

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS

FMEA NO 05-6KF-2042 -1

REV: 11/03/8

ASSEMBLY : PANEL A14  
 P/N RI : ME452-0102-7101  
 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  
 REL J BEEKMAN  
 QE

REDUNDANCY SCREEN: A- B- C-  
 APPROVED BY: APPROVED BY (NASA):  
 DES P. S. R. Bell SSM  
 REL Melvin G. ... REL ...  
 QE ... QE R ...

ITEM:  
 TOGGLE SWITCH (SP2T) HERMETIC SEAL - FORWARD RCS VERNIER HEATER POWER, MANIFOLD 5.

FUNCTION:  
 PROVIDES CREW WITH INDIVIDUAL "OFF/AUTO" SWITCHING CAPABILITY FOR THE VERNIER HEATER POWER OF MANIFOLD 5. 36V73A14S18.

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 F5R, F5L VERNIER HEATERS. LOW TEMPERATURE EFFECTS VERNIER OPERATION.
  - (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 DUE TO COLD VERNIER TEMPERATURES, THE PRIMARY THRUSTERS CAN BE USED FOR THE VERNIER FUNCTION. SOME MISSION OBJECTIVES MAY NOT BE MET DUE TO HIGH PROPELLANT CONSUMPTION RATE ON PRIMARY THRUSTERS. MICROGRAVITY EXPERIMENTS WILL BE DISRUPTED DUE TO HIGHER PROPELLANT CONSUMPTION RATE ON PRIMARY THRUSTERS.