A S U   B A L T I J A

# *SARPP-12*
Flight Data Recorder
REPLACEMENT

## TECHNICAL OFFER DESCRIPTION

1. FLIGHT DATA RECORDING SYSTEM

The mechanical recorder SARPP-12 will be replaced to the solid-state memory crash-survivable flight data recorder, which consists of flight data acquisition unit (FDAU-H), the crash-recorder itself (CARE-05), and the additional Air Data Unit (ADU). This replacement is not very complex, because it uses the same aircraft wiring including input signals (analogues and discretes) from the original system. After the installation is done, it is required to make calibration of all data after installation, but this only required once. In addition to standard parameters recorded by SARPP-12, the CARE system also records GPS position data, received from onboard GPS receiver. In case GPS receiver is not installed, we will offer installation of such one.

The additional air data unit is required because air data from the original sources (air speed and altitude sensors) is not reliable and it is not supplied in the required accuracy and rate.

Principal diagram:
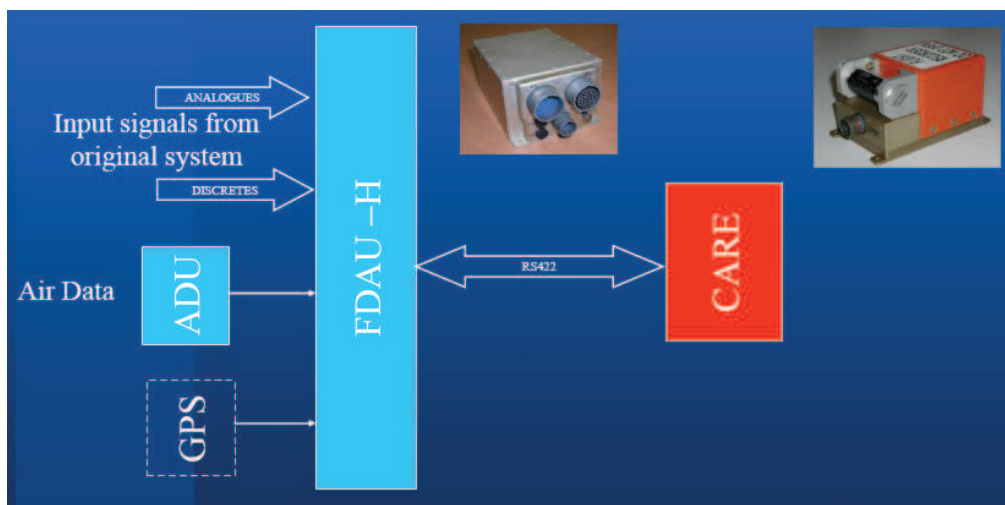
Optionally, the system can be upgraded to record audio from intercommunication system or/and cockpit microphone. In such case an additional data concentrator unit (COAD) is installed:
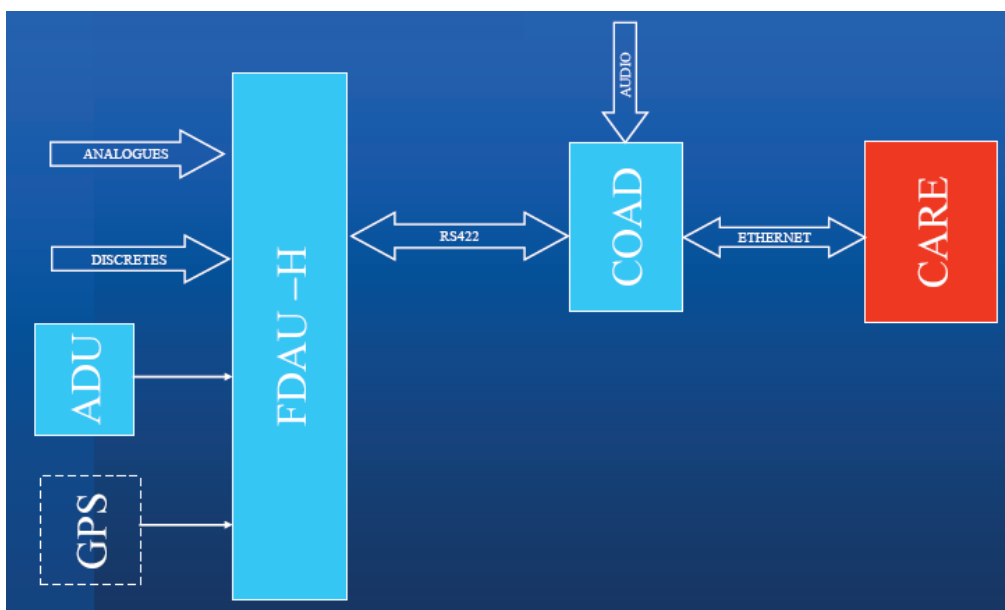
Main technical parameters of the CARE flight data recorder protective case:
- impact: 3400 G for 6.5 millisecond
- high temperature fire: 100% of surface, 1100°C for 60 minutes
- low temperature fire: 100% of surface, 265°C for 10 hours
- deep sea water pressure: 6 km (20,000 ft) for 30 days
- static crush: 22.25 kN (5 000 pounds force) for 5 minutes
- aircraft fluids resistance: 48 hours
- extinguishing fluids resistance: 8 hours
- penetration: steel pin – diameter 6.35 mm, length 40 mm, weight 227 kg, height 3 m

Picture of installation

The above picture shows installation of the flight data recorder set, including CARE flight recorder and FDAU flight data acquisition unit. The Air Data Unit is installed in the pilot cockpit.

