

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2207 -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 PREVALVE 1, 2, & 3

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

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

ITEM:

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

FUNCTION:

USED TO ISOLATE REDUNDANT MAIN BUS POWER TO A COMMON CLOSE SOLENOID. LOCATED AT RPC OUTPUT AHEAD OF CLOSE COMMAND B HDC III. 54V76A134A4CR25, 55V76A135A4CR25, 56V76A136A4CR25.

FAILURE MODE:

OPENS, FAILS OPEN, FAILS TO CONDUCT POWER.

CAUSE(S):

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

EFFECT(S) ON:

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

(A) LOSS OF COMMAND A 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 COMMAND B POWER PATH TO HDC III. THIRD FAILURE - SSME SHUTDOWN WITH UNCONTAINED DAMAGE REQUIRING LH2 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, V41AEO.180H; 200H; 220H 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.

05-6J-330