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PRINT DATE: 09/01/93

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE
NUMBER: 05-6N-2055-X**

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT

REVISION: 1 08/30/93

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: PANEL A12	V070-730385
SRU	: SWITCH, TOGGLE	ME452-0102-7301

PART DATA

**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, TOGGLE, 3 POLE 2 POSITION - AUXILIARY POWER UNIT (APU) HEATERS
TANK/FUEL LINE 1, 2 AND 3 (A AND B) POWER CIRCUITS**

REFERENCE DESIGNATORS: 36V73A12S7
36V73A12S8
36V73A12S9
36V73A12S10
36V73A12S11
36V73A12S12

**QUANTITY OF LIKE ITEMS: 6
SIX**

**FUNCTION:
PROVIDES AUTO/OFF MANUAL CONTROL FOR APU TANK/FUEL LINE HEATERS.**

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AUXILIARY PWR FMEA NO 05-6N -2055 -2 REV:11/21/87

ASSEMBLY :PANEL A12				CRIT. FUNC: 1R
P/N RI :ME452-0102-7301				CRIT. HDW: 2
P/N VENDOR:	VEHICLE	102	103	104
QUANTITY :6	EFFECTIVITY:	X	X	X
:SIX	PHASE(S):	PL X LO X	OO X DO X	LS X

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

PREPARED BY: DES A BAIZ
 REL T KIMURA
 QE J T COURSEN

APPROVED BY: DES [Signature]
 REL [Signature]
 QE [Signature]

APPROVED BY (NASA): SSM [Signature]
 REL [Signature]
 QE [Signature]

ED/CSM [Signature]
 FOR U.S. STAGG

ITEM:

SWITCH, TOGGLE, 3 POLE 2 POSITION - AUXILIARY POWER UNIT (APU) HEATERS TANK/FUEL LINE 1, 2, AND 3 (A AND B) POWER CIRCUITS

FUNCTION:

PROVIDES AUTO/OFF ENERGIZING CAPABILITY FOR APU TANK/FUEL LINE HEATERS. 36V73A12S7, S8, S9, S10, S11, S12

FAILURE MODE:

FAILS CLOSED, CONTACT-TO-CONTACT AND POLE-TO-POLE SHORT; (FAILS TO TRANSFER FROM "AUTO" TO "OFF")

CAUSE(S):

PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY

EFFECT(S) ON:

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

(A) NO EFFECT - FIRST FAILURE. THERMOSTAT WILL CYCLE TO MAINTAIN TEMPERATURE.

(B,C,D) NO EFFECT - FIRST FAILURE

(E) POSSIBLE LOSS OF MISSION, CREW/VEHICLE AFTER SECOND FAILURE (THERMOSTAT FAILS CLOSED) DUE TO HYDRAZINE DECOMPOSITION AND LINE RUPTURE.

DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) FOR DISPOSITION AND RATIONALE, REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD4C - AUXILIARY PWR FMEA NO 05-6N -2055 -2 REV:11/21/87

(B) GROUND TURNAROUND TEST
APU 1/2/3 HEATER CONTROLS CHECK PERFORMED EVERY FLOW.

(E) OPERATIONAL USE
NONE