

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2346 -1 REV:11/04/87

ASSEMBLY : AFT PCA-6 CRIT. FUNC: 1R
 P/N RI : JANTXLN1204RA CRIT. HDW: 3
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY : 2 EFFECTIVITY: X X X
 : TWO PHASE(S): PL X LO X OO DO LS
 : 1 PER LH2/LO2 17" DISCONNECT LATCH

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>	11/5/87	EPDC REL	<i>[Signature]</i>	<i>[Signature]</i>
QE	D	MASAI	QE	<i>[Signature]</i>	11/4/87	MPS REL	<i>[Signature]</i>	<i>[Signature]</i>

ITEM:

DIODE, BLOCKING (12 AMP), LH2/LO2 17-INCH FEEDLINE DISCONNECT VALVE LATCH LOCK SOLENOID, RPC C OUTPUT DIODE.

FUNCTION:

DIODE USED TO ISOLATE REDUNDANT MAIN BUS POWER TO A LOCK SOLENOID. LOCATED AT RPC C OUTPUT AHEAD OF LOCK COMMAND C HDC III. 56V76A136A2CR40, 42.

FAILURE MODE:

OPEN, FAILS OPEN, FAILS TO CONDUCT.

CAUSE(S):

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

EFFECT(S) ON:

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

(A) LOSS OF ONE OF TWO POWER PATHS TO LATCH LOCK SOLENOID.

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

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER FOURTH FAILURE (SECOND FAILURE - LOSS OF SECOND POWER PATH TO LATCH LOCK SOLENOID, BISTABLE FEATURE WILL KEEP DISCONNECT LATCH IN LOCK POSITION. THIRD FAILURE - PREMATURE ACTUATION OF UNLOCK SOLENOID ROTATING LATCH TO UNLOCK POSITION. FOURTH FAILURE - FLAPPER FAILS TO THE CLOSED POSITION) RESULTING IN PREMATURE DISCONNECT VALVE CLOSURE WHILE ENGINES ARE RUNNING. SURGE PRESSURE FROM VALVE CLOSURE MAY CAUSE DAMAGE OR RUPTURE TO THE MPS AND/OR ET SYSTEM, DEPENDING ON THE RATE OF CLOSURE. SHUTDOWN OF ALL THREE SSMEs SIMULTANEOUSLY. UNCONTAINED ENGINE DAMAGE DUE TO STARVATION CUTOFF. FAILS B SCREEN BECAUSE PARALLEL POWER PATH MASKS FAILURE.

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DISPOSITION & RATIONALE:

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

(A-D) DISPOSITION AND RATIONALE:

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

(B) GROUND TURNAROUND TEST

COMPLETE ELECTRICAL VERIFICATION, V41AB0.155E; 165E EVERY FLIGHT

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.