

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2902 -2 REV:05/03/88

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

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
PREPARED BY: APPROVED BY: APPROVED BY (NASA):
DES R PHILLIPS DES *R. Buena* SSM *W. C. Stager 5/12/88*
REL M HOVE REL *M. Hove 5-6-88* REL *W. C. Stager 5/12/88*
QE J COURSEN QE *J. D. Courzen 5/6/88* QE *W. C. Stager 5/12/88*

ITEM:

DIODE, ISOLATION, 12A - AFT MCA 1, 2 AND 3 RCS/OMS BUS AB, BC, CA
INPUT ISOLATION

FUNCTION:

PROVIDES ISOLATION BETWEEN TWO POWER INPUT CIRCUITS FEEDING AFT MOTOR CONTROL ASSEMBLIES #1, #2 AND #3 RCS/OMS BUSES AB, BC AND CA FOR CONTROL OF REACTION CONTROL SYSTEM/ORBITAL MANEUVERING SYSTEM (RCS/OMS) ISOLATION, CROSSPEED AND INTERCONNECT MOTOR VALVES.
54V76A114CR1, CR2; 55V76A115CR1, CR2; 56V76A116CR1, CR2

FAILURE MODE:

SHORTS, CONDUCTS IN REVERSE DIRECTION

CAUSE(S):

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

EFFECT(S) ON:

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

(A) FIRST FAILURE - NO EFFECT. LOSS OF NORMAL ISOLATION BETWEEN MAIN DC BUS RPC'S POWERING THE RCS/OMS SUB-BUSES.

(B) DEGRADATION OF BUS ISOLATION SUCH THAT ONE OTHER FAILURE (RCS/OMS BUS SHORT) RESULTS IN THE LOSS OF ALL RCS/OMS SUB-BUSES.

(C,D) FIRST FAILURE - NO EFFECT.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER TWO ADDITIONAL FAILURES (RCS/OMS BUS SHORT AND RCS PROPELLANT LEAK) DUE TO LOSS OF CAPABILITY TO POWER AT LEAST ONE RCS/OMS AFT MOTOR CONTROL ASSEMBLY SUB-BUS (RESULTS IN LOSS OF AFT RCS/OMS CROSSPEED CAPABILITIES OR LEAK ISOLATION). FAILS "B" SCREEN BECAUSE NO CAPABILITY EXISTS TO DETECT A SHORTED DIODE IN FLIGHT.

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SYSTEM : ELECT POWER DIST & CONT FMEA NO 05-6 -2902 -2 REV:05/03/88

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. 2 - DIODE, POWER STUD MOUNTED

B) GROUND TURNAROUND TEST

NONE IDENTIFIED

E) OPERATIONAL USE

NONE