

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SOSOZAOE
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SUBSYSTEM : EPD&C - AUXILIARY PWR FMEA NO 05-6N -205B -2 REV:09/19/90

ASSEMBLY : AFT LCA 1,2,3 CRIT. FUNC: 1R
P/N RI : MC477-0261-0002 CRIT. HDW: 3
P/N VENDOR: VEHICLE 102 103 104
QUANTITY : 6 EFFECTIVITY: X X X
: SIX, TWO/APU PHASE(S): PL X LO X OO X DO X LS X

REUNDANCY SCREEN: A-PASS B-FAIL C-PASS
PREPARED BY: APPROVED BY: APPROVED BY (NASA): 12-4-90
DES T NGUYEN DES *[Signature]* 9/20/90 SSM *[Signature]*
REL T KIMURA REL *[Signature]* 9/21/90 REL *[Signature]*
QE J T COURSEN QE *[Signature]* 9/21/90 QE *[Signature]*
[Handwritten notes: EPD&C REL, EPD&C SSM, 12/15/90]

ITEM:
CONTROLLER, HYBRID DRIVER, HDC TYPE 1 - AUXILIARY POWER UNIT (APU) 1, 2, AND 3 FUEL TANK/LINE HEATERS (A AND B) POWER CIRCUIT

FUNCTION:
UPON GSE COMMAND FROM MDM LAL, POWER IS PROVIDED TO THE APU FUEL TANK/LINE HEATERS (A OR B).
54V76A121AR(J1-9), (J1-18);
55V76A122AR(J1-9), (J1-18);
56V76A123AR(J1-9), (J1-18)

FAILURE MODE:
INADVERTENT OUTPUT, FAILS "ON", FAILS TO TURN "OFF"

CAUSE(S):
PIECE PART 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) DEGRADATION OF REDUNDANCY AGAINST INADVERTENT POWERING OF HEATERS
(B,C,D) NO EFFECT - FIRST FAILURE

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE OTHER FAILURES (TWO PREFLIGHT-TO-ESSENTIAL BUS DIODES FAIL SHORT WHICH ENERGIZES THE PREFLIGHT TEST BUS, THERMOSTAT FAILS CLOSED) POWERING HEATERS CONTINUOUSLY RESULTING IN FUEL DECOMPOSITION AND LINE RUPTURE.

FAILS SCREEN "B" BECAUSE FIRST FAILURE NOT DETECTABLE SINCE THE PREFLIGHT TEST BUS IS NOT POWERED DURING FLIGHT UNLESS REQUIRED BY FLIGHT RULE 9-41.

SELECTED CRITICAL ITEMS LIST - JRBITER

SCS0260E
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SUBSYSTEM :EPD&C - AUXILIARY PWR FMEA NO 05-6N -2058 -2 REV:09/19/90

DISPOSITION & RATIONALE:

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

(A-D) DISPOSITION AND RATIONALE

REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER CONTROLLER

(B) TEST

GROUND TURNAROUND TEST - APU 1/2/3 FUEL HEATER CIRCUIT TESTS PERFORMED EVERY FIFTH FLOW OR AFTER CIG RETEST.

(E) OPERATIONAL USE

NONE