

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2393 -1 REV: 11/04/87

ASSEMBLY : AFT PCA-4, 5, 6 CRIT. FUNC: 1R  
 P/N RI : JANTX1N1204RA CRIT. HDW: 3  
 P/N VENDOR: VEHICLE 102 103 104  
 QUANTITY : 3 EFFECTIVITY: X X X  
 : THREE PHASE(S): PL X LO X OO DO LS  
 : 1 PER LH2 PREVALVE 1, 2, 3

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

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES J BROWN	DES <u>[Signature]</u>	EPDC SSM <u>[Signature]</u>
REL F DEFENSOR	REL <u>[Signature]</u> 12-5-87	MPS SSM <u>[Signature]</u>
QE D MASAI	QE <u>[Signature]</u> 11/5/87	EPDC REL <u>[Signature]</u> for ML Defensor
		MPS REL <u>[Signature]</u>
		QE <u>[Signature]</u>

ITEM:

DIODE, BLOCKING (12 AMP), LH2 PREVALVE 1, 2, & 3, CLOSE COMMAND B RPC OUTPUT.

FUNCTION:

USED TO ISOLATE REDUNDANT MAIN BUS POWER TO A COMMON CLOSE SOLENOID. LOCATED AT REMOTE POWER CONTROLLER (RPC) OUTPUT AHEAD OF CLOSE COMMAND C HYBRID DRIVER CONTROLLER (HDC). 54V76A134A4CR31, J12 (W), 55V76A135A4CR31, J12 (W), 56V76A136A4CR31, J12 (W)

FAILURE MODE:

OPEN, FAILS OPEN, FAILS TO CONDUCT POWER.

CAUSE(S):

PIECE PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL STRESS, MECHANICAL SHOCK, VIBRATION.

EFFECT(S) ON:

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

(A) LOSS OF CLOSE COMMAND B POWER PATH TO HDC III.

(B, C, D) NO EFFECT - FIRST FAILURE.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (SECOND FAILURE - LOSS OF CLOSE COMMAND A POWER PATH TO HDC III. THIRD FAILURE - SSME SHUTDOWN WITH UNCONTAINED DAMAGE REQUIRING PROPELLANT SUPPLY ISOLATION) DUE TO INABILITY TO CLOSE LH2 PREVALVE. FAILS B SCREEN BECAUSE REDUNDANT POWER PATH MASKS FAILURE.

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DISPOSITION & RATIONALE:

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

(A-D) FOR DISPOSITION AND RATIONALE

REFER TO APPENDIX F, ITEM NO. 2 - DIODE, POWER-STUD MOUNTED.

(B) GROUND TURNAROUND TEST

MDM COMMAND REDUNDANCY TEST, V41AEO.180J, 200J, 220J EVERY FLIGHT.

(E) OPERATIONAL USE

FLIGHT - NO CREW ACTION CAN BE TAKEN.

GROUND - IF A MAJOR LEAK IS DETECTED, CLOSE PREVALVES (PV4, 5, 6), LH2  
17-INCH DISCONNECT (PD2), LH2 4-INCH RECIRC DISCONNECT (PD3), LH2  
RECIRC VALVES (PV14-16); DRAIN MANIFOLD.