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PRINT DATE: 05/30/90

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
NUMBER: 05-6VE-2402-X

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

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU :	PANEL ML31C	VS70-733852
SRU :	SWITCH, TOGGLE	ME452-0102-7306

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, TOGGLE - VACUUM VENT ISOLATION VALVE BUS SELECT

REFERENCE DESIGNATORS: 80V73A127 S10

QUANTITY OF LIKE ITEMS: 1
ONE

FUNCTION:
PROVIDES THE CAPABILITY TO SELECT EITHER MNA OR MNB FOR CONTROL OF THE
VACUUM VENT ISOLATION VALVE.

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FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6VE-2402-01

REVISION# 2 05/30/90 R
SUBSYSTEM: EPD&C - ECLSS - WASTE WATER MANAGEMENT
LRU :PANEL ML31C
ITEM NAME: SWITCH, TOGGLE
CRITICALITY OF THIS FAILURE MODE:1R2

FAILURE MODE:
FAILS OPEN

MISSION PHASE:
00 ON-ORBIT

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

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:
A)
B)
C)

- FAILURE EFFECTS -

- (A) SUBSYSTEM:
LOSS OF ABILITY TO PROVIDE POWER TO THE VACUUM VENT ISOLATION VALVE CIRCUITRY.
- (B) INTERFACING SUBSYSTEM(S):
INABILITY TO ACTUATE THE VACUUM VENT ISOLATION VALVE.

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- (C) MISSION:
NO EFFECT
- (D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT - FIRST FAILURE.

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE WITH A SECOND ASSOCIATED FAILURE (RUPTURE OF THE VACUUM VENT DUCT) WHICH RESULTS IN A RAPID DECOMPRESSION IF THE VALVE IS OPEN.

- DISPOSITION RATIONALE -

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

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

VACUUM VENT ISOLATION VALVE FUNCTION 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:
FOR VACUUM VENT ISOLATION VALVE FAILED OPEN, NO CREW ACTION IS REQUIRED FOR FIRST FAILURE.

IF VACUUM VENT ISOLATION VALVE FAILED CLOSED, DEPRESSURIZE THE AIRLOCK OR CABIN THROUGH THE OUTER HATCH EQUALIZATION VALVES.

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- 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>	5-28-90
QUALITY SUPERVISOR	: J. COURSEN	:	<i>J. Courson</i>	6-5-90
NASA RELIABILITY	:	:	<i>John Courson</i>	6/15/90
NASA SUBSYSTEM MANAGER	:	:	<i>Richard R. ...</i>	6-26-90
NASA SUBSYSTEM MANAGER	:	:		
NASA EPD&C RELIABILITY	:	:	<i>John ...</i>	6/15/90
NASA QUALITY ASSURANCE	:	:	<i>...</i>	
NASA EPD&C SUBSYS MGR	:	:	<i>...</i>	5-25-90