

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
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115FM05				
SHEAR PLATE ASSEMBLY, ITEM 115 (PIVOTED, PLANAR) ----- SV778540-56 (1) OR (ORU) ----- SV824133-8 (1)	2/1R	Fails to open SOP shutoff valve.  Cam mechanism bent, roller or cam wear.	END ITEM: Failure to unlock the SOP regulator bellows when 02 actuator is in the EVA position. SOP regulator remains off line.  GFE INTERFACE: Unable to open SOP shutoff valve. False indication that the SOP is on line. Loss of emergency oxygen backup capability.  MISSION: None for single failure. Loss of backup SOP capability, without warning that SOP regulator is off line.  CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of primary oxygen.  TIME TO EFFECT /ACTIONS: Immediate, if SOP is required due to another failure. Otherwise, none.	A. Design - The SOP shutoff is actuated through a lever whose end is stroked by the 115 shear plate actuator cam. The cam input is through a ball bearing roller for low friction and wear. The lever pivot bore is Nituffed to provide low friction and to minimize wear. Actuation of the shutoff valve is provided by the lever acting on a push-rod in the valve. This interface is a spherical button acting on a flat to minimize side loading due to any misalignments or tolerance effects. The minimum structural factor of safety of this mechanism is the lever bending and is 16. Wear is minimized by design and accommodated by overstroking of the valve. This overstroke (0.010) allows for wear and calculated mechanism deflections (0.0017 inches). In case of an increase in SOP mechanism drag, the actuator assembly can develop six times the normal actuation force.  B. Test - Acceptance Test - None.  PDA Test - Per SEMU-60-010 the forces required 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. The force required to engage or disengage the EVA lever must be 1.5 - 4.0 lbs. Proper cam mechanism is verified through this test.  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 - None.  E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001 SOP Functional Test. None for EET processing.  F. Operational Use - Crew Response - PreEVA/EVA: Single failure not detectable. No response. Training - Standard training covers this failure mode.

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			TIME AVAILABLE: N/A	Operational Considerations - Flight rules define loss of EMU for loss of SOP pressure regulation required for EVA.
			TIME REQUIRED: N/A	
			REDUNDANCY SCREENS: A-PASS B-N/A C-PASS	

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

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