2	22.2	20.5	23.3	24.4	25.6	26.9	21.0	23.8	24.9	26.2	27.5	22.2	25.3	26.5	27.8	29.3	23.5	26.8	28.1	29.6	31.2	
10	20	15.6	17.6	18.3	19.2	20.1	18.7	21.2	22.2	23.3	24.5	19.2	21.7	22.7	23.8	25.1	20.3	23.1	24.2	25.4	26.7	21.6	24.5	25.7	27.0	28.5		
	25	14.0	15.8	16.5	17.2	18.0	17.0	19.2	20.1	21.0	22.1	17.4	19.7	20.6	21.6	22.6	18.5	20.9	21.9	23.0	24.2	19.6	22.3	23.4	24.5	25.8		
	30	12.6	14.1	14.7	15.4	16.1	15.4	17.3	18.1	19.0	19.9	15.7	17.8	18.6	19.5	20.4	16.7	19.0	19.8	20.8	21.9	17.8	20.2	21.2	22.2	23.4		
	35	11.2	12.6	13.1	13.7	14.3	13.8	15.6	16.3	17.0	17.8	14.2	16.0	16.7	17.5	18.3	15.1	17.1	17.9	18.7	19.6	16.1	18.3	19.1	20.0	21.1		
	40	9.9	11.1	11.5	12.0	12.6	12.3	13.9	14.5	15.1	15.9	12.7	14.3	14.9	15.6	16.3	13.5	15.3	16.0	16.7	17.6	14.5	16.4	17.2	18.0	18.9		
	45	8.6	9.6	10.0	10.5	10.9	10.9	12.3	12.8	13.4	14.0	11.2	12.6	13.2	13.8	14.5	12.1	13.6	14.2	14.9	15.6	13.0	14.7	15.3	16.0	16.8		
	5	-35	21.3	24.2	25.4	26.6	28.1	25.0	28.7	30.2	31.8	33.6	25.6	29.3	30.9	32.5	34.4	27.0	31.0	32.7	34.5	36.5	28.5	32.8	34.6	36.6	38.8	
		0	-30	21.4	24.3	25.4	26.7	28.1	25.1	28.8	30.2	31.9	33.7	25.7	29.4	30.9	32.6	34.5	27.1	31.1	32.7	34.5	36.6	28.6	32.9	34.7	36.7	38.9
		0	-25	21.5	24.4	25.5	26.8	28.2	25.2	28.9	30.3	32.0	33.7	25.8	29.5	31.0	32.7	34.5	27.2	31.2	32.8	34.6	36.6	28.7	33.1	34.8	36.8	38.9
		0	-20	21.6	24.5	25.6	26.9	28.3	25.4	29.0	30.5	32.1	33.8	25.9	29.7	31.1	32.8	34.6	27.3	31.4	33.0	34.7	36.7	28.9	33.2	34.9	36.9	39.0
0		-15	21.7	24.6	25.7	27.0	28.3	25.5	29.1	30.6	32.2	33.9	26.1	29.8	31.3	32.9	34.7	27.5	31.5	33.1	34.9	36.8	29.0	33.3	35.1	37.0	39.1	
0		-10	21.8	24.7	25.8	27.1	28.4	25.7	29.3	30.7	32.3	34.0	26.2	29.9	31.4	33.0	34.8	27.6	31.6	33.2	35.0	36.9	29.2	33.5	35.2	37.1	39.2	
0		-5	21.9	24.8	25.9	27.1	28.5	25.8	29.4	30.8	32.3	34.1	26.3	30.0	31.5	33.1	34.9	27.8	31.7	33.3	35.1	37.0	29.3	33.6	35.3	37.2	39.3	
0		0	20.9	23.6	24.6	25.8	27.0	24.7	28.0	29.4	30.9	32.5	25.2	28.7	30.1	31.6	33.3	26.6	30.3	31.8	33.5	35.3	28.1	32.2	33.8	35.6	37.6	
0		5	19.2	21.6	22.6	23.6	24.8	22.8	25.8	27.0	28.4	29.8	23.3	26.4	27.7	29.0	30.6	24.6	28.0	29.3	30.8	32.5	26.0	29.7	31.1	32.8	34.6	
0		10	17.4	19.6	20.5	21.4	22.4	20.8	23.5	24.6	25.8	27.1	21.2	24.1	25.2	26.4	27.8	22.5	25.5	26.8	28.1	29.6	23.8	27.1	28.4	29.9	31.5	
15	15	15.9	17.8	18.6	19.4	20.4	19.0	21.5	22.5	23.6	24.8	19.5	22.0	23.0	24.2	25.4	20.6	23.4	24.5	25.7	27.0	21.9	24.9	26.1	27.4	28.8		
	20	14.3	16.1	16.8	17.5	18.3	17.3	19.5	20.4	21.4	22.4	17.7	20.0	20.9	21.9	23.0	18.8	21.3	22.3	23.4	24.6	20.0	22.7	23.7	24.9	26.2		
	25	12.8	14.4	15.0	15.6	16.4	15.6	17.6	18.4	19.2	20.2	16.0	18.1	18.9	19.7	20.7	17.0	19.2	20.1	21.1	22.1	18.1	20.5	21.5	22.5	23.7		
	30	11.5	12.8	13.4	13.9	14.6	14.1	15.9	16.6	17.3	18.2	14.4	16.3	17.0	17.8	18.7	15.4	17.4	18.2	19.0	20.0	16.4	18.6	19.4	20.4	21.4		
	35	10.1	11.3	11.8	12.3	12.8	12.6	14.1	14.7	15.4	16.1	12.9	14.5	15.2	15.8	16.6	13.8	15.6	16.3	17.0	17.8	14.8	16.7	17.4	18.3	19.2		
	40	8.9	9.9	10.3	10.8	11.2	11.2	12.6	13.1	13.7	14.4	11.5	12.9	13.5	14.1	14.8	12.4	13.9	14.5	15.2	15.9	13.3	15.0	15.7	16.4	17.2		
	42	8.4	9.3	9.7	10.1	10.6	10.6	11.9	12.5	13.0	13.6	10.9	12.3	12.8	13.4	14.0	11.8	13.3	13.8	14.5	15.2	12.7	14.3	14.9	15.6	16.4		
	6	-35	21.5	24.4	25.5	26.8	28.2	25.3	28.9	30.3	32.0	33.7	25.8	29.5	31.0	32.7	34.5	27.2	31.2	32.8	34.6	36.6	28.7	33.1	34.8	36.8	39.0	
		0	-30	21.5	24.4	25.6	26.8	28.2	25.3	29.0	30.4	32.0	33.8	25.9	29.6	31.1	32.7	34.6	27.3	31.3	32.9	34.7	36.7	28.8	33.1	34.9	36.8	39.0
		0	-25	21.6	24.5	25.6	26.9	28.2	25.4	29.0	30.5	32.0	33.8	26.0	29.7	31.2	32.8	34.6	27.4	31.4	33.0	34.7	36.7	28.9	33.2	35.0	36.9	39.0
0		-20	21.7	24.6	25.7	26.9	28.3	25.6	29.1	30.5	32.1	33.8	26.1	29.8	31.2	32.8	34.6	27.5	31.5	33.0	34.8	36.8	29.0	33.3	35.0	36.9	39.1	
0		-15	21.8	24.6	25.7	27.0	28.3	25.6	29.2	30.6	32.2	33.9	26.2	29.8	31.3	32.9	34.7	27.6	31.5	33.1	34.9	36.9	29.2	33.4	35.1	37.0	39.1	
0		-10	21.8	24.7	25.8	27.0	28.3	25.7	29.2	30.6	32.2	33.9	26.3	29.9	31.3	32.9	34.7	27.7	31.6	33.1	34.9	36.8	29.2	33.5	35.1	37.0	39.1	
0		-5	21.0	23.7	24.8	25.9	27.2	24.8	28.2	29.5	31.0	32.6	25.4	28.8	30.2	31.7	33.4	26.8	30.5	32.0	33.6	35.5	28.3	32.3	34.0	35.7	37.7	
0		0	19.4	21.9	22.8	23.9	25.0	23.0	26.1	27.3	28.6	30.1	23.5	26.7	27.9	29.3	30.8	24.9	28.3	29.6	31.1	32.8	26.3	30.0	31.5	33.1	34.9	
0		5	17.7	19.9	20.8	21.7	22.8	21.1	23.9	25.0	26.2	27.5	21.6	24.5	25.6	26.9	28.2	22.9	26.0	27.2	28.5	30.0	24.2	27.6	28.9	30.7	32.0	
0		10	16.1	18.1	18.8	19.7	20.6	19.3	21.8	22.8	23.9	25.0	19.7	22.3	23.3	24.4	25.7	20.9	23.7	24.8	26.0	27.3	22.2	25.2	26.4	27.3	29.1	
15	15	14.6	16.4	17.1	17.8	18.6	17.6	19.8	20.7	21.7	22.8	18.0	20.3	21.3	22.3	23.3	19.1	21.6	22.6	23.7	24.9	20.3	23.0	24.1	25.3	26.6		
	20	13.1	14.7	15.3	15.9	16.7	15.9	17.9	18.7	19.6	20.5	16.3	18.4	19.2	20.1	21.1	17.3	19.6	20.5</									

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		13500					13000					12500					11500					10500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
4	-30	29.6	34.3	36.3	38.4	40.8	31.4	36.5	38.6	41.0	43.6	33.3	38.9	41.2	43.8	46.7	37.9	44.6	47.4	50.6	54.3	43.6	52.0	55.5	59.6	64.3
	-25	29.8	34.4	36.3	38.5	40.9	31.5	36.6	38.7	41.0	43.7	33.5	39.0	41.3	43.9	46.8	38.0	44.7	47.5	50.7	54.3	43.8	52.1	55.7	59.7	64.4
	-20	29.9	34.6	36.5	38.6	40.9	31.7	36.7	38.8	41.1	43.7	33.6	39.2	41.4	44.0	46.8	38.2	44.9	47.7	50.8	54.4	44.0	52.3	55.8	59.8	64.4
	-15	30.1	34.7	36.6	38.7	41.1	31.9	36.9	38.9	41.2	43.8	33.8	39.3	41.6	44.1	46.9	38.4	45.1	47.8	51.0	54.5	44.3	52.5	56.0	60.0	64.6
	-10	30.2	34.8	36.7	38.8	41.1	32.0	37.0	39.1	41.4	43.9	34.0	39.5	41.7	44.2	47.0	38.6	45.2	48.0	51.1	54.6	44.5	52.7	56.2	60.1	64.7
	-5	30.4	35.0	36.8	38.9	41.2	32.2	37.2	39.2	41.5	44.0	34.2	39.6	41.8	44.3	47.1	38.8	45.4	48.2	51.2	54.7	44.8	53.0	56.4	60.3	64.8
	0	30.5	35.1	36.9	39.0	41.3	32.3	37.3	39.3	41.6	44.1	34.3	39.8	42.0	44.4	47.2	39.0	45.6	48.3	51.3	54.8	45.0	53.1	56.6	60.5	64.9
	5	29.5	33.8	35.6	37.5	39.7	31.2	36.0	37.9	40.1	42.4	33.2	38.4	40.5	42.9	45.5	37.8	44.1	46.7	49.6	52.9	43.7	51.5	54.7	58.4	62.7
	10	27.1	31.0	32.6	34.3	36.3	28.7	33.0	34.7	36.7	38.8	30.5	35.2	37.1	39.2	41.6	34.8	40.5	42.8	45.4	48.3	40.1	47.7	50.0	53.3	57.1
	15	24.9	28.5	30.0	31.5	33.3	26.5	30.4	32.0	33.7	35.6	28.2	32.4	34.2	36.1	38.2	32.1	37.3	39.4	41.7	44.3	37.1	43.4	46.0	48.9	52.3
20	22.9	26.1	27.4	28.8	30.4	24.3	27.9	29.3	30.8	32.6	25.9	29.8	31.3	33.0	34.9	29.6	34.2	36.1	38.2	40.6	34.1	39.8	42.2	44.8	47.8	
25	20.9	23.8	24.9	26.2	27.6	22.2	25.4	26.6	28.0	29.6	23.7	27.1	28.5	30.1	31.8	27.1	31.3	33.0	34.8	36.9	31.3	36.4	38.5	40.9	43.5	
30	19.0	21.6	22.6	23.8	25.1	20.3	23.1	24.2	25.5	26.9	21.6	24.8	26.0	27.4	28.9	24.8	28.6	30.1	31.8	33.7	28.7	33.3	35.2	37.3	39.7	
35	17.2	19.6	20.5	21.5	22.6	18.4	21.0	22.0	23.1	24.3	19.7	22.5	23.6	24.8	26.2	22.7	26.0	27.4	28.9	30.6	26.3	30.4	32.1	34.0	36.1	
40	15.5	17.6	18.4	19.3	20.3	16.6	18.9	19.8	20.8	21.9	17.8	20.3	21.3	22.4	23.7	20.6	23.6	24.9	26.2	27.7	24.0	27.7	29.2	30.9	32.8	
45	13.9	15.8	16.5	17.3	18.2	15.0	17.0	17.8	18.7	19.7	16.1	18.3	19.2	20.2	21.3	18.7	21.4	22.5	23.7	25.1	21.8	25.2	26.5	28.1	29.7	
5	-35	30.1	34.8	36.8	38.9	41.4	31.9	37.0	39.2	41.5	44.2	33.9	39.5	41.8	44.4	47.4	38.5	45.3	48.1	51.3	55.0	44.3	52.7	56.3	60.4	65.2
	-30	30.2	34.9	36.9	39.0	41.4	32.0	37.2	39.3	41.6	44.2	34.0	39.6	41.9	44.5	47.4	38.6	45.4	48.2	51.4	55.0	44.5	52.9	56.5	60.5	65.2
	-25	30.4	35.1	37.0	39.1	41.5	32.2	37.3	39.4	41.7	44.3	34.2	39.7	42.0	44.6	47.5	38.8	45.6	48.4	51.5	55.1	44.7	53.1	56.6	60.7	65.3
	-20	30.5	35.2	37.1	39.2	41.6	32.4	37.4	39.5	41.8	44.4	34.4	39.9	42.2	44.7	47.6	39.0	45.8	48.5	51.7	55.3	45.0	53.3	56.8	60.8	65.5
	-15	30.7	35.4	37.3	39.4	41.7	32.5	37.6	39.7	42.0	44.5	34.5	40.1	42.3	44.9	47.7	39.3	46.0	48.7	51.8	55.4	45.2	53.6	57.0	61.0	65.6
	-10	30.9	35.5	37.4	39.5	41.8	32.7	37.8	39.8	42.1	44.6	34.7	40.2	42.5	45.0	47.8	39.5	46.1	48.9	52.0	55.5	45.5	53.8	57.3	61.2	65.8
	-5	31.0	35.7	37.5	39.6	41.9	32.9	37.9	39.9	42.2	44.7	34.9	40.4	42.6	45.1	47.9	39.7	46.3	49.1	52.2	55.7	45.8	54.0	57.5	61.4	66.0
	0	29.8	34.2	35.9	37.9	40.1	31.6	36.4	38.3	40.4	42.8	33.6	38.8	40.9	43.2	45.9	38.2	44.5	47.1	50.0	53.3	44.1	52.0	55.2	58.9	63.2
	5	27.5	31.5	33.1	34.9	36.9	29.2	33.6	35.3	37.2	39.4	31.1	35.8	37.7	39.8	42.2	35.4	41.1	43.4	46.1	49.0	40.8	47.9	50.8	54.1	57.9
	10	25.2	28.8	30.3	31.9	33.6	26.8	30.7	32.3	34.0	36.0	28.5	32.8	34.5	36.4	38.5	32.5	37.7	39.8	42.1	44.7	37.5	43.8	46.4	49.4	52.7
15	23.2	26.5	27.8	29.2	30.8	24.7	28.2	29.6	31.2	32.9	26.3	30.1	31.7	33.4	35.3	30.0	34.7	36.5	38.6	41.0	34.6	40.3	42.7	45.3	48.3	
20	21.2	24.2	25.3	26.6	28.0	22.6	25.8	27.1	28.5	30.0	24.1	27.6	29.0	30.5	32.2	27.6	31.8	33.5	35.4	37.5	31.8	37.0	39.1	41.4	44.1	
25	19.3	21.9	23.0	24.1	25.4	20.6	23.4	24.6	25.8	27.2	22.0	25.1	26.3	27.7	29.3	25.2	29.0	30.5	32.2	34.1	29.1	33.8	35.6	37.8	40.1	
30	17.5	19.9	20.8	21.9	23.0	18.7	21.3	22.3	23.5	24.7	20.0	22.9	24.0	25.2	26.6	23.0	26.5	27.8	29.3	31.0	26.7	30.9	32.6	34.5	36.6	
35	15.8	17.9	18.7	19.6	20.6	16.9	19.2	20.1	21.1	22.2	18.1	20.7	21.7	22.8	24.0	20.9	24.0	25.2	26.6	28.1	24.3	28.1	29.6	31.3	33.2	
40	14.2	16.1	16.9	17.7	18.6	15.3	17.4	18.2	19.1	20.0	16.4	18.7	19.6	20.6	21.7	19.1	21.8	22.9	24.1	25.5	22.3	25.6	27.0	28.5	30.2	
42	13.6	15.4	16.1	16.9	17.7	14.6	16.6	17.4	18.2	19.2	15.8	17.9	18.8	19.7	20.7	18.3	20.9	22.0	23.1	24.4	21.4	24.6	25.9	27.4	29.0	
6	-35	30.4	35.1	37.0	39.1	41.5	32.2	37.3	39.4	41.7	44.3	34.2	39.7	42.0	44.6	47.5	38.8	45.6	48.4	51.5	55.1	44.7	53.1	56.6	60.6	65.3
	-30	30.5	35.2	37.0	39.2	41.5	32.3	37.4	39.4	41.7	44.3	34.3	39.8	42.1	44.6	47.5	39.0	45.7	48.4	51.6	55.2	44.9	53.2	56.7	60.7	65.3
	-25	30.6	35.2	37.1	39.2	41.6	32.4	37.5	39.5	41.8	44.4	34.4	39.9	42.2	44.7	47.5	39.1	45.8	48.6	51.7	55.2	45.1	53.3	56.8	60.8	65.4
	-20	30.7	35.3	37.2	39.3	41.6	32.6	37.6	39.6	41.9	44.4	34.6	40.0	42.3	44.8	47.6	39.3	45.9	48.7	51.7	55.2	45.2	53.5	56.9	60.9	65.4
	-15	30.8	35.4	37.3	39.3	41.6	32.7	37.7	39.7	41.9	44.5	34.7	40.1	42.4	44.8	47.6	39.4	46.0	48.8	51.8	55.3	45.4	53.6	57.1	61.0	65.4
	-10	30.9	35.5	37.3	39.4	41.6	32.8	37.7	39.7	42.0	44.5	34.8	40.2	42.4	44.9	47.6	39.6	46.1	48.8	51.9	55.3	45.6	53.8	57.2	61.0	65.5
	-5	30.0	34.3	36.1	38.0	40.2	31.8	36.5	38.5	40.6	43.0	33.8	39.0	41.1	43.4	46.0	38.5	44.8	47.3	50.2	53.5	44.4	52.2	55.5	59.1	63.4
	0	27.9	31.9	33.5	35.2	37.2	29.6	33.9	35.7	37.6	39.7	31.4	36.2	38.1	40.2	42.6	35.8	41.5	43.9	46.5	49.4	41.3	48.4	51.3	54.6	58.4
	5	25.7	29.3	30.7	32.3	34.1	27.3	31.2	32.8	34.5	36.5	29.0	33.3	35.0	37.0	39.1	33.1	38.3	40.4	42.7	45.4	38.2	44.5	47.2	50.2	53.5
	10	23.5	26.8	28.1	29.5	31.1	25.0	28.6	30.0	31.5	33.3	26.6	30.5	32.1	33.8	35.7	30.4	35.1	36.9	39.1	41.4	35.0	40.8	43.1	45.8	48.8
15	21.6	24.5	25.7	27.0	28.4	23.0	26.2	27.5	28.9	30.4	24.5	28.0	29.4	30.9	32.7	28.0	32.2	33.9	35.8	37.9	32.3	37.5	39.6	42.0	44.6	
20	19.7	22.3	23.4	24.5	25.8	21.0	23.8	25.0	26.3	27.7	22.4	25.5	26.8	28.2	29.7	25.6	29.4	31.0	32.7	34.6	29.6	34.3	36.2	38.2	40.8	
25	17.8	20.2	21.1	22.2	23.3	19.0	21.6	22.7	23.8																	

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		* 16830					15200					15000					14500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8	-35	21.8	24.6	25.7	26.9	28.3	25.6	29.2	30.6	32.1	33.8	26.1	29.8	31.3	32.9	34.6	27.6	31.5	33.1	34.8	36.7
0	-30	21.8	24.7	25.8	27.0	28.3	25.7	29.2	30.6	32.2	33.9	26.2	29.9	31.3	32.9	34.7	27.7	31.6	33.1	34.9	36.8
0	-25	21.9	24.7	25.8	27.0	28.3	25.8	29.3	30.7	32.2	33.9	26.3	29.9	31.4	33.0	34.7	27.8	31.7	33.2	34.9	36.8
0	-20	21.3	23.9	25.0	26.2	27.4	25.1	28.4	29.8	31.2	32.8	25.6	29.1	30.4	32.0	33.6	27.0	30.7	32.2	33.9	35.7
	-15	20.2	22.7	23.7	24.8	26.0	23.9	27.0	28.3	29.7	31.2	24.4	27.6	28.9	30.3	31.9	25.8	29.3	30.6	32.2	33.9
	-10	19.4	21.8	22.7	23.7	24.8	23.0	26.0	27.1	28.4	29.9	23.5	26.5	27.8	29.1	30.6	24.8	28.1	29.4	30.9	32.5
	-5	18.3	20.5	21.3	22.3	23.3	21.7	24.5	25.6	26.8	28.2	22.2	25.1	26.2	27.5	28.8	23.5	26.6	27.8	29.2	30.6
	0	16.7	18.7	19.5	20.4	21.3	20.0	22.5	23.5	24.6	25.8	20.4	23.1	24.1	25.2	26.5	21.6	24.5	25.6	26.8	28.1
	5	15.1	16.9	17.6	18.4	19.2	18.2	20.5	21.4	22.4	23.4	18.6	21.0	21.9	22.9	24.0	19.8	22.3	23.3	24.4	25.6
	10	13.6	15.2	15.8	16.5	17.2	16.5	18.5	19.3	20.2	21.2	16.9	19.0	19.8	20.7	21.7	18.0	20.2	21.1	22.1	23.2
	15	12.2	13.6	14.2	14.8	15.4	14.9	16.7	17.5	18.2	19.1	15.3	17.2	17.9	18.7	19.6	16.3	18.3	19.1	20.0	21.0
	20	10.8	12.0	12.5	13.0	13.6	13.4	15.0	15.6	16.3	17.0	13.7	15.4	16.0	16.7	17.5	14.6	16.5	17.2	17.9	18.8
	25	9.5	10.6	11.0	11.4	11.9	11.9	13.3	13.9	14.5	15.1	12.2	13.7	14.3	14.9	15.6	13.1	14.7	15.3	16.0	16.8
	30	8.2	9.1	9.5	9.8	10.3	10.4	11.7	12.2	12.7	13.2	10.7	12.0	12.5	13.1	13.7	11.6	13.0	13.5	14.1	14.8
	33	7.5	8.4	8.7	9.0	9.4	9.7	10.8	11.3	11.8	12.3	10.0	11.2	11.6	12.1	12.7	10.8	12.1	12.6	13.1	13.7
9	-35	21.4	24.2	25.2	26.4	27.7	25.2	28.7	30.0	31.5	33.2	25.8	29.3	30.7	32.2	33.9	27.2	31.0	32.5	34.1	36.0
0	-30	21.5	24.2	25.3	26.4	27.7	25.3	28.7	30.0	31.5	33.1	25.8	29.3	30.7	32.2	33.9	27.2	31.0	32.5	34.1	36.0
0	-25	20.8	23.5	24.5	25.6	26.8	24.6	27.9	29.2	30.6	32.1	25.1	28.5	29.8	31.3	32.9	26.5	30.2	31.6	33.2	34.9
0	-20	19.9	22.3	23.3	24.3	25.5	23.5	26.6	27.8	29.1	30.6	24.0	27.2	28.5	29.8	31.3	25.4	28.8	30.1	31.6	33.3
	-15	18.9	21.2	22.1	23.0	24.1	22.4	25.3	26.4	27.6	29.0	22.9	25.8	27.0	28.3	29.7	24.2	27.4	28.6	30.0	31.6
	-10	18.1	20.3	21.1	22.1	23.1	21.5	24.3	25.3	26.5	27.8	22.0	24.8	25.9	27.1	28.5	23.2	26.3	27.5	28.8	30.3
	-5	16.9	18.9	19.7	20.6	21.5	20.2	22.8	23.8	24.9	26.1	20.7	23.3	24.3	25.5	26.7	21.9	24.7	25.8	27.0	28.4
	0	15.4	17.2	17.9	18.7	19.5	18.5	20.8	21.7	22.7	23.8	19.0	21.3	22.3	23.3	24.4	20.1	22.7	23.7	24.8	26.0
	5	13.9	15.5	16.1	16.8	17.5	16.8	18.9	19.7	20.5	21.5	17.2	19.3	20.2	21.1	22.1	18.3	20.6	21.5	22.5	23.5
	10	12.5	13.9	14.4	15.0	15.7	15.2	17.1	17.8	18.6	19.4	15.6	17.5	18.2	19.0	19.9	16.6	18.7	19.5	20.3	21.3
	15	11.1	12.3	12.8	13.3	13.9	13.6	15.3	15.9	16.6	17.4	14.0	15.7	16.4	17.1	17.9	14.9	16.8	17.5	18.3	19.1
	20	9.7	10.8	11.3	11.7	12.2	12.2	13.6	14.2	14.8	15.5	12.5	14.0	14.6	15.2	15.9	13.4	15.0	15.7	16.3	17.1
	25	8.5	9.4	9.8	10.2	10.6	10.7	12.0	12.5	13.0	13.6	11.0	12.4	12.9	13.4	14.0	11.9	13.3	13.9	14.5	15.1
	30	7.3	8.1	8.4	8.7	9.1	9.4	10.5	10.9	11.4	11.9	9.7	10.9	11.3	11.8	12.3	10.5	11.7	12.2	12.8	13.3
	31	7.0	7.8	8.1	8.4	8.8	9.2	10.2	10.6	11.1	11.6	9.4	10.5	11.0	11.4	11.9	10.2	11.4	11.9	12.4	13.0
1	-35	20.9	23.5	24.5	25.6	26.8	24.6	27.9	29.2	30.6	32.1	25.1	28.5	29.8	31.3	32.9	26.5	30.1	31.6	33.1	34.9
0	-30	20.3	22.8	23.8	24.9	26.0	24.0	27.1	28.4	29.7	31.2	24.5	27.7	29.0	30.4	32.0	25.8	29.3	30.7	32.2	33.9
0	-25	19.5	21.9	22.8	23.8	24.9	23.1	26.1	27.2	28.5	29.9	23.6	26.6	27.9	29.2	30.7	24.9	28.2	29.5	31.0	32.5
0	-20	18.6	20.8	21.7	22.6	23.7	22.0	24.9	26.0	27.2	28.5	22.5	25.4	26.6	27.8	29.2	23.8	26.9	28.2	29.5	31.0
	-15	17.6	19.7	20.5	21.4	22.4	20.9	23.6	24.6	25.7	27.0	21.4	24.1	25.2	26.3	27.6	22.6	25.6	26.7	28.0	29.4
	-10	16.8	18.8	19.6	20.4	21.4	20.1	22.6	23.6	24.6	25.8	20.5	23.1	24.1	25.2	26.4	21.7	24.5	25.6	26.8	28.1
	-5	15.7	17.5	18.2	19.0	19.8	18.8	21.1	22.0	23.0	24.1	19.2	21.6	22.5	23.6	24.7	20.4	22.9	24.0	25.1	26.3
	0	14.2	15.8	16.5	17.2	17.9	17.1	19.2	20.0	20.9	21.9	17.6	19.7	20.5	21.5	22.5	18.6	21.0	21.9	22.9	24.0
	5	12.7	14.2	14.7	15.3	16.0	15.5	17.4	18.1	18.9	19.7	15.9	17.8	18.6	19.4	20.3	16.9	19.0	19.8	20.7	21.7
	10	11.3	12.6	13.1	13.7	14.2	14.0	15.6	16.3	17.0	17.7	14.3	16.0	16.7	17.4	18.2	15.3	17.1	17.9	18.7	19.5
	15	10.0	11.1	11.5	12.0	12.5	12.4	13.9	14.5	15.1	15.8	12.8	14.3	14.9	15.5	16.2	13.7	15.3	16.0	16.7	17.4
	20	8.7	9.7	10.1	10.5	10.9	11.0	12.3	12.8	13.3	13.9	11.4	12.7	13.2	13.8	14.4	12.2	13.6	14.2	14.8	15.5
	25	7.5	8.3	8.6	8.9	9.3	9.6	10.7	11.2	11.6	12.1	9.9	11.1	11.5	12.0	12.5	10.7	12.0	12.5	13.0	13.6
	29	6.6	7.3	7.6	7.8	8.2	8.6	9.6	10.0	10.4	10.9	8.9	9.9	10.3	10.8	11.2	9.7	10.8	11.2	11.7	12.2

