

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS

FMEA NO. 05-6KF-2220 -1

REV: 11/03/87

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

	VEHICLE	102	103	104	
CRIT. FUNC:					2
CRIT. HDW:					2
EFFECTIVITY:		X	X	X	
PHASE(S):	PL	LO	OO	X DO	LS

PREPARED BY:	DES	D SOVEREIGN	APPROVED BY:	DES	D. S. Quinn	REDUNDANCY SCREEN:	A-	B-	C-
REL	REL	J BEEKMAN	REL	REL	McQuinn 11-14-87	APPROVED BY (NASA):			
QE	QE		QE	QE		SSM			

ITEM:
 HYBRID DRIVER CONTROLLER (HDC) TYPE II - FORWARD RCS REACTION JET DRIVER MANIFOLD 5, 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 MANIFOLD 5 DRIVER CIRCUIT. 83V76A18AR (J4-115).

FAILURE MODE:
 LOSS OF OUTPUT, FAILS TO CONDUCT, INADVERTENTLY OPENS

CAUSE(S):
 PIECE PART FAILURE, MECHANICAL SHOCK, THERMAL SHOCK, VIBRATION.

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

(A) LOSS OF FUNCTION.

(B) THE SECOND SERIES REMOTE POWER CONTROLLER IS NOT COMMANDED "ON". LOSS OF INTERFACE FUNCTION - REACTION JET DRIVER FORWARD NO. 2 BOX WILL NOT BE ENERGIZED.

(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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SUBSYSTEM :EPD&C - FWD-RCS

FMEA NO 05-6KF-3220 -1

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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

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.