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FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
NUMBER: 05-6WC-1006-X

SUBSYSTEM NAME: EPD&C - ATCS:RFCA

REVISION : 2 05/30/90

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU :	PANEL LIA2	V070-730271
SRU :	SWITCH, TOGGLE	ME452-0102-7401

PART DATA

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

REFERENCE DESIGNATORS: 31V73A1A2S25

QUANTITY OF LIKE ITEMS: 1
ONE REQUIRED

FUNCTION:
ACTIVATES CONTROLLERS IN FREON LOOPS 1 & 2 FOR NORMAL OR HIGH RADIATOR
OUTLET TEMPERATURE. THE HIGH POSITION IS USED FOR H2O DUMP MODE FOR
FES.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6WC-1006-02

SUBSYSTEM: EPD&C - ATCS:RFCA
LRU :PANEL L1A2
ITEM NAME: SWITCH, TOGGLE
REVISION# 2 05/30/90 R
CRITICALITY OF THIS FAILURE MODE:2/2

FAILURE MODE:
FAILS CLOSED IN THE "HI" POSITION, PREMATURE CLOSURE, POLE-TO-POLE SHORT

MISSION PHASE:
00 ON-ORBIT

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

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) N/A
B) N/A
C) N/A

PASS/FAIL RATIONALE:
A)
B)
C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
RADIATOR CONTROL FAILED IN HIGH SET POINT FOR BOTH FREON LOOPS.
(B) INTERFACING SUBSYSTEM(S):
EXCESSIVE EVAPORATOR WATER USED FOR VEHICLE COOLING UNTIL FLASH
EVAPORATOR SYSTEM IS INHIBITED.

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(C) MISSION:
POWER DOWN OF PAYLOADS REQUIRED FOR LOSS OF RADIATOR NORMAL TEMP CONTROL.

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECTS:

- DISPOSITION RATIONALE -

(A) DESIGN:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

■ (B) TEST:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

SWITCH AND RADIATOR OPERATIONS ARE VERIFIED IN FLIGHT EVERY FLIGHT AND DURING GROUND TURNAROUND TEST EVERY FIFTH FLOW.

(C) INSPECTION:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

(D) FAILURE HISTORY:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

(E) OPERATIONAL USE:
INHIBIT FES TO MINIMIZE WATER USAGE.

- APPROVALS -

RELIABILITY ENGINEERING: D. ANVARI
DESIGN ENGINEERING : J. L. PECK
DESIGN SUPERVISOR : G. ANDERSON
QUALITY SUPERVISOR : J. COURSEN
NASA RELIABILITY :
NASA SUBSYSTEM MANAGER :
NASA EPO&C RELIABILITY :
NASA QUALITY ASSURANCE :
NASA EPO&C SUBSYS MGR :

: *D.A. Wainwright* 5/31/90
: *J.L. Peck*
: *G. Anderson* 5/31/90
: *J. Courson* 6/5/90
: *C. Deane* 4/29/90
: *J. Courson* 6/26/90
: *J. Courson* 6/19/90
: *C. Deane* 12/20/90
: *Franklin* 5/25/90