

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE  
 NUMBER: 05-3-12601 -X

SUBSYSTEM NAME: DISPLAYS & CONTROLS

REVISION: 1 08/27/97

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PART DATA

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	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
	: AVIONICS BAY 3B	
LRU	: HEAD UP DISPLAY ELECTRONICS UNIT	MC409-0096-00X2

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EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
 HEAD UP DISPLAY ELECTRONICS (HUDE) UNIT

REFERENCE DESIGNATORS: 85V76A156  
 85V76A157

QUANTITY OF LIKE ITEMS: 2  
 TWO, HUDE NO. 1 & 2

FUNCTION:  
 PROCESSES CRITICAL FLIGHT MEASUREMENTS FROM THE DATA BUS AND  
 TRANSMITS DATA SIGNALS TO THE PILOT DISPLAY UNIT (PDU).

FAILURE MODES EFFECTS ANALYSIS FMEA - NON-CIL FAILURE MODE

NUMBER: 05-3-12601-01

SUBSYSTEM NAME: DISPLAYS & CONTROLS

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LRU: HUDE

ITEM NAME: HUDE

CRITICALITY OF THIS  
FAILURE MODE: 1R3

FAILURE MODE:

LOSS OF OUTPUT. NO HEAD UP DISPLAY DRIVER SIGNALS.

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:

VIBRATION, SHOCK, LOSS OF INPUT, PIECE PART FAILURE, CONTAMINATION.

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)

CORRECTING ACTION: MANUAL

CORRECTING ACTION DESCRIPTION:

CREW MAY UTILIZE REDUNDANT HUD AND OTHER DEDICATED DISPLAYS.

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - NON-CIL FAILURE MODE**  
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**- FAILURE EFFECTS -**

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**(A) SUBSYSTEM:**

LOSS OF AFFECTED HEAD UP DISPLAY ELECTRONICS (HUDE) UNIT RESULTS IN LOSS OF CRITICAL FLIGHT DATA PROJECTED ON CDR'S OR PILOT'S DISPLAY UNIT.

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

NO EFFECT.

**(C) MISSION:**

NO EFFECT.

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

DETECT LOSS OF OUTPUT AND USE BACK UP/ALTERNATE DISPLAYS.

**(E) FUNCTIONAL CRITICALITY EFFECTS:**

SUCCESS PATHS REMAINING AFTER THE FIRST FAILURE - THE REDUNDANT HEAD UP DISPLAY (HUD) AND OTHER DEDICATED DISPLAYS MAY BE USED WHEN LOSS OF OUTPUT IS DETECTED, THE COMMANDER (OR PILOT) WILL TRANSITION TO THE DEDICATED DISPLAYS FOR CRITICAL LANDING DATA. LOSS OF ALL DISPLAYS COULD RESULT IN THE LOSS OF CREW AND VEHICLE DURING LANDING.

**DESIGN CRITICALITY (PRIOR TO DOWNGRADE, DESCRIBED IN (F)): 1R2**

**(F) RATIONALE FOR CRITICALITY DOWNGRADE:**

THE OTHER HUD OR DEDICATED DISPLAYS MAY BE USED FOR THIS SCENARIO SINCE IT IS THE FIRST FAILURE AND IS LOSS OF OUTPUT (I.E. EASILY RECOGNIZABLE).

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**- APPROVALS -**

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EDITORIALLY APPROVED : BNA  
 EDITORIALLY APPROVED : JSC  
 TECHNICAL APPROVAL : VIA APPROVAL FORM

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