



SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM: LIFE SUPPORT

FMEA NO 06-2D -1124 -2

REV:10/20/87

BACKING OF NONWOVEN POLYPROPYLENE; FILTER IS GLASS FIBERS AND ACRYLIC RESIN BINDER; FILTER AND MEMBRANE ENDS OVERLAPPED AND SEALED WITH EPOXY TO PREVENT LEAKAGE PAST MEMBRANE; MEMBRANE, SCREEN AND SUPPORT TUBE EPOXIED, SEALED IN PLACE; MATERIALS COMPATIBLE WITH OPERATING FLUIDS. FACTORS OF SAFETY: EXTERNAL PRESSURE = 5.9, INTERNAL PRESSURE = 4.4. SUPPLY WATER TANK BELLOWS MUST FAIL BEFORE WATER CAN CONTACT THE HYDROPHOBIC FILTER.

(B) TEST

QUALIFICATION TESTS FOR 100 MISSION LIFE INCLUDE: SHOCK TEST OF 20 G AND RANDOM STRUCTURAL VIBRATION - 0.1 G SQ/HZ VS 0.09 G SQ/HZ FOR 48 MINUTES/AXIS REQUIREMENT.

ACCEPTANCE TESTS - PROOF PRESSURE TEST AT 25.5 PSIG INTERNAL, 22.5 PSID EXTERNAL COLLAPSING; FILTER BUBBLE POINT TEST FOR 1 MICRON FILTRATION; WATER BREAKTHROUGH TEST TO 5 PSID.

OMRSD: VISUAL INSPECTION (ONLY) FOR EXTERNAL HOUSING DAMAGE.

(C) INSPECTION

RECEIVING INSPECTION

CERTIFICATION OF RAW MATERIALS AND PROCESSES IS VERIFIED.

CONTAMINATION CONTROL

CLEANLINESS OF INTERNAL SURFACES OF FILTER EXPOSED TO SERVICE FLUIDS IS VERIFIED TO 200. CORROSION PROTECTION PROVISIONS VERIFIED BY INSPECTION.

NONDESTRUCTIVE EVALUATION

WELDING IS VERIFIED BY RADIOGRAPHIC INSPECTION.

ASSEMBLY/INSTALLATION

VISUAL INSPECTION FOR DAMAGE DURING INSTALLATION.

CRITICAL PROCESSES

EPOXY PROCESSING IS VERIFIED BY INSPECTION.

TESTING

ACCEPTANCE TEST DATA IS VERIFIED BY INSPECTION.

HANDLING/PACKAGING

PARTS PROTECTION, HANDLING AND PACKAGING REQUIREMENTS ARE VERIFIED BY INSPECTION.

(D) FAILURE HISTORY

NO FAILURES.

(E) OPERATIONAL USE

FIRST FAILURE HAS NO EFFECT UNTIL THE ASSOCIATED SUPPLY WATER TANK BELLOWS LEAKS. A PERCENTAGE OF THE WATER CAN BE DUMPED OVERBOARD AND THE TANK WILL BE ISOLATED. SUPPLY WATER DUMP SHOULD BE TERMINATED WHEN NITROGEN BEGINS DUMPING OVERBOARD. CREW IS TRAINED IN FREE WATER DISPOSAL. DUMP PROCEDURE IS PART OF NORMAL CREW TRAINING.