

PAGE: 1

PRINT DATE: 08/24/93

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE  
NUMBER: 05-6VE-2403-X**

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

**REVISION: 7 08/24/93**

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	<b>PART NAME VENDOR NAME</b>	<b>PART NUMBER VENDOR NUMBER</b>
LRU	: PANEL ML31C	VS70-733852
SRU	: SWITCH, TOGGLE	ME452-0102-7201

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**PART DATA**

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**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
SWITCH, TOGGLE - VACCUM VENT ISOLATION VALVE CONTROL**

**REFERENCE DESIGNATORS: 80V73A127 S11**

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

**FUNCTION:  
PROVIDES CONTROL (ON/OFF AND POLARITY SELECTION) CAPABILITY FOR OPENING  
AND CLOSING THE VACUUM VENT ISOLATION VALVE.**

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE  
NUMBER: 05-6VE-2403-01**

**REVISION# 7                      08/24/93 R**

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

**LRU: PANEL ML31C**

**ITEM NAME: SWITCH, TOGGLE**

**CRITICALITY OF THIS**

**FAILURE MODE: 1R2**

**FAILURE MODE:**

**FAILS CLOSED IN THE 'OPEN' POSITION, CONTACT-TO-CONTACT SHORT; FAILS OPEN WHILE VALVE IS IN THE OPEN POSITION.**

**MISSION PHASE:**

**OO            DE-ORBIT**

**DO            ON-ORBIT**

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

**CAUSE:**

**PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECHANICAL SHOCK, VIBRATION, PROCESSING ANOMALY**

**CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO**

**REDUNDANCY SCREEN            A) PASS  
    B) PASS  
    C) PASS**

**PASS/FAIL RATIONALE:**

**A)**

**B)**

**C)**

**MASTER MEAS. LIST NUMBERS:**    V82S0207E  
    :    V82S0208E

**- FAILURE EFFECTS -**

**(A) SUBSYSTEM:**

**LOSS OF CAPABILITY TO CLOSE THE VACUUM VENT ISOLATION VALVE.**

**(B) INTERFACING SUBSYSTEM(S):**

**LOSS OF ABILITY TO PREVENT RAPID DE-PRESSURIZATION IN CASE OF A VACUUM VENT LINE LEAK.**

**(C) MISSION:**

**NO EFFECT - FIRST FAILURE.**

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE  
NUMBER: 05-6VE-2403-01**

**(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. (1R2)

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**-DISPOSITION RATIONALE-**

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

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

OMRSD - VACUUM VENT ISOLATION VALVE FUNCTION VERIFIED IN FLIGHT EVERY  
| FLIGHT AND DURING GROUND TURNAROUND TEST EVERY OMDP 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:**  
NO CREW ACTION IS REQUIRED FOR FIRST FAILURE.

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**- APPROVALS -**

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EDITORIALLY APPROVED : RI  
EDITORIALLY APPROVED : JSC  
TECHNICAL APPROVAL : VIA CR

*[Handwritten signatures and dates]*  
8/26/93