

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

March 12, 2010

Engine Data Monitor (EDM)

Specialist's Factual Report

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1 EVENT SUMMARY

Location: Edgewater, MD
Date: February 27, 2010
Aircraft: Beechcraft P35
Registration: N1521S
Operator: Private
NTSB Number: ERA10FA154

On February 27, 2010, about 1625 Eastern Standard Time, a Beech P35, N1521S, owned and operated by a private pilot, was destroyed when it impacted terrain while on approach to the Lee Airport (ANP), Edgewater, Maryland. The certificated private pilot was killed. Visual meteorological conditions prevailed and a visual flight rules (VFR) flight plan had been filed for the local flight. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

2 ENGINE DATA MONITOR GROUP

An Engine Data Monitor (EDM) group was not convened

3 DETAILS OF FLIGHT DATA RECORDER INVESTIGATION

On March 1, 2010, the Safety Board's Vehicle Recorder Division received the following engine data monitor:

Manufacturer/Model:	J. P. Instruments EDM-700
Serial Number:	Unknown

A visual inspection of the EDM showed the exterior case was damaged and breached by the post-crash fire. The circuit boards were extracted to determine if the non-volatile memory was damaged. A visual examination of the circuit boards shown extensive fire damaged to the circuit boards and the electrical components, see Figure 1. The damage was so extensive; some individual components could not be identified, see Figure 2.



Figure 1 - EDM circuit cards with external case removed



Figure 2 - Close-up of EDM circuit cards

3.1 Recorder Description

The J. P. Instruments EDM-700 is a panel mounted gauge that the operator can monitor and record up to 24 parameters related to engine operations. Depending on the installation engine parameters monitored can include:

- Exhaust Gas Temperature (EGT)
- Cylinder Head Temperature (CHT)
- Oil Pressure and Temperature
- Manifold Pressure
- Outside Air Temperature
- Turbine inlet Temperature
- Engine Revolutions per Minute
- Compressor Discharge Temperature
- Fuel Flow
- Carburetor Temperature
- Battery Voltage

The unit can also calculate, in real-time, horsepower, fuel used, shock cooling rate and EGT differentials between the highest and lowest cylinder temperatures. The calculations are also based on the aircraft installation.

The unit contains non-volatile memory for data storage of the parameters recorded and calculated. The rate at which the data is stored is selectable by the operator from 2 to 500 seconds per sample. The memory can store up to 20 hours of data at a 6 second sample rate. The data can then be downloaded by the operator using the J.P. Instruments software.

3.2 Recording Description

Due to the fire damage to the unit no data was retrieved from the accident unit.