

CEL  
CRITICAL ITEMS LIST  
FILE: CEL5/1

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONDENSATE PRESSURE REGULATOR ITEM 410 S9771717-7 (1)	2/2	480FMD1: FAILS TO CLOSE, REGULATES LOW.  CAUSE: SEAT CONTAMINATION, BINDING, SPRING RELAXES, MANUAL OVERRIDE STICKS OPEN, HOUSING SEAL LEAKAGE, REFERENCE CHAMBER CON- TAMINATION.	END ITEM: OPEN FLOW PATH THROUGH REGULATOR PERMITTING INCREASED FLOW.  SPE INTERFACE: THE PLS BLADDERS AND OVERRIDE POTABLE WATER WOULD BE EMPTYED THRU THE OVERRIDEN MUSPE MANAGEMENT SYSTEM.  MISSION: LOSS OF WATER CHARGING ABILITY OF ONE SEN.  CREW/VEHICLE: NONE.	A. DESIGN - THE 30 DIAMETER SOFT SILICONE SEAL MINIMIZES SEAT CONTAMINATION SENSITIVITY.  THE VALVE PISTON IS TEFLON COATED TO REDUCE FRICTION. THE PISTON SPRING IS DESIGNED FOR 1000 FULL VALVE STROKE CYCLES.  A TEFLON GLIDE RING IS INSTALLED IN A GROOVE ON THE PULL ROD WITH A SHAL ANGLE OF ANYTOK 2000C GREASE. THE RING IS A SLIDING FIT IN THE HOUSING BORE AND PREVENTS CONTAMINATION FROM REACHING THE SEATING AREA THROUGH THE PULL ROD CLEARANCE.  A SPONGE LIMIT ON THE PISTON LIMITS SEAL DEFLECTION TO 0.004 TO 0.014 WHICH MINIMIZES COMPRESSION SET IN THE SEAL. THE DIAPHRAGM BYPASS PERIPHERAL SEAL IS POSITIONED IN A TEFLON COATED GROOVE AND HAS 0.004 MM SQUEEZE.  THE PISTON CAVITY IS PROTECTED BY A 50 MICROM FILTER ON THE AMBIENT REFERENCE PORT AND THE PISTON CLEARANCE IS 0.001 TO 0.005.  B. TEST - COMPONENT ACCEPTANCE: TO PREVENT CONTAMINATION FROM ENTERING THE REGULATOR, THE TEST RIG AND TEST FIXTURES ARE MAINTAINED AT AN ISO150 EMISO CLEANLINESS LEVEL.  DURING TESTING PER AT-E-410 AN INTERNAL LEAKAGE TEST IS RUN IN WHICH THE REGULATOR WRET IS PRESSURIZED TO 15.4-15.6 PSIG. THE MAXIMUM ALLOWABLE LEAKAGE IS 10 CC/LB H2O. TO VERIFY PROPER REGULATOR FUNCTION IN THE REGULATING MODE, CRACK, RESET, AND FLOW REGULATION TESTS ARE PERFORMED. THE REGULATOR MUST CRACK AND RESET AT 14.0-17.0 PSIG.

**CTL**  
**CRITICAL ITEMS LIST**  
**FILE: CILB/1**

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONDENSATE PRESSURE REGULATOR ITEM 418 SV771717-7 111	2/2	AIRFLOW: FAILS TO CLOSE, REGULATES LOW.		<p><b>B. TEST - COMPONENT ACCEPTANCE (CONDENSED)</b>            BOTH CRACK AND RESEAT ARE DEFINED AS A FLOW OF 15-20 CC/MR H<sub>2</sub>O. THE FLOW REGULATION TEST VERIFIES THE REGULATOR WILL FLOW 0.9 - 1.0 LBS/MR H<sub>2</sub>O AT 14.0 - 17.0 PSID. AT THE COMPLETION OF THE FLOW TESTING ONE INTERNAL LEAKAGE TEST IS REPEATED.</p> <p>THE REGULATOR HANDLE UNDERGOES A TORQUE TEST TO VERIFY THE MAXIMUM TORQUE REQUIRED TO OPERATE THE HANDLE IS 10 IN-LBS. A BINDING MANUAL OVERRIDE WOULD BE DETECTED BY THIS TEST.</p> <p><b>PDA:</b>            PERFORMANCE TESTING PER SEMU-48-005 INCLUDES CRACK, RESEAT, FLOW AND INTERNAL LEAKAGE TESTS. THESE TESTS HAVE THE SAME ACCEPTANCE CRITERIA AS AT THE COMPONENT LEVEL. A REGULATOR HANDLE TORQUE TEST VERIFIES A MAXIMUM OPERATING TORQUE OF 10 IN-LBS.</p> <p><b>CERTIFICATION:</b>            THE ITEM COMPLETED 500 CYCLES DURING 11/85 WHICH FULFILLED THE CYCLE CERTIFICATION REQUIREMENT OF 262. NO CLASS I ENGINEERING CHANGES HAVE BEEN INCORPORATED SINCE THIS CONFIGURATION WAS CERTIFIED.</p> <p><b>C. INSPECTION -</b>            SEAT CONTAMINATION - A CLEANLINESS LEVEL OF MS3150 IS MAINTAINED DURING ASSEMBLY AND TESTING OF THE REGULATOR. THIS CLEANLINESS LEVEL REQUIRES A MANDATORY INSPECTION FOR VERIFICATION.</p>
FC217-2 *				

