

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - ARPCS FMEA NO 05-6UC-901 -1 REV: 03/21/88

ASSEMBLY : PNL L2A1 CRIT. FUNC: 1R  
 P/N RI : ME452-0102-7205 CRIT. HDW: 2  
 P/N VENDOR: VEHICLE 102 103 104  
 QUANTITY : 2 (TWO) EFFECTIVITY: X X X  
 : ONE PER VALVE PHASE(S): PL LO X OO X DO X LS  
 :

PREPARED BY: APPROVED BY: REDUNDANCY SCREEN: A-PASS B-PASS C-PASS  
 DES J BROWN DES APPROVED BY (NASA):  
 REL M HOVE REL SSM  
 QE J COURSEN QE

ITEM: SWITCH, MOMENTARY (2 POLE, 2 POSITION - CENTER OFF). 31V73A2A1S3, & S4

FUNCTION: CONTROLS POWER TO OPEN OR CLOSE CABIN VENT & VENT ISOLATION VALVES. VALVES ARE IN SERIES AND USED TO VENT CREW COMPARTMENT THRU THE AFI BULKHEAD FOLLOWING A 2 PSID PRELAUNCH PRESSURE TEST.

FAILURE MODE: FAILS IN THE "OPEN" POSITION.

CAUSE(S): PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY

EFFECT(S) ON:  
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY  
 (A) LOSS OF REDUNDANCY TO SHUT OFF CABIN VENT LINE.  
 (B,C,D) FIRST FAILURE - NO EFFECT.  
 (E) SECOND FAILURE OF SERIES VALVE FAILING OPEN RESULTS IN LOSS OF CABIN PRESSURE (LEAKAGE RATE IN EXCESS OF ARPCS MAKEUP CAPABILITY) AND POSSIBLE LOSS OF CREW/VEHICLE.

DISPOSITION & RATIONALE:  
 (A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE  
 (A,B,C,D) DISPOSITION AND RATIONALE REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.  
 (B) GROUND TURNAROUND TEST SWITCH IS VERIFIED PRIOR TO EACH FLIGHT.

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(E) OPERATIONAL USE

-CREW RESPONSE

-UPON OPEN INDICATION OF VALVE, ATTEMPT TO CLOSE VALVE.

-TRAINING

-NONE

-OPERATIONAL CONSIDERATION

-CIRCUIT BREAKERS ON BOTH VALVES ARE OPENED ON-ORBIT TO PREVENT  
INADVERTENT OPENING OF VALVES.