

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - HYDRAULICS FMEA NO 05-6G -2080 -1 REV:02/19/88

ASSEMBLY : AFT LCA 1, 2, AND 3
 P/N RI : MC477-0264-0002
 P/N VENDOR:
 QUANTITY : 6
 : SIX
 :

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

CRIT. FUNC: 1R
 CRIT. HDW: 3

PREPARED BY:	J HERMAN	DES	J HERMAN	DES	APPROVED BY:	REDUNDANCY SCREEN:	A-PASS	B-FAIL	C-PASS
REL	T KIMURA	REL	T KIMURA	REL	APPROVED BY (NASA):	SSM			
QE	J COURSEN	QE	J COURSEN	QE					

[Handwritten signatures and dates: 1-29-88, 3/2/88, 3/3/88, 3-4-88]

ITEM:
 CONTROLLER, HYBRID DRIVER, HDC TYPE 4 - HYDRAULIC MAIN PUMP DEPRESS SOLENOID CIRCUIT

FUNCTION:
 PROVIDES REDUNDANT POWER RETURN FOR EACH OF THREE HYDRAULIC MAIN PUMP DEPRESS SOLENOIDS (PATH TO GROUND). SYSTEM 1 - 55V76A122(J11-i), 54V76A121(J11-P); SYSTEM 2 - 56V76A123(J11-R), 55V76A122(J11-P); SYSTEM 3 - 54V76A121(J11-M), 56V76A123(J11-M)

FAILURE MODE:
 LOSS OF OUTPUT, OPEN

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

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

(A) LOSS OF REDUNDANT POWER RETURN TO A SOLENOID FOR ENERGIZING ONE OF THREE MAIN PUMP DEPRESS VALVES

(B) FIRST FAILURE - NO EFFECT. SECOND FAILURE - INABILITY TO ACTIVATE DEPRESS SOLENOID AFTER FIRST CYCLE (INABILITY TO RESTART APU ON AFFECTED SYSTEM). NOSEWHEEL STEERING AND HYDRAULIC LANDING GEAR DEPLOY CAPABILITY WOULD BE LOST IF HYDRAULIC SYSTEM 1 IS LOST.

(C) POSSIBLE RETARGET OF LANDING SITE IF FAILURE IS KNOWN BEFORE DEORBIT BURN

(D) FIRST FAILURE - NO EFFECT

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(E) POSSIBLE LOSS OF CREW/VEHICLE WITH THREE FAILURES (LOSS OF BOTH REDUNDANT PATHS TO DEPRESS SOLENOID, LOSS OF SECOND HYDRAULIC SYSTEM).

B SCREEN IS FAIL BECAUSE THIS FAILURE WOULD NOT BE FLIGHT DETECTABLE UNTIL A SECOND FAILURE OCCURS (HDC TYPE 4 DRIVER FAILS OPEN).

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

V58AJ0.010, "MAIN PUMP EDV ELECTRICAL CHECK" (PERFORMED PRIOR TO EACH FLIGHT). VERIFY SOLENOID RESPONDS TO SWITCH COMMANDS IN CONJUNCTION WITH CONTROL BUS DROPS.

(E) OPERATIONAL USE

NONE - HOWEVER, APU START MAY BE ATTEMPTED IN AUTO-SHUTDOWN INHIBIT.