SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - P/L RETENTION FMEA NO 05-6IE -2000 -2 REV:02/25/

ASSEMBLY :PNL A6A1 CRIT. FUNC: 2
P/N RI :ME452-0102-7303 CRIT. HDW: 2
P/N VENDOR: VEHICLE 102 103 104
QUANTITY :5 EFFECTIVITY: X X X
:FIVE PHASE(S): PL LO OO X DO 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	QE

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 POL 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 & S45

FAILURE MODE:
FAILS CLOSED, SHORTS POLE-TO-POLE, SHORTS CONTACT-TO-CONTACT

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 DRIVING THE LATCH FULLY LATCHED OR RELEASED WHEN LOGIC POWER IS ON AND PAYLOAD SELECT IS PROPERLY ORIENTED. FAILURE CAUSE INABILITY TO TRANSFER SWITCH FROM ONE POSITION TO THE OTHER.

(B) NONE

(C) FAILURE MAY RESULT IN LOSS OF MISSION DUE TO THE INABILITY TO TRANSFER SWITCH POSITION FROM ONE POSITION TO THE OTHER. IF FAILURE OCCURS AT "LATCH" MODE, IT WILL NOT BE ABLE TO DEPLOY PAYLOAD. IF FAILU OCCURS AT "RELEASE" MODE, IT WILL NOT BE ABLE TO LATCH IF IT IS REQUIRE

(D) NONE

SUBSYSTEM :EPD&C - P/L RETENTION FMEA NO 05-6IE -2000 -2 REV:02/26/88

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.