NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
RESERVE WATER TANK ITEM 140 SV76592-29 (1)	2/1RB	140FM04: Gas line clogs. CAUSE: Corrosion, contamination, excessive Krytox.	END ITEM: Blockage of oxygen flow from 113E pressure regulator to reserve water tank bladder (gas side). OPE INTERFACE: Unable to charge or discharge reserve water tank. Loss of 30 minute backup water supply. MISSION: Terminate EVA during standby water tank operation. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP.	a. Design - The gas line is made from 300 series stainless steel and its interface with the aluminum water tank passage is Teflon coated, both of which preclude corrosion. The aluminum passages are coated with a superior corrosion inhibiting coating per SVHS 1015F (BR127 Ref.) NOTE: Ongoing exposure testing indicates a useful life (to date) of approximately 6 years. The minimum gas line passage size is 0.105 dia and the gas is distributed from the main water tank through slots 0.020 min. depth by 0.062 min. width to the reserve water tank. The passage between the main water tank and reserve water tank (0.129 min. dia. ref.) is coated with 4 coats min of BR127 over an alodine 1200 preprocess coat by a new method which insures full passage coating. The amount of Krytox applied to the bladders is 100% inspected to meet the requirements defined by an engineering approved visual standard. SV76592-19,17 - Same as above except aluminum passage between the main water tank (0.099 min. dia. ref.) is coated per SVHS 7890 (P.D. George Ref). b. Test - Component Acceptance Test - An expulsion test performed per A1-3-E3I-2 verifies that the water tank gas line is free from clogs. For this test the gas line is pressurized to 14.95 - 15.35 psig. The water tank bladder is then required to discharge a minimum of 0.83 lbs of water at an outlet pressure of 4.5 - 5.5 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). To prevent contamination from entering the gas line from the test rig, the test rig and all fixtures are cleaned to MSFC-SPEC-164. POA Test - A water discharge test per SEMU-60-010 verifies the ability of the reserve bladder to discharge a minimum of 0.83 lbs of water at an outlet pressure of 4.5 - 5.5 psig. A clog in the

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	2/1RB	1&2)FMEA;		water tank gas line would prevent this requirement from being met. Certification Test - 1. Neoprene Latex Bladders: Item has completed 10,880 fill/drain cycles and 2780 hours of pressurized time vs a requirement of 1852 and 475 respectively. 2. Flourel Bladders completed 4,000 fill/drain cycles during 3/88, 10/88, and 1/89. This is two times the 15 year certification requirement of 1878 cycles. C. Inspection - Before cleaning, 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 surfaces of the passages are included in this inspection. 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 - None. E. Ground Turnaround - Tested per FEMU-2-001, Reserve to Primary Water Tank Leakage Verification by Discharge. F. Operational Use - Crew Response. Pre EVA: No response, single failure undetectable by crew or ground. Post EVA: N/A EVA: When CWS data confirms loss of primary feedwater and cooling is insufficient, terminate EVA. Consider vacuum water recharge to recover EMU operation. Training - Standard EMU training covers this failure mode effect. Operational considerations - Flight rules define go/no go criteria related to EMU thermal control, EVA checklist procedures verify hardware integrity

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	2/1RB	94@FM041		and systems operational status prior to EVA. Real time Data System allows ground monitoring of EMU systems.