

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE																		
SIZING RING ITEM 104 (1) LEFT (1) RIGHT ----- 10159-04 (2)	2/2	104FM28P  Jammed open or mated with leg fabric attachment  Defective material; latch, spring or sizing ring. Foreign matter in latch.	END ITEM: Unable to lock or unlock sizing ring to/from fabric attachment ring.  GFE INTERFACE: Unable to assemble or disassemble sizing ring insert into leg disconnect.  MISSION: Terminate EVA prep. Loss of EMU use for designated crewmember.  CREW/VEHICLE: None.  TIME TO EFFECT /ACTIONS: Minutes.  TIME AVAILABLE: N/A  TIME REQUIRED: N/A  REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - The sizing ring is made of 7075-T73 Aluminum Alloy and is finished with Type II CLI anodize. A static lip seal is provided for pressure retention. The seal is seated in a groove and is made of a polyurethane compound. The locking system consists of two spring loaded sequential locks and one manual lock. The locking latches are made of 7075-T73 Aluminum Alloy and the spring and retaining screws are made of stainless steel. The threaded portion of the sizing ring is designed for "one way" initiation of threaded engagement to ensure proper alignment and locking.  The threaded portion of the sizing ring is coated with a dry film lubricant to allow smooth travel of the ring when being mated.  B. Test - Acceptance: The sizing ring is subjected to testing per ATP 10159 at Airlock with ILC source verification.  Certification: The sizing ring was successfully tested (manned) during SSA certification to duplicate 458 hours operational life (Ref. ILC Report 0111-711330).  Two acceptable alternate static seals were developed and passed certification testing (Ref. Certification Report 0111-712694). The following usage, reflecting requirements of significance to the seal, were documented during certification:  <table border="1"> <thead> <tr> <th>Requirement</th> <th>S/AD</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>Engagement Cycles</td> <td>300</td> <td>600</td> </tr> <tr> <td>Pressure Hours</td> <td>458</td> <td>916</td> </tr> <tr> <td>Pressure Cycles</td> <td>194 @ 4.3 psid</td> <td>388</td> </tr> <tr> <td></td> <td>74 @ 5.3 psid</td> <td>148</td> </tr> <tr> <td></td> <td>32 @ 6.6 psid</td> <td>64</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 supplier certifications have been received which provides traceability information.  The following MIPs are performed during the sizing ring manufacturing process to assure that the failure causes are precluded from the fabricated item: <ol style="list-style-type: none"> <li>1. Visually inspect static seal for damage.</li> <li>2. Visually inspect ring for scratches, burrs.</li> </ol> During PDA, the following inspection points are performed at the LTA assembly level per ILC Document 0111-710112: <ol style="list-style-type: none"> <li>1. Inspection for cleanliness to VC level.</li> <li>2. Visual inspection for damage, wear or material degradation.</li> <li>3. Visual inspection for damage following proof-pressure test.</li> </ol>	Requirement	S/AD	Actual	Engagement Cycles	300	600	Pressure Hours	458	916	Pressure Cycles	194 @ 4.3 psid	388		74 @ 5.3 psid	148		32 @ 6.6 psid	64
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D. Failure History -  
None.

E. Ground Turnaround -  
Inspected for non-EET processing per FEMU-R-001, Pre-Flight Inspections and Final Structural and Leakage. None for EET processing. Verify sizing and fabric attachment rings are engaged and fully locked. Additionally, every 4 years chronological time or 229 hours of manned pressurized time, the sizing ring is disassembled, cleaned, inspected, lubricated and reassembled.

F. Operational Use -  
Crew Response -  
PreEVA/PostEVA: Troubleshoot problem, if no success, consider spare LTA if available. Otherwise discontinue EVA operations.

Training -  
No training specifically covers this failure mode.

Operational Consideration -  
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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