NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		115FM01		
SHEAR PLATE ASSEMBLY, ITEM 115 (PIVOTED, PLANAR) --- SV778540-56 (1) OR (ORU) --- SV824133-8 (1)	2/2	Fails in OFF position. Cable or linkage mechanism jams; severed cable or connection, high bearing drag, actuator carriage jams.	END ITEM: Actuator cable and/or carriage will not translate from primary and secondary regulator off position. GFE INTERFACE: Unable to open SOP shutoff valve or pressurize the EMU. MISSION: Loss of use of one EMU. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Immediate. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - The 02 actuator system incorporates features to maintain reliable and low friction motion capability of the moving parts. These features include material selections, surface treatments and control of the wheelbase and loads of moving parts. The actuator cam has Nituff coated surfaces and has a long wheelbase with ball bearing supports, while the carriage is made of Nitronic 60 and slides on electrofilmed stainless steel ways with long wheelbase. The pushbutton slide bearings are made of A-286 and lubricated when assembled into the Nitronic 60 carriage. The flex cable assembly consists of a stainless steel flex cable sliding in a Teflon lined sheath. B. Test - Component Acceptance Test - None. PDA Test - Per SEMU-60-010 the forces to disengage the actuator detents, and the forces required to push or pull the actuator through its complete travel are measured. The force required to push the actuator out of the "OFF", "PRESS", "EVA", or "IV", detents must be 3.0 - 6.0 lbs. The force required to slide the actuator to any of the above four positions must be 15 lbs maximum. Proper cam mechanism actuation is verified through this test. A failure in the OFF position would create an inability to perform any of the regulator performance tests. Certification Test - 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 - Details are 100% inspected per drawing dimensions and surface finish characteristics. Details are manufactured from material with certified physical and chemical properties. All details, gases and test facilities are cleaned and inspected to HS3150 EM50A to preclude contamination clogging. D. Failure History - J-EMU-115-002 (1-1-83) 02 actuator binding due to actuation procedure utilized. As corrective action actuation forces are verified during PLSS PDA testing and short EMU testing. This assures that mechanism behavior is normal and within specifiction without a SOP attached. Crew training procedures were also altered to prevent a recurrence of this condition. J-EMU-115-C002 (10-15-80) Difficulty in moving 02 actuator during a "Manned EMU Vacuum Certification Test". As a corrective action Engineering Change 42803-311 incorporated an actuator system having reduced operating forces, improved materials and lubricity, and improved glove hand feel. EMU-115-C002 (4-27-79) Actuator binding due to interference with wires. As a corrective action EC 42800-924 was processed to relocate an electrical connector to eliminate routing of wire leads near the actuator cam.

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		115FM01		EMU-115-C001 (10-6-78) Actuator binding due to wear and flaking of Nituff coating from front side of actuator guide plate. As a corrective action an Engineering Change was processed to eliminate the need for Nituff coating by changing the actuator carriage and guide plate material to Stainless Steel instead of Aluminum. The carriage was also chrome plated. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, V1103 Performance Data and Item 113 Regulator Check. FEMU-R-001 Para 8.2 EMU Preflight KSC Checkout for EET processing. F. Operational Use - Crew Response - PreEVA: If available, use 3rd EMU. EMU is no go for EVA. Training - Standard training covers this failure mode. Operational Considerations - EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Flight rules define go/no go criteria related to EMU pressure regulation.

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: _____
[redacted] SSP

_____
HS - Reliability

_____
[redacted] EMU/SSP

_____
HS - Engineering Manager

_____
[redacted] SSP

_____ w/ mods
[redacted] MOD

_____
[redacted] Crew

_____
[redacted] Program Manager