

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



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ENGINE DATA MONITOR

Specialist's Factual Report

March 4, 2025

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A. ACCIDENT

Location: Vergennes, Vermont
Date: September 8, 2024
Time: 1225 eastern daylight time (EDT)
1625 coordinated universal time (UTC)
Airplane: Piper PA28R-180, N3757T

B. ENGINE DATA MONITOR SPECIALIST

Specialist: Gerald Kawamoto
Recorder Specialist
National Transportation Safety Board (NTSB)

C. DETAILS OF THE INVESTIGATION

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

Device Manufacturer/Model: JPI EDM-700
Device Serial Number: 26906

1.0 JPI EDM-700

The J. P. Instruments (JPI) 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:

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

The unit contains non-volatile memory (NVM) for data storage of the parameters recorded and calculated.¹ 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 JPI EDM-700 Data Recovery

Upon arrival at the Vehicle Recorder Division, an external examination revealed the device had sustained structural damage, as shown in Figure 1, rendering it inoperable. The circuit board containing the NVM chips was in good condition, as shown in Figure 2. The chips were removed, read out and converted to engineering units using laboratory tools.



Figure 1. JPI EDM-700 as received.

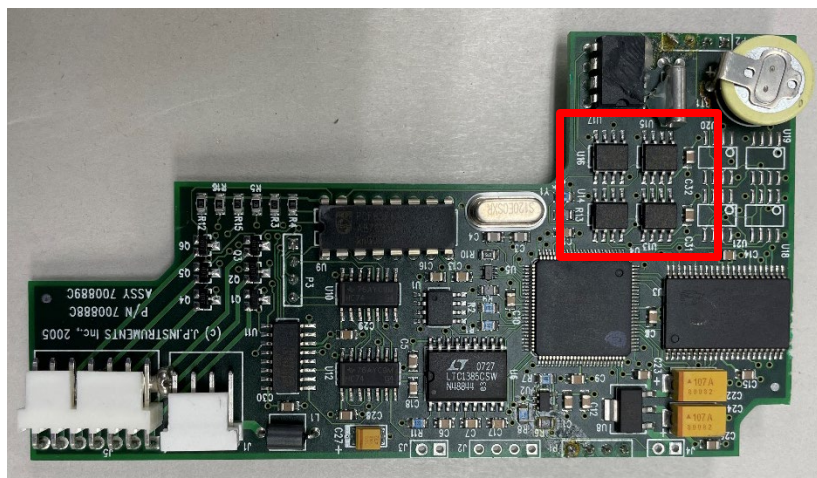


Figure 2. Circuit board containing the non-volatile memory chips (highlighted in the red rectangle).

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

1.2 JPI EDM-700 Data Description

Data included sessions recorded from May 26, 2024, through September 8, 2024, recorded time. Date and time in the device are set by the operator and due to the condition of the device, it was not possible to correlate the recorded time to a standard time. The device recorded at a 6 second-per-sample rate. The engineering unit conversions used for the data contained in this report are based on documentation from the manufacturer of the JPI EDM-700. Table 1 describes the JPI EDM-700 parameters provided and verified in this report.

Table 1. Verified and provided JPI EDM-700 parameters.

Parameter Name (unit)	Parameter Description (unit)
CHT# (degF)	Cylinder Head Temperature (degrees Fahrenheit)
CLD (degF/min)	Shock Cooling Rate (degrees Fahrenheit per minute)
EGT# (degF)	Exhaust Gas Temperature (degrees Fahrenheit)
VOLTS (V)	Battery Voltage (volts)

D. FIGURES AND TABULAR DATA

Figure 3 is a plot of JPI EDM-700 parameters recorded during the final session recorded on September 8, 2024, recorded time. The time shown is 16:43:30 to 16:49:00 recorded time.

Figure 4 is a plot of JPI EDM-700 parameters recorded during the previous session recorded on September 8, 2024, recorded time. The time shown is 12:45:00 to 14:45:00 recorded time.

The corresponding tabular data used to create figures Figure 3 and Figure 4 is provided in electronic comma-separated value (CSV) format as attachment 1 to this report.

