

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MANIP LATCH CNTL FMEA NO 05-6IC-2001 -2 REV: 06/26/88

ASSEMBLY : PNL A8A2 (V082-730150)

P/N RI : ME452-0102-7203

P/N VENDOR:

QUANTITY : 1
: ONE
:

	VEHICLE	102	103	104
EFFECTIVITY:		X	X	X
PHASE(S):	PL	LO	OO X DO X	LS

CRIT. FUNC: 1R

CRIT. HDW: 2

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS

PREPARED BY:

DES B SEARS
REL H YEW
QE J COURSEN

APPROVED BY:

DES B.T. O'Brien
REL John J. Korman
QE [Signature]

APPROVED BY (NASA):

SSM [Signature]
REL [Signature]
QE [Signature]

EPD&C SSM [Signature] (see W. STAFF)
EPD&C REL [Signature]

ITEM:

TOGGLE SWITCH (2P2P) - MRL LATCH/RELEASE

FUNCTION:

PROVIDES POWER AND CONTROL TO REDUNDANT SYSTEMS FOR RELEASE/LATCH OPERATION OF THE MANIPULATOR RETENTION LATCH (MRL) TO ALLOW DEPLOY AND STOW OF THE RMS. THE SYSTEM RESTRAINS THE RMS DURING ASCENT AND REENTRY.
36V73A8A2S6

FAILURE MODE:

FAILS CLOSED (ON), SHORTS CONTACT-TO-CONTACT, POLE-TO-POLE

CAUSE(S):

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

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE

(A, B) FIRST FAILURE - FAILURE WILL RESULT IN LOSS OF ABILITY TO DRIVE THE MRL AND TO RELEASE/LATCH RMS.

(C) FIRST FAILURE - SWITCH FAILURE IN LATCH POSITION CAUSES LOSS OF MISSION DUE TO INABILITY TO RELEASE RMS.

(D) FIRST FAILURE - SWITCH FAILURE IN RELEASE POSITION OR LATCH POSITION AFTER DEPLOYMENT CAUSES INABILITY TO RESTRAIN RMS. SECOND FAILURE (LOSS OF JETTISON) - POSSIBLE LOSS OF CREW/VEHICLE DUE TO UNRESTRAINED RMS MOTION CAUSING STRUCTURAL DAMAGE.

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DISPOSITION & RATIONALE:

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

(A-D) DISPOSITION AND RATIONALE

REFER TO APPENDIX A, ITEM NO. 1 -TOGGLE SWITCH.

(B) GROUND TURNAROUND TEST

VERIFY MRL OPERATION BY PERFORMING RELEASE/LATCH REDUNDANCY TESTS FOR PORT MRL SYSTEM 1 AND 2. TESTS ARE PERFORMED FOR EVERY FLIGHT WITH MPM/MRL/RMS AND LRU REPLACEMENT.

(E) OPERATIONAL USE

PIN KIT CIRCUITRY PATCH MAY BE INSTALLED TO BYPASS FAILURE. IF REQUIRED, RMS MAY BE JETTISONED FOR SAFETY IF UNABLE TO LATCH TWO OF THREE MRLS OF EVA MAY BE PERFORMED FOR RMS TIE-DOWN. NO EVA EXISTS TO MANUALLY DRIVE THE MRLS FOR LATCH/UNLATCH OPERATION.