

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AUXILIARY PWR FMEA NO 05-6N -2054 -1 REV:08/02/90

ASSEMBLY : PANEL A12 CRIT. FUNC: LR
 F/N RI : ME451-0018-0100 CRIT. HDW: 2
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY : 18 EFFECTIVITY: X X X
 : EIGHTEEN PHASE(S): PL X LO X OO X DO X LS X

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS
 PREPARED BY: APPROVED BY: APPROVED BY (NASA):
 DES T NGUYEN DES H.M. Lindeman 7-13-90 SSM Walter Scott 9/6
 REL T KIMURA REL Robert L. Scott 8-11-90 REL Walter Scott 9/6
 QE J T COURSEN QE Walter Scott 8-15-90 QE Robert L. Scott 8/30
 EPD&C Rel L. David Case For Scott 8/30
 EPD&C SSM Robert L. Scott 9-5-90

ITEM:
 FUSE (1 AMP) - AUXILIARY POWER UNIT (APU) HEATERS TANK/FUEL LINE 1, AND 3 (A AND B) POWER CIRCUITS

FUNCTION:
 PROVIDES OVERCURRENT PROTECTION FOR APU TANK/FUEL LINE HEATER CIRCUITS.
 36V73A12F1, F2, F9, F10, F11, F12, F13, F14, F16, F17, F19, F20, F22, F23, F26, F27, F33, F34

FAILURE MODE:
 FAILS OPEN, FAILS TO CONDUCT

CAUSE(S):
 STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

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

(A) LOSS OF REDUNDANCY

(B) LOSS OF HEATERS A OR B AFTER FIRST FAILURE. HEATERS FAIL OFF AFTER TWO FAILURES WHICH MAY RESULT IN FUEL (HYDRAZINE) FREEZING AND LI RUPTURE UPON THAWING.

(C,D) NO EFFECT - FIRST FAILURE

(E) POSSIBLE LOSS OF MISSION, CREW AND VEHICLE AFTER SECOND FAILURE (LO OF REDUNDANT TANK/LINE HEATERS) DUE TO FUEL (HYDRAZINE) FREEZING AND LI RUPTURE UPON THAWING. ATTITUDE THERMAL CONDITIONING COULD BE USED PREVENT FREEZING.

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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. 4 - FUSE, PLUG-IN

(B) TEST

APU 1/2/3 HEATER TEST BY COCKPIT COMMAND PERFORMED IN FLIGHT EVERY FLOW OR AFTER CIG RETEST.

(E) OPERATIONAL USE

FIRST FAILURE - MANUALLY SWITCH TO ALTERNATE HEATER. SECOND FAILURE - ATTEMPT ATTITUDE THERMAL CONDITIONING.