

SHUTTLE CRITICAL ITEMS LIST - OkITER

8050260M  
ATTACHMENT -  
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SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6N -2062 -1 REV:01/07/91

ASSEMBLY :PANEL A12  
P/N RI :JANTXV1N4246  
P/N VENDOR:  
QUANTITY :12  
:TWELVE  
:

CRIT.FUNC: 1R  
CRIT. HDW: 2  
VEHICLE 102 103 104  
EFFECTIVITY: X X X  
PHASE(S): PL LO OO X DO LS

PREPARED BY:  
DES T NGUYEN  
REL T KIMURA  
QE W R HIGGINS

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS  
APPROVED BY:  
DES J. W. Anderson 1-21-91  
REL Andrew C. ... 1-22-91  
QE ... 1-23-91  
APPROVED BY (NASA):  
SSM ... 2-15-91  
REL ... 1/28/91  
QE ... 1/28/91  
EPDC REL ... 2-2-91  
EPDC SSM ... 2-3-91

ITEM:

DIODE, ISOLATION (1 AMP) - AUXILIARY POWER UNIT (APU) HEATERS, GAS GENERATOR/FUEL PUMP 1, 2, AND 3 POWER CIRCUITS

FUNCTION:

PROVIDES CONTROL BUS ISOLATION IN THE APU GAS GENERATOR/FUEL PUMP 1, 2, AND 3 HEATER CONTROL CIRCUITS.

36V73A12A1CR1, A1CR3, A2CR1, A2CR3, A3CR1, A3CR3, A7CR2, A7CR4, A8CR2, A8CR4, A9CR2, A9CR4

FAILURE MODE:

OPEN, FAILS TO CONDUCT

CAUSE(S):

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

EFFECT(S) ON:

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

(A) LOSS OF CAPABILITY TO CONDUCT CONTROL POWER TO THE HYBRID DRIVERS AND SWITCH SCAN MONITORING CIRCUITS IN THE AFFECTED HEATER CIRCUIT

(B) LOSS OF ONE OF TWO GAS GENERATOR AND LINE/PUMP/VALVE HEATER SYSTEMS TO ONE APU.

(C,D NO EFFECT - FIRST FAILURE

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE (DIODE OF REDUNDANT HEATER CIRCUIT FAILS TO CONDUCT) WHICH RESULTS IN LOSS OF FUEL PUMP/LINE/VALVE HEATERS TO THE SAME APU CAUSING FUEL (HYDRAZINE) FREEZING AND LINE RUPTURE UPON THAWING.

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## DISPOSITION &amp; 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. 3 - DIODE

## (B) TEST

APU 1/2/3 HEATER TEST BY COCKPIT COMMAND PERFORMED IN FLIGHT EVERY FLOW OR AFTER CIG RETEST. ADDITIONALLY, BOTH 'A' AND 'B' GAS GENERATOR/FUEL PUMP HEATER SYSTEMS ARE VERIFIED TO BE FUNCTIONING NOMINALLY PRIOR TO LAUNCH AND AFTER AFT COMPARTMENT

## (E) OPERATIONAL USE

FIRST FAILURE - SELECT ALTERNATE HEATER.

C/CASEOUT  
D.W.Y.  
2-13-91