

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP.      FMRA NO 05-6J -2233 -2      REV:06/20/88

ASSEMBLY :AFT PCA-2 & 3				CRIT. FUNC: 1R
P/N RI :JANTX1N1204RA				CRIT. HDW: 3
P/N VENDOR:	VEHICLE	102	103	104
QUANTITY :2	EFFECTIVITY:	X	X	X
:TWO	PHASE(S):	FL	LO X OO	OO LS
:				

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

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES <i>JWB</i> J BROWN	DES <i>A. Burns</i>	EPDC SSM <i>Conrad R. ... 6/21/88</i>
REL <i>gdp</i> DEFENSOR	REL <i>J. Kamura 6/27/88</i>	MPS SSM <i>... 6/28/88</i>
QE <i>D. Masai</i> D MASAI	QE <i>J.D. Cannon 6/27/88</i>	EPDC REL <i>... 7/1/88</i>
		MPS REM <i>... 6/28/88</i>
		QE <i>... 6/28/88</i>

ITEM:

DIODE, BLOCKING (12 AMP), POINT SENSOR ELECTRONICS BUS NO. 4 RPC OUTPUT.

FUNCTION:

ISOLATES REDUNDANT MAIN BUS POWER TO POINT SENSOR ELECTRONICS BUS NO. 4. 55V76A132A3CR1, 56V76A133A3CR9.

FAILURE MODE:

SHORT (END TO END).

CAUSE(S):

STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), CONTAMINATION, ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY.

EFFECT(S) ON:

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

(A) LOSS OF MAIN BUS ISOLATION.

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

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- (E) 1R/3, 3 SUCCESS PATHS AFTER FIRST FAILURE.  
TIME FRAME - PRELAUNCH AND ASCENT.
- 1) DIODE SHORTS (END TO END).
  - 2) ASSOCIATED MAIN BUS FAILS "OFF", TRIPPING PARALLEL RPC AND RESULTING IN LOSS OF LO2 AND LH2 ECO SENSOR NO. 4 CAPABILITY.
  - 3,4) TWO OTHER LO2 OR LH2 ECO SENSORS FAIL WET.

PROPELLANT DEPLETION MECO COMMAND CAPABILITY WILL BE LOST. SYSTEM REQUIRES 2 LO2 OR 2 LH2 DRY SIGNALS AFTER ARM COMMAND BEFORE A PROPELLANT DEPLETION SSME SHUTDOWN COMMAND CAN BE GIVEN. PROPELLANT STARVATION RESULTS IN SSME PUMP CAVITATION AND UNCONTAINED ENGINE DAMAGE. POSSIBLE LOSS OF CREW/VEHICLE.

FAILS B SCREEN BECAUSE NO INSTRUMENTATION IS AVAILABLE TO DETECT FAILURE.

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 MOUNT.

(B) GROUND TURNAROUND TEST

MPS SIG COND PWR CONTROL VERIF V41A10.080B, C EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

05-6J-372