

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2110 -1 REV:06/14/88

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 : 6 EFFECTIVITY: X X X  
 :SIX PHASE(S): PL LO X OO DO LS

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS

PREPARED BY:	APPROVED BY:	APPROVED-BY (NASA):
DES <i>J BROWN</i>	DES <i>D Brown</i>	EPDC SSM <i>[Signature]</i>
REL <i>F DEFENSOR</i>	REL <i>J Komura 6/27/88</i>	MFS SSM <i>[Signature]</i>
QE <i>D MASAI</i>	QE <i>G.2 Comen 6/27/88</i>	EPDC REL <i>[Signature]</i>
		MFS REL <i>[Signature]</i>

ITEM:  
 FUSE (1 AMP), HELIUM ISOLATION VALVE B (LV2/4/6).

FUNCTION:  
 PROVIDES CONTROL BUS PROTECTION IN THE EVENT OF HELIUM ISOLATION VALVE B CONTROL CIRCUIT FAULTS. 32V73A2F25, F26, F57, F58, F60, F61.

FAILURE MODE:  
 FAILS OPEN, FAILS TO CONDUCT.

CAUSE(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 ONE OF TWO MANUAL SWITCH COMMANDS TO HELIUM SUPPLY ISOLATION VALVE B.  
 (B,C,D) NO EFFECT - FIRST FAILURE.

05-6J-202

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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

COMPLETE ELECTRICAL VERIFICATION, V41AAO.015E, V41AAO.035E, V41AAO.055  
EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.