NAME P/N QTY	CRIT	FAILURE MODE & CAUSE:	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
SECONDARY O2 BOTTLE, ITEM 210 SV770888-1 (2)	1/1	210FM01A: External gas leakage. CAUSE: Piece-part structural sealing surface damaged or material defect.	END ITEM: Leakage of emergency O2 supply to ambient. OPE INTERFACE: Premature depletion of SOP. MISSION: Abort EVA. CREW/VEHICLE: Possible loss of crewman with excessive leakage.	A. Design - Sealing is accomplished by o-seals of silicone material, - Xal-F anti-extrusion ring and a teflon protection ring. The seal configuration and materials selection meets the requirements of high pressure oxygen system design practices. B. Test - Component Acceptance Test - The SOP bottle acceptance test procedure is specified in SV887819 Table I. Tests are performed by vendor and are as follows: PARA. NO. — TEST 4.2.4 — Proof Pressure 4.2.4 — Helium Leak Test 4.2.4 — Volumetric Expansion These tests demonstrate freedom from cracks large enough to propagate through the wall in less than 4 times the expected usage cycles. Hamilton Standard source inspection monitors the bottle acceptance tests. This includes proof, leakage, radiographic inspection, and examination of interior surfaces. PDA Test - The item is proof pressure tested at 11,100-11,300 psig GN2 for 5 minutes minimum, and then visually inspected for evidence of distortion, cracks or other defects. Sequentially, the item is externally leak tested with a 2% GHe and 98% GN2 mixture at a pressure of 5000-6200 psig in chamber vacuum. Leakage must not exceed 5.55 x 10-5 scc/sec GHe. A historical log records the total bottle cycles, the total time that a bottle is pressurized above 3000 psig, and the max pressure level attained in any given cycle. This information is recorded at Hamilton Standard and in the field. Upon completion of PDA testing, the item is visually inspected for damage to external surfaces, mounting points and general appearance.

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	1/1	210FM01A:		Certification Testing - The item completed 1,200 cycles during 3/89 which is four (4) times the cycle certification requirement of 300. The item completed the 15 year structural vibration and shock certification requirement during 10/85. C. Inspection - Material Defect - The material, Inconel 718, is verified by chemical analysis. Fluorescent penetrant inspection is performed to detect any surface defect in the welds and the parent metal of tank, x-ray inspection to detect any crack, voids or other irregularities in the welds and parent metal of tank. Fitting sealing surface finish (32 micron) is 100% inspected for dimensional and surface finish requirement. D. Failure History - None. E. Ground Turnaround - Tested per PEMU-A-001, SOP Servicing for Flight, Item external leakage. F. Operational Use - Crew Response - EVA: Since EVA termination is required as soon as SOP is flowing, crew would abort EVA when excessive SOP rate is detected. 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. Flight rules define EMU as lost for loss of operational SOP. Real Time Data System allows ground monitoring of EMU systems.