

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : P/L RETEN & DEPLOY-MPM DEPLOY FMEA NO 02-5B-J08-1 REV:04/05/88

ASSEMBLY : MPM PEDESTAL MECHANISM

P/N RI : V082-544650

P/N VENDOR:

QUANTITY : 3

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

CRIT. FUNC: 1
CRIT. HDW: 1

PREPARED BY:	DES S. L. SHARP	REL M. B. MOSKOWITZ	QE W. J. SMITH	REDUNDANCY SCREEN: A- B- C-	APPROVED BY: <i>J. Sampson</i>	APPROVED BY (NASA):
					DES <i>W. J. Campbell</i>	SSM <i>[Signature]</i>
					REL <i>W. J. Campbell</i>	REL <i>[Signature]</i>
					QE <i>W. J. Campbell</i>	QE <i>[Signature]</i>

ITEM:

JETTISON MECHANISM, MANIPULATOR POSITIONING MECHANISM (MPM) PEDESTAL

FUNCTION:

MECHANISM IS RELEASED BY PYRO RETRACTOR AND SEPARATES PEDESTAL FROM BASE STRUCTURE.

FAILURE MODE:

FAILS TO FUNCTION

CAUSE(S):

FAILURE/DEFLECTION OF INTERNAL PART, CONTAMINATION/FOREIGN OBJECT/DEBRIS, THERMAL DISTORTION

EFFECTS ON:

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

(A) LOSS OF FUNCTION OF JETTISON SYSTEM.

(B) INABILITY TO CLOSE PAYLOAD BAY (PLB) DOOR.

(C) NONE.

(D) POSSIBLE LOSS OF CREW/VEHICLE DUE TO INTERFERENCE WITH PLB DOOR CLOSURE.

DISPOSITION & RATIONALE:

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

(A) DESIGN

COMPONENTS DESIGNED WITH STRUCTURAL FACTOR OF SAFETY OF 1.4 OR GREATER. MECHANISM REQUIREMENTS INCLUDE DUAL RETENTION OF ALL FASTENERS AND DUAL ROTATION PROVISIONS FOR ALL MOVING JOINTS.

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(B) TEST

QUALIFICATION TESTS: VIBRATION 34 MIN/AXIS 4.5 OVERALL GRMS -14 MIN/AXIS 3.6 OVERALL GRMS. TEMPERATURE 24 HOUR -100 DEG F, 24 HOUR +250 DEG F, AND 9 HOURS AMBIENT. FOUR SYSTEM SEPARATION TESTS WERE PERFORMED.

ACCEPTANCE TESTS: ACCEPTANCE- BY INSPECTION DURING ASSEMBLY.

OMPSD: GROUND TURNAROUND INCLUDES VISUAL INSPECTION FOR EVIDENCE OF STRUCTURAL/MECHANICAL DAMAGE PRIOR TO EACH FLIGHT.

(C) INSPECTION

RECEIVING INSPECTION

ALL RAW MATERIALS ARE VERIFIED BY RECEIVING INSPECTION FOR COMPLIANCE WITH PURCHASED MATERIAL REQUIREMENTS.

CONTAMINATION CONTROL

CONTAMINATION CONTROL AND CORROSION PROTECTION PROCESSES ARE VERIFIED BY INSPECTION.

ASSEMBLY/INSTALLATION

THREADED FASTENERS INSTALLATION ARE VERIFIED BY INSPECTION. TORQUE REQUIREMENTS ARE VERIFIED BY INSPECTION. RIGGING OPERATIONS ARE PER DRAWING GENERAL NOTES AND TEST MANUFACTURING ORDERS (TMO) AND ARE VERIFIED BY INSPECTION.

NONDESTRUCTIVE EVALUATION

PENETRANT INSPECTION IS VERIFIED BY INSPECTION.

CRITICAL PROCESSES

HEAT TREAT IS VERIFIED BY INSPECTION.

HANDLING/PACKAGING

PARTS PACKAGED AND PROTECTED PER APPLICABLE SPECIFICATION AND INSPECTED.

(D) FAILURE HISTORY

THERE HAVE BEEN NO ACCEPTANCE TEST, QUALIFICATION TEST, FIELD OR FLIGHT FAILURES ASSOCIATED WITH THIS FAILURE MODE.

(E) OPERATIONAL USE

THERE IS CURRENTLY NO BACKUP PROCEDURE/EXTRAVEHICULAR ACTIVITY (EVA) TECHNIQUE FOR THIS FAILURE MODE.