

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

May 7, 2021

Electronic Recorder Devices

Specