

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



WPR23LA264

ENGINE DATA MONITOR

Specialist's Factual Report

October 21, 2024

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A. ACCIDENT

Location: La Mesa, California
Date: July 9, 2023
Time: 1500 Pacific daylight time (PDT)
Airplane: Cessna A185F, private operator, N1839R

B. ENGINE DATA MONITOR SPECIALIST

Specialist Olivia Fowler
Mechanical Engineer – Vehicle Recorder Specialist
National Transportation Safety Board (NTSB)

C. DETAILS OF THE INVESTIGATION

The NTSB Vehicle Recorder Division received the following device:

Recorder Manufacturer/Model: Insight G2 Graphic Engine Monitor
Recorder Part Number: 610C-001
Recorder Serial Number: 20577

An electronic devices group was not convened.

1.0 Insight G2 Description

The Insight G2 is an engine data monitor device. It is capable of monitoring engine parameters including, but not limited to, cylinder head temperature (CHT), exhaust gas temperature (EGT), and fuel flow information. Data is stored on a Secure Digital (SD) memory card installed in the front panel of the device.

1.1 Insight G2 Data Recovery

The lab received the Insight G2 unit with the SD Card installed. The SD card arrived in good condition and the data were read out normally.

1.2 Insight G2 Recording Description

The SD memory card contained numerous sessions of flight recordings, from April 2, 2010, to July 9, 2023. The last flight recorded on July 9, 2023, was identified to be the accident flight. The previous recorded flight was on June 4, 2023. The recording of the accident flight was 12 minutes and 48 seconds long. The data was sampled at 1 hertz (Hz).

Table 1 describes data parameters that were provided by the Insight G2 and validated for this report. The device was capable of recording fuel flow, fuel used and stability, however no values were recorded for these parameters during the accident flight.

Table 1. Verified and provided parameters.

Parameter Name (units)	Parameter Description
PDT Time (hh:mm:ss)	Time for recorded data point (HH:MM:SS)
EGT1-6 (deg F)	Exhaust Gas Temperature of cylinder # in degrees Fahrenheit
CHT1-6 (deg F)	Cylinder Head Temperature of cylinder # in degrees Fahrenheit
OAT (deg F)	Outside Air Temperature in degrees Fahrenheit
VOLTS (volts)	Electric Bus Voltage in volts

1.3 Insight G2 Time Correlation

The recording of the accident flight began at 19:14:34 and ended at 19:27:22 in the device's internal time. According to information provided by the pilot to the IIC, the accident occurred at 15:00 PDT. Therefore, the data has been offset by 16041 seconds; thus all times are referenced as PDT.

D. FIGURES AND TABULAR DATA

Figures 1 and 2 contain data recorded during the event on July 9, 2023. All the parameters listed in table 1 are plotted.

Figure 1 shows all recorded data for the accident flight. Figure 2 shows the final 2 minutes of the accident flight. The data indicates that the EGTs are operating around 1340 degrees Fahrenheit in all cylinders. At 14:58:39 the EGTs increase slightly and then drops to about 900 degrees Fahrenheit in all cylinders. At 14:58:54, about a minute before the end of the flight, all EGTs come back up, peaking around 1300 degrees prior to dropping off.

The corresponding tabular data used to create figures 1 and 2 are provided in electronic comma separated value (CSV) format as attachment 1 to this report.

Submitted by:

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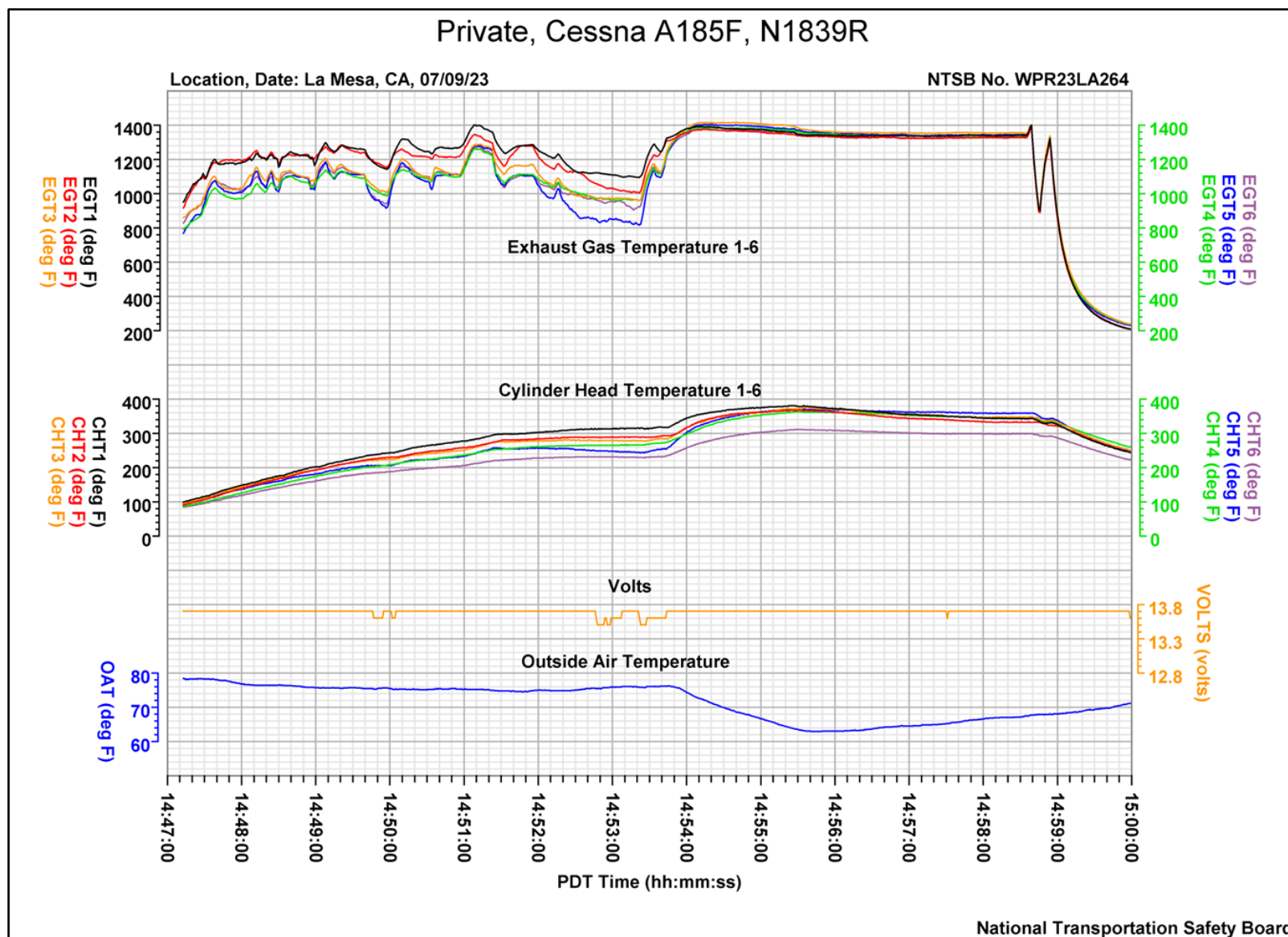


