FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE
NUMBER: 05-6WD-4080 -X

SUBSYSTEM NAME: EPD&C - ATCS/FCL

REVISION: 0 12/02/97

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: PANEL L2A1	V070-730273
SRU	:CAPACITOR, 0.56MF	M83421/01-4231M

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
CAPACITOR 0.56MF,MOTOR ISOLATION VALVE PORT (OR STARBOARD), FREON LOOP BYPASS VALVE CONTROL SUBSYSTEM.

REFERENCE DESIGNATORS: TB1A1C3,
TB1A2C3,
TB2A1C3,
TB2A2C3

QUANTITY OF LIKE ITEMS: 4
FOUR

FUNCTION:
CAPACITOR PROVIDES PROPER PHASING FOR REVERSING MOTORS IN ISOLATION VALVES.

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-6WD-4080- 01

REVISION#: 0 12/02/97

SUBSYSTEM NAME: EPD&C - ATCS/FCL
LRU: TB1
ITEM NAME: CAPACITOR, 0.56 MF

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:
FAILS OPEN

MISSION PHASE:
LO LIFT-OFF
OO ON-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY:
102 COLUMBIA
103 DISCOVERY
104 ATLANTIS
105 ENDEAVOUR

CAUSE:
PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN
A) PASS
B) FAIL
C) PASS

PASS/FAIL RATIONALE:
A)

B)
CANNOT ISOLATE THE FAILURE OF A SINGLE CAPACITOR WITHOUT GOING INTO CIRCUIT.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
NONE FIRST FAILURE.

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(B) INTERFACING SUBSYSTEM(S):
NONE FIRST FAILURE.

(C) MISSION:
PROBABLE LOSS OF MISSION AFTER 3 FAILURES : (1) CAPACITOR TB1A1C3 MOTOR ONE STARBOARD (OR CAPACITOR TB2A1C3 MOTOR ONE PORT) FAILS OPEN, (2) CAPACITOR TB1A2C3 MOTOR TWO STARBOARD (OR CAPACITOR TB2A2C3 MOTOR TWO PORT) FAILS OPEN, AND (3) EXTERNAL LEAK RADIATOR ARRAY STARBOARD (OR PORT) CAUSING LOSS OF ONE COOLANT LOOP.

(D) CREW, VEHICLE, AND ELEMENT(S):
POSSIBLE LOSS OF CREW/VEHICLE AFTER 4 FAILURES: (1) CAPACITOR TB1A1C3 MOTOR ONE STARBOARD (OR CAPACITOR TB2A1C3 MOTOR ONE PORT) FAILS OPEN, (2) CAPACITOR TB1A2C3 MOTOR TWO STARBOARD (OR CAPACITOR TB2A2C3 MOTOR TWO PORT) FAILS OPEN, AND (3) EXTERNAL LEAK RADIATOR ARRAY STARBOARD (OR PORT), AND (4) LOSS OF REDUNDANT COOLANT LOOP.

(E) FUNCTIONAL CRITICALITY EFFECTS:
PROBABLE LOSS OF MISSION AFTER 3 FAILURES: (1) CAPACITOR TB1A1C3 MOTOR ONE STARBOARD (OR CAPACITOR TB2A1C3 MOTOR ONE PORT) FAILS OPEN, (2) CAPACITOR TB1A2C3 MOTOR TWO STARBOARD (OR CAPACITOR TB2C3 MOTOR TWO PORT) FAILS OPEN, AND (3) EXTERNAL LEAK RADIATOR ARRAY STARBOARD (OR PORT) CAUSING LOSS OF ONE COOLANT LOOP. POSSIBLE LOSS OF CREW/VEHICLE AFTER 4 FAILURES: (1) CAPACITOR TB1A1C3 MOTOR ONE STARBOARD (OR CAPACITOR TB2A1C3 MOTOR ONE PORT) FAILS OPEN, (2) CAPACITOR TB1A2C3 MOTOR TWO STARBOARD (OR CAPACITOR TB2C3 MOTOR TWO PORT) FAILS OPEN, (3) EXTERNAL LEAK RADIATOR ARRAY STARBOARD (OR PORT) CAUSING LOSS OF ONE COOLANT LOOP, (4) LOSS OF REDUNDANT COOLANT LOOP CAUSING LOSS OF ALL VEHICLE COOLING.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX C, ITEM #1 - HYBRID RELAY.

(B) TEST:
REFER TO APPENDIX C, ITEM #1 - HYBRID RELAY.

GROUND TURNAROUND TEST
TOGGLE SWITCH IS VERIFIED PRIOR TO EACH FLIGHT.

(C) INSPECTION:

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REFER TO APPENDIX C, ITEM #1 - HYBRID RELAY.

(D) FAILURE HISTORY:
REFER TO APPENDIX C, ITEM #1 - HYBRID RELAY.

(E) OPERATIONAL USE:
NONE.

- APPROVALS -

SS & PAE MANAGER	: D. F. MIKULA	: D. F. Mikula
SS & PAE ENGINEER	: K. E. RYAN	: K. E. Ryan TLS
EPD&C ATC	: D. SOVEREIGN	: D. Sovereign
BNA SSM	: R. L. PHAN	: L. Phan
JSC MOD	:	: [illegible]
JSC RDE		Nanette Cerda 11-24-98
USA/Arbiter		Suzanne Steele 1-4-99
		[illegible] 1/19/99