

Reference to Figure 61 CFDS and Data Recording System Architecture

ATA 31 INDICATING/RECORDING SYSTEMS

31–32 CFDIU

SYSTEM DESCRIPTION

General

The purpose of the on-board maintenance is to provide maintenance personnel with an aid to fault diagnosis further to a complaint of the crew.

To accomplish this goal:

- Each system includes a Built-In-Test Equipment (BITE) used for detection and isolation of faulty equipment.
- A Centralized Fault Display Interface Unit (CFDIU) acquires and processes (completes, correlates, memorizes and presents) the data transmitted by the BITEs and the warnings which have originated the crew complaint.
- The result of fault diagnosis is displayed to the maintenance operator through the Multipurpose Control and Display Units (MCDU) and the Printer which constitute the user interface.

The failure information delivered by the Centralized Fault Display System (CFDS) corresponds to several levels of maintenance.

- Line maintenance

This maintenance is characterized by rapid intervention of maintenance personnel in a short time period; it is limited to the isolation and replacement of a faulty equipment.

This action consists of the identification and/or confirmation of fault condition(s), the isolation of the fault and the replacement of the faulty unit (i.e. the Line Replaceable Unit (LRU)).

A test is carried out before and after the removal/installation procedure to check the correct operation of the system.

- Hangar or main base maintenance

This maintenance is characterized by intervention of maintenance personnel in a longer time period and generally concerns actions that cannot be performed at line maintenance level, either because the procedures are too lengthy or because more skilled personnel are required.

