

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
 NUMBER:05-6PP-3001CB -X

SUBSYSTEM NAME: GPS THREE STRING

REVISION: 0

04/09/97

 PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:PANEL O14	VO70-730394
LRU	:PANEL O15	VO70-730395
LRU	:PANEL O16	VO70-730396
SRU	:BREAKER. CIRCUIT	MC454-0026-2050

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
 CIRCUIT BREAKER. 5 AMP. DIRECT CURRENT.

REFERENCE DESIGNATORS: 33V73A14CB36
 33V73A14CB37
 33V73A15CB43
 33V73A15CB44
 33V73A16CB28
 33V73A16CB29

QUANTITY OF LIKE ITEMS: 6
 SIX

FUNCTION:
 CONDUCT POWER. PROVIDES OVERCURRENT PROTECTION TO THE LOWER AND
 UPPER PRE-AMPLIFIERS; FILTERS, AND PROVIDES SHORT CIRCUIT PROTECTION FOR
 THE CONNECTING WIRE AND POWER BUS.

FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE

NUMBER: 05-6PP-3001CB-01

REVISION#: A 10/14/99

SUBSYSTEM NAME: GPS THREE STRING

LRU: PANEL O14, O15, & O16

ITEM NAME: BREAKER, CIRCUIT

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:

FAILS OPEN, FAILS TO CONDUCT, FAILS TO CLOSE

MISSION PHASE: DO DE-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY:	102	COLUMBIA
	103	DISCOVERY
	104	ATLANTIS
	105	ENDEAVOUR

CAUSE:

STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN

- A) PASS**
- B) PASS**
- C) PASS**

PASS/FAIL RATIONALE:

A)

B)

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

LOSS OF POWER TO ONE PREAMPLIFIER.

(B) INTERFACING SUBSYSTEM(S):

LOSS OF PREAMPLIFIER RESULTS IN LOSS OF GPS SIGNALS FROM ONE OF TWO ANTENNAS FOR ONE OF THREE GPS RECEIVER STRINGS. CAUSES PARTIAL LOSS OF

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SATELLITE RECEPTION COVERAGE FOR ONE GPS RECEIVER BUT ALLOWS THAT GPS RECEIVER TO CONTINUE FUNCTIONING.

(C) MISSION:
NO EFFECT

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT - FIRST FAILURE. OPERATIONS CONTINUE WITH PARTIAL RECEPTION LOSS OF ONE GPS RECEIVER STRING. NO EFFECT - SECOND FAILURE ON THE SAME STRING. LOSS OF ONE GPS RECEIVER STRING. OPERATIONS CONTINUE WITH TWO REMAINING STRINGS. POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD AND FOURTH FAILURE WHERE THE TWO REMAINING GPS RECEIVER STRINGS FAIL (LOSS OF OUTPUT, ERRONEOUS OUTPUT FAILURE) DUE TO INABILITY TO MAKE LANDING SITE.

(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
DESIGN ENGR : G.J. SCHWARTZ

Mark Holthaus 10/19/99
G.J. Schwartz 10-19-99