

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2195 -2 REV: 11/04/87

ASSEMBLY : AFT PCA-4, 5, & 6, AV BAY 4, 5, & 6 DIODE BOX CRIT. FUNC: 1R
 P/N RI : JANTXV1N4246 (QTY 6) / 5551 (QTY 6) CRIT. HDW: 3
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY : 12 EFFECTIVITY: X X X
 : TWELVE PHASE(S): PL X LO X OO DO LS
 : 4 PER 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):	
REL	F DEFENSOR	REL	<i>[Signature]</i>	REL	<i>[Signature]</i>	EPDC SSM	<i>[Signature]</i>
QE	D MASAI	QE	<i>[Signature]</i>	QE	<i>[Signature]</i>	MPS SSM	<i>[Signature]</i>
						EPDC REL	<i>[Signature]</i>
						MPS REL	<i>[Signature]</i>

ITEM:

DIODE, BLOCKING (1 AMP, 3 AMP), SWITCH SCAN DIODE (CLOSE POSITION) LO2 PREVALVES 1, 2, & 3.

FUNCTION:

DIODE ISOLATES CLOSE SWITCH SCAN SIGNALS FROM OTHER MANUAL SWITCH CLOSE COMMANDS. AV BAY 4, P140(51), (60); AV BAY 5, P140(117), (119); AV BAY 6, P140(51), (60); 54V76A134A3CR5, 8; 55V76A135A3CR5, 8; 56V76A136A3CR5, 8.

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 MANUAL SWITCH CLOSE COMMAND ISOLATION.

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

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - MAIN PROP. FMEA NO 05-6J -2196 -2 REV:11/04/87

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER FOURTH FAILURE (SECOND FAILURE - GROUNDING DIODE FAILS OPEN. THIRD FAILURE - ROLLER/SPRING 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. FOURTH FAILURE - MAINSTAGE CLOSE INHIBIT COMMAND FAILS) RESULTING IN PREMATURE LO2 PREVALVE CLOSURE WHILE ENGINE IS RUNNING. UNCONTAINED ENGINE DAMAGE DUE TO STARVATION CUTOFF. FAILS B SCREEN BECAUSE NO INSTRUMENTATION IS AVAILABLE TO DETECT THIS FAILURE. NOTE - BISTABLE FEATURE NOT DEMONSTRATED BY TEST (CERTIFIED BY ANALYSIS). A FULL FLOW DETENT VERIFICATION TEST IS SCHEDULED FOR GFY 1988.

DISPOSITION & RATIONALE:

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

(A-D) FOR DISPOSITION AND RATIONALE

REFER TO APPENDIX F, ITEMS NO. 3 AND 4 - DIODE.

(B) GROUND TURNAROUND TEST

D & C CONTROL BUS REDUNDANCY, V41AFO.041L, Q; 062L, Q; 081Q, R, S EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

05-6J-302