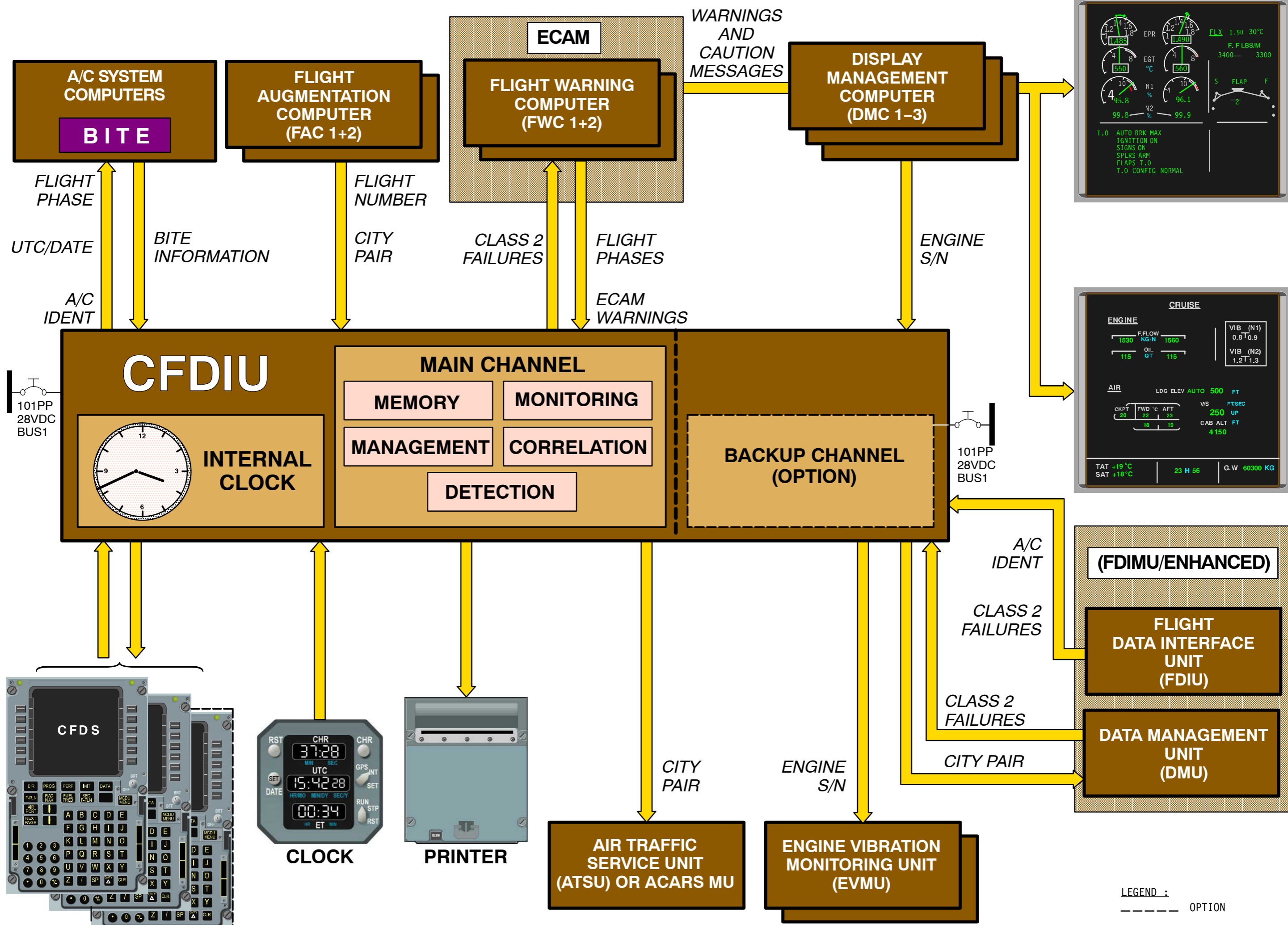
- Workshop maintenance

These maintenance actions are performed at regular intervals (as defined by the Operator Maintenance Program (OMP)). Intervention of maintenance personnel is then scheduled according to aircraft utilization and concerns the items of equipment for which some mechanical parts are not monitored and/or tested. These failures are called hidden failures.

EXERCISE

Questionnaire

1. What kind of system BITE type exists?
2. Which failure classes are recognized by the CFDIU?
3. What happens if the CFDIU main channel fails?
4. Why is the main clock connected to the CFDIU?
5. Where are class 3 failures displayed?



Reference to Figure 62 Flight Data Recording & ACMS Operation

31–33 DFDRS INTERCONNECTION

FDIMU/DFDR/QAR SYSTEM DESCRIPTION

General

The DFDRS (**D**igital **F**light–**D**ata **R**ecording–**S**ystem) is a part of the FDIMS (**F**light **D**ata **I**nterface and **M**anagement **S**ystem).

The FDIMS integrates:

- The DFDRS and
- the AIDS (**A**ircraft **I**ntegrated **D**ata **S**ystem).

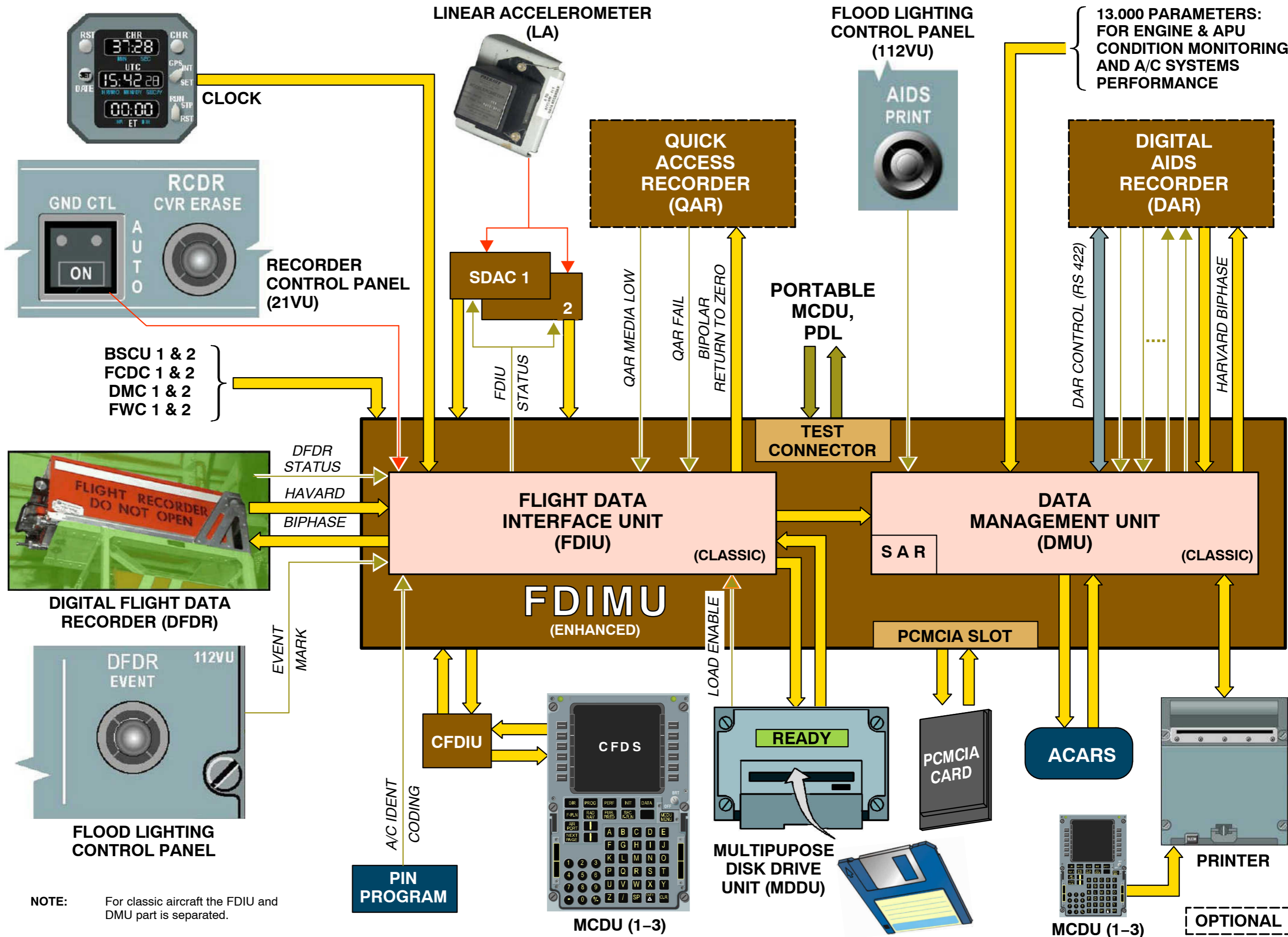
The FDIMS is controlled by the FDIMU (**F**light **D**ata **I**nterface and **M**anagement **U**nit).

