SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - MAIN PROP. FMEA NO 05-6J -2261 -1 REV:11/19/87

ASSEMBLY :AFT LCA-1
P/N RI :MC477-0263-0002
P/N VENDOR:
QUANTITY :1
:ONE
:1 PER LH2 INBOARD FILL/DRAIN VALVE

CRIT. FUNC: 1R
CRIT. HDW: 2

| VEHICLE EFFECTIVITY: | 102 | 103 | 104 |
|---|---|---|---|
| | X | X | X |

PHASE(S): PL X LO X OO DO LS

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

PREPARED BY:
DES J BROWN
REL F DEFENSOR
QE D MASAI

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
EPDC SSM
MPS SSM
EPDC REL
MPS REL
QE

ITEM:
CONTROLLER, HYBRID DRIVER (HDC), TYPE III, LH2 INBOARD FILL/DRAIN VALVE CLOSE SOLENOID CONTROL POWER.

FUNCTION:
CONDUCTS MAIN POWER TO CLOSE SOLENOID FOR LH2 INBOARD FILL/DRAIN VALVE. 54V76A121 J3(58).

FAILURE MODE:
LOSS OF OUTPUT, FAILS OPEN, FAILS TO CONDUCT.

CAUSE(S):
PIECE PART FAILURE, CONTAMINATION, MECHANICAL SHOCK, VIBRATION, THERMAL STRESS.

EFFECT(S) ON:
(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE

(A) LOSS OF POWER TO CLOSE SOLENOID.

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

(C,D) FIRST FAILURE - NO EFFECT. POSSIBLE LOSS OF CREW AND VEHICLE AFTER SECOND FAILURE (PREMATURE ACTUATION OF OPEN SOLENOID) RESULTING IN PREMATURE OPENING OF FILL/DRAIN VALVE. DISPLACED GAS MAY ENTER ONE OR MORE SSMEs. POSSIBLE SHUTDOWN OF ONE OR MORE SSMEs.

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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
COPPER PATH VERIFICATION, V41AB0.121E EVERY FLIGHT

(E) OPERATIONAL USE
NO CREW ACTION CAN BE TAKEN.