

CFL
CRITICAL ITEMS LIST
FLEET CELS/L

NAME P/N QTY	CRIT	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
02 PRESSURE REGULATOR 2ND STAGE ITEM 2130 SV770475- 13 111	2/1R	2130FH03H REGULATION BAND DRIFTS ABOVE 4.2 BUT LESS THAN 4.55 PSID.	END ITEM CONSUMPTION OF ENERGENCY OXYGEN DURING NORMAL EMU OPERATION.	A. DESIGN - A CHANGE IN THE POSITION OF THE BALL IN THE SEAT DOES NOT SIGNIFICANTLY AFFECT REGULATION. A 0.005 INCH CHANGE IN BALL SEAT POSITION CHANGES THE REGULATED PRESSURE 0.1 PSI. VESPEL IS A CREEP RESISTANT MATERIAL. THE SYSTEM IS CLEANED TO DESIGN LEVEL ENSDA BEFORE OPERATION WHICH MINIMIZES THE AMOUNT OF CONTAMINATION INITIALLY IN THE SYSTEM. PARTICLE GENERATION DURING OPERATION IS MINIMIZED BY MATERIAL SELECTION AND SURFACE FINISHES. THE SECOND STAGE REGULATOR IS PROTECTED BY A 25 MICRON ABSOLUTE NICKEL FILTER TO MINIMIZE THE CHANCE OF JAMMING. NOMINAL RATING OF THE FILTER IS 10 MICRON WHICH IS EQUIVALENT TO A PARTICLE SIZE OF 0.0007 INCHES. DIAMETRICAL CLEARANCE BETWEEN SLIDING PARTS IS SMALL TO MINIMIZE LOCKING. IT IS 0.0010-0.0015 BETWEEN THE VALVE SEAT AND HOUSING, AND 0.0005-0.0025 BETWEEN THE SPRING SEAT HOUSING, AND 0.0005-0.0025 BETWEEN THE STEM GUIDE AND PRESSURE BALANCE STEM. THE FILTER REDUCES THE PROBABILITY OF A PARTICLE JAMMING THESE CLOSE TOLERANCES. THE HOUSING AND STEM GUIDE ARE MADE OF STRESS RELIEVED HONEY 400, AND THE VALVE STEM, SPRING SEAT, AND PRESSURE BALANCE STEM ARE MADE OF ADR HANDED HONEY K 500 TO MINIMIZE THE CHANCE OF GALLING. ALL SLIDING SURFACES HAVE EITHER A 36 OR 32 MICROINCH FINISH. ALL EDGES ARE EITHER RADIUS OR CHAMFERED. THE L/D RATIO FOR THE VALVE STEM - HOUSING COMBINATION IS 7:1 FOR THE SPRING SEAT - HOUSING COMBINATION IS 1.4:1 AND FOR THE PRESSURE BALANCE STEM - STEM GUIDE IS 7.
FC180-1		CAUSE: CONTAMINATION, WEAR OF BALL ACTUATOR STEM OR BALANCE BAR, BALANCE STEM OR ACTUATOR STEM STICKS, BALL SEAT DETERIORATES.	OPS INTERFACE: SDP OXYGEN BOTTLE PRESSURE REDUCES. MISSION: TERMINATE EVA. HIGH CMS ISSUES A LOW SDP PRESSURE WARNING. CREW VEHICLE: NONE FOR SINGLE FAILURE. POSSIBLE LOSS OF CREWMAN WITH LOSS OF PLSS.	B. TEST - COMPONENT ACCEPTANCE TEST - THE VENDOR, CTE, PERFORMS THE FOLLOWING TESTS TO ASSURE THE SECOND STAGE REGULATOR SETPOINT HAS NOT DRIFTED: CONTAMINATION OR CLOGGING OF THE INLET FILTER IS REDUCED/MINIMIZED BY CLEANING ALL OF THE REGULATOR INTERNAL DETAILS AND OXYGEN PASSAGEWAYS TO ME 315D ENSDA. ONE TEST FACILITY HARDWARE AND BASES ALSO MEET THIS REQUIREMENT. THE REGULATOR PRESSURE AND FLOW CAPABILITY ARE VERIFIED DURING ACCEPTANCE TEST BY PERFORMANCE TESTS AT SEA LEVEL WITH AN INLET PRESSURE OF 7400 PSI AND A VARYING FLOW RATE FROM 0.06 TO 5.3 TO 0.06 PPH. THE PERFORMANCE TEST IS ALSO PERFORMED AT VACUUM CONDITIONS WITH INLET PRESSURES OF 7400, 2055, 2710, AND 350 PSI AND A VARYING FLOW RATE FROM 0.06 TO 5.3 TO 0.06 PPH. POA TESTING - CONTAMINATION OR CLOGGING OF THE INLET FILTER IS REDUCED/MINIMIZED BY CLEANING ALL INTERFACING INLET TEST FIXTURES AND HOSES TO DESIGN ENSDA. TEST BASES ALSO MEET THIS REQUIREMENT.

