ATTACHMENT
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SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - OMS FMEA NO 05-6L -2136 -2 REV:10/30/8-

ASSEMBLY :AFT PCA 1 & 2
P/N RI :MC455-0129-0001
P/N VENDOR:
QUANTITY :2
:TWO
:(ONE PER HEATER GROUP)

CRIT. FUNC: 2R
CRIT. HDW: 3

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL X LO X OO. X DO LS

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

PREPARED BY:
DES D SOVEREIGN
REL F DEFENSOR
QE J COURSEN

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE
EPDC ssm

ITEM:
RELAY, GENERAL PURPOSE, 12 AMPS, 4 POLES - OMS CROSSFEED LINE HEATER POWER CIRCUIT.

FUNCTION:
UPON RECEIVING A STIMULUS FROM THE ASSOCIATED PANEL SWITCH, THE RELAY OPERATES TO CONNECT OR DISCONNECT MAIN BUS POWER TO VARIOUS OMS CROSSFEED LINE HEATER GROUPS. 54V76A131K2. 55V76A132K3.

FAILURE MODE:
INADVERTENT OPERATION, INADVERTENTLY CLOSES, SHORTS.

CAUSE(S):
PIECE PART STRUCTURAL FAILURE, VIBRATION, THERMAL STRESS, CONTAMINATION, MECHANICAL SHOCK.

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

(A) ENERGIZES HYBRID DRIVER POWER INPUTS AND ENABLES OMS CROSSFEED LINE HEATER GROUPS.

(B) FIRST FAILURE HAS NO EFFECT. BOTH SYSTEMS MAY BE OPERATED SIMULTANEOUSLY SINCE HEATERS ARE THERMALLY CONTROLLED AUTOMATICALLY BY TWO THERMAL SWITCHES (CONTROL AND OVER TEMPERATURE SWITCHES) IN ALL APPLICATIONS.

(C,D) FIRST FAILURE HAS NO EFFECT.

(E) POSSIBLE LOSS OF MISSION DUE TO THE PREMATURE ENABLING OF CROSSFEED HEATERS, LEADING TO OVERHEATING. CROSSFEED LINE TEMPERATURE EXCEED ENGINE THERMAL LIMITS, NEXT PLS DEORBIT IS REQUIRED. REQUIRES TWO OTHER FAILURES (CONTROL THERMAL SWITCH FAILS CLOSED, OVER TEMPERATURE SWITCH FAILED CLOSED) BEFORE THE EFFECT IS MANIFESTED. FAILURE IS NOT READILY DETECTABLE IN FLIGHT DUE TO LACK OF MONITORING MEASUREMENTS.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - OMS FMEA NO 05-6L -2136 -2 REV:10/30/87

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

(A-D) FOR DISPOSITION AND RATIONALE
REFER TO APPENDIX C, ITEM NO. 2 - RELAY, GENERAL PURPOSE.

(B) GROUND TURNAROUND TEST
V43CA0.020 - CROSSFEED AND HIGH POINT BLEED HEATER CIRCUIT VERIFICATION; PERFORMED FOR FIRST FLIGHT AND ON CONTINGENCY BASIS (LRU RETEST). FUNCTIONAL CHECKOUT OF HEATER CONTROL CIRCUITS PER FIGURE V43CA0.020-1.

(E) OPERATIONAL USE
NO ACTION FOR FIRST FAILURE - NOT DETECTABLE. IF ENTIRE STRING FAILS, EARLY MISSION TERMINATION IS REQUIRED.