SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - OMS FMEA NO 05-6L -2016 -1 REV:10/30/87

ASSEMBLY :AFT LCA 1,2
P/N RI :ME451-0009-1005
P/N VENDOR:
QUANTITY :24
:TWENTY-FOUR
:(SIX PER HEATER GROUP)

CRIT. FUNC: 2R
CRIT. HDW: 3

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL LO OO X DO LS

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

PREPARED BY:
DES D SOVEREIGN
REL F DEFENSOR
QE J COURSEN

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE
EPDC

ITEM:
FUSE (10 AMP), LEFT AND RIGHT OMS GROUP 1 AND GROUP 2 HEATERS THERMAL SWITCH CIRCUITS.

FUNCTION:
PROVIDES CIRCUIT PROTECTION AND CONDUCTS LOAD CURRENT FOR THE LEFT AND RIGHT OMS GROUP 1 AND GROUP 2 HEATER/THERMAL SWITCH CIRCUITS. GROUP 1 - 54V76A121F (J6-I', LL), (J11-AA, GG, X', W'). 55V76A122F (J6-AA), (J11-CC, EE, HH, PP, R'). GROUP 2 - 54V76A121 (J11-HH, PP). 55V76A122F (J6-I, LL), (J11-X', W'). 56V76A123F (J6-LL, U'), (J11-HH, PP, W', X'). NOTE - ALPHABETIC CHARACTERS WITH A PRIME (') ARE LOWER CASE.

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) LOSS OF POWER TO THE AFFECTED CIRCUIT.

(B) LOSS OF INTERFACE REDUNDANCY - LOSS OF ONE AFFECTED GROUP 1 OR GROUP 2 HEATER SET. NO EFFECT - THE REDUNDANT GROUP 2 OR GROUP 1 HEATER SET WILL CONTINUE TO PROVIDE THE FUNCTION IF THE FAILURE IS DETECTABLE. FOR UNDETECTABLE FAILURES, LOCAL VIOLATIONS OF TEMPERATURE LIMITS MAY OCCUR. A SECOND RELATED FAILURE LOSES CAPABILITY TO MAINTAIN TEMPERATURE IN THE ASSOCIATED AREA.

(C,D) NO EFFECT.

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

DISPOSITION & RATIONALE:
(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) DISPOSITION AND RATIONALE
REFER TO APPENDIX D, ITEM NO. 2 - FUSE, AXIAL LEAD CARTRIDGE.

(B) GROUND TURNAROUND TEST
V43CA0-070 - REDUNDANT CIRCUIT VERIFICATION (PERIODIC) - ORB/POD; PERFORMED FOR FIRST FLIGHT AND AT 5 FLIGHT INTERVALS OR FOR LRU RETEST PER FIGURE V43Z00.000 OR FOR ORBITER DISRUPTED COPPER PATHS. FUNCTIONAL CHECKOUT OF HEATER CONTROL CIRCUITS PER FIGURE V41CA0-070-6.

V43CA0.075 - ELECTRICAL INTERFACE VERIFICATION ORB/POD; PERFORMED ON A CONTINGENCY BASIS (POD REMOVAL AND REPLACEMENT). COPPER PATH VERIFICATION OF HEATER CONTROL CIRCUIT INTERFACES.

(E) OPERATIONAL USE
USE REDUNDANT HEATER CIRCUIT.