CIL  
 CRITICAL ITEMS LIST  
 FILE: CILS/1

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONDENSATE PRESSURE REGULATOR ITEM 418 9V77LF17-7 111	2/2	418FH01: FAILS TO CLOSE, REGULATES LOW.		<p>C. INSPECTION - (CONTINUED)          BINDING BETWEEN THE PISTON AND THE SPACER - THE PISTON AND SPACER ARE 100% INSPECTED TO MEET DIMENSIONAL AND SURFACE FINISH REQUIREMENTS ALONG WITH THE INTERFACING SURFACES BEING PROPERLY COATED WITH TEFLON.</p> <p>SPRING RELAXES - THE SPRING IS 100% INSPECTED FOR MEETING DIMENSIONAL AND FORCE-DISPLACEMENT REQUIREMENTS.</p> <p>MANUAL OVERRIDE STICKS OPEN - THE SHIP HANDLE AND PIN ARE 100% INSPECTED TO MEET DIMENSIONAL AND SURFACE FINISH REQUIREMENTS.</p> <p>THE PULL ROD AND SPLIT TEFLON RODS ARE 100% INSPECTED FOR BEING PROPERLY COATED WITH ELECTROFILM.</p> <p>THE SURFACES OF THE SHIP HANDLE AND PULL ROD THAT INTERFACE WITH THE TWO CAM PINS ARE 100% INSPECTED FOR BEING PROPERLY COATED WITH ELECTROFILM.</p> <p>HOUSING SEAL LEAKAGE - THE INTERFACING SURFACES BETWEEN THE REGULATOR AND THE BACTERIA FILTER HOUSING ARE 100% INSPECTED TO MEET DIMENSIONAL AND SURFACE FINISH REQUIREMENTS.</p> <p>AN EXTERNAL LEAKAGE TEST IS PERFORMED AS AN IN PROCESS TEST AT THE NEXT ASSEMBLY LEVEL (ITEM 416) WHERE THIS AND OTHER INTERFACES ARE TESTED FOR A SIXTY MINUTE MINIMUM PERIOD, ALLOWING NO LEAKAGE.</p> <p>ALL O-SEALS ARE 100% INSPECTED TO MEET DIMENSIONAL AND SURFACE FINISH REQUIREMENTS.</p> <p>REFERENCE CHAMBER CONTAMINATION - A CLEANLINESS LEVEL OF 85150 ERMSD IS MAINTAINED DURING ASSEMBLY AND TESTING OF THE REGULATOR. THIS CLEANLINESS LEVEL REQUIRES A MANDATORY INSPECTION FOR VERIFICATION.</p>
FC237-3 4				

CFL  
 CRITICAL EVENTS LIST  
 FILE: C165/2

NAME P/N QTY	CNT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONDENSATE PRESSURE REGULATOR ITEM #18 SV771717-7 (1)	2/2	480FH01; FAILS TO CLOSE, REGULATES LOW.		<p>D. FAILURE HISTORY -</p> <p>H-EMU-480-002 (12/4/01) - LOW RESEAT PRESSURE DURING PDA. GAGE TO CALIBRATE VALVE AT COMPONENT LEVEL HAS FOUND TO BE IN ERROR. GAGE CORRECTED AND VALVE RECALIBRATED.</p> <p>H-EMU-418-003 (12/14/01) - INTERNAL LEAKAGE OF VALVE DUE TO CORROSION BETWEEN PISTON AND PISTON GUIDE HOLDING DIAPHRAGM PARTLY OFF SEAT. A TEFLON RING TYPE SEAL WAS ADDED PER 4-2001-397 TO THE VALVE PULL ROD TO PREVENT CORROSION FROM ENTERING THE VALVE AMBIENT SENSE CHAMBER.</p> <p>J-EMU-409-002 (12/8/01) - EXCESSIVE AMOUNT OF WATER DRAINED INTO SCW DRAIN TANK DURING HANDED JED-EMU THERMAL VACUUM TEST. PROBLEM WAS CAUSED BY HOISTING THE SCU BACKPACK FILTER ASSEMBLY FOUR FEET LOWER THE PLS WATER DRAINERS. THIS RESULTED IN A WATER HEAD EQUAL TO 1.7 PSI, THIS CAUSING THE VALVE TO CRACK OPEN AT A NORMAL PRESSURE. THE TEST SCWP HOISTING WAS CORRECTED.</p> <p>J-EMU-418-001 (12/14/01) AND J-EMU-418-002 (12/3/02) - LOW CRACK AND RESEAT PRESSURES DUE TO CREEP OF VALVE DIAPHRAGM. CORRECTIVE ACTION WAS TO REDESIGN VALVE PER EC 42003-441 TO REDUCE SPRING GAGE AND FURTHER DECREASE SENSITIVITY TO DIAPHRAGM CREEP.</p> <p>E. GROUND TURNOVERING -        TESTED PER FEWD-R-009, ORBITER SCW CHECKOUT.</p> <p>F. OPERATIONAL USE -        CREW RESPONSE -        PRE/POSTEVA: TROUBLESHOOT PROBLEM. IF NO SUCCESS, DURING IV IN-SUIT OPERATIONS, IDENTIFY EMU WATER TANK PRESSURES AND PERIODICALLY RELIEVE EMU WATER PRESSURE BY USING OTHER SCU. USE OTHER SCU TO PERFORM EMU WATER GND AND CHARGE. SPECIAL TRAINING - NO TRAINING SPECIFICALLY COVERS THIS FAILURE MODE.        OPERATIONAL CONSIDERATIONS - ONE POUND OF WATER IS DRAINED AFTER EMU WATER RECHARGE TO MAKE ROOM IN THE EMU WATER TANKS FOR IV GENERATED CONDENSATE WATER. EVA CHECKLIST PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEMS OPERATIONAL STATUS PRIOR TO EVA.</p>
FC257-4				