

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AUXILIARY PWR FMEA NO 05-6N -2029 -1 REV:11/21/87

ASSEMBLY : APT LCA 1,2,3				CRIT. FUNC: 1R
P/N RI : MC477-0261-0002, MC477-0263-0002				CRIT. HDW: 3
P/N VENDOR:		VEHICLE	102 103 104	
QUANTITY : 6		EFFECTIVITY:	X X X	
: SIX		PHASE(S):	PL X LO X OO DO X LS X	

PREPARED BY:		REDUNDANCY SCREEN:	A-PASS B-FAIL C-PASS
DES A BAIZ	DES	APPROVED BY:	APPROVED BY (NASA):
REL T KIMURA	REL	<i>[Signature]</i>	SSM <i>[Signature]</i>
QE J T COURSEN	QE	<i>[Signature]</i>	REL <i>[Signature]</i>
			QE <i>[Signature]</i>

EPD&C SWW *[Signature]*
11/21/87

ITEM:

CONTROLLER, HYBRID DRIVER, HDC TYPE 1 AND 3 - AUXILIARY POWER UNIT (APU); FUEL ISOLATION CONTROL CIRCUIT

FUNCTION:

TO COMMAND FUEL ISOLATION VALVE CLOSED AFTER RECEIVING AN OVERSPEED/UNDERSPEED SIGNAL. TYPE 1, MC477-0261-0002, 54V76A121A(J2-90); 55V76A122AR(J2-94); 56V76A123AR(J4-5), (J4-117). TYPE 3, MC477-0263-0002, 54V76A121AR(J6-T); 55V76A122AR(J6-P)

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) NO EFFECT - FIRST FAILURE. LOSS OF ABILITY TO CONDUCT APU OVERSPEED/UNDERSPEED INHIBIT COMMAND TO ISOLATION VALVE TYPE 3 HDC.

(B) NO EFFECT - FIRST FAILURE. LOSS OF UNLIKE REDUNDANCY. REQUIRES THREE FAILURES TO LOSE ABILITY TO CLOSE FUEL ISOLATION VALVE.

(C,D) NO EFFECT - FIRST FAILURE

(E) POSSIBLE LOSS OF MISSION, CREW/VEHICLE AFTER THREE OTHER FAILURES (SWITCH FAILS CLOSED, INABILITY TO MECHANICALLY OPEN CIRCUIT BREAKER, FUEL LEAK CAUSING AN UNDERSPEED SHUTDOWN) DUE TO LOSS OF ABILITY TO ISOLATE A FUEL LEAK (CLOSING ISOLATION VALVES DOES NOT PREVENT OVERSPEED).

FIRST FAILURE NOT DETECTABLE IN FLIGHT DUE TO OUTPUT OF THIS HDC-1/3 NOT BEING MONITORED.

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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

(B) GROUND TURNAROUND TEST

APU 1/2/3 CONTROLLER CHECK THROUGH GROUND CONNECTION PERFORMED EVERY FLOW.

(E) OPERATIONAL USE

NONE