SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - HYDRAULICS FMEA NO 05-6G -2087 -1 REV:02/19/88

ASSEMBLY :AFT LCA 1, 2, AND 3
P/N RI :JANTXV1N5551
P/N VENDOR:
QUANTITY :3
:THREE
:

CRIT. FUNC: 1R
CRIT. HDW: 3

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

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

PREPARED BY:		APPROVED BY:	APPROVED BY (NASA):
DES	J HERMAN	DES	SSM
REL	T KIMURA	REL	REL
QE	J COURSEN	QE	QE

EPDEC ER
EPDC SSM

ITEM:
DIODE, ISOLATION (3 AMPS), HYDRAULIC MAIN PUMP DEPRESS VALVE SOLENOID CIRCUIT

FUNCTION:
PROVIDES CONTROL BUS POWER ISOLATION TO RETURN DRIVERS.
54V76A121CR(J4-73), 55V76A122(J4-73), 56V76A123(J4-73)

FAILURE MODE:
FAILS OPEN

CAUSE(S):
VIBRATION, THERMAL STRESS, CONTAMINATION, MECHANICAL SHOCK

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

(A) LOSS OF REDUNDANT POWER RETURN TO MAIN PUMP DEPRESS SOLENOID

(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) FIRST FAILURE - NO EFFECT. SECOND FAILURE - POSSIBLE RETARGET OF LANDING SITE

(D) FIRST FAILURE - NO EFFECT

(E) POSSIBLE LOSS OF CREW/VEHICLE WITH THREE FAILURES (DIODE FAILS OPEN - LOSS OF FIRST POWER RETURN PATH, LOSS OF REDUNDANT POWER RETURN PATH, LOSS OF SECOND HYDRAULIC SYSTEM).

B SCREEN FAILS BECAUSE THIS FAILURE IS NOT DETECTABLE DURING FLIGHT UNTIL A SECOND FAILURE OCCURS (HDC TYPE 4 DRIVER IN REDUNDANT CIRCUIT FAILS OPEN).

DISPOSITION & RATIONALE:
(A)DESIGN (B)TEST (C)INSPECTION (D)FAILURE HISTORY (E)OPERATIONAL USE:

(A-D) DISPOSITION AND RATIONALE
REFER TO APPENDIX F, ITEM NO. 4 - DIODE

(B) GROUND TURNAROUND TEST
V58AJO.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.