CIL
EMU CRITICAL ITEMS LIST

12/24/91 SUPERSEDES 01/02/90 ANALYST: Date: 12/02/91

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL SIGNALS HARNESS ITEM 152 --- SV789152-2 (1)	3/2RR	152FM10: Electrical open or short BITE ouput line. CAUSE: Cable chafing against connector shell or shield, improper connector strain relief, faulty connection between the connector and the lead wires.	END ITEM: Short from BITE out line to ground or open line. GFE INTERFACE: No visual BITE indicator of a CWS failure. Warning tone is unaffected. MISSION: None for single failure. Terminate EVA if subsequent CWS failure occurs, issuing a warning tone unaccompanied by a failure message. CREW/VEHICLE: None for single failure, or subsequent CWS internal mal-function.	A. Design - The following design considerations have been incorporated to prevent an open or short in the BITE Out Line: The applicable cable/connector interfaces are strain relieved by a molded rubber strain relief boot to reduce the chance of wire fatigue during use. The conductors are bundled within a woven copper stranded sheath which causes them to act together and share any loading placed on it. A woven Nomex sheath is assembled over the shielded cables to provide protection from abrasion and impact. The conductors are hard potted within the adapter ring to prevent their chafing against the metal adapter ring. Each connector/adapter ring interface is locked in place to prevent rotation by a mechanical lock and an adhesive lock. Wire crimping is per SVHS4000 (based on NSFC-Spec-Q-1A). B. Test - Component Acceptance Test - The 152 harness is subjected to acceptance testing prior to final acceptance. This testing includes the following tests which ensure there are no workmanship problems which would cause an open or short circuit in the BITE out line. Continuity testing of each conductor to ensure there are no open circuits. Each connector/cable interface is pull tested [10 pounds] to detect any workmanship problems which would cause a open circuit. An insulation resistance test between all conductors and shield ground is conducted during the test to ensure there are no short circuits during this test. The harness is subjected to Insulation Resistance testing and Dielectric testing to ensure there are no short circuits between the conductors and shield circuit. PBA Test - The BITE out line is not checked during PLSS PBA testing, but is checked at the short EMU testing level. Certification Test - This item has completed the structural vibration and shock certification requirements during 10/83. Engineering change

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	3/2RR	152FM10:		42806-527-2 (added connector pull test) has been incorporated and certified since this configuration was certified.

C. Inspection -
To insure there are no workmanship problems which would cause an open or short circuit in the harness conductors, the following inspections are performed:
a. Contact crimp samples are made prior to start of crimping and at the conclusion of crimping and pull tested to ensure the crimp tooling is operating properly and there will not be any high resistance problems at the contacts.

b. Harness cables and conductors are visually inspected prior to assembly to insure there are no defects which would cause a open or short due to workmanship.

c. Connector wiring is inspected before and after potting to ensure there is no conductor damage and that the conductors are strain relieved properly to prevent conductor breakage.

d. Conductor continuity and resistance/dielectric strength between conductors and shield ground are measured before and after potting to ensure no failures.

D. Failure History -
None for this failure mode.

E. Ground Turnaround -
Tested per FEMU-R-001, bite tight.

F. Operational Use -
Crew Response -
PreEVA: When detected during EMU power cycling, trouble shoot, if no success, consider third EMU if available. Otherwise, EMU go for EVA. Rely on comm.
EVA: No response, single failure undetectable by crew or ground.
PostEVA: Terminate EVA when tone sounds.
Training - Standard EMU training covers this failure mode.
Operational Considerations - Reference Loss/Failure Flight

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	3/2BB	152/HID:		rules; define EMU as go if crew and ground determine sufficient CWS data available. EVA checklist and FDF procedures verify hardware integrity and systems operational status prior to EVA. Real time Data System allows ground monitoring of EMU systems.