CIL
CRITICAL ITEMS LIST
FILE: CILS/1

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONDENSATE PRESSURE REGULATOR 31EH 410 SV771717-7 431 FC240-1	2/2	430FH04A: EXTERNAL LEAKAGE, ENV ATTACHED. CAUSE: DIAPHRAGM LEAKS OR RUPTURES, HOUSING SEAL LEAKAGE.	END ITEM: WATER LEAKAGE TO AMBIENT. OTE INTERFACE: DEPLETION OF EHU AND ORBITER WATER RESERVOIRS. MISSION: DISCONTINUE USE OF SCU. CREW/VEHICLE: NONE.	A. DESIGN - EXTERNAL LEAKAGE IS PREVENTED BY TWO RADIAL O-SEALS, A MOLDED BEAD SEAL ON THE DIAPHRAGM CIRCUMFERENCE, AND THE DIAPHRAGM ITSELF. THE VITON O-SEALS HAVE A MIN SQUEEZE UNDER ALL TOLERANCE CONDITIONS OF 0.004 AND 0.007. THE SEALING SURFACES ON THE METAL PARTS HAVE A 63 MICRON FINISH. THE BEAD SEAL ON THE SILASTIC DIAPHRAGM HAS 0.004 MIN SQUEEZE. THE SEALING SURFACES ON THE METAL PARTS ARE A MATE FINISH COATED WITH TEFLON. THE DIAPHRAGM STROKE IS 0.052 AND THIS LIMITS DEFLECTION OF THE ELASTOMER TO 12%. THE 30 DURAMETER SILICONE HAS ELONGATION CAPABILITY OF 600% WITHOUT DAMAGE. B. TEST - COMPONENT ACCEPTANCE: DURING TESTING PER AT-8-410 THE REGULATOR INLET AND OUTLET ARE PRESSURIZED TO 40-42 PSIG FOR 2-4 MINUTES. A LEAKAGE TEST IS THEN PERFORMED IN WHICH THE REGULATOR INLET AND OUTLET ARE PRESSURIZED TO 40-42 PSIG. LEAKAGE IS MONITORED FOR 15 MINUTES MINIMUM AND MUST NOT EXCEED 0.10 CC/HR H2O. ANY DIAPHRAGM OR HOUSING SEAL LEAKS WOULD BE DETECTED DURING THIS TEST. PDA: DURING PBA TESTING PER SEHU-60-005 A DIAPHRAGM OR HOUSING SEAL LEAKAGE WOULD BE DETECTED DURING THE POTABLE WATER LINE LEAKAGE TEST. THE POTABLE WATER LINE IS PRESSURIZED TO 38.5 - 41.5 PSIG. THE 31EH IS THEN OBSERVED FOR LEAKAGE FOR A PERIOD OF 60 MINUTES MINIMUM. NO LEAKAGE IS ALLOWED.

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CONDENSATE PRESSURE REGULATOR ITEM 418 SV771717-7 #11 SC240-2 #	2/2	418FM04A) EXCESSIVE LEAKAGE, EMU ATTACHED.		B. TEST - (CONTINUED) CERTIFICATION: THE ITEM COMPLETED 500 CYCLES DURING 11/85 WHICH FULFILLED THE CYCLE CERTIFICATION REQUIREMENT OF 262. THE ITEM COMPLETED THE 15 YEAR STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENT DURING 10/85. NO CLASS I ENGINEERING CHANGES HAVE BEEN INCORPORATED SINCE THIS CONFIGURATION WAS CERTIFIED. C. INSPECTION - DIAPHRAGM LEAKS OR RUPTURES - THE DIAPHRAGM IS 100% INSPECTED TO MEET DIMENSIONAL AND SURFACE FINISH REQUIREMENTS. HOUSING SEAL LEAKAGE - THE INTERFACING SURFACES BETWEEN THE REGULATOR AND THE BACTERIA FILTER HOUSING ARE 100% INSPECTED TO MEET DIMENSIONAL AND SURFACE FINISH REQUIREMENTS. AN EXTERNAL LEAKAGE TEST IS PERFORMED AS AN IN PROCESS TEST AT THE UNIT ASSEMBLY LEVEL (ITEM 418) WHERE THIS AND OTHER INTERFACES ARE TESTED FOR A SIXTY MINUTE MINIMUM PERIOD, ALLOWING NO LEAKAGE. O-SEALS ARE INSPECTED FOR SURFACE CHARACTERISTICS PER SMAS 3452. 100% FOR CLASS I AND II. AT LEAST 1.5 AQL FOR CLASS III. D. FAILURE HISTORY - NONE. E. GROUND TURNAROUND - TESTED PER FEMU-R-001, UMBILICAL SCU CHECKOUT. F. OPERATIONAL USE - CREW RESPONSE - PRE/POSTEVA (STORAGE): TROUBLESHOOT PROBLEM. IF NO SUCCESS, DISCONTINUE USE OF SCU. OPERATE EMU BATTERY POWER. CONSIDER SHARING OTHER SCU FOR COOLING AND O2 IF BATTERY CONSTRAINTS PERMIT. CONSIDER IN-SUIT BATTERY SWAP USING SPARE BATTERY(S). SPECIAL TRAINING - STANDARD EMU TRAINING COVERS THIS FAILURE MODE. OPERATIONAL CONSIDERATIONS - AT LEAST ONE SPARE EMU BATTERY IS MANIFESTED FOR EACH FLIGHT. EVA CHECKLIST PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEMS OPERATIONAL STATUS PRIOR TO EVA.