56FMC-00-00

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure 4-51 (Sheet 5)

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - OFF
LANDING GEAR - DOWN
AIRSPEED - VREF

SPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		13500				13000				12500				11500				10500			
		WIND KNOTS				WIND KNOTS				WIND KNOTS				WIND KNOTS				WIND KNOTS			
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
8	-35	30.8	35.4	37.2	39.3	41.6	32.6	37.6	39.6	41.9	44.4	34.6	40.1	42.3	44.8	47.6	39.4	46.0	48.7	51.8	55.2
0	-30	30.9	35.5	37.3	39.4	41.6	32.8	37.7	39.7	42.0	44.5	34.8	40.2	42.4	44.9	47.6	39.5	46.1	48.8	51.8	55.3
0	-25	31.0	35.6	37.4	39.4	41.7	32.9	37.8	39.8	42.0	44.5	34.9	40.3	42.5	44.9	47.6	39.7	46.2	48.9	51.9	55.3
0	-20	30.2	34.6	36.3	38.3	40.4	32.0	36.8	38.7	40.8	43.2	34.0	39.2	41.3	43.6	46.2	38.7	45.0	47.5	50.4	53.7
	-15	28.8	32.9	34.6	36.4	38.4	30.6	35.0	36.8	38.8	41.0	32.5	37.4	39.3	41.5	43.9	37.0	42.9	45.3	47.9	51.0
	-10	27.7	31.6	33.2	34.9	36.8	29.4	33.6	35.3	37.2	39.3	31.3	35.9	37.7	39.8	42.1	35.6	41.1	43.4	45.9	48.8
	-5	26.3	30.0	31.4	33.0	34.8	27.9	31.9	33.5	35.2	37.2	29.7	34.1	35.8	37.7	39.8	33.9	39.1	41.2	43.6	46.2
	0	24.3	27.6	29.0	30.4	32.0	25.8	29.5	30.9	32.5	34.2	27.5	31.4	33.0	34.8	36.7	31.4	36.1	38.0	40.2	42.6
	5	22.3	25.3	26.5	27.8	29.2	23.7	27.0	28.3	29.7	31.3	25.3	28.8	30.2	31.8	33.5	28.9	33.2	34.9	36.8	39.0
	10	20.3	23.0	24.1	25.2	26.5	21.6	24.6	25.7	27.0	28.4	23.1	26.3	27.6	29.0	30.5	26.4	30.3	31.9	33.6	35.5
	15	18.5	20.9	21.9	22.9	24.1	19.7	22.4	23.4	24.6	25.8	21.1	24.0	25.1	26.4	27.8	24.2	27.7	29.1	30.6	32.3
	20	16.7	18.9	19.7	20.6	21.7	17.9	20.2	21.2	22.2	23.3	19.1	21.7	22.8	23.9	25.1	22.1	25.2	26.4	27.8	29.3
	25	15.0	17.0	17.7	18.5	19.4	16.1	18.2	19.1	20.0	21.0	17.3	19.6	20.5	21.5	22.6	20.0	22.8	24.0	25.2	26.5
	30	13.4	15.1	15.7	16.5	17.3	14.4	16.3	17.0	17.8	18.7	15.5	17.6	18.4	19.2	20.2	18.1	20.6	21.5	22.6	23.8
	33	12.5	14.1	14.7	15.4	16.1	13.5	15.2	15.9	16.7	17.5	14.6	16.5	17.2	18.1	19.0	17.0	19.4	20.3	21.3	22.4
9	-35	30.3	34.8	36.6	38.5	40.7	32.1	37.0	38.9	41.1	43.5	34.1	39.4	41.5	43.9	46.6	38.8	45.1	47.8	50.7	54.0
0	-30	30.4	34.8	36.6	38.5	40.7	32.2	37.0	38.9	41.1	43.5	34.2	39.4	41.6	43.9	46.5	38.9	45.2	47.8	50.7	54.0
0	-25	29.7	33.9	35.6	37.5	39.6	31.5	36.1	37.9	40.0	42.3	33.4	38.5	40.5	42.7	45.3	38.0	44.1	46.6	49.4	52.5
0	-20	28.4	32.4	34.0	35.8	37.7	30.1	34.5	36.2	38.2	40.3	32.0	36.8	38.7	40.8	43.2	36.5	42.2	44.5	47.1	50.1
	-15	27.1	30.8	32.3	34.0	35.8	28.7	32.8	34.4	36.2	38.2	30.5	35.0	36.8	38.7	41.0	34.8	40.1	42.3	44.7	47.5
	-10	26.0	29.6	31.0	32.6	34.3	27.6	31.5	33.1	34.8	36.7	29.4	33.6	35.3	37.2	39.3	33.5	38.6	40.6	42.9	45.5
	-5	24.6	27.9	29.2	30.7	32.3	26.1	29.7	31.2	32.8	34.5	27.8	31.7	33.3	35.1	37.0	31.7	36.5	38.4	40.5	42.9
	0	22.7	25.7	26.9	28.2	29.6	24.1	27.4	28.7	30.1	31.7	25.7	29.2	30.7	32.2	34.0	29.3	33.6	35.4	37.3	39.4
	5	20.7	23.4	24.4	25.6	26.9	22.0	25.0	26.1	27.4	28.8	23.5	26.7	28.0	29.4	30.9	26.9	30.7	32.3	34.0	35.9
	10	18.8	21.3	22.2	23.3	24.4	20.1	22.8	23.8	25.0	26.2	21.5	24.4	25.5	26.8	28.2	24.6	28.1	29.5	31.1	32.8
	15	17.0	19.2	20.1	21.0	22.1	18.2	20.6	21.6	22.6	23.7	19.5	22.1	23.2	24.3	25.5	22.5	25.6	26.9	28.3	29.8
	20	15.4	17.3	18.1	18.9	19.8	16.5	18.6	19.4	20.3	21.4	17.7	20.0	20.9	21.9	23.0	20.4	23.3	24.4	25.6	27.0
	25	13.7	15.4	16.1	16.8	17.6	14.8	16.6	17.4	18.2	19.1	15.9	18.0	18.8	19.7	20.6	18.5	21.0	22.0	23.1	24.3
	30	12.2	13.8	14.3	15.0	15.7	13.2	14.9	15.5	16.2	17.0	14.3	16.1	16.8	17.6	18.5	16.7	18.9	19.8	20.8	21.9
	31	11.9	13.4	14.0	14.6	15.3	12.9	14.5	15.1	15.8	16.6	13.9	15.7	16.4	17.2	18.0	16.3	18.5	19.4	20.3	21.4
1	-35	29.6	33.9	35.5	37.4	39.5	31.4	36.0	37.8	39.9	42.2	33.3	38.4	40.4	42.6	45.2	37.9	44.0	46.5	49.2	52.4
0	-30	28.9	33.0	34.6	36.4	38.4	30.7	35.1	36.9	38.8	41.0	32.6	37.4	39.4	41.5	43.9	37.1	42.9	45.3	47.9	50.9
0	-25	27.9	31.8	33.3	35.0	36.9	29.6	33.8	35.5	37.3	39.4	31.4	36.0	37.9	39.9	42.2	35.8	41.3	43.6	46.1	48.9
0	-20	26.7	30.3	31.8	33.4	35.2	28.3	32.3	33.9	35.6	37.6	30.1	34.5	36.2	38.1	40.3	34.3	39.5	41.7	44.0	46.7
	-15	25.4	28.8	30.2	31.7	33.3	26.9	30.7	32.2	33.8	35.6	28.7	32.7	34.4	36.2	38.2	32.6	37.6	39.5	41.7	44.2
	-10	24.4	27.7	29.0	30.4	31.9	25.9	29.5	30.9	32.4	34.1	27.6	31.4	33.0	34.7	36.6	31.4	36.1	38.0	40.0	42.4
	-5	22.9	26.0	27.2	28.5	29.9	24.4	27.7	29.0	30.4	32.0	26.0	29.6	31.0	32.6	34.3	29.7	34.0	35.7	37.7	39.8
	0	21.1	23.8	24.9	26.1	27.4	22.4	25.4	26.6	27.9	29.3	23.9	27.2	28.5	29.9	31.4	27.4	31.3	32.9	34.6	36.5
	5	19.2	21.6	22.6	23.7	24.8	20.5	23.1	24.2	25.4	26.6	21.9	24.8	26.0	27.2	28.6	25.1	28.6	30.0	31.6	33.3
	10	17.4	19.6	20.5	21.4	22.5	18.6	21.0	22.0	23.0	24.1	19.9	22.6	23.6	24.7	26.0	22.9	26.1	27.4	28.8	30.3
	15	15.7	17.6	18.4	19.2	20.2	16.8	18.9	19.8	20.7	21.7	18.0	20.4	21.3	22.3	23.4	20.8	23.7	24.8	26.0	27.4
	20	14.1	15.8	16.5	17.2	18.0	15.1	17.0	17.8	18.6	19.5	16.3	18.4	19.2	20.1	21.1	18.9	21.4	22.4	23.6	24.8
	25	12.5	14.0	14.6	15.2	15.9	13.5	15.1	15.8	16.5	17.3	14.5	16.4	17.1	17.9	18.8	17.0	19.2	20.1	21.1	22.2
	29	11.3	12.7	13.2	13.8	14.5	12.3	13.8	14.4	15.0	15.7	13.3	15.0	15.6	16.3	17.1	15.6	17.7	18.5	19.4	20.4

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Figure 4-51 (Sheet 6)

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		* 16830					15200					15000					14500					14000				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	17.4	20.0	21.0	22.2	23.5	20.8	24.0	25.4	26.9	28.6	21.2	24.6	26.0	27.5	29.3	22.5	26.1	27.6	29.3	31.2	23.8	27.7	29.4	31.2	33.3
	-30	17.5	20.0	21.1	22.3	23.5	20.8	24.1	25.4	26.9	28.6	21.3	24.7	26.0	27.6	29.3	22.5	26.2	27.7	29.3	31.2	23.9	27.8	29.4	31.2	33.3
	-25	17.5	20.1	21.2	22.3	23.6	20.9	24.2	25.5	27.0	28.6	21.4	24.8	26.1	27.6	29.4	22.6	26.3	27.7	29.4	31.3	24.0	27.9	29.5	31.3	33.3
	-20	17.6	20.2	21.2	22.4	23.6	21.0	24.3	25.6	27.0	28.7	21.5	24.8	26.2	27.7	29.4	22.8	26.4	27.8	29.5	31.3	24.1	28.0	29.6	31.4	33.4
	-15	17.7	20.3	21.3	22.4	23.7	21.1	24.4	25.7	27.1	28.8	21.6	24.9	26.3	27.8	29.5	22.9	26.5	27.9	29.5	31.4	24.2	28.1	29.7	31.5	33.5
	-10	17.8	20.4	21.4	22.5	23.8	21.3	24.5	25.8	27.2	28.8	21.7	25.1	26.4	27.9	29.6	23.0	26.6	28.0	29.6	31.5	24.4	28.2	29.8	31.6	33.5
	-5	17.9	20.5	21.5	22.6	23.8	21.4	24.6	25.9	27.3	28.9	21.9	25.2	26.5	28.0	29.6	23.1	26.7	28.1	29.7	31.5	24.5	28.3	29.9	31.7	33.6
	0	18.0	20.6	21.6	22.7	23.9	21.5	24.7	26.0	27.4	29.0	22.0	25.3	26.6	28.1	29.7	23.2	26.8	28.2	29.8	31.6	24.6	28.5	30.0	31.7	33.7
	5	18.1	20.6	21.6	22.7	24.0	21.6	24.8	26.0	27.5	29.0	22.1	25.4	26.7	28.1	29.8	23.4	26.9	28.3	29.9	31.7	24.7	28.6	30.1	31.8	33.8
	10	18.0	20.5	21.5	22.6	23.8	21.5	24.6	25.9	27.3	28.8	22.0	25.2	26.5	27.9	29.5	23.2	26.7	28.1	29.7	31.4	24.6	28.4	29.9	31.6	33.5
1	-35	18.0	20.6	21.7	22.9	24.2	21.4	24.8	26.1	27.6	29.3	21.9	25.3	26.7	28.3	30.1	23.2	26.9	28.4	30.1	32.0	24.5	28.5	30.2	32.0	34.1
	-30	18.0	20.7	21.7	22.9	24.2	21.5	24.8	26.2	27.7	29.4	22.0	25.4	26.8	28.3	30.1	23.2	26.9	28.4	30.1	32.0	24.6	28.6	30.2	32.1	34.1
	-25	18.1	20.8	21.8	23.0	24.3	21.6	24.9	26.3	27.7	29.4	22.1	25.5	26.9	28.4	30.1	23.4	27.0	28.5	30.2	32.1	24.7	28.7	30.3	32.1	34.2
	-20	18.2	20.8	21.9	23.0	24.3	21.7	25.0	26.3	27.8	29.5	22.2	25.6	27.0	28.5	30.2	23.5	27.1	28.6	30.3	32.1	24.9	28.8	30.4	32.2	34.3
	-15	18.3	20.9	22.0	23.1	24.4	21.8	25.1	26.4	27.9	29.6	22.3	25.7	27.1	28.6	30.3	23.6	27.3	28.7	30.4	32.2	25.0	28.9	30.5	32.3	34.3
	-10	18.5	21.0	22.1	23.2	24.5	22.0	25.2	26.6	28.0	29.6	22.5	25.8	27.2	28.7	30.4	23.7	27.4	28.8	30.5	32.3	25.1	29.1	30.7	32.4	34.4
	-5	18.6	21.1	22.2	23.3	24.6	22.1	25.4	26.7	28.1	29.7	22.6	25.9	27.3	28.8	30.5	23.9	27.5	29.0	30.6	32.4	25.3	29.2	30.8	32.6	34.5
	0	18.7	21.2	22.3	23.4	24.6	22.2	25.5	26.8	28.2	29.8	22.7	26.0	27.4	28.9	30.5	24.0	27.6	29.1	30.7	32.5	25.4	29.3	30.9	32.6	34.6
	5	18.6	21.2	22.2	23.3	24.5	22.2	25.4	26.7	28.1	29.7	22.7	26.0	27.3	28.8	30.4	24.0	27.6	29.0	30.6	32.4	25.4	29.3	30.8	32.6	34.5
	10	17.0	19.3	20.2	21.2	22.3	20.4	23.3	24.4	25.7	27.1	20.8	23.8	25.0	26.4	27.8	22.1	25.3	26.6	28.1	29.7	23.4	26.9	28.4	29.9	31.7
2	-35	18.5	21.2	22.2	23.4	24.8	22.0	25.4	26.8	28.3	30.0	22.5	26.0	27.4	29.0	30.7	23.8	27.5	29.1	30.8	32.7	25.2	29.2	30.9	32.8	34.9
	-30	18.6	21.2	22.3	23.5	24.8	22.1	25.5	26.8	28.3	30.0	22.6	26.1	27.5	29.0	30.8	23.9	27.6	29.1	30.8	32.7	25.3	29.3	31.0	32.8	34.9
	-25	18.7	21.3	22.4	23.6	24.9	22.2	25.6	26.9	28.4	30.1	22.7	26.2	27.6	29.1	30.8	24.0	27.7	29.2	30.9	32.8	25.4	29.4	31.1	32.9	35.0
	-20	18.8	21.4	22.5	23.7	24.9	22.4	25.7	27.0	28.5	30.2	22.8	26.3	27.7	29.2	30.9	24.2	27.9	29.4	31.0	32.9	25.6	29.6	31.2	33.0	35.1
	-15	18.9	21.5	22.6	23.7	25.0	22.5	25.8	27.1	28.6	30.3	23.0	26.4	27.8	29.3	31.0	24.3	28.0	29.5	31.1	33.0	25.7	29.7	31.3	33.1	35.1
	-10	19.0	21.7	22.7	23.8	25.1	22.6	25.9	27.3	28.7	30.4	23.1	26.5	27.9	29.4	31.1	24.4	28.1	29.6	31.2	33.1	25.9	29.8	31.4	33.2	35.3
	-5	19.1	21.8	22.8	23.9	25.2	22.8	26.0	27.4	28.8	30.5	23.3	26.7	28.0	29.5	31.2	24.6	28.2	29.7	31.4	33.2	26.0	30.0	31.6	33.4	35.4
	0	19.2	21.8	22.8	23.9	25.2	22.8	26.1	27.4	28.8	30.4	23.3	26.7	28.0	29.5	31.2	24.6	28.3	29.7	31.4	33.2	26.1	30.0	31.6	33.4	35.4
	5	17.5	19.8	20.7	21.7	22.8	20.9	23.9	25.1	26.4	27.8	21.4	24.5	25.7	27.0	28.5	22.7	26.0	27.3	28.8	30.4	24.0	27.6	29.1	30.7	32.4
	10	15.6	17.7	18.5	19.4	20.4	18.9	21.5	22.5	23.7	25.0	19.3	22.0	23.1	24.3	25.6	20.5	23.4	24.6	25.9	27.4	21.8	25.0	26.2	27.7	29.2
3	-35	19.0	21.7	22.8	24.0	25.3	22.6	26.0	27.4	28.9	30.6	23.1	26.6	28.0	29.6	31.4	24.4	28.2	29.7	31.4	33.4	25.8	29.9	31.6	33.5	35.6
	-30	19.1	21.8	22.9	24.1	25.4	22.7	26.1	27.5	29.0	30.7	23.2	26.7	28.1	29.7	31.4	24.5	28.3	29.8	31.5	33.4	26.0	30.0	31.7	33.5	35.6
	-25	19.2	21.9	23.0	24.2	25.5	22.8	26.2	27.6	29.1	30.8	23.3	26.8	28.2	29.8	31.5	24.7	28.4	29.9	31.6	33.5	26.1	30.2	31.8	33.6	35.7
	-20	19.4	22.0	23.1	24.3	25.6	23.0	26.3	27.7	29.2	30.9	23.5	27.0	28.4	29.9	31.6	24.8	28.6	30.1	31.8	33.6	26.3	30.3	31.9	33.8	35.8
	-15	19.5	22.2	23.2	24.4	25.7	23.1	26.5	27.8	29.3	31.0	23.6	27.1	28.5	30.0	31.7	25.0	28.7	30.2	31.9	33.8	26.4	30.5	32.1	33.9	36.0
	-10	19.6	22.3	23.3	24.5	25.8	23.3	26.6	28.0	29.5	31.1	23.8	27.3	28.6	30.2	31.9	25.2	28.9	30.4	32.0	33.9	26.6	30.6	32.3	34.1	36.1
	-5	19.7	22.3	23.4	24.5	25.8	23.4	26.7	28.1	29.5	31.2	23.9	27.3	28.7	30.2	31.9	25.3	29.0	30.5	32.1	34.0	26.8	30.8	32.4	34.2	36.2
	0	18.0	20.3	21.3	22.3	23.4	21.5	24.5	25.7	27.0	28.5	22.0	25.1	26.3	27.7	29.2	23.3	26.6	28.0	29.5	31.1	24.7	28.3	29.8	31.4	33.2
	5	16.2	18.3	19.1	20.0	21.0	19.5	22.2	23.2	24.4	25.7	19.9	22.7	23.8	25.0	26.4	21.1	24.1	25.3	26.7	28.1	22.4	25.7	27.0	28.4	30.1
	10	14.3	16.2	16.9	17.7	18.6	17.4	19.8	20.8	21.8	22.9	17.9	20.3	21.3	22.4	23.6	19.0	21.6	22.7	23.9	25.2	20.2	23.1	24.2	25.5	26.9
4	-35	19.5	22.2	23.3	24.5	25.9	23.2	26.6	28.0	29.5	31.2	23.7	27.2	28.6	30.2	32.0	25.0	28.8	30.4	32.1	34.0	26.5	30.6	32.3	34.1	36.3
	-30	19.6	22.3	23.4	24.6	25.9	23.3	26.7	28.1	29.6	31.3	23.8	27.3	28.7	30.3	32.1	25.1	28.9	30.5	32.2	34.1	26.6	30.7	32.4	34.2	36.3
	-25	19.7	22.4	23.5	24.7	26.0	23.4	26.8	28.2	29.7	31.4	23.9	27.4	28.8	30.4	32.2	25.3	29.1	30.6	32.3	34.2	26.8	30.8	32.5	34.3	36.4
	-20	19.9	22.6	23.6	24.8	26.1	23.6	27.0	28.3	29.8	31.5	24.1	27.6	29.0	30.5	32.3	25.4	29.2	30.7	32.4	34.3	26.9	31.0	32.6	34.5	36.5
	-15	20.0	22.7	23.7	24.9	26.2	23.7	27.1	28.4	29.9	31.6	24.2	27.7	29.1	30.7	32.4	25.6	29.4	30.9	32.5	34.4	27.1	31.1	32.8	34.6	36.6
	-10	20.1	22.7	23.8	25.0	26.2	23.8	27.2	28.5	30.0	31.7	24.3	27.8	29.2	30.7	32.4	25.7	29.5	31.0	32.6	34.5	27.2	31.3	32.9	34.7	36.7
	-5	18.5	20.9	21.9	23.0	24.1	22.1	25.2	26.4	27.8	29.3	22.6	25.8	27.1	28.5	30.0	23.9	27.4	28.7	30.3	31.9	25.4	29.1	30.6	32.2	34.1
	0	16.7	18.8	19.7	20.6	21.7	20.0	22.8	23.9	25.1	26.4	20.5	23.4	24.5	25.7	27.1	21.7	24.8	26.0	27.4	28.9	23.1	26			

