

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2391 -2 REV:11/04/87

ASSEMBLY : APT PCA-4, 5, & 6 CRIT. FUNC: 1R
 P/N RI : JANTXV1N4246 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-FAIL B-FAIL C-PASS

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES J BROWN	DES <i>[Signature]</i>	EPDC SSM <i>[Signature]</i>
REL F DEFENSOR	REL <i>[Signature] 12-5-87</i>	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 (1 AMP), SWITCH SCAN DIODE (CLOSE POSITION), LO2
 PREVALVES 1, 2, & 3.

FUNCTION:
 DIODE ISOLATES CLOSE SWITCH SCAN SIGNALS FROM OTHER MANUAL SWITCH CLOSE
 COMMANDS. 54V76A134A3CR7, 55V76A135A3CR7, 56V76A136A3CR7.

FAILURE MODE:
 SHORTS, INTERNAL SHORTS, CURRENT LEAKAGE

CAUSE(S):
 CONTAMINATION, MECHANICAL SHOCK, VIBRATION, THERMAL STRESS.

EFFECT(S) ON:
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL
 CRITICALITY

- (A) LOSS OF REDUNDANCY FOR MANUAL SWITCH CLOSE COMMAND ISOLATION.
- (B,C,D) NO EFFECT - FIRST FAILURE.
- (E) POSSIBLE LOSS OF CREW/VEHICLE AFTER FIFTH FAILURE (SECOND FAILURE -
 SERIES SWITCH SCAN DIODE SHORTS. THIRD FAILURE - GROUNDING DIODE FAILS
 OPEN. FOURTH FAILURE - ROLLER/SRING OF POLE ASSOCIATED WITH SHORTED
 SWITCH SCAN DIODE BREAKS AND LANDS ON POLE ASSOCIATED WITH FAILED
 GROUNDING DIODE PROVIDING TWO INADVERTENT CLOSE COMMANDS AND INHIBITING
 OPEN SOLENOID. FIFTH FAILURE - MAINSTAGE CLOSE INHIBIT COMMAND FAILS)
 RESULTING IN PREMATURE LO2 PREVALVE CLOSURE WHILE ENGINE IS RUNNING.
 UNCONTAINED ENGINE DAMAGE DUE TO STARVATION CUTOFF. FAILS A AND B SCREEN
 BECAUSE NO INSTRUMENTATION IS AVAILABLE TO DETECT THIS FAILURE - REQUIRES
 INVASIVE TESTING. NOTE - BISTABLE FEATURE NOT DEMONSTRATED BY TEST
 (CERTIFIED BY ANALYSIS). A FULL FLOW DETENT VERIFICATION TEST IS
 SCHEDULED FOR CFY 1988.

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REV:11/04/8

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. 3 - DIODE.

(B) GROUND TURNAROUND TEST

UNDETECTABLE - REQUIRES INVASIVE TESTING.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

05-6J-561