NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		115FM20		
SHEAR PLATE ASSEMBLY, ITEM 115 --- SV778540-56 (1) OR (ORU) --- SV824133-8 (1)	2/1R	Actuator cam fails out of EVA position. Failure of bond between actuator cable conduit and shear plate.	END ITEM: Cable conduit disconnected from shear plate structure allowing the actuator cam to move independently of the actuator carriage. Cam moves out of EVA position. GFE INTERFACE: Secondary regulator shutoff. Loss of emergency suit pressurization capability. MISSION: Terminate EVA. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Seconds. TIME AVAILABLE: Minutes. TIME REQUIRED: Minutes. REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	A. Design - The actuator casing is bonded to the tube fitting which forms the shear plate ground for the casing. Acceptance spec allowable actuator slide force is 15 lbs. maximum, while testing indicates actual slide forces approximately 10 lbs. These actuator slide forces are transmitted through the casing bond joint in shear. Assuming 100% coverage, the bond joint is capable of transmitting up to a 528 lb shear force. Thus there is a load safety factor of 35 compared to actuator slide forces. External loads during assembly may import torsional or bending loads at the bond joint. Capacity for a 100% bond joint loaded at the end of the conduit hard section is calculated to be 10 lbs., with no other casing support. B. Test - Component Acceptance Test - There is no direct stress test of the subject bond joint. However, proper 02 actuator performance is verified during shear plate acceptance testing per AT-E-115 Para. 10.0 and 15.0. PDA Testing - Proper 02 actuator performance is verified during PLSS acceptance testing per SEMU-60-010 Para. 21.0 02 actuator cycling and control test which shows that actuation forces are acceptable. Certification Testing - Certified for a useful life of 20 years from the date of manufacture. Successful refurbishment will extend useful life to 30 years max. (ref EMUM1-0491, EMUM1-0027). C. Inspection - Proper bond filler at the bond joint is 100% inspected prior to assembling the actuator to the shear plate. D. Failure History - None. However, 3 bond failures have occurred during shear plate assembly. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, O2 Actuator Position Switch Check. None for EET processing. F. Operational Use - Crew Response - Pre/PostEVA: Trouble shoot problem use third EMU if available. If no success, terminate EVA. EMU is no go for EVA. EVA: Terminate EVA, if cam fails in IV, OFF or PRESS position. Training - Standard Training covers this mode. Operational Considerations - Flight rules define go/no go criteria related to EMU pressure integrity and regulation. EVA checklist procedures verify hardware integrity, and systems operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-115 SHEAR PLATE ASSEMBLY

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: _____ 3/27/02
HS - Project Engineering

Approved by: _____
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_____
HS - Reliability

_____
[redacted] EMU/SSP

_____
HS - Engineering Manager

_____
[redacted] SSP

_____ w/ mods
[redacted] MOD

_____
[redacted] Crew

_____
[redacted] Program Manager