

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
BODY SEAL CLOSURE (HUT HALF), ITEM 102 ----- A/L 9786-06 (1)	1/1	102FM18 External gas leakage beyond SOP makeup capability. Defective Material, O-ring deterioration or contamination. Missing or loose screws, defective helicoil.	END ITEM: Suit gas leakage to ambient. GFE INTERFACE: Depletion of primary O2 supply and SOP. Rapid depressurization of SSA beyond SOP makeup capability. MISSION: Abort EVA. CREW/VEHICLE: Loss of crewman. 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 disconnect ring contains over 50 mounting screws (varies with HUT size). A static "O" ring seal prevents leakage between HUT and ring. Losing one screw will not affect structural integrity of the flange mounting. All screws are torqued and loctited to preclude losing sufficient engagement force to induce a leak path during flight. B. Test - Acceptance: The body seal closure is subjected to testing per ATP 9787 at Airlock with ILC verification. The assembly is pressurized in the test fixture to 8.0 (+0.2 - 0.0) psig for a 5 minute duration and leakage tested to 4.3 +/- 0.1 psig. The assembly is engaged/disengaged five times. The engagement force is verified to be a maximum of 36 lbs. PDA: During PDA, the Pivoted HUT Assembly is leak checked and proof tested per ILC Document 0111-70028J and the Planar HUT assembly is leak checked and proof tested per ILC document 0111-710112. Certification: The HUT was successfully tested (manned) during SSA certification to duplicate operational life. (Ref. EM 83-1083, ILC Report 0111-711330 and EM 98-0008). The following usage reflecting requirements of significance to the BSC was documented during certification: Requirement S/AD Actual ----- BSC Actuation Cycles 300 1080 Pressure Hours 458 916 Pressure Cycles 300 600 The BSC was successfully subjected to an ultimate pressure of 13.2 psid during SSA certification testing (Ref. ILC Report 0111-79405). This is 1.5 times the maximum BTA operating pressure based on 8.8 psid. C. Inspection - 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 material received are as identified in the procurement documents, that no damage has occurred during shipment and that supplier certifications have been received which provides traceability information. The following MIP's are performed during the HUT assembly manufacturing process to assure the failure causes are precluded from the fabricated item: 1. Visual inspection of BSC installation. 2. Verification of presence of screws. 3. Witness loctite and torque of screws. The HUT Assembly is inspected for cleanliness to VC level at PDA per ILC Document 0111-70028J, for Pivoted HUT's and per ILC document 0111-710112 for Planar HUT's.

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D. Failure History -
None.

E. Ground Turnaround -
Tested for non-EET processing per FEMU-R-001, Pre-Flight Final SEMU Gas Structural and Leakage. None for EET processing. Every 56 hours of manned pressurized time the Pivoted HUT is separated from the DCM and PLSS and subjected to a complete visual inspection for material degradation or damage, and structural and leakage tests at HUT assembly level. Every 229 hours of manned pressurized time the Planar HUT is separated from the PLSS and DCM and subjected to a complete visual inspection, and structural and leakage tests at HUT assembly level.

F. Operational Use -
Crew Response -
Pre/post-EVA : If during airlock operations, repress airlock, otherwise consider third EMU if available. EMU no go for EVA.

Special Training - Standard training covers this failure mode.

Operational Considerations - EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Flight rules define go/no go criteria related to EMU pressure integrity. Real time data system 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

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