

Circuit breakers providing power to the vapor cycle air conditioning system are found on the left circuit breaker panel. The compressor is powered by a 5 ampere circuit breaker marked AIR COND. The evaporator fans receive power from 7.5 ampere circuit breakers marked AFT EVAP FAN and FWD EVAP FAN.

Vapor Cycle Air Conditioner Load Shed

In flight both generators must be in operation for the vapor cycle compressor to operate. An automatic load shed system will trip off the vapor cycle air conditioning system if a generator fails, or if an engine is shut down. On the ground the vapor cycle system can be powered by the right generator or by an auxiliary ground power source.

OXYGEN

GENERAL

The oxygen system provides supplementary oxygen for the cockpit sweep-on type masks and the passengers' continuous flow masks. It is not normally used since a cabin altitude of 8000 feet can be maintained at the maximum certified airplane altitude with normal pressurization system operation.

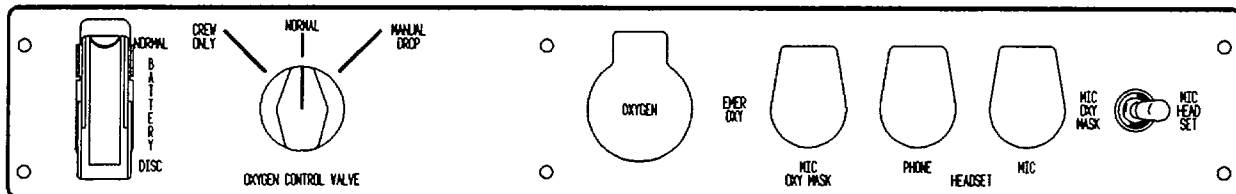
OXYGEN BOTTLE

In the unlikely event supplementary oxygen is required, a fully charged 22.0 cubic foot bottle, located under the floor of the right nose compartment provides approximately 25 minutes of oxygen for crew and four passengers, depending on cabin altitude. The optional 50.0 cubic foot bottle will provide approximately one hour of oxygen under similar circumstances. Duration for actual personnel aboard can be determined by consulting the Oxygen Supply Chart in Section Three of the FAA Approved Flight Manual.

The bottle assembly contains a pressure reducing valve, shutoff valve and provisions for external servicing. A green disc is installed in the end of the bottle overpressure vent line which is flush mounted on the lower right side of the forward fuselage approximately two feet below the aft edge of the forward nose compartment door. This disc, when ruptured, indicates bottle pressure has exceeded 2500 PSI and is empty. This overpressure system will actuate under only the most adverse circumstances; therefore, if the disc is ruptured, determine the cause of the overpressure before flight. The oxygen bottle pressure is displayed on the right instrument panel. A pressure indication of from 1600 to 1800 PSI indicates a normal service. Extreme temperature changes, cold or hot, after normal servicing can cause the gauge to indicate out of the green. Consult Chapter 12 of the Airplane Maintenance Manual in case of unusual temperatures if it is suspected that the oxygen pressure may not be normally serviced. A locking connector has been provided on the right and left flight deck side consoles to supply the flight compartment occupants with 70 PSI oxygen for mask use.

OXYGEN CONTROL PANEL

The left console contains the OXYGEN CONTROL VALVE which regulates flow to the passenger compartment. The oxygen control valve, labeled CREW ONLY, NORMAL and MANUAL DROP, allows the pilot to select oxygen flow to the flight deck only (CREW ONLY position), or automatic flow to the passenger compartment and flight deck (NORMAL position). The MANUAL DROP position will allow the passenger oxygen masks to be manually deployed in the event of an emergency and the masks fail to automatically deploy. A switch on both the pilot's and copilot's control panels, labeled MIC OXY MASK/MIC HEAD SET, selects which microphone will be used.



