

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AFT-RCS FMEA NO 05-6KA-2042 -1 REV:11/03/87

ASSEMBLY : PANEL A14 CRIT. FUNC: 2
 P/N RI : ME452-0102-7101 CRIT. HDW: 2
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY : 1 EFFECTIVITY: X X X
 : ONE PHASE(S): PL X LO X OO X DO LS
 :

PREPARED BY: DES D SOVEREIGN REL J BEEKMAN QE
 REDUNDANCY SCREEN: A- B- C-
 APPROVED BY: DES *D. J. [Signature]* APPROVED BY (NASA) SSM *[Signature]*
 REL *Michael Clifton 11-14-87* REL *[Signature]*
 QE *[Signature]* QE *[Signature]*
 EPD&C SSM Local Del. *[Signature]*
 PALM C. SIGGS

ITEM:
 TOGGLE SWITCH (SP2T) HERMETIC SEAL - LEFT AND RIGHT AFT RCS THRUSTER - HEATER CONTROL, MANIFOLD 5.

FUNCTION:
 PROVIDES CREW WITH INDIVIDUAL "OFF/AUTO" SWITCHING CAPABILITY FOR THE VERNIER THRUSTER HEATER POWER OF MANIFOLD 5. 36V73A14S13.

FAILURE MODE:
 FAILS TO CONDUCT, FAILS TO CLOSE, INADVERTENTLY OPENS.

CAUSE(S):
 PIECE PART STRUCTURAL FAILURE, CONTAMINATION.

EFFECT(S) ON:
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE
 (A) LOSS OF CIRCUIT POWER TO THE ASSOCIATED INTERFACE LOADS.
 (B) LOSS OF POWER TO THE AFFECTED VERNIER THRUSTER HEATERS.
 (C) POSSIBLE LOSS OF INTERFACE FUNCTION IF LOW TEMPERATURE AFFECTS VERNIER THRUSTER OPERATION. POSSIBLE MISSION MODIFICATION OR EARLY MISSION TERMINATION DUE TO INABILITY TO USE VERNIER THRUSTERS. PRIMARY THRUSTERS WOULD BE REQUIRED, RESULTING IN HIGHER PROPELLANT CONSUMPTION RATES.
 (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 A, ITEM NO. 1 - TOGGLE SWITCH.

(B) GROUND TURNAROUND TEST

COMPONENT CHECKED OUT EVERY FLIGHT DURING GROUND TURNAROUND. THE TESTING CONSISTS OF CYCLING VALVE MANUAL SWITCHES AND/OR SENDING GENERAL PURPOSE COMPUTER (GPC) COMMANDS TO CYCLE VALVES OR HEATERS WHILE MONITORING VEHICLE INSTRUMENTATION TO DETERMINE IF COMPONENTS HAVE FAILED.

(E) OPERATIONAL USE

IF VERNIER THRUSTER CAPABILITY IS LOST, THE PRIMARY THRUSTER 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.