The main function of the DFDRS is to convert various critical flight parameters into a recordable form and to record them on a DFDR (**D**igital **F**light **D**ata **R**ecorder). The stored data is also applicable to monitor the condition of the connected aircraft systems. The system design covers the basic DFDRS. This includes the units and parameters which are necessary for the mandatory requirements and an additional part to standardize the installation for different customers. The electrical characteristic is in compliance with ARINC 717.

System Function

The FDIMU puts together the functions of DFDRS and the AIDS into a single LRU (**L**ine–**R**eplaceable–**U**nit). These two functions are controlled inside the FDIMU by two separate processor–units (FDIU–part, DMU–part), which operate independently from each other. An internal data–bus does the data–transmission from the FDIU–part to the DMU–part.

- The FDIMS is connected to different A/C–systems and receives data in discrete and digital format.
- The FDIMS can transmit reports to the ACARS (**A**ircraft **C**ommunication **A**ddressing and **R**eporting **S**ystem) and to the printer in the cockpit.
- Via the MCDUs (**M**ulti **P**urpose **C**ontrol **D**isplay **U**nits) in the cockpit, it is possible to control the FDIMS and to see system–reports.
- A PCMCIA (**P**ersonal **C**omputer **M**emory **C**ard **I**nternational **A**ssociation)–Interface is integrated in the FDIMU to upload application–software and to download AIDS–reports with a notebook–computer.
- It is also possible to load the application–software of the FDIU– and DMU–part via a PDL (**P**ortable **D**ata **L**oader) or a MDDU (**M**ultipurpose **D**isk **D**rive **U**nit) (if installed) in the cockpit.
- The power supply operates from the 115V AC 400Hz single–phase power of the A/C.



NOTE: For classic aircraft the FDIU and DMU part is separated.

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31-60 ELECTRONIC INSTRUMENT SYSTEM (EIS)

EXERCISE

Questionnaire

1. What is on the PFD displayed?
2. What is on the ND displayed?
3. What is always on the EWD shown?
4. Is the DMC 3 in normal configuration used?
5. What happens if PFD 1 fails (classic EIS version)?
6. What happens if EWD fails (enhanced EIS version)?
7. What is displayed in case of DMC 2 failure (classic EIS version)?
8. Please, explain the effect on the displays if DMC 1 fails (enhanced EIS)?
9. Please, explain "Long Term Reconfiguration".

31-50 CENTRAL WARNING SYSTEMS

EXERCISE

Questionnaire

1. What is controlled by the FWCs?
2. Why are installed SDACs?
3. Which computer delivers amber caution messages for ECAM indication?
4. FWC 2 is faulty and thereafter a caution message was triggered. What will be the consequence?
5. What happens if SDAC 1 fails?
6. The ECAM control panel is without power. Is the ECAM control panel still useable?

