

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AFT-RCS

FMEA NO 05-6KA-2011 -1

REV:11/03/87

ASSEMBLY :PANEL A14  
 P/N RI :ME451-0009-1001  
 P/N VENDOR:  
 QUANTITY :4  
 :FOUR  
 :

	CRIT. FUNC:	2
	CRIT. HDW:	2
VEHICLE	102	103
EFFECTIVITY:	X	X
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. S. R. Brown  
 REL Mark C. Hon 11-16-87  
 QE 11/16/87

APPROVED BY (NASA):  
 SSM [Signature]  
 REL [Signature]  
 QE [Signature]

ITEM:

FUSE (1 AMP) - LEFT AND RIGHT AFT RCS PODS THRUSTER HEATER CONTROL, MANIFOLDS 1 THROUGH 4.

FUNCTION:

CONDUCTS (MANIFOLD 1 THROUGH 4) HEATER CONTROL CIRCUIT CURRENT AND PROVIDES PROTECTION OF CIRCUITRY. 36V73A14F27,28,29,30.

FAILURE MODE:

OPEN, INADVERTENTLY OPENS.

CAUSE(S):

CONTAMINATION, CHEMICALLY DEGRADED MATERIAL, STRUCTURAL FAILURE.

EFFECT(S) ON:

(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE

(A) LOSS OF VOLTAGE TO THE ASSOCIATED PANEL SWITCHES.

(B) LOSS OF ABILITY TO ENABLE THE RELATED THRUSTER HEATERS. POSSIBLE LOSS OF REDUNDANCY IF LOW TEMPERATURE AFFECTS THRUSTER OPERATION. NO EFFECT, OTHER REDUNDANT THRUSTERS ARE AVAILABLE TO COMPLETE THE REQUIRED FUNCTIONS.

(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 D, ITEM NO. 2 -  
FUSE, AXIAL LEAD CARTRIDGE.

(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.