NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		102FM13		
HARD UPPER TORSO ASSEMBLY, ITEM 102 (PIVOTED), IDB --- 0102-10002-150 (1) OR HARD UPPER TORSO ASSEMBLY, ITEM 102 (PIVOTED), DIDB --- 0102-10002-159 (1) OR PLANAR HUT (IDB) --- 0102-110102-17 (1) OR PLANAR HUT (IDB) --- 0102-110102-20 (1) OR PLANAR HUT (DIDB) --- 0102-110102-21 (1) DIDB RESTRAINT ASSEMBLY ITEM 102 --- 0102-812241 (1)	2/2	Loss of attachment, IDB/DIDB. Defective Material: Adhesive, Velcro, or DIDB fabric restraint.	END ITEM: Loss of IDB/DIDB attachment to HUT. GFE INTERFACE: Loss of use of IDB or DIDB. MISSION: Loss of IDB/DIDB attachment. Terminate EVA. CREW/VEHICLE: Loss of IDB/DIDB attachment. Crewmember dehydration. TIME TO EFFECT /ACTIONS: Seconds. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - The front inner wall of the HUT is equipped with five pieces of Velcro pile. The pile is attached to the HUT wall with a urethane adhesive. The mating Velcro pile is located on the IDB bladder or the DIDB restraint bag. The restraint is manufactured from Dacron fabric which exhibits a minimum tensile strength of 300lbs (warp) and 250 lbs (fill). The bag is manufactured in a wing shape to assist in locating the bladder inside the bag. Two velcro tabs are attached at the top of the restraint bag. These are looped through mating hales DIDB bladder seam allowance to preclude the bladder from slipping down into the restraint. The neck portion of the restraint is slit and is bound with nylon binding to provide robustness during repeated installation and removals of bladders. B. Test - Acceptance: Component, see inspection for acceptance. PDA: The following tests are conducted at the HUT Assembly level in accordance with ILC Document 0111-70028J for the Pivoted HUT and 0111-710112 for the Planar HUT: 1. Visual inspections for quality of workmanship, apparent damage and wear. 2. Inspection for visible cleanliness and fabric degradation. Certification: HUT: The HUT/IDB interface was successfully tested (manned) during SSA certification (Ref Cert. Test Report for the SSA, ILC Doc 0111-70027). DIDB Assembly: The DIDB was successfully tested (manned) during certification to duplicate a single usage (with safety factor). The DIDB assembly successfully passed S/AD requirements including 200 installations/removals from the HUT. C. Inspection - Components and materials manufactured to ILC requirements at an approved supplier are documented from procurement through shipping by the supplier. ILC incoming receiving inspection verifies that the material received are as identified in the procurement documents, that no damage has occurred during shipment and that the supplier certifications have been received which provide traceability information. Velcro positioning is visually checked during in-line inspection during the manufacturing process. During PDA, the following MIPs are performed at the HUT assembly level in accordance with ILC Document 0111-7028J for the Pivoted HUT and 0111-710112 for the Planar HUT: Visual inspection for material degradation or damage. D. Failure History - None. E. Ground Turnaround - During ground turnaround, in accordance with FEMU-R-001, the HUT is subjected to

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		102FM13		a periodic visual inspection of all accessible surfaces for material degradation or damage. F. Operational Use - Pre/Post EVA: Troubleshoot problem, Velcro can be repaired using Velcro kit (10104-2004). If unsuccessful, terminate EVA. Consider third EMU, if available. EVA: Terminate EVA. Special Training: Standard EMU training covers this failure mode. Operational Considerations: Generic EVA Checklist, JSC-48023, procedures Section 3 (EMU Checkout) and 4 (EVA prep) verify hardware integrity and systems operational status prior to EVA. Real Time Data System (RTDS) allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-102 HARD UPPER TORSO (HUT)

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: _____
HS - Project Engineering

Approved by: _____
[redacted] – SSA/[redacted]

_____
HS - Reliability

_____
[redacted]

_____ 4/24/02
HS - Engineering Manager

_____ 6/26/02
[redacted]

_____ 6/27/02
[redacted]

_____ 7/8/02
[redacted]

_____ 7-1-02
[redacted] Manager