

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AFT-RCS

FMEA NO 05-6KA-2037 -1

REV:11/03/87

ASSEMBLY : PANEL A14  
 P/N RI : ME452-0102-7101  
 P/N VENDOR:  
 QUANTITY : 4  
 :FOUR  
 :

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

PREPARED BY:  
 DES D SOVEREIGN  
 REL J BEERMAN  
 QE

REDUNDANCY SCREEN: A- B- C-  
 APPROVED BY:  
 DES D. S. R. Burns APPROVED BY (NASA):  
 REL Mehmet C. Han 11-10-87 SSM [Signature]  
 QE [Signature] REL [Signature]  
 QE [Signature] QE [Signature]  
 EDDIC [Signature]

ITEM:

TOGGLE SWITCH (SP2P) HERMETIC SEAL - LEFT AND RIGHT AFT RCS  
 THRUSTER HEATER CONTROL, MANIFOLDS 1 THROUGH 4.

FUNCTION:

PROVIDES CREW WITH INDIVIDUAL "OFF/AUTO" SWITCHING CAPABILITY FOR THE  
 THRUSTER HEATER POWER OF MANIFOLDS 1 THROUGH 4.  
 36V73A14S9, 10, 11, 12.

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 LOGIC VOLTAGE TO THE ASSOCIATED HYBRID DRIVERS.

(B) LOSS OF POWER TO THE AFFECTED THRUSTER HEATER CIRCUITS.

(C) PERIODIC HOT FIRING OF PRIMARY THRUSTERS WILL BE REQUIRED TO MAINTAIN  
 THE THRUSTER TEMPERATURES ABOVE THE MINIMUM REQUIREMENT. CORRECTIVE  
 ACTION COULD DISRUPT MISSION OBJECTIVES. MICROGRAVITY EXPERIMENTS ARE  
 AFFECTED BY HOT FIRES. INCREASE PROPELLANT USAGE IS REQUIRED TO MAINTAIN  
 TEMPERATURES.

(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

HOT FIRE JET AS REQUIRED TO MAINTAIN THRUSTER TEMPERATURE IN ACCEPTABLE RANGE. SOME MISSION OBJECTIVES MAY NOT BE MET DUE TO HIGHER PROPELLANT CONSUMPTION CAUSED BY PERIODIC PRIMARY THRUSTER HOT FIRE. MICROGRAVITY EXPERIMENTS WILL BE DISRUPTED DUE TO HIGHER ACCELERATION RATE OF PRIMARY THRUSTERS.