

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AUXILIARY PWR FMEA NO 05-6N -2022 -2 REV:11/21/87

ASSEMBLY :AFT LCA 1,2,3 CRIT. FUNC: 1R
P/N RI :JANTXV1N5551 CRIT. HDW: 3
P/N VENDOR: VEHICLE 102 103 104
QUANTITY :12 EFFECTIVITY: X X X
:TWELVE PHASE(S): PL X LO X OO X DO X LS X

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
PREPARED BY: DES A BAIZ APPROVED BY: DES [Signature] APPROVED BY (NASA):
REL T KIMURA REL [Signature] SSM [Signature]
QE J T COURSEN QE [Signature] REL [Signature] QE [Signature]
EPD&C SSM [Signature] [Signature]
FOL w 1. 27.866

ITEM:
DIODE, SWITCH ISOLATION (3 AMP) - AUXILIARY POWER UNIT (APU) FUEL ISOLATION CONTROL CIRCUIT

FUNCTION:
SWITCH TO DRIVER AND MDM ISOLATION. 54V76A207 ASSEMBLY NO. 1, CR1, CR3, CR19, CR20; 55V76A208 ASSEMBLY NO. 2, CR1, CR2, CR7, CR8; 56V76A209 ASSEMBLY NO. 3, CR1, CR2, CR18, CR19

FAILURE MODE:
SHORT (END TO END)

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

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

(A,B,C,D) NO EFFECT - FIRST FAILURE
(E) POSSIBLE LOSS OF MISSION, CREW AND VEHICLE AFTER THREE OTHER FAILURES (SWITCH CONTACTS SHORTS, DIODE SHORTS, SWITCH SHORTS POLE-TO-POLE), WHICH COULD ALLOW SOLENOID ENERGIZING AND OVERHEATING ON ORBIT WHEN APU FUEL FLOW COOLING IS ABSENT. PROBABLE FUEL (HYDRAZINE) DECOMPOSITION AND VALVE/LINE RUPTURE.

FIRST FAILURE NOT DETECTABLE IN FLIGHT SINCE THE SHORT FAILURE MODE OF THIS DIODE DOES NOT AFFECT THE FUNCTIONAL OPERATION OF THE SYSTEM UNLESS THERE ARE ADDITIONAL ASSOCIATED FAILURES.

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

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B) GROUND TURNAROUND TEST
FUEL ISOLATION VALVE CIRCUIT CHECKS WITHOUT BUS DROPS PERFORMED EVERY
FLOW.

E) OPERATIONAL USE
NONE