

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2063 -1 REV:06/20/88

ASSEMBLY : APT LCA - 1, 2, 3	CRIT. FUNC: 1R
P/N RI : MC477-0263-0002	CRIT. HDW: 2
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY : 3	EFFECTIVITY: X X X
: THREE	PHASE(S): PL LO X OO DO LS

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS		
PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES <u>J P</u> J BROWN	DES <u>A. Brown</u>	EPDC SSM <u>[Signature]</u>
REL <u>J P</u> DEFENSOR	REL <u>J. Kamura 6/27/88</u>	MPS SSM <u>[Signature]</u>
QE <u>Dum</u> D MASAI	QE <u>J. D. Cannon 6/27/88</u>	EPDC REP <u>[Signature]</u>
		MPS REP <u>[Signature]</u>

ITEM:

CONTROLLER, HYBRID DRIVER (HDC), TYPE III, GO2 FLOW CONTROL VALVE (LV53/54/55), CLOSE SOLENOID.

FUNCTION:

CONDUCTS MAIN BUS POWER TO GO2 FLOW CONTROL VALVE CLOSE SOLENOID. 54V76A121ARJ1(111), 55V76A122ARJ1(111), 56V76A123ARJ1(111).

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 (E) FUNCTIONAL CRITICALITY

(A) LOSS OF POWER PATH TO ONE GO2 FLOW CONTROL VALVE CLOSE SOLENOID.

(B) INADVERTENT OPENING OF ONE GO2 FLOW CONTROL VALVE.

(C,D) NO EFFECT - FIRST FAILURE.

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- (E) 1R/2, 1 SUCCESS PATH AFTER FIRST FAILURE.  
TIME FRAME - ASCENT.  
1) HDC FAILS "OFF" CAUSING ONE GO2 FLOW CONTROL VALVE TO OPEN.  
2) INADVERTENT DEACTUATION OF SECOND GO2 FLOW CONTROL VALVE CLOSE SOLENOID.

RESULTS IN EXCESSIVE ULLAGE PRESSURE CAUSING ET VENT VALVE 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.

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, V41ADO.020A, V41ADO.030A EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.