Submitted by:

Gerald Kawamoto
Recorder Specialist

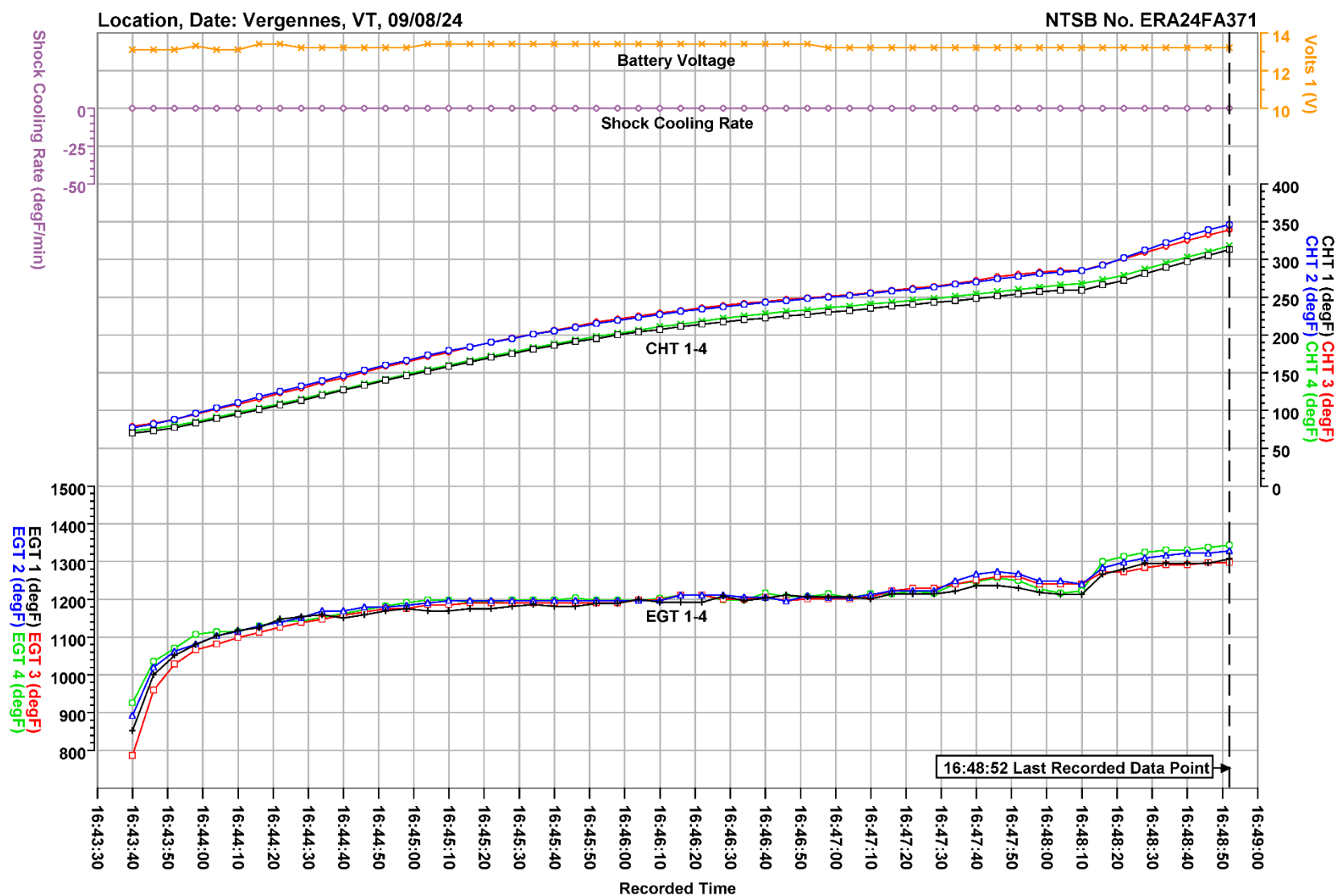


Figure 3. Plot of JPI EDM-700 parameters for the last session recorded on September 8, 2024.

