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PRINT DATE: 05/30/90

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: 05-6VE-2103-X

SUBSYSTEM NAME: EPD&C - ECLSS - WASTE WATER MANAGEMENT

REVISION : 2 05/30/90

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU :	PANEL ML31C	V570-733852
SRU :	INDICATOR, EVENT	MC432-0222-0029

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
EVENT INDICATOR - WASTE WATER DUMP ISOLATION VALVE POSITION

REFERENCE DESIGNATORS: 80V73A127 DS3

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

FUNCTION:
PROVIDES VISUAL INDICATION FOR WASTE WATER DUMP ISOLATION VALVE
POSITION.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6VE-2103-02

REVISION# 2 05/30/90 R
SUBSYSTEM: EPD&C - ECLSS - WASTE WATER MANAGEMENT
LRU :PANEL ML31C
ITEM NAME: INDICATOR, EVENT
CRITICALITY OF THIS FAILURE MODE:2/2

FAILURE MODE:
SHORT TO GROUND

MISSION PHASE:
00 ON-ORBIT

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

CAUSE:
PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECHANICAL SHOCK,
VIBRATION, THERMAL STRESS, 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 CONTROL.

(B) INTERFACING SUBSYSTEM(S):
UPSTREAM CIRCUIT BREAKER IS TRIPPED RESULTING IN LOSS OF ABILITY TO
OPEN/CLOSE WASTE WATER DUMP ISOLATION VALVE. IF VALVE IS CLOSED THE
ABILITY TO DUMP THE WASTE WATER IS LOST.

(C) MISSION:
CONTROL OF VALVE IS LOST. MISSION DURATION MAY BE LIMITED BECAUSE OF

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
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THE INABILITY TO DUMP WASTE WATER.

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

(E) FUNCTIONAL CRITICALITY EFFECTS:

- DISPOSITION RATIONALE -

(A) DESIGN:
REFER TO APPENDIX G, ITEM NO. 1 - EVENT INDICATOR.

■ (B) TEST:
REFER TO APPENDIX G, ITEM NO. 1 - EVENT INDICATOR.
VALVE OPERATION IS VERIFIED IN FLIGHT EVERY FLOW.

(C) INSPECTION:
REFER TO APPENDIX G, ITEM NO. 1 - EVENT INDICATOR.

(D) FAILURE HISTORY:
REFER TO APPENDIX G, ITEM NO. 1 - EVENT INDICATOR.

■ (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	:	<i>D.A. Anvari</i>	5-31-90
DESIGN ENGINEERING	: J. L. PECK	:	<i>J.L. Peck</i>	
DESIGN SUPERVISOR	: G. ANDERSON	:	<i>G. Anderson</i>	5-31-90
QUALITY SUPERVISOR	: J. COURSEN	:	<i>J. Courson</i>	6-5-90
NASA RELIABILITY	:	:	<i>[Signature]</i>	6-15-90
NASA SUBSYSTEM MANAGER	:	:	<i>[Signature]</i>	6-21-90
NASA SUBSYSTEM MANAGER	:	:	<i>[Signature]</i>	6/15/90
NASA EPD&C RELIABILITY	:	:	<i>[Signature]</i>	
NASA QUALITY ASSURANCE	:	:	<i>[Signature]</i>	
NASA EPD&C SUBSYS MGR	:	:	<i>[Signature]</i>	