PRINT DATE: 09/14/00

FAILURE MODES EFFECTS ANALYSIS (FMEA) – NON-CIL HARDWARE
NUMBER:05-2P-300RFC -X

SUBSYSTEM NAME: GPS SINGLE STRING

REVISION: 0 04/09/97

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:COMBINER, RF SAGE LABORATORIES	ME413-0049 FP6125-1

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
RF COMBINER, SIZE 2" X 2" X 3/4", WEIGHT .25 LBS, FREQUENCY RANGE 1-2 GIGA HERTZ, ISOLATION 20 DB MINIMUM, INSERTION LOSS 3.5 DB TYPICAL.

REFERENCE DESIGNATORS: 40V74A156
22V74A173
22V74A176

QUANTITY OF LIKE ITEMS: 3
THREE

FUNCTION:
COMBINER MERGES TWO RF SIGNALS FROM UPPER AND LOWER ANTENNAS INTO ONE SIGNAL TO BE INPUT TO THE GPS RECEIVER.

PRINT DATE: 10/19/99

FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE
NUMBER: 05-2P-300RFC-01

REVISION#: A 10/14/99

SUBSYSTEM NAME: GPS SINGLE STRING
LRU: COMBINER, RF
ITEM NAME: COMBINER, RF

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:
LOSS OF OUTPUT, NOISEY OUTPUT, INTERMITTENT OUTPUT

MISSION PHASE: DO DE-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

CAUSE:
PIECE PART FAILURE (MECHANICAL STRESS, VIBRATION), CONTAMINATION, ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY

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 RF SIGNALS FROM BOTH ANTENNAS ON ONE GPS RECEIVER STRING RESULTING IN THE LOSS OF ONE OF THREE GPS RECEIVER PATHS.

(B) INTERFACING SUBSYSTEM(S):

PRINT DATE: 10/19/99

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL FAILURE MODE
NUMBER: 05-2P-300RFC-01

FAILED GPS OUTPUTS ARE IGNORED AND THE OUTPUT 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 STRINGS. NO EFECT - SECOND FAILURE. OPERATIONS CONTINUE WITH ONE REMAINING STRING. POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (LOSS OF OUTPUT) 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 Mark Holthaus 10/19/99
DESIGN ENGR : J. R. SWANSON 10/21/99