

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2116 -1 REV:06/15/88
 ASSEMBLY : D & C PANEL R2 CRIT. FUNC: 1R
 P/N RI : ME451-0018-0100 CRIT. HDW: 2
 P/N VENDOR: VEHICLE. 102 103 104
 QUANTITY : 3 EFFECTIVITY: X X X
 :THREE PHASE(S): PL LO X OO DO LS
 :

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
 PREPARED BY: APPROVED BY: APPROVED BY (NASA):
 DES J BROWN DES [Signature] EPDC SSM [Signature] 4/19/88
 REL DEFENSOR REL J Kamura 6/21/88 MPS SSM [Signature]
 QE D MASAI QE [Signature] EPDC REL [Signature] 7/1/88
 MPS REL [Signature] 7/1/88

ITEM:

FUSE (1 AMP), HELIUM ISOLATION VALVE A (LV1/3/5).

FUNCTION:

PROVIDES CONTROL BUS PROTECTION IN THE EVENT OF HELIUM ISOLATION VALVE A CONTROL CIRCUIT FAULTS. 32V73A2F27, F59, F62.

FAILURE MODE:

FAILS OPEN, FAILS TO CONDUCT.

E(S):

STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS.

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY

- (A) LOSS OF MANUAL SWITCH COMMAND TO HELIUM SUPPLY ISOLATION VALVE A.
- (B,C,D) NO EFFECT - FIRST FAILURE.

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- (E) 1R/2, 1 SUCCESS PATH AFTER FIRST FAILURE.
TIME FRAME - ASCENT.
1) HELIUM LEAK BETWEEN ISOLATION VALVE AND DOWNSTREAM CHECK VALVE
(ASSUMES LEAK RATE IS NOT LARGE ENOUGH TO OVERPRESSURIZE AFT
COMPARTMENT BEFORE CREW CAN RESPOND).
2) FUSE FAILS OPEN.

RESULTS IN NON-ISOLATABLE LEAKAGE FROM THE HELIUM ENGINE SUPPLY.
POSSIBLE OVERPRESSURIZATION OF AFT COMPARTMENT SINCE ISOLATION OF THE
LINE CANNOT BE ACHIEVED WITHIN THE AVAILABLE RESPONSE TIME. POSSIBLE
LOSS OF CREW/VEHICLE.

FAILS B SCREEN BECAUSE REDUNDANT GPC COMMAND MASKS FAILURE.

DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) FOR DISPOSITION AND RATIONALE:

REFER TO APPENDIX D, ITEM NO. 4 - FUSE, PLUG-IN TYPE.

(B) GROUND TURNAROUND TEST

MDM AND D&C CMD VERIF, V41AAO.010, V41AAO.030, V41AAO.050 EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

05-6J-221