NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CAUTION AND WARNING SYSTEM SWITCH, ITEM 368 --- 6V767792-2 (1)	2/2	368FM02: Electrical short to ground in the status display request position. CAUSE: Shorting due to contamination.	END ITEM: Unable to request EMU status displays. OFE INTERFACE: Loss of CWS, Tones, DCM Display capability. Shutdown of DC/DC converter when switch is placed in status position. MISSION: Loss of use of one EMU. CREW/VEHICLE: None for single failure. Possible crew loss with loss of SOP.	A. Design - The stationary contacts are part of the external terminal lugs. No interconnecting wiring to fail. Each switch position has dual contacts for redundancy. Switching mechanism and contacts are encased in a hermetically sealedcase backfilled with dry nitrogen. Contact is accomplished through a roller type contact. This minimizes switching forces. Operating force is 4 ± 2 lbs. The switch is designed to withstand a toggle force of 25 lbs. without degradation. The lead wires (M22759/12) are soldered to the external switch terminals per NHB5300.4 (3A-1). This area is then potted with stycast to provide strain relief for the leads. The wire bundle is designed to withstand a pull force of 8 lbs. without damage or degradation. B. Test - Component Acceptance Test - Vendor acceptance tests include 500 actuation cycles contact resistance, and dielectric withstanding voltage tests. In-Process Test - Switch operation and continuity are verified during in-process tests during DCM Item 350 assembly. PDA Test - Proper operation is verified during DCM PDA which includes continuity, functional, and operating torque tests. The switch is vibrated and exposed to thermal cycles during PDA as part of the DCM. Vendor acceptance tests include 500 actuation cycles, contact resistance, insulation resistance, and dielectric withstanding voltage tests. Certification Test - The item has completed 15 year structural vibration and shock certification requirement during 10/83. The item was cycle certified for 127,000 cycles during 8/85. No Class I engineering changes have been issued since this configuration was certified. C. Inspection - The external lead wires are inspected for damage as part of the source inspection for the part and again during assembly of the DCM. To preclude failure due to internal

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	2/2	368FM02:		contamination, the switches are assembled by the vendor in a Class 100,000 clean room. The switches flushed internally using chlorothane NU and Genesolve D to remove contaminants prior to case welding. After welding the switches are vacuum baked and back filled with GN2 to a pressure of 3-5 psig and sealed. Leak checks are performed during subsequent processing to verify seal integrity. Two X-ray inspections are performed, prior to run-in cycling and after vibration, to verify absence of weld splatter and loose pieces, and to verify contact alignment. D. Failure History - None. E. Ground Turnaround - Tested per FEMU-R-001, Transducer and DCN Gauge Calibration Check. F. Operational Use - Crew Response - PreEVA: When detected during periodic status check, troubleshoot using RIDS. If data invalid terminate EVA prep. EVA: When detected during periodic status check, troubleshoot using RIDS. If data invalid terminate EVA. Training - Standard EMU training covers this failure mode. Operational Considerations - EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Flight rules define go/no go criteria related to EMU CWS. Real Time Data System allows ground monitoring of EMU systems.