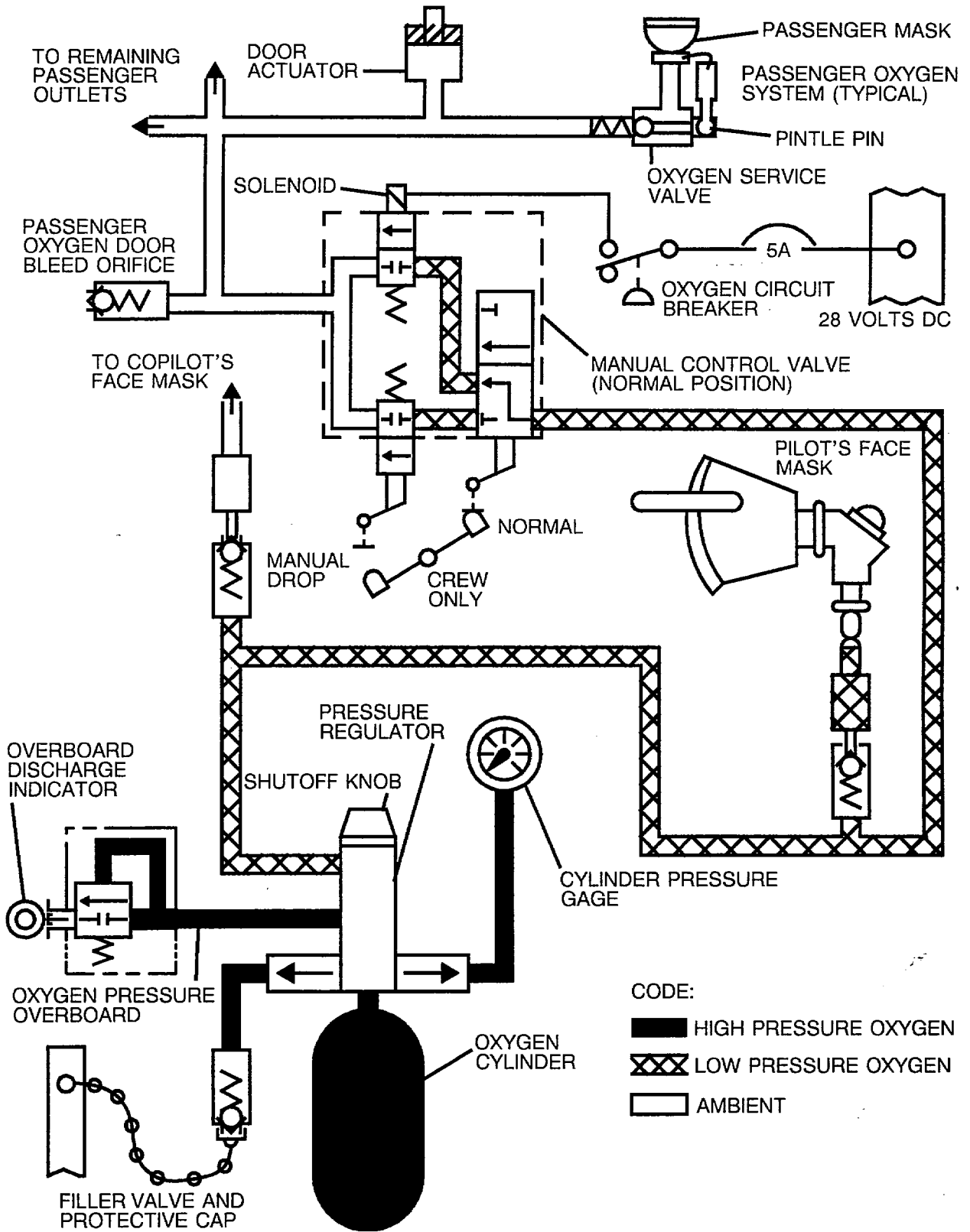
9912437-1

Figure 2-25. Pilot's Side Console Oxygen Control and Outlets

Should cabin altitude exceed 13,500 feet, +600 or -600 feet, when the oxygen control valve is set to normal, an altitude sensing switch will electrically actuate the oxygen control valve to supply 70 PSI oxygen pressure to the passenger manifold. This pressure is sufficient to operate the passenger mask actuators, deploy the doors and drop the continuous flow masks at each passenger seat. Oxygen will not flow from these masks until the lanyard on the respective mask has been pulled, removing the pintle pin. This conserves oxygen in the event all masks are not to be used. When the cabin altitude has descended to approximately 8000 feet with electrical power available, the passenger solenoid valve will close, allowing passenger manifold oxygen pressure to bleed off. The passenger manifold pressure can also be shut off by setting the OXYGEN CONTROL VALVE to CREW ONLY position. As the oxygen pressure dissipates, the door actuators will retract, allowing mask stowage to be accomplished. Reinstall all removed pintle pins before stowing masks. When landing at or above 12,000 feet pressure altitude, the control valve must be set to CREW ONLY to prevent deployment of the passenger masks.

