

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP.

FMEA NO 05-6J -2050 -1

REV:06/15/88

ABORT: RTLS, TAL

ASSEMBLY : AFT LCA-1
 P/N RI : MC477-0263-0002
 P/N VENDOR:
 QUANTITY : 2
 : TWO
 :

CRIT. FUNC: 3

CRIT. HDW: 3

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

REDUNDANCY SCREEN: A- B- C-

PREPARED BY:
 DES J BROWN

APPROVED BY:
 DES [Signature]

APPROVED BY (NASA):
 EPDC SSM [Signature]
 MPS SSM [Signature]
 EPDC RED [Signature]
 MPS RED [Signature]
 QE [Signature]

REL (AF DEFENSOR

REL [Signature]

QE Dan D MASAI

QE [Signature]

ITEM:

CONTROLLER, HYBRID DRIVER (HDC) TYPE III, HELIUM SUPPLY BLOWDOWN VALVE SOLENOID CONTROL POWER.

FUNCTION:

CONDUCTS MAIN BUS POWER TO SOLENOID OF HELIUM SUPPLY BLOWDOWN VALVE (LV26/27). 54V76A121ARJ1(96), J1(98).

FAILURE MODE:

LOSS OF OUTPUT, FAILS TO CONDUCT, FAILS TO TURN "ON".

CAUSE(S):

PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS.

EFFECT(S) ON:

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

(A) LOSS OF POWER TO HELIUM SUPPLY BLOWDOWN VALVE CONTROL SOLENOID.

(B) LOSS OF CAPABILITY TO OPEN ONE OF TWO SERIES HELIUM SUPPLY BLOWDOWN VALVES (LV26/27).

(C,D) NO EFFECT DURING NOMINAL MISSION.

CRITICALITY 1/1 DURING RTLS/TAL ABORTS. FAILURE OF EITHER SERIES REDUNDANT VALVE TO OPEN RESULTS IN NO PURGE OF OMS PODS, LH2 DISCONNECT CAVITY AND AFT COMPARTMENT, CREATING A FIRE/EXPLOSION HAZARD. DURING ABORT ENTRIES, HYDROGEN RICH GASES TRAPPED IN THE WAKE WILL BE INGESTED INTO THE AFT COMPARTMENT THROUGH THE VENT DOORS AND EXCEED FLAMMABLE LIMITS DURING A PORTION OF THE ENTRY. POSSIBLE LOSS OF CREW/VEHICLE FOR RTLS/TAL ABORT.

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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 B, ITEM NO. 1 - HYBRID DRIVER CONTROLLER.

(B) GROUND TURNAROUND TEST

MDM VERIFICATION, V41AAO.080 EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

05-6J-78