

CIL  
CRITICAL ITEMS LIST  
FILE: CILS/1

NAME P/N QTY	CMT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONDENSATE PRESSURE REGULATOR ITEM 418 SV771717-7 111	2/2	418FMD2: FAILS TO OPEN, REGULATES HIGH.  CAUSE: PISTON BINDING, SPRING INOPERATIVE, DIAPHRAGM STICKS, CLOGGED INLET HOLE.	END ITEM: RESTRICTED FLOW PATH THROUGH REGULATOR.  O/E INTERFACE: UNABLE TO RELIEVE CONDENSATE DURING IN OPERATION. CONDENSATE CARRIAGES INTO VENT CIRCUIT AND HEATER.  MISSION: DISCONTINUE USE OF ONE SCU.  CREW/VEHICLE: NONE.	A. BEST - THE PISTON IS TEFLON COATED TO REDUCE FRICTION. THE PISTON CAVITY IS PROTECTED BY A 30 MICRON FILTER ON THE AIRFLOW REFERENCE PORT AND THE PISTON CLEARANCE IS 0.003 TO 0.005. A TEFLON BLEED RING ON THE PULL ROD PREVENTS CONTAMINATION FROM REACHING THE SENSING AREA THROUGH THE PULL ROD CLEARANCE. THE SPRING IS CLIMBED AT BOTH ENDS AND IS MADE BUCKLING SO THAT IT WILL NOT BIND UP ON ADJACENT SURFACES - TEFLON COATING ON THE VALVE SEAT MINIMIZES FRICTION FORCE ON THE DIAPHRAGM. THE VALVE OUTLET HOLE IS 0.040 WHICH IS 6 TIMES THE ALLOWED PARTICLE SIZE OF 800 MICRONS IN THE SYSTEM.  B. BEST - COMPONENT ACCEPTANCE: TO PREVENT CONTAMINATION FROM ENTERING THE REGULATOR, THE TEST ROD AND TEST FIXTURES ARE MAINTAINED AT AN MSS150 ENHANCED CLEANLINESS LEVEL.  TO VERIFY PROPER REGULATOR FUNCTION IN THE REGULATING MODE, CRACK, RESEAT, AND FLOW REGULATION TESTS ARE PERFORMED PER AV-E-418. THE REGULATOR MUST CRACK AND RESEAT AT 16.0 - 17.0 PSIG. 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 HOLE FLOW 0.9 - 1.0 LBS/MR H <sub>2</sub> O AT 16.0 - 17.0 PSIG.  PDA: PERFORMANCE TESTING PER GOM-40-008 INCLUDES CRACK, RESEAT, FLOW AND INTERNAL LEAKAGE TESTS. THESE TESTS HAVE THE SAME ACCEPTANCE CRITERIA AS AT THE COMPONENT LEVEL.  CERTIFICATION: THE ITEM COMPLETED 800 CYCLES DURING 11/85 WHICH FULFILLED THE CYCLE CERTIFICATION REQUIREMENT OF 152. NO CLASS I ENGINEERING CHANGES HAVE BEEN INCORPORATED SINCE THIS CONFIGURATION HAS BEEN CERTIFIED.

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NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONDENSATE PRESSURE REGULATOR ITEM 410 SV771717-7 111	E/2	410FH02: FAILS TO OPEN, REGULATES HIGH.		<p>C. INSPECTION -          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 INOPERATIVE - THE SPRING IS 100% INSPECTED FOR MEETING DIMENSIONAL AND FORCE - DISPLACEMENT REQUIREMENTS. DIAPHRAGM STICK - THE VALVE SEAT THAT INTERFACES WITH THE DIAPHRAGM IS 100% INSPECTED FOR BEING PROPERLY COATED WITH TEFLON.</p> <p>CLOGGED INLET HOLE - A CLEANLINESS LEVEL OF MS130 ENDS IS MAINTAINED DURING ASSEMBLY AND TESTING OF THE REGULATOR. THIS CLEANLINESS LEVEL REQUIRES A MANDATORY INSPECTION FOR VERIFICATION.</p> <p>D. FAILURE HISTORY -          M-EMU-410-0085 42/1/043 - VALVE CRACKED OPEN OUT OF SPEC 114-17 PSIG AT 17.8 PSIG. HIGH CRACKING PRESSURE WAS CAUSED BY WATER TRAPPED IN THE AMBIENT SENSE CHAMBER OF THE VALVE. WATER ENTERED THE AMBIENT SENSE CHAMBER DURING COMPONENT EXTERNAL LEAKAGE TEST. THE COMPONENT ACCEPTANCE TEST EXTERNAL LEAKAGE PROCEDURE WAS CHANGED FROM A NITROGEN PRESSURE - WATER IMMERSION TYPE TEST TO A WATER PRESSURE - VISUAL LEAKAGE TYPE TEST.</p> <p>E. GROUND THUNDERBOLT -          TESTED PER FEM-9-001, ORBITER SCU CHECKOUT.</p> <p>F. OPERATIONAL USE -          CUEH RESPONSE -          PRE/POSTEVA: TROUBLESHOOT FANDED, IF NO SUCCESS, DURING BY IN-SUIT OPERATIONS, MONITOR EMU WATER TANK PRESSURES AND PERIODICALLY RELIEVE EMU WATER PRESSURE BY USING OTHER SCU. USE OTHER SCU TO PERFORM EMU WATER DUMP AND CHARGE. SPECIAL TRAINING - NO TRAINING SPECIFICALLY COVERS THIS FAILURE MODE.</p> <p>OPERATIONAL CONSIDERATIONS - ONE POUND OF WATER IS DUMPED 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>
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