

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - HYDRAULICS FMEA NO 05-6G -2078 -1 REV:02/19/88

ASSEMBLY :AFT PCA 4, 5, AND 6.
P/N RI :JANTXVIN5551
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:
DES
REL
QE

J HERMAN
T KIMURA
J COURSEN

REDUNDANCY SCREEN: A-FAIL B-FAIL C-PASS
APPROVED BY: APPROVED BY (NASA):
DES *[Signature]* SSM *[Signature]*
REL *[Signature]* REL *[Signature]*
QE *[Signature]* QE *[Signature]*

3/12/88
3/14/88
3/2/88
3-4-88

ITEM:

DIODE, SURGE SUPPRESSION (3 AMP), HYDRAULIC MAIN PUMP DEPRESS VALVE SOLENOID CIRCUIT

FUNCTION:

PROVIDES ARC SUPPRESSION FOR CIRCUITRY (IN PARTICULAR HYBRID DRIVER AND RPC). 55V76A135A1CR13, CR30; 56V76A136A1CR13, CR30; 54V76134A1CR14, CR30

FAILURE MODE:

INTERNAL SHORT

CAUSE(S):

CONTAMINATION, THERMAL STRESS, VIBRATION, MECHANICAL SHOCK

EFFECT(S) ON:

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

(A) LOSS OF REDUNDANCY

(B) FIRST FAILURE - NO EFFECT. SECOND FAILURE - INABILITY TO ENERGIZE DEPRESS SOLENOID (INABILITY TO START APU ON AFFECTED SYSTEM)

(C) FIRST FAILURE - NO EFFECT. SECOND FAILURE - POSSIBLE RETARGET OF LANDING SITE IF KNOWN BEFORE DEORBIT BURN

(D) FIRST FAILURE - NO EFFECT

(E) POSSIBLE LOSS OF CREW/VEHICLE WITH THREE FAILURES (SHORT OF BOTH DIODES IN SAME SYSTEM, LOSS OF SECOND HYDRAULIC SYSTEM).

"A" SCREEN IS FAIL BECAUSE TWO DIODES ARE IN SERIES WITH NO PRESENT CAPABILITY TO DETECT (DURING NORMAL GROUND TURNAROUND) A SHORT IN ONE OF THE DIODES. "B" SCREEN IS FAIL BECAUSE FAILURE IS NOT DETECTABLE IN FLIGHT UNTIL SECOND FAILURE OCCURS (SECOND SERIES DIODE FAILS SHORT).

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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 F, ITEM NO. 4 - DIODE

(B) GROUND TURNAROUND TEST

FAILURE IS NOT GROUND DETECTABLE DURING NORMAL GROUND TURNAROUND.

(E) OPERATIONAL USE

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