

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2197 -1 REV:05/03/88

ASSEMBLY :FWD PCA-1, 2; 3	CRIT.FUNC: 1R
P/N RI :JANTX1N1204RA	CRIT. HDW: 3
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY :18	EFFECTIVITY: X X X
:EIGHTEEN TWO PER EACH	PHASE(S): PL LO X OO X DO X LS
:RPC OUTPUT	

PREPARED BY:	REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS	APPROVED BY (NASA):
DES R PHILLIPS	DES <i>R. Burns</i>	SSM <i>W.C. Stone 5/10/88</i>
REL M HOVE	REL <i>M. D. Cl... 5-6-88</i>	REL <i>...</i>
QE J COURSEN	QE <i>A.D. Courson 5/16/88</i>	QE <i>...</i>

ITEM: DIODE, BLOCKING, 12 AMP - RPC TO CONTROL BUS

FUNCTION: ISOLATES A MAIN DC BUS SOURCE REMOTE POWER CONTROLLER FROM THE TWO CONTROL BUSES IT FEEDS AND BLOCKS CURRENT BETWEEN CONTROL BUSES. 81V76A22CR1 THRU 6; 82V76A23CR1 THRU 6; 83V76A24CR1 THRU 6

FAILURE MODE: FAILS OPEN, FAILS TO CONDUCT

CAUSE(S): THERMAL STRESS, STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), STRUCTURAL FAILURE, ELECTRICAL STRESS, PROCESSING ANOMALY

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

- (A) LOSS OF ONE OF THREE SOURCES TO A CONTROL BUS.
- (B) FIRST FAILURE - NO EFFECT. THE CONTROL BUS IS POWERED BY ANOTHER REMOTE POWER CONTROLLER AND ANOTHER MAIN DC BUS. SECOND FAILURE (OPEN CIRCUIT IN CONTROL BUS DISTRIBUTION) COULD POSSIBLY RESULT IN LOSS OF A PORTION OF ONE CONTROL BUS TO CRITICAL LOADS.
- (C,D) FIRST FAILURE - NO EFFECT.
- (E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THE THIRD FAILURE (LOSS OF A SECOND CONTROL BUS SHORTED TO GROUND) DUE TO LOSS OF TWO OR MORE CONTROL BUSES NECESSARY FOR THE OPERATION OF CRITICAL LOADS. FAILS "B" SCREEN BECAUSE DIODE FAILURE IS MASKED BY REDUNDANT POWER FEEDS.

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SYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2197 -1 REV:05/03/88

DISPOSITION & RATIONALE:

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

(B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX F, ITEM NO. 2 - DIODE, POWER - STUD MOUNTED

(C) GROUND TURNAROUND TEST

VERIFY CONTROL BUS SOURCES BY MONITORING CIRCUIT BREAKER POSITIONS,
POWER STIMULI COMMANDS, DISCRETE EVENTS, AND BUS VOLTAGES. TEST IS
PERFORMED FOR ALL FLIGHTS.

(E) OPERATIONAL USE

NONE