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PRINT DATE: 05/30/90

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
NUMBER: 05-6VE-2004-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	VS70-733852
SRU :	INDICATOR, EVENT	MC432-0222-0029

PART DATA

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

REFERENCE DESIGNATORS: 80V73A127 DS4

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

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

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FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6VE-2004-02

SUBSYSTEM: EPD&C - ECLSS - WASTE WATER MANAGEMENT
LRU :PANEL ML31C
ITEM NAME: INDICATOR, EVENT
REVISION# 2 05/30/90 R
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 FAILURE, CONTAMINATION, SHOCK, VIBRATION, THERMAL STRESS

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:

WASTE WATER STOWAGE CAPABILITY - 2/2
LOSS OF POWER TO WASTE WATER DUMP VALVE AND NOZZLE HEATER.

EFFECTS ON SUPPLY WATER CONTINGENCY DUMP CAPABILITY - 1R/3
LOSS OF POWER TO WASTE WATER DUMP VALVE AND NOZZLE HEATER.

(B) INTERFACING SUBSYSTEM(S):

WASTE WATER STOWAGE CAPABILITY - 2/2
LOSS OF CAPABILITY TO DUMP WATER THROUGH THE WASTE WATER DUMP VALVE
AND NOZZLE.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6VE-2004-02

EFFECTS ON SUPPLY WATER CONTINGENCY DUMP CAPABILITY - 1R/3
LOSS OF CAPABILITY TO DUMP WATER THROUGH THE WASTE WATER DUMP VALVE AND NOZZLE.

(C) MISSION:

WASTE WATER STOWAGE CAPABILITY - 2/2
MISSION DURATION IS LIMITED BECAUSE OF LOSS OF WASTE WATER DUMP CAPABILITY AND LOSS OF USE OF CONTINGENCY WATER CONTAINER IF THE VALVE IS IN THE OPEN POSITION WHEN THE CB FAILS OPEN.

EFFECTS ON SUPPLY WATER CONTINGENCY DUMP CAPABILITY - 1R/3
NO EFFECT - FIRST FAILURE.

(D) CREW, VEHICLE, AND ELEMENT(S):
WASTE WATER STOWAGE CAPABILITY - 2/2
NO EFFECT.

EFFECTS ON SUPPLY WATER CONTINGENCY DUMP CAPABILITY - 1R/3
NO EFFECT - FIRST FAILURE.

(E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF CREW/VEHICLE BASED UPON THE FOLLOWING SCENARIO:

- (1) FAILURE OF THE WASTE DUMP CAPABILITY (CB OPEN/DUMP VALVE OPEN OR CLOSED.)
- (2) LOSS OF SUPPLY WATER DUMP CAPABILITY
- (3) LOSS OF TOPPING EVAPORATOR DUMP CAPABILITY
- (4) LOSS OF VENTING THROUGH THE FUEL CELL WATER RELIEF VALVES

THESE FAILURES RESULT IN THE LOSS OF ELECTRICAL POWER DUE TO FUEL CELL FLOODING.

 - 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.