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																								
		13500					13000					12500					11500					10500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
0	-35	25.2	29.5	31.3	33.3	35.6	26.8	31.5	33.4	35.6	38.1	28.5	33.6	35.8	38.2	40.9	32.6	38.7	41.3	44.3	47.8	37.6	45.2	48.4	52.2	56.7
	-30	25.3	29.6	31.4	33.3	35.6	26.9	31.5	33.5	35.6	38.1	28.6	33.7	35.8	38.2	40.9	32.7	38.8	41.4	44.3	47.8	37.7	45.3	48.5	52.3	56.6
	-25	25.4	29.7	31.4	33.4	35.6	27.0	31.6	33.5	35.7	38.1	28.8	33.8	35.9	38.3	41.0	32.8	38.9	41.5	44.4	47.8	37.9	45.4	48.6	52.3	56.7
	-20	25.6	29.8	31.5	33.5	35.7	27.1	31.7	33.6	35.8	38.2	28.9	33.9	36.0	38.3	41.0	33.0	39.0	41.6	44.5	47.8	38.1	45.6	48.8	52.4	56.7
	-15	25.7	29.9	31.6	33.6	35.7	27.3	31.9	33.7	35.9	38.3	29.1	34.0	36.1	38.5	41.1	33.2	39.2	41.7	44.6	47.9	38.3	45.7	48.9	52.6	56.8
	-10	25.8	30.0	31.7	33.7	35.8	27.4	32.0	33.9	36.0	38.4	29.2	34.2	36.2	38.6	41.2	33.3	39.4	41.9	44.7	48.0	38.5	45.9	49.1	52.7	56.9
	-5	26.0	30.1	31.9	33.8	35.9	27.6	32.1	34.0	36.1	38.5	29.4	34.3	36.4	38.7	41.3	33.5	39.5	42.0	44.9	48.1	38.7	46.1	49.3	52.9	57.0
	0	26.1	30.3	32.0	33.9	36.0	27.7	32.2	34.1	36.2	38.5	29.5	34.5	36.5	38.8	41.4	33.7	39.7	42.2	45.0	48.2	38.9	46.3	49.4	53.0	57.1
	5	26.2	30.4	32.1	33.9	36.1	27.9	32.4	34.2	36.3	38.6	29.7	34.6	36.6	38.9	41.4	33.8	39.8	42.3	45.1	48.3	39.1	46.4	49.5	53.1	57.2
	10	26.1	30.2	31.9	33.7	35.8	27.7	32.2	34.0	36.0	38.3	29.5	34.4	36.4	38.6	41.2	33.7	39.6	42.0	44.8	48.0	38.9	46.2	49.3	52.8	56.8
1	-35	26.0	30.3	32.1	34.2	36.5	27.6	32.3	34.3	36.5	39.0	29.4	34.5	36.7	39.1	41.9	33.5	39.8	42.4	45.4	48.9	38.7	46.4	49.7	53.5	58.0
	-30	26.1	30.4	32.2	34.2	36.5	27.7	32.4	34.4	36.6	39.1	29.5	34.6	36.8	39.2	41.9	33.6	39.9	42.5	45.5	48.9	38.8	46.5	49.8	53.6	58.0
	-25	26.2	30.5	32.3	34.3	36.5	27.8	32.5	34.5	36.6	39.1	29.6	34.7	36.9	39.3	42.0	33.8	40.0	42.6	45.5	48.9	39.0	46.7	49.9	53.7	58.1
	-20	26.4	30.6	32.4	34.4	36.6	28.0	32.7	34.6	36.7	39.2	29.8	34.9	37.0	39.4	42.1	34.0	40.1	42.7	45.7	49.0	39.2	46.8	50.1	53.8	58.1
	-15	26.5	30.8	32.5	34.5	36.7	28.1	32.8	34.7	36.8	39.3	29.9	35.0	37.1	39.5	42.1	34.2	40.3	42.9	45.8	49.1	39.4	47.0	50.3	54.0	58.3
	-10	26.7	30.9	32.6	34.6	36.8	28.3	32.9	34.8	37.0	39.4	30.1	35.2	37.2	39.6	42.3	34.4	40.5	43.0	45.9	49.2	39.7	47.2	50.5	54.1	58.4
	-5	26.8	31.0	32.8	34.7	36.9	28.5	33.1	35.0	37.1	39.5	30.3	35.3	37.4	39.7	42.4	34.6	40.6	43.2	46.1	49.4	39.9	47.4	50.6	54.3	58.5
	0	26.9	31.2	32.9	34.8	37.0	28.6	33.2	35.1	37.2	39.6	30.4	35.4	37.5	39.8	42.4	34.7	40.8	43.3	46.2	49.5	40.1	47.6	50.8	54.4	58.6
	5	26.9	31.1	32.8	34.7	36.9	28.6	33.2	35.0	37.1	39.5	30.4	35.4	37.5	39.7	42.3	34.8	40.8	43.3	46.1	49.3	40.1	47.6	50.8	54.3	58.5
	10	24.9	28.7	30.2	32.0	33.9	26.5	30.6	32.3	34.2	36.3	28.2	32.8	34.6	36.7	39.0	32.3	37.8	40.1	42.6	45.5	37.3	44.1	47.0	50.2	54.0
2	-35	26.7	31.1	32.9	34.9	37.2	28.3	33.1	35.1	37.3	39.8	30.1	35.4	37.5	40.0	42.8	34.4	40.7	43.3	46.4	49.8	39.7	47.5	50.8	54.7	59.2
	-30	26.8	31.2	33.0	35.0	37.3	28.5	33.2	35.2	37.4	39.9	30.3	35.5	37.6	40.1	42.8	34.5	40.8	43.4	46.4	49.9	39.8	47.6	51.0	54.8	59.2
	-25	26.9	31.3	33.1	35.1	37.3	28.6	33.3	35.3	37.5	40.0	30.4	35.6	37.7	40.2	42.9	34.7	41.0	43.6	46.6	50.0	40.1	47.8	51.1	54.9	59.3
	-20	27.1	31.4	33.2	35.2	37.4	28.8	33.5	35.4	37.6	40.1	30.6	35.8	37.9	40.3	43.0	34.9	41.1	43.7	46.7	50.1	40.3	48.0	51.3	55.1	59.4
	-15	27.3	31.6	33.3	35.3	37.5	28.9	33.6	35.6	37.7	40.2	30.8	35.9	38.0	40.4	43.1	35.1	41.3	43.9	46.8	50.2	40.5	48.2	51.5	55.2	59.5
	-10	27.4	31.7	33.5	35.4	37.6	29.1	33.8	35.7	37.9	40.3	31.0	36.1	38.2	40.5	43.2	35.3	41.5	44.1	47.0	50.3	40.8	48.5	51.7	55.4	59.7
	-5	27.6	31.9	33.6	35.6	37.7	29.3	33.9	35.9	38.0	40.4	31.1	36.2	38.3	40.7	43.3	35.5	41.7	44.3	47.2	50.5	41.0	48.7	51.9	55.6	59.9
	0	27.7	31.9	33.7	35.6	37.8	29.4	34.0	35.9	38.0	40.4	31.3	36.3	38.4	40.7	43.4	35.7	41.8	44.4	47.2	50.5	41.2	48.8	52.0	55.7	59.9
	5	25.5	29.4	31.0	32.7	34.7	27.2	31.4	33.1	35.0	37.2	28.9	33.6	35.4	37.5	39.9	33.1	38.7	41.0	43.6	46.6	38.3	45.2	48.1	51.4	55.9
	10	23.2	26.6	28.0	29.6	31.3	24.7	28.4	30.0	31.7	33.6	26.3	30.4	32.1	34.0	36.1	30.1	35.1	37.2	39.5	42.1	34.9	41.0	43.6	46.5	49.8
3	-35	27.4	31.8	33.6	35.7	38.0	29.1	33.9	35.9	38.1	40.6	30.9	36.2	38.3	40.8	43.6	35.2	41.6	44.3	47.3	50.8	40.6	48.6	51.9	55.8	60.3
	-30	27.5	31.9	33.7	35.8	38.0	29.2	34.0	36.0	38.2	40.7	31.1	36.3	38.5	40.9	43.7	35.4	41.7	44.4	47.4	50.9	40.9	48.7	52.1	55.9	60.4
	-25	27.7	32.1	33.8	35.9	38.1	29.4	34.1	36.1	38.3	40.8	31.2	36.4	38.6	41.0	43.8	35.6	41.9	44.5	47.5	50.9	41.1	48.9	52.2	56.1	60.5
	-20	27.8	32.2	34.0	36.0	38.2	29.5	34.3	36.3	38.4	40.9	31.4	36.6	38.8	41.2	43.9	35.8	42.1	44.7	47.7	51.1	41.3	49.2	52.5	56.3	60.6
	-15	28.0	32.4	34.2	36.2	38.4	29.7	34.5	36.4	38.6	41.1	31.6	36.8	39.0	41.3	44.1	36.0	42.3	44.9	47.9	51.3	41.6	49.4	52.7	56.5	60.8
	-10	28.2	32.6	34.3	36.3	38.5	29.9	34.7	36.6	38.8	41.2	31.8	37.0	39.1	41.5	44.2	36.3	42.6	45.2	48.1	51.5	41.9	49.7	53.0	56.7	61.1
	-5	28.4	32.7	34.5	36.4	38.6	30.1	34.8	36.8	38.9	41.3	32.0	37.2	39.3	41.7	44.4	36.5	42.8	45.4	48.3	51.6	42.2	50.0	53.3	57.0	61.4
	0	26.2	30.1	31.7	33.5	35.5	27.9	32.2	33.9	35.8	38.0	29.7	34.4	36.3	38.4	40.8	33.9	39.6	42.0	44.6	47.6	39.2	46.3	49.2	52.6	56.6
	5	23.8	27.4	28.8	30.4	32.2	25.4	29.2	30.8	32.5	34.5	27.1	31.3	33.0	34.9	37.0	31.0	36.1	38.2	40.5	43.2	35.8	42.1	44.8	47.7	51.1
	10	21.5	24.6	25.9	27.3	28.9	22.9	26.4	27.7	29.3	31.0	24.5	28.2	29.7	31.4	33.3	28.1	32.6	34.5	36.6	38.9	32.5	38.1	40.4	43.1	46.0
4	-35	28.0	32.5	34.4	36.4	38.7	29.8	34.6	36.6	38.9	41.4	31.7	37.0	39.2	41.6	44.4	36.1	42.5	45.2	48.2	51.7	41.6	49.6	53.0	56.9	61.4
	-30	28.2	32.6	34.5	36.5	38.8	29.9	34.8	36.8	39.0	41.5	31.8	37.1	39.3	41.7	44.5	36.3	42.7	45.3	48.4	51.8	41.9	49.8	53.2	57.0	61.5
	-25	28.3	32.8	34.6	36.6	38.9	30.1	34.9	36.9	39.1	41.6	32.0	37.3	39.4	41.9	44.6	36.5	42.8	45.5	48.5	51.9	42.1	50.0	53.4	57.2	61.6
	-20	28.5	32.9	34.7	36.7	39.0	30.3	35.1	37.0	39.2	41.7	32.2	37.4	39.6	42.0	44.7	36.7	43.0	45.7	48.7	52.1	42.4	50.3	53.6	57.4	61.8
	-15	28.7	33.1	34.9	36.9	39.1	30.5	35.2	37.2	39.4	41.8	32.4	37.6	39.8	42.2	44.9	36.9	43.2	45.9	48.8	52.2	42.6	50.5	53.8	57.6	62.0
	-10	28.8	33.2	35.0	37.0	39.2	30.6	35.4	37.3	39.5	41.9	32.6	37.8	39.9	42.3	45.0	37.1	43.4	46.1	49.0	52.4	42.9	50.8	54.1	57.8	62.1

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																																
		* 16830					15200					15000					14500					14000												
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS												
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30			
6 0 0 0 0 0 0 0 0 0 0	-35	20.0	22.7	23.8	25.0	26.3	23.7	27.1	28.5	30.0	31.7	24.3	27.8	29.2	30.7	32.4	25.6	29.4	30.9	32.6	34.5	27.1	31.2	32.8	34.7	36.7	27.1	31.2	32.8	34.7	36.7			
	-30	20.1	22.8	23.9	25.0	26.3	23.8	27.2	28.6	30.1	31.7	24.4	27.8	29.2	30.8	32.5	25.7	29.5	31.0	32.7	34.5	27.2	31.3	32.9	34.7	36.8	27.2	31.3	32.9	34.7	36.8			
	-25	20.2	22.9	23.9	25.1	26.3	23.9	27.3	28.6	30.1	31.8	24.5	27.9	29.3	30.8	32.5	25.8	29.6	31.1	32.7	34.6	27.3	31.4	33.0	34.8	36.8	27.3	31.4	33.0	34.8	36.8			
	-20	20.1	22.8	23.8	24.9	26.2	23.9	27.2	28.5	30.0	31.6	24.4	27.8	29.2	30.7	32.4	25.8	29.5	31.0	32.6	34.4	27.3	31.3	32.9	34.7	36.7	27.3	31.3	32.9	34.7	36.7			
	-15	19.0	21.4	22.4	23.4	24.6	22.6	25.7	26.9	28.3	29.8	23.1	26.3	27.6	29.0	30.5	24.5	27.9	29.3	30.8	32.5	25.9	29.7	31.1	32.8	34.6	25.9	29.7	31.1	32.8	34.6			
	-10	17.3	19.5	20.4	21.3	22.4	20.8	23.6	24.7	25.9	27.2	21.2	24.1	25.3	26.5	27.9	22.5	25.6	26.9	28.2	29.8	23.9	27.2	28.6	30.1	31.7	23.9	27.2	28.6	30.1	31.7			
	-5	15.6	17.5	18.3	19.1	20.0	18.8	21.3	22.3	23.4	24.6	19.2	21.8	22.8	24.0	25.2	20.4	23.2	24.3	25.5	26.9	21.7	24.7	25.9	27.3	28.7	21.7	24.7	25.9	27.3	28.7			
	0	13.8	15.6	16.2	17.0	17.8	16.9	19.1	19.9	20.9	22.0	17.3	19.6	20.5	21.5	22.5	18.4	20.9	21.8	22.9	24.1	19.6	22.3	23.3	24.5	25.8	19.6	22.3	23.3	24.5	25.8			
	5	12.1	13.6	14.2	14.9	15.6	15.0	16.9	17.7	18.5	19.4	15.4	17.4	18.2	19.0	20.0	16.4	18.6	19.4	20.4	21.4	17.5	19.9	20.8	21.8	23.0	17.5	19.9	20.8	21.8	23.0			
	10	10.4	11.7	12.2	12.7	13.3	13.1	14.7	15.4	16.1	16.9	13.4	15.2	15.8	16.6	17.4	14.4	16.3	17.0	17.8	18.7	15.4	17.5	18.3	19.2	20.2	15.4	17.5	18.3	19.2	20.2			
7 0 0 0 0 0 0 0 0 0 0	-35	19.8	22.4	23.5	24.6	25.9	23.5	26.8	28.1	29.6	31.2	24.0	27.4	28.8	30.3	32.0	25.4	29.1	30.5	32.2	34.0	26.9	30.8	32.4	34.2	36.2	26.9	30.8	32.4	34.2	36.2			
	-30	19.9	22.5	23.5	24.6	25.9	23.6	26.9	28.2	29.6	31.2	24.1	27.5	28.8	30.3	31.9	25.5	29.1	30.6	32.2	34.0	26.9	30.9	32.5	34.2	36.2	26.9	30.9	32.5	34.2	36.2			
	-25	19.6	22.1	23.1	24.2	25.4	23.3	26.5	27.7	29.1	30.7	23.8	27.1	28.4	29.8	31.4	25.2	28.7	30.1	31.7	33.4	26.6	30.5	32.0	33.7	35.6	26.6	30.5	32.0	33.7	35.6			
	-20	18.8	21.2	22.2	23.2	24.4	22.4	25.5	26.7	28.0	29.5	22.9	26.1	27.3	28.7	30.2	24.3	27.7	29.0	30.5	32.1	25.7	29.4	30.8	32.5	34.3	25.7	29.4	30.8	32.5	34.3			
	-15	17.6	19.8	20.6	21.6	22.6	21.0	23.8	24.9	26.2	27.5	21.5	24.4	25.6	26.8	28.2	22.8	25.9	27.2	28.5	30.0	24.2	27.5	28.9	30.4	32.1	24.2	27.5	28.9	30.4	32.1			
	-10	15.9	17.9	18.7	19.5	20.4	19.2	21.7	22.7	23.8	25.0	19.6	22.2	23.3	24.4	25.7	20.8	23.7	24.8	26.0	27.4	22.1	25.2	26.4	27.7	29.2	22.1	25.2	26.4	27.7	29.2			
	-5	14.2	15.9	16.6	17.4	18.2	17.2	19.5	20.4	21.3	22.4	17.7	20.0	20.9	21.9	23.0	18.8	21.3	22.3	23.4	24.6	20.0	22.7	23.8	25.0	26.3	20.0	22.7	23.8	25.0	26.3			
	0	12.5	14.1	14.6	15.3	16.0	15.4	17.4	18.1	19.0	19.9	15.8	17.8	18.6	19.5	20.5	16.8	19.0	19.9	20.9	21.9	18.0	20.4	21.3	22.4	23.5	18.0	20.4	21.3	22.4	23.5			
	5	10.9	12.2	12.7	13.2	13.8	13.5	15.2	15.9	16.7	17.5	13.9	15.7	16.4	17.1	18.0	14.9	16.8	17.6	18.4	19.3	15.9	18.0	18.9	19.8	20.8	15.9	18.0	18.9	19.8	20.8			
	10	9.2	10.3	10.7	11.2	11.7	11.7	13.1	13.7	14.3	15.0	12.0	13.5	14.1	14.8	15.5	12.9	14.6	15.2	16.0	16.7	13.9	15.7	16.4	17.2	18.1	13.9	15.7	16.4	17.2	18.1			
8 0 0 0 0 0 0 0 0 0 0	-35	19.9	22.5	23.6	24.7	25.9	23.7	26.9	28.2	29.7	31.2	24.2	27.6	28.9	30.4	32.0	25.6	29.2	30.6	32.2	34.0	27.1	31.0	32.6	34.3	36.2	27.1	31.0	32.6	34.3	36.2			
	-30	19.1	21.5	22.5	23.6	24.7	22.7	25.8	27.1	28.4	29.9	23.2	26.4	27.7	29.1	30.6	24.6	28.0	29.4	30.9	32.6	26.0	29.7	31.2	32.9	34.7	26.0	29.7	31.2	32.9	34.7			
	-25	18.3	20.6	21.5	22.5	23.6	21.8	24.7	25.9	27.1	28.6	22.3	25.3	26.5	27.8	29.3	23.6	26.8	28.1	29.6	31.1	25.0	28.5	29.9	31.5	33.2	25.0	28.5	29.9	31.5	33.2			
	-20	17.6	19.8	20.6	21.6	22.6	21.0	23.8	24.9	26.1	27.4	21.5	24.3	25.5	26.7	28.1	22.7	25.8	27.1	28.4	29.9	24.1	27.5	28.8	30.3	31.9	24.1	27.5	28.8	30.3	31.9			
	-15	16.2	18.2	19.0	19.8	20.8	19.5	22.0	23.0	24.1	25.4	19.9	22.6	23.6	24.7	26.0	21.2	24.0	25.1	26.4	27.7	22.5	25.5	26.8	28.1	29.6	22.5	25.5	26.8	28.1	29.6			
	-10	14.6	16.3	17.0	17.8	18.6	17.7	20.0	20.9	21.8	22.9	18.1	20.5	21.4	22.4	23.5	19.2	21.8	22.8	23.9	25.1	20.5	23.2	24.3	25.5	26.9	20.5	23.2	24.3	25.5	26.9			
	-5	12.9	14.5	15.1	15.7	16.4	15.8	17.8	18.6	19.5	20.4	16.2	18.3	19.1	20.0	21.0	17.3	19.5	20.4	21.4	22.5	18.4	20.9	21.8	22.9	24.1	18.4	20.9	21.8	22.9	24.1			
	0	11.3	12.6	13.1	13.7	14.3	14.0	15.7	16.4	17.2	18.0	14.4	16.2	16.9	17.7	18.5	15.4	17.3	18.1	19.0	19.9	16.4	18.6	19.4	20.4	21.4	16.4	18.6	19.4	20.4	21.4			
	5	9.6	10.8	11.2	11.7	12.2	12.2	13.7	14.3	14.9	15.6	12.5	14.1	14.7	15.4	16.1	13.4	15.2	15.8	16.6	17.4	14.4	16.3	17.0	17.8	18.7	14.4	16.3	17.0	17.8	18.7			
	10	8.0	9.0	9.3	9.7	10.1	10.4	11.6	12.1	12.7	13.3	10.7	12.0	12.5	13.1	13.7	11.5	13.0	13.6	14.2	14.9	12.5	14.1	14.7	15.4	16.1	12.5	14.1	14.7	15.4	16.1			
9 0 0 0 0 0 0 0 0 0 0	-35	18.7	21.0	22.0	23.0	24.1	22.2	25.2	26.4	27.7	29.2	22.7	25.8	27.1	28.4	29.9	24.1	27.4	28.7	30.2	31.8	25.5	29.1	30.5	32.1	33.9	25.5	29.1	30.5	32.1	33.9			
	-30	17.8	20.1	20.9	21.9	23.0	21.3	24.1	25.3	26.5	27.8	21.8	24.7	25.9	27.1	28.5	23.1	26.2	27.5	28.9	30.4	24.5	27.9	29.2	30.7	32.4	24.5	27.9	29.2	30.7	32.4			
	-25	17.0	19.1	19.9	20.8	21.8	20.4	23.1	24.1	25.3	26.5	20.9	23.6	24.7	25.9	27.2	22.1	25.1	26.2	27.5	29.0	23.4	26.6	27.9	29.3	30.9	23.4	26.6	27.9	29.3	30.9			
	-20	16.4	18.4	19.2	20.0	21.0	19.7	22.2	23.2	24.3	25.5	20.1	22.8	23.8	24.9	26.2	21.3	24.2	25.3	26.5	27.9	22.6	25.7	26.9	28.3	29.8	22.6	25.7	26.9	28.3	29.8			
	-15	15.0	16.8	17.5	18.3	19.2	18.2	20.5	21.4	22.4	23.5	18.6	21.0	22.0	23.0	24.1	19.8	22.4	23.4	24.5	25.8	21.0	23.8	25.0	26.2	27.5	21.0	23.8	25.0	26.2	27.5			
	-10	13.5	15.1	15.7	16.4	17.2	16.5	18.5	19.4	20.2	21.2	16.9	19.0	19.9	20.8	21.8	18.0	20.3	21.2	22.2	23.3	19.1	21.7	22.7	23.7	25.0	19.1	21.7	22.7	23.7	25.0			
	-5	11.9	13.3	13.9	14.4	15.1	14.7	16.5	17.2	18.0	18.9	15.1	17.0	17.7	18.5	19.4	16.1	18.1	18.9	19.8	20.8	17.2	19.4	20.3	21.3	22.3	17.2	19.4	20.3	21.3	22.3			
	0	10.3	11.5	12.0	12.5	13.0	12.9	14.5	15.1	15.8	16.5	13.3	14.9	15.6	16.3	17.0	14.2	16.0	16.7	17.5	18.3	15.2	17.2	18.0	18.8	19.7	15.2	17.2	18.0	18.8	19.7			
	5	8.7	9.8	10.2	10.6	11.0	11.2	12.5	13.1	13.6	14.1	11.5	12.9	13.5	14.1	14.7	12.4	13.9	14.5	15.2	15.9	13.3	15.0	15.7	16.4	17.2	13.3	15.0	15.7	16.4	17.2			
	10	7.2	8.1	8.4	8.7	9.1	9.5	10.6	11.1	11.6	12.1	9.8	11.0	11.4	11.9	12.5	10.6	11.9	12.4	13.0	13.6	11.5	12.9	13.5	14.1	14.8	11.5	12.9	13.5	14.1	14.8			

LANDING GROSS CLIMB GRADIENT - PERCENT

FLAPS - LAND

CONDITIONS: ANTI-ICE SYSTEMS - ON
LANDING GEAR - DOWN
AIRSPEED - VREFSPEEDBRAKES - RETRACT
ENGINES - TAKEOFF THRUST

ALT FT	TEMP DEG C	WEIGHT - POUNDS																			
		13500					13000					12500					11500				
		WIND KNOTS					WIND KNOTS					WIND KNOTS					WIND KNOTS				
		-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30	-10	0	10	20	30
6	-35	28.7	33.2	35.0	37.0	39.2	30.5	35.3	37.3	39.5	41.9	32.4	37.7	39.8	42.2	45.0	37.0	43.3	46.0	48.9	52.3
0	-30	28.8	33.2	35.0	37.0	39.2	30.6	35.4	37.3	39.5	42.0	32.6	37.8	39.9	42.3	45.0	37.1	43.4	46.1	49.0	52.4
0	-25	29.0	33.3	35.1	37.1	39.3	30.7	35.5	37.4	39.6	42.0	32.7	37.9	40.0	42.4	45.1	37.3	43.6	46.2	49.1	52.4
0	-20	28.9	33.3	35.0	37.0	39.1	30.7	35.4	37.3	39.5	41.9	32.7	37.8	39.9	42.3	44.9	37.3	43.5	46.1	49.0	52.3
	-15	27.5	31.6	33.2	35.0	37.0	29.2	33.6	35.4	37.4	39.6	31.1	35.9	37.9	40.1	42.5	35.5	41.4	43.8	46.5	49.5
	-10	25.4	29.0	30.5	32.1	33.9	27.0	31.0	32.6	34.4	36.4	28.7	33.1	34.9	36.8	39.0	32.9	38.1	40.3	42.7	45.5
	-5	23.1	26.4	27.7	29.1	30.7	24.6	28.2	29.6	31.2	33.0	26.2	30.1	31.7	33.5	35.4	30.0	34.8	36.7	38.9	41.3
	0	20.9	23.8	24.9	26.2	27.7	22.2	25.4	26.7	28.1	29.7	23.8	27.3	28.7	30.2	32.0	27.3	31.5	33.2	35.1	37.3
	5	18.7	21.3	22.3	23.4	24.7	20.0	22.8	23.9	25.2	26.6	21.4	24.5	25.7	27.1	28.6	24.6	28.4	29.9	31.6	33.5
	10	16.5	18.8	19.7	20.6	21.7	17.7	20.2	21.2	22.2	23.4	19.0	21.7	22.8	24.0	25.3	22.0	25.3	26.6	28.1	29.8
7	-35	28.5	32.8	34.5	36.4	38.6	30.2	34.9	36.8	38.9	41.3	32.1	37.2	39.3	41.7	44.3	36.6	42.8	45.4	48.2	51.5
0	-30	28.6	32.8	34.6	36.5	38.6	30.3	35.0	36.8	38.9	41.3	32.3	37.3	39.4	41.7	44.3	36.8	42.9	45.5	48.3	51.5
0	-25	28.2	32.4	34.1	35.9	38.0	30.0	34.5	36.4	38.4	40.7	31.9	36.9	38.9	41.1	43.7	36.4	42.4	44.9	47.7	50.8
0	-20	27.3	31.3	32.8	34.6	36.6	29.0	33.3	35.1	37.0	39.2	30.8	35.6	37.5	39.6	42.0	35.2	40.9	43.3	45.9	48.9
	-15	25.6	29.3	30.8	32.4	34.3	27.3	31.3	32.9	34.7	36.7	29.1	33.4	35.2	37.2	39.4	33.2	38.5	40.7	43.1	45.8
	-10	23.5	26.8	28.2	29.6	31.3	25.0	28.7	30.1	31.7	33.5	26.7	30.7	32.3	34.0	36.0	30.6	35.4	37.3	39.5	41.9
	-5	21.3	24.3	25.5	26.8	28.2	22.7	26.0	27.3	28.7	30.3	24.3	27.8	29.2	30.8	32.6	27.9	32.1	33.9	35.8	38.0
	0	19.2	21.8	22.8	24.0	25.3	20.5	23.4	24.5	25.8	27.2	21.9	25.1	26.3	27.7	29.3	25.2	29.1	30.6	32.3	34.2
	5	17.0	19.3	20.3	21.3	22.4	18.3	20.8	21.8	22.9	24.1	19.6	22.4	23.5	24.7	26.0	22.7	26.0	27.4	28.9	30.6
	10	14.9	16.9	17.7	18.6	19.5	16.1	18.3	19.1	20.1	21.1	17.3	19.7	20.7	21.7	22.9	20.1	23.1	24.2	25.6	27.0
8	-35	28.7	32.9	34.6	36.5	38.7	30.5	35.1	37.0	39.0	41.4	32.4	37.5	39.5	41.8	44.4	36.9	43.1	45.6	48.4	51.6
0	-30	27.6	31.6	33.3	35.1	37.1	29.3	33.7	35.5	37.5	39.7	31.2	36.0	37.9	40.1	42.5	35.6	41.4	43.8	46.5	49.5
0	-25	26.5	30.3	31.9	33.6	35.4	28.2	32.3	34.0	35.9	37.9	30.0	34.5	36.4	38.4	40.7	34.2	39.7	42.0	44.5	47.3
0	-20	25.6	29.2	30.7	32.3	34.1	27.2	31.1	32.7	34.5	36.5	29.0	33.3	35.0	37.0	39.1	33.1	38.3	40.4	42.8	45.5
	-15	23.9	27.2	28.6	30.0	31.7	25.4	29.1	30.5	32.1	33.9	27.1	31.1	32.7	34.5	36.4	31.0	35.8	37.8	40.0	42.4
	-10	21.8	24.8	26.0	27.3	28.8	23.2	26.5	27.8	29.3	30.9	24.8	28.4	29.8	31.4	33.2	28.4	32.8	34.5	36.5	38.7
	-5	19.6	22.3	23.4	24.5	25.8	21.0	23.9	25.1	26.3	27.8	22.4	25.6	26.9	28.3	29.9	25.8	29.7	31.2	33.0	34.9
	0	17.6	19.9	20.9	21.9	23.0	18.8	21.4	22.4	23.5	24.8	20.2	23.0	24.1	25.4	26.7	23.3	26.7	28.1	29.6	31.3
	5	15.5	17.5	18.4	19.2	20.2	16.7	18.9	19.8	20.8	21.9	17.9	20.4	21.4	22.4	23.6	20.8	23.8	25.0	26.4	27.8
	10	13.4	15.2	15.9	16.7	17.5	14.5	16.4	17.2	18.1	19.0	15.7	17.8	18.7	19.6	20.6	18.3	21.0	22.0	23.2	24.4
9	-35	27.0	30.9	32.5	34.2	36.2	28.7	33.0	34.7	36.6	38.7	30.6	35.2	37.1	39.2	41.5	34.9	40.5	42.8	45.4	48.3
0	-30	26.0	29.7	31.1	32.8	34.6	27.6	31.6	33.2	35.0	37.0	29.4	33.8	35.6	37.5	39.7	33.6	38.9	41.0	43.5	46.2
0	-25	24.9	28.4	29.8	31.3	33.0	26.4	30.3	31.8	33.5	35.3	28.2	32.3	34.0	35.9	37.9	32.2	37.2	39.3	41.5	44.1
0	-20	24.1	27.4	28.7	30.2	31.8	25.6	29.2	30.7	32.3	34.1	27.3	31.2	32.8	34.6	36.6	31.2	36.0	37.9	40.1	42.5
	-15	22.4	25.4	26.6	28.0	29.5	23.8	27.2	28.5	30.0	31.6	25.4	29.1	30.5	32.2	34.0	29.2	33.6	35.3	37.3	39.6
	-10	20.4	23.1	24.2	25.4	26.8	21.8	24.8	26.0	27.3	28.7	23.3	26.5	27.9	29.3	30.9	26.7	30.7	32.3	34.1	36.1
	-5	18.4	20.8	21.8	22.8	24.0	19.6	22.3	23.4	24.5	25.8	21.0	24.0	25.1	26.4	27.8	24.2	27.8	29.2	30.8	32.5
	0	16.3	18.5	19.3	20.3	21.3	17.5	19.9	20.8	21.8	23.0	18.8	21.4	22.4	23.6	24.8	21.8	24.9	26.2	27.6	29.1
	5	14.4	16.2	17.0	17.8	18.6	15.5	17.5	18.3	19.2	20.2	16.7	18.9	19.8	20.8	21.9	19.4	22.2	23.3	24.5	25.8
	10	12.4	14.0	14.7	15.3	16.1	13.5	15.2	15.9	16.7	17.5	14.6	16.5	17.3	18.1	19.1	17.1	19.5	20.5	21.5	22.7
1	-35	25.4	29.0	30.4	32.0	33.8	27.0	30.9	32.5	34.2	36.1	28.8	33.0	34.7	36.6	38.8	32.9	38.0	40.1	42.4	45.1
0	-30	24.4	27.8	29.1	30.6	32.3	25.9	29.6	31.1	32.7	34.6	27.6	31.7	33.3	35.1	37.1	31.6	36.5	38.4	40.6	43.1
0	-25	23.3	26.5	27.8	29.2	30.8	24.8	28.3	29.7	31.3	33.0	26.5	30.3	31.8	33.5	35.4	30.3	34.9	36.8	38.8	41.1
0	-20	22.5	25.5	26.8	28.1	29.6	24.0	27.3	28.6	30.1	31.7	25.6	29.2	30.6	32.2	34.0	29.3	33.7	35.4	37.4	39.6
	-15	20.9	23.7	24.9	26.1	27.4	22.3	25.4	26.6	27.9	29.4	23.9	27.2	28.5	30.0	31.6	27.4	31.4	33.1	34.9	36.9
	-10	19.0	21.6	22.5	23.6	24.8	20.4	23.1	24.2	25.4	26.7	21.8	24.8	26.0	27.3	28.7	25.1	28.7	30.2	31.8	33.6
	-5	17.1	19.3	20.2	21.1	22.2	18.3	20.7	21.7	22.7	23.9	19.6	22.3	23.4	24.5	25.8	22.7	25.9	27.2	28.7	30.3
	0	15.2	17.1	17.9	18.7	19.6	16.3	18.5	19.3	20.2	21.2	17.6	19.9	20.8	21.9	23.0	20.4	23.3	24.4	25.7	27.1
	5	13.3	14.9	15.6	16.3	17.1	14.3	16.2	16.9	17.7	18.6	15.5	17.5	18.3	19.2	20.2	18.1	20.6	21.6	22.7	23.9
	10	11.4	12.9	13.4	14.1	14.7	12.4	14.0	14.6	15.3	16.1	13.5	15.3	15.9	16.7	17.5	15.9	18.1	19.0	19.9	21.0

