

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2235 -2 REV:06/20/88

ASSEMBLY : APT LCA - 1, 2, 3 CRIT. FUNC: 1R
P/N RI : JANTXVIN5551 CRIT. HDW: 2
P/N VENDOR: VEHICLE 102 103 104
QUANTITY : 3 EFFECTIVITY: X X X
: THREE PHASE(S): PL LO X OO DO IS
:

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
PREPARED BY: APPROVED BY: APPROVED BY (NASA):
DES JWB J BROWN DES R. Brown EPDC SSM [Signature]
REL [Signature] DEFENSOR REL J. Kamura 6/27/88 MPS SSM [Signature]
QE D.M. D MASAI QE S. J. Mason 6/27/88 EPDC RET [Signature]
MPS RET [Signature] QE [Signature]

ITEM:

DIODE, BLOCKING (3 AMP), GH2 FLOW CONTROL VALVE, OPEN SWITCH SCAN.

FUNCTION:

ISOLATES MANUAL SWITCH SCAN SIGNAL FROM MANUAL SWITCH OPEN COMMAND,
CONDUCTS MANUAL SWITCH OPEN SIGNAL TO SWITCH SCAN MONITOR.
54V76A121J1(105). 55V76A122J1(105). 56V76A123J1(105).

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) LOSS OF ISOLATION BETWEEN MANUAL SWITCH SCAN SIGNAL AND MANUAL
SWITCH OPEN COMMAND.

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

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(E) 1R/2, 1 SUCCESS PATH AFTER FIRST FAILURE.
TIME FRAME - ASCENT.

- 1) DIODE SHORT (END TO END).
- 2) CONTACT-TO-CONTACT SHORT ("OPEN" CONTACTS - ONE POLE).

FAILURES WILL RESULT IN INADVERTENT DEACTUATION OF TWO GH2 FLOW CONTROL VALVE CLOSE SOLENOIDS. RESULTS IN EXCESSIVE LH2 ULLAGE PRESSURE CAUSING ET VENT VALVE TO RELIEVE EXCESS PRESSURE. POTENTIAL FIRE/EXPLOSION HAZARD EXTERIOR TO THE VEHICLE. POSSIBLE VIOLATION OF THE ET MAXIMUM STRUCTURAL CAPABILITY REQUIREMENTS. POSSIBLE LOSS OF CREW/VEHICLE.

FAILS B SCREEN BECAUSE NO INSTRUMENTATION IS AVAILABLE TO DETECT FAILURE.

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, AXIAL LEAD.

(B) GROUND TURNAROUND TEST

ULL PRESS CNTL W/CK OUT CMDS V41ADO.010G, V41ADO.020G, V41ADO.030G EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

05-6J-374