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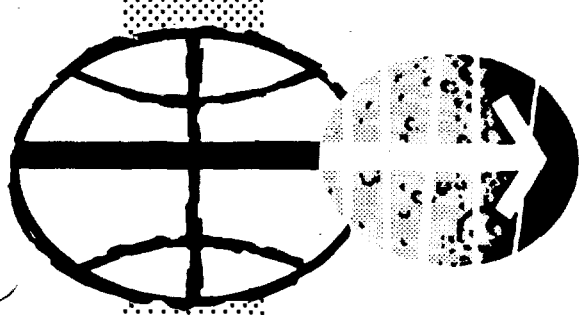


MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

In the primary and secondary modes, duplex voice communication is maintained between the two crewmen and the LM. The secondary mode, however, has no telemetry capability. Also, the secondary-mode transmitter is inoperative unless activated by the voice-operated switch or the manual switch. The transmitter is continually operative in the dual and primary modes.

The telemetry unit contains a warbling 1.5-kHz warning tone. Any one of four problems (high oxygen flow, low vent flow, low PGA pressure, or low feedwater pressure) will key the tone and alert the astronaut to check the remote control unit for a visual indication of the problem area to be investigated. The operation of the warning system is independent of mode selection.

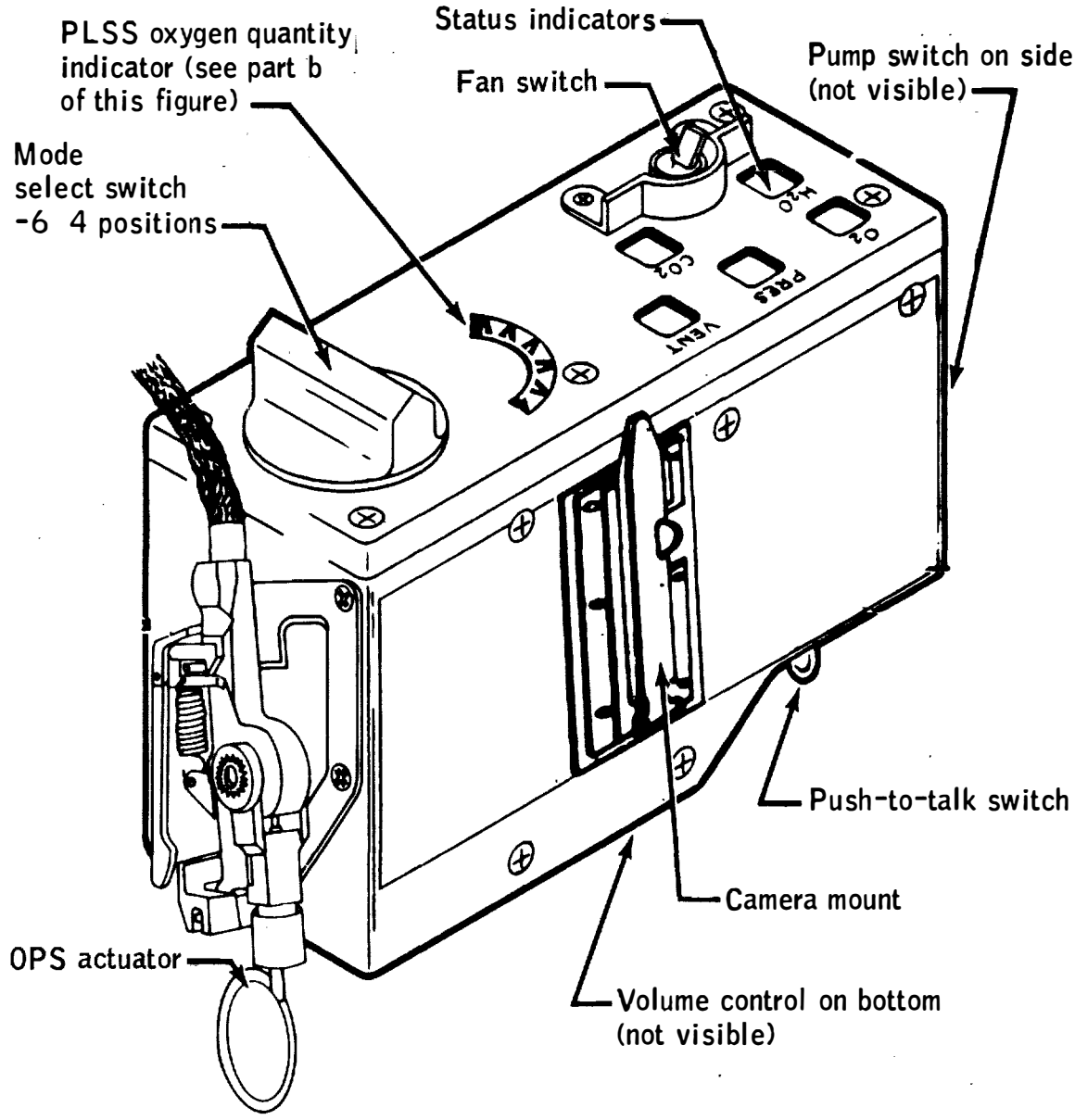
Each telemetry system can accommodate up to 26 commutator channels (table 2-XI) at 1-1/2 samples per second and one ECG channel and provides a data accuracy of 2 percent root mean square.