CREW OXYGEN MASKS

The standard oxygen mask (174118-02 or 174118-03) is a diluter demand mask with an integral microphone and oxygen regulator. Each oxygen regulator has a lever allowing manual selection of diluter demand (normal) or demand (100% oxygen) flows. A flow indicator is incorporated so the crewmember is assured that oxygen is being received. Flow is also assured if there is no restriction to breathing with the mask donned and in the 100% position. The 174118-03 oxygen mask has a purge button on the front of the mask, which, when pressed, will clear the mask of contaminants such as can occur if the mask is donned in an emergency in a smoke filled environment. The standard mask is not approved for continuous use with cabin altitude above 34,000 feet. The standard mask qualifies as a quick donning mask when it is positioned around the neck.



6597C8004

Figure 2-26. Oxygen System Schematic

The optional Puritan Bennet sweep-on mask (174045-16) must be properly stowed to qualify as a quick donning mask. (Refer to placard adjacent to retainer for proper stowage position.) Oxygen supply to the mask may be verified by checking the transparent cylinder in the supply line for a green band. To ensure adequate supplemental oxygen, the regulator should be set to 100% for cabin altitudes above 20,000 feet.

The optional EROS mask operates similar to the standard mask except that mask emergency pressure is tested with a "press-to-test" button, and changed to emergency by turning that same button to EMER setting.

100 percent position should be selected when using an oxygen mask for smoke protection. The emergency position on the mask may be used if increased oxygen flow is desired. Use of the emergency position will result in diminished duration of oxygen supply.

A two-position toggle switch is provided on the pilot's and copilot's side consoles. The switch is marked MIC OXY MASK and MIC HEAD SET. Depressing the microphone button on the appropriate control wheel allows a crewmember to transmit through the headset microphone or oxygen mask microphone, whichever is selected.

LIGHTING

INTERIOR LIGHTING

Interior lighting is provided for the flight compartment, cabin and tailcone area. Electroluminescent panels, instrument floodlights and white background lighting illuminate all cockpit instruments and switches. Two overhead floodlights, controlled by a single rheostat switch, are available for additional cockpit lighting. The overhead floodlights operate off the emergency bus in the event of a double generator failure. All lights except the overhead and instrument floodlights are controlled by a PANEL LIGHT CONTROL master switch (NIGHT DIM/ON/OFF) and are then adjusted by rheostats. When the instrument panel lights are on, a dimmer is activated in the annunciator panel to provide for lower warning light intensity during night flying. The starter disengage switch is also illuminated when the panel lights are on. A floodlight in the glare shield comes on to illuminate the fan tachometers when a starter switch is pressed. It goes out when the starter/generator reverts to generator operation.

Two individually controlled map lights are located in the overhead panel above the pilot and copilot. Intensity controls are located at the forward end of each side console.

Cabin lighting includes individually controlled overhead reading lights, an aft (tailcone and baggage compartment) compartment light, a refreshment center light and optional overhead fluorescent lighting. An illuminated switch on the aft side of the cabin refreshment center, forward of the cabin door, turns on exit lights over the main and emergency doors and two cabin PSU lights. These lights are powered by the hot battery bus and are available any time the battery is installed and serviceable.

A three-position passenger advisory switch in the cockpit is also tied to the hot battery bus. In the SEAT BELT position, only the FASTEN SEAT BELT sign is illuminated in the cabin. In the PASS SAFETY position, the FASTEN SEAT BELT sign, the interior EMERGENCY EXIT lights and aft right hand PSU are illuminated. The NO SMOKING sign is illuminated at all times. When the switch is OFF, all advisory and emergency lighting is extinguished.

A third provision for emergency exit lighting is through a small battery in the cabin headliner which will power the interior exit lights any time a sensor is exposed to a lateral fore and aft force of 5 Gs or more.