SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AFT-RCS FMEA NO 05-6KA-2259A -1 REV:11/03/87

ASSEMBLY :AFT PCA 1,2,3
P/N RI :JANTXV1N4246
P/N VENDOR:
QUANTITY :8
:EIGHT
:

CRIT. FUNC: 1R
CRIT. HDW: 3

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL LO X OO X DO X LS

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

PREPARED BY:
DES D SOVEREIGN
REL J BEEKMAN
QE

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SEM
REL
QE

ITEM:
BLOCKING DIODE - LEFT AND RIGHT AFT RCS REACTION JET DRIVER 1 AND 2 (MANIFOLD 1 THROUGH 5) REMOTE POWER CONTROLLER CONTROL CIRCUIT (LATCH CIRCUIT).

FUNCTION:
PROVIDES BLOCKING BETWEEN REMOTE POWER CONTROLLER DUAL COMMAND INPUTS (LATCH CIRCUIT AND/OR MANUAL SWITCH) CONTROLLING POWER TO THE REACTION JET DRIVER AFT 1 AND 2 (MANIFOLD 1 THROUGH 5) POWER SUPPLY AND LOGIC CIRCUITS.
OV-102 - 54V76A131A1CR1,3,5. 55V76A132A1CR1,3. 56V76A133A1CR1,3,7.
OV-103 & SUBS - 54V76A131A1CR1,2, A2CR4. 55V76A132A2CR1,3. 56V76A133A1CR1,3,7.

FAILURE MODE:
OPEN, FAILS TO CONDUCT, HIGH RESISTANCE

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

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

(A) LOSS OF LATCHING CIRCUIT "MAINTAIN ON" REMOTE POWER CONTROLLER COMMAND.

(B) DEGRADATION OF REDUNDANCY FOR SUPPLYING POWER TO THE ASSOCIATED REACTION JET DRIVER AND FIRING RELATED THRUSTERS.

(C,D) NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF CAPABILITY TO PERFORM EXTERNAL TANK SEPARATION AND ENTRY MANEUVERS AFTER LOSS OF ALL POWER TO THE REACTION JET DRIVER. REQUIRES 3 OTHER FAILURES (2 REACTION JET DRIVER BUS FUSES FAIL OPEN, MANUAL SWITCH DIODE OPEN) BEFORE EFFECT IS MANIFESTED. FIRST FAILURE OF STRING NOT DETECTABLE IN FLIGHT DUE TO LACK OF MONITORING MEASUREMENTS.

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 VIA THE GUIDANCE, NAVIGATION, AND CONTROL'S (GN&C) OPERATIONAL MAINTENANCE REQUIREMENTS AND SPECIFICATIONS DOCUMENT (OMRSD) REQUIREMENTS FOR CHECKING THE PRIMARY AND VERNIER REACTION JET DRIVER POWER. THE TESTING CONSISTS OF CYCLING THRUSTER REACTION JET DRIVER LOGIC AND DRIVER SWITCHES WHILE MONITORING VEHICLE INSTRUMENTATION TO DETERMINE IF COMPONENTS HAVE FAILED.

(E) OPERATIONAL USE
NO ACTION FOR FIRST FAILURE - NOT DETECTABLE. IF ASSOCIATED THRUSTERS FAIL OFF, USE REDUNDANT THRUSTERS TO MAINTAIN VEHICLE CONTROL.