

SI...LE CRITICAL ITEMS LIST - JITER

5000260M
ATTACHMENT
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SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6N -2067 -1 REV:01/07/91

SEMBLY :AFT LCA 1,2,3 CRIT.FUNC: 1R
 /N RI :JANTXV1NS551 CRIT. HDW: 2
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY :18 EFFECTIVITY: X X X
 :EIGHTEEN . PHASE(S): PL LO OO X DO LS

PREPARED BY: APPROVED BY: REDUNDANCY SCREEN: A-PASS B-PASS C-PASS
 DES T NGUYEN APPROVED BY: APPROVED BY (NASA):
 REL T KIMURA REL J.M. Anderson 1-21-91 SSM (W) K... for W Smith 2-13-91
 QE W R HIGGINS REL Melvin Clifton 1-23-91 REL ...
 QE J.J. ... 1-23-91 QE ...
 EPDC Rel. ...
 EPDC SSM ...

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

FUNCTION:
 PROVIDES SWITCH ISOLATION IN THE APU GAS GENERATOR/FUEL PUMP 1, 2, AND 3 HEATER CONTROL CIRCUITS.
 54V76A121(J3-2), (J3-3), (J3-17), (J3-18), (J3-35), (J3-37);
 55V76A122(J3-2), (J3-3), (J3-17), (J3-18), (J3-35), (J3-37);
 56V76A123(J3-2), (J3-3), (J3-17), (J3-18), (J3-35), (J3-37)

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 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 & 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. 4 - DIODE

(B) TEST

APU 1/2/3 HEATER TEST BY COCKPIT COMMAND PERFORMED IN FLIGHT EVERY FLOW OR AFTER CIG RETEST. ADDITIONALLY, BOTH 'A' & '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.

CLOSEOUT

D.W.N.
2-13-91