

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAN ARM S&RL JETT FMEA NO 05-6ID-2501 -1 REV: 08/17/88

ASSEMBLY : MID JTSN CONT ASSY NO. 1	CRIT. FUNC: 1R
P/N RI : MC450-0018-0004	CRIT. HDW: 2
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY : 8	EFFECTIVITY: X X X
: EIGHT	PHASE(S): PL LO OO X DO LS
:	

PREPARED BY:	REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS	APPROVED BY (NASA): 9-12-88
DES C STRONG	DES <u>49 R. Brown</u>	SSM <u>RWH Thomas</u>
REL T KIMURA	REL <u>12 Howard Clayton</u>	REL <u>to Lockheed 9-12-88</u>
QE J COURSEN	QE <u>W. Wilkerson</u>	QE <u>10-20-88</u>

*Enc/Scm of 6.7 Following forced space
Prd 12-1-88*

ITEM:
PYRO INITIATOR CONTROLLER (PIC) - PORT MANIPULATOR RETENTION, FORWARD LATCH, MID LATCH, AFT LATCH, AND SHOULDER GUILLOTINE SYSTEMS A AND B

FUNCTION:
EMERGENCY SYSTEM - UPON SEPARATELY INITIATED ARM AND JETTISON SWITCH COMMANDS, THE PICS DELIVER AN ELECTRICAL CHARGE TO INITIATE THE PORT MANIPULATOR RETENTION LATCH AND SHOULDER GUILLOTINE SYSTEMS A AND B. IT IS USED ONLY IN THE EVENT THAT THE RMS MUST BE JETTISONED WHEN IT CANNOT BE RETURNED TO ITS STOWAGE POSITION. 40V76A137PIC1, 6, 8, 10, 12, 17, 19, 21

FAILURE MODE:
LOSS OF OUTPUT

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

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

(A) LOSS OF REDUNDANCY - LOSS OF INPUT TO ASSOCIATED NASA STANDARD INITIATORS (NSI'S)

(B) LOSS OF INTERFACE REDUNDANCY - NO EFFECT FIRST FAILURE. THE REDUNDANT CIRCUIT COMPLETES FUNCTION.

(C,D) NO EFFECT FIRST FAILURE. SECOND ASSOCIATED FAILURE (LOSS OF OUTPUT OF SECOND PIC) IN REDUNDANT SYSTEM PRECLUDES JETTISON OPERATION OF MANIPULATOR WITH POSSIBLE LOSS OF CREW/VEHICLE.

FIRST FAILURE IS NOT DETECTABLE IN FLIGHT SINCE THE ASSOCIATED UPSTREAM CIRCUIT BREAKER AND ARMING SWITCH ARE NOT CLOSED UNTIL THE PIC IS USED WHEN THE RMS IS TO BE JETTISONED.

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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 H, ITEM NO. 1 - PIC

(B) GROUND TURNAROUND TEST

"RMS JETTISON VERIFICATION", VERIFIES THAT THE PYRO INITIATOR CONTROLLER (PIC) ARM, FIRE, AND SWITCH SCAN CIRCUITS ARE OPERATIONAL. TESTS ARE PERFORMED FOR ALL FLIGHTS WHEN THE RMS IS FLOWN AND WITH ALL PYROS SAFED AND NSI NO-GO SIMULATORS INSTALLED.

(E) OPERATIONAL USE

NONE