

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : LIFE SUPPORT FMEA NO 06-2E -0423 -1 REV:10/29

ASSEMBLY : WASTE WATER DUMP CRIT. FUNC:
P/N RI : ME286-0075-0001 CRIT. HDW:
P/N VENDOR: SEB 14100023-301 VEHICLE 102 103 104
QUANTITY : 1 EFFECTIVITY: X X X
: PHASE(S): PL LQ OO X DO LS
: ONE PER SUBSYSTEM

REDUNDANCY SCREEN: A- B- C-
PREPARED BY: APPROVED BY: APPROVED BY (NASA):
DES S. CASTILLO DES *[Signature]* SSM *[Signature]*
REL L. SCHASCHL REL *[Signature]* REL *[Signature]*
QE M. SAVALA QE *[Signature]* QE *[Signature]*

ITEM:
FILTER, HIGH CAPACITY URINE

FUNCTION:
PROVIDES FOR FILTRATION IN THE WASTE WATER DUMP LINE TO PROTECT THE D
NOZZLE FROM CONTAMINATION.

FAILURE MODE:
RESTRICTED FLOW, PLUGGED

CAUSE(S):
SOLIDS BUILDUP, CONTAMINATION

EFFECT(S) ON:
(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE

- (A, B) INCREASED TIME FOR WASTE WATER DUMP OPERATION. LOSS OF WASTE WATER DUMP CAPABILITY FOR COMPLETELY PLUGGED FILTER.
- (C) LOSS OF WASTE WATER STORAGE CAPACITY MAY LIMIT MISSION DURATION.
- (D) NO EFFECT.

DISPOSITION & RATIONALE:
(A)DESIGN (B)TEST (C)INSPECTION (D)FAILURE HISTORY (E)OPERATIONAL USE

(A) DESIGN
FILTER MEDIA IS POLYURETHANE OPEN PORE FOAM. THREE INSERTS ARE USED WITH THREE DIFFERENT PORE SIZES: 30 PPI, 45 PPI, 80 PPI (PORES PER INCH). ALL FOAM INSERTS ARE 3.0 INCH DIAMETER. THE 30 PPI AND 45 PPI INSERTS ARE 1.0 INCH LONG. THE 80 PPI INSERT IS 3.5 INCH LONG. THE FILTER HOUSING AND COVER ARE MADE FROM 304 STAINLESS STEEL.

(B) TEST
QUALIFICATION TESTS INCLUDE: SHOCK TESTED AT 20 G PER AXIS AND BURST PRESSURE TESTED AT 90 PSIG.

ACCEPTANCE TESTS - PROOF PRESSURE EXTERNAL PRESSURIZES FILTER ASSEMBLY CASE TO 22.5 PSID MINIMUM FOR 3 MINUTES. PROOF PRESSURE INTERNAL PRESSURIZES FILTER ASSEMBLY INTERNALLY TO 67.5 PSIG MINIMUM FOR 3 MINUTES.

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OMRSD: FLOW THROUGH FILTER VERIFIED BEFORE EACH FLIGHT. FILTER REPLACED EVERY 10 FLIGHTS.

(C) INSPECTION

RECEIVING INSPECTION
RAW MATERIALS ARE VERIFIED BY INSPECTION.

CONTAMINATION CONTROL
CLEANING IS VERIFIED BY INSPECTION.

TESTING
PROOF PRESSURE, LEAK, AND FLOW TEST ARE VERIFIED BY INSPECTION PER ACCEPTANCE TEST PROCEDURES.

HANDLING/PACKAGING
PACKAGING IS VERIFIED BY INSPECTION.

(D) FAILURE HISTORY
NO APPLICABLE FAILURES IN SHUTTLE AND APOLLO PROGRAMS.

(E) OPERATIONAL USE
THE CREW WOULD RETURN TO THE PRIMARY LANDING SITE BEFORE THE TANK BECOMES HARD FILLED (PER FLIGHT RULE).