PRINT DATE: 09/29/00

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

SUBSYSTEM NAME: GPS THREE STRING REVISION: 0 04/09/97

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:RECEIVER/PROCESSOR, MAGR-S ROCKWELL COLLINS AVIONICS & COMMUNICATIONS	MC478-0153 822-1017

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
GPS RECEIVER/PROCESSOR, MAGR-S (MINIATURE AIRBORNE GPS RECEIVER - SHUTTLE), UTILIZES 28 VDC ORBITER POWER, 33 WATTS NOMINAL.

REFERENCE DESIGNATORS: 81V74A181
83V74A182
85V74A158

QUANTITY OF LIKE ITEMS: 3
THREE

FUNCTION:
TO RECEIVE, TRACK, AND PROCESS THE GPS SIGNALS FROM THE ANTENNA ASSEMBLIES; ACCEPTS CONTROL, CONFIGURATION AND AIDING DATA FROM THE GPC; AND PROVIDES POSITION, VELOCITY, TIME, HEALTH, AND STATUS DATA TO THE GPC.

PRINT DATE: 10/19/99

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

REVISION#: A 10/14/99

SUBSYSTEM NAME: GPS THREE STRING
LRU: RECEIVER, MAGR-S
ITEM NAME: RECEIVER, MAGR-S

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:
LOSS OF OUTPUT

MISSION PHASE: DO DE-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

CAUSE:
PIECE PART FAILURE (VIBRATION, MECHANICAL STRESS), 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 ONE OF THREE GPS RECEIVER PATHS

(B) INTERFACING SUBSYSTEM(S):
FAILED GPS OUTPUTS ARE IGNORED AND THE OUTPUTS OF THE REMAINING GPS' ARE USED.

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

(C) MISSION:
NO EFFECT

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT - FIRST FAILURE. OPERATIONS CONTINUE WITH TWO REMAINING UNITS. NO EFFECT - SECOND FAILURE. OPERATIONS CONTINUE WITH ONE REMAINING UNIT. POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (LOSS OF OUTPUT FAILURE, 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 Mark Holthaus 10/19/99
DESIGN ENGR : J. R. SWANSON 10/20/99