The CARE unit in this picture also incorporates optional ultrasonic emergency locator beacon, which helps to locate the unit in a case of a crash to the sea. The beacon is started automatically after contact with water.

2. FLIGHT DATA EVALUATION WORKSTATION

The stored flight data from the recorder will be downloaded, played back and analyzed using special Ground Support Equipment, which consists of:

- HHT Portable Memory Unit
- Workstation with PANDA software

PANDA is a multi-purpose program evaluating system which makes it possible to process, evaluate and analyze the records from the on-board flight data recorder. The main features of the program are as follows:

- Flexibility: the PANDA system supports incorporation of the recorders of FDR type and major part of other recorders, which fulfill requirement of the record structured to the repeated blocks of the measured data. By this way a single evaluating system can process the data from all types of recorders used by the user.

- Modularity: the PANDA system has the modular structure, i.e. it consists of the individual program modules that ensure the single functions of the PANDA software. Major part of modules can be used separately and this increases its variability.

- Extensibility: the additional program modules can be incorporated into PANDA system.

The PANDA program package performs the following purposes:
- data transfer from the on-board recorder into the ground evaluating system;
- calculation, storing and update of the calibration data to be used for a conversion of the values of analogue parameters into physical dimension;
- graphic display of the parameter behavior in the graphic form;
- data processing by means of the user's defined analyses;
- administration of the service-life database;
- data backup and export;
- display of the aircraft silhouette in flight region in 3-D rendering;
- display of the flight trajectory;
- display of the flight trajectory over the map;
- display of the control panel instruments.
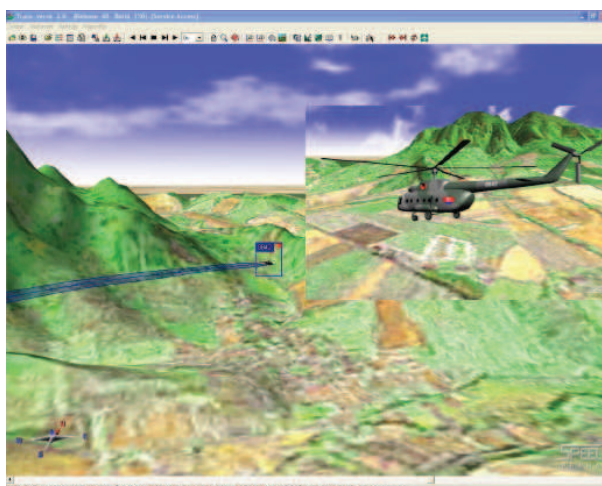
3-D presentation of the flight path with the TRACE module
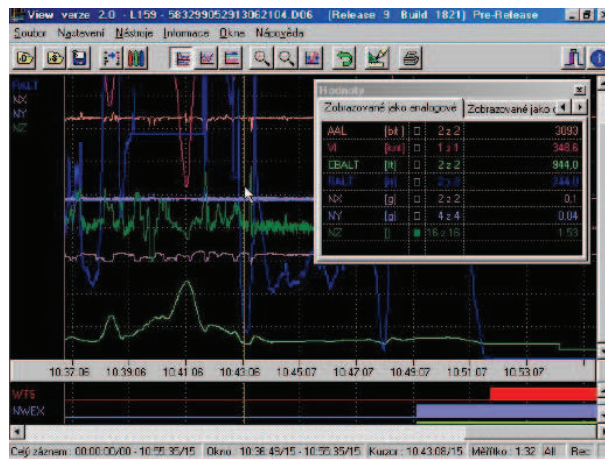
Visualization of the recorded data with the VIEW module

The workstation consists of the stationary computer with a colour printer, and two displays. One display may be used for 3D evaluation module "TRACE" image, and the second one for data analysis using "VIEW" software module in form of charts (see picture above).

The flight data from each helicopter can be downloaded to a portable memory unit and delivered to the evaluation room, where computer workstation is prepared with PANDA software and colour printer for printout of analysed flight data.

Portable memory unit HHT
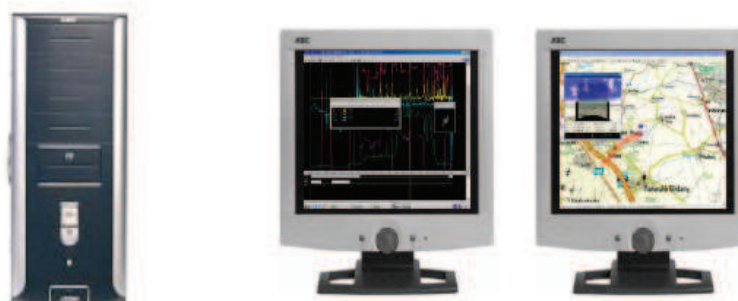
Workstation

Optionally: rugged laptop PC for data analysis in remote places

Recommended quantities

- HHT Portable Memory Unit: one unit for each workstation
- Workstation with PANDA software (including TRACE module): one set for each operation/maintenance place
- Rugged laptop PC with PANDA software (without TRACE module): one unit

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