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CIL
EMU CRITICAL ITEMS LIST                                                        Page 1
                                   5/30/2002 SUPERSEDES 9/20/1990
                                                                               Date: 3/27/2002
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NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		138FM02A		
PRESSURE TRANSDUCER, FEEDWATER, ITEM 138 ----------------- SV767793-6 (1) PRESSURE TRANSDUCER, FEEDWATER, ITEM 138 ----------------- SV767793-8 (1)	2/2	Drifts low or reads zero. Pressure increase in the sensor reference cavity due to leakage through the case or sensing element. Failure of the potentiometer linkage due to increased friction. Mechanical shock loading of the linkage which causes a misalignment of the resistive element relative to the wiper. Failure of the resistive coil due to an open on the high voltage side of the coil.	END ITEM: False indication of low airlock pressure. GFE INTERFACE: The H2O GP and WP values would read higher than the actual pressure. False indication of low airlock pressure. MISSION: None. 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 - -2 and -6 Conrac and -8 Gulton: The wiper/coil assembly wiring are sealed in a protective metal case and are protected from the environment by a hermetic seal. Solder joints are encased in potting for additional relief. B. Test - Component Acceptance Test - The suit pressure is subjected to random vibration (-6.1 grms) testing to insure there are no workmanship or material problems that would cause shorting problems. The sensor is subjected to calibration testing to high and low temperatures (30 to 120 degrees F) to insure there are no workmanship problems that would cause a short circuit between the sensor circuit and the case. The sensor is calibration checked during acceptance testing to insure there are no short circuits which would affect the sensor's accuracy. PDA Test - The sensor is calibration checked as assembled on the shear plate to insure there are no short circuits which affect the sensor's accuracy. Certification Test - Certified for a useful life of 20 years (ref. EMUM1-0084). C. Inspection - Conrac: a. The sensor is visualy inspected prior to case assembly to insure there are no workmanship problems which could cause the output voltage to shift low. b. The sensor is calibration checked at various steps in the assembly process to insure the sensor output is within specified limits. Gulton: a. The sensor is visualy inspected prior to case assembly to insure there are no workmanship problems which could cause the output voltage to shift low. b. The sensor is calibration checked in the assembly process to insure the sensor output is within specified limits. C. 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 deg F and +200 deg F to insure it is stable. D. Failure History - H-EMU-138-A001 (12/15/89) - Voltage output of Item 138 Feedwater Pressure Sensor drifted low. Suspected cause, leakage of vacuum sealed reference chamber could not be confirmed. No Corrective Action taken. 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 - Pre EVA: No constraint, continue EVA prep. Use other EMU to monitor airlock pressure.

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Training -
Standard EMU training covers this failure mode.
Operational Considerations -
EVA checklist procedures verify hardware integrity and systems operational
status prior to EVA.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-138 FEEDWATER PRESSURE SENSOR

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: _____ 3/27/02   Approved by: _____
HS - Project Engineering   NASA - EMU/SSM

_____   _____
HS - Reliability   NASA - EMU/SSM

_____   _____
HS - Engineering Manager   NASA - S&MA

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                                                       NASA - MOD

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                                                       NASA - Crew

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                                                       NASA - Program Manager