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Figure 4-52 (Sheet 4)

SUPPLEMENTS

INTRODUCTION

The supplements in this section contain amended operating limitations, operating procedures, performance data and other necessary information for airplanes conducting special operations and for airplanes equipped with specific options. Operators should refer to each supplement to ensure that all limitations and procedures appropriate for their airplane are observed.

Supplements for the installed optional equipment must be maintained to the latest revision. Those supplements applicable to optional equipment which is not installed in the airplane, do not have to be retained.

A non FAA Approved Log of Supplements is provided for convenience only. This log is a numerical list of all the supplements published for this airplane and shows, also, the number of revisions made to each supplement at the time of this revision.

Each supplement is preceded by a Log of Effective Pages which will be part of the supplement package. Supplement page numbers will include an S and the supplement number.

LOG OF APPROVED SUPPLEMENTS

SUPPLEMENT NUMBER	NAME	REVISION NUMBER	EQUIPMENT INSTALLED
1	COLLINS FMS-3000 FLIGHT MANAGEMENT SYSTEM (SINGLE)	0	_____
2	COLLINS IFIS-5000 INTEGRATED FLIGHT INFORMATION SYSTEM	0	_____
3	HONEYWELL MARK VIII ENHANCED GROUND PROXIMITY WARNING SYSTEM (EGPWS)	0	_____
4	GARMIN GPS 500	0	_____
5	AIRPLANES CERTIFIED FOR STEEP APPROACHES	0	_____
6	ENHANCED SURVEILLANCE TRANSPONDER	0	_____

FAA APPROVED

Airplane Flight Manual

CITATION

ENCORE+

MODEL 560
560-0751 THRU -5000

SUPPLEMENT 1

COLLINS FMS-3000 FLIGHT MANAGEMENT SYSTEM
(SINGLE)

APPROVED BY 
for Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
DATE OF APPROVAL 12/21/06

SUPPLEMENT 1

COLLINS FMS-3000 FLIGHT MANAGEMENT SYSTEM (SINGLE)

Use the Log of Effective Pages to determine the current status of this supplement.

Pages affected by the current revision are indicated by an asterisk (*) preceding the page number.

Supplement Status

Date

Original

21 December 2006

LOG OF EFFECTIVE PAGES

Page Number	Page Status	Revision Number	Configuration Code
S1-1 thru S1-8	Original	0	S1-AA

The following is a list of Service Bulletins that are applicable to the operation of the airplane, and have been incorporated into this supplement. This list contains only those Service Bulletins that are currently active.

<u>Number</u>	<u>Title</u>	<u>Airplane Serial Effectivity</u>	<u>Revision Incorporated</u>	<u>Incorporated in Airplane</u>
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AIRPLANE CONFIGURATION CODES

The following is a list of airplane configuration codes which appear at the bottom of each page of this supplement to the basic FAA Approved Airplane Flight Manual. The codes indicate page effectivity by serial number. This list contains only the configurations which have been incorporated into this supplement.

Configuration <u>Code</u>	Effectivity by <u>Serial Number</u>
S1-AA	Airplanes 560-0751 thru -5000 equipped with the Collins FMS-3000 Flight Management System (Single).

COLLINS FMS-3000 FLIGHT MANAGEMENT SYSTEM (SINGLE)

INTRODUCTION

This supplement is part of, and must be placed in, the basic FAA Approved Airplane Flight Manual for airplanes equipped with the Collins FMS-3000 Flight Management System (Single). The information contained herein supplements the information of the basic FAA Approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

NAVIGATION OPERATIONAL CAPABILITIES (SOFTWARE LEVEL 832-4120-030)

The Collins FMS-3000 Flight Management System (FMS) is approved under TSO C115 and receives information from GPS sensors approved under TSO C129 C1. Provided a second suitable FMS is installed for areas requiring two independent navigation systems, the system has been demonstrated capable of, and been shown to meet the requirements for the following operations:

1. Oceanic/Remote (per AC20-138A) - Two FMSs are required to be installed, operating, and receiving usable signals from independent GPS sensors (or one FMS and one GPS sensor for those routes requiring only one Long Range Navigation (LRN) sensor). This does not constitute an operational approval.
2. North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) Airspace (per AC91-70, AC120-33, AC91-49, and 1 CAO DOC 7030) - Provided two FMSs are installed, operating and are receiving usable signals from any two GPS navigation sensors (or one FMS and one GPS sensor for those routes requiring only one LRN sensor). This does not constitute an operational approval.
3. RNP-10 Airspace - In accordance with FAA Order 8400.12A, UK AIC 93/2002, and Spain AIC 10/00, as a primary means of navigation within RNP-10 airspace with no time limitations. Two FMSs are required to be installed, operating and receiving usable signals from independent GPS sensors. This does not constitute an operational approval.
4. Enroute and Terminal including RNP5/BRNAV and PRNAV (RNP-1) - In accordance with AC 20-130A, JAA TGL-10, JAA GAI-20, ACJ 20X4, and AC 90-96A, provided the FMS is receiving usable navigation information from one or more of the following sensors:
 - a. GPS.
 - b. Multiple VOR/DME's and DME - DME, with Autotuning enabled.
5. PRNAV operations in accordance with the criteria of JAA TGL-10 and AC 90-96A, provided the FMS is not in Dead Reckoning (FMS DR displayed on PFD, MFD or CDU). PRNAV operations in some terminal areas may require operating dual FMS equipment.

Operations on PRNAV routes requires:

- a. The crew select the PRNAV route from the FMS navigational database.
 - b. The navigation database supplier has a Type 2 LOA that is currently valid for the intended operations. Navigation database Alerts and NOTAMS may be associated with the intended operations and the Type 2 LOA. This can be determined by accessing www.rockwellcollins.com/FMS or from current mailings from Rockwell Collins, Inc. This does not constitute an operational approval.
6. FMS-3000 U.S. Area Navigation (RNAV) routes, Standard Instrument Departures (SIDs), and Standard Terminal Arrival Routes (STARs) in accordance with the criteria of FAA AC 90-100, provided the FMS is receiving usable GPS signals. If the GPS signals are not useable as indicated by a "NO GPS RAIM" or "GPS NOT AVAILABLE" or "GPS-FMS DISAGREE" CDU message, then the FMS is not capable of RNAV Type A or RNAV Type B operations. This does not constitute an operational approval.

(Continued Next Page)

INTRODUCTION (Continued)

7. RNAV (GPS) Approaches - The Collins FMS-3000 meets the requirements of AC 20-130A for GPS based RNAV approaches. This includes RNAV approaches labeled as RNAV (GPS), provided GPS sensor data is valid.
8. Vertical Navigation (VNAV) Enroute, Terminal and Approach - Is approved in accordance with AC 20-129 provided the FMS is receiving usable navigation information. This includes RNAV approaches with LNAV/VNAV DA minimums per AC90-97.

OPERATING LIMITATIONS

GENERAL

1. The Collins FMS-3000, publication number 523-0808270, 1st Edition, dated 31 July 2006, or later applicable revision, must be immediately available to the crew when operating the Collins FMS-3000.
2. IFR enroute and terminal navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
3. The FMS-3000 Flight Management System with the AHC-3000 Attitude and Heading Reference System may be used for navigation only between 60° North latitude and 60° South latitude at any longitude, and as follows:
 - Operation to 70° North latitude is acceptable East of 75° West longitude and West of 120° West longitude.
 - Operation to 80° North latitude is acceptable East of 50° West longitude and West of 70° West longitude.
 - Operation to 70° South latitude is acceptable except for the 45° between 120° East and 165° East longitude.
4. The use of manually inserted runway coordinates or FMS Visual Approaches is limited to VFR operations only.
5. The FMS is not approved for primary means of navigation in the DR mode.
6. Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the FMS navigation database. The FMS database must incorporate the current update cycle.

NOTE

Not all published approaches are in the FMS database. The flight crew must ensure that the planned approach is in the database.

7. The FMS approach annunciator (white APPR on the PFD), must be illuminated at the Final Approach Fix (FAF), in order to conduct the instrument approach procedure. The approach must be discontinued if the yellow NO APPR annunciation is shown.
8. IFR non-precision approach approval is limited to published approaches within the U.S. National Airspace System. Approaches to airports in other airspace are not approved unless authorized by the appropriate governing authority.
9. ILS, LOC-BC, LDA, SDF and MLS approaches using the FMS for final approach guidance are prohibited. If an ILS, LOC-BC, LDA, SDF or MLS approach is loaded from the database, the pilot must ensure that the active NAV source transitions from FMS to short range NAV prior to the FAF.

(Continued Next Page)

OPERATING LIMITATIONS (Continued)

10. When an alternate airport is required by the applicable rules, it must be served by an approach based on other than GPS navigation, the airplane must have operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
11. FMS based approaches that are retrieved from the navigation database with an approach name of RNVXX or VORXX may be flown provided the VHF navigation receiver is tuned to the reference facility, the Data is displayed, and is considered primary.
12. When conducting missed approach procedures, autopilot coupled operation is prohibited until the flight crew has established a rate of climb that ensures all altitude requirements of the procedure will be met.
13. The fuel quantity, fuel required, fuel remaining and gross weight estimate performance functions of the FMS are supplemental information only and must be verified by the flight crew.
14. RNP operations are not authorized, except as noted in Navigation Operational Capabilities items 3 & 4.
15. The pilot's and copilot's altimeters are the primary altitude reference during all vertical navigation (VNAV) operations. Check individual approach procedure limitations for limitations on BARO VNAV systems.
16. The flight director or autopilot must be used and coupled to VNAV VGP guidance when conducting RNAV instrument approaches using LNAV/VNAV DA minimums.
17. Use of VNAV guidance for a V-MDA approach that includes a step-down fix between the FAF and missed approach point is prohibited.

OPERATING PROCEDURES

The Operating Procedures are the same as those in the basic FAA Approved Airplane Flight Manual except as follows:

EMERGENCY PROCEDURES

No change.

ABNORMAL PROCEDURES**YELLOW "MSG" ILLUMINATED ON PFD**

The yellow MSG displayed on each PFD indicates presence of an FMS yellow message that requires pilot awareness and may require pilot action. Refer to the Collins FMS-3000 Flight Management System Pilot's Operating Manual, under Messages and Annunciations section.

NORMAL PROCEDURES

Operating at or above FL290, the bank angle should be selected to full bank (deselect half-bank angle) when entering holding or making course changes greater than or equal to 70°.

WHITE "MSG" ILLUMINATED ON PFD

The white MSG displayed on each PFD indicates presence of an FMS white message that requires pilot awareness and may require pilot action. Refer to the Collins FMS-3000 Flight Management System Pilot's Operating Manual, under Messages and Annunciations section.

MFD FMS map source data is controlled by the menu button on the CCP, when a map is displayed on the MFD.

The EFIS transition altitude FL alert caution setting is controlled from the FMS VNAV setup page.

PERFORMANCE

No Change.

DESCRIPTION

The Collins FMS-3000 is designed to provide a complete range of FMS functions. Refer to the Pilot's Manual for detailed description and operating instructions. The following is a summary of major functions:

NAVIGATION

1. The navigation function computes the aircraft position and velocity for all phases of flight (oceanic, enroute, terminal, and approach).

NOTE

Refer to the Operating Limitations in this supplement, for specific limitations with respect to software version.

2. The navigation function automatically blends or selects position sensors to compute an optimum position.
3. The pilot can deselect individual sensors when required.

FLIGHT PLANNING

Flight planning function computes the active flight plan with both lateral and vertical definition.

DATABASE

1. The database contains worldwide coverage of nav aids, airways, DP/STAR procedures, approach procedures (including missed approach procedures), airports, and runways.
2. The database can store pilot-defined flight plans and waypoints.
3. Not all published DP/STAR procedures and approaches are available in the database. The pilot is responsible for ensuring procedures intended for use are available.

LATERAL NAVIGATION (LNAV)

1. LNAV guides the aircraft along predetermined flight paths.
2. LNAV maintains the aircraft within airway or protected airspace.
3. LNAV automatically flies pilot-defined holding patterns, including entry and exit procedures.

VERTICAL NAVIGATION (VNAV)

VNAV gives a complete vertical profile (path) for enroute, terminal and approach operations.

PERFORMANCE

Performance contains fuel management and time estimates for the flight.

NAVIGATION

1. Navigation displays are shown on the PFD and/or MFD.
2. Electronic maps integrate route map data with auxiliary navigation data to display the airplane's situation at any time.

NOTE

Make sure the LEFT DISPLAY MENU has been selected through the MFD MENU page prior to selecting MFD display options.

3. Electronic displays integrate map data with weather radar or terrain displays.



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Airplane Flight Manual

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MODEL 560
560-0751 THRU -5000

SUPPLEMENT 2

COLLINS IFIS-5000 INTEGRATED FLIGHT INFORMATION SYSTEM

APPROVED BY 
for Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
DATE OF APPROVAL 12/21/06

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WICHITA, KANSAS, USA

21 DECEMBER 2006

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U.S. S2-1

SUPPLEMENT 2

COLLINS IFIS-5000 INTEGRATED FLIGHT INFORMATION SYSTEM

Use the Log of Effective Pages to determine the current status of this supplement.
Pages affected by the current revision are indicated by an asterisk (*) preceding the page number.

Supplement Status	Date
Original	21 December 2006

LOG OF EFFECTIVE PAGES

Page Number	Page Status	Revision Number	Configuration Code
S2-1 thru S2-6	Original	0	S2-AA

The following is a list of Service Bulletins that are applicable to the operation of the airplane, and have been incorporated into this supplement. This list contains only those Service Bulletins that are currently active.

<u>Number</u>	<u>Title</u>	<u>Airplane Serial Effectivity</u>	<u>Revision Incorporated</u>	<u>Incorporated in Airplane</u>
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AIRPLANE CONFIGURATION CODES

The following is a list of airplane configuration codes which appear at the bottom of each page of this supplement to the basic FAA Approved Airplane Flight Manual. The codes indicate page effectivity by serial number. This list contains only the configurations which have been incorporated into this supplement.

Configuration <u>Code</u>	Effectivity by <u>Serial Number</u>
S2-AA	Airplanes 560-0751 thru -5000 equipped with the Collins IFIS-5000 Integrated Flight Information System.

COLLINS IFIS-5000 INTEGRATED FLIGHT INFORMATION SYSTEM

INTRODUCTION

This supplement is part of, and must be placed in, the basic FAA Approved Airplane Flight Manual for airplanes equipped with the Collins IFIS-5000 Integrated Flight Information System. The information contained herein supplements the information of the basic FAA Approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

OPERATING LIMITATIONS

GENERAL

1. The Collins IFIS-5000 Integrated Flight Information System Operator's Guide Publication Number 523-0806347, Edition 1 (1 is a variable and changes with revision number), dated 01 October 2003 or later applicable revision, must be immediately available to the flight crew when operating the IFIS-5000 System.
2. The geographic-referenced aircraft symbol on some optional E-Charts must not be used for navigation.

NOTE

The aircraft symbol displayed on some E-Charts provides supplemental aircraft situational awareness information. It is not intended as a means for navigation or flight guidance. The aircraft symbol is not to be used for conducting instrument approaches or departures, and it should not be relied upon during low visibility taxi operations. Position accuracy, orientation, and related guidance must be assured by other means of required navigation.

3. Operators with optional Electronic Charts (E-Charts) must have appropriate back-up charts (electronic or paper) available to the flight crew.
4. Database currency must be verified prior to use via database effectivity page.
5. The flight crew is responsible for verifying availability of charts for the planned flight.
6. Graphical weather must not be used for tactical decisions in avoidance of severe weather. The time delayed nature of graphical weather makes it better suited for strategic weather avoidance. Misuse of graphical weather information may place the pilot and aircraft in jeopardy.

OPERATING PROCEDURES

The operating procedures are the same as those in the basic FAA Approved Airplane Flight Manual except as follows:

EMERGENCY PROCEDURES

No change.

ABNORMAL PROCEDURES

The IFIS features, including Electronic Charts (E-Charts), are not available when the MFD is reverted to a Primary Flight Display (PFD). All IFIS functions are lost when the MFD is in its reversion format.

NORMAL PROCEDURES

NOTE

Not all published DP/STAR procedures and approaches are available in the database. The pilot is responsible for ensuring procedures intended for use are available.

PERFORMANCE

No change.

DESCRIPTION

The IFIS-5000 Integrated Flight Information System is an evolution of the current Rockwell Collins Pro Line 21 system. Specifically, it is a Multifunction Display (MFD) upgrade that adds Enhanced Map (E-Map) features (e.g., rivers, lakes, state and national boundaries, airspace and airways) to traditional map displays, optional Electronic Charts (E-Charts; which include airport diagrams, approaches, departure procedures and STARS), and optional satellite datalink Graphical Weather (GWX, for the continental U.S. only).

A Database Effectivity page is included to provide the aircraft operator with a means to verify the installed databases are current and enabled for use.

MFD and IFIS-5000 interface is accomplished via the Dedicated CCP-3000 Cursor Control Panel.

Detailed operation installations and information may be found in the Collins IFIS-5000 Integrated Flight Information System Operator's Guide, Publication Number 523-0806347.

FAA APPROVED

Airplane Flight Manual

CITATION

ENCORE+

MODEL 560
560-0751 THRU -5000

SUPPLEMENT 3

HONEYWELL MARK VIII ENHANCED GROUND PROXIMITY WARNING SYSTEM (EGPWS)

APPROVED BY 
 Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
DATE OF APPROVAL 12/21/06

SUPPLEMENT 3

HONEYWELL MARK VIII ENHANCED GROUND PROXIMITY WARNING SYSTEM (EGPWS)

Use the Log of Effective Pages to determine the current status of this supplement.
Pages affected by the current revision are indicated by an asterisk (*) preceding the page number.

Supplement Status	Date
Original	21 December 2006

LOG OF EFFECTIVE PAGES

Page Number	Page Status	Revision Number	Configuration Code
S3-1 thru S3-14	Original	0	S3-AA

The following is a list of Service Bulletins that are applicable to the operation of the airplane, and have been incorporated into this supplement. This list contains only those Service Bulletins that are currently active.

<u>Number</u>	<u>Title</u>	Airplane Serial Effectivity	Revision Incorporated	Incorporated in Airplane
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AIRPLANE CONFIGURATION CODES

The following is a list of airplane configuration codes which appear at the bottom of each page of this supplement to the basic FAA Approved Airplane Flight Manual. The codes indicate page effectivity by serial number. This list contains only the configurations which have been incorporated into this supplement.

Configuration <u>Code</u>	Effectivity by <u>Serial Number</u>
S3-AA	Airplanes 560-0751 thru -5000 incorporating the Honeywell Mark VIII Enhanced Ground Proximity Warning System (EGPWS).

HONEYWELL MARK VIII ENHANCED GROUND PROXIMITY WARNING SYSTEM (EGPWS)

INTRODUCTION

This supplement is part of, and must be placed in, the FAA Approved Airplane Flight Manual for airplanes equipped with optional Honeywell Mark VIII Enhanced Ground Proximity Warning System. The information contained herein supplements the information in the basic FAA Approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

OPERATING LIMITATIONS

1. The Honeywell Enhanced Ground Proximity Warning System Pilot Guide Part No. 060-4314-000 Revision B or later applicable revision, must be available to the flight crew when operating the Enhanced Ground Proximity Warning System (EGPWS).
2. The use of this system is limited to performing a caution/warning function only. The AlliedSignal/Honeywell EGPWS is not intended as a primary flight instrument or navigation aid.
3. Pilots are authorized to deviate from their current air traffic control (ATC) clearance to the extent necessary to comply with an EGPWS warning.
4. The terrain display is intended to serve as a situational awareness tool only. Navigation is not to be predicated upon use of the terrain database display.
5. The terrain display must be INHIBITED by selecting TERR INHIB when using QFE as altitude reference.
6. EGPWS must be INHIBITED by selecting TERR INHIB when within 15 nm of landing at an airport for which any of the following conditions apply:
 - a. The airport has no approved instrument approach procedure.
 - b. The longest runway is less than 2000 feet in length.
 - c. The airport/approach is not listed in AlliedSignal/Honeywell Avionics Inc. Document 060-4326-000 Revision A or latest revision. (Reference <http://www.egpws.com>).
7. In the event that the accuracy of aircraft position data (from the flight management system(s)) becomes inadequate for navigation, the terrain awareness alerting and display functions shall be inhibited. This will not affect the basic GPWS functions.

OPERATING PROCEDURES

The Operating Procedures are the same as those in the basic FAA Approved Airplane Flight Manual except as follows:

NOTE

- When an EGPWS caution occurs, adjust the airplane flight path or configuration until the caution ceases.
- When an EGPWS warning occurs, immediately initiate and continue a climbing, vertical escape maneuver that will provide maximum terrain clearance capability. Continue the maneuver until all alerts cease. Only vertical maneuvers are recommended. However, a turn in addition to the vertical escape maneuver may be the safest course of action, if the pilot so determines. This course of action will be based on all available information, and/or the aircraft is operating in visual meteorological conditions (VMC).
- When flying under daylight VFR, should a warning threshold be deliberately exceeded or encountered due to specific terrain or operating procedure at certain locations, the warnings may be regarded as cautionary and the approach or other procedure continued, provided visual terrain clearance is maintained.

EMERGENCY PROCEDURES

BASIC GROUND PROXIMITY WARNINGS

The following modes are basic GPWS modes. If any of the following warnings occur, immediately initiate corrective action to eliminate the cause for the warning as follows:

AURAL WARNING MESSAGE	VISUAL WARNING MESSAGE DISPLAYED IN PFD ADIs (Color)	FUNCTION/PILOT ACTION
"PULL UP, PULL UP" *	PULL UP (Red)	This Mode 1 and 2 warning indicates excessive closure rate to terrain as a function of rate of change in radio altimeter. Immediately execute a vertical escape maneuver until warning ceases or terrain clearance is assured.
"TERRAIN – TERRAIN, PULL UP" *	PULL UP (Red)	This Mode 2 warning indicates rapidly rising terrain ahead as a function of radio altimeter when TERR NORM is selected and TERR FAIL is not in view. Immediately execute a vertical escape maneuver until warning ceases or terrain clearance is assured.

