

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - P/L RETENTION FMEA NO 05-61E -2012 -1 REV:02

ASSEMBLY : D&C PNL A6A1 CRIT. FUNC:  
P/N RI : ME451-0009-1003 CRIT. HDW:  
P/N VENDOR: VEHICLE 102 103 104  
QUANTITY : 2 EFFECTIVITY: X X X  
: TWO, ONE PER SYSTEM 1 AND 2 PHASE(S): PL LO OO X DO

REDUNDANCY SCREEN: A-PASS B-PASS C  
PREPARED BY: APPROVED BY: APPROVED BY (NASA)  
DES C ODEGARD DES *C Odegard* SSM *[Signature]*  
REL H YEW REL *H Yew* REL *[Signature]*  
QE J COURSEN QE *J Courson* QE *[Signature]*

EPD&C SSM *[Signature]*  
REL *[Signature]*

ITEM:  
FUSE, 3 AMP, PAYLOAD RETENTION BUS CONTROL POWER

FUNCTION:  
PROVIDES OVERLOAD PROTECTION IN THE DC, IND (INDICATOR) AND RTN (RE BUS CONTROL CIRCUIT. LOCATED BETWEEN MAIN BUSES A AND B AND THE P RETENTION MECHANISM SELECTION/SEQUENCE SWITCH. 36V73A6A1F8 & F9

FAILURE MODE:  
FAILS OPEN

CAUSE(S):  
CONTAMINATION, STRUCTURAL FAILURE, THERMAL STRESS, MECHANICAL SHOCK VIBRATION, PROCESSING ANOMALY

EFFECT(S) ON:  
(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE

(A) FIRST FAILURE - LOSS OF CAPABILITY TO CONDUCT POWER TO ONE OF THE PAYLOAD RETENTION SYSTEM RESULTING IN LOSS OF REDUNDANCY. THE REMAINING PAYLOAD RETENTION SYSTEM WILL COMPLETE MISSION, BUT AT INCREASED OPERATING TIME.

(B) FIRST FAILURE - NONE

(C) FIRST FAILURE - NO EFFECT. SECOND FAILURE (FUSE OPENS AT REDUND SYSTEM) - LOSS OF CAPABILITY TO DEPLOY OR SECURE PAYLOAD COULD RESULT IN LOSS OF MISSION.

(D) FIRST FAILURE - NO EFFECT. SECOND FAILURE (FUSE OPENS AT REDUND SYSTEM) IF FAILURE OCCURS DURING LATCH MID TRAVEL, THE INCOMPLETE LATCHING CYCLE (e.g., HALF CLOSED HALF OPEN) COULD CAUSE THE PAYLOAD TO BE LEFT UNSECURED RESULTING IN VEHICLE DAMAGE AND POSSIBLE LOSS OF CREW/VEHICLE UPON RE-ENTRY.

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SUBSYSTEM :EPD&C - P/L RETENTION FMEA NO 05-61E -2012 -1 REV:02/26/88

DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) DISPOSITION AND RATIONALE  
REFER TO APPENDIX D, ITEM NO. 2 - FUSE

(B) GROUND TURNAROUND TEST  
TEST IS PERFORMED AS PART OF RELEASE/LATCH OPERATION BY OBSERVING SWITCH  
MONITOR FUNCTION FOR LOGIC POWER SWITCH. WHEN LOGIC POWER IS ON, SWITCH  
MONITOR FUNCTION AT V54S25E, V54S8424E ARE AT "ON".

(E) OPERATIONAL USE  
IF FAILURE OCCURS DURING LATCH/RELEASE PROCESS FOR LIGHTWEIGHT OR  
MIDDLEWEIGHT LONGERON LATCHES, AN EVA CAN BE PERFORMED TO MANUALLY DRIVE  
THE LATCHES.