SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AUXILIARY PWR FMEA NO 05-6N -2060A -1 REV:08/02/90

ASSEMBLY :AFT LCA 1,2,3
P/N RI :JANTXV1N5551
P/N VENDOR:
QUANTITY :18
:EIGHTEEN

CRIT. FUNC: 1
CRIT. HDW: 2

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL X LO X OO X DO X LS X

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

PREPARED BY:
DES T NGUYEN
REL T KIMURA
QE J T COURSEN

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM 9/6/90
REL
QE
EPD&C Rel
EPD&C SSM 9-5-90

ITEM:
DIODE, ISOLATION (3 AMP) - AUXILIARY POWER UNIT (APU) HEATERS TANK/FUEL LINE 1, 2 AND 3 (A AND B) POWER CIRCUITS

FUNCTION:
PROVIDES ISOLATION FOR THE "APU HTRS TANK/FUEL LINE" SWITCH
54V76A121(J3-12), (J3-13), (J3-14), (J3-28), (J3-29), (J3-30);
55V76A122(J3-12), (J3-13), (J3-14), (J3-28), (J3-29), (J3-30);
56V76A123(J3-12), (J3-13), (J3-14), (J3-28), (J3-29), (J3-30)

FAILURE MODE:
OPEN, FAILS TO CONDUCT

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

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 LINE RUPTURE UPON THAWING.

(C,D) NO EFFECT - FIRST FAILURE

(E) POSSIBLE LOSS OF MISSION, CREW AND VEHICLE AFTER SECOND FAILURE (LOSS OF REDUNDANT TANK/LINE HEATERS) DUE TO FUEL (HYDRAZINE) FREEZING AND LINE RUPTURE UPON THAWING. ATTITUDE THERMAL CONDITIONING COULD BE USED TO 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 F, ITEM NO. 4 - DIODE

(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.