* Repeated continuously until threat is resolved.

WARNING

EGPWS MODE 2 WILL NOT PROVIDE WARNING FOR FLIGHT INTO PRECIPITOUS OR VERY RAPIDLY RISING TERRAIN WITH LITTLE OR NO RISING PREAMBLE TERRAIN.

ENHANCED GROUND PROXIMITY WARNINGS

The following are enhanced modes based on proximity to database terrain. If any of the following warnings occur, immediately initiate corrective action to clear the terrain as follows:

AURAL WARNING MESSAGE	VISUAL WARNING MESSAGE DISPLAYED IN PFD ADIs (Color)	ACTION
"TERRAIN – TERRAIN, PULL UP"	PULL UP (Red)	This warning indicates less than 30 seconds to impact with terrain. Immediately execute a vertical escape maneuver until warning ceases or terrain clearance is assured.
"OBSTACLE – OBSTACLE, PULL UP" *	PULL UP (Red)	This warning indicates less than 30 seconds to impact with an obstacle. Immediately execute a vertical escape maneuver until warning ceases or terrain clearance is assured.

* Repeated continuously until threat is resolved.

NOTE

These warnings do not occur if the Terrain Switch is placed to TERR INHIB.

ABNORMAL PROCEDURES

BOXED GPWS (AMBER message in PFD) – The EGPWS system computer has detected a fault or a required aircraft system input has been lost to the EGPWS system. All EGPWS functions will be inoperative and the annunciations will be inhibited.

TERR (AMBER message in PFD) – Complete power or system failure of the EGPWS system has occurred. All EGPWS functions will be inoperative and annunciators will be inhibited.

TERRAIN FAIL (AMBER message in MFD) – The EGPWS is unable to display terrain or provide enhanced mode warnings.

NOTE

- In the event that the Radio Altimeter is not functioning, the basic GPWS modes (Modes 1 to 6 and Enhanced Terrain Clearance Floor Mode) will not be available. The other enhanced features, however, will be available.
- Any degradation of the Radio Altimeter signal can significantly degrade basic GPWS mode operation. Unexplained dropouts in radio altimeter indication should be investigated.

BASIC GROUND PROXIMITY ALERTS

The following modes are basic GPWS modes that are a function of radio altitude. If any of the following cautions occur, immediately initiate corrective action to eliminate the cause of the caution, as follows:

AURAL WARNING MESSAGE	VISUAL WARNING MESSAGE DISPLAYED IN PFD ADIs (Color)	ACTION
"SINK RATE, SINK RATE"	GND PROX (Amber)	This Mode 1 caution indicates excessive rates of descent as seen by the radio altimeter. This mode can occur at radio altitudes below 2450 feet. Reduce descent rate until caution is silenced.
"TERRAIN, TERRAIN"	GND PROX (Amber)	This Mode 2 caution indicates rapidly rising terrain ahead as a function of radio altimeter when TERR NORM is selected and TERR FAIL is not in view.
"DON'T SINK, DON'T SINK"	GND PROX (Amber)	This Mode 3 caution indicates significant altitude loss after takeoff or low altitude go-around with gear or flaps not in landing configuration. Immediately execute a vertical escape maneuver until caution ceases or terrain clearance is assured.
"TOO LOW, TERRAIN"	GND PROX (Amber)	This Mode 4 caution occurs when the aircraft is operated below 1000 feet radio altitude, is not in landing configuration, and airspeed is greater than 190 KIAS. Establish a positive rate of climb and increase climb rate until the caution is silenced or configure the aircraft for landing if appropriate.

(Continued Next Page)

ABNORMAL PROCEDURES (Continued)

BASIC GROUND PROXIMITY ALERTS (Continued)

AURAL WARNING MESSAGE	VISUAL WARNING MESSAGE DISPLAYED IN PFD ADIs (Color)	ACTION
"TOO LOW, GEAR"	GND PROX (Amber)	<p>This Mode 4 caution occurs when the aircraft is operated below 500 feet radio altitude, the gear is not in landing configuration, and airspeed is below 190 KIAS.</p> <p>If conditions permit, extend the landing gear; otherwise, execute a go-around.</p>
"TOO LOW, FLAPS" *	GND PROX (Amber)	<p>This Mode 4 caution occurs when the aircraft is operated below approximately 245 feet radio altitude, the flaps are not in the LAND position and airspeed is below 159 KIAS.</p> <p>Select landing flaps or cancel the caution with the GPWS FLAP OVRD switch if intentions are to land with less than full flaps; otherwise, execute a go-around.</p>
"GLIDESLOPE" **	GND PROX (Amber)	<p>This Mode 5 caution is generated when the aircraft is at least 1.3 dots below a tuned glide slope on an ILS, below 1000 feet radio altitude, and descending greater than 500 feet per minute.</p> <p>Reduce descent rate to recapture the glideslope or continue the approach (if visual); otherwise, execute a go-around.</p>

* If landing with flaps other than LAND position, GPWS FLAP OVRD must be selected to prevent inappropriate "TOO LOW, FLAPS" caution.

** If radio altitude is below 300 feet and the glideslope deviation is 2 dots or greater, the aural "GLIDESLOPE" message increases in volume and repeats every 3 seconds.

(Continued Next Page)

ABNORMAL PROCEDURES (Continued)**ENHANCED GROUND PROXIMITY ALERTS**

The following are Enhanced GPWS modes. If any of the following cautions occur, immediately initiate corrective action to eliminate the cause of the caution, as follows:

AURAL WARNING MESSAGE	VISUAL WARNING MESSAGE DISPLAYED IN PFD ADIs (Color)	ACTION
"TOO LOW, TERRAIN"	GND PROX (Amber)	<p>This message indicates the airplane has penetrated the EGPWS Terrain Clearance Floor or the Runway Field Clearance Floor envelope, based on proximity to the nearest airport/runway, when TERR NORM is selected and TERR INOP is not in view.</p> <p>Establish a positive rate of climb and increase climb rate until the caution is silenced.</p>
"CAUTION TERRAIN, CAUTION TERRAIN"	GND PROX (Amber)	<p>This message indicates the airplane is within 40 to 60 seconds of impact with terrain, when TERR NORM is selected and TERR INOP is not in view.</p> <p>Establish a positive rate of climb and increase climb rate until the caution is silenced.</p>
"CAUTION - OBSTACLE, CAUTION - OBSTACLE"	GND PROX (Amber)	<p>This message indicates the airplane is within 40 to 60 seconds of impact with an obstacle, when TERR NORM is selected and TERR INOP is not in view.</p> <p>Establish a positive rate of climb and increase climb rate until the caution is silenced.</p>

NOTE

These cautions do not occur if the Terrain Switch is placed to TERR INHIB.

NORMAL PROCEDURES

COCKPIT PREPARATION

1. Warning Systems - CHECK/OFF.

GROUND PROXIMITY WARNING SYSTEM

NOTE

EGPWS self-test is inhibited in flight.

1. Flight Management System (FMS) - ON.
2. Terrain Switch – TERR NORM.
3. WXR – ON (the WXR may be in TEST).
4. Displays – SELECT WXR (ensure Terrain Display is not selected).
5. EGPWS TEST Switch/Annunciator – PRESS for less than 2 seconds.
6. Verify the following annunciations:
 - a. GPWS FAIL (Amber message in PFD).
 - b. TERR (Amber - Bottom of PFD's).
 - c. TERR TEST (CYAN message in MFD).
 - d. GPWS FLAP OVRD (momentary).
 - e. Aural "GLIDESLOPE" is enunciated and boxed amber GND PROX appears in PFD ADI.
 - f. Amber CANCELED portion of GPWS G/S switch light annunciates.
 - g. Aural "PULL UP" is enunciated and boxed red PULL UP appears in PFD ADI.
 - h. Aural "TERRAIN - TERRAIN, PULL UP" is annunciated and boxed red PULL UP appears in PFD ADI.
 - i. Terrain Test Pattern on MFD (12 seconds).
 - j. Amber GPWS FAIL and TERR TEST are no longer displayed in MFD.

LANDING AT AN AIRPORT NOT IN THE DATABASE






For off airport landing or operation at a field not in the terrain database, inhibit forward looking terrain avoidance and premature descent alert functions.

1. Terrain Switch – TERR INHIB (Amber).

(Continued Next Page)

NORMAL PROCEDURES (Continued)**EGPWS MODE SELECTIONS AND ANNUNCIATIONS**

EGPWS modes are selected from the various bezel button menus as follows:

SWITCH/LIGHT (Center Instrument Panel)	FUNCTION/PILOT ACTION
	<p>STEEP APPROACH - When the steep approach function is active, a bias is applied to mode 1, which desensitizes the "SINK RATE" aural annunciations. The amber ACTIVE portion of the switch/annunciator is illuminated when steep approach is active. When performing steep approaches listed in the GPWS steep approach database the system will automatically activate the steep approach function. When performing steep approaches at an airport not listed in the steep approach database, the steep approach function can be manually activated by selecting the GPWS STP APR switch/annunciator.</p>
(PFD/MFD Display)	<p>TERRAIN - The PFD/MFD terrain map can be displayed by selecting TERR on the MFD BEZEL menus. The terrain map can be selected/deselected by consecutive presses of this button. This mode is indicated by a cyan TERR on the PFD/MFD. Terrain mode is deselected on any display if WX is selected, and vice versa. Terrain map cannot be selected if Terrain Inhibit is selected.</p>
	<p>BELOW GLIDESLOPE CANCEL – The Below Glideslope caution may be manually canceled by pressing the white GPWS G/S switch/light. The amber CANCELED portion of the switch/light then illuminates. When flying a non-ILS approach with an ILS frequency tuned into the VHF nav radio, CANCELED should be selected on the GPWS G/S switch/light to avoid nuisance "GLIDESLOPE" cautions.</p>
	<p>GPWS FLAP OVERRIDE – To avoid nuisance "TOO LOW, FLAPS" caution during training or other flights during landings with flaps at other than the LAND position, the caution may be inhibited by pressing the green GPWS FLAP NORM switch/light. The amber GPWS FLAP OVRD portion of the switch/light then illuminates.</p>
	<p>TERRAIN INHIBIT – The terrain inhibit function can be enabled by selecting the green TERR NORM switch/light. When terrain inhibit is selected, the "Enhanced" GPWS warnings and the terrain map are inhibited. The basic GPWS Modes 1-6 will remain active. Selecting this mode will illuminate the amber TERR INHIB portion of the switch/light and display the cyan TERR INHIB on the display (MFD or PFD).</p>
	<p>GPWS TEST – This white momentary switch activates the EGPWS self test while the aircraft is on the ground.</p>

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NORMAL PROCEDURES (CONTINUED)

ADVISORY CALLOUTS (MODE 6)

Mode 6 provides EGPWS advisory callouts based on installation option. Any combination including all of the following callouts may be configured for the aircraft. Consult the Pilot Guide for a complete description of the callouts. Mode 6 generates no visual alerts.

"Five Hundred" (Smart 500)	"Thirty"
"Two Hundred"	"Twenty"
"One Hundred"	"Ten"
"Fifty"	"Minimums, Minimums"
"Forty"	"Bank Angle, Bank Angle"

PERFORMANCE

No Change.

DESCRIPTION

Refer to the Honeywell Mk VI and Mk VIII Enhanced Ground Proximity Warning System Pilot Guide P/N 060-4314-000, revision A dated March 2001, or later appropriate revision, for a detailed description of Basic and Enhanced GPWS modes.

FAA APPROVED

Airplane Flight Manual

CITATION

ENCORE+

MODEL 560
560-0751 THRU -5000

SUPPLEMENT 4

GARMIN GPS 500

APPROVED BY 
 Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
DATE OF APPROVAL 12/21/06

SUPPLEMENT 4

GARMIN GPS 500

Use the Log of Effective Pages to determine the current status of this supplement.

Pages affected by the current revision are indicated by an asterisk (*) preceding the page number.

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Original	21 December 2006

LOG OF EFFECTIVE PAGES

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S4-1 thru S4-9/S4-10	Original	0	S4-AA

The following is a list of Service Bulletins that are applicable to the operation of the airplane, and have been incorporated into this supplement. This list contains only those Service Bulletins that are currently active.

<u>Number</u>	<u>Title</u>	<u>Airplane Serial Effectivity</u>	<u>Revision Incorporated</u>	<u>Incorporated in Airplane</u>
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AIRPLANE CONFIGURATION CODES

The following is a list of airplane configuration codes which appear at the bottom of each page of this supplement to the basic FAA Approved Airplane Flight Manual. The codes indicate page effectivity by serial number. This list contains only the configurations which have been incorporated into this supplement.

Configuration <u>Code</u>	Effectivity by <u>Serial Number</u>
S4-AA	Airplanes 560-0751 thru -5000 equipped with the Garmin GPS 500.

GARMIN GPS 500

INTRODUCTION

This supplement is part of, and must be placed in, the basic FAA Approved Airplane Flight Manual for airplanes equipped with the Garmin GPS 500. The information contained herein supplements the information of the basic FAA Approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

NAVIGATION OPERATIONAL APPROVALS

The Garmin GPS 500 is approved under TSO C129a, Class A1. It has been demonstrated capable of, and has been shown to meet the accuracy requirements for, the following VFR/IFR operations provided it is receiving usable navigation data:

1. VFR/IFR enroute, terminal, and non-precision instrument approach operations within the U.S. National Airspace System in accordance with AC 20-138A and AC 90-94.
2. Enroute BRNAV/RNP5 Airspace - In accordance with AC 90-96 and JAA ACJ 20X4.
3. As one of the required Long Range Navigation (LRN) sensors for use in the following types of airspace:
 - a. Oceanic/Remote Airspace per AC 20-138A.
 - b. North Atlantic Track (NAT) Minimum Navigational Performance Specifications (MNPS) Airspace per AC 91-49 and AC 120-33.
 - c. RNP-10 Airspace in accordance with FAA Order 8400-12A.

The GPS 500 is approved as a primary means of navigation for Oceanic/Remote operations per AC 20-138A. These do not constitute operational approvals.

OPERATING LIMITATIONS

GENERAL

1. The Garmin GPS 500 Pilot's Guide, P/N 190-00181-60 Revision B, dated May 2003, or later appropriate revision, must be immediately available to the flight crew whenever navigation is predicated on the use of the GPS 500. The Software/Database Version Page (AUX 2) must contain the following version numbers: Main 6.01/GPS 3.03.

NOTE

The Garmin GPS 500 Pilot's Guide is generic to many aircraft installations. All equipment, options, and features in the Garmin GPS 500 Pilot's Guide may not be available in the Citation Encore+ installation.

2. Other navigation equipment appropriate to the ground facilities along the intended route must be installed and operable as required by the regulations applicable to the specific type of operation (i.e. VOR, DME, etc.).
3. IFR navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
4. The internal database must be updated to the latest version every 28 days.
5. Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS database.
6. Not all published instrument approaches are contained in the GPS database. The flight crew must ensure that the planned approach is in the database.
7. Instrument approaches utilizing the GPS receiver must be conducted in the approach mode and Receiver Autonomous Integrity Monitoring (RAIM) must be available at the Final Approach Fix (FAF), as indicated by a cyan APPR annunciation on the PFD.
8. Accomplishment of ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for GPS overlay is not authorized for the GPS 500.
9. When using FMS guidance for conducting instrument approach procedures that do not include "or GPS" in the title of the published procedure, the flight crew must verify that the procedure specified navaid and associated avionics are tuned and displayed.
10. When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS navigation, the aircraft must have the operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
11. The GPS 500 does not provide guidance in accordance with published missed approach procedures. Autopilot coupled FMS operation is prohibited during a missed approach until vertical and lateral course requirements can be accomplished per the published procedure.

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OPERATING LIMITATIONS (Continued)

12. IFR non-precision approach approval is limited to published approaches within the U.S. National Airspace System. Approaches to airports in other airspace are not approved unless authorized by the appropriate governing authority.
13. VNAV information may be utilized for advisory information only. Use of VNAV information for instrument approach procedures does not guarantee step-down fix altitude protection or arrival at approach minimums in normal position to land.
14. Advisory VNAV information is not displayed on PL-21 EFIS displays.
15. The fuel planning functions are advisory only and do not replace the airplane primary fuel flow and fuel quantity indicating systems.
16. For operation in the U.S. National Airspace System, the MAP DATUM must be set to "WGS-84" on the AUX 3, Units/Position page.

NOTE

In some areas outside the United States, datums other than WGS-84 or NAD-83 may be used. If the GPS 500 is authorized for use by the appropriate airworthiness authority, the required geodetic datum must be set in the GPS 500 prior to use for navigation.

OPERATING PROCEDURES

The operating procedures are the same as those in the basic FAA Approved Airplane Flight Manual except as follows:

EMERGENCY PROCEDURES

No change.

ABNORMAL PROCEDURES

"RAIM POSITION WARNING" MESSAGE

1. Indicates that the GPS position may be in error beyond the limits for the current phase of flight. The system will flag and no longer provide GPS based navigational guidance. The crew should revert to an alternate means of navigation other than the GPS 500.

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ABNORMAL PROCEDURES (Continued)

"RAIM NOT AVAILABLE" MESSAGE

1. If displayed during the enroute, terminal, or initial approach phase of flight, continue to navigate using the GPS equipment or revert to an alternate means of navigation appropriate to the route and phase of flight. When continuing to use GPS navigation, position must be verified every 15 minutes using another IFR approved navigation system.
2. If displayed while on the final approach segment, GPS based navigation will continue for up to 5 minutes with approach CDI sensitivity (0.3 nautical mile). After 5 minutes the system will flag and no longer provide course guidance with approach sensitivity. Missed approach course guidance may still be available with 1 nautical mile CDI sensitivity by executing the missed approach.

"RAIM NOT AVAILABLE FROM FAF TO MAP WAYPOINTS" MESSAGE

1. Indicates that satellite geometry is insufficient to meet the required protection limits for a GPS approach. Use an alternate navigation source or execute the missed approach procedure.

AMBER "MSG" DISPLAYED

1. GPS 500 MSG Button - PRESS.

NOTE

GPS 500 message descriptions and appropriate pilot actions are outlined in the Garmin GPS 500 Pilot's Guide.

NORMAL PROCEDURES

1. Normal operating procedures are described in the Garmin GPS 500 Pilot's Guide, P/N 190-00181-60 Revision B, dated May 2003 or later appropriate revision.
2. Refer to the Rockwell Collins Pro Line 21 Avionics System for Cessna Citation Encore+ Publication Number 523-0808124, dated 1 August 2006 or later revision, for coupling the GPS 500 to the Flight Director or Autopilot.

NOTE

- Course guidance is not provided for all possible ARINC 424 leg types including holding patterns and procedure turns. During these maneuvers, use of HDG mode or manual control is required to properly fly the required path. Track depiction and cues such as "Start Procedure Turn" are displayed on the GPS 500 display where appropriate. Refer to the GPS 500 Pilot's Guide for additional details.
- Flight plan distances calculated by the GPS 500 may not agree with distances computed by other FMS systems. This is due to some FMS systems accounting for turn anticipation in the computation of leg distances. The GPS 500 computes leg distances based on the geographic distance between waypoints and does not account for turn anticipation.
- MFD FMS map navigation source data is controlled by the menu button on the CCP, when a map is displayed on the MFD.

PERFORMANCE

No change.

DESCRIPTION

The Garmin GPS 500 is a self-contained GPS based navigation system. The GPS 500 is approved for IFR oceanic/remote, enroute, terminal and non-precision approach operations. The GPS 500 system consists of an integrated display, control, and processor unit mounted in the instrument panel and a GPS antenna mounted on the top of the aircraft. Refer to the Garmin GPS 500 Pilot's Guide, P/N 190-00181-60 Revision B, dated May 2003 or later appropriate revision for a complete description of the GPS 500 system.

NOTE

The Garmin GPS 500 Pilot's Guide is generic to many aircraft installations. All equipment, options, and features in the Garmin GPS 500 Pilot's Guide may not be available in the Citation Encore installation.

The GPS 500 is installed as a second FMS and can be coupled to the Flight Director and Autopilot when selected as the active navigation source. Navigation information from the GPS 500 will be displayed in yellow on the pilot's PFD (cross-side FMS) and magenta on the copilot's PFD (on-side FMS). The CCP menu button is used for map navigation source data selection. Refer to The Rockwell Collins Pro Line 21 Avionics System for Cessna Citation Encore+ Publication Number 523-0808124, dated 1 August 2006 or later applicable revision, for additional information on flight director, autopilot, and display system operation.

NOTE

- The MFD Map format will not display curved portions of GPS 500 flight plan legs such as DME arcs, procedure turns, and holding patterns. These segments will be properly displayed on the GPS 500 display.
- When using OBS mode, the desired course must be selected on the GPS 500 CDU. The remote course knobs will not change the selected OBS course.

Display backlighting on the GPS 500 can be controlled in AUTO or MANUAL modes as selected from the AUX 3 page. In AUTO mode the lighting is controlled by an integral photocell and, if PANEL LIGHTING is on, by the CENTER panel dimmer knob. In the manual mode the display backlight level is controlled from the GPS 500 AUX 3 page. Display backlighting changes are not saved when the GPS 500 is turned off. Backlighting will revert to AUTO next time the unit is turned on.

The GPS 500 is powered from the main avionics bus through the GPS2 circuit breaker and is not powered from the emergency bus.

FAA APPROVED

Airplane Flight Manual

CITATION

ENCORE+

MODEL 560
560-0751 THRU -5000

SUPPLEMENT 5

AIRPLANES CERTIFIED FOR STEEP APPROACHES

APPROVED BY 
 Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
DATE OF APPROVAL 12/21/06

SUPPLEMENT 5

AIRPLANES CERTIFIED FOR STEEP APPROACHES

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S5-1 thru S5-31/S5-32	Original	0	S5-AA

SERVICE BULLETIN CONFIGURATION LIST

The following is a list of Service Bulletins that are applicable to the operation of the airplane, and have been incorporated into this supplement. This list contains only those Service Bulletins that are currently active.

<u>Number</u>	<u>Title</u>	<u>Airplane Serial Effectivity</u>	<u>Revision Incorporated</u>	<u>Incorporated in Airplane</u>
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AIRPLANE CONFIGURATION CODES

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Configuration <u>Code</u>	Effectivity by <u>Serial Number</u>
S5-AA	Airplanes 560-0751 thru -5000.

AIRPLANES CERTIFIED FOR STEEP APPROACHES

INTRODUCTION

This supplement is part of, and must be placed in, the basic FAA Approved Airplane Flight Manual for Airplanes 560-0751 thru -5000 certified for steep approaches. The information contained herein supplements the information of the basic FAA Approved Airplane Flight Manual, and is applicable when conducting approaches with approach glidepath angles from 4.5° up to and including 5.5°. For limitations, procedures and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

OPERATING LIMITATIONS

WEIGHT AND CENTER OF GRAVITY LIMITATIONS:

Basic FAA Approved Airplane Flight Manual landing weight limitations (Refer to Section II, OPERATING LIMITATIONS) apply except as follows:

- a. Maximum Landing Weight Permitted by
Climb Requirements or Brake Energy Limits Refer to Procedures For Use Of Steep
Approach And Landing Performance
Tables contained in this supplement.
- b. Landing Distance Refer to Procedures For Use Of Steep
Approach And Landing Performance
Tables contained in this supplement.

LANDING OPERATIONAL LIMITS:

These operational limits apply when performing steep approaches:

- a. The wing flaps, antiskid system, and speed brakes, must be operative.
- b. The range of approved approach glidepath angles is from 4.5° up to and including 5.5°.
- c. Airspeed - SV_{REF}
- d. Steep approaches commencing with one engine inoperative are prohibited.
- e. Steep approaches in icing conditions are prohibited.
- f. Maximum airport elevation is 5000 feet MSL.
- g. Tailwind landings are prohibited.
- h. Steep approaches for airplanes equipped with GPWS without a steep approach Mode 1 modulation function are prohibited.
- i. Minimum autopilot use height for steep approaches is 200 feet AGL.
- j. The airplane is approved for steep approaches in visual or instrument meteorological conditions, with no known or forecast icing conditions for the approach environment, using an approved ILS, visual glidepath reference system, or FMS approach retrieved from the FMS database with no waypoint modifications.

(Continued Next Page)

OPERATING LIMITATIONS (Continued)

PERFORMANCE LIMITATIONS:

- a. The airplane must be flown in accordance with the procedures defined in this supplement.
- b. Speed at glidepath intercept must be no greater than $SV_{REF} + 10$.
- c. The airplane must be stabilized on the glidepath, at SV_{REF} , by 400 feet AGL and remain stabilized to 35 feet AGL.
- d. The performance data in this supplement is based on approach glidepath angles from 4.5° up to and including 5.5° .
- e. If the visual glidepath reference system is not used, a landing distance adjustment must be applied as presented in Procedures For Use Of Steep Approach And Landing Performance Tables contained in this supplement.

CAUTION

AN UNSTABILIZED APPROACH CAN CAUSE INCREASED LANDING DISTANCE OR A HIGH SINK RATE RESULTING IN A HARD LANDING.

OPERATING PROCEDURES

The operating procedures are the same as those in the basic FAA Approved Airplane Flight Manual except as follows:

EMERGENCY PROCEDURES

ENGINE FAILURE/FIRE DURING STEEP APPROACH (ON GLIDEPATH)

- | |
|--|
| <ol style="list-style-type: none">1. Thrust (operating engine) - INCREASE as required.2. Airspeed - MAINTAIN SV_{REF}. |
|--|
3. Flaps - CHECK LAND (35°).
 4. Speed Brakes - CHECK EXTENDED.

NOTE

- Speed brakes will automatically retract at or above the CRU detent.
 - Retracting the speed brakes and flaps will cause a speed increase that may not allow restabilizing on glidepath and SV_{REF} . Leaving the speed brake and flaps fully extended allows the best chance for maintaining a stabilized approach. If the airplane is not stabilized on glidepath at SV_{REF} with speed brakes extended and flaps LAND by 400 feet AGL, a go-around should be performed.
5. Rudder and Aileron Trim - TRIM toward operating engine as required.
 6. Passenger Advisory Lights - PASS SAFETY.
 7. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
 8. Exterior Lights - AS REQUIRED.
 9. Fuel CROSSFEED Switch - OFF.
 10. Annunciators - CHECK.
 11. GND IDLE Switch - NORM.
 12. Pressurization - CHECK ZERO DIFFERENTIAL PRIOR TO LANDING.
 13. Landing Gear - DOWN.
 14. ANTI-SKID Switch - CHECK ON.
 15. Landing Lights - AS DESIRED.
 16. Autopilot and Yaw Damper - OFF.

