SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2902 -3 REV:05/03/88

ASSEMBLY :AFT-MCA-1,2,3 CRIT.FUNC: 1R
P/N RI :JANTXIN1204RA 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	SSM
REL	M	HOVE	REL	REL
QE	J	COURSEN	QE	QE

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, CROSSFEED AND INTERCONNECT MOTOR VALVES. 54V76A114CR1, CR2; 55V76A115CR1, CR2; 56V76A116CR1, CR2

FAILURE MODE:
SHORTED TO GROUND

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) LOSS OF ONE MAIN DC BUS SOURCE FOR POWERING TWO RCS/OMS SUB-BUSES IN TWO DIFFERENT AFT MOTOR CONTROL ASSEMBLIES.

(B) LOSS OF REDUNDANCY. NO EFFECT FOR FIRST FAILURE. RCS/OMS SUB-BUSES ARE POWERED FROM TWO SEPARATE SOURCES.

(C,D) FIRST FAILURE - NO EFFECT.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER TWO ADDITIONAL FAILURES (SHORT ON A DIFFERENT RCS/OMS SUB-BUS 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 CROSSFEED CAPABILITIES OR LEAK ISOLATION). FAILS "B" SCREEN BECAUSE DUAL POWER FEEDS MASK THE FAILURE.

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ISPOSITION & 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