

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2191 -2 REV:09/25/89

ASSEMBLY :AFT PCA 4,5,6 CRIT.FUNC: 1R  
P/N RI :JANTX1N1188R CRIT. HDW: 3  
P/N VENDOR: VEHICLE 102 103 104  
QUANTITY :6 EFFECTIVITY: X X X  
:SIX, TWO/SERIES/PCA PHASE(S): PL LO X OO X DO X LS

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

PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
DES R PHILLIPS DES P. B. ... SSM ...  
REL T KIMURA REL Michael ... REL ...  
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ITEM:

DIODE, BLOCKING, 35 AMP - PRE-FLIGHT TEST BUS TO ESSENTIAL BUS POW CIRCUIT

FUNCTION:

ALLOWS POWERING OF ESSENTIAL BUSES FROM PRE-FLIGHT TEST BUSES BUT BLOC POWER IN THE REVERSE DIRECTION. 54V76A134CR1, CR2; 55V76A135CR1, CR 56V76A136CR1, CR2

FAILURE MODE:

SHORTS, CONDUCTS IN REVERSE DIRECTION

CAUSE(S):

STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), CONTAMINATIC ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY

EFFECT(S) ON:

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

(A,B,C,D) LOSS OF REDUNDANCY - REDUNDANT DIODE ISOLATES PRE-FLIGHT TE BUS FROM THE ESSENTIAL BUS. SECOND FAILURE - REDUNDANT SERIES DIC SHORTED WOULD RESULT IN A POWERED PRE-FLIGHT TEST BUS DURING FLIGHT.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (ENGINE CUTC (ECO) OPEN SIMULATION COMMAND HYBRID DRIVER FAILS ON) DUE TO THE SENDI OF AN ECO SIMULATION OPEN COMMAND TO THE POINT SENSOR ELECTRONICS E PRECLUDING DRY ECO OUTPUT UPON PROPELLANT DEPLETION. PROPELLA DEPLETION MECO COMMAND CAPABILITY WOULD BE LOST AND PROPELLANT STARVATI COULD RESULT IN SSME PUMP CAVITATION AND UNCONTAINED ENGINE DAMAGE.

FAILS "A" AND "B" SCREENS SINCE SERIES DIODE SHORTS ARE NOT DETECTABLE.

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DISPOSITION & RATIONALE:

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

A,B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX F, ITEM NO. 1 - DIODE, POWER - STUD MOUNTED

B) GROUND TURNAROUND TEST

NONE

E) OPERATIONAL USE

NONE