ABNORMAL PROCEDURES**SINGLE-ENGINE GO-AROUND DURING STEEP APPROACH****NOTE**

- Altitude loss is possible during a single-engine go-around from a steep approach.
 - The minimum demonstrated single-engine go-around altitude is 300 feet AGL.
1. Throttle (operating engine) - TO Detent.
 2. Airplane Pitch Attitude - 10° (Go-around mode on flight director for reference).
 3. Flaps - T.O. & APPR (15°).
 4. Speed Brakes - CONFIRM RETRACTED.
 5. Climb Speed - V_{APP} .
 6. Landing Gear - UP (when positive rate-of-climb is established).

NOTE

The landing gear warning horn cannot be silenced if the landing gear is retracted prior to the flaps reaching the T.O. & APPR position.

7. Flaps (when clear of obstacles) - RETRACT at 1500 feet and $V_{APP} + 10$ KIAS and accelerate to V_{ENR} .
8. Throttle (operating engine) - CLB Detent.

NORMAL PROCEDURES**DESCENT**

1. DEFOG Fan - HI or LOW (minimum of 15 minutes prior to descent).
2. Pilot and Copilot Foot Warmers - CLOSE (Up).
3. AIR FLOW DISTR - CKPT.
4. WINDSHIELD BLEED AIR Knobs - AS REQUIRED.
5. W/S BLEED Switch - AS REQUIRED.
6. Anti-Ice/Deice - AS REQUIRED.

CAUTION

DO NOT OPERATE DEICE BOOTS UNDER ANY OF THE FOLLOWING CONDITIONS BECAUSE BOOT CRACKING MAY RESULT:

- AIRSPEEDS AT OR ABOVE 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -35°C (-31°F).
- AIRSPEEDS BELOW 150 KIAS AND THE RAT IS LESS THAN OR EQUAL TO -40°C (-40°F).

NOTE

- Maintain sufficient thrust for wing anti-ice; advance throttles to extinguish wing anti-ice lights.
- Check deice system for proper operation prior to entering areas in which icing might be encountered.
- Adequate engine anti-ice is provided at all throttle settings, including idle.
- Icing conditions must be exited prior to commencing the approach.

(Continued Next Page)

NORMAL PROCEDURES (Continued)

DESCENT (Continued)

7. Pressurization - CHECK/SET Landing Elevation.
8. A/C COMPRESSOR - AS DESIRED (below 18,000 feet).
9. REC/TAXI Lights - ON (below 18,000 feet).
10. Altimeter - SET (Transition Level).

APPROACH

1. Landing Data - COMPUTE and SET.
 - a. Airspeed - SV_{REF}
 - b. Landing Distance - COMPUTE.
2. Crew Briefing - COMPLETE.
3. Avionics and Flight Instruments - CHECK and SET.
4. Passenger Advisory Lights - PASS SAFETY.
5. Passenger Briefing - CHECK passenger seats full upright, outboard and positioned aft or forward to clear all exit doors, seat belts and shoulder harnesses secure.
6. Flaps - AS REQUIRED.
7. Exterior Lights - AS REQUIRED.
8. Fuel CROSSFEED Switch - OFF .
9. Annunciators - CHECK.
10. GND IDLE Switch - NORM.

NOTE

In moderate sideslips the angle-of-attack derived on speed indication for SV_{REF} may be in error by a small amount and should be disregarded for the duration of the sideslip. This applies to LSC and RAS in the PFD, round dial AOA indicator and the AOA indexer mounted on the glareshield.

BEFORE LANDING

BEFORE INTERCEPTING THE GLIDEPATH

1. Pressurization - ZERO DIFFERENTIAL PRIOR TO LANDING.
2. Landing Gear - DOWN.
3. ANTISKID Switch - CHECK ON.
4. Landing Lights - AS DESIRED.

NOTE

- Both recognition lights must be ON for the Pulselite system to operate.
- The landing lights must be turned ON prior to 300 feet AGL on landing approach to cause the pulsing to stop.
- The Pulselite system is automatically deactivated on the ground, except for systems configured with the optional ground override switch.

5. Flaps - LAND (35°).
6. Airspeed - $SV_{REF} + 10$ MAXIMUM.
7. Ground Proximity Warning System (if installed) - STEEP APPROACH MODE 1 MODULATION (AUTO OR MANUAL) ACTIVATED.

(Continued Next Page)

NORMAL PROCEDURES (Continued)**BEFORE LANDING** (Continued)**WHEN INTERCEPTING THE GLIDEPATH**

8. Airspeed - SV_{REF} .
9. Speed Brakes - EXTEND.
10. Throttles - MODULATE as necessary to maintain glidepath and SV_{REF} .

CAUTION

AN UNSTABILIZED APPROACH CAN CAUSE INCREASED LANDING DISTANCE OR A HIGH SINK RATE RESULTING IN A HARD LANDING.

NOTE

Speed brakes will automatically retract when the throttles are moved to or beyond CRU detent. Verify the speed brakes remain extended throughout the approach.

11. Autopilot and Yaw Damper - OFF.
12. Annunciator Panel - CLEAR (except SPD BRK EXTEND).
13. Anti-Ice/Deice - OFF.

GROUND PROXIMITY WARNING

Ground proximity warning systems (GPWS) may give undesired "Sink Rate" or "Pull Up" warnings during steep approaches, unless Mode 1 modulation is automatically or manually activated prior to commencing a steep approach.

With the Honeywell Mark VIII EGPWS, the warning envelope for Mode 1 ("Sink Rate" and "Pull Up" warnings) will automatically be adjusted during steep approaches at the following airports. Steep approach operations may be conducted at other airports not listed per limitations of this supplement, provided the GPWS steep approach mode is manually activated.

<u>IDENTIFIER</u>	<u>AIRPORT</u>	<u>APPROACH</u>
EGLC	London City, England	ILS DME Rwy 10 ILS DME Rwy 28
LSZA	Lugano, Switzerland	IGS Rwy 01
KSAN	Lindbergh Field, San Diego, California	LOC Rwy 27
CYJT	Stephenville, Newfoundland, Canada	ILS Rwy 27

PERFORMANCE - GENERAL

STANDARD PERFORMANCE CONDITIONS

All performance in this supplement is based on flight test data and the following conditions:

LANDING

- a. The airplane was stabilized on glideslope at SV_{REF} by 400 feet AGL and remained stabilized to 35 feet AGL.
- b. Two engine thrust setting during approach was selected to maintain the steep approach angle at SV_{REF} .
- c. Idle thrust was selected at 35 feet AGL and throttles remained at idle until the airplane had stopped.
- d. Landing flare was initiated at or just below 35 feet AGL using minimum flare to achieve a firm touchdown on the main gear.
- e. Rotation to a three-point attitude was accomplished immediately after touchdown.
- f. Maximum wheel braking was accomplished immediately on nosewheel contact and continued throughout the landing roll.
- g. Thrust reversers were not used.

CONDITIONS SUMMARY:

Wing flaps	LAND
Engines	Two engines operating
Landing Gear	Extended
Antiskid System	Operative
Speed Brake	Extended

NOTE

- Excessive airspeed or altitude above glidepath at 35 feet AGL, excessive long flare, or reduced braking effort will significantly increase landing distance.
- If the visual glidepath reference system is not used, a landing adjustment must be applied as presented in Procedures For Use Of Steep Approach And Landing Performance Tables contained in this supplement.

DEFINITIONS

SV_{REF} : The airspeed for steep approach landings used with full flaps and speed brakes extended.

PROCEDURES FOR USE OF STEEP APPROACH AND LANDING PERFORMANCE TABLES

1. Determine gross weight of airplane at the time of arrival at the destination airport.
2. Obtain airport information; i.e., active runway, available runway length, temperature, altitude, wind, icing conditions and runway gradient if applicable. Some performance data provided in this section are outside of operating temperature limits. Determine that the temperature is within the ambient temperature limits found in Section II, OPERATING LIMITATIONS.
3. Determine wind component parallel to active runway from the crosswind component chart (Refer to the basic FAA Approved Airplane Flight Manual, Figure 4-15).
4. Check the Maximum Landing Weight Permitted by Climb Requirements or Brake Energy Limits (Figure S5-1). If these limitations restrict the landing weight, the pilot must burn off fuel prior to landing.
5. Determine the landing distance, V_{APP} and SV_{REF} from Figure S5-2. The distance is from 35 feet AGL to stop. For runways without an operative visual glidepath reference system, increase the landing distance by 250 feet. This adjusted distance is from 50 feet AGL to stop. If the runway has a gradient, apply the appropriate factor from the note below. If the available runway length is less than the landing distance required, the airplane weight must be reduced.

NOTE

Multiply the landing distance by 1.10 for -1 percent (downhill) runway gradient, by 1.24 for -2% (downhill) runway gradient. No adjustment is required for a positive (uphill) runway gradient.

6. For CFR Operations, determine the landing distance from 35 feet AGL to stop, V_{APP} and SV_{REF} from Figure S5-2. Adjust the landing distance by the appropriate operational factor. For runways without an operative visual glidepath reference system, increase the adjusted landing field length by 250 feet, adjusted by the same appropriate operational factor. This adjusted distance is from 50 feet AGL to stop. If the runway has a gradient, apply the appropriate factor from the note in step 5. If the available runway length is less than the landing field length required, the airplane weight must be reduced.
7. For JAR Operations, Figure S5-3 can be used in showing compliance with JAR-OPS 1.515 (Landing - Dry Runways); determine the landing field length, V_{APP} and SV_{REF} from Figure S5-3. This field length is from 35 feet AGL to stop. For runways without an operative visual glidepath reference system, increase the landing field length by 410 feet. This adjusted field length is for 50 feet AGL to stop. For landings on wet runways, refer to JAR-OPS 1.520. If the available runway length is less than the landing field length required, the airplane weight must be reduced.

NOTE

These procedures apply for normal landings at or below 15,200 pounds. Performance above 15,200 pounds is provided as additional information for use in an emergency which requires a landing at a weight in excess of the maximum design landing weight of 15,200 pounds.

**MAXIMUM LANDING WEIGHT - POUNDS PERMITTED BY
CLIMB REQUIREMENTS OR BRAKE ENERGY LIMITS**

The maximum allowable landing weight with anti-ice OFF and for brake energy limits is determined from Figure S5-1 for a given set of conditions.

EXAMPLE: Anti-Ice OFF

Ambient Temperature = 35°C From Figure S5-1 Maximum Weight = 13,300 POUNDS
Pressure Altitude = 5000 FEET
Wind = 0 KNOTS (CALM)
Runway Gradient = -2% (DOWNHILL)

CONDITIONS

MAXIMUM LANDING WEIGHT CONDITIONS:			
	APPROACH CLIMB	LANDING CLIMB	LANDING
LANDING GEAR WING FLAP DEGREES SPEEDBRAKES ENGINE(S) AIRSPEED	UP 15 RETRACT T.O. THRUST / WINDMILLING V _{APP}	DOWN LAND RETRACT T.O. THRUST V _{REF}	DOWN LAND EXTENDED IDLE AT 35 FEET SV _{REF} AT 35 FEET

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**MAXIMUM LANDING WEIGHT PERMITTED BY CLIMB REQUIREMENTS
OR BRAKE ENERGY LIMITS - POUNDS**

ANTI-ICE SYSTEMS - OFF

APPROACH FLAPS - 15°
LANDING FLAPS - LAND

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

ALT FT	TEMP DEG C	WIND - KNOTS															
		0				10				20				30			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
0	-25	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-20	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-15	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	10	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	15	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	20	15070	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	25	14940	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	30	14800	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	35	14680	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	40	14550	15170	15200	15200	15100	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	45	14430	15040	15200	15200	14970	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	50	14310	14910	15200	15200	14840	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	54	14210	14810	15120	15200	14740	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200

ALT FT	TEMP DEG C	WIND - KNOTS															
		0				10				20				30			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
10	-25	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-20	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-15	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	10	15060	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	15	14920	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	20	14780	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	25	14650	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	30	14520	15140	15200	15200	15070	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	35	14390	15000	15200	15200	14930	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	40	14270	14870	15190	15200	14800	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	45	14150	14750	15060	15200	14680	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	50	14030	14620	14930	15200	14550	15160	15200	15200	15090	15200	15200	15200	15200	15200	15200	15200
	52	13980	14570	14880	15200	14500	15110	15200	15200	15040	15200	15200	15200	15200	15200	15200	15200

ALT FT	TEMP DEG C	WIND - KNOTS															
		0				10				20				30			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
20	-25	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-20	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-15	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	15060	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	14910	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	10	14770	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	15	14630	15200	15200	15200	15190	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	20	14500	15110	15200	15200	15040	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	25	14370	14980	15200	15200	14910	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	30	14240	14840	15160	15200	14770	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	35	14110	14710	15020	15200	14640	15200	15200	15200	15190	15200	15200	15200	15200	15200	15200	15200
	40	13990	14590	14890	15200	14510	15120	15200	15200	15050	15200	15200	15200	15200	15200	15200	15200
	45	13880	14460	14760	15080	14390	14990	15200	15200	14920	15200	15200	15200	15200	15200	15200	15200
	50	13760	14340	14640	14950	14260	14860	15160	15200	14790	15200	15200	15200	15200	15200	15200	15200

56FMC-S5-00-00

Figure S5-1 (Sheet 1 of 2)

**MAXIMUM LANDING WEIGHT PERMITTED BY CLIMB REQUIREMENTS
OR BRAKE ENERGY LIMITS - POUNDS**

ANTI-ICE SYSTEMS - OFF

APPROACH FLAPS - 15°
LANDING FLAPS - LAND

CONDITIONS: REFER TO PAGE PRECEDING THIS TABLE

ALT FT	TEMP DEG C	WIND - KNOTS															
		0				10				20				30			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
3000	-30	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-25	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-20	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-15	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	15060	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	14910	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	14760	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	14620	15200	15200	15200	15170	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	10	14480	15100	15200	15200	15030	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	15	14350	14960	15200	15200	14880	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	20	14210	14820	15130	15200	14740	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	25	14090	14680	14990	15200	14610	15200	15200	15200	15150	15200	15200	15200	15200	15200	15200	15200
	30	13960	14550	14860	15170	14480	15080	15200	15200	15010	15200	15200	15200	15200	15200	15200	15200
	35	13840	14420	14730	15040	14350	14950	15200	15200	14880	15200	15200	15200	15200	15200	15200	15200
	40	13720	14300	14600	14910	14220	14820	15120	15200	14750	15200	15200	15200	15200	15200	15200	15200
	45	13600	14180	14480	14780	14100	14690	14990	15200	14620	15200	15200	15200	15150	15200	15200	15200
	48	13540	14110	14400	14700	14030	14610	14910	15200	14540	15130	15200	15200	15070	15200	15200	15200
ALT FT	TEMP DEG C	WIND - KNOTS															
		0				10				20				30			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
4000	-30	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-25	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-20	15070	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-15	14920	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	14760	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	14620	15200	15200	15200	15170	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	14470	15090	15200	15200	15020	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	14330	14940	15200	15200	14870	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	10	14200	14800	15110	15200	14730	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	15	14060	14660	14970	15200	14590	15200	15200	15200	15130	15200	15200	15200	15200	15200	15200	15200
	20	13940	14530	14830	15150	14450	15050	15200	15200	14990	15200	15200	15200	15200	15200	15200	15200
	25	13810	14390	14700	15010	14320	14910	15200	15200	14850	15200	15200	15200	15200	15200	15200	15200
	30	13690	14270	14570	14870	14190	14780	15090	15200	14710	15200	15200	15200	15200	15200	15200	15200
	35	13570	14140	14440	14740	14060	14650	14950	15200	14580	15170	15200	15200	15110	15200	15200	15200
	40	13450	14020	14310	14610	13940	14520	14820	15130	14450	15040	15200	15200	14970	15200	15200	15200
	45	13340	13900	14190	14490	13820	14390	14690	14990	14320	14900	15200	15200	14840	15200	15200	15200
ALT FT	TEMP DEG C	WIND - KNOTS															
		0				10				20				30			
		RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT				RWNY GRADIENT PERCENT			
		-2	0	1	2	-2	0	1	2	-2	0	1	2	-2	0	1	2
5000	-35	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-30	15100	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-25	14930	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-20	14770	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-15	14620	15200	15200	15200	15180	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-10	14470	15090	15200	15200	15020	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	-5	14330	14940	15200	15200	14860	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	0	14190	14790	15100	15200	14720	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200	15200
	5	14050	14650	14960	15200	14570	15180	15200	15200	15110	15200	15200	15200	15200	15200	15200	15200
	10	13920	14510	14810	15130	14430	15030	15200	15200	14960	15200	15200	15200	15200	15200	15200	15200
	15	13790	14370	14670	14990	14290	14890	15200	15200	14820	15200	15200	15200	15200	15200	15200	15200
	20	13660	14240	14540	14850	14160	14750	15060	15200	14680	15200	15200	15200	15200	15200	15200	15200
	25	13540	14110	14410	14710	14030	14610	14920	15200	14540	15140	15200	15200	15070	15200	15200	15200
	30	13420	13980	14280	14580	13900	14480	14780	15090	14410	15000	15200	15200	14930	15200	15200	15200
	35	13300	13860	14150	14450	13780	14350	14650	14950	14280	14860	15160	15200	14790	15200	15200	15200
	40	13190	13740	14030	14320	13660	14230	14520	14820	14150	14730	15030	15200	14660	15200	15200	15200
	42	13140	13690	13980	14270	13610	14170	14470	14770	14100	14670	14970	15200	14610	15190	15200	15200

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Figure S5-1 (Sheet 2)

LANDING DISTANCE - FEET

ACTUAL DISTANCE

FLAPS - LAND SEA LEVEL

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
SVREF = 123 KIAS		VAPP = 119 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2490	2290	2100	1940	
-20	2550	2340	2150	1970	
-15	2600	2390	2190	2020	
-10	2660	2440	2240	2060	
-5	2720	2490	2290	2110	
0	2780	2550	2340	2150	
5	2840	2600	2390	2200	
10	2900	2660	2440	2250	
15	2960	2720	2490	2290	
20	3030	2770	2550	2340	
25	3090	2830	2600	2390	
30	3160	2890	2660	2440	
35	3230	2950	2710	2490	
40	3300	3020	2770	2540	
45	3370	3080	2820	2590	
50	3440	3140	2880	2650	
54	3500	3200	2930	2690	

WEIGHT = 15200 POUNDS					
SVREF = 118 KIAS		VAPP = 114 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2200	2050	1920	1800	
-20	2250	2080	1950	1830	
-15	2290	2110	1980	1860	
-10	2340	2150	2010	1890	
-5	2380	2200	2050	1920	
0	2430	2240	2080	1950	
5	2480	2280	2110	1980	
10	2530	2330	2150	2010	
15	2570	2370	2190	2040	
20	2620	2420	2230	2070	
25	2670	2460	2270	2100	
30	2720	2510	2320	2140	
35	2770	2560	2360	2180	
40	2830	2610	2400	2220	
45	2880	2650	2450	2260	
50	2930	2700	2490	2300	
54	2980	2740	2530	2330	

WEIGHT = 15000 POUNDS					
SVREF = 117 KIAS		VAPP = 113 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2170	2030	1900	1780	
-20	2210	2060	1930	1810	
-15	2260	2100	1960	1840	
-10	2300	2130	2000	1870	
-5	2350	2160	2030	1900	
0	2390	2210	2060	1930	
5	2440	2250	2090	1960	
10	2480	2290	2120	1990	
15	2530	2340	2160	2020	
20	2580	2380	2200	2050	
25	2630	2420	2240	2080	
30	2680	2470	2280	2110	
35	2730	2510	2320	2140	
40	2780	2560	2360	2180	
45	2830	2610	2410	2220	
50	2880	2660	2450	2260	
54	2920	2690	2490	2300	

WEIGHT = 14500 POUNDS					
SVREF = 115 KIAS		VAPP = 111 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2120	1990	1860	1730	
-20	2150	2020	1890	1760	
-15	2180	2050	1920	1790	
-10	2210	2080	1950	1820	
-5	2260	2110	1980	1850	
0	2300	2140	2010	1880	
5	2340	2170	2040	1910	
10	2390	2200	2070	1940	
15	2430	2240	2100	1970	
20	2470	2290	2130	2000	
25	2520	2330	2160	2030	
30	2560	2370	2190	2060	
35	2610	2410	2230	2090	
40	2660	2450	2270	2120	
45	2700	2500	2310	2150	
50	2750	2540	2350	2170	
54	2790	2580	2380	2200	

WEIGHT = 14000 POUNDS					
SVREF = 114 KIAS		VAPP = 109 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2070	1940	1810	1690	
-20	2100	1970	1840	1720	
-15	2130	2000	1870	1750	
-10	2160	2030	1900	1770	
-5	2190	2060	1930	1800	
0	2220	2090	1960	1830	
5	2260	2120	1990	1860	
10	2290	2150	2020	1890	
15	2330	2180	2050	1920	
20	2370	2210	2080	1950	
25	2420	2240	2110	1970	
30	2460	2270	2130	2000	
35	2500	2310	2160	2030	
40	2540	2350	2190	2060	
45	2590	2390	2220	2090	
50	2630	2430	2250	2120	
54	2670	2470	2280	2140	

WEIGHT = 13500 POUNDS					
SVREF = 112 KIAS		VAPP = 108 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2020	1890	1770	1650	
-20	2050	1920	1790	1670	
-15	2080	1950	1820	1700	
-10	2110	1980	1850	1730	
-5	2140	2010	1880	1760	
0	2170	2040	1910	1780	
5	2200	2070	1940	1810	
10	2230	2100	1970	1840	
15	2260	2130	1990	1870	
20	2290	2150	2020	1890	
25	2320	2180	2050	1920	
30	2360	2210	2080	1950	
35	2400	2240	2110	1980	
40	2440	2270	2140	2000	
45	2480	2300	2160	2030	
50	2520	2330	2190	2060	
54	2550	2360	2220	2080	

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure S5-2 (Sheet 1 of 12)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
SEA LEVEL**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS SVREF = 110 KIAS VAPP = 106 KIAS					
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1970	1840	1720	1600	
-20	2000	1870	1750	1630	
-15	2030	1900	1770	1650	
-10	2060	1930	1800	1680	
-5	2090	1960	1830	1710	
0	2120	1990	1860	1730	
5	2150	2010	1890	1760	
10	2180	2040	1910	1790	
15	2200	2070	1940	1810	
20	2230	2100	1970	1840	
25	2260	2130	2000	1870	
30	2290	2160	2020	1890	
35	2320	2180	2050	1920	
40	2350	2210	2080	1950	
45	2380	2240	2110	1980	
50	2410	2270	2130	2000	
54	2440	2290	2160	2020	

WEIGHT = 12500 POUNDS SVREF = 109 KIAS VAPP = 104 KIAS					
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1920	1800	1670	1560	
-20	1950	1820	1700	1580	
-15	1980	1850	1730	1610	
-10	2010	1880	1750	1630	
-5	2040	1910	1780	1660	
0	2060	1930	1810	1680	
5	2090	1960	1830	1710	
10	2120	1990	1860	1740	
15	2150	2020	1890	1760	
20	2180	2040	1910	1790	
25	2200	2070	1940	1810	
30	2230	2100	1970	1840	
35	2260	2130	1990	1870	
40	2290	2150	2020	1890	
45	2320	2180	2050	1920	
50	2350	2210	2070	1940	
54	2370	2230	2100	1960	

WEIGHT = 12000 POUNDS SVREF = 107 KIAS VAPP = 102 KIAS					
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1870	1750	1630	1510	
-20	1900	1770	1650	1530	
-15	1930	1800	1680	1560	
-10	1950	1830	1700	1580	
-5	1980	1850	1730	1610	
0	2010	1880	1750	1630	
5	2030	1910	1780	1660	
10	2060	1930	1810	1680	
15	2090	1960	1830	1710	
20	2120	1980	1860	1730	
25	2140	2010	1880	1760	
30	2170	2040	1910	1780	
35	2200	2060	1930	1810	
40	2230	2090	1960	1830	
45	2250	2120	1990	1860	
50	2280	2140	2010	1880	
54	2300	2160	2030	1900	

WEIGHT = 11500 POUNDS SVREF = 105 KIAS VAPP = 100 KIAS					
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1820	1700	1580	1460	
-20	1850	1720	1600	1480	
-15	1870	1750	1630	1510	
-10	1900	1770	1650	1530	
-5	1920	1800	1670	1560	
0	1950	1820	1700	1580	
5	1980	1850	1720	1600	
10	2000	1870	1750	1630	
15	2030	1900	1770	1650	
20	2060	1930	1800	1680	
25	2080	1950	1820	1700	
30	2110	1980	1850	1730	
35	2130	2000	1870	1750	
40	2160	2030	1900	1770	
45	2190	2050	1920	1800	
50	2210	2080	1950	1820	
54	2230	2100	1970	1840	

WEIGHT = 11000 POUNDS SVREF = 103 KIAS VAPP = 98 KIAS					
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1770	1650	1530	1410	
-20	1790	1670	1550	1440	
-15	1820	1690	1570	1460	
-10	1840	1720	1600	1480	
-5	1870	1740	1620	1500	
0	1890	1770	1650	1530	
5	1920	1790	1670	1550	
10	1940	1820	1690	1570	
15	1970	1840	1720	1600	
20	1990	1870	1740	1620	
25	2020	1890	1770	1640	
30	2050	1920	1790	1670	
35	2070	1940	1810	1690	
40	2100	1960	1840	1710	
45	2120	1990	1860	1740	
50	2150	2010	1880	1760	
54	2170	2030	1900	1780	

WEIGHT = 10500 POUNDS SVREF = 101 KIAS VAPP = 96 KIAS					
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1720	1600	1480	1370	
-20	1740	1620	1500	1390	
-15	1760	1640	1520	1410	
-10	1790	1660	1550	1430	
-5	1810	1690	1570	1450	
0	1840	1710	1590	1480	
5	1860	1740	1610	1500	
10	1880	1760	1640	1520	
15	1910	1780	1660	1540	
20	1930	1810	1680	1560	
25	1960	1830	1710	1590	
30	1980	1850	1730	1610	
35	2010	1880	1750	1630	
40	2030	1900	1780	1650	
45	2050	1920	1800	1680	
50	2080	1950	1820	1700	
54	2100	1970	1840	1720	

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure S5-2 (Sheet 2)

LANDING DISTANCE - FEET

ACTUAL DISTANCE

FLAPS - LAND 1000 FEET

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
SVREF = 123 KIAS		VAPP = 119 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2600	2380	2190	2010	
-20	2660	2440	2240	2060	
-15	2720	2490	2290	2110	
-10	2780	2550	2340	2150	
-5	2840	2610	2390	2200	
0	2900	2660	2450	2250	
5	2970	2720	2500	2300	
10	3040	2780	2550	2350	
15	3100	2840	2610	2400	
20	3170	2910	2670	2450	
25	3240	2970	2720	2500	
30	3320	3030	2780	2550	
35	3390	3100	2840	2610	
40	3460	3170	2900	2660	
45	3540	3230	2960	2720	
50	3620	3300	3030	2780	
52	3650	3330	3050	2800	

