NAME P/# QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL SIGNALS HARNESS, ITEM 152 --- SV789152-2 (1)	3/2RR	152MIB: Electrical open or short, right or left microphone power lines. CAUSE: Cable chafing against connector shell or shield. Improper connector strain relief. Faulty connection between the connector and the lead wires.	END ITEM: Electrical open or short in right or left microphone lines. ORB INTERFACE: Loss of one of two microphone lines. MISSION: None for single failure. Terminate EVA with loss of other line. CREW/VEHICLE: None.	A. Design - Each connector/cable interface is strain relieved by potting the conductors in place. A rubber backshell is then molded over the connector/cable interface. Each connector/adapter ring interface is locked in place to prevent rotation by a mechanical lock and an adhesive lock. #24 AWG Teflon coated wire provides electrical mechanical properties to prevent wire breaking. The conductors are bundled within a woven copper sheath over braided with a Nomex outer sheath. These cause the cables to act together and share any loading and resist any damage from abrasion and impact. Wire crimping per SVHS6909 (based on NSFC-Spec-H-1A). B. Test - Component Acceptance Test - The 152 harness is subjected to acceptance testing prior to final acceptance testing. This testing includes the following tests which ensures there are no workmanship problems which would cause an electrical short to ground or an open circuit in the microphone signal HI/LO lines. The insulation resistance and dielectric strength between each conductor and the shield ground is measured to ensure there are no shorts. Each connector/cable interface is pull tested (10 pounds) to detect any workmanship problems which could cause a short circuit. Continuity testing of each conductor is performed after pull testing to ensure there were no open circuits. PDA Test - The microphone signal HI/LO lines are functionally checked during PLSS PDA testing per SEMU-60-010, to ensure there are no shorts to shield ground or opens which affect the performance of the PLSS. Certification Test - This item has completed the structural vibration and shock certification requirements during 10/83. Engineering change 42R06-527-2 (added a connector pull test) has been incorporated and certified since this configuration was certified.

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	3/2RB	152IN1B;		

E. Inspection -
To insure there are no workmanship problems which would cause a short or open circuit in the harness conductors, the following inspections are performed.
Harness cables and conductors are visually inspected prior to assembly to insure there are no defects which would cause a short to ground or an open circuit due to defects in the cable insulation.
Connector wiring is inspected before and after potting to insure there is no conductor damage and that the conductors are properly strain relieved and properly dressed to prevent shorting to the adapter ring or an open circuit.
Insulation resistance and dielectric strength are measured between each conductor and shield ground to insure there are no shorts prior to and after potting of the connectors.
Contact crimp samples are made prior to the start of contact crimping and at the conclusion of crimping and subjected to a pull test to insure the crimping tools are operating properly. This insures there will not be any high resistance problems at the connector.

D. Failure History -
J-EMU-152-002 (4-11-85) During a pre-flight communications check, it was not possible to transmit through the right microphone on the CCA. The power failure was caused by a short circuit between the right microphone power line and the cable grounding shield. The insulation on the power line has been damaged prior to the cable assembly. EC 42806-527-2 was issued to create the SK780152-2 harness configuration by adding a connector pull test to the acceptance testing requirements.
Related Failures J-EMU-152-0001 (8-17-88) An open circuit in the hard-line comm. line was found during functional testing. The failure was determined to be caused by the pulling and twisting of the harness during normal installation on the PLSS.

this handling caused the wire to break. EC 42805-285 revised cable lengths and improved cable flexibility.
H-EMU-152-A001 (7-9-86)
During PLSS Acceptance testing, all sensor outputs read full scale. A short circuit in the harness was found between Vref and ground. The short was due to improper assembly and testing by the vendor. The vendor's assembly and test

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	3/2RR	152/R16:		procedures were revised.

E. Ground Turnaround -
Tested per FEMU-R-001, SEMU Communications and Biomed Check.

F. Operational Use -
Crew Response -
Pre-EVA/EVA: No response, single failure undetectable by crew or ground.
Training - Standard EMU training covers this failure mode.
Operational Considerations - Reference Loss/Failure flight rules; define EMU as go with two-way RF communications. EVA checklist and EMP procedures verify hardware integrity and systems operational status prior to EVA.