

ANALYST:

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE																		
BONDS TREATMENT ADAPTER ITEM 499 SU92740-03 (1)	U/1	401FM01: Adapter latch falls open. CAUSE: Jamming, spring failure.	END ITEM: Adapter latch disengages from 146 housing. OPE INTERFACE: Adapter housing rotates and pins disengage from 146 housing. Sullt pressure exhausted through open 146 valve to airlock. Unable to pressurize suit. MISSION: Loss of bondb treatment capability with rotation of housing. CREW/VEHICLE: Possible loss of crewmn from decompression sickness.	A. Design - The adapter latch which is fabricated from Vespel SP-1 stock, slides in a groove whose surfaces are coated with Mteuff. The coating reduces friction in addition to providing corrosion protection for the 6061-T6 aluminum adapter body. The length to width ratio for the adapter latch is 2.6 to one, minimizing any tendency of the latch to jam by rotating sideways in the slot. The spring inside the adapter latch is made from ABHCO 17-7-PH stainless steel wire. The spring can withstand more than 1000 full stroke cycles for worst tolerance conditions. B. Test - PDA Test - The force required to actuate this latch is measured per SEM-60-846 Para. 6.0. The force must be within 0.25-5.0 lbs. Certification Test - The BTA completed the following certification cycles in 9/90: <table border="1"> <thead> <tr> <th>Test</th> <th>Actual Cycles</th> <th>Spec. Cycles</th> </tr> </thead> <tbody> <tr> <td>Proof Pres. (13.3 psi)</td> <td>16</td> <td>16</td> </tr> <tr> <td>Crack/Leak Flow</td> <td>2100</td> <td>2100</td> </tr> <tr> <td>Hot/Dumate</td> <td>598 Latch Seal</td> <td>500 Latch Seal</td> </tr> <tr> <td>Poppet Keeper Retraction</td> <td>312</td> <td>312</td> </tr> <tr> <td>Burst Pres. (32.2 psi)</td> <td>1</td> <td>1</td> </tr> </tbody> </table> The BTA Assembly completed the 15-year random vibration (48 minutes per axis), sinusoidal vibration, design and bench shock testing in 9/89. C. Inspection - Both the latch and housing sliding surfaces are 100% inspected for dimensional and surface finish requirements. The parts are cleaned to Level ENT50B per SUH3150 prior to assembly.	Test	Actual Cycles	Spec. Cycles	Proof Pres. (13.3 psi)	16	16	Crack/Leak Flow	2100	2100	Hot/Dumate	598 Latch Seal	500 Latch Seal	Poppet Keeper Retraction	312	312	Burst Pres. (32.2 psi)	1	1
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CIL
EMU CRITICAL ITEMS LIST

12/24/91 SUPERSEDES 10/31/90

ANALYSIS:

Page: 2
Date: 12/03/91

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	1/1	491FND1		

B. Failure History -
B-EMU-491-AD01 (9/13/89) -
ATA latching mechanism required excessive force to engage with the 1-166 Relief Valve due to an oversized latch. The condition passed during inspection due to difficulty in measuring the distance from a theoretical centerline. EC 165602-307 dated the original dimension callout from the drawing and added the dimension across the latch face which provides for easier machining and inspection.

E. Ground Turnaround -
ATA Preflight Checklist per FEMU-R-001.

F. Operational Use -
Crew Response -
PostEVR: Rotate adapter back into place, restrain it either manually or using grey tape.
Training -
Standard EMU training covers this failure mode.
Operational Considerations: N/A