

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
SECONDARY OXYGEN PACK CHECKOUT FIXTURE RELIEF VALVE, ITEM 146 ----- 8V799099-00 (1)	2/2	495FM02: Internal leakage, fails open  CAUSE: Seat contamination, spring relaxes or fractures, jamming.	END ITEM: Oxygen flow path through valve seat.  GPE INTERFACE: Higher than planned usage of emergency oxygen during the SOP regulator checkout sequences. SOP oxygen tanks Excessive consumption of primary O2 during fan checkout and water dump.  MISSION: Loss of use of one EMU if SOP tank pressure is below 3800 psia.  CREW/VEHICLE: Elevated cabin PP02.	A. Design - The item has a 140 micron filter at the inlet. The piston to upper housing clearance is greater than 140 microns and the lower guide is fluted to prevent particle entrapment. The seat is an elastomeric material to accommodate particulate matter. In addition, the seat is checked for hardness uniformity to ensure proper sealing. The spring is of non-buckling type (calculated spring stress provide cyclic life of 10+8 cycles) and is guided by spring seats to prevent contact between the spring and poppet during stroking. The sliding surfaces are coated with Madox to minimize friction effects.  B. Test - PDA: A leakage test is performed during SEMU-60-018 in which the vent loop is pressurized with oxygen to 4.3+/- .1 psig. leakage is not to exceed 114 SCC/MIN O2.  Certification: The SCOP is certified to meet all other requirements except shock testing based on analysis, acceptance testing of the first production unit and similar equipment experience with the item 146 positive pressure relief valve.  Shock testing for the Ground Handling and Test Environments, was completed as of 5/30/89 (Ref. FEN 3644).  C. Inspection - A cleanliness level of HS3150 EM150B is maintained during assembly and testing of the Sop Checkout Fixture Relief Valve. The Sop Checkout Fixture is visually inspected at EOP and Final Inspection. EM150B cleanliness, EOP, and final inspection require inspection points. A dimensional inspection is performed at Airlack Inc.  D. Failure History - Related Failures: The Scop Relief valve is identical to the item 146 positive pressure relief valve.  M-EMU-146-D001 and M-EMU-146-D002 (7-7-73) documents a "low cracking" condition. Investigation of D001 revealed soft

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 EMU CRITICAL ITEMS LIST

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ANALYST:

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spots on the elastomeric seat. Corrective action consisted of a seal weld modification, by the vendor to prevent air entrapment during molding. An additional inspection step to check the elastomer seat hardness with a dimt indicator was implemented.  
 H-EMU-146-8003(9/20/83) and J-EMU-146-8005(10/11/83) were attributed to rig problems during testing and do not reflect valve failures.

E. Ground Turnaround -  
 Tested per FEMO-R-001, - T08.

F. Operational Use -  
 Crew Response -  
 PRE EVA: Troubleshoot problem. If no success, use second SDRF. Continue EVA prep.

Training -  
 Standard IAW training covers this failure mode.

Operational Considerations -  
 Flight rules define Go/No Go criteria related to Operational SOP.