

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AFT-RCS

FMEA NO 05-6KA-2268 -2

REV: 11/03/87

ASSEMBLY : PANEL 07
 P/N RI : JANTXVIN4246
 P/N VENDOR:
 QUANTITY : 8
 : EIGHT
 :

ABORT,	CRIT. FUNC:	1R
RTLS, TAL	CRIT. HDW:	3
VEHICLE	102	103 104
EFFECTIVITY:	X	X X
PHASE(S):	PL	LO X OO X DO X LS

PREPARED BY:
 DES D SOVEREIGN
 REL J BEEKMAN
 QE

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS
 APPROVED BY:
 DES D. Z. Bunn APPROVED BY (NASA) [Signature]
 REL Michael C. Hays 11-19-87 SSM [Signature]
 QE [Signature] REL [Signature]
 QE [Signature]

ITEM:

BLOCKING DIODE (1 AMP) - LEFT AND RIGHT AFT RCS FUEL AND OXIDIZER TANK ISOLATION VALVES 3/4/5 A AND B.

FUNCTION:

PROVIDES BLOCKING BETWEEN EVENT INDICATORS AND DRIVER LOGIC FOR TANK A AND B ISOLATION VALVES 3/4/5 A AND B. UNIQUE TO INTACT ABORT.
 33V73A7A3CR5,6,7,8. 33V73A7A2 CR5,6,7,8.

FAILURE MODE:

SHORTS, INTERNAL SHORTS

CAUSE(S):

CONTAMINATION AND THERMAL STRESS.

EFFECT(S) ON:

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

(A) FAILURE OF DIODE ON THE CLOSE SIDE OF EVENT INDICATOR RESULTS IN LOSS OF CAPABILITY TO BLOCK VOLTAGE FEEDBACK THROUGH EVENT INDICATOR TO "CLOSE" RELAY INHIBIT CIRCUIT.

(B) POSSIBLE LOSS OF ABILITY TO CLOSE RELATED PROPELLANT TANK ISOLATION VALVES.

(C) POSSIBLE MISSION MODIFICATION OR EARLY MISSION TERMINATION.

(D) NO EFFECT FOR NOMINAL MISSION - CRITICALITY INCREASED TO 1/1 DURING RTLS AND TAL ABORT. MEASUREMENTS UTILIZED BY MCA OPTIMIZATION SOFTWARE IN "LANDING HEAVY" CONDITION. WILL ALSO RESULT IN CONTROL PROBLEMS DURING ENTRY.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE CREW/VEHICLE LOSS DUE TO INABILITY TO PERFORM EXTERNAL TANK SEPARATION OR ENTRY CONTROL. REQUIRES 2 OTHER FAILURES (THRUSTER LEAK, MANIFOLD ISOLATION VALVE FAILS OPEN) BEFORE EFFECT IS MANIFESTED.

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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. 3 - DIODE.

(B) GROUND TURNAROUND TEST

COMPONENT CHECKED OUT EVERY FLIGHT DURING GROUND TURNAROUND. THE TESTING CONSISTS OF CYCLING VALVE MANUAL SWITCHES AND/OR SENDING GENERAL PURPOSE COMPUTER (GPC) COMMANDS TO CYCLE VALVES OR HEATERS WHILE MONITORING VEHICLE INSTRUMENTATION TO DETERMINE IF COMPONENTS HAVE FAILED.

(E) OPERATIONAL USE

NO ACTION POSSIBLE IN ABORT SITUATION. AVOID CROSSFEED/INTERCONNECT TO AFFECTED LEG. LOSS OF INTERCONNECT CAPABILITY MAY RESULT IN MISSION MODIFICATION.