

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AUXILIARY PWR FMEA NO 05-6N-2074A-IM-2 REV:02
 ASSEMBLY : AFT LCA 1,2,3 CRIT. FUNC: 1
 P/N RI : MC477-0263-0002 CRIT. HDW: 1
 P/N VENDOR: VEHICLE 102 103 104 1
 QUANTITY : 12 EFFECTIVITY: X X X
 : TWELVE PHASE(S): PL X LO X OO X DO X LS

PREPARED BY: DES T NGUYEN DES APPROVED BY: A-PASS B-FAIL C-PASS
 REL T KIMURA REL SSM APPROVED BY (NASA):
 QE W R HIGGINS REL REL REL
 EPDC RELIABILITY
 EPDC SSM

ITEM:
 CONTROLLER, HYBRID DRIVER, HDC TYPE 3 - IMPROVED AUXILIARY POWER LN
 (IAPU) HEATERS, FUEL PUMP/LINE 1, 2, AND 3 POWER CIRCUITS

FUNCTION:
 CONDUCTS POWER TO THE APU 1, 2, AND 3 FUEL PUMP AND LINE HEATERS.
 54V76A121AR(J7-30), (J7-56), (J10-m), (J10-CC);
 55V76A122AR(J7-30), (J7-56), (J10-m), (J10-CC);
 56V76A123AR(J7-30), (J7-56), (J10-m), (J10-CC)

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 ENERGIZING OF FUEL PUMP
 HEATERS.
 (B,C,D) NO EFFECT - FIRST FAILURE
 (E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE OTHER FAILURES (SECOND HDC
 FAILED "ON", HDC-4 GROUND DRIVER FAILED "ON", AND OVERTEMPERATURE
 THERMOSTAT CONTACTS FAIL CLOSED) ENERGIZING HEATERS CONTINUOUSLY RESULTING
 IN FUEL DECOMPOSITION AND LINE RUPTURE.
 FIRST FAILURE NOT DETECTABLE IN FLIGHT SINCE THE OPERATIONAL STATUS OF EACH
 SERIES DRIVER (HDC-3) IS NOT MONITORED.

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SUBSYSTEM :EPD&C - AUXILIARY FWR FMEA NO 05-6N-2074A-IM-2 REV:02/18/92

DISPOSITION & RATIONALE:

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

(A-D) FOR DISPOSITION AND RATIONALE, REFER TO APPENDIX B,
ITEM NO. 1 - HYBRID DRIVER

(B) TEST

GROUND TURNAROUND TEST - APU 1/2/3 FUEL PUMP AND GAS GENERATOR HEATER
CIRCUIT TESTS PERFORMED DURING ORBITER MAINTENANCE DOWN PERIOD (OMDP).

(E) OPERATIONAL USE

NONE