NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		103FM25Z		
LOWER ARM ASSEMBLY CABLE, 12 VOLT (1) LEFT (1) RIGHT ---------- 0103-212419 (2)	2/2	Loss of heating ability. Open wiring, damaged LEMO connector.	END ITEM: Loss of electrical power to thermofoil heater. GFE INTERFACE: Loss of active heating in glove fingertip area. MISSION: Terminate EVA. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Minutes. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - The cable is constructed of 3 insulated high strength copper alloy wires, which are then bound in Teflon tape. Attachment to the TMG is achieved by whipstitching the cables, preventing relative motion between the cable and the TMG. The connectors are LEMO series K connectors which are environmental connectors with triple wall construction to provide water and dust resistance. The LEMO connectors utilize a "QuickLok" feature that assures connection when the lock is engaged. The locking mechanism is protected By a rugged outer shell, eliminating accidental disconnections and damage to the locking mechanism, cable, or contacts. The connectors have a contact arrangement of five pins and are mechanically keyed with an alignment key on the shell which prevents errors in alignment. The contact terminations are crimps, performed per NHB 5300.4 3(H). A crafted metal collet type strain relief is provided to secure the cable around its circumference preventing accidental damage to the connection if the cable is stressed. In addition, a shrink tubing strain relief is placed over the end of the LEMO connector at the junction of the cable to the connector to provide additional strain relief. The connectors meet the electrical requirements for both voltage and current derating per MIL-STD-975. B. Test - Acceptance: See Inspection. PDA: The connectors undergo 100% visual inspection when received from the vendor. Crimp joints are visually inspected by Government Quality Assurance Inspectors when fabricated. In addition, the cable assemblies are visually inspected and electrical continuity, insulation verification and electrical bond testing are performed during PDA. Certification: The system was successfully tested (manned) during certification testing to duplicate operational usage (Ref. Certification Test Report for the Lower Arm Assembly Cable, ILC Doc. 0111-712742). The following usage reflecting requirements of significance to the glove assembly was documented during certification testing. Requirements: S/AD Actual Wrist Rotations 40224 80,800 Wrist Flexion/Extension 25292 50,800 Wrist Adduction/Abduction 34208 68,800 Elbow Flexion/Extension 49660 99,600 Don/Doffs 98 218 Connector engagements 300 628 Electrical verification tests conducted at each of seven Interim Test Points determined that the cable was functional throughout certification testing. C. Inspection -

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		103FM25Z		The connectors undergo 100% visual inspection when received from vendor. In addition, the cable assemblies are visually inspected and electrical continuity, insulation verification and electrical bond testing are performed during PDA. D. Failure History - B-EMU-103-A051 (2/3/01) - During pre-flight processing for STS-98, backshell on P6 connector found to be loose. No threadlock residue found. Work instructions revised to include inspection to ensure threadlock applied. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Enhanced Arm Assembly, Pre-Flight Test Requirements. None for EET processing. F. Operational Use - 1. Crew Response - Pre-EVA/Post EVA: Troubleshoot problem. If no success, consider use of third EMU if available. Otherwise, terminate EVA prep. EVA: If loss of fingertip heating occurs, turn off power from battery, terminate EVA. 2. Special Training - None. 3. Operational Considerations - Not Applicable.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-103 ARM ASSEMBLY

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: _____
HS - Project Engineering

Approved by: _____
NASA - SSA/SSM

_____
HS - Reliability

_____
NASA - EMU/SSM

_____ 4/24/02
HS - Engineering Manager

_____ 6/26/02
NASA - S & MA

_____ 4/27/02
NASA - MOD

_____ 7/1/02
NASA - Crew

_____ 7-1-02
NASA - Program Manager