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07 PRESSURE REGULATOR 2ND STAGE ITEM P13D 5Y776475- 33 (3) FC100-E "	2/18	DISFUNCTION: REGULATOR BIAS DRIFTS ABOVE 4.2 BUT LESS THAN 4.86 PSID.		<p>B. TEST (CONTINUED) - PROPER REGULATOR PERFORMANCE IS VERIFIED IN A SERIES OF PERFORMANCE AND ENDURANCE TESTS. THE REGULATOR IS PERFORMANCE TESTED INITIALLY AT SEA LEVEL AMBIENT AT 7400 PSIG AND 350 PSIG INLET PRESSURES. AT EACH INLET PRESSURE, THE OUTLET PRESSURE IS MONITORED OVER THE FLOW RANGES OF 0-2.2 LBS/HR O₂ (MAX.) AND 0.2 -0 LBS/HR O₂. THE SOP IS ALLOWED TO BLEEDDOWN FROM 7400 PSIG TO 350 PSIG, WHILE VERIFYING PROPER REGULATOR FUNCTION. WITH THE INLET AT 1400 PSIG, THE ITEM IS PERFORMANCE FLOWED AT 4.5-5.28 LBS/HR O₂ FOR 5 HOURS MINIMUM AND AT 0.5-2.0 LBS/HR O₂ FOR 2.5 HOURS MINIMUM. AGAIN, THE END ITEM ISOPD IS ALLOWED TO BLEEDDOWN FROM 7400 TO 350 PSIG, WITH THE INLET PRESSURE AT 350 PSIG. THE ITEM IS ENDURANCE FLOWED AT 4.5-5.28 LBS/HR O₂ FOR 5 HOURS MINIMUM, AND AT 0.5-2.0 LBS/HR O₂ FOR 2.5 HOURS MINIMUM. AFTER THE BLEEDDOWN AND ENDURANCE TESTING, THE ITEM IS PERFORMANCE TESTED AT SEA LEVEL AND VACUUM AMBIENT WITH INLET PRESSURES OF 7400 PSIG AND 350 PSIG. FOR EACH CONFIGURATION, THE OUTLET PRESSURE IS MONITORED OVER THE FLOW RANGES OF 0-2.2 LBS/HR O₂ (MAX) AND 0.2 (MAX) -0 LBS/HR O₂. AN ADDITIONAL BLEEDDOWN IS PERFORMED FROM TO VACUUM TESTING.</p> <p>CERTIFICATION TESTING - THE ITEM COMPLETED THE FOLLOWING CYCLE TESTS DURING 8/45: ON/OFF ACTUAL 30S, SPEC 8011; NO FLOW HOURS ACTUAL 904, SPEC 10; BLEEDDOWN ACTUAL 512, SPEC 95. (3) CLASS 1 ENGINEERING CHANGES HAVE BEEN INCORPORATED SINCE THIS CONFIGURATION HAS CERTIFIED.</p> <p>C. INSPECTION - DETAILS ARE 100% INSPECTED FOR DRAWING DIMENSIONS AND SURFACE FINISH CHARACTERISTICS. BEHALLS ARE MANUFACTURED FROM MATERIAL WITH CERTIFIED PHYSICAL AND CHEMICAL PROPERTIES. ALL BEHALLS, GAGES AND TEST FACILITIES ARE CLEANED AND INSPECTED TO PREVENT CROSS-CONTAMINATION CROGGING. THE BALL SEAT IS VISUALLY INSPECTED UNDER 30X MAGNIFICATION FOR SHARP EDGES AND SURFACE DEFECTS. THE DEMAND AND FINAL TORQUE OF THREADED CONNECTORS ARE VERIFIED BY VEINOR AND DCAS INSPECTORS. A TRIAL ASSEMBLY IS RUN ON ALL DETAILS AND THEN THEY ARE VISUALLY INSPECTED. THE DEMAND VALVE PISTON AND BALANCE STEM ARE MANUALLY DEPRESSED DURING ASSEMBLY TO ASSURE FREE MOTION.</p>

CIL
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02 PRESSURE REGULATOR 2ND STAGE ITEM 2110 5Y770478- 11 111	2/IN	2130PND301 REGULATION BAND DRIFTS ABOVE 4.2 HWT LESS THAN 4.56 PSEP.		<p>D. FAILURE HISTORY - NONE.</p> <p>E. GROUND TURNROUND - TESTED PER FEHW-B-001, SOP SERVICING FOR FLIGHT, SEA LEVEL REGULATOR PERFORMANCE AND FLOW LIMITING CHECK.</p> <p>F. OPERATIONAL USE - CREW RESPONSE - EVA: SINCE EVA TERMINATION IS REQUIRED AS SOON AS SOP IS FLOWING, CREW WOULD QUICKEN EVA TERMINATION WHEN IMPROPER REGULATION IS DETECTED. SPECIAL TRAINING - STANDARD EMI 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 EMI PRESSURE INTEGRITY AND REGULATION. FLIGHT RULES DEFINE EMI AS RISK FOR LOSS OF OPERATIONAL SOP. REAL TIME DATA SYSTEM ALLOWS GROUND MONITORING OF EMI SYSTEMS.</p>
FC140-3 "				