NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		153FM03		
CAUTION AND WARNING HARNESS, ITEM 153 ---------- SV789153-6 (1)	2/1RB	Electrical short, 5.6 VDC power supply line to 174 RTDS (5.6 VDC supply between RTDS and DCM). Cable chafing against connector shell or shield. Improper connector strain relief.	END ITEM: Electrical short in 5.6 VDC power supply line to 174 RTDS. GFE INTERFACE: Increase in battery power consumption. The current is limited to 1.8 +/- 0.25 amps. Shutdown of the DC/DC converter. Loss of CWS, tones and DCM display. MISSION: None for single failure. Terminate EVA due to loss of DCM display, CWS and ability to monitor operational integrity of EMU. Loss of use of one EMU. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of CCC, oxygen or low vent flow. TIME TO EFFECT /ACTIONS: Minutes. TIME AVAILABLE:	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/adapter ring interface is locked in place to prevent rotation by a mechanical lock and an adhesive lock. Wire is #24 AWG, teflon coated to provide the required insulation resistance. B. Test - Component Acceptance Test - The 153 per AT-EMU-153 harness is subjected to acceptance testing prior to final acceptance testing. This testing includes the following tests which insures there are no workmanship problems which would cause an electrical short in the 5.6 VDC power supply line to the RTDS. 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 (3 to 10 pounds, depending on connector size) to detect any workmanship problems which could cause a short circuit. PDA Test - The 5.6V power supply line is functionally checked during PLSS PDA testing per SEMU-60-010, test 8.0, to ensure there are no shorts to shield ground which affect the performance of the PLSS. Certification Test - Certified for a useful life of 20 years (ref. EMUM1-0099). C. Inspection - To ensure there are no workmanship problems which would cause a short circuit in the harness conductors, the following inspections are performed: Harness cables and conductors are visually inspected prior to assembly to ensure there are no defects which could cause a short to ground. 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 shorting to the adaptor ring. Insulation resistance and dielectric strength are measured between each conductor and shield ground to ensure there are no shorts prior to and after potting of the connectors. D. Failure History - None. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Real Time Data System (RTDS). FEMU-R-001 Para 8.2 EMU Preflight KSC Checkout for EET processing.

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		153FM03		
			Minutes.	F. Operational Use -
				Crew Response -
			TIME REQUIRED:	PreEVA: Trouble shoot, if no success, consider third EMU if available. Otherwise
			Minutes.	EMU is no-go for EVA.
				EVA: No response, single failure not directly detectable by crew or ground. If
			REDUNDANCY	detected indirectly (i.e., through CWS status inquiries or RTDS) defective EMU
			SCREENS:	terminates EVA to standby on SCU.
			A-PASS	Training -
			B-FAIL	Standard EMU training covers this failure mode.
			C-PASS	Operational Considerations -
				Reference Loss/Failure flight rules: define go/no-go criteria related to CWS.
				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.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-153 CAUTION AND WARNING HARNESS

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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

Approved by: _____
NASA – ~~SSA~~/SSM
SS

_____
HS - Reliability

_____
NASA – EMU/SSM

_____ for
HS - Engineering Manager

_____
NASA - S & MA

_____
NASA - MOD

_____
NASA - Crew

_____
NASA - Program Manager