

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PRESSURE TRANSDUCER FEEDWATER SUPPLY, ITEM 132A ----- SV767793-7 (1) ----- SV767793-8 (1)	2/2	132AFM01A Drifts high, fails full scale. Electrical open in the resistive coil between the wiper and ground. Mechanical shock causing a misalignment between the resistive element and the wiper. Failure in the linkage bearing surfaces causing high friction.	END ITEM: False indication of high gas reservoir pressure. GFE INTERFACE: Erroneous warning that the emergency water supply is on-line. Loss of expendables monitoring. MISSION: Terminate EVA when CWS issues reserve water use warning. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Seconds. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - -5 Conrac and -7 Gulton: The sensing element is made of an all welded, solution hardened Inconel diaphragmed to maximize strength and reduce any shift due to over stressing. All linkage/resistive element attaching screws are potted in place to prevent shifting. The assembly is vacuum outgassed and temperature cycled until stable. The wiper mechanism utilizes a ball pivot to keep friction to a minimum and the wiper/resistive element designs have been developed to minimize friction effects. The wiper/resistive element designs have been developed to assure operation will not cause excessive wear and an open circuit if wear is too great. B. Test - Component Acceptance Test - The sensor is subjected to random vibration (6.1 grms) to insure there are no workmanship or material problems that would cause the voltage to shift high. The sensor is subjected to calibration testing at high and low temperature (30 to 120 deg F) to insure there are no defects that thermal expansion/contraction would uncover. The sensor is calibration checked during acceptance testing to insure sensor is stable. Proof pressure tested to 150% of full scale pressure to insure stability at full scale pressure. PDA Test - The sensor is calibration checked at 0 psig and 16.5 psig as assembled on the PLSS to insure the output voltage is within spec limits. Certification Test - Certified for a useful life of 20 years (ref. EMUM1-0084). C. Inspection - Conrac: The sensor is visually inspected prior to case assembly to insure the unit has been assembled per print and that there are no workmanship problems which could cause the output voltage to shift high. The sensor is calibration checked at in the assembly process to insure the sensor output is within specified limits. Gulton: The sensor is visually inspected prior to case assembly to insure there are no workmanship problems which could cause the output voltage to shift high. The sensor is calibration checked at various steps in the assembly process to insure the sensor output is within specified limits. The sensor is pressure cycled for at least 350 cycles during assembly to insure the sensor is stabilized. The sensor is temperature cycled between -65 degrees F and +200 degrees F to insure it is stable. D. Failure History - None for this failure mode. Related Failure: Shield circuit resistance too high. The high resistance was a result of the use of a lubricant on the interfacing connector shell surface. This prevents proper grounding of the mating connector. EC-42807-129-2 adds a grounding ring, provided by Bendex Corp., to all units. There is no impact on certification.

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E. Ground Turnaround -
Tested for non-EET processing per FEMU-R-001, Transducer and DCM Gage Calibration Check. FEMU-R-001 Para 8.2 EMU Preflight KSC Checkout for EET processing.

F. Operational Use -
Crew Response -
EVA: When CWS data confirms activation of reserve water tank, trouble shoot problem. If failure can be determined to be sensor, continue EVA.
Training - Standard EMU training covers this failure mode.
Operational Considerations -
No constraints for single failure. Flight rules define go/no go criteria related to EMU suit thermal control. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-132 FEEDWATER SUPPLY PRESSURE SENSOR
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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