

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AFT-RCS

FMEA NO 05-6KA-2270 -1

REV: 11/03/87

ASSEMBLY : AFT PCA 1,2
 P/N RI : JANTX1N1204RA
 P/N VENDOR:
 QUANTITY : 2
 : TWO

VEHICLE	102	103	104
EFFECTIVITY:	X	X	X
PHASE(S):	PL LO	OO X DO	LS

CRIT. FUNC: 2
 CRIT. HDW: 2

PREPARED BY:
 DES D SOVEREIGN
 REL J BEEKMAN
 QE

REDUNDANCY SCREEN: A- B- C-
 APPROVED BY: APPROVED BY (NASA):
 DES [Signature] SSM [Signature]
 REL [Signature] REL [Signature]
 QE [Signature] QE [Signature]
 EPD&C SSM [Signature]
 7222 c 51664

ITEM:

BLOCKING DIODE (12 AMP) - AFT LEFT AND RIGHT RCS REACTION JET DRIVER 1 AND 2, POWER INPUT CIRCUIT TO LS/RS MANIFOLD DRIVERS.

FUNCTION:

CONDUCTS CIRCUIT CURRENT AND PROVIDES SWITCHING COMPONENT PROTECTION FOR REACTION JET DRIVERS 1 AND 2, POWER INPUT CIRCUIT LS/RS MANIFOLD DRIVERS.

OV-102 - 54V76A131A3CR2, 55V76132A3CR3.
 OV-103 & SUBS - 54V76A131A3CR1, 55V76A132A3CR2B

FAILURE MODE:

OPEN, FAILS TO CONDUCT, FAILS OPEN, HIGH RESISTANCE, SHORT TO GROUND

CAUSE(S):

CONTAMINATION, THERMAL STRESS, VIBRATION, MECHANICAL SHOCK

EFFECT(S) ON:

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

(A) LOSS OF FUNCTION

(B) LOSS OF INTERFACE FUNCTION - LOSS OF AFT DRIVER POWER FOR THE APPLICABLE AFT REACTION JET DRIVER, LS OR RS.

(C) POSSIBLE MISSION MODIFICATION OR EARLY MISSION TERMINATION DUE TO LOSS OF VERNIER THRUSTERS. NO OTHER REDUNDANT VERNIER THRUSTERS ARE AVAILABLE TO COMPLETE THE REQUIRED FUNCTIONS. PRIMARY THRUSTER USAGE WILL RESULT IN HIGHER PROPELLANT CONSUMPTION RATE RESULTING IN EARLY MISSION TERMINATION.

(D) NO EFFECT.

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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. 2 -
POWER DIODE, STUD MOUNTED.

(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

PRIMARY THRUSTERS CAN BE USED FOR THE VERNIER FUNCTION. SOME MISSION OBJECTIVES MAY NOT BE MET DUE TO HIGHER PROPELLANT CONSUMPTION RATE ON PRIMARY THRUSTERS. MICROGRAVITY EXPERIMENTS WILL BE DISRUPTED DUE TO HIGHER ACCELERATION RATE OF PRIMARY THRUSTERS.