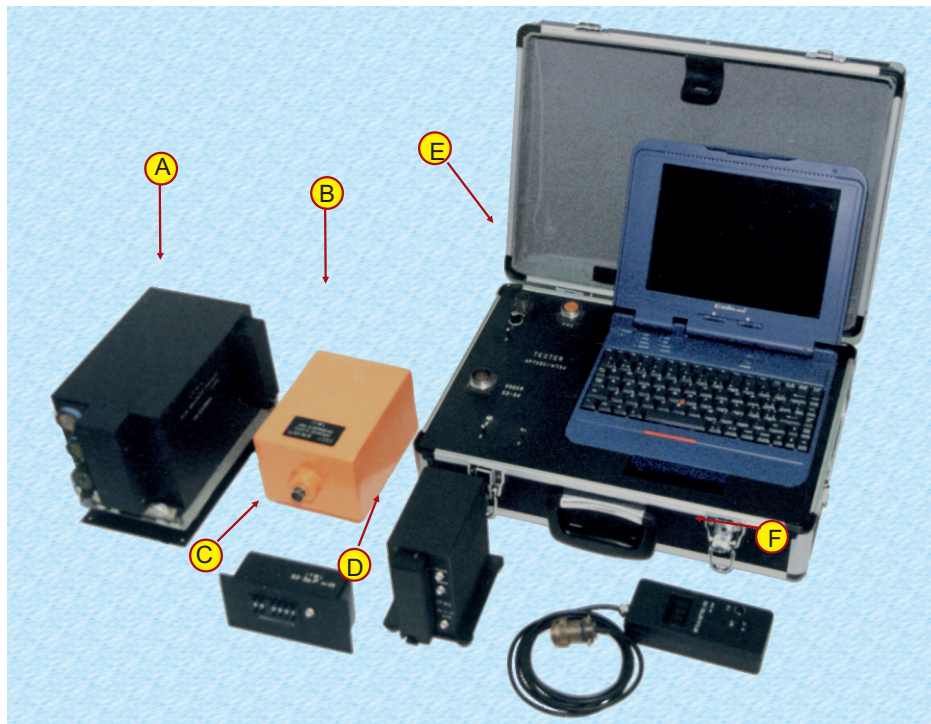


Flight Data Recording System S2-3a



A - Acquisition Unit S3-1a-2; B - Protected Unit (of the FDR type) S2-3a-K; C - Pilot's Index-Feeding Unit S2-3a-P;
D - Recorded Data Reader S3-1c-O; E - Computer Tester WTS4; F - Tester WTS4/AP702C

S2-3a flight data recording system has been designed for

- automatically recording of the information on aircraft operation,
 - surviving air accidents/crashes,
 - reproducing the collected data in the Flight Data Processing Laboratory
- in order to:

- evaluate aircraft control quality/pilot's flying skill
- evaluate health/maintenance status of airborne systems

System is intended for recording flight parameters of the PZL W-3 Sokol, PZL SW-4 and Mi-24 helicopters and for aircraft: the TS-11 Iskra (to replace the SARPP-12 system) and the An-28.

Data is stored in cassettes: the maintenance one (to evaluate aircraft control quality/pilot's flying skill and health/maintenance status of airborne systems) and the protected one (to analyse causes of air accidents).

Flight Data Recording System S2-3a

The **S2-3a system** comprises two basic groups of items: the airborne and the ground-based ones:

Airborne items include

- Acquisition Unit S3-1a-2 with the Maintenance Cartridge S3-1a-2K
- Protected Unit S2-3a-K
- Pilot's Index-Feeding Unit S2-3a-P

Ground-based items include

- Recorded Data Reader S3-1c-O
- Computer Tester WTS4/AP702C
- PC

The Acquisition Unit **S3-1a-2** is the heart of the system, linked to many and various inputs. The Maintenance Cartridge **S3-1a-2K** has been designed for recording data used in the post-flight evaluation of mission performance and for diagnostic purposes.

The Protected Unit **S2-3a-K** has been intended to survive aircraft failure or air accident/crash and to maintain measurements taken. It satisfies specific standards and withstands:

- impacts that result in overloads up to 3400 g in less than 6,5 ms
- penetration with a metal [piercing] mandrel
- compression with static force 22,25 kN
- temperature of 1100° C up to 30 min
- deep salt-water pressure of 60 MPa for one month time
- influences of corrosive fluids

The Pilot's Index Feeding Item **S2-3a-P** located in the cockpit enables feeding of the pilot's index number. The Recorded Data Reader is connected to a computer furnished with an interface card to read data recorded either in the Maintenance Cartridge.

The Tester **WTS4/AP702C** is connected to the Acquisition Unit to check individual measuring channels and calibrate them.

Technical data

- max time of continuous recording >12 h
- number of on/off inputs 48
- number of analogue inputs 14
- number of frequency inputs 4
- number of inputs from selsyn/resolver sensors
(from an artificial horizon or a compass, and a throttle lever) 5
- date/time recording
- pilot's index number recording (up to 6 digits)
- diagnosing of the recording system