

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2026 -2 REV:06/17/88

ASSEMBLY : APT LCA - 3
 P/N RI : MC477-0261-0002
 P/N VENDOR:
 QUANTITY : 5
 : FIVE
 :

	VEHICLE	102	103	104	
	EFFECTIVITY:	X	X	X	
	PHASE(S):	PL	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 <u>J BROWN</u>	DES <u>[Signature]</u>	EPDC SSM <u>[Signature]</u>
REL <u>F DEFENSOR</u>	REL <u>J Kamura 6/27/88</u>	MPS SSM <u>[Signature]</u>
QE <u>Dum D MASAI</u>	QE <u>[Signature]</u>	EPDC REX <u>[Signature]</u>
		MPS REL <u>[Signature]</u>

ITEM:

CONTROLLER, HYBRID DRIVER (HDC), TYPE I, GH2/GO2 FLOW CONTROL VALVE (LV53/54/55/56/57/58), GROUND CHECKOUT COMMAND POWER.

FUNCTION:

CONDUCTS ALL CHECKOUT ARM, ALL CHECKOUT LOW, AND INDIVIDUAL CHECKOUT HIGH SIGNALS TO THREE ULLAGE PRESSURE SIGNAL CONDITIONERS FOR GROUND CHECKOUT OF FLOW CONTROL VALVE CIRCUIT.
 56V76A123J1(123), J1(124), J1(125), J1(126), J1(127).

FAILURE MODE:

INADVERTENT OUTPUT, FAILS "ON", FAILS TO TURN "OFF".

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 (E) FUNCTIONAL CRITICALITY

(A) DEGRADATION OF REDUNDANCY AGAINST LOSS OF NOMINAL ULLAGE PRESSURE SIGNAL CONDITIONER OPERATION.

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

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- (E) 1R/2, 1 SUCCESS PATH AFTER FIRST FAILURE.
TIME FRAME - ASCENT.
1) ALL CHECKOUT ARM HDC FAILS "ON".
2) ALL CHECKOUT LOW HDC FAILS "ON".

FAILURES WILL RESULT IN INADVERTENT DEACTUATION OF GH2 AND GO2 FLOW CONTROL VALVE CLOSE SOLENOIDS. RESULTS IN EXCESSIVE LO2 AND LH2 ULLAGE PRESSURE CAUSING ET VENT VALVES 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 B, ITEM NO. 1 - HYBRID DRIVER CONTROLLER.

(B) GROUND TURNAROUND TEST

ULL PRESS CNTL W/CK OUT CMDS V41ADO.010A,B,E; V41ADO.020A,B,E;
V41ADO.030A,B,E EVERY FLIGHT

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

05-6J-2B