

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AUXILIARY FWR FMEA NO 05-6N -2022 -1 REV:11/21/87

ASSEMBLY : AFT LCA 1,2,3
 P/N RI : JANTXV1N5551
 P/N VENDOR:
 QUANTITY : 12
 : TWELVE
 :

VEHICLE 102 103 104
 EFFECTIVITY: X X X
 PHASE(S): PL X LO X OO DO LS X

CRIT. FUNC: 1R
 CRIT. HDW: 3

PREPARED BY: DES A HAIZ
 REL T KIMURA
 QE J T COURSEN

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

APPROVED BY: DES [Signature]
 REL [Signature]
 QE [Signature]

APPROVED BY (NASA):
 SSM [Signature]
 REL [Signature]
 QE [Signature]

EPD&C SSM [Signature]
 J. L. C. 27464

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, CR2, CR19, CR20; 55V76A208 ASSEMBLY NO. 2, CR1, CR2, CR7, CR6; 56V76A209 ASSEMBLY NO. 3, CR1, CR2, CR18, CR19

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:

- (A) NO EFFECT - FIRST FAILURE
- (B) DEGRADATION OF REDUNDANCY. REQUIRES THREE FAILURES TO FAIL BOTH FUEL ISOLATION VALVES, CLOSE, AND LOSE ONE APU.
- (C) NO EFFECT - FIRST FAILURE. ABORT DECISION REQUIRED AFTER THREE FAILURES.
- (D) NO EFFECT - FIRST FAILURE
- (E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE OTHER FAILURES (DIODE IN REDUNDANT CIRCUIT FAILS OPEN, FAILURE OF SECOND FUEL ISOLATION VALVE SOLENOID, LOSS OF SECOND APU).

FIRST FAILURE NOT DETECTABLE IN FLIGHT DUE TO PARALLEL REDUNDANCY OF HDC-3 DRIVER CONTROL CIRCUITS.

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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) GROUND TURNAROUND TEST

FUEL ISOLATION VALVE CIRCUIT CHECKS WITHOUT BUS DROPS PERFORMED EVERY FLOW. FUEL ISOLATION VALVE CIRCUIT CHECKS WITH BUS DROPS PERFORMED FIRST AND EVERY TENTH FLOW THEREAFTER.

E) OPERATIONAL USE

NONE