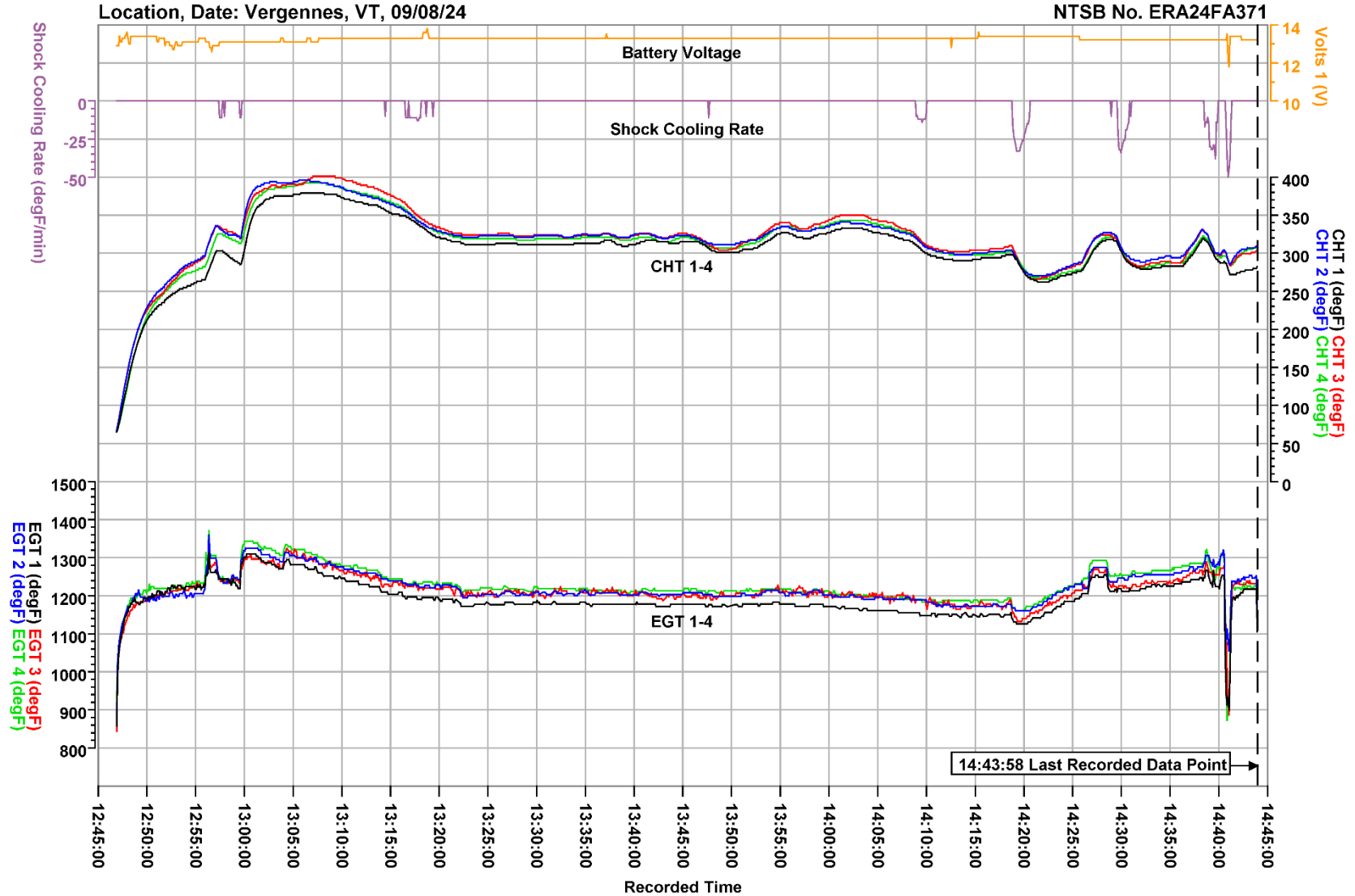


Figure 4. Plot of JPI EDM-700 parameters for the previous session recorded on September 8, 2024.