

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2274 -1 REV:11/19/87

ASSEMBLY : AFT LCA-1 CRIT. FUNC: 1R  
P/N RI : JANTXV1N5551 CRIT. HDW: 2  
P/N VENDOR: VEHICLE 102 103 104  
QUANTITY : 1 EFFECTIVITY: X X X  
: ONE PHASE(S): PL X LO OO DO LS  
: 1 PER LH2 INBOARD FILL/DRAIN VALVE

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

PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
DES J BROWN DES [Signature] EPDC SSM [Signature]  
REL [Signature] REL [Signature] MPS SSM [Signature]  
QE D MASAI QE [Signature] EPDC REL [Signature]  
MPS REL [Signature] QE [Signature]

ITEM:

DIODE, BLOCKING (3 AMP), LH2 INBOARD FILL/DRAIN VALVE, MDM OPEN COMMAND B.

FUNCTION:

ISOLATES MANUAL SWITCH COMMAND FROM MDM OPEN COMMAND B, CONDUCTS MDM OPEN COMMAND B TO ONE OF TWO SERIES HDCs FOR CONTROL OF POWER TO OPEN SOLENOID OF LH2 INBOARD FILL/DRAIN VALVE. 54V76A121 C1(52).

FAILURE MODE:

OPENS, FAILS OPEN, FAILS TO CONDUCT

CAUSE(S):

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

EFFECT(S) ON:

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

(A) LOSS OF POWER TO OPEN SOLENOID DUE TO LOSS OF OPEN COMMAND B.

(B) FIRST FAILURE - NO EFFECT. BISTABLE FEATURE MAINTAINS FILL/DRAIN VALVE IN OPEN POSITION.

(C,D) FIRST FAILURE - NO EFFECT. POSSIBLE LOSS OF CREW AND VEHICLE AFTER SECOND FAILURE (PREMATURE ACTUATION OF CLOSE SOLENOID) RESULTING IN PREMATURE CLOSURE OF LH2 INBOARD FILL/DRAIN VALVE. TERMINATION OF PROPELLANT LOADING WHICH MAY CAUSE A PRESSURE SPIKE AND POSSIBLE RUPTURE OF ORBITER FILL LINE AND/OR GSE INTERFACE/FACILITY LINES. POSSIBLE AFT COMPARTMENT OVERPRESSURIZATION AND FIRE/EXPLOSION HAZARD. POSSIBLE LOSS OF ADJACENT CRITICAL FUNCTIONS DUE TO CRYO EXPOSURE.

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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. 4. - DIODE.

(B) GROUND TURNAROUND TEST

COPPER PATH VERIFICATION, V41ABO.121B EVERY FLIGHT.

(E) OPERATIONAL USE

FLIGHT - NO CREW ACTION CAN BE TAKEN.

GROUND - TERMINATE LOADING.