SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - OMS　　FMEA NO 05-6L -2012 -1　　REV:10/30/87

ASSEMBLY :AFT PCA 1,2.　　CRIT. FUNC: 2R
P/N RI :ME451-0009-1007　　CRIT. HDW: 3
P/N VENDOR:
QUANTITY :32
:THIRTY-TWO
:(EIGHT PER HEATER GROUP)

	102	103	104
VEHICLE EFFECTIVITY:	X	X	X

PHASE(S): PL　LO　OO X DO　LS

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS

PREPARED BY:		APPROVED BY:		APPROVED BY (NASA):	
DES	D SOVEREIGN	DES	[signature]	SSM	[signature]
REL	F DEFENSOR	REL	[signature] 11-12-87	REL	[signature] 12-4-87
QE	J COURSEN	QE	[signature]	QE	[signature]

EPDC SSM [signature] for W.G. Stagg

ITEM:
FUSE (20 AMP), LEFT AND RIGHT OMS, GROUP 1 AND GROUP 2 HEATER DRIVER INPUT POWER CIRCUIT.

FUNCTION:
CONDUCTS INPUT POWER AND PROVIDES CIRCUIT PROTECTION FOR THE LEFT AND RIGHT OMS GROUP 1 AND GROUP 2 HEATERS DRIVER INPUT POWER. GROUP 1 - LEFT, 54V76A131F5 TO F12. RIGHT, 55V76A132F1 TO F4, F9 TO F12. GROUP 2 - LEFT, 55V76A132F5, F6, F19, F20. 56V76A133F1 TO F4. RIGHT, 54V76A131F19 TO F22, 56V76A133F5 TO F8.

FAILURE MODE:
OPENS, INADVERTENTLY OPENS.

CAUSE(S):
CHEMICAL DEGRADATION, VIBRATION, THERMAL STRESS, MECHANICAL SHOCK.

EFFECT(S) ON:
(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY

(A) PARTIAL LOSS OF REDUNDANCY.

(B) ONE OF EIGHT CIRCUITS (EACH CONTROLLING TWO OR THREE GROUP 1 OR 2 HEATER ELEMENTS) CAN NOT BE ENERGIZED WHEN COMMANDED. NO EFFECT - SWITCHING TO THE REDUNDANT SYSTEM WILL RESTORE THE COMPLETE FUNCTION IF THE FAILURE IS DETECTABLE. FOR UNDETECTABLE FAILURES, LOCAL VIOLATIONS OF TEMPERATURE LIMITS MAY OCCUR. A SECOND RELATED FAILURE WOULD PARTIALLY DISABLE THE GROUP 1 OR GROUP 2 HEATERS.

(C,D) NO EFFECT.

(E) POSSIBLE LOSS OF MISSION OBJECTIVES DUE TO LOSS OF ELECTRICAL POWER NECESSARY FOR COMPLETION OF FUNCTION. REQUIRES ONE OTHER FAILURE (FAILURE OF REDUNDANT HEATERS) BEFORE THE EFFECT IS MANIFESTED. FAILURE IS NOT DETECTABLE IN FLIGHT DUE TO LACK OF MONITORING MEASUREMENTS.

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TION & RATIONALE:
SIGN (B)TEST (C)INSPECTION (D)FAILURE HISTORY (E)OPERATIONAL USE

FOR DISPOSITION AND RATIONALE
TO APPENDIX D, ITEM NO. 2 - FUSE, AXIAL LEAD CARTRIDGE.

GROUND TURNAROUND TEST
0.070 - REDUNDANT CIRCUIT VERIFICATION (PERIODIC) - ORB/POD; RMED FOR FIRST FLIGHT AND AT 5 FLIGHT INTERVALS OR FOR LRU RETEST IGURE V43Z00.000 OR FOR ORBITER DISRUPTED COPPER PATHS. FUNCTIONAL OUT OF HEATER CONTROL CIRCUIT PER FIGURE V43CA0.070-6.

0.075 - ELECTRICAL INTERFACE VERIFICATION ORB/POD; PERFORMED ON A NGENCY BASIS (POD REMOVAL AND REPLACEMENT). COPPER PATH ICATION OF HEATER CONTROL CIRCUIT INTERFACES.

OPERATIONAL USE
EDUNDANT HEATER CIRCUIT.