

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AFT-RCS

FMEA NO 05-6KA-2259 -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	102	103	104
EFFECTIVITY:		X	X	X
PHASE(S):	PL	LO	X CO	X DO X LS

PREPARED BY:

DES D SOVEREIGN
REL J BEERMAN
QE

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

APPROVED BY:

DES *P.S. R. Bussan*
REL *M. J. ...*
QE *...*

APPROVED BY (NASA):

SSM *...*
REL *...*
QE *...*

EPD&C SSM *...*
T-1000-0-51469

ITEM:

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

FUNCTION:

PROVIDES BLOCKING BETWEEN REMOTE POWER CONTROLLER DUAL COMMAND INPUTS (MANUAL SWITCH AND/OR ENERGIZED DRIVER POWER CIRCUIT) CONTROLLING POWER TO THE REACTION JET DRIVER AFT 1 AND 2 (MANIFOLD 1 THROUGH 5) POWER SUPPLY AND LOGIC CIRCUITS.

OV-102 - 54V76A131A1CR2,4,6. 55V76A132A1CR2,4.
56V76A133A1CR2,4,8.
OV-103 & SUBS - 54V76A131A1CR1, A2CR1,3. 55V76A132A2CR2,4.
56V76A133A1CR2,4,8.

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 MANUAL SWITCH "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.

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(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 DRIVERS. REQUIRES 2 OTHER FAILURES (2 REACTION JET DRIVER BUS FUSES FAIL 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.