WEIGHT = 15200 POUNDS					
SVREF = 118 KIAS		VAPP = 114 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2290	2110	1980	1850	
-20	2330	2150	2010	1890	
-15	2380	2200	2050	1920	
-10	2430	2240	2080	1950	
-5	2480	2290	2110	1980	
0	2530	2330	2150	2010	
5	2580	2380	2190	2040	
10	2630	2430	2240	2070	
15	2680	2470	2280	2110	
20	2730	2520	2330	2150	
25	2790	2570	2370	2190	
30	2840	2620	2420	2230	
35	2900	2670	2460	2270	
40	2950	2720	2510	2320	
45	3010	2770	2560	2360	
50	3070	2820	2600	2400	
52	3090	2840	2620	2420	

WEIGHT = 15000 POUNDS					
SVREF = 117 KIAS		VAPP = 113 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2250	2090	1960	1840	
-20	2300	2130	1990	1870	
-15	2340	2160	2030	1900	
-10	2390	2210	2060	1930	
-5	2440	2250	2090	1960	
0	2490	2300	2120	1990	
5	2540	2340	2160	2020	
10	2590	2390	2200	2050	
15	2640	2430	2250	2090	
20	2690	2480	2290	2120	
25	2740	2530	2330	2150	
30	2790	2570	2380	2190	
35	2840	2620	2420	2240	
40	2900	2670	2470	2280	
45	2950	2720	2510	2320	
50	3010	2770	2560	2360	
52	3030	2790	2580	2380	

WEIGHT = 14500 POUNDS					
SVREF = 115 KIAS		VAPP = 111 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2180	2050	1920	1790	
-20	2210	2080	1950	1820	
-15	2260	2110	1980	1850	
-10	2300	2140	2010	1880	
-5	2340	2170	2040	1910	
0	2390	2210	2070	1940	
5	2430	2250	2100	1970	
10	2480	2290	2130	2000	
15	2530	2330	2170	2030	
20	2570	2380	2200	2060	
25	2620	2420	2240	2090	
30	2670	2470	2280	2120	
35	2720	2510	2320	2150	
40	2770	2560	2360	2190	
45	2820	2600	2410	2220	
50	2870	2650	2450	2260	
52	2890	2670	2470	2280	

WEIGHT = 14000 POUNDS					
SVREF = 114 KIAS		VAPP = 109 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2130	2000	1870	1740	
-20	2160	2030	1900	1770	
-15	2190	2060	1930	1800	
-10	2230	2090	1960	1830	
-5	2260	2120	1990	1860	
0	2300	2150	2020	1890	
5	2340	2180	2050	1920	
10	2380	2220	2080	1950	
15	2420	2250	2110	1980	
20	2470	2280	2140	2010	
25	2510	2320	2170	2040	
30	2560	2360	2200	2070	
35	2600	2410	2230	2100	
40	2650	2450	2270	2130	
45	2690	2490	2300	2160	
50	2740	2530	2340	2190	
52	2760	2550	2360	2200	

WEIGHT = 13500 POUNDS					
SVREF = 112 KIAS		VAPP = 108 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2080	1950	1820	1700	
-20	2110	1980	1850	1730	
-15	2140	2010	1880	1750	
-10	2170	2040	1910	1780	
-5	2200	2070	1940	1810	
0	2230	2100	1970	1840	
5	2270	2130	2000	1870	
10	2300	2160	2030	1900	
15	2330	2190	2060	1930	
20	2370	2220	2090	1960	
25	2410	2250	2120	1980	
30	2450	2280	2150	2010	
35	2490	2310	2170	2040	
40	2530	2350	2200	2070	
45	2580	2390	2230	2100	
50	2620	2430	2260	2130	
52	2640	2440	2270	2140	

56FMC-S5-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.
*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure S5-2 (Sheet 3)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
1000 FEET**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS					
SVREF = 110 KIAS		VAPP = 106 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2030	1900	1770	1650	
-20	2060	1930	1800	1680	
-15	2090	1960	1830	1710	
-10	2120	1990	1860	1730	
-5	2150	2020	1890	1760	
0	2180	2050	1920	1790	
5	2210	2080	1940	1820	
10	2240	2100	1970	1850	
15	2270	2130	2000	1870	
20	2300	2160	2030	1900	
25	2330	2190	2060	1930	
30	2360	2220	2090	1960	
35	2390	2250	2120	1980	
40	2430	2280	2140	2010	
45	2460	2310	2170	2040	
50	2500	2340	2200	2070	
52	2520	2350	2210	2080	

WEIGHT = 12500 POUNDS					
SVREF = 109 KIAS		VAPP = 104 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1980	1850	1730	1610	
-20	2010	1880	1750	1630	
-15	2040	1910	1780	1660	
-10	2070	1930	1810	1690	
-5	2090	1960	1840	1710	
0	2120	1990	1860	1740	
5	2150	2020	1890	1770	
10	2180	2050	1920	1790	
15	2210	2080	1950	1820	
20	2240	2100	1970	1850	
25	2270	2130	2000	1870	
30	2300	2160	2030	1900	
35	2330	2190	2060	1930	
40	2360	2220	2080	1950	
45	2390	2250	2110	1980	
50	2410	2270	2140	2010	
52	2430	2290	2150	2020	

WEIGHT = 12000 POUNDS					
SVREF = 107 KIAS		VAPP = 102 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1930	1800	1680	1560	
-20	1950	1830	1700	1580	
-15	1980	1850	1730	1610	
-10	2010	1880	1750	1630	
-5	2040	1910	1780	1660	
0	2070	1930	1810	1690	
5	2090	1960	1830	1710	
10	2120	1990	1860	1740	
15	2150	2020	1890	1760	
20	2180	2040	1910	1790	
25	2210	2070	1940	1820	
30	2230	2100	1970	1840	
35	2260	2130	1990	1870	
40	2290	2150	2020	1890	
45	2320	2180	2050	1920	
50	2350	2210	2070	1940	
52	2360	2220	2090	1960	

WEIGHT = 11500 POUNDS					
SVREF = 105 KIAS		VAPP = 100 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1870	1750	1630	1510	
-20	1900	1770	1650	1530	
-15	1930	1800	1680	1560	
-10	1950	1820	1700	1580	
-5	1980	1850	1730	1610	
0	2010	1880	1750	1630	
5	2030	1900	1780	1660	
10	2060	1930	1800	1680	
15	2090	1960	1830	1710	
20	2120	1980	1860	1730	
25	2140	2010	1880	1760	
30	2170	2040	1910	1780	
35	2200	2060	1930	1810	
40	2220	2090	1960	1830	
45	2250	2110	1980	1860	
50	2280	2140	2010	1880	
52	2290	2150	2020	1890	

WEIGHT = 11000 POUNDS					
SVREF = 103 KIAS		VAPP = 98 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1820	1690	1570	1460	
-20	1840	1720	1600	1480	
-15	1870	1740	1620	1510	
-10	1900	1770	1650	1530	
-5	1920	1790	1670	1550	
0	1950	1820	1700	1580	
5	1970	1850	1720	1600	
10	2000	1870	1750	1630	
15	2030	1900	1770	1650	
20	2050	1920	1800	1670	
25	2080	1950	1820	1700	
30	2100	1970	1840	1720	
35	2130	2000	1870	1750	
40	2160	2020	1890	1770	
45	2180	2050	1920	1790	
50	2210	2070	1940	1820	
52	2220	2080	1950	1830	

WEIGHT = 10500 POUNDS					
SVREF = 101 KIAS		VAPP = 96 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1770	1640	1520	1410	
-20	1790	1670	1550	1430	
-15	1810	1690	1570	1450	
-10	1840	1710	1590	1480	
-5	1860	1740	1620	1500	
0	1890	1760	1640	1520	
5	1910	1790	1660	1550	
10	1940	1810	1690	1570	
15	1960	1840	1710	1590	
20	1990	1860	1740	1620	
25	2010	1880	1760	1640	
30	2040	1910	1780	1660	
35	2060	1930	1810	1680	
40	2090	1960	1830	1710	
45	2110	1980	1850	1730	
50	2140	2010	1880	1750	
52	2150	2020	1890	1760	

56FMC-S5-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure S5-2 (Sheet 4)

LANDING DISTANCE - FEET

ACTUAL DISTANCE

FLAPS - LAND 2000 FEET

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS				
SVREF = 123 KIAS		VAPP = 119 KIAS		
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2710	2490	2290	2100
-20	2770	2550	2340	2150
-15	2840	2600	2390	2200
-10	2900	2660	2450	2250
-5	2970	2730	2500	2300
0	3040	2790	2560	2350
5	3110	2850	2620	2400
10	3180	2920	2670	2460
15	3260	2980	2730	2510
20	3330	3050	2790	2570
25	3410	3120	2860	2620
30	3490	3190	2920	2680
35	3570	3260	2980	2740
40	3650	3330	3050	2800
45	3730	3400	3110	2860
50	3820	3480	3180	2920

WEIGHT = 15200 POUNDS				
SVREF = 118 KIAS		VAPP = 114 KIAS		
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2380	2190	2040	1920
-20	2430	2240	2080	1950
-15	2480	2290	2110	1980
-10	2530	2330	2150	2010
-5	2580	2380	2200	2050
0	2630	2430	2240	2080
5	2690	2480	2290	2110
10	2740	2530	2330	2150
15	2800	2580	2380	2200
20	2850	2630	2430	2240
25	2910	2680	2470	2280
30	2970	2740	2520	2330
35	3030	2790	2570	2370
40	3090	2840	2620	2420
45	3150	2900	2670	2470
50	3210	2950	2720	2510

WEIGHT = 15000 POUNDS				
SVREF = 117 KIAS		VAPP = 113 KIAS		
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2340	2160	2030	1900
-20	2390	2200	2060	1930
-15	2440	2250	2090	1960
-10	2490	2300	2120	1990
-5	2540	2340	2160	2020
0	2590	2390	2210	2060
5	2640	2440	2250	2090
10	2700	2490	2300	2120
15	2750	2540	2340	2160
20	2800	2590	2390	2200
25	2860	2640	2430	2250
30	2910	2690	2480	2290
35	2970	2740	2530	2330
40	3030	2790	2580	2380
45	3090	2840	2620	2420
50	3150	2900	2670	2470

WEIGHT = 14500 POUNDS				
SVREF = 115 KIAS		VAPP = 111 KIAS		
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2250	2110	1980	1850
-20	2300	2140	2010	1880
-15	2340	2170	2040	1910
-10	2390	2210	2070	1940
-5	2440	2250	2110	1970
0	2480	2300	2140	2010
5	2530	2340	2170	2040
10	2580	2390	2200	2070
15	2630	2430	2250	2100
20	2680	2480	2290	2130
25	2730	2520	2330	2160
30	2780	2570	2380	2200
35	2840	2620	2420	2240
40	2890	2670	2460	2280
45	2940	2720	2510	2320
50	3000	2770	2560	2360

WEIGHT = 14000 POUNDS				
SVREF = 114 KIAS		VAPP = 109 KIAS		
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2190	2060	1930	1800
-20	2230	2090	1960	1830
-15	2260	2120	1990	1860
-10	2300	2150	2020	1890
-5	2340	2190	2050	1920
0	2380	2220	2080	1950
5	2430	2250	2120	1980
10	2470	2290	2150	2020
15	2520	2330	2180	2050
20	2570	2370	2210	2080
25	2610	2420	2240	2110
30	2660	2460	2280	2140
35	2710	2510	2320	2170
40	2760	2550	2360	2200
45	2810	2600	2400	2230
50	2860	2640	2440	2260

WEIGHT = 13500 POUNDS				
SVREF = 112 KIAS		VAPP = 108 KIAS		
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-25	2140	2010	1880	1750
-20	2170	2040	1910	1780
-15	2200	2070	1940	1810
-10	2240	2100	1970	1840
-5	2270	2130	2000	1870
0	2300	2160	2030	1900
5	2330	2190	2060	1930
10	2370	2230	2090	1960
15	2420	2260	2120	1990
20	2460	2290	2150	2020
25	2500	2320	2180	2050
30	2550	2360	2210	2080
35	2590	2400	2240	2110
40	2640	2440	2270	2140
45	2680	2480	2300	2170
50	2730	2520	2340	2200

56FMC-S5-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure S5-2 (Sheet 5)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
2000 FEET**

CONDITIONS: **LANDING GEAR - DOWN**
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS					
SVREF = 110 KIAS		VAPP = 106 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2090	1960	1830	1710	
-20	2120	1990	1860	1730	
-15	2150	2020	1890	1760	
-10	2180	2050	1920	1790	
-5	2210	2080	1950	1820	
0	2240	2110	1980	1850	
5	2270	2140	2010	1880	
10	2310	2170	2040	1910	
15	2340	2200	2060	1940	
20	2370	2230	2090	1960	
25	2400	2260	2120	1990	
30	2440	2290	2150	2020	
35	2480	2320	2180	2050	
40	2520	2350	2210	2080	
45	2560	2380	2240	2110	
50	2600	2410	2270	2140	

WEIGHT = 12500 POUNDS					
SVREF = 109 KIAS		VAPP = 104 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	2040	1910	1780	1660	
-20	2070	1940	1810	1690	
-15	2100	1960	1840	1710	
-10	2130	1990	1860	1740	
-5	2160	2020	1890	1770	
0	2190	2050	1920	1800	
5	2220	2080	1950	1820	
10	2250	2110	1980	1850	
15	2280	2140	2010	1880	
20	2310	2170	2040	1910	
25	2340	2200	2060	1930	
30	2370	2230	2090	1960	
35	2400	2260	2120	1990	
40	2430	2290	2150	2020	
45	2460	2320	2180	2050	
50	2490	2340	2210	2070	

WEIGHT = 12000 POUNDS					
SVREF = 107 KIAS		VAPP = 102 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1980	1850	1730	1610	
-20	2010	1880	1760	1630	
-15	2040	1910	1780	1660	
-10	2070	1940	1810	1690	
-5	2100	1970	1840	1710	
0	2130	1990	1860	1740	
5	2160	2020	1890	1770	
10	2180	2050	1920	1790	
15	2210	2080	1950	1820	
20	2240	2110	1980	1850	
25	2270	2130	2000	1870	
30	2300	2160	2030	1900	
35	2330	2190	2060	1930	
40	2360	2220	2090	1960	
45	2390	2250	2110	1980	
50	2420	2280	2140	2010	

WEIGHT = 11500 POUNDS					
SVREF = 105 KIAS		VAPP = 100 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1930	1800	1680	1560	
-20	1950	1830	1700	1580	
-15	1980	1850	1730	1610	
-10	2010	1880	1750	1630	
-5	2040	1910	1780	1660	
0	2070	1930	1810	1680	
5	2090	1960	1830	1710	
10	2120	1990	1860	1740	
15	2150	2020	1890	1760	
20	2180	2040	1910	1790	
25	2210	2070	1940	1810	
30	2230	2100	1970	1840	
35	2260	2130	1990	1870	
40	2290	2150	2020	1890	
45	2320	2180	2050	1920	
50	2340	2210	2070	1940	

WEIGHT = 11000 POUNDS					
SVREF = 103 KIAS		VAPP = 98 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1870	1750	1620	1510	
-20	1900	1770	1650	1530	
-15	1920	1800	1670	1550	
-10	1950	1820	1700	1580	
-5	1980	1850	1720	1600	
0	2000	1880	1750	1630	
5	2030	1900	1780	1650	
10	2060	1930	1800	1680	
15	2080	1950	1830	1700	
20	2110	1980	1850	1730	
25	2140	2010	1880	1750	
30	2170	2030	1900	1780	
35	2190	2060	1930	1800	
40	2220	2080	1950	1830	
45	2250	2110	1980	1850	
50	2270	2140	2010	1880	

WEIGHT = 10500 POUNDS					
SVREF = 101 KIAS		VAPP = 96 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-25	1820	1690	1570	1450	
-20	1840	1720	1590	1480	
-15	1870	1740	1620	1500	
-10	1890	1760	1640	1520	
-5	1920	1790	1670	1550	
0	1940	1820	1690	1570	
5	1970	1840	1720	1600	
10	1990	1870	1740	1620	
15	2020	1890	1770	1640	
20	2050	1920	1790	1670	
25	2070	1940	1810	1690	
30	2100	1970	1840	1720	
35	2120	1990	1860	1740	
40	2150	2020	1890	1760	
45	2180	2040	1910	1790	
50	2200	2070	1940	1810	

56FMC-55-00-00

TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure S5-2 (Sheet 6)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
3000 FEETCONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEETANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
SVREF = 123 KIAS		VAPP = 119 KIAS			
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS			
-30	2770	2540	2330	2140	
-25	2840	2600	2390	2200	
-20	2900	2660	2440	2250	
-15	2970	2720	2500	2300	
-10	3040	2790	2560	2350	
-5	3120	2850	2620	2410	
0	3190	2920	2680	2460	
5	3270	2990	2740	2520	
10	3340	3060	2800	2580	
15	3420	3130	2870	2630	
20	3500	3200	2930	2690	
25	3590	3280	3000	2750	
30	3670	3350	3070	2810	
35	3760	3430	3140	2880	
40	3850	3510	3210	2940	
45	3940	3590	3280	3000	
48	4000	3640	3320	3040	

WEIGHT = 15200 POUNDS					
SVREF = 118 KIAS		VAPP = 114 KIAS			
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS			
-30	2420	2240	2080	1950	
-25	2480	2280	2110	1980	
-20	2530	2330	2150	2010	
-15	2580	2380	2200	2050	
-10	2640	2430	2240	2080	
-5	2690	2480	2290	2110	
0	2750	2530	2340	2160	
5	2810	2590	2390	2200	
10	2860	2640	2430	2250	
15	2920	2690	2480	2290	
20	2980	2750	2530	2340	
25	3040	2800	2590	2390	
30	3110	2860	2640	2430	
35	3170	2920	2690	2480	
40	3230	2980	2740	2530	
45	3300	3030	2800	2580	
48	3340	3070	2830	2610	

WEIGHT = 15000 POUNDS					
SVREF = 117 KIAS		VAPP = 113 KIAS			
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS			
-30	2390	2200	2060	1930	
-25	2440	2250	2090	1960	
-20	2490	2300	2120	1990	
-15	2540	2340	2160	2030	
-10	2590	2390	2210	2060	
-5	2650	2440	2250	2090	
0	2700	2490	2300	2130	
5	2760	2540	2350	2170	
10	2810	2590	2390	2210	
15	2870	2650	2440	2250	
20	2930	2700	2490	2300	
25	2990	2750	2540	2350	
30	3050	2810	2590	2390	
35	3110	2860	2640	2440	
40	3170	2920	2690	2490	
45	3230	2980	2740	2530	
48	3270	3010	2780	2560	

WEIGHT = 14500 POUNDS					
SVREF = 115 KIAS		VAPP = 111 KIAS			
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS			
-30	2300	2140	2010	1880	
-25	2340	2170	2040	1910	
-20	2390	2210	2070	1940	
-15	2440	2250	2110	1970	
-10	2490	2300	2140	2010	
-5	2540	2340	2170	2040	
0	2590	2390	2210	2070	
5	2640	2440	2250	2110	
10	2690	2490	2300	2140	
15	2740	2530	2340	2170	
20	2800	2580	2390	2210	
25	2850	2630	2430	2250	
30	2900	2680	2480	2290	
35	2960	2730	2530	2330	
40	3020	2780	2570	2380	
45	3070	2840	2620	2420	
48	3110	2870	2650	2450	

WEIGHT = 14000 POUNDS					
SVREF = 114 KIAS		VAPP = 109 KIAS			
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS			
-30	2220	2090	1960	1830	
-25	2260	2120	1990	1860	
-20	2300	2150	2020	1890	
-15	2340	2190	2050	1920	
-10	2390	2220	2090	1960	
-5	2430	2250	2120	1990	
0	2480	2290	2150	2020	
5	2530	2340	2180	2050	
10	2580	2380	2220	2080	
15	2620	2430	2250	2110	
20	2670	2470	2290	2150	
25	2720	2520	2330	2180	
30	2770	2560	2370	2210	
35	2820	2610	2420	2240	
40	2880	2660	2460	2280	
45	2930	2710	2510	2320	
48	2960	2740	2530	2340	

WEIGHT = 13500 POUNDS					
SVREF = 112 KIAS		VAPP = 108 KIAS			
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS			
-30	2170	2040	1910	1780	
-25	2200	2070	1940	1810	
-20	2240	2100	1970	1840	
-15	2270	2130	2000	1870	
-10	2300	2170	2030	1900	
-5	2340	2200	2060	1930	
0	2380	2230	2100	1960	
5	2420	2260	2130	2000	
10	2470	2290	2160	2030	
15	2510	2330	2190	2060	
20	2560	2370	2220	2090	
25	2600	2410	2250	2120	
30	2650	2450	2280	2150	
35	2700	2500	2320	2180	
40	2740	2540	2350	2210	
45	2790	2590	2400	2240	
48	2820	2610	2420	2260	

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure S5-2 (Sheet 7)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
3000 FEET**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS				
SVREF = 110 KIAS		VAPP = 106 KIAS		
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2120	1990	1860	1730
-25	2150	2020	1890	1760
-20	2180	2050	1920	1790
-15	2210	2080	1950	1820
-10	2250	2110	1980	1850
-5	2280	2140	2010	1880
0	2310	2170	2040	1910
5	2340	2200	2070	1940
10	2370	2240	2100	1970
15	2410	2270	2130	2000
20	2450	2300	2160	2030
25	2490	2330	2190	2060
30	2530	2360	2220	2090
35	2580	2390	2250	2120
40	2620	2430	2280	2150
45	2670	2470	2310	2180
48	2690	2500	2330	2200

WEIGHT = 12500 POUNDS				
SVREF = 109 KIAS		VAPP = 104 KIAS		
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2070	1930	1810	1680
-25	2100	1960	1840	1710
-20	2130	1990	1870	1740
-15	2160	2020	1890	1770
-10	2190	2050	1920	1800
-5	2220	2080	1950	1830
0	2250	2120	1980	1860
5	2280	2150	2010	1880
10	2310	2180	2040	1910
15	2340	2210	2070	1940
20	2370	2240	2100	1970
25	2410	2270	2130	2000
30	2440	2300	2160	2030
35	2470	2330	2190	2060
40	2500	2360	2220	2090
45	2550	2390	2250	2110
48	2570	2410	2270	2130

WEIGHT = 12000 POUNDS				
SVREF = 107 KIAS		VAPP = 102 KIAS		
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	2010	1880	1760	1630
-25	2040	1910	1780	1660
-20	2070	1940	1810	1690
-15	2100	1970	1840	1720
-10	2130	2000	1870	1740
-5	2160	2030	1900	1770
0	2190	2050	1920	1800
5	2220	2080	1950	1830
10	2250	2110	1980	1850
15	2280	2140	2010	1880
20	2310	2170	2040	1910
25	2340	2200	2070	1940
30	2370	2230	2100	1960
35	2400	2260	2120	1990
40	2430	2290	2150	2020
45	2460	2320	2180	2050
48	2480	2340	2200	2060

WEIGHT = 11500 POUNDS				
SVREF = 105 KIAS		VAPP = 100 KIAS		
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	1950	1830	1700	1580
-25	1980	1850	1730	1610
-20	2010	1880	1760	1630
-15	2040	1910	1780	1660
-10	2070	1940	1810	1690
-5	2100	1970	1840	1710
0	2130	1990	1860	1740
5	2150	2020	1890	1770
10	2180	2050	1920	1790
15	2210	2080	1950	1820
20	2240	2110	1970	1850
25	2270	2130	2000	1870
30	2300	2160	2030	1900
35	2330	2190	2060	1930
40	2360	2220	2080	1950
45	2390	2250	2110	1980
48	2400	2260	2130	2000

WEIGHT = 11000 POUNDS				
SVREF = 103 KIAS		VAPP = 98 KIAS		
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	1900	1770	1650	1530
-25	1930	1800	1670	1550
-20	1950	1820	1700	1580
-15	1980	1850	1730	1610
-10	2010	1880	1750	1630
-5	2030	1900	1780	1660
0	2060	1930	1810	1680
5	2090	1960	1830	1710
10	2120	1990	1860	1730
15	2150	2010	1880	1760
20	2170	2040	1910	1780
25	2200	2070	1940	1810
30	2230	2090	1960	1840
35	2260	2120	1990	1860
40	2280	2150	2020	1890
45	2310	2180	2040	1910
48	2330	2190	2060	1930

WEIGHT = 10500 POUNDS				
SVREF = 101 KIAS		VAPP = 96 KIAS		
TEMP DEG C	ZERO WIND	HEADWINDS 10 KTS 20 KTS 30 KTS		
-30	1840	1720	1600	1480
-25	1870	1740	1620	1500
-20	1890	1770	1640	1530
-15	1920	1790	1670	1550
-10	1950	1820	1690	1570
-5	1970	1840	1720	1600
0	2000	1870	1750	1620
5	2030	1900	1770	1650
10	2050	1920	1800	1670
15	2080	1950	1820	1700
20	2110	1970	1850	1720
25	2130	2000	1870	1750
30	2160	2030	1900	1770
35	2190	2050	1920	1800
40	2210	2080	1950	1820
45	2240	2100	1970	1850
48	2260	2120	1990	1860

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure S5-2 (Sheet 8)

LANDING DISTANCE - FEET ACTUAL DISTANCE

FLAPS - LAND
4000 FEETCONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEETANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS SVREF = 123 KIAS VAPP = 119 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2900	2660	2440	2240
-25	2970	2720	2500	2300
-20	3040	2790	2560	2350
-15	3120	2850	2620	2410
-10	3190	2920	2680	2460
-5	3270	3000	2750	2520
0	3350	3070	2810	2580
5	3440	3140	2880	2640
10	3520	3220	2950	2700
15	3610	3290	3010	2770
20	3700	3370	3090	2830
25	3790	3450	3160	2890
30	3880	3530	3230	2960
35	3970	3620	3310	3030
40	4070	3710	3380	3100
45	4170	3790	3460	3170

WEIGHT = 15200 POUNDS SVREF = 118 KIAS VAPP = 114 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2530	2330	2150	2010
-25	2580	2380	2190	2040
-20	2640	2430	2240	2080
-15	2690	2480	2290	2110
-10	2750	2540	2340	2160
-5	2810	2590	2390	2210
0	2870	2650	2440	2250
5	2930	2700	2490	2300
10	2990	2760	2540	2350
15	3060	2820	2600	2400
20	3120	2880	2650	2450
25	3190	2930	2700	2500
30	3250	3000	2760	2550
35	3320	3060	2820	2600
40	3390	3120	2870	2650
45	3460	3180	2930	2700

