NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		104FM30		
BOOT FABRIC ATTACHMENT RING ITEM 104 (1) LEFT (1) RIGHT ---------- 10154-04 (2)	2/1R	Loss of primary adjustable bracket pin. Defective material: bracket adjustable pin, retention screws.	END ITEM: Loss of primary axial restraint. GFE INTERFACE: Axial load will be transferred to secondary restraint bracket. MISSION: None. CREW/VEHICLE: None with single failure. Loss of crewman with loss of secondary restraint. Bracket. 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 adjustable primary bracket is fabricated from 17-4 stainless steel. The brackets are machined, ultrasonic cleaned, passivated and either electropolished or dry hone finished. The primary adjustable link is fabricated from 17-4 stainless steel and has a 16 finish to preclude primary webbing abrasion. The adjustable link is retained by a stainless steel pin that is held in place by a single screw. Tensile testing of the restraint bracket pin demonstrated a minimum ultimate strength of 1655 lbs and yield strength of 1493 lbs. At 4.4 psid (normal operating pressure) the S/AD limit load is 574 lbs, giving the bracket pin a safety factor of 2.9 for ultimate and 2.6 for yield. At 5.5 psid (max failure pressure) and 8.8 (max BTA operating pressure) the bracket pin provides safety factors for ultimate of 4.5 and 5.8 respectively. The S/AD minimum safety factor for hardware at 4.4 psid is 2.0 for ultimate and 1.5 for yield. At both 5.5 psid and 8.8 psid the s/AD minimum safety factor for hardware is 1.5 for ultimate. B. Test - Acceptance: Component - See Inspection. PDA: During PDA, the following inspection points are performed at the LTA assembly level in accordance with ILC Document 0111-710112. Inspection for cleanliness to VC level. Verification of proper engagement and operation. Certification: The fabric attachment ring was successfully tested (manned) during SSA certification to duplicate 458 hours operational life (Ref. ILC Report 0111-711330). The following usage, reflecting requirements of significance to the ring, was documented during certification: Requirement S/AD Actual Knee/Cycles 9078 20000 Don/Doff 98 400 Pressure Hours 458 916 Walking Steps 4320 77760 C. Inspection - All Part Numbers: Components and material manufactured to ILC requirements at an approved supplier are documented from procurement through shipping by the supplier. ILC incoming receiving inspection verifies that the materials received are as identified in the procurement documents, that no damage has occurred during shipment and that supplier certifications have been received which provide traceability information. The following MIPs are performed during the boot assembly manufacturing process to assure that the failure causes are precluded from the fabricated item: 1. Visual inspection upon completion of the restraint webbing pull test for signs of damge.

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		104FM30		

During PDA, the following inspection points are performed at the LTA assembly level per ILC Document 0111-710112:
1. Inspection for cleanliness to VC level.
2. Visual inspection for damage, wear or material degradation.
3. Visual inspection for damage following proof-pressure test.

D. Failure History -
None.

E. Ground Turnaround -
Inspected for non-EET processing per FEMU-R-001, Pre-Flight visual inspection. None for EET processing. Additionally, every 4 years or 229 hours manned pressurized time, inspection of the lower torso restraint/bladder, the primary and secondary axial restraint, bracket screw torque, and loctite application are verified.

F. Operational Use -
(P/N A/L 9752-02):
Crew Response -
Pre/post-EVA : If not detected, no response. If detected audibly or tactily, troubleshoot problem. If no success, use spare LTA if available or terminate EVA prep.
EVA : Single failure not detectable, no response.
Special Training -
No training specifically covers this failure mode.
Operational Considerations -
Not applicable.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-104 LOWER TORSO ASSEMBLY (LTA)

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: _____
HS - Project Engineering

_____
HS - Reliability

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HS - Engineering Manager

Approved by: _____ 21 MAY 02
NASA – SSA/SSM

_____ 5/24/02
NASA – EMU SSM

_____ 5.29.02
NASA – S&MA

_____ 5-30-02
NASA – MOD

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NASA – CTOW

_____ 6/3/02
NASA – Program Manager