NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		106FM18O		
PHASE VI TMG, ITEM 106 (1) LEFT (1) RIGHT ---------- 0106-812144-03/04 (12V) (2)	2/2	Heater short. Short in wiring or connector, degraded insulation or contamination.	END ITEM: Loss of electrical power to thermofoil heaters. 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-PASS B-N/A C-PASS	A. Design - The cable is constructed of 3 insulated high strength 24 gauge copper alloy wires P/N's M27500-24TN3S06 & M22759/11-24-9 (Single wire #24, stranded white) & M22759/11-24-96 (Single wire #24, stranded, white w/blue). Attachment to the TMG is achieved by whipstitching the cables, limiting relative motion between the cable and the TMG to resist abrasion or to the extent possible. The effective heater diameter is 0.5 inches. The heater element assembly is a wafer configuration with the heater element grid sandwiched between Kapton film. The wafer is held together with acrylic adhesive. 30 AWG high strength copper alloy wire (complies with MIL-W-22759) is tack welded to the element grid. The connectors are LEMO series K connectors which are environmental connectors with tripel wall construction to provide water and dust resistance. The LEMO connectors utilize a "Quick Lock" feature that assures connection when the lock is engaged. The locking mechanism is protected by a rugged outer shell, eliminating accidental disconnections and dmaage 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 and solder 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 12V Phase VI Glove TMG (ILC Doc. 0111-712701). The following usage reflecting requirements of significance to the TMG was documented during certification testing. The S/AD applies 229 hours in certification while the actual indicates 157 hours toward the Phase VI, 12-volt TMG in the Hamilton Sundstrand Limited Life Items List (EMU1-19-001). Requirements / S/AD / Actual Finger Flexion/Extension 45142 31096

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		106FM18O		

Wrist Flexion/Extension	12646	9568
Wrist Adduction/Abduction	17104	11960
Wrist Rotation	20112	14144
Electrical Connector	150	174
ORU TMG Installation/Removal	49	38

Electrical verification tests conducted at each of seven Interim Test Points determined that the cable was functional throughout certification testing.

C. Inspection -
The connectors undergo 100% visual inspection when received from the 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 -
None.

E. Ground Turnaround -
Pre flight heater functional test and heater circuit quantitative resistance test.

F. Operational Use -
1. Crew Response -
Pre-EVA/Post EVA: Troubleshoot problem. If unsuccessful, use alternate gloves. If no alternate gloves are available, terminate EVA.

EVA - If loss of fingertip heating occurs in one glove, terminate EVA. If loss of fingertip heating occurs in both gloves, 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-106 GLOVE ASSEMBLY

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: _____
HS - Project Engineering

_____
HS - Reliability

_____
HS - Engineering Manager

Approved by: _____
NASA – SSA/SSM

_____
NASA – EMU/SSM

_____
NASA – S&MA

_____
NASA – MOD

_____
NASA – Crew

_____
NASA – Program Manager