FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
NUMBER: 05-6VE-2101-X

SUBSYSTEM NAME: EPD&C - ECLSS - WASTE WATER MANAGEMENT
REVISION : 2 05/30/90

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:	PANEL ML868	VS70-733902
SRU	:	CIRCUIT BREAKER	MC454-0026-2030

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
CIRCUIT BREAKER (3 AMP) - WASTE WATER DUMP ISOLATION VALVE

REFERENCE DESIGNATORS: 80V73A130 CB17

QUANTITY OF LIKE ITEMS: 1
ONE PER VALVE
ONE PER VEHICLE

FUNCTION:
PROVIDES CIRCUIT PROTECTION BETWEEN MAIN BUS AND WASTE WATER DUMP ISOLATION VALVE.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6VE-2101-01

REVISION# 2 05/30/90 R

SUBSYSTEM: EPD&C - ECLSS - WASTE WATER MANAGEMENT
LRU :PANEL ML86B
ITEM NAME: CIRCUIT BREAKER

CRITICALITY OF THIS FAILURE MODE:2/2

FAILURE MODE:
FAILS OPEN, FAILS TO CONDUCT, FAILS TO CLOSE

MISSION PHASE:
OO ON-ORBIT

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

CAUSE:
STRUCTURAL FAILURE, CONTAMINATION, MECHANICAL SHOCK, THERMAL STRESS, VIBRATION, 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:
LOSS OF POWER TO WASTE WATER DUMP ISOLATION VALVE

(B) INTERFACING SUBSYSTEM(S):
LOSS OF ABILITY TO OPEN/CLOSE WASTE WATER DUMP ISOLATION VALVE. IF VALVE IS CLOSED THE ABILITY TO DUMP THE WASTE TANK IS LOST.

(C) MISSION:
MISSION DURATION MAY BE LIMITED BECAUSE OF THE INABILITY TO DUMP WASTE WATER.

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

(E) FUNCTIONAL CRITICALITY EFFECTS:

- DISPOSITION RATIONALE -

(A) DESIGN:
REFER TO APPENDIX D, ITEM NO. 1 - CIRCUIT BREAKER.

(B) TEST:
REFER TO APPENDIX D, ITEM NO. 1 - CIRCUIT BREAKER.

VALVE OPERATION VERIFIED IN FLIGHT EVERY FLOW.

(C) INSPECTION:
REFER TO APPENDIX D, ITEM NO. 1 - CIRCUIT BREAKER.

(D) FAILURE HISTORY:
REFER TO APPENDIX D, ITEM NO. 1 - CIRCUIT BREAKER.

(E) OPERATIONAL USE:
FOR DUMP ISOLATION VALVE FAILED CLOSED, RETURN TO PRIMARY LANDING SITE BEFORE THE WASTE TANK BECOMES HARD FILLED. FOR DUMP ISOLATION VALVE FAILED OPENED, NO CREW ACTION IS REQUIRED.

- APPROVALS -

RELIABILITY ENGINEERING	D. ANVARI	D.A.
RELIABILITY SUPERVISOR	M. HOVE	5-31-90
DESIGN ENGINEERING	J. L. PECK	
DESIGN SUPERVISOR	G. ANDERSON	5-31-90
QUALITY SUPERVISOR	J. COURSEN	6-5-90
NASA RELIABILITY		6/15/90
NASA SUBSYSTEM MANAGER		
NASA EPD&C RELIABILITY		6/15/90
NASA QUALITY ASSURANCE		
NASA EPD&C SUBSYS MGR		