

CIL
EMU CRITICAL ITEMS LIST

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ANALYST:

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE																				
FABRIC ATTACHMENT RING LEEM 103 (1) LEFT (1) RIGHT 10145-04 (2)	2/2	103FM122: Loss of cam bracket adjustment. CAUSE: Defective material; ball/spring subassembly. contamination or wear of cam pin or bracket.	END ITEM: Unable to rotate primary restraint cam to lengthen or shorten lower arm axial restraint. GPE INTERFACE: Unable to realize lower arm. MISSION: Terminate EVA prep. Loss of EMU use for designated crewmember. CREW/VEHICLE: None.	A. Design - The fabric attachment ring cam bracket and primary pin are fabricated from 17-4 stainless steel bar stock. The bracket and pin are heat treated to a condition H-1050, ultrasonically cleaned, passivated and either electropolished or dry hone finished. The primary cam pin has a 16 finish to preclude restraint webbing abrasion. The primary cam pin adjusts to allow increase or decrease in axial length of the primary webbing. A spring and ball detent system allows for positioning of the cam pin. The cam pin is retained by two 17-4 stainless steel retention screws. Rotation of the cam pin can only occur in one direction. The axial load of the primary restraint when pressurized reacts in the opposite direction of the designed rotation, hence inadvertant rotation while pressurized is precluded. B. Test - Acceptance: See Inspection. Certification: The cam bracket 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 cam bracket, was documented during certification: <table border="1"> <thead> <tr> <th>Requirement</th> <th>S/AD</th> <th>Actual</th> <th>Equiv. Hrs.</th> </tr> </thead> <tbody> <tr> <td>Elbow Cycles</td> <td>49660</td> <td>102000</td> <td>940.7</td> </tr> <tr> <td>Engage/Disengage</td> <td>300</td> <td>400</td> <td>610.6</td> </tr> <tr> <td>Don/Doff</td> <td>98</td> <td>400</td> <td>1869</td> </tr> <tr> <td>Pressure Hours</td> <td>458</td> <td>916</td> <td>916</td> </tr> </tbody> </table> 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 the supplier certifications have been received which provide traceability information.	Requirement	S/AD	Actual	Equiv. Hrs.	Elbow Cycles	49660	102000	940.7	Engage/Disengage	300	400	610.6	Don/Doff	98	400	1869	Pressure Hours	458	916	916
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	2/2	Y03FN1ZZ:		<p>The following MIPs are performed during the arm assembly manufacturing process to assure that the failure causes are precluded from the fabricated item:</p> <ol style="list-style-type: none"> 1. Visually inspect static seal for damage. 2. Visually inspect ring for scratches, burrs. <p>During PDA, the following inspection points are performed at the arm assembly level in accordance with ILC Document 0111-710112:</p> <ol style="list-style-type: none"> 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. <p>D. Failure History - None.</p> <p>E. Ground Turnaround - During ground turnaround, in accordance with FEMU-R-001, Para. 7.1.2.6.3.4, proper arm assembly sizing is verified. Additionally, every 4 years chronological time or 229 hours of manned pressurized time, the fabric ring is disassembled, cleaned, inspected, lubricated and reassembled.</p> <p>F. Operational Use - Crew Response - PreEVA/postEVA: Trouble shoot problem. Consider use of third EMU. If no success, terminate EVA prep. EMU is no go for EVA. EVA: N/A.</p> <p>Training - Standard training covers this failure mode.</p> <p>Operational Consideration - Flight rules define go/no go criteria. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.</p>

