

12/24/94 SUPERSEDES 12/24/91

ANALYST:

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
<p>OXYGEN/WATER MANIFOLD ASSEMBLY, ITEM 3B3</p> <p>SV779301-B (1)</p>	2/1R	<p>3B5PH01: External gas leakage, Interface Connector (NUT/DCM)</p> <p>CAUSE: Seal failure.</p>	<p>END ITEM: Suit gas leakage to ambient.</p> <p>RFE INTERFACE: Excessive consumption of the primary oxygen supply. The SOP is automatically activated during EVA if the suit pressure drops to 3.33 psid.</p> <p>MISSION: Terminate EVA. Loss of use of one EMU.</p> <p>CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP.</p>	<p>A. Design - At the interface connector, one "O" ring face seal prevents external leakage while another two isolate the pressure gage and purge valve from the adjacent water passages. The "O" ring seal design configuration, dimensions and rigidity of assembly provide squeeze under all loading conditions. "O" rings are of fluorocarbon (viton).</p> <p>B. Test - In-Process: An in-process leak check is performed during initial fabrication and machining of the brazed manifold to verify the integrity of the sealing surfaces.</p> <p>PDA: Integrity of these surfaces is checked indirectly during Acceptance testing of the manifold assembly. Test conducted is for leakage out the Multiple Connector (33D), however; any gas leakage would be detected.</p> <p>Certifications: The item completed the 15 year structural vibration and shock certification requirement during 8/86. No Class I Engineering changes have been incorporated since this configuration was certified.</p> <p>C. Inspection - O-Ring grooves are 100% inspected for dimensions and surface finish. Mating fiberglass surface on nut is 100% inspected for surface finish and flatness. A DCM/NUT leakage IPT is performed to verify O-seal integrity. O-Seals are inspected with a 1.5% AQL minimum per MIL-STD-405 inspection level II.</p> <p>D. Failure History - None.</p> <p>E. Ground Turnaround - The DCM/NUT interface is checked for external gas leakage</p>

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	2/1R	385FNO1:		<p>during Ground Turnaround per FEMU-R-001, Gas Structural and Leakage.</p> <p>F. Operational Use - Crew Response - PreEVA: Troubleshoot problem, if no success, discontinue use of EMU, consider third EMU if available. EVA: When CAS data confirms an accelerated drop in primary O2 tank pressure, terminate EVA. Special Training - Standard EMU 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 integrity and regulation. Real Time Data System allows ground monitoring of EMU systems.</p>