

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS

FMEA NO 05-6KF-2220 -2

REV: 11/03/87

ASSEMBLY : FWD LCA-3
 P/N RI : MC477-0262-0002
 P/N VENDOR:
 QUANTITY : 1
 : ONE
 :

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

CRIT. FUNC: 2R
 CRIT. HDW: 3

PREPARED BY:
 DES D SOVEREIGN
 REL J BEEKMAN
 QE

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
 APPROVED BY:
 DES *P.S. Quinn*
 REL *Thomas C. ... 11-10-87*
 QE *...*

APPROVED BY (NASA):
 SSM *...*
 REL *...*
 QE *...*

ITEM:

HYBRID DRIVER CONTROLLER (HDC) TYPE II - FORWARD RCS REACTION JET DRIVER MANIFOLD FS, 4.5 SECOND TIME DELAY.

FUNCTION:

PROVIDES A TIME DELAY FOR INITIATING "ON" THE SECOND OF TWO SERIES REMOTE POWER CONTROLLERS USED IN THE REACTION JET DRIVER (RJD) MANIFOLD FS DRIVER CIRCUIT. 83V76A18AR (J4-115).

FAILURE MODE:

INADVERTENT OUTPUT, SHORTS, CONDUCTS PREMATURELY

CAUSE(S):

CONTAMINATION, PIECE PART SHOCK, VIBRATION. FAILURE, MECHANICAL SHOCK, THERMAL

EFFECT(S) ON:

- (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE
- (A) PREMATURE STIMULUS TO THE ASSOCIATED REMOTE POWER CONTROLLER.
- (B) THE SECOND SERIES REMOTE POWER CONTROLLER IN THE REACTION JET DRIVER MANIFOLD DRIVER POWER CIRCUIT WILL BE COMMANDED "ON". NO EFFECT, BOTH REMOTE POWER CONTROLLERS MUST CONDUCT BEFORE THE FUNCTION IS INITIATED.
- (C, D) NO EFFECT.
- (E) FUNCTIONAL CRITICALITY EFFECT- POSSIBLE LOSS OF MISSION OBJECTIVES AFTER PROPELLANT LOSS THROUGH UNCONTROLLED VERNIER THRUSTER OPERATION. REQUIRES 5 OTHER FAILURES (REDUNDANT REMOTE POWER CONTROLLER, SPURIOUS RJD COMMAND, MANIFOLD ISOLATION VALVE FAILS OPEN, 3/4/5 TANK ISOLATION FAILS OPEN, MAIN BUS FAILS ON) BEFORE THE EFFECT IS MANIFESTED. FIRST FAILURE OF STRING NOT DETECTABLE IN FLIGHT DUE TO LACK OF MONITORING MEASUREMENTS.

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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 B, ITEM NO. 1 - HYBRID DRIVER.

(B) GROUND TURNAROUND TEST

COMPONENT CHECKED OUT EVERY FLIGHT DURING GROUND TURNAROUND VIA THE GUIDANCE, NAVIGATION, AND CONTROL (GN&C) ORBITER 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 JET FAILS ON, ISOLATE FAILURE BY CLOSING ASSOCIATED MANIFOLD VALVE.