

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MANIP DEPLY CNTL FMEA NO 05-61B-2001 -1 REV:02/26/88

ASSEMBLY : PNL ASA2 (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-PAS:

PREPARED BY:

DES

B SEARS

REL

H YEW

QE

J COURSEN

APPROVED BY:

DES

REL

QE

APPROVED BY (NASA):

SSM

REL

QE

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

ITEM:

TOGGLE SWITCH (2P2P) RMS STOW/DEPLOY

FUNCTION:

PROVIDES POWER AND CONTROL FOR STOW/DEPLOY OPERATION OF THE MANIPULATOR POSITIONING MECHANISM (MPM) TO ALLOW RMS TO DEPLOY/RETRIEVE PAYLOAD AND PROPER CLOSURE OF THE PAYLOAD BAY DOORS. 36V73A8A2S5.

FAILURE MODE:

FAILS OPEN (ALL POLES), SHORTS TO GROUND (ALL POLES)

CAUSE(S):

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

EFFECT(S) ON:

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

(A) FIRST FAILURE - LOSS OF CAPABILITY TO CHANGE THE POSITION OF THE MPM

(B) FIRST FAILURE - LOSS OF CAPABILITY TO CHANGE THE POSITION OF THE MPM CAUSING POTENTIAL INTERFERENCE WITH PAYLOAD BAY DOOR CLOSURE IF RMS IS DEPLOYED.

(C) FIRST FAILURE - LOSS OF MISSION IF FAILURE OCCURS DURING MPM OPERATION CAUSING BLOCKAGE OF PAYLOAD DEPLOYMENT/RETRIEVAL ENVELOPE AND INABILITY TO OPERATE RMS.

(D) FIRST FAILURE - NO EFFECT. SECOND FAILURE (FAIL TO JETTISON) - LOSS OF CREW/VEHICLE IF MANIPULATOR ARM CAN NOT BE JETTISONED CAUSING INABILITY TO CLOSE PAYLOAD BAY DOOR. THIS COULD RESULT IN STRUCTURAL DAMAGE DURING RE-ENTRY.

DISPOSITION & RATIONALE:

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

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(A-D) DISPOSITION AND RATIONALE

REFER TO APPENDIX A ITEM 1 - TOGGLE SWITCH

(B) GROUND TURNAROUND TEST

VERIFY MPM OPERATION BY PERFORMING DEPLOY/STOW CONTROL REDUNDANCY TESTS FOR SYSTEM 1 AND 2. TESTS ARE PERFORMED FOR EVERY FLIGHT WITH MPM/MRL/RM AND LRU REPLACEMENT.

(E) OPERATIONAL USE

AFTER SWITCH FAILURE, INFLIGHT MAINTENANCE (IFM) PROCEDURE WILL BE CONSIDERED TO REGAIN OPERATION BEFORE PERFORMING EVA OR JETTISON. CREW IS TRAINED AND EVA TOOLS /PROCEDURES HAVE BEEN DEVELOPED AND VALIDATED TO PERFORM MANUAL MPM ROLL-IN AND ROLL-OUT.