WEIGHT = 15000 POUNDS SVREF = 117 KIAS VAPP = 113 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2480	2290	2120	1990
-25	2540	2340	2160	2020
-20	2590	2390	2210	2060
-15	2650	2440	2250	2090
-10	2700	2490	2300	2130
-5	2760	2550	2350	2170
0	2820	2600	2400	2220
5	2880	2650	2450	2260
10	2940	2710	2500	2310
15	3000	2770	2550	2360
20	3060	2820	2600	2400
25	3130	2880	2660	2450
30	3190	2940	2710	2500
35	3250	3000	2760	2550
40	3320	3060	2820	2600
45	3390	3120	2870	2650

WEIGHT = 14500 POUNDS SVREF = 115 KIAS VAPP = 111 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2390	2210	2070	1940
-25	2440	2250	2110	1970
-20	2490	2300	2140	2010
-15	2540	2340	2170	2040
-10	2590	2390	2210	2070
-5	2640	2440	2260	2110
0	2700	2490	2300	2140
5	2750	2540	2350	2180
10	2810	2590	2400	2210
15	2860	2640	2440	2260
20	2920	2700	2490	2300
25	2980	2750	2540	2350
30	3040	2800	2590	2390
35	3100	2860	2640	2440
40	3160	2910	2690	2490
45	3220	2970	2740	2530

WEIGHT = 14000 POUNDS SVREF = 114 KIAS VAPP = 109 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2290	2150	2020	1890
-25	2340	2190	2050	1920
-20	2390	2220	2090	1960
-15	2430	2260	2120	1990
-10	2480	2300	2150	2020
-5	2530	2340	2190	2050
0	2580	2390	2220	2090
5	2630	2430	2250	2120
10	2680	2480	2300	2150
15	2730	2530	2340	2180
20	2790	2580	2380	2220
25	2840	2630	2430	2250
30	2890	2680	2480	2290
35	2950	2730	2520	2330
40	3000	2780	2570	2380
45	3060	2830	2620	2420

WEIGHT = 13500 POUNDS SVREF = 112 KIAS VAPP = 108 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-30	2240	2100	1970	1840
-25	2270	2130	2000	1870
-20	2300	2170	2030	1900
-15	2340	2200	2070	1930
-10	2380	2230	2100	1970
-5	2430	2270	2130	2000
0	2470	2300	2160	2030
5	2520	2330	2200	2060
10	2570	2380	2230	2090
15	2610	2420	2260	2130
20	2660	2470	2290	2160
25	2710	2510	2330	2190
30	2760	2560	2370	2220
35	2810	2600	2410	2250
40	2860	2650	2450	2280
45	2910	2700	2500	2320

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure S5-2 (Sheet 9)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
4000 FEET**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS					
SVREF = 110 KIAS		VAPP = 106 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-30	2180	2050	1920	1790	
-25	2210	2080	1950	1820	
-20	2250	2110	1980	1850	
-15	2280	2140	2010	1880	
-10	2310	2180	2040	1910	
-5	2350	2210	2070	1940	
0	2380	2240	2110	1970	
5	2410	2270	2140	2000	
10	2460	2310	2170	2040	
15	2500	2340	2200	2070	
20	2550	2370	2230	2100	
25	2590	2400	2260	2130	
30	2640	2440	2290	2160	
35	2680	2490	2330	2190	
40	2730	2530	2360	2220	
45	2780	2570	2390	2250	

WEIGHT = 12500 POUNDS					
SVREF = 109 KIAS		VAPP = 104 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-30	2130	1990	1870	1740	
-25	2160	2020	1900	1770	
-20	2190	2060	1930	1800	
-15	2220	2090	1960	1830	
-10	2250	2120	1990	1860	
-5	2290	2150	2020	1890	
0	2320	2180	2050	1920	
5	2350	2210	2080	1950	
10	2380	2240	2110	1980	
15	2410	2270	2140	2010	
20	2450	2310	2170	2040	
25	2480	2340	2200	2070	
30	2520	2370	2230	2100	
35	2560	2400	2260	2130	
40	2600	2430	2290	2160	
45	2650	2460	2320	2180	

WEIGHT = 12000 POUNDS					
SVREF = 107 KIAS		VAPP = 102 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-30	2070	1940	1810	1690	
-25	2100	1970	1840	1720	
-20	2130	2000	1870	1740	
-15	2160	2030	1900	1770	
-10	2190	2060	1930	1800	
-5	2220	2090	1960	1830	
0	2250	2120	1990	1860	
5	2290	2150	2020	1890	
10	2320	2180	2040	1920	
15	2350	2210	2070	1940	
20	2380	2240	2100	1970	
25	2410	2270	2130	2000	
30	2440	2300	2160	2030	
35	2470	2330	2190	2060	
40	2500	2360	2220	2090	
45	2530	2390	2250	2120	

WEIGHT = 11500 POUNDS					
SVREF = 105 KIAS		VAPP = 100 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-30	2010	1880	1760	1630	
-25	2040	1910	1780	1660	
-20	2070	1940	1810	1690	
-15	2100	1970	1840	1720	
-10	2130	2000	1870	1740	
-5	2160	2030	1900	1770	
0	2190	2050	1920	1800	
5	2220	2080	1950	1830	
10	2250	2110	1980	1850	
15	2280	2140	2010	1880	
20	2310	2170	2040	1910	
25	2340	2200	2070	1940	
30	2370	2230	2090	1960	
35	2400	2260	2120	1990	
40	2430	2290	2150	2020	
45	2460	2320	2180	2050	

WEIGHT = 11000 POUNDS					
SVREF = 103 KIAS		VAPP = 98 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-30	1950	1830	1700	1580	
-25	1980	1850	1730	1610	
-20	2010	1880	1750	1630	
-15	2040	1910	1780	1660	
-10	2070	1930	1810	1680	
-5	2100	1960	1840	1710	
0	2120	1990	1860	1740	
5	2150	2020	1890	1760	
10	2180	2050	1920	1790	
15	2210	2080	1940	1820	
20	2240	2100	1970	1840	
25	2270	2130	2000	1870	
30	2300	2160	2030	1900	
35	2320	2190	2050	1920	
40	2350	2210	2080	1950	
45	2380	2240	2110	1980	

WEIGHT = 10500 POUNDS					
SVREF = 101 KIAS		VAPP = 96 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-30	1900	1770	1650	1530	
-25	1920	1790	1670	1550	
-20	1950	1820	1700	1580	
-15	1980	1850	1720	1600	
-10	2000	1870	1750	1630	
-5	2030	1900	1770	1650	
0	2060	1930	1800	1680	
5	2090	1950	1830	1700	
10	2110	1980	1850	1730	
15	2140	2010	1880	1750	
20	2170	2030	1910	1780	
25	2200	2060	1930	1810	
30	2220	2090	1960	1830	
35	2250	2120	1980	1860	
40	2280	2140	2010	1880	
45	2310	2170	2040	1910	

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure S5-2 (Sheet 10)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
5000 FEET**CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEETANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

* WEIGHT = 16830 POUNDS					
SVREF = 123 KIAS		VAPP = 119 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-35	2960	2710	2490	2290	
-30	3040	2780	2550	2350	
-25	3110	2850	2620	2400	
-20	3190	2920	2680	2460	
-15	3270	3000	2750	2520	
-10	3360	3070	2810	2580	
-5	3440	3150	2880	2650	
0	3530	3230	2950	2710	
5	3620	3310	3030	2780	
10	3710	3390	3100	2840	
15	3810	3470	3170	2910	
20	3900	3560	3250	2980	
25	4000	3650	3330	3050	
30	4110	3740	3410	3120	
35	4210	3830	3490	3190	
40	4320	3920	3570	3270	
42	4370	3960	3610	3300	

WEIGHT = 15200 POUNDS					
SVREF = 118 KIAS		VAPP = 114 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-35	2580	2370	2190	2040	
-30	2630	2430	2240	2080	
-25	2690	2480	2290	2110	
-20	2750	2540	2340	2160	
-15	2810	2590	2390	2210	
-10	2880	2650	2440	2250	
-5	2940	2710	2500	2300	
0	3000	2770	2550	2350	
5	3070	2830	2610	2400	
10	3140	2890	2660	2460	
15	3200	2950	2720	2510	
20	3270	3010	2780	2560	
25	3340	3080	2830	2610	
30	3420	3140	2890	2670	
35	3490	3210	2950	2720	
40	3560	3270	3010	2780	
42	3600	3300	3040	2800	

WEIGHT = 15000 POUNDS					
SVREF = 117 KIAS		VAPP = 113 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-35	2530	2340	2160	2020	
-30	2590	2390	2200	2060	
-25	2650	2440	2250	2090	
-20	2700	2490	2300	2130	
-15	2760	2550	2350	2170	
-10	2820	2600	2400	2220	
-5	2890	2660	2450	2270	
0	2950	2720	2510	2310	
5	3010	2780	2560	2360	
10	3080	2830	2610	2410	
15	3140	2890	2670	2460	
20	3210	2950	2720	2510	
25	3280	3020	2780	2570	
30	3340	3080	2840	2620	
35	3420	3140	2900	2670	
40	3490	3210	2960	2730	
42	3520	3240	2980	2750	

WEIGHT = 14500 POUNDS					
SVREF = 115 KIAS		VAPP = 111 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-35	2430	2250	2100	1970	
-30	2480	2290	2140	2010	
-25	2540	2340	2170	2040	
-20	2590	2390	2210	2080	
-15	2650	2440	2260	2110	
-10	2700	2490	2300	2140	
-5	2760	2550	2350	2180	
0	2820	2600	2400	2220	
5	2870	2650	2450	2270	
10	2930	2710	2500	2310	
15	2990	2760	2550	2360	
20	3050	2820	2600	2410	
25	3110	2870	2650	2450	
30	3180	2930	2710	2500	
35	3240	2990	2760	2550	
40	3310	3050	2820	2600	
42	3330	3070	2840	2620	

WEIGHT = 14000 POUNDS					
SVREF = 114 KIAS		VAPP = 109 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-35	2340	2190	2050	1920	
-30	2380	2220	2090	1950	
-25	2430	2260	2120	1990	
-20	2480	2300	2150	2020	
-15	2530	2340	2190	2060	
-10	2590	2390	2220	2090	
-5	2640	2440	2260	2120	
0	2690	2490	2300	2160	
5	2740	2540	2350	2190	
10	2800	2590	2390	2220	
15	2850	2640	2440	2260	
20	2910	2690	2490	2300	
25	2970	2740	2540	2350	
30	3020	2790	2590	2390	
35	3080	2850	2630	2440	
40	3140	2900	2680	2480	
42	3170	2930	2710	2500	

WEIGHT = 13500 POUNDS					
SVREF = 112 KIAS		VAPP = 108 KIAS			
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	
-35	2270	2130	2000	1870	
-30	2300	2170	2030	1900	
-25	2340	2200	2070	1940	
-20	2380	2230	2100	1970	
-15	2430	2270	2130	2000	
-10	2480	2300	2170	2030	
-5	2530	2340	2200	2070	
0	2570	2380	2230	2100	
5	2620	2430	2270	2130	
10	2670	2480	2300	2160	
15	2720	2520	2340	2200	
20	2780	2570	2380	2230	
25	2830	2620	2430	2260	
30	2880	2670	2470	2300	
35	2930	2720	2520	2330	
40	2990	2770	2560	2370	
42	3010	2790	2580	2390	

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

*FOR USE IN AN EMERGENCY WHICH REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15200 POUNDS.

Figure S5-2 (Sheet 11)

LANDING DISTANCE - FEET ACTUAL DISTANCE**FLAPS - LAND
5000 FEET**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SVREF AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

WEIGHT = 13000 POUNDS SVREF = 110 KIAS VAPP = 106 KIAS					WEIGHT = 12500 POUNDS SVREF = 109 KIAS VAPP = 104 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2210	2080	1950	1820	-35	2160	2020	1890	1770
-30	2250	2110	1980	1850	-30	2190	2060	1930	1800
-25	2280	2140	2010	1880	-25	2220	2090	1960	1830
-20	2320	2180	2040	1910	-20	2260	2120	1990	1860
-15	2350	2210	2080	1950	-15	2290	2150	2020	1890
-10	2380	2240	2110	1980	-10	2320	2180	2050	1920
-5	2420	2280	2140	2010	-5	2360	2220	2080	1950
0	2460	2310	2170	2040	0	2390	2250	2110	1980
5	2510	2340	2210	2070	5	2420	2280	2140	2010
10	2560	2380	2240	2100	10	2450	2310	2180	2040
15	2600	2410	2270	2140	15	2490	2350	2210	2070
20	2650	2460	2300	2170	20	2530	2380	2240	2100
25	2700	2500	2340	2200	25	2580	2410	2270	2140
30	2750	2550	2370	2230	30	2620	2440	2300	2170
35	2800	2590	2400	2260	35	2670	2480	2330	2200
40	2840	2640	2450	2290	40	2710	2520	2370	2230
42	2870	2660	2460	2310	42	2730	2530	2380	2240

WEIGHT = 12000 POUNDS SVREF = 107 KIAS VAPP = 102 KIAS					WEIGHT = 11500 POUNDS SVREF = 105 KIAS VAPP = 100 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	2100	1970	1840	1710	-35	2040	1910	1780	1660
-30	2130	2000	1870	1740	-30	2070	1940	1810	1690
-25	2160	2030	1900	1770	-25	2100	1970	1840	1720
-20	2190	2060	1930	1800	-20	2130	2000	1870	1740
-15	2230	2090	1960	1830	-15	2160	2030	1900	1770
-10	2260	2120	1990	1860	-10	2190	2060	1930	1800
-5	2290	2150	2020	1890	-5	2220	2090	1960	1830
0	2320	2180	2050	1920	0	2250	2120	1990	1860
5	2350	2220	2080	1950	5	2290	2150	2020	1890
10	2390	2250	2110	1980	10	2320	2180	2050	1920
15	2420	2280	2140	2010	15	2350	2210	2070	1940
20	2450	2310	2170	2040	20	2380	2240	2100	1970
25	2480	2340	2200	2070	25	2410	2270	2130	2000
30	2510	2370	2230	2100	30	2440	2300	2160	2030
35	2550	2400	2260	2130	35	2470	2330	2190	2060
40	2580	2430	2290	2160	40	2500	2360	2220	2090
42	2600	2450	2310	2170	42	2510	2370	2230	2100

WEIGHT = 11000 POUNDS SVREF = 103 KIAS VAPP = 98 KIAS					WEIGHT = 10500 POUNDS SVREF = 101 KIAS VAPP = 96 KIAS				
TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS	TEMP DEG C	ZERO WIND	10 KTS	HEADWINDS 20 KTS	30 KTS
-35	1980	1850	1730	1610	-35	1920	1790	1670	1550
-30	2010	1880	1750	1630	-30	1950	1820	1700	1580
-25	2040	1910	1780	1660	-25	1980	1850	1720	1600
-20	2070	1940	1810	1690	-20	2010	1880	1750	1630
-15	2100	1970	1840	1710	-15	2030	1900	1780	1650
-10	2130	1990	1870	1740	-10	2060	1930	1800	1680
-5	2160	2020	1890	1770	-5	2090	1960	1830	1710
0	2190	2050	1920	1800	0	2120	1990	1860	1730
5	2220	2080	1950	1820	5	2150	2010	1890	1760
10	2250	2110	1980	1850	10	2180	2040	1910	1790
15	2280	2140	2010	1880	15	2200	2070	1940	1810
20	2310	2170	2040	1910	20	2230	2100	1970	1840
25	2340	2200	2060	1930	25	2260	2130	1990	1870
30	2370	2230	2090	1960	30	2290	2150	2020	1890
35	2390	2260	2120	1990	35	2320	2180	2050	1920
40	2420	2280	2150	2020	40	2350	2210	2070	1940
42	2440	2300	2160	2030	42	2360	2220	2090	1960

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TO OBTAIN LANDING DISTANCE WITH NEGATIVE (DOWNHILL) RUNWAY GRADIENT, REFER TO LANDING PROCEDURES.

Figure S5-2 (Sheet 12)

LANDING FIELD LENGTH - FEET (ACTUAL DISTANCE MULTIPLIED BY 1.67)

FLAPS - LAND

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SV_{REF} AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE
TEMPERATURE - ISA

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

				HEADWINDS			SEA LEVEL
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	4950	4550	4160	3830	
15200	118	114	4300	3960	3660	3410	
15000	117	113	4230	3910	3610	3380	
14500	115	111	4060	3750	3510	3290	
14000	114	109	3900	3650	3430	3210	
13500	112	108	3780	3560	3330	3130	
13000	110	106	3680	3460	3240	3030	
12500	109	104	3600	3380	3160	2940	
12000	107	102	3500	3280	3060	2860	
11500	105	100	3400	3180	2960	2760	
11000	103	98	3290	3080	2880	2680	
10500	101	96	3190	2980	2780	2580	

				HEADWINDS			200 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5000	4580	4200	3860	
15200	118	114	4330	4000	3680	3430	
15000	117	113	4260	3930	3630	3400	
14500	115	111	4080	3780	3530	3310	
14000	114	109	3930	3660	3450	3230	
13500	112	108	3800	3580	3340	3140	
13000	110	106	3710	3480	3260	3040	
12500	109	104	3610	3400	3180	2960	
12000	107	102	3510	3290	3080	2880	
11500	105	100	3410	3190	2980	2780	
11000	103	98	3310	3090	2890	2690	
10500	101	96	3210	2990	2790	2590	

				HEADWINDS			400 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5030	4610	4230	3900	
15200	118	114	4360	4030	3710	3450	
15000	117	113	4280	3960	3650	3410	
14500	115	111	4110	3800	3550	3330	
14000	114	109	3950	3680	3460	3240	
13500	112	108	3810	3600	3360	3160	
13000	110	106	3730	3500	3280	3060	
12500	109	104	3630	3410	3190	2980	
12000	107	102	3530	3310	3090	2890	
11500	105	100	3430	3210	2990	2790	
11000	103	98	3330	3110	2890	2690	
10500	101	96	3230	3010	2810	2610	

* FOR USE IN AN EMERGENCY THAT REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15,200 LBS.

Figure S5-3 (Sheet 1 of 4)

LANDING FIELD LENGTH - FEET (ACTUAL DISTANCE MULTIPLIED BY 1.67)**FLAPS - LAND**

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SV_{REF} AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE
TEMPERATURE - ISA

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

				HEADWINDS			600 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5070	4650	4260	3910	
15200	118	114	4400	4050	3730	3460	
15000	117	113	4310	3980	3680	3430	
14500	115	111	4150	3830	3560	3340	
14000	114	109	3980	3700	3480	3260	
13500	112	108	3830	3610	3380	3180	
13000	110	106	3750	3510	3290	3080	
12500	109	104	3650	3430	3210	2990	
12000	107	102	3550	3330	3110	2890	
11500	105	100	3450	3230	3010	2810	
11000	103	98	3340	3130	2910	2710	
10500	101	96	3240	3030	2830	2630	

				HEADWINDS			800 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5100	4680	4300	3950	
15200	118	114	4410	4080	3760	3480	
15000	117	113	4350	4010	3700	3450	
14500	115	111	4160	3850	3580	3360	
14000	114	109	4000	3710	3500	3280	
13500	112	108	3850	3630	3400	3190	
13000	110	106	3760	3530	3310	3090	
12500	109	104	3660	3450	3230	3010	
12000	107	102	3560	3340	3130	2910	
11500	105	100	3460	3240	3030	2830	
11000	103	98	3360	3140	2930	2730	
10500	101	96	3240	3040	2830	2630	

				HEADWINDS			1000 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5150	4710	4330	3980	
15200	118	114	4450	4100	3780	3500	
15000	117	113	4380	4030	3730	3460	
14500	115	111	4200	3880	3600	3380	
14000	114	109	4030	3730	3510	3290	
13500	112	108	3880	3650	3410	3210	
13000	110	106	3780	3550	3330	3110	
12500	109	104	3680	3460	3230	3030	
12000	107	102	3580	3360	3140	2930	
11500	105	100	3480	3260	3040	2840	
11000	103	98	3380	3160	2940	2740	
10500	101	96	3260	3060	2840	2640	

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* FOR USE IN AN EMERGENCY THAT REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15,200 LBS.

Figure S5-3 (Sheet 2)

LANDING FIELD LENGTH - FEET (ACTUAL DISTANCE MULTIPLIED BY 1.67)

FLAPS - LAND

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SV_{REF} AT 35 FEET

ANTI-ICE SYSTEMS - OFF
THRUST - IDLE
TEMPERATURE - ISA

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

				HEADWINDS			2000 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5350	4900	4500	4130	
15200	118	114	4600	4250	3910	3610	
15000	117	113	4530	4180	3850	3560	
14500	115	111	4330	4000	3700	3480	
14000	114	109	4150	3850	3600	3380	
13500	112	108	3980	3730	3510	3290	
13000	110	106	3860	3630	3410	3190	
12500	109	104	3760	3550	3310	3110	
12000	107	102	3660	3450	3230	3010	
11500	105	100	3560	3330	3130	2910	
11000	103	98	3450	3230	3030	2810	
10500	101	96	3340	3130	2930	2710	

				HEADWINDS			3000 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5570	5100	4660	4280	
15200	118	114	4760	4400	4060	3750	
15000	117	113	4680	4310	4000	3680	
14500	115	111	4480	4150	3830	3560	
14000	114	109	4300	3960	3700	3480	
13500	112	108	4110	3830	3600	3380	
13000	110	106	3960	3730	3500	3280	
12500	109	104	3860	3630	3410	3190	
12000	107	102	3750	3530	3310	3090	
11500	105	100	3650	3410	3190	2990	
11000	103	98	3530	3310	3090	2890	
10500	101	96	3430	3210	2990	2790	

				HEADWINDS			4000 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	5800	5300	4860	4460	
15200	118	114	4950	4560	4200	3880	
15000	117	113	4850	4480	4130	3810	
14500	115	111	4630	4280	3960	3660	
14000	114	109	4430	4100	3800	3560	
13500	112	108	4250	3930	3700	3480	
13000	110	106	4060	3830	3600	3380	
12500	109	104	3950	3710	3500	3280	
12000	107	102	3850	3610	3400	3180	
11500	105	100	3730	3510	3280	3080	
11000	103	98	3610	3400	3180	2980	
10500	101	96	3510	3290	3080	2860	

* FOR USE IN AN EMERGENCY THAT REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15,200 LBS.

Figure S5-3 (Sheet 3)

LANDING FIELD LENGTH - FEET (ACTUAL DISTANCE MULTIPLIED BY 1.67)

FLAPS - LAND

CONDITIONS: LANDING GEAR - DOWN
SPEED BRAKES - EXTENDED
AIRSPEED - SV_{REF} AT 35 FEET
ANTI-ICE SYSTEMS - OFF
THRUST - IDLE
TEMPERATURE - ISA

SOME CONDITIONS MAY BE BRAKE ENERGY OR CLIMB LIMITED. OBTAIN ALLOWABLE WEIGHT FROM MAXIMUM LANDING WEIGHT TABLES.

				HEADWINDS			5000 FEET
WEIGHT lbs	SVREF KIAS	VAPP KIAS	ZERO WIND	10 KTS	20 KTS	30 KTS	
*16830	123	119	6050	5530	5070	4650	
15200	118	114	5130	4730	4360	4030	
15000	117	113	5030	4650	4280	3950	
14500	115	111	4800	4430	4100	3800	
14000	114	109	4600	4250	3930	3660	
13500	112	108	4380	4060	3800	3560	
13000	110	106	4200	3910	3700	3460	
12500	109	104	4050	3810	3600	3360	
12000	107	102	3930	3710	3480	3260	
11500	105	100	3830	3600	3380	3160	
11000	103	98	3710	3480	3260	3040	
10500	101	96	3600	3380	3160	2940	

* FOR USE IN AN EMERGENCY THAT REQUIRES A LANDING AT A WEIGHT IN EXCESS OF MAXIMUM DESIGN LANDING WEIGHT OF 15,200 LBS.

Figure S5-3 (Sheet 4)

FAA APPROVED

Airplane Flight Manual

CITATION

ENCORE+

MODEL 560
560-0751 THRU -5000

SUPPLEMENT 6

ENHANCED SURVEILLANCE TRANSPONDER

APPROVED BY 
 Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
DATE OF APPROVAL 12/21/06

SUPPLEMENT 6

ENHANCED SURVEILLANCE TRANSPONDER

Use the Log of Effective Pages to determine the current status of this supplement.

Pages affected by the current revision are indicated by an asterisk (*) preceding the page number.

Supplement Status	Date
Original	21 December 2006

LOG OF EFFECTIVE PAGES

Page Number	Page Status	Revision Number	Configuration Code
S6-1 thru S6-5/S6-6	Original	0	S6-AA

The following is a list of Service Bulletins that are applicable to the operation of the airplane, and have been incorporated into this supplement. This list contains only those Service Bulletins that are currently active.

<u>Number</u>	<u>Title</u>	<u>Airplane Serial Effectivity</u>	<u>Revision Incorporated</u>	<u>Incorporated in Airplane</u>
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AIRPLANE CONFIGURATION CODES

The following is a list of airplane configuration codes which appear at the bottom of each page of this supplement to the basic FAA Approved Airplane Flight Manual. The codes indicate page effectivity by serial number. This list contains only the configurations which have been incorporated into this supplement.

Configuration <u>Code</u>	Effectivity by <u>Serial Number</u>
S6-AA	Airplanes 560-0751 thru -5000 equipped with the Enhanced Surveillance Transponder.

SUPPLEMENT 6

ENHANCED SURVEILLANCE TRANSPONDER

INTRODUCTION

This supplement is part of, and must be placed in, the basic FAA Approved Airplane Flight Manual for airplanes equipped with the Enhanced Surveillance Transponder. The information contained herein supplements the information of the basic FAA Approved Airplane Flight Manual. For limitations, procedures and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

OPERATING LIMITATIONS

No change.

OPERATING PROCEDURES

The operating procedures are the same as those in the basic FAA Approved Airplane Flight Manual except as follows:

EMERGENCY PROCEDURES

No change.

ABNORMAL PROCEDURES

No change.

NORMAL PROCEDURES

No change.

PERFORMANCE

No change.

DESCRIPTION

Enhanced Surveillance, through the ground acquisition of specific aircraft parameters, will enable the Controllers to increase their efficiency in tactically separating aircraft. The Controller's information is improved by providing actual aircraft derived data such as Magnetic Heading, Airspeed, Selected Altitude and Vertical Rate enabling to reduce the radio telephony (RT) workload and better assess the separation situations. The end result is that safety levels are maintained or improved despite an increase in traffic levels.

The installed Mode S system satisfies the data requirements of ICAO Doc 7030/4, Regional Supplementary Procedures for SSR Mode S Enhanced Surveillance in designated European airspace. The system has the capability to transmit the following data parameters: magnetic heading, indicated airspeed, Mach number, vertical rate, roll angle, true track angle, ground speed, track angle rate and/or true airspeed, selected altitude and barometric pressure setting.

