

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPO&C/PAYLOAD INTERFACE FMEA NO 05-6X -2214 -1 REV: 11 20 88

ASSEMBLY : PNL R1A1 CRIT. FUNC: 1
 P/N RI : ME452-0102-7201 CRIT. HDW: 1
 P/N VENDOR:
 QUANTITY : 1 VEHICLE 102 103 104
 EFFECTIVITY: X X X
 : ONE, PNL R1A1 PHASE(S): PL LO CO X DO ES
 :

REUNDANCY SCREEN: A- N/A B- N/A C- N/A
 PREPARED BY: APPROVED BY: APPROVED BY (NASA):
 DES R PHILLIPS DES *[Signature]* SSM *[Signature]*
 REL T KIMURA REL *[Signature]* REL *[Signature]*
 QE J COURSEY QE *[Signature]* QE *[Signature]*
 SSM W.C. Stapp

ITEM:

SWITCH, TOGGLE, DPDT - PAYLOAD AUXILIARY POWER

FUNCTION:

PROVIDES MANUAL CONTROL FOR CONNECTING MAIN DC BUSES A AND B POWER TO PAYLOAD AUXILIARY BUSES A AND B WHICH SUPPLY THE PAYLOAD STATION DISTRIBUTION PANEL. 32V73A1A1S2S

FAILURE MODE:

FAILS OPEN, FAILS TO CONDUCT, SHORT TO GROUND

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 EFFECT:

(A) LOSS OF CAPABILITY TO SWITCH ORBITER MAIN DC BUS POWER TO PAYLOAD AUXILIARY BUSES.

(B) LOSS OF PAYLOAD AUXILIARY BUSES.

(C) POSSIBLE LOSS OF MISSION OBJECTIVES AFTER FIRST FAILURE DUE TO LOSS OF ELECTRICAL POWER NECESSARY FOR SPECIFIC PAYLOAD OPERATION/CONTROL.

(D) POSSIBLE LOSS OF CREW/VEHICLE AFTER FIRST FAILURE WHEN FAILURE OCCURS DURING PAYLOAD HAZARDOUS OPERATIONS.

NOTE: FAILURE EFFECTS AND CRITICALITY OF SWITCH ARE USER DEPENDENT. EFFECTS AND CRITICALITY WILL CHANGE ON A FLIGHT-BY-FLIGHT BASIS AND ARE DEPENDENT UPON THE PAYLOAD AND THE METHOD IN WHICH THE PAYLOAD WIRING IS DESIGNED TO TAKE ADVANTAGE OF THE REDUNDANCY OF PAYLOAD POWER CIRCUITS AVAILABLE ON THE ORBITER.

SHUTTLE CRITICAL ITEMS LIST - CABINET

SUBSYSTEM : EPDAG/PAYLOAD INTERFACE TMEA NO 05-6X -2214 -1 REV:11.01.83

THE WORSE-CASE CRITICALITY WILL BE 1/1 FOR HAZARDOUS AND/OR CLASSIFIED PAYLOADS WHICH MAY BE DOWNGRADED TO 1R/3 WITH THE APPROPRIATE PAYLOAD POWER UTILIZATION WIRING DESIGN.

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

VERIFY MAIN DC BUS A AND B VOLTAGE AT PAYLOAD STATION DISTRIBUTION PANEL AND PAYLOAD INTERFACE. CYCLE PAYLOAD AUXILIARY ON/OFF SWITCH AND MONITOR STIMULI COMMANDS, DISCRETE EVENTS, AND BUS VOLTAGE. APPLICABLE FOR ALL FLIGHTS CONTINGENT ON MISSION REQUIREMENTS.

(E) OPERATIONAL USE

SWITCH WILL NOT BE CYCLED UNLESS REQUIRED TO SUPPORT PAYLOAD AUXILIARY BUS POWER NEEDS. FOR SOME PAYLOADS, CONTINGENCY IN-FLIGHT MAINTENANCE AND EXTRA-VEHICULAR ACTIVITY PROCEDURES HAVE BEEN DEVELOPED TO SUPPORT CRITICAL FUNCTIONS, e.g. PAYLOAD RE-STOW OR DEPLOY COMPLETION, IF SWITCH FAILS.