

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ACTUATION MECH-ET/ORB DOOR FMEA NO 02-4D-013700-2 REV:02/17/88

ASSEMBLY	:ET DOOR CENTERLINE LATCH ACTUATOR	CRIT. FUNC:	1R
P/N RI	:MC452-0123-0001	CRIT. HDW:	2
P/N VENDOR:		VEHICLE	102 103 104
QUANTITY	:8	EFFECTIVITY:	X X X
	:EIGHT	PHASE(S):	PL LO X CO DO LS

PREPARED BY:		REDUNDANCY SCREEN:	A-PASS	B-PASS	C-PASS
DES	R. H. YEB	APPROVED BY:	APPROVED BY (NASA):		
REL	J. S. MULLEN	DES <i>R. H. Yeb For A.C. Ordway</i>	SSM	<i>C. Mann</i>	<i>2/25/88</i>
QE	W. S. SMITH	REL <i>[Signature]</i>	REL <i>[Signature]</i>		
		QE <i>[Signature]</i>	QE <i>[Signature]</i>		

ITEM:

SWITCH, LIMIT LEFT-HAND/RIGHT-HAND ET UMBILICAL DOOR "UPLOCK" LATCH ACTUATORS

FUNCTION:

PROVIDES THE MEANS TO MECHANICALLY DETECT THE LEFT AND RIGHT DOOR CLOSE LATCH ACTUATORS END OF TRAVEL AND ELECTRICALLY SIGNAL ASSOCIATED LOGIC AND MEASUREMENT INPUTS AS REQUIRED FOR SEQUENTIAL CONTROL OPERATIONS AND TALKBACKS. 50V56A5S1,S2,S3,S4. 50V56A6S1,S2,S3,S4

FAILURE MODE:

CONDUCTS INADVERTENTLY, PREMATURELY CLOSES, SHORTS (ONE LIMIT SWITCH)

CAUSE(S):

PIECE PART STRUCTURAL FAILURE, VIBRATION, MECHANICAL SHOCK, CONTAMINATION, FOREIGN OBJECT, DEBRIS

EFFECT(S) ON:

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

(A) FUNCTION DEGRADATION/LOSS OF REDUNDANCY.

(B) INADVERTENT CLOSURE OF ONE LIMIT SWITCH, COULD INHIBIT OPERATION OF ONE LATCH MOTOR. THE REDUNDANT LATCH DRIVE WILL COMPLETE THE FUNCTION BUT AT A LOWER RATE. NO EFFECT NORMAL MISSION.

(C,D) NO EFFECT FIRST FAILURE - NEXT ASSOCIATED FAILURE PRECLUDES DOOR CLOSE LATCH OPERATIONS CAUSING POSSIBLE LOSS OF CREW/VEHICLE DUE TO DAMAGE CAUSED BY THERMAL EFFECTS IF THE DOORS CANNOT BE CLOSED AND FULLY LATCHED FOR SAFE RE-ENTRY.

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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 A, ITEM NO. 4 - LIMIT SWITCH.

(B) GROUND TURNAROUND TEST

LATCH/RELEASE RIGHT-HAND/LEFT-HAND OPERATIONAL CHECKOUT (UNDER LOAD) OF ET DOOR UPLOCK LATCHES; SINGLE MOTOR OPERATION (MOTOR 1, MOTOR 2) TO VERIFY THAT INDIVIDUAL LIMIT SWITCHES FUNCTION. FREQUENCY - ALL VEHICLES AT GROUND TURNAROUND.

(E) OPERATIONAL USE

AFTER SECOND FAILURE, THE CAPABILITY EXISTS TO REMOVE INHIBIT BY TURNING "OFF" THE MCA LOGIC SWITCH.