

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE

NUMBER: 05-3-12125 -X

SUBSYSTEM NAME: DISPLAYS & CONTROLS

REVISION: 1

08/27/97

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: D&C PANEL F6	V070-730403
LRU	: D&C PANEL F8	V070-730404
LRU	: ATTITUDE DIRECTOR INDICATOR	MC432-0235-000X

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
ATTITUDE DIRECTOR INDICATOR (ADI), 3 AXIS .

REFERENCE DESIGNATORS: 34V73A6A3
34V73A8A2

QUANTITY OF LIKE ITEMS: 2
1 CMDR, 1 PILOT

FUNCTION:

PROVIDES DISPLAY OF THE ORBITER'S ROLL, PITCH AND YAW: (1) ATTITUDES VIA A GIMBALLED BALL, (2) ATTITUDE ERRORS VIA THREE METER POSITION NEEDLES, (3) ATTITUDE RATES VIA THREE METER POSITION POINTERS. ALSO PROVIDES VISUAL SELF CHECKS TO THE CREW, AND (4) PROVIDES GUIDANCE PREDICTOR AND NAVIGATION ERROR INFORMATION IN TAEM (MAJOR MODE 305) WHEN THE RATE SCALE IS SELECTED TO THE "MED" POSITION.

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

NUMBER: 05-3-12125-01

REVISION#: 1 08/27/97

SUBSYSTEM NAME: DISPLAYS & CONTROLS

LRU: D&C PANEL F6 & F8

ITEM NAME: ATTITUDE DIRECTOR INDICATOR

CRITICALITY OF THIS

FAILURE MODE: 1R3

FAILURE MODE:

LOSS OF ADI FUNCTIONS. NO BALL, NEEDLE AND POINTER MOVEMENTS.

MISSION PHASE: PL PRE-LAUNCH
LO LIFT-OFF
OO ON-ORBIT
DO DE-ORBIT
LS LANDING/SAFING

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

CAUSE:

LOSS OF INPUT POWER, LOSS OF SIGNAL INPUTS, SHOCK, VIBRATION, JAMMING, PIECE PART FAILURE.

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:

A)

B)

C)

CORRECTING ACTION: AUTOMATED

CORRECTING ACTION DESCRIPTION:

THE FULLY AUTOMATIC FLIGHT MODE IS ALSO AVAILABLE AS A CONTINGENCY IF REQUIRED.

FAILURE MODES EFFECTS ANALYSIS (FMEA) – NON-CIL FAILURE MODE
NUMBER: 05-3-12125- 01

- FAILURE EFFECTS -

(A) SUBSYSTEM:

ADI IS LOST IN CMDR OR PILOT STATION.

(B) INTERFACING SUBSYSTEM(S):

FIRST FAILURE - NO EFFECT.

(C) MISSION:

FIRST FAILURE - NO EFFECT.

(D) CREW, VEHICLE, AND ELEMENT(S):

FIRST FAILURE - NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECTS:

THE FIRST FAILURE IS LOSS OF ATTITUDE DATA FROM ONE FORWARD STATION ADI. FOLLOWING THE LOSS OF BOTH FORWARD ADIS. THE ABSENCE OF ATTITUDE DATA REQUIRING CREW ACTION COULD CAUSE THE LOSS OF CREW/VEHICLE. HOWEVER, THIS WOULD REQUIRE AT LEAST ONE ADDITIONAL FAILURE. SUCCESS PATHS REMAINING AFTER THE FIRST FAILURE ARE THE REDUNDANT ADI AT THE OTHER FORWARD STATION AND, AFTER MAJOR MODE 305, THE TWO HUD'S ARE AVAILABLE TO THE CREW, WITH THE EXCEPTION OF YAW DATA.

- APPROVALS -

EDITORIALLY APPROVED	: BNA	: <u>J. Kamura 8/28/97</u>
EDITORIALLY APPROVED	: JSC	: <u>A. Seaver 9-22-97</u>
TECHNICAL APPROVAL	: VIA APPROVAL FORM	: 96-CIL-D24_05-3