SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - P/L RETENTION FMEA NO 05-6IE -2000 -1 REV:06/26/86

ASSEMBLY :PNL A6A1
P/N RI :ME452-0102-7303
P/N VENDOR:
QUANTITY :5
:FIVE

CRIT. FUNC: 1
CRIT. MDW: 1

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

REDUNDANCY SCREEN: A- B- C-

PREPARED BY:		APPROVED BY:	APPROVED BY (NASA):
DES	C ODEGARD	DES	SSM
REL	H YEW	REL	REL
QE	J COURSEN	QE 7-1-88	QE
			EPD&C SSM
			EPD&C RE

ITEM:
SWITCH, TOGGLE (3P3P), LATCH/RELEASE CONTROL-PAYLOAD RETENTION

FUNCTION:
PROVIDES MANUAL CONTROL OF THE PAYLOAD RETENTION MECHANISM FOR THE DEPLOYMENT OR SECURING OF THE PAYLOADS IN THE VEHICLE. EACH OF TWO POLE SETS CONDUCTS ALTERNATE CONTROL POWER TO THE ACTUATOR DRIVE MOTORS. THE THIRD SET OF POLES PROVIDES SWITCH MONITORING FUNCTIONS TO THE MDM. 36V73A6A1S36, S42, S43, S44 AND S45

FAILURE MODE:
FAILS OPEN (3 POLES), SHORTS TO GROUND

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

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

(A) FAILURE CAUSES LOSS OF LATCH/RELEASE COMMAND CAPABILITY

(B) NONE

(C) LOSS OF CAPABILITY TO RELEASE OR LATCH PAYLOAD RESULTS IN LOSS OF MISSION

(D) IF FAILURE OCCURS DURING LATCH MID TRAVEL, THE INCOMPLETE LATCHING CYCLE (e.g., HALF CLOSED OR HALF OPEN) COULD CAUSE THE PAYLOAD TO BE LEFT UNSECURED RESULTING IN VEHICLE STRUCTURAL DAMAGE AND POSSIBLE LOSS OF CREW/VEHICLE UPON 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. 1 - TOGGLE SWITCH

(B) GROUND TURNAROUND TEST
VERIFY THAT LATCH/RELEASE COMMAND SWITCH OPERATES PROPERLY WITH THE FOLLOWING POWER ON : MAIN A AND B, LOGIC POWER, AB1, BC1 AND AC BUS. TEST IS PERFORMED ON EACH SWITCH FOR RELEASE AND LATCH COMMAND MODE THROUGHOUT FIVE LATCHES OF EACH THREE PAYLOAD SELECTS.

(E) OPERATIONAL USE
IF FAILURE OCCURS DURING LATCH/RELEASE PROCESS FOR LIGHTWEIGHT OR MIDDLEWEIGHT LONGERON LATCHES, AN EVA CAN BE PERFORMED TO MANUALLY DRIVE THE LATCHES. ALSO, INFLIGHT MAINTENANCE (IFM) PROCEDURE COULD BE CONSIDERED TO BYPASS THE FAILURE.