NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
POWER MODE SELECTOR SWITCH, ITEM 364 --- SV778596-4 (1)	2/2	364FM02: Stationary in battery position. CAUSE: Switch mechanism jammed due to contamination, cold welding in vacuum, toggle pivot worn.	END ITEM: Unable to switch to SCU switch position. GFE INTERFACE: Unable to operate on vehicle power supply during IVA to conserve battery power. MISSION: Loss of use of one EMU. 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-A-8805/46 except that the 10 amps contacts are silver plated. Switch contact rated for 10 ampere. Actual current flow is 3.8 ampere. The handle is designed to withstand a toggle force of 25 lbs. without degradation in subsequent performance. The ball socket of the toggle pivot is greased (Braycoat 601) prior to assembly. B. Test - Component Acceptance - 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 - Operation and integrity of the switch are verified during four separate in-process tests 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 cycleing, and thermal vacuum. The switch is also cycled during Item 350 Acceptance/PDA electrical functional tests. Certification Test - The item completed 5,469 inductive and 8,536 resistive cycles during 1/81 which fulfilled the cycle certification requirement of 5,464 and 8,536 respectively. Class I EC 42886-386 (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 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

NAME P/N QTY	CRIT	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	2/2	364FM02:		acceptability of brazing.

D. Failure History -
J-EMU-309-086 (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 Power Mode Switch (364) which prevented proper power switchover. EC 42806-386 added a pull test to the 364 vendor test to insure the normal use. This EC created the -2 switch configuration.

E. Ground Turnaround -
Tested during FEMU-A-001, EMU Vacuum Chamber Run, Orbiter Power Interface, and SEMU Communications and Biomed Check.

F. Operational Use -
Crew Response - PreEVA: Trouble shoot problem, If no success, consider third EMU if available. Otherwise go for EVA prep on battery power. Consider use of spare battery for in-suit battery swap prior to EVA.
PostEVA: Use other EMU to recharge batteries. Training - Standard 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 battery power.