NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		365FM08		
PUSH-TO-TALK SWITCH, ITEM 365 ---------- SV767794-2 (1)	2/2	Electrical short to ground in the MUTE line. Contamination inside the switch case, wire chafing.	END ITEM: Short between switch MUTE line and ground. GFE INTERFACE: Loss of all audio radio transmitting capability in EVA. Loss of all receiving capability in IVA. MISSION: Terminate EVA with loss of communication. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Minutes. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	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 enclosed in a hermetically sealed case backfilled with dry nitrogen. Contact is accomplished through a roller type contact. This keeps switching forces to a minimum. B. Test - Component Acceptance Test - Vendor acceptance includes 500 actuation cycles, contact resistance, insulation resistance, and dielectric withstanding voltage tests. In-Process Test - Switch operation and continuity are verified during four separate in-process tests during DCM assembly. PDA Test - Switch operating force is checked during DCM PDA. Switch function is checked during DCM PDA electrical tests. Switch is vibrated and exposed to thermal cycles as part of the DCM during PDA. Certification Test - Certified for a useful life of 15 years. C. Inspection - To preclude failure due to internal contamination, the switches are assembled by the vendor in a class 100,000 clean room. The switches are flushed internally using chlorothane BG and Genesolve D to remove contaminants prior to case welding. After welding the switches are vacuum baked and backfilled with GN2 at a pressure of 3-5 psig and sealed. Leak checks 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 for non-EET processing per FEMU-R-001, SEMU Communications Check. FEMU-R-001 Para 8.2 EMU Preflight KSC Checkout for EET processing. F. Operational Use - Crew Response - PreEVA: Troubleshoot problem, if no success, consider third EMU if available. Otherwise, EMU no go for EVA. EVA: Terminate EVA. Training - Standard training covers this failure mode. Operational Considerations - Flight rule A15.1.2-2 of "Space Shuttle Operational Flight Rules", NSTS-12820, requires that EVA be terminated if two-way communication between each EV crewmember and orbiter, either direct or through relay, is unavailable. Generic EVA Checklist, JSC-48023, procedures Section 3 (EMU Checkout) and 4 (EVA prep) verify hardware integrity and systems operational status prior to EVA. Real

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		365FM08		Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-365 PUSH-TO-TALK SWITCH

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: 3/27/02
HS - Project Engineering

Approved by: 6/26/02
NASA – EA/SSM
255

M. Snyder
HS - Reliability

NASA – EMU/SSM

for
HS - Engineering Manager

6/26/02
NASA - S & MA

6/27/02
NASA - MOD

7/1/02
NASA - Crew

7-1-02
NASA - Program Manager