

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



WPR21LA075

ENGINE DATA MONITOR

Specialist's Factual Report

August 25, 2022

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A. EVENT SUMMARY

Location: Santa Ynez, California
Date: December 27, 2020
Time: 1812 Pacific standard time (PST)
Airplane: Beech 35, N5474D

B. ENGINE DATA MONITOR SPECIALIST

Specialist: W. Deven Chen
Electrical Engineer – Recorder Specialist
National Transportation Safety Board (NTSB)

C. DETAILS OF THE INVESTIGATION

A recorder group was not convened. The NTSB Vehicle Recorder Division received the following engine data monitor (EDM):

Recorder Manufacturer/Model:	JPI EDM-700
Part Number:	601400
Recorder Serial Number:	0289

1.0 Recorder Description

The J. P. Instruments EDM-700/800 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 units typically contain 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.

1.1 Recorder Data Recovery

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had no damage, as shown in Figure 1. The EDM-700 had a different appearance compared to the other EDM-700 units that the lab had received. The display unit was much shorter, and the wire connectors were different as well. A support request was sent to the manufacturer, and the manufacturer responded that the unit was an extremely old model and that it was no longer supported. The unit was opened in search for non-volatile memory¹, however, no familiar non-volatile memory was identified. Thus, there was no data recovered from this device.

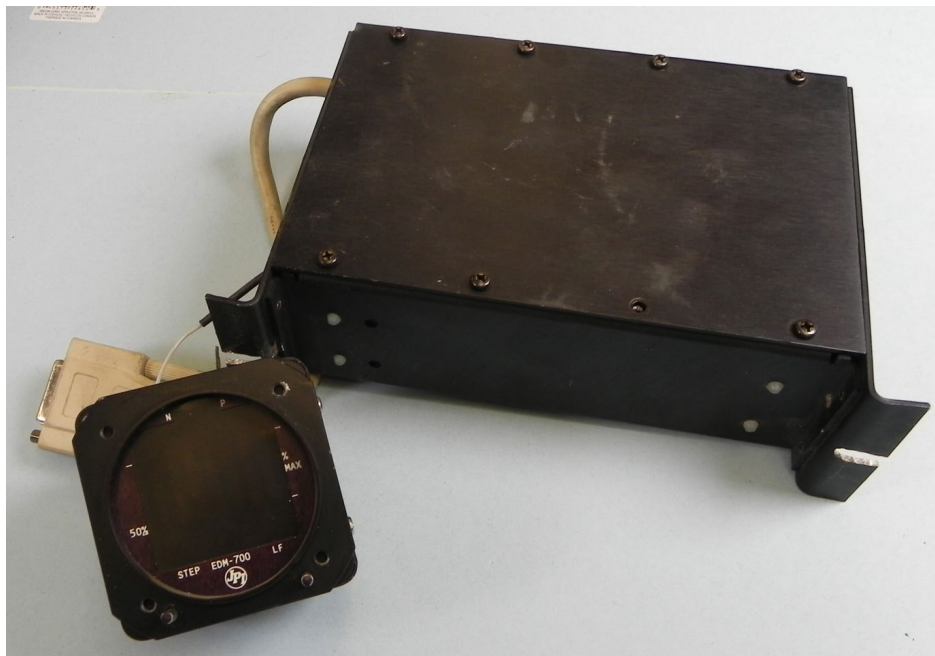


Figure 1. The JPI EDM-700 as Received.

¹ Non-volatile memory is semiconductor memory that does not require external power for data retention.