NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		104FM18		
BRIEF/WAIST ASSEMBLY, ITEM 104 ---------- 0104-210605- 07/08/09/10/11/12 (1)	2/1RB	Loss of rear primary and secondary restraint bracket screw. Defective Material: Screw, helicoils or thread lock adhesive.	END ITEM: Loss of one of five screws. GFE INTERFACE: Load is transferred to screws remaining. MISSION: None for single failure. CREW/VEHICLE: None for single failure. Loss of crewman with loss of second screw (on same side of bracket) and restraint bracket. TIME TO EFFECT /ACTIONS: N/A TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-PASS B-FAIL C-PASS	A. Design - The waist bearing rear primary and secondary restraint bracket screws are fabricated from A-286 stainless steel and are procured to MW or NAS specifications. Loss of the bracket screws is precluded in design by adherence to standard engineering torque requirements for screw installation and the use of thread lock adhesive. Analysis showed a factor of safety of 16.3 based on ultimate strength for screw thread shear out. Design requirements for proper installation of helicoils are specified in the assembly procedures when the helicoils are installed in the waist bearing. B. Test - Test- Acceptance: Acceptance testing is conducted per Airlock ATP 10043 or ATP 10057. PDA Test - The following test is conducted at the LTA assembly level in accordance with ILC Document 0111-710112: Proof pressure test at 8.0 + 0.2 - 0.0 psig for a minimum of 5 minutes conducted with the TMG removed. Post-proof pressure visual inspection for material damage. Certification Test - The waist bearing rear restraint bracket and attachment screws have passed shock, vibration, and acceleration testing without loss of screw torque. Ref. Hamilton Standard Test Report, TER 3067, 3048, 3043, and 3076. 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 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 MIP's are performed during the Brief/Waist assembly process to assure the failure cause is precluded from the fabrication item: 1. Verification of loctite application. 2. Verification of presence of screws during torquing. 3. Helicoil installation is verified during source inspection at the supplier. During PDA, the following inspection points are performed at the LTA assembly level in accordance with ILC Document 0111-710112: 1. Verification of no material degradation. 2. Visual inspection for damage following proof pressure test. D. Failure History - None. E. Ground Turnaround - None, for every component within its limited life requirements.

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				Every 4 years or 229 hours of manned presssurized time, the bracket is removed and reinstalled to accommodate maintenance of the bearing. Application of loctite and screw torque is verified at this time. F. Operational Use - Crew Response - Pre/post-EVA : Single failure not detectable, no response. EVA : Single failure not detectable, no respsonse. 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

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