

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2269 -2 REV:09/02/89

ASSEMBLY : AFT LCA-1
P/N RI : JANIXVINS551
P/N VENDOR:
QUANTITY : 2
: THREE

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

CRIT. FUNC: 1R
CRIT. HDW: 2

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

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES <i>J BROWN</i>	DES <i>J. Brown</i>	EPDC SSM <i>J. Brown</i>
REL <i>F DEFENSOR</i>	REL <i>J. Brown</i>	MPS SSM <i>J. Brown</i>
QE <i>D. Masai</i>	QE <i>J. Brown</i>	EPDC REL <i>J. Brown</i>
		MPS REL <i>J. Brown</i>
		QE <i>J. Brown</i>

ITEM:

DIODE, BLOCKING (3 AMP), LH2 INBOARD FILL/DRAIN, TOPPING, AND HIGH POINT BLEED VALVES, OPEN SWITCH SCAN.

FUNCTION:

ISOLATES CONTROL BUSES AND OPEN COMMANDS IN THE SWITCH SCAN CIRCUIT. 54V76A121J3(57), J3(59), J3(60).

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 MANUAL SWITCH OPEN COMMAND AND CONTROL BUS ISOLATION. DEGRADATION OF REDUNDANCY AGAINST INADVERTENT POWER TO OPEN SOLENOID OF LH2 INBOARD FILL/DRAIN VALVE.

(B) NO EFFECT - FIRST FAILURE

(C,D) NO EFFECT - FIRST FAILURE.

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SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2265 -2 REV: 05/02 88

- (E) 1R/2, 1 SUCCESS PATH AFTER FIRST FAILURE.
TIME FRAME: DURING ENGINE OPERATION
1) DIODE SHORTS.
2) SWITCH CONTACT-TO-CONTACT SHORT OF OPEN FILL/DRAIN OR HIGH POINT BLEED VALVE COMMAND.

FAILURE WILL RESULT IN OPENING OF INBOARD FILL/DRAIN VALVE (PV12). LH2 WILL ENTER FILL LINE. DISPLACED GAS MAY ENTER ENGINE CAUSING POSSIBLE PUMP CAVITATION AND UNCONTAINED ENGINE DAMAGE. POSSIBLE SHUTDOWN OF ONE OR MORE SSMEs. LOSS OF REDUNDANCY TO PROTECT AGAINST OVERBOARD LEAKAGE OF PROPELLANT. 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) FOR DISPOSITION AND RATIONALE:

REFER TO APPENDIX F, ITEM NO. 4 - DIODE, AXIAL LEAD.

(B) GROUND TURNAROUND TEST

D & C CONTROL BUS REDUNDANCY, V41AFO.020D,E EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

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