

NAME P/N QTY	QNTY	FAILURE MODE'S (CMISQ)	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
RESERVE WATER TANK ITEM 840 SVP8092-20 115	2/2	FAILURE: Bladder rupture. CAUSE: Excessive cycling, defective material, lack of Nryson lubricant.	END ITEM: None during standby mode, during use, O2 is entrained into the sublimator feedwater and the contain loop. GSE INTERFACE: Degradation in sublimator performance in proportion to the amount of entrained gas. Possible pump cavitation. MISUSE: Terminate EVA during standby water tank operation if causing a leakage or test. CREW/VEHICLE: None.	A. Design - The current bladder material is neoprene latex or diurel which exhibits outstanding solubility, elasticity and elongation characteristics. Bladder processing is controlled to provide uniform product properties. The mating cavity walls consist of smooth surfaces. The bladder is lubricated with controlled quantities of Nryson prior to bladder installation. The size ratio of bladder to cavity is approx. 3 which minimizes bladder stretching. The tank structure supports the bladder load when the water pressure is above the gas pressure. B. Test - Component Acceptance: The item is internally leakage tested per 21-1-131-F by pressurizing the (see 020 inlet to 15.5 - 15.7 psig GSE. The 02 outlet is connected to a hose and the end of the hose submerged in H2O. There shall be no bubbles within a 5 minute period. A bladder collapse leakage test is performed by pressurizing the 02 side of the bladder to 0.8 - 1.2 psig GSE. With the H2O side of the bladder connected to a hose and outlet of the hose submerged in H2O, the leakage shall be limited to 1 bubble in 1 minutes. The pressure is increased to 11.1 - 15.7 psig GSE and the leakage shall be the same. Pressurized time is traced per the limited life test (SNU-47-001). DON: A bladder collapse leakage test is performed per SENU-68-010 by pressurizing the bladder (O2 side) to 14.5 - 15.7 psig GSE. With the H2O outlet connected to a hose and the hose submerged in H2O, the leakage shall not exceed 1 bubble in 2 minutes. A water circuit leakage test is performed by pressurizing the water circuit to 15.7 - 15.9 psig H2O. The leakage shall not exceed 4 cc/Hr as measured with a volumetric micrometer for a 48 minute period. Certification: 1. The neoprene latex bladder completed 11,008 fill/drain cycles during 8/84. This is approx. six times the cycle

197

EMU-47-1113
Page 36
Change 1

01/01/80 SUPERSEDES 11/30/80

ANALYST:

NAME P/B QID	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	2/2	140402A1		<p>certification requirement of 1,000 per 05EMJ-F11. Engineering changes 42004-BAB (more reliable leakage tests) and 42004-B19 (new bladder Mfg. Process) have been incorporated and certified since this configuration was certified. However, these changes do not pertain to this failure mode.</p> <p>2. The (four) bladders completed 4,000 fill/drain cycles during 3/80, 10/80, and 12/80. This is two times the 15 year certification requirements of 1,000 cycles.</p> <p>C. Inspection - The material used to manufacture the bladders is fully inspected to meet the material specification requirements.</p> <p>The bladders are 100% dimensionally inspected for outgases, and 100% visually inspected for any surface defects.</p> <p>A leakage test is run to check every corner of the bladder for hidden defects. After the corners are checked, a leakage test is run to check the overall bladder for hidden defects and leaks. No leakage is allowed for either test.</p> <p>After the leakage tests, the bladders are 100% visually inspected for any defects resulting from the leakage tests.</p> <p>The amount of Kryptex applied to the bladders is 100% inspected to meet the requirements defined by an engineering approved visual standard.</p> <p>D. Failure History - None.</p> <p>E. Ground Turnaround - tested per FIM-0-001, Reserve to Primary Water Tank Leakage.</p> <p>F. Operational Use - Crew Response EVA: No constraint for single failure. When EVA data confirm activation of reserve water tank, terminate EVA.</p>