NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
POWER MODE SELECTOR SWITCH, ITEM 364 SV778596-6 (1)	2/2	364FM06: Electrical open at power switch SCU position terminal (T1). CAUSE: Cold solder joint, severed lead wire, contamination on contact, broken contact.	END ITEM: Connection between SCU power and EVC lost. Loss of SCU power connection to CLIV and Feedwater Valve. OFE INTERFACE: Cannot power EVC when on vehicle power. Loss of radio contact in vehicle mode. Cannot change CLIV or Feedwater Valve position. MISSION: Terminate EVA. EVA would be shortened by the amount of battery power consumed during IV on battery power. CREW/VEHICLE: None.	A. Design - Each of the three switches is sealed in a dry nitrogen filled hermetically sealed case. The switches are per MIL-S-8805/46 with the 10 amp contacts silver plated. Switch contacts rated for 10 ampere. Actual current flow is 3.0 ampere. The switch is designed to withstand a toggle force of 25 lbs. without degradation in subsequent performance. Microswitch actuator overtravel is adjusted to .007 inch minimum to ensure the common contact arm rotates completely over to the normally open contact. B. Test - Component Acceptance Test - Switch operation and continuity are verified during vendor acceptance tests. The switch is also subjected to 500 run-in cycles and an axial pull test on the handle to verify that it will not come loose during normal use. In-Process Test - Operation and integrity of the switch are verified during four separate in-process test during initial item 350 assembly. These tests include continuity and output voltage. The switch is cycled during these tests. PDA Test - The switch is subjected to Acceptance/PDA testing as part of item 350. Tests include continuity, operating torque, vibration, thermal cycling, and thermal vacuum. The switch is also cycled during Item Acceptance/PDA electrical functional tests. Certification Test - The item completed 5,464 inductive and 8,536 resistive cycles during 1/81 which satisfied the cycle certification requirement of 5,464 and 8,536 respectively. Class 1 Engineering Change 42806-386 (Toggle Handle Pull Test) has been incorporated since this configuration was certified. C. Inspection - To preclude failure due to internal contamination, the switches are assembled by the vendor in an environmentally

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	2/2	364FM06:		controlled room. Assembly and processing is per MIL-S-8805/46. The switches receive in-process cycling and leak checks. The entire Item 364 is x-ray inspected for acceptability of brazing. The solder terminals on the switch are visually checked as part of source inspection for the part. The terminals are also inspected after lead wires are soldered on during DCM assembly. Solder joints are inspected per MHB 5300.4 (3A-1). D. Failure History - J-EMU-300-006 (10-18-83) The BITE light failed to turn on upon power switchover during PIA tests. The outage was found to be caused by a mechanical failure of the Power Mode Switch (364) which prevented proper power switchover. EC 42806-386 added a pull test to the 364 vendor test to insure the switch toggle arm would not come loose during normal use. This EC created the -2 switch configuration. Certification on 1/84 per SEMU-540. B-EMU-308-A008 (11/15/93) - Intermittent operation of the power mode switch due to incomplete deployment of the actuator lever when the switch is in the SCU position caused by inadequate actuator lever overtravel. Overtravel is defined as the amount of travel of the actuator lever after the switch contacts transfer from the normally closed contact to the normally open contact. Per EC 163402-817, the switch actuator lever overtravel dimension has been lengthened to ensure proper deployment. E. Ground Turnaround - Switches are tested during FEMU-R-001, EMU Vacuum Chamber Run, EMU Checkout in Orbiter, Orbiter Power Interface, and SEMU Comm & Biomed Check. F. Operational Use - Crew Response - PreEVA: Trouble shoot problem, if no success, consider third EMU if available. Otherwise, EMU go for EVA prep on battery power. Consider use of spare battery for in-suit battery swap prior to EVA. PostEVA: Remain on battery power until EMU doffed.

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	2/2	364FM06:		Training - Standard training covers this failure mode. Operational Considerations - EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Flight rules require that EVA be terminated if two way communication between each EV crewmember and orbiter, either direct or through relay, is unavailable.