Figure 11. Plot of parameters - full flight

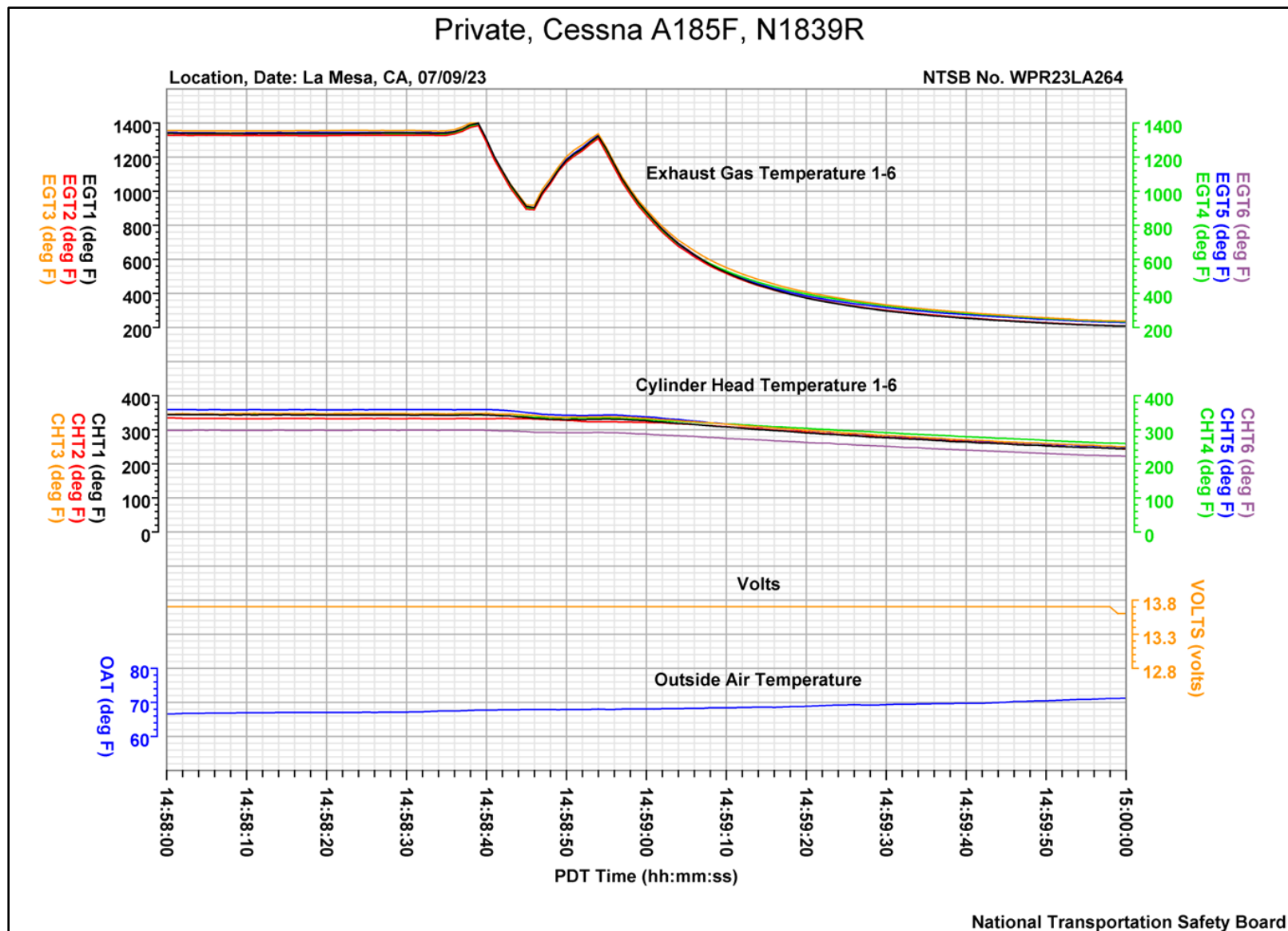


Figure 2. Plot of parameters - last two minutes