2.5.7 Remote Control Unit

The RCU (fig. 2-43) is a chest-mounted instrumentation and control unit which provides the crewman with easy access to certain PLSS/EVCS controls and displays. Controls include a fan switch, a pump switch, a communications mode-selector switch, a push-to-talk switch, and two communications volume control knobs. Displays include an oxygen quantity indicator and four active status indicators (warning flags). A fifth status indicator is provided, but is not presently used. The status indicators are illuminated by beta particle capsules requiring no electricity. Any one of four problems (high oxygen flow, low vent flow, low PGA pressure, or low feedwater pressure) will cause a cylinder to rotate and reveal the illuminated warning symbol underneath. Simultaneously, the warble tone in the EVCS is activated to alert the crewman

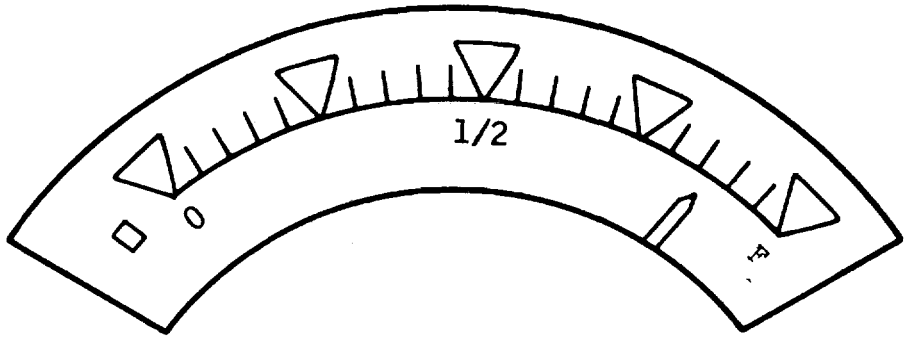
TABLE 2-XI.- PLSS/EVCS COMMUNICATIONS TELEMETRY CHARACTERISTICS

Measurement title	Instrumentation range	Discriminator output range, V dc	Commutator channels
Zero calibration	0 V dc	0	1
Full-scale calibration	5 V dc	5	2
PGA pressure	2.5 to 5.0 psid	0 to 5	3, 21, 24, 27
Feedwater pressure	0 to 5.0 psia	0 to 5	4, 15, 22, 26
Battery current	0 to 10 amps	0 to 5	5, 11
Battery voltage	15.5 to 20.5 V dc	0 to 5	6, 20
Water difference temperature	0° to 15° F	0 to 5	8, 19
LCG inlet temperature	40° to 90° F	3.13 to 1.86	9, 17
Sublimator gas outlet temperature	40° to 90° F	3.13 to 1.86	10, 16
Primary oxygen pressure	0 to 1110 psia	0 to 5	12, 13, 23, 28
Carbon dioxide partial pressure	0.1 to 30 mm Hg	0 to 5	7, 14, 18, 25
Synchronization	- -	(Double width pulse)	29, 30



(a) Pictorial view of main elements.

Figure 2-43.- Remote control unit.



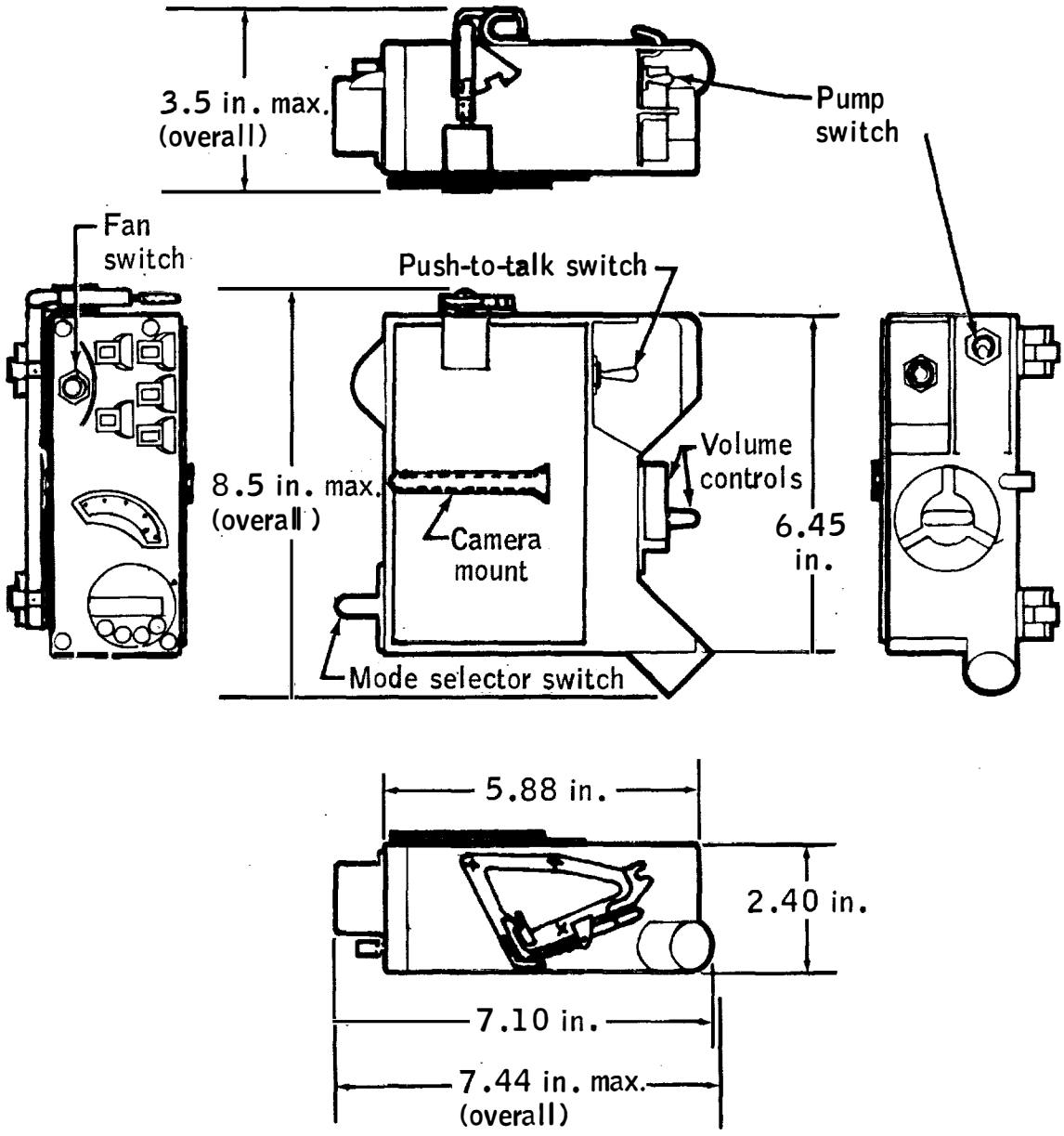
Each increment of indicator represents 68 psia.

Marking	Oxygen bottle pressure range, psia[a]
0	150 ± 68
1/4	490 ± 68
1/2	825 ± 68
3/4	1163 ± 68
F	1500 ± 68

[a]With RCU in a horizontal position and zero g.

(b) Oxygen quantity indicator markings and accuracies.

Figure 2-43.- Continued.



(c) Dimensions.

Figure 2-43.- Concluded.

to check his RCU and determine the problem area. Each warning symbol is a key to corrective action as follows.

Function	Indicator label	Symbol	Indicated action
High oxygen flow	O_2	O	Actuate OPS
Low PGA pressure	Pressure	O	Actuate OPS
Low vent flow	Vent	P	Purge
Low feedwater pressure	H_2O	A	Open auxiliary feedwater shut-off valve or use BSLSS as required

In addition to the above functions, the RCU provides a mounting point for the OPS actuator cable and the camera bracket.

2.6 OXYGEN PURGE SYSTEM

The OPS (fig. 2-44) supplies the EMU with oxygen purge flow and pressure control for certain failure modes of the PLSS or PGA during EVA. In the event of a PLSS failure, the OPS flow is regulated to 3.7 ± 0.3 psid for 30 minutes to provide breathing oxygen to the crewman, to prevent excessive carbon dioxide buildup, and to provide limited cooling. In this mode, the crewman sets his purge valve in the high-flow position (8.1 pounds per hour). In a second mode, the OPS may be used to provide make-up flow to the PLSS oxygen ventilating circuit via the PGA at flow rates of 0.07 to 2.0 pounds per hour. Finally, the OPS can be used in conjunction with the BSLSS (as described in section 2.7) to provide a 1.25-hour supply of purge flow for a crewman with a failed PLSS. For this mode, the crewman sets his purge valve in the low-flow position (4.0 lb of O_2 per hour).

In the lunar EVA configuration, the OPS is mounted on top of the PLSS (fig. 2-1). For normal EV activity from the command module, the OPS is worn in the helmet-mounted mode as shown in figure 2-45. During contingency EV transfer from the lunar module, however, the OPS is attached by straps to the lower front torso of the PGA (fig. 2-46).