SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - COMM. & TRACK. FMEA NO 05-6PG-22000 -2 REV:01/05/8

ASSEMBLY :PNL C3A5
P/N RI :ME452-0102-7262
P/N VENDOR:
QUANTITY :1
:ONE
:

CRIT. FUNC: 2
CRIT. HDW: 2

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL LO X CO X DO X LS

REDUNDANCY SCREEN: A- B- C-

PREPARED BY:
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APPROVED BY:
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ITEM:
SWITCH, UPLINK BLOCK TOGGLE SWITCH, DOUBLE POLE, 3 POSITION, UPLINK BLOCK, 3 POSITIONS ARE "NSP BLOCK", "GPC BLOCK", AND "ENABLE".

FUNCTION:
IN THE "NSP BLOCK" POSITION, SIMULTANEOUSLY APPLIES AN INDEPENDENT INHIBIT COMMAND SIGNAL TO EACH NSP THAT PREVENTS ALL TELEMETERED UPLINK DATA & COMMANDS FROM BEING TRANSMITTED TO THE DPS SYSTEM. IN THE "GPC BLOCK" POSITION, APPLIES 2 INDEPENDENT INHIBIT COMMANDS TO THE DPS SYSTEM CAUSING THE MDM TO BLOCK ALL 2-STAGE COMMANDS. IN THE "ENABLE" POSITION, REMOVES ALL INHIBIT COMMANDS. THE PURPOSE OF THE UPLINK BLOCK FUNCTION IS TO PROTECT AGAINST HAZARDOUS COMMANDS AND TO PROVIDE CREW AUTONOMY DURING A CRITICAL ON-ORBIT MANEUVER. A SPURIOUS COMMAND DURING SUCH A MANEUVER COULD BE CATASTROPHIC TO THE CREW/VEHICLE. 35V73A3AE513.

FAILURE MODE:
SHORT TO GROUND (INPUT) WORST CASE - CONTAMINANT OR LOOSE PART MOVES AND SEQUENTIALLY SHORTS SEVERAL INPUT TERMINALS TO CASE (GROUND).

CAUSE(S):
VIBRATION, MECHANICAL SHOCK, CONTAMINATION, MISHANDLING, PIECE-PART STRUCTURAL FAILURE.

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

(A,B) DUE TO THE LOSS OF THE NSP SWITCH BUFFER DRIVERS (REF. FMEA 05-6PG-21503-1), LOSS OF ALL S-BAND PM DOWNLINK IN GCIL "PANEL" MODE DUE TO LOSS OF THE "NSP ON" SIGNAL TO THE TRANSPONDERS.

(C) POSSIBLE LOSS OF SECURE MISSION DUE TO INABILITY TO PROTECT CLASSIFIED DATA/COMMANDS.

(D) AFTER THREE FAILURES (THIS SWITCH, 2 GCIL PNL/CMD SWITCH, AND 1 UHF) POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF STATE VECTOR UPDATE.

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SUBSYSTEM :EPD&C - COMM. & TRACK. FMEA NO 05-6PG-22000 -2 REV:01/05/88

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

(A,B,C,D) REFER TO APPENDIX A, ITEM #1, TOGGLE SWITCH.

(B) TEST
GROUND TURNAROUND TEST - DURING EACH TURNAROUND VERIFIES PROPER OPERATION OF EACH FUNCTIONAL PATH.

(E) OPERATIONAL USE
NO CREW CORRECTIVE ACTION IS AVAILABLE TO RECOVER ENCRYPTION CAPABILITY. CREW ACTION IS REQUIRED TO REGAIN S-BAND IN GCIL COMMAND MODE OR TO USE THE UHF SYSTEM FOR COMMUNICATIONS AND STATE VECTOR UPDATE.