CIL
CRITICAL ITEMS LIST
FILE: CILS/1

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
REGULATOR, SCU WATER SUPPLY ITEM 489 SV77210B-6 1 FC244-8 *	2/2	41WHH1A: EXTERNAL LEAKAGE, GMU ATTACHED. CAUSE: DIAPHRAGM LEAKS OR RUPTURES, HOUSING SEAL LEAKAGE.	END ITEM: WATER LEAKAGE TO AMBIENT. OPF INTERFACE: DEPLETION OF THE ORBITER WATER RESERVOIR. MISSION: LOSS OF 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 63 MICRON FINISH. THE BEAD SEAL ON THE SILASTIC 35 DIAPHRAGM HAS 0.004 MIN SQUEEZE. THE SEALING SURFACE ON THE METAL PARTS ARE A MATT FINISH COATED WITH TEFLON. THE DIAPHRAGM STROKE IS 0.052 AND THIS LIMITS DEFLECTION OF THE ELASTOMER TO 1/2. THE 30 DURAMETER SILICONE HAS ELONGATION CAPABILITY OF 500% WITHOUT DAMAGE. B. TEST - COMPONENT ACCEPTANCE: EXTERNAL LEAKAGE IS CHECKED WITH AN IN-PROCESS TEST TO VERIFY NO LEAKS EXIST AT THE SPECIFIED 40 PSIG TEST POINT. PDR: AN EXTERNAL LEAKAGE TEST IS PERFORMED WITH THE SCU MATED, PER SEHD-40-005. WITH THE SCU MATED, THE POTABLE WATER LINE INLET AND OUTLET PORTS ARE PRESSURIZED WITH WATER TO 38.5 - 41.5 PSIG FOR 60 MINUTES MINIMUM. NO EVIDENCE OF EXTERNAL LEAKAGE IS ALLOWED FROM ANY PART OF THE CIRCUIT. CERTIFICATION: THE ITEM COMPLETED LEAKAGE TESTING TO 25 PSIG, AND PROOF PRESSURE TESTING TO 34.5 PSIG, AND HAS ANALYZED FOR ITS ACCEPTABILITY TO BURST PRESSURE (46 PSIG), DURING 1/82. THE FOLLOWING ENGINEERING CHANGES HAVE BEEN INCORPORATED AND CERTIFIED SINCE UNIT TIME: 62884-202 AND 202-1 (REVISED SCU MIN. OP. PRESS. TO 40 PSIG; PROOF PRESS TO 60 PSIG, AND BURST PRESS. TO 80 PSIG).

CIL
CRITICAL ITEMS LIST
FILE: CILS/L

NAME P/N QTY	CREW	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
REGULATOR, SCU WATER SUPPLY ITEM 619 SV772190-6 411 FC244-2 M	2/2	619FM03A; EXTERNAL LEAKAGE, EMU ATTACHED.		C. INSPECTION - DIAPHRAGMS ARE VISUALLY INSPECTED AT 3X TO ELIMINATE ANY VOIDS OR DEFECTS WHICH MIGHT CAUSE LEAKGE OR RUPTURE FAILURE OF THE DIAPHRAGM. THE DIAPHRAGMS ARE MANUFACTURED FROM QUALITY APPROVED MOLDS WHICH ASSURE UNIFORMITY OF PRODUCTION PARTS. HOUSING SEALS (O RINGS) ARE CLEANED AND INSPECTED FOR CLEANLINESS TO MSSIGD EMISO LEVEL BEFORE INSTALLATION. AFTER ASSEMBLY THE O RINGS ARE VISUALLY REVIEWED FOR PROPER INSTALLATION AND TO MAKE SURE THAT NO DAMAGE DUE TO ASSEMBLY HAS BEEN DONE. THE DETAIL SEALING BORE AND O RING GROOVES ARE INSPECTED FOR SURFACE FINISH AND DIMENSION REQUIREMENTS TO ENSURE PROPER O RING SQUEEZE. D. FAILURE HISTORY - NONE. E. GROUND TURNAROUND - TESTED PER PRIM-R-001, ORBITER SCU CHECKOUT. F. OPERATIONAL USE - POSTEVA (RECHARGE): TROUBLESHOOT PROBLEM. IF NO SUCCESS, USE OTHER SCU TO PERFORM EMU WATER DUMP AND CHARGE. PREEVA: TROUBLESHOOT PROBLEM. IF NO SUCCESS, DISCONTINUE USE OF SCU. OPERATE EMU ON BATTERY POWER. CONSIDER SHARING OTHER SCU FOR COOLING AND O2 IF BATTERY CONSTRAINTS PERMIT. CONSIDER EN-SUIT BATTERY SWAP USING SPARE BATTERY(S). 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.