

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - MAIN PROP. FMEA NO 05-6J -2212 -1 REV:11/04/87

ASSEMBLY :AFT LCA 1, 2, 3 CRIT. FUNC: 1R
 P/N RI :JANTXVIN4246 CRIT. HDW: 3
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY :3 EFFECTIVITY: X X X
 :THREE PHASE(S): PL X LO X OO DO LS
 :1 PER PREVALVE 1, 2, 3

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
 PREPARED BY: APPROVED BY: APPROVED BY (NASA):
 DES J BROWN DES [Signature] EPDC SSM [Signature]
 REL F DEFENSOR REL [Signature] Mission Chk'n 12-5-87 MPS SSM [Signature]
 QE D MASAI QE [Signature] 11/5/7 EPDC REL [Signature]
 MPS REL [Signature]
 QE [Signature]

ITEM:

DIODE, BLOCKING (1 AMP), LH2 PREVALVE 1, 2, & 3, CLOSE COMMAND C BLOCKING DIODE.

FUNCTION:

DIODE ISOLATES MANUAL SWITCH COMMAND FROM MDM, CONDUCTS MDM COMMAND TO HDC FOR CONTROL OF REDUNDANT POWER TO CLOSE SOLENOIDS FOR LH2 PREVALVE OPERATION. 54V76A121CR-J1(32), 55V76A122CR-J1(32), 56V76A123CR-J1(32).

FAILURE MODE:

OPEN, FAILS OPEN

CAUSE(S):

PIECE PART MECHANICAL FAILURE, CONTAMINATION, MECHANICAL SHOCK, VIBRATION, THERMAL SHOCK.

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY

(A) LOSS OF ONE OF TWO POWER PATHS TO CLOSE SOLENOID.

(B,C,D) NO EFFECT - FIRST FAILURE.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (SECOND FAILURE - LOSS OF SECOND POWER PATH TO CLOSE SOLENOID. THIRD FAILURE - SSME SHUTDOWN WITH UNCONTAINED ENGINE DAMAGE REQUIRING LH2 PROPELLANT SUPPLY ISOLATION) DUE TO INABILITY TO CLOSE LH2 PREVALVE. FAILS B SCREEN BECAUSE REDUNDANT POWER PATH MASKS FAILURE.

05-6J-341

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DISPOSITION & RATIONALE:

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

(A-D) FOR DISPOSITION AND RATIONALE

REFER TO APPENDIX F, ITEM NO. 3 - DIODE.

(B) GROUND TURNAROUND TEST

MDM COMMAND REDUNDANCY, V41AEO.180L, 200L, 220L EVERY FLIGHT

(E) OPERATIONAL USE

FLIGHT - NO CREW ACTION CAN BE TAKEN

GROUND - IF A MAJOR LEAK IS DETECTED, CLOSE PREVALVES (PV4, 5, 6), LH2
17-INCH DISCONNECT (PD2), LH2 4-INCH RECIRC DISCONNECT (PD3), LH2
RECIRC VALVES (PV14-16); DRAIN MANIFOLD.

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