

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PRIMARY TANK ASSEMBLY #1 #2, ITEM 131, ITEM 162 ----- SV769592-30 (1)	2/1R	131FM06A Gas lines clog (main water tank). Contamination, excessive krytox.	END ITEM: Blockage of oxygen flow from 113E pressure regulator to primary water tank bladders (gas side). GFE INTERFACE: Unable to supply feedwater to cooling loop. Loss of cooling. Possible helmet fogging. MISSION: Terminate EVA. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Minutes. If defog is lost, open purge valve to activate SOP. TIME AVAILABLE: Minutes. TIME REQUIRED: Seconds.	A. Design - The structure gas passages have been enlarged to 0.12" diameter to preclude blockage. A superior corrosion inhibiting coating has been implemented to eliminate corrosion. The amount of Krytox on the outside of the bladder is tightly controlled during assembly procedure. B. Test - Component Acceptance Test - An expulsion test performed per AT-E-131-2 verifies that the water tank gas line is free from blockage. For this test the gas line is pressurized to 14.95 - 15.35 psig. The water tank bladders are then required to discharge a minimum of 8.35 lbs of water at an outlet pressure of 13.2-14.2 psig. A clogged gas line would be detected by the inability to discharge the required amount of water. (If the gas line were clogged during bladder charging, the bladders would not completely fill due to a pressure build up on the gas side of the bladders). A water discharge test per SEMU-60-010 verifies the ability of the primary bladder to discharge a minimum of 8.3 lbs of water at an outlet pressure of 13.2-14.2 psig. A clog in the water tank gas line would prevent this requirement from being met. PDA Test - To prevent contamination from entering the gas line from the test facility, the test fixtures and interfacing hoses are cleaned to HS3150 EM50. To prevent H2O from accidentally entering the O2 side during test, a water trap is installed on the inlet to the item during test, at both the component level and the CEI level. Certification Test - Certified for a useful life of 25 years (ref. EMUM1-0106). C. Inspection - Before coating, the passages are 100% inspected to verify the diameters meet the dimensional requirements. After coating, the internal surfaces of the water tank structure are 100% inspected for full coverage of the corrosion inhibiting coating. The amount of Krytox applied to the bladders is 100% inspected to meet the requirements defined by an Engineering approved visual standard. D. Failure History - J-EMU-131-A001 (2-3-83). Obstructed gas passage caused low water tank drainage - enlarged gas passage diameter from 0.06 to 0.12" diameter. H-EMU-131-D007 (7/9/87). Plugged gas lines which expel water from tanks. Mandatory inspection point (MIP) added to verify that teflon plugs have been removed during manufacturing. B-EMU-115-A001 (02/10/89). Obstruction/incompletely drilled passageway in TPG housing bore between the water tank gas cavity and Item 120. This discrepancy was caused by insufficient intersecting passageway drilled depth during manufacture. New inspection methods have been incorporated as defined in Hamilton Standard Inspection Method Report H40F-60. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Reserve to Primary Water Tank Leakage Verification By Discharge. FEMU-R-001 Para 8.2 EMU Preflight KSC

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		131FM06A	REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	Checkout for EET processing. F. Operational Use - Crew Response - EVA: When CWS data confirms loss of primary water tank gas pressure and cooling is insufficient, terminate EVA. Training - Standard EMU training covers this mode. Operational Considerations - Flight rules define go/no go criteria related to EMU suit thermal control. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Real Time Data Systems allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-131 PRIMARY WATER TANK ASSEMBLY
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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