

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2392 -2 REV:11/04/87

ASSEMBLY : AFT PCA-4, 5, & 6 CRIT. FUNC: 1R
 P/N RI : JANTX1N1304RA 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:	DES	J BROWN	APPROVED BY:	DES	<i>[Signature]</i>	APPROVED BY (NASA):	EPDC SSM	<i>[Signature]</i>
REL	F DEFENSOR	REL	<i>[Signature]</i>	12-5-87	EPDC REL	<i>[Signature]</i>	MPS SSM	<i>[Signature]</i>
QE	D MASAI	QE	DM	<i>[Signature]</i>	11/5/7	MPS REL	<i>[Signature]</i>	QE

ITEM:

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

FUNCTION:

USED TO ISOLATE REDUNDANT MAIN BUS POWER TO A COMMON OPEN SOLENOID. LOCATED AT RPC OUTPUT AHEAD OF OPEN COMMAND A HDC III. 54V76A134A4CR26, 55V76A135A4CR26, 56V76A136A4CR26.

FAILURE MODE:

SHORT, INTERNAL SHORT, CURRENT LEAKAGE

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) DEGRADATION OF MAIN BUS ISOLATION.

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

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (SECOND FAILURE - LOSS OF MAIN BUS TO COMMAND A RPC. COMMAND B RPC TRIPS BECAUSE IT FEEDS THE LOAD ON THE FAILED BUS BY WAY OF THE COMMAND B HDC III REVERSE BIAS DIODE. LOSS OF POWER TO OPEN SOLENOID. BISTABLE FEATURE MAINTAINS PREVALVE IN OPEN POSITION. THIRD FAILURE - PREMATURE ACTUATION OF CLOSE SOLENOID) RESULTING IN PREMATURE LH2 PREVALVE CLOSURE WHILE ENGINE IS RUNNING. UNCONTAINED ENGINE DAMAGE DUE TO STARVATION CUTOFF. FAILS B SCREEN BECAUSE RPC MAY NOT TRIP IMMEDIATELY. NOTE - BISTABLE FEATURE NOT DEMONSTRATED BY TEST (CERTIFIED BY ANALYSIS). A FULL FLOW DETENT VERIFICATION TEST IS SCHEDULED FOR GFY 1988.

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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.180D, 200D, 220D EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.