OXYGEN

GENERAL

Oxygen is stored in 1 or 2 (optional) 76 cubic-foot cylinder(s) located in the belly fairing just aft of the Oxygen Service Panel. Pressure for the oxygen system is regulated at the cylinder; an additional regulator is installed downstream from the cylinder. Two pressure gages are installed, one located on the LH side of the instrument panel and the other at the Oxygen Service Panel. Oxygen cylinder pressure is read from these two gages. Prior to flight the pilot is required to check the oxygen quantity of the cylinder and select the flow schedule desired. A green arc on the oxygen pressure gage indicates acceptable preflight pressure range.

Plumbing for the system is designed so that the flight crew has an available supply of oxygen at all times. Control of the oxygen supply for the passengers is by means of the Oxygen Control Valve, which can be selected to ON, OFF, or AUTO. In AUTO, two pressure transducers sense cabin altitude. If cabin altitude rises above 14,500 (±490) feet, a solenoid on the Passenger Oxygen Control Valve is energized allowing passenger oxygen to flow through the valve to the sequence regulator. The sequence regulator relative to altitude adjusts oxygen pressure before flowing to the passenger oxygen masks.

Seven drop boxes for passenger oxygen are installed in the cabin. Six of these are in the cabin section and one in the lavatory. Each drop box has two masks dropping from the center of the cabin overhead panel. Flight crew oxygen masks are stored in service boxes located near the crewmembers' outboard thigh.

The oxygen system is designed for a maximum airplane altitude of 47,000 feet. Design of the system takes into account the rate of cabin depressurization, flight crew reaction time, and airplane descent rate from 47,000 feet. Based on these factors, the cabin altitude should not exceed 39,000 feet. The oxygen system components are designed for use from sea level up to a 40,000 foot cabin altitude.

Oxygen use is not required during normal flight operations since a cabin pressure altitude of 8000 feet can be maintained at maximum certified airplane altitude.

OXYGEN MASKS

CREW OXYGEN MASKS

Crew oxygen masks are the quick donning type with a mask-mounted regulator. Flight crew selection of diluter demand, 100% demand, or pressure demand is available through the regulator. A lever labeled N-100% PUSH switches the oxygen content between Normal (N) and 100%. For diluter demand use the lever should be raised to the N position. In the N position a mixture of air and oxygen is then delivered. The ratio of the air and oxygen mixture is a function of cabin pressure as sensed by the mask-mounted regulator. Depressing the N-100% PUSH lever activates crew selection of 100% oxygen. If diluter demand or 100% oxygen is selected on the regulator, oxygen will flow as the crewmember inhales and shuts down for exhale. Rotation of the EMERGENCY knob to the full clockwise position supplies oxygen at positive pressure throughout the breathing cycle. In Emergency mode ambient air is prevented from entering the mask when fumes or smoke are present. Pressing the inflation buttons on either side of the mask will inflate the harness allowing the mask to easily be donned. Release of the button deflates the harness to provide a secure fit. Microphones are integrated into the masks to allow for communications use.

PILOT'S SIDE CONSOLE OXYGEN CONTROL (STANDARD AND EXTENDED RANGE)

A36579

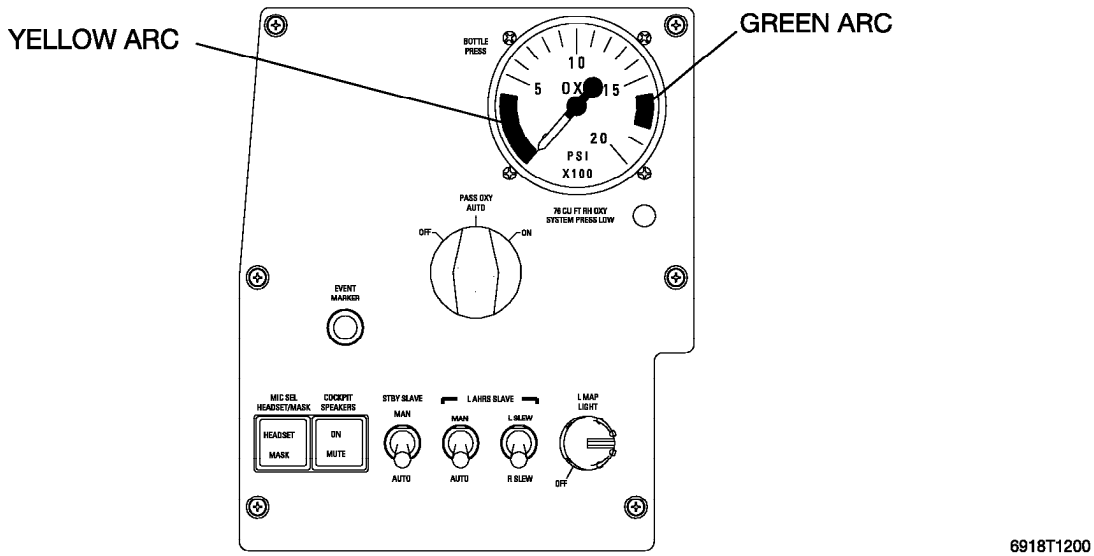

Figure 2-31

A28840

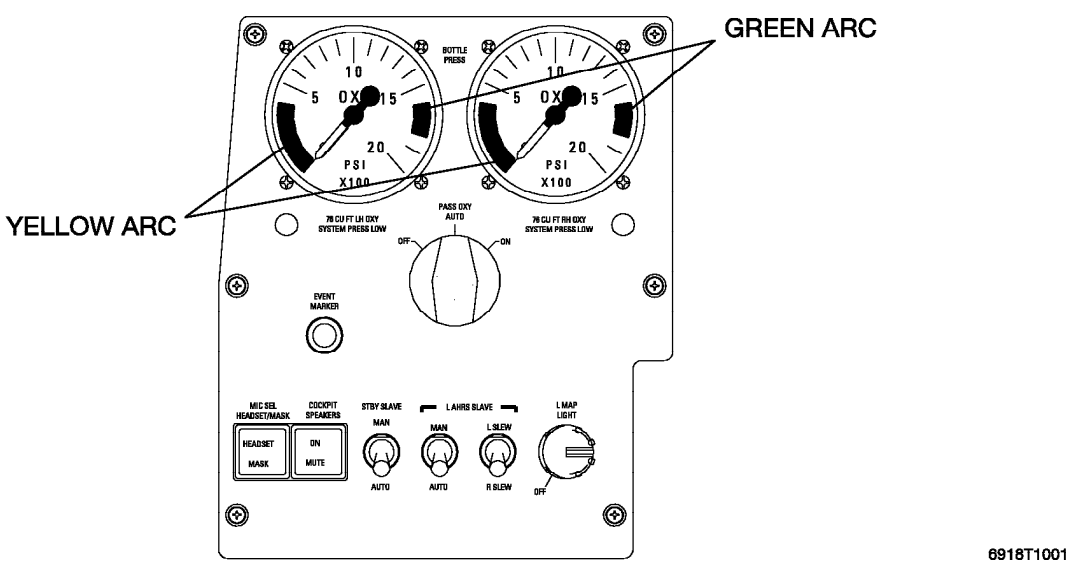

Figure 2-32

OXYGEN SUPPLY CHART

EROS MC10-16-100 CREW OXYGEN MASK WITH 76-CUBIC FOOT (1903 LITERS) CYLINDER WITH PASSENGER OXYGEN SEQUENCE REGULATOR

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 12 CABIN
8000	1295	647	237	145	104	82	67	57
10,000	1487	743	250	151	108	84	69	58
15,000	1487	743	256	156	111	87	71	60
20,000	1167	584	240	151	110	87	71	61
25,000	634	317	181	127	98	79	67	58
27,000	732	366						
29,000	806	403						
31,000	906	453						
33,000	1023	512						
35,000	1153	577						
37,000	1312	656						
39,000	1599	800						

NOTE

Cockpit masks are assumed to be at the normal setting below 20,000 feet cabin altitude with a respiratory rate of 10 liters per minute - body temperature pressure saturated and at 100% setting at and above 25,000 feet.

PASSENGER OXYGEN MASKS

Passenger oxygen is made available to cabin occupants from the seven oxygen drop boxes in the cabin center overhead. Each box is equipped with two oxygen masks. Each passenger mask has a head strap, a three-foot length of plastic tubing, a lanyard with a pintle pin, and an oxygen dispensing valve.

Passenger oxygen masks are of the constant pressure/continuous flow oral-nasal type that form around the mouth and nose area. An orifice located in the mask tubing provides a constant flow of approximately 4.5 liters/min to each passenger regardless of altitude.

Once the masks are dropped, the passengers begin the oxygen flow by pulling the mask down. Once pulled, the lanyard attached to the pintle pin will disengage the pin beginning the flow of oxygen.

STANDARD RANGE OXYGEN SYSTEM SCHEMATIC

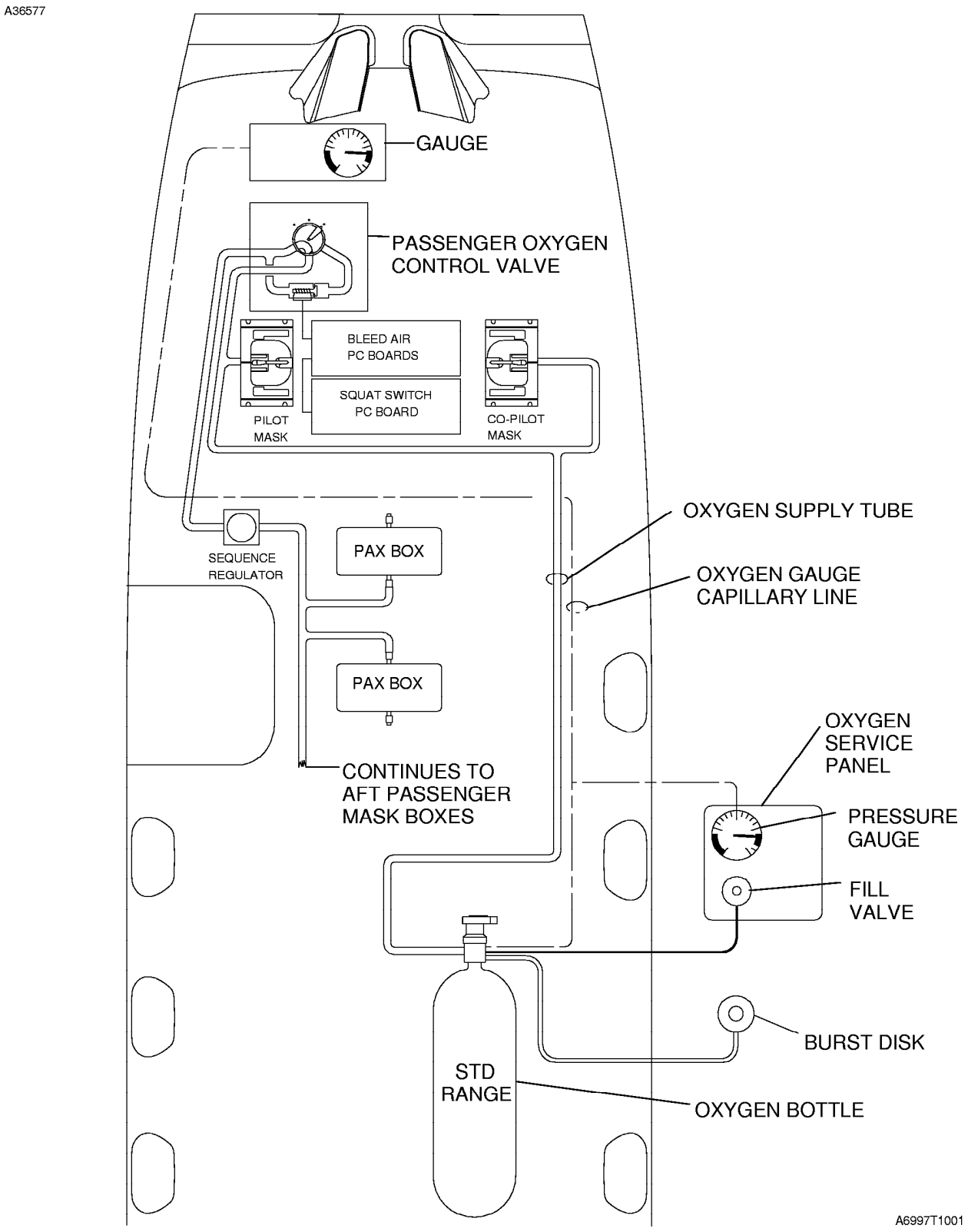

Figure 2-33 (Sheet 1 of 2)

EXTENDED RANGE OXYGEN SYSTEM SCHEMATIC

A36578

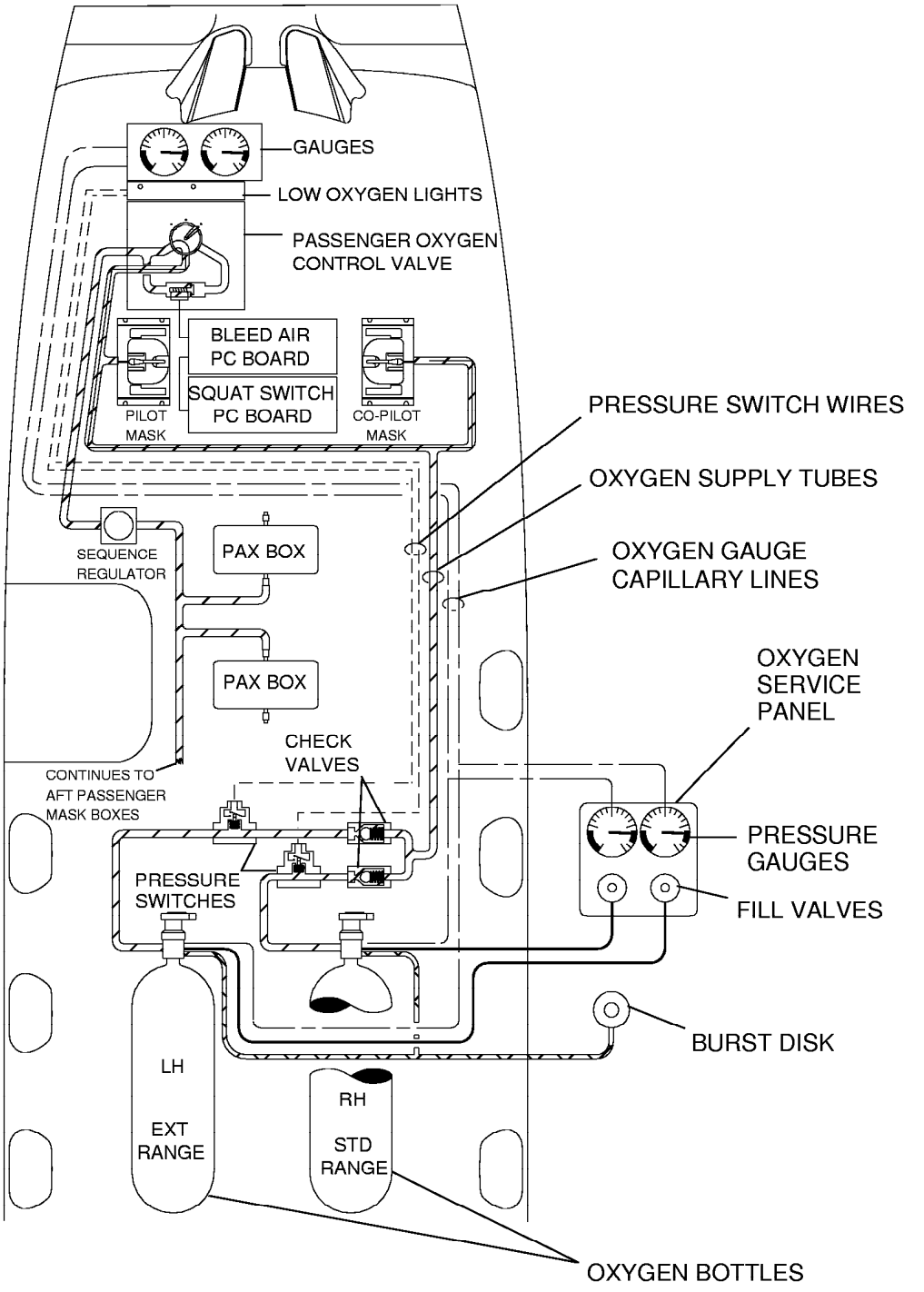

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Figure 2-33 (Sheet 2)