

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAN ARM S&RL JETT FMEA NO 05-6ID-2126 -1 REV: 08/17/88

ASSEMBLY : M-MCA 2 AND 3	CRIT. FUNC: 1R
P/N RI : MC455-0128-0001	CRIT. HDW: 2
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY : 6	EFFECTIVITY: X X X
: SIX	PHASE(S): PL LO OO X DO LS
:	

PREPARED BY:	REDUNDANCY SCREEN: A-PASS B-PASS C-PASS
DES C STRONG	APPROVED BY: APPROVED BY (NASA): 9-12-88
REL T KIMURA	SSM <u>William Thomas J. Hayes</u>
QE J COURSEN	REL <u>John A. Clifton</u> 9-10-88
	QE <u>John A. Clifton</u> 9-10-88
	<i>approval of J. Clifton & J. Hayes</i>
	<i>File REL in Shuttle folder - 4/3/89</i>

ITEM: RELAY, LATCHING, 4 POLE - M-MCA-1 THROUGH 4

FUNCTION: EMERGENCY SYSTEM - UPON CREW OR GROUND PERSONNEL INITIATED SWITCH COMMANDS, THE APPROPRIATE COIL OF EACH DEADFACE RELAY IS OPERATED TO REMOVE OR RESTORE POWER TO A PORT MANIPULATOR RETENTION FORWARD, MID, OR AFT LATCH ACTUATOR, SYSTEM A OR B. IT IS USED ONLY WHEN THE RMS CANNOT BE RETURNED TO ITS STOWAGE POSITION AND MUST BE JETTISONED. 40V76A118K77, 44; 40V76A119K23; 40V76A117K57; 40V76A120K68, 78

FAILURE MODE: FAILS TO TRANSFER FROM "ON" TO "OFF", FAILS TO CONDUCT, INADVERTENTLY OPENS, SHORTS TO STRUCTURE (GROUND)

CAUSE(S): PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS (EXCLUDE CONTAMINATION AND THERMAL STRESS FROM THE "SHORT TO STRUCTURE" FAILURE MODE)

EFFECT(S) ON:
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE:
 (A) LOSS OF ABILITY TO DEADFACE ONE AC BUS AND RELATED MOTOR CIRCUITS FOR A PORT MANIPULATOR RETENTION LATCH ACTUATOR SYSTEM A OR B.
 (B) LOSS OF INTERFACE FUNCTION - LOSS OF ABILITY TO DE-ENERGIZE THE LATCH ACTUATOR CONTROL LOGIC, MEASUREMENT, POSITION INDICATION, AND AC POWER CIRCUITS TO THE RMS IN THE EVENT THAT THE RMS MUST BE JETTISONED. POSSIBLE SHORT OF THE AC BUS IF THE RMS 3-PHASE POWER CIRCUIT TO THE LATCH ACTUATOR IS GUILLOTINED WITHOUT PROPER DEADFACING.
 (C,D) POSSIBLE LOSS OF CREW/VEHICLE IF TWO RELAYS FAIL TO DEADFACE THE ASSOCIATED CIRCUITS PRIOR TO THE JETTISON OF THE RMS RESULTING IN THE LOSS OF TWO AC BUSES DUE TO THEIR SHORTING PHASE-TO-PHASE OR TO GROUND.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAN ARM S&RL JETT FMEA NO 05-61D-2126 -1 REV:08/17/88

DISPOSITION & RATIONALE:

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

(A-D) DISPOSITION AND RATIONALE

REFER TO APPENDIX C, ITEM NO. 3 - LATCHING RELAY

(B) GROUND TURNAROUND TEST

"PORT RMS JETT RESET/DEADFACE VERIF", VERIFIES OPERATION OF THE PORT RMS RETENTION FORWARD, MID, AND AFT LATCH ACTUATOR DEADFACE RELAY CIRCUITS.

TESTS ARE PERFORMED PRIOR TO EACH FLIGHT WITH PYRO SIMULATORS INSTALLED- CONNECTION TO PORT RMS JETTISON PYRO CONNECTORS WILL BE MADE ACCORDING TO THE TEST PERFORMED.

(E) OPERATIONAL USE

NONE