

CIL
 CRITICAL ITEM LIST
 FILE: CIL-50P/Z

NAME P/N QTY	ENT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL HARNESSES ASSEMBLY ITEM 428 SV771748-3 181	2/2	428PND8: ELECTRICAL OPEN, SHORT POWER SOURCE LINE. CAUSE: CABLE CHAFING AGAINST CONNECTOR SHIELD OR SHIELD. IMPROPER CONNECTOR SIZES RELIEF. FAULTY CONNECTION BETWEEN THE CONNECTOR AND THE LEAD WIRE.	END ITEM: VEHICLE VOLTAGE REGULATION TO THE (E) WILL BE LIMITED TO 2) VDC MAXIMUM, WHEN SHUT DOWN. O/E INTERFACE: VOLTAGE LIMITED WILL OPEN VEHICLE POWER CIRCUITS. END WILL NOT OPERATE FROM VEHICLE POWER DURING EVA. MISSION: LOSS OF USE OF END ITEM. Crew/VEHICLE: NONE.	A. DESIGN - THE CABLE/CONNECTOR INTERFACES ON EITHER END OF THE ELECTRICAL HARNESSES ARE DESIGNED TO PREVENT EXCESSIVE CONDUCTION LOADS AND POSSIBLE OPEN CIRCUITS DUE TO FATIGUE. THE MULTIPLE CONNECTOR END IS POTTED WITH RTV AND IS CAPTURED WITHIN A METAL HOLDING FOR STRENGTH. THE VEHICLE CONNECTOR UTILIZES A METAL STRAIN RELIEF TYPE BACKSHELL. THE WIRE IS DESIGNED TO PROVIDE THE REQUIRED ELECTRICAL AND MECHANICAL PROPERTIES TO PREVENT CHAFING. CONDUCTORS ARE TIED TOGETHER AT 2-2 INCH INTERVALS AND SHEATHED IN A CLOTH OUTER LAYER TO HOLD CABLES TOGETHER SO THEY SHARE ANY LOADING AND TO PREVENT IMPACT OR ABRASION OF CONDUCTORS, CHAFING PER SVSH1909 (BASED ON MIL-C-SPEC-Q-341). B. TEST - CERTIFICATION TEST - THE ITEM COMPLETED THE 25 YEAR STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENT NUMBER 18/88, ENGINEERING CHANGE 42884-124 (DEFINITION OF MECHANICALLY LOCKED BACKSHELL) HAS BEEN INCORPORATED AND DEEMED TO HAVE NO IMPACT ON CERTIFICATION SINCE THIS CONFIGURATION HAS CERTIFIED. COMMENT ACCEPTANCE TEST - AN ELECTRICAL CONTINUITY TEST IS PERFORMED PER CP.78 OF SV771743-3 OPERATION SHEETS. THE ELECTRICAL RESISTANCE OF EACH CURRENT CARRYING CONNECTION IN THE ELECTRICAL HARNESSES MUST NOT EXCEED 0.2 OHM. PMA TEST - AN ELECTRICAL CONTINUITY TEST IS PERFORMED PER SEMJ-68-008, TEST 22.0.

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EMU CRITICAL ITEMS LIST

Page: 2
Date: 12/07/95

12/24/95 SUPERSEDES 12/24/91

ANALYST:

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	2/2	425FMD61		<p>K-EMU-425--002 (03/29/94) - The SCU vehicle electrical connector is a two part assembly which is screwed and locked together. The two parts were unlocked and free to rotate due to excessive force which sheared off the three locking teeth. No corrective action taken.</p> <p>E. Ground Turnaround - Tested per FEMU-R-001, V1103-02 Orbiter power interface and charging system functional test.</p> <p>F. Operational Use - Crew Response - Pre/PostEVA: Troubleshoot problem. If no success, discontinue use of SCU power function. Operate EMU on battery power. Consider in-suit battery swap using spare battery(s). Training - Standard EMU training covers this failure mode. Operational Considerations - At least one spare EMU battery is manifested for each flight. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA.</p>