

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : P/L RETEN & DEPLOY-MPM DEPLOY FMEA NO 02-5B-J03-1 REV:04/05/88

ASSEMBLY : MPM SHOULDER MECHANISM
 P/N RI : V082-544600
 P/N VENDOR:
 QUANTITY : 1

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

CRIT. FUNC: 1
 CRIT. HDW: 1

PREPARED BY:		REDUNDANCY SCREEN:	A-	B-	C-
DES	S. L. SHARP	APPROVED BY:	<i>S. L. Sharp</i>	APPROVED BY (NASA):	
REL	M. B. MOSKOWITZ	DES	<i>M.B. Moskowitz</i>	SSM	
QE	W. J. SMITH	REL	<i>W.J. Smith</i>	REL	
		QE	<i>W.J. Smith</i>	QE	

ITEM:

JETTISON MECHANISM, MANIPULATOR POSITIONING MECHANISM (MPM) SHOULDER

FUNCTION:

MECHANISM IS RELEASED BY PYRO RETRACTOR AND SERVES TO SEPARATE THE MANIPULATOR POSITIONING MECHANISM (MPM)/REMOTE MANIPULATOR SYSTEM (RMS) FROM THE 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) POTENTIAL INABILITY TO CLOSE PAYLOAD BAY (PLB) DOOR DUE TO RMS INTERFERENCE.

(C) NONE.

(D) POSSIBLE LOSS OF CREW/VEHICLE DUE TO RMS INTERFERENCE WITH PAYLOAD BAY 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 HOUR AMBIENT. FOUR SYSTEM SEPARATION TESTS WERE PERFORMED.

ACCEPTANCE TESTS: ACCEPTANCE- BY INSPECTION DURING ASSEMBLY.

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

(C) INSPECTION

RECEIVING INSPECTION

MATERIAL AND PROCESS CERTIFICATIONS ARE VERIFIED BY INSPECTION.

CONTAMINATION CONTROL

CORROSION PROTECTION IS VERIFIED BY INSPECTION. HARDWARE IS ASSEMBLED IN A CLEAN ENVIRONMENT.

ASSEMBLY/INSTALLATION

THREADED FASTENERS INSTALLED AND TORQUED PER SPECIFICATION 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 PER SPECIFICATION AND DRY FILM LUBE ARE VERIFIED BY INSPECTION.

HANDLING/PACKAGING

HANDLING AND PACKAGING REQUIREMENTS ARE VERIFIED BY INSPECTION

(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.