

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AFT-RCS FMEA NO 05-6KA-2220 -1 REV:11/02/87

ASSEMBLY :AFT LCA 1,2 CRIT. FUNC: 2  
 P/N RI :MC477-0262-0002 CRIT. HDW: 2  
 F/N VENDOR: VEHICLE 102 103 104  
 QUANTITY :2 EFFECTIVITY: X X X  
 :TWO PHASE(S): PL LO X OC X DO X LS  
 :

PREPARED BY: DES D SOVEREIGN APPROVED BY: DES *D. J. P. Burns* REDUNDANCY SCREEN: A- B- C-  
 REL J BEEKMAN REL *Mc - G. G. G. (1-14-87)* APPROVED BY (NASA): SSM *[Signature]*  
 QE *[Signature]* QE *[Signature]* *code was qualified. [Signature]*

ITEM:

HYBRID DRIVER CONTROLLER (HDC) TYPE II - LEFT AND RIGHT AFT RCS REACTION JET DRIVER MANIFOLD L5/R5 1.125 SECOND TIME DELAY.

FUNCTION:

PROVIDES A TIME DELAY FOR INITIATING "ON" THE SECOND OF TWO SERIES SOLID STATE (REMOTE POWER CONTROLLER OR HYBRID DRIVER) SWITCHES USED TO ENERGIZE REACTION JET DRIVER AFT 1 AND 2 FOR MANIFOLDS L5 AND R5. VERNIER JET CONTROL. 54V76A121AR (J4-7), 55V76A122AR (J4-7).

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 STIMULUS TO THE ASSOCIATED SOLID STATE (REMOTE POWER CONTROLLER OR HYBRID DRIVER) SWITCHES.

(B) THE SECOND SERIES ELEMENT IS NOT COMMANDED "ON". LOSS OF INTERFACE FUNCTION - THE ASSOCIATED REACTION JET DRIVER WILL NOT BE ENERGIZED. PRECLUDES OPERATION OF THE ASSOCIATED VERNIER JETS.

(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 B, ITEM NO. 1 - HYBRID DRIVER.

(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.