

CIL
CRITICAL ITEMS LIST
FILE: CIL-SOP/2

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
02 PRESSURE REGULATOR, END STAGE ITEM 2330 SV770475- 15 (1) FC104-1 X	2/10	2130FN0701 EXTERNAL GAS LEAKAGE. CAUSE: SEAL FAILURE, BELLONS LEAKAGE.	END ITEM: SOP GAS LEAKAGE TO AMBIENT. O/F INTERFACE; EXCESSIVE CONSUMPTION OF THE EMERGENCY OXYGEN SUPPLY. MISSION: TERMINATE EVA, LOSS OF USE OF ONE EMM. CREW/VEHICLE: NONE FOR SINGLE FAILURE. POSSIBLE LOSS OF CREWMAN WITH LOSS OF PLSS.	A. DESIGN - THE STATIC RADIAL SILICONE O-RING DESIGN DIMENSIONS AND ASSEMBLY TIGHTNESS PROVIDE O-RING SQUEEZE UNDER ALL LOAD CONDITIONS. THE SECOND STAGE COVER ASSEMBLY WILL NOT DISTORT AT PRESSURES ABOVE THE 4.3 PSID NORMAL OPERATING PRESSURE, THIS KEEPING THE O-RING SEAL INTEGRITY. THE BELLONS IS DESIGNED FOR 64 PSID, PROOF PRESSURE IS 25 PSID, OPERATING PRESSURE IS 3.9 PSID. B. TEST - VENDOR COMPONENT ACCEPTANCE TEST - THE REGULATOR MANUFACTURER, C71, PERFORMS AN EXTERNAL LEAKAGE TEST TO ASSURE SEAL AND BELLON INTEGRITY. FRA TESTS - THE ITEM IS EXTERNAL LEAKAGE TESTED ON THE SOP. THE SOP BOTTLES ARE PRESSURIZED TO 6000-6200 PSID WITH A 2% ONE AND 98% ONE MIXTURE. THE FILL VALVE, THE TEST PORT VALVE, AND TPD ARE CAPPED WITH THE APPROPRIATE FLUID CAP AND TORQUED TO 10-40 IN-LBS. THE ITEM IS TESTED IN CHAMBER VACUUM AND LEAKAGE MUST NOT EXCEED 6.65×10^{-8} SCC/SEC HE. CERTIFICATION TEST - THE ITEM COMPLETED 904 NO FLOW RUNS DURING 8/82 WHICH IS 80 TIMES THE CERTIFICATION REQUIREMENT OF 10 HOURS. THE ITEM COMPLETED 112 BLUNDDOWN CYCLES DURING 8/82 WHICH IS 3 TIMES THE CYCLE CERTIFICATION REQUIREMENT OF 35. THE ITEM COMPLETED THE 25 YEAR STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENT DURING 10/89. NO CLASS I ENGINEERING CHANGES HAVE BEEN INCORPORATED SINCE THE CONFIGURATION WAS CERTIFIED. C. INSPECTION - ALL DETAILS, GASES, AND TEST FACILITIES ARE CLEARED AND INSPECTED TO PREVENT ENDO TO PRECLUDE CONTAMINATION CLOSING. DETAILS, INCLUDING THE O-RING, O-RING GROOVES AND SEALING SURFACES, ARE BOU? INSPECTED PER DRAWING DIMENSIONS AND SURFACE FINISH CHARACTERISTICS. REPAIRS ARE MANUFACTURED FROM MATERIAL WITH CERTIFIED PHYSICAL AND CHEMICAL PROPERTIES. A FINAL ASSEMBLY IS PERFORMED ON ALL REGULATOR DETAILS, AND THEN THEY ARE VISUALLY INSPECTED. THE RUNNING AND FINAL TORQUE OF ALL TIGHTENED CONNECTIONS ARE VERIFIED BY VENDOR AND DCAS INSPECTION.

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02 PRESSURE REGULATOR, 2ND STAGE ITEM 211B 9V770475- 13 114 FC184-2 &	2/1R	2130FN07B; EXTERNAL GAS LEAKAGE.		<p>D. FAILURE HISTORY - NONE.</p> <p>E. GROUND TUMARDUNG - TESTED PER FEMU-R-001, GAS STRUCTURAL AND LEAKAGE.</p> <p>F. OPERATIONAL USE - CREW RESPONSE - EVA: SINCE EVA TERMINATION IS REQUIRED AS SOON AS SOP IS FLOWING, CREW SHOULD ABORT EVA WHEN EXCESSIVE SOP USAGE IS DETECTED. TRAINING - STANDARD EMU TRAINING COVERS THIS MODE. OPERATIONAL CONSIDERATIONS - EVA CHECKLIST PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEMS OPERATIONAL STATUS PRIOR TO EVA. FLIGHT RULES DEFINE GO/NO 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.</p>