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FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
NUMBER: 05-6WC-1002-X

SUBSYSTEM NAME: EPD&C - ATCS:RFCA
REVISION : 2 05/30/90

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:	PANEL L1A2	V070-730271
SRU	:	SWITCH, TOGGLE	ME452-0102-7403

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, TOGGLE. RADIATOR FLOW CONTROL.

REFERENCE DESIGNATORS: 31V73A1A2-
: S26, S27

QUANTITY OF LIKE ITEMS: 2
(TWO), ONE PER LOOP

FUNCTION:
SELECTS AND PROVIDES POWER TO A OR B RADIATOR FLOW CONTROLLERS FOR EACH FREON LOOP.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - ATCS/RFCA FMEA NO 05-6WC-1002 -3 REV:06/10/88

ASSEMBLY :PANEL L1A2
P/N RI :ME452-0102-7403
P/N VENDOR:
QUANTITY :2 (TWO),
:ONE PER LOOP
:

CRIT. FUNC: 1R
CRIT. HDW: 2

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

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

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

PREPARED BY:
DES J BROWN
REL M HOVE
QE J COURSEN

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE
Rel
EPDE Item

ITEM:
SWITCH, TOGGLE. RADIATOR FLOW CONTROL.

FUNCTION:
SELECTS AND PROVIDES POWER TO A OR B RADIATOR FLOW CONTROLLERS FOR EACH FREON LOOP. 31V73A1A2S26, S27

FAILURE MODE:
SHORT TO CASE (GROUND) (BOTH BYPASS VALVE MOTORS)

CAUSE(S):
PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECHANICAL SHOCK, VIBRATION, PROCESSING ANOMALY

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

(A) LOSS OF AC POWER TO BOTH BYPASS VALVE MOTORS.

(B) LOSS OF RADIATOR FLOW CAPABILITY IF BYPASS VALVE IS CLOSED AND LOSS OF UNDER TEMP PROTECTION IF BYPASS VALVE IS OPEN FOR ONE FREON LOOP.

(C) EARLY MISSION TERMINATION AFTER FAILURE IS DETECTED.

(D) NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECT - SECOND ASSOCIATED FAILURE (LOSS OF RADIATOR FLOW CONTROL VALVE FUNCTION) CAN CAUSE UNDER TEMP OF INTERCHANGER AND RESULTS IN LOSS OF COOLING LOOPS AND POSSIBLE LOSS OF CREW/VEHICLE. SCREEN B FAILS BECAUSE THERE IS NO INSTRUMENTATION TO INDICATE LOSS OF POWER TO BYPASS VALVE CONTROL MOTORS.

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

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

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - ATCS/RFCA FMEA NO 05-6WC-1002 -3 REV:06/10/88

(B) GROUND TURNAROUND TEST
BYPASS VALVE AND SWITCH ARE VERIFIED PRIOR TO EACH FLIGHT.

(E) OPERATIONAL USE
FOR BYPASS VALVE FAILED CLOSED, TURN OFF ASSOCIATED FREON PUMP AN: PERFORM VEHICLE POWERDOWN. FREON PUMP WILL BE REACTIVATED FOR ENTRY.

FOR BYPASS VALVE FAILED OPEN, FAILURE IS UNDETECTABLE AND NO CREW ACTIO: IS REQUIRED FOR FIRST FAILURE.

SECOND FAILURE "LOSS OF RADIATOR FLOW CONTROL" MAY CAUSE UNDERTEM: CONDITION WHICH WILL BE INDICATED BY ONBOARD ALARM 'EVAP OUT TEMP'. TUR: OFF ASSOCIATED FREON PUMP AND 'LOSS OF ONE FREON LOOP POWERDOWN' WILL B: PERFORMED FOR ENTRY.