PRINT DATE: 09/14/00

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
NUMBER:05-6PP-3000SW -X

SUBSYSTEM NAME: GPS THREE STRING

REVISION: 0 04/09/97

PART DATA

| | PART NAME<br>VENDOR NAME | PART NUMBER<br>VENDOR NUMBER |
|---|---|---|
| LRU | : PANEL O7 | VO70-730390 |
| SRU | : SWITCH. TOGGLE | ME452-0102-7601 |

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH.TOGGLE. 2-POLE. 2-POSITION.

REFERENCE DESIGNATORS: 33V73A7S44
33V73A7S46
33V73A7S48

QUANTITY OF LIKE ITEMS: 3
THREE

FUNCTION:
PROVIDES THE ON/OFF CONTROL BUS SIGNAL TO THE RPC WHICH SUPPLIES POWER TO THE GPS RECEIVER.

PRINT DATE: 10/19/99

**FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE**
**NUMBER: 05-6PP-3000SW-01**

**REVISION#:** A 10/14/99

**SUBSYSTEM NAME:** GPS THREE STRING
**LRU:** PANEL O7
**ITEM NAME:** SWITCH, TOGGLE

**CRITICALITY OF THIS FAILURE MODE:** 1R3

**FAILURE MODE:**
FAILS OPEN, PREMATURE OPEN, SHORT-TO-CASE

**MISSION PHASE:** DO DE-ORBIT

**VEHICLE/PAYLOAD/KIT EFFECTIVITY:**

| | |
|---|---|
| 102 | COLUMBIA |
| 103 | DISCOVERY |
| 104 | ATLANTIS |
| 105 | ENDEAVOUR |

**CAUSE:**
PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY

**CRITICALITY 1/1 DURING INTACT ABORT ONLY?** NO

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**REDUNDANCY SCREEN**

A) PASS
B) PASS
C) PASS

**PASS/FAIL RATIONALE:**
A)

B)

C)

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**- FAILURE EFFECTS -**

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**(A) SUBSYSTEM:**
LOSS OF CONTROL BUS VOLTAGE TO TURN ON THE RPC RESULTING IN LOSS OF POWER TO ONE GPS RECEIVER.

**(B) INTERFACING SUBSYSTEM(S):**

PRINT DATE: 10/19/99

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL FAILURE MODE**
**NUMBER: 05-6PP-3000SW-01**

LOSS OF ONE OF THREE GPS RECEIVER STRINGS. FAILED GPS OUTPUTS ARE IGNORED AND THE OUTPUTS OF THE REMAINING GPS' ARE USED.

**(C) MISSION:**
NO EFFECT

**(D) CREW, VEHICLE, AND ELEMENT(S):**
NO EFFECT - FIRST FAILURE. OPERATIONS CONTINUE WITH TWO REMAINING GPS RECEIVERS. NO EFFECT - SECOND FAILURE. OPERATIONS CONTINUE WITH ONE REMAINING GPS RECEIVER. POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO MAKE LANDING SITE AFTER THIRD FAILURE RESULTING IN LOSS OF THE REMAINING GPS RECEIVER.

**(E) FUNCTIONAL CRITICALITY EFFECTS:**
NO EFFECT

**- TIME FRAME -**

**TIME FROM FAILURE TO CRITICAL EFFECT:** N/A

**TIME FROM FAILURE OCCURRENCE TO DETECTION:** SECONDS

**TIME FROM DETECTION TO COMPLETED CORRECTING ACTION:** N/A

**IS TIME REQUIRED TO IMPLEMENT CORRECTING ACTION LESS THAN TIME TO EFFECT?**
N/A

**RATIONALE FOR TIME TO CORRECTING ACTION VS TIME TO EFFECT:**
N/A

**- APPROVALS -**

PRODUCT ASSURANCE ENGR : M. HOLTHAUS Mark Holthaus 10/19/99
DESIGN ENGR : G.J. SCHWARTZ 10-19-99