

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - HYDRAULICS FMEA NO 05-6G -2085 -1 REV:02/19/88

ASSEMBLY : AFT PCA 4, 5, AND 6 CRIT. FUNC: 1R
 P/N RI : JANTX1N1204RA CRIT. HDW: 3
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY : 6 EFFECTIVITY: X X X
 : SIX (2 PER SYSTEM) PHASE(S): PL LO OO DO X LS
 :

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

ITEM:

DIODE, ISOLATION (12 AMP), HYDRAULIC MAIN PUMP DEPRESS VALVE SOLENOID CIRCUIT

FUNCTION:

PROVIDES MAIN BUS POWER ISOLATION. SYSTEM 1 - 54V76A134A2CR21, 55V76A135A2CR22; SYSTEM 2 - 55V76A135A2CR21, 56V76A136A2CR22; SYSTEM 3 - 56V76A136A2CR21, 54V76A134A2CR22

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 PATH 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

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - HYDRAULICS FMEA NO 05-5G -2085 -1 REV:02/19/88

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

B SCREEN FAILS BECAUSE THIS FAILURE IS NOT FLIGHT DETECTABLE UNTIL A SECOND FAILURE OCCURS (SECOND 12 AMP DIODE 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. 2 - DIODE, POWER, STUD MOUNTED

(B) GROUND TURNAROUND TEST

VSSAJ0.010, "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.