

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL POWER HARNES, ITEM 151 SV709151-4 (1)	2/W	<p>SYMPTOM: Electrical open in fan switch line.</p> <p>CAUSE: Cable chafing against connector shell or shield. Improper connector strain relief. Faulty connection between connector and lead wires.</p>	<p>END ITEM: Loss of continuity to Fan (1231) electronics.</p> <p>SFE INTERFACE: Loss of power to fan. Loss of vent flow.</p> <p>MISSION: Terminate EVA.</p> <p>CREW/VEHICLE: None for single failures. Possible crew loss with loss of SOP.</p>	<p>A. Design - Each connector/cable interface is strain relieved by potting the conductors in place where they enter the connector. A rubber backshell is then molded over the connector/cable interface. Each connector/adaptor ring interface is locked in place to prevent rotation by a mechanical lock and an adhesive lock. Wire is #22 AWG with teflon coating to provide the required insulation resistance.</p> <p>B. Test - Component Acceptance: The 151 harness is subjected to acceptance testing per ST-EMU-151 prior to final acceptance. This testing includes the following tests which insure there are no workmanship problems which would cause an open circuit in the Fan Switch line.  Continuity Testing of each conductor after completion of harness pull testing to insure there are no open circuits. The pull test (9 pounds) is designed to prestress each connector/cable interface to detect problems which would cause open circuits.  POA: The Fan Switch line is checked during PLSS PMA testing per SEMU-40-010, Test 46.0, to insure there are no open circuits which would affect PLSS functions.  Certification: This item has completed the structural vibration and shock certification requirements during 10/83. Engineering Change 42886-527-2 (added connector pull test) has been incorporated and certified since this configuration was certified.</p> <p>C. Inspection - To insure there are no workmanship problems which would cause an open circuit in the harness conductors, the following inspections are performed:  Contact crimp samples are made prior to start of contact crimping and at the conclusion of crimping and subjected to</p>

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pull testing to insure the crimping tools are operating properly. This insures there will not be any high resistance problems at the contacts.

Harness cables and conductors are visually inspected prior to assembly to insure there are no defects which would cause an open circuit due to breakage.

Connector wiring is inspected before and after potting to insure there are no damaged conductors and that the conductors are properly strain relieved to prevent premature conductor breakage.

D. Failure History -  
N-EMU-151-0001 (7-8-83)  
N-EMU-151-0002 (12-14-83)  
For both RDR's listed above, the harness failed continuity tests during Acceptance Testing (Lane Control and Motor Jack signal lines, respectively). Both were intermittent open circuits and both were found to be due to improper assembly by the harness vendor. The wires had not been properly strain relieved prior to the molding of the rubber backshell for the connector.

Corrective Action:  
Class I EC 42886-527-2 created the 5V769151-3 harness configuration by adding a connector pull test requirement to the acceptance test required.

J-EMU-151-001 (12-11-82) Old Configuration - During visual examination, it was found that the P9 connector was loose as attached to the PLSS and would not allow mating to the Battery. This was due to a missing snap ring which is supposed to lock the connector in place of the PLSS structure. The newer harness configuration (5V769151) replaced the snap ring with a solid surface that extends from the adapter ring.

E. Ground Turnaround -  
Tested per FEMU-B-001, Water Servicing, Leakage and Gas Removal.

F. Operational Use -  
Crew Response -

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	Z/NR	151FN18:		<p>PreEVA/PostEVA: Trouble shoot problem. Consider third EMU if available. If no success, EMU go for prep without fan and SCU standby.</p> <p>EVA: When loss of fan occurs, open helmet purge valve and deactivate EMU power. Terminate EVA.</p> <p>Training - Standard training covers this failure mode.</p> <p>Operational Considerations - EVA checklist procedures verify hardware integrity and system operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems. Flight rules define go/no go criteria related to EMU ventilation flow.</p>