

CIL  
CRITICAL ITEMS LIST  
FILE: CIL3/D

NAME P/N QTY	CRIT	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
SECONDARY OX BOGIE ITEM 218 SV718806-1 X21  PC375-3 X8	2/18	DIFFICULTY: EXTERNAL GAS LEAKAGE.  CAUSE: PIECE-PART STRUCTURE SEALING SURFACE DAMAGED OR MATERIAL DEFECT.	END ITEM: LEAKAGE OF HYDROGEN OR SUPPLY TO ACCIDENT.  GTE INTERFACE: PREMIERE DEPLETION OF SO2.  MISSION: TERMINATE EVA MISSION WITH LOW PRESSURE WARNING IS ISSUED. THE DOWNSTREAM REGULATOR (218) WILL REMAIN CLOSED PROVIDING A CHECKING FUNCTION AS LONG AS THE SUITE PRESSURE REMAINS ABOVE 5.1 PSIA DURING EVA.  CREW VEHICLE: NONE FOR SINGLE FAILURE. POSSIBLE LOSS OF CAPABILITY WITH LOSS OF PRIMARY O2 SUPPLY.	A. DESIGN - SEALING IS ACCOMPLISHED BY O-SEALS OF SILICONE MATERIAL, KEE-F ANTI-EXTRUSION RING AND A TEFELON PROTECTION RING. THE SEAL CONFIGURATION AND MATERIALS SELECTION MEETS THE REQUIREMENTS OF HIGH PRESSURE OXYGEN SYSTEMS DESIGN PRACTICES.  B. TEST - COMPONENT ACCEPTANCE TEST - THE SO2 BOTTLE ACCEPTANCE TEST PROCEDURE IS SPECIFIED IN SWH789 TABLE 5. TESTS ARE PERFORMED BY VENDOR AND ARE AS FOLLOWS: PARA. 4.2.4, TEST: PROOF PRESSURE, PARA. 4.2.4, TEST: HELIUM LEAK TEST, AND PARA. 4.2.4, TEST: 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.  FOA TEST - THE ITEM IS PROOF PRESSURE TESTED AT 10,000-11,500 PSIG FOR 4 HOURS 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 10% CAN MIXTURE AT A PRESSURE OF 5000-6000 PSIG IN CHAMBER VACUUM. LEAKAGE MUST NOT EXCEED 5.00 X 10-5 CC/SEC GHE.  AN HISTORICAL LOG RECORDS THE TOTAL BOTTLE CYCLES, THE TOTAL TIME THAT A BOTTLE IS PRESSURIZED ABOVE 3000 PSIA, AND THE O2 PRESSURE LEVEL ATTAINED IN ANY GIVEN CYCLE. THIS INFORMATION IS RECORDED AT HAMILTON STANDARD AND IN THE FILE. UPON COMPLETION OF FOA TESTING, THE ITEM IS VISUALLY INSPECTED FOR DAMAGE TO EXTERNAL SURFACES, MOUNTING POINTS AND GENERAL APPEARANCE.  CERTIFICATION TESTING - THE ITEM COMPLETED 2,200 CYCLES DURING 1/83 WHICH IS FOUR 14) TIMES THE CYCLE CERTIFICATION REQUIREMENT OF 100. THE ITEM COMPLETED ONE IS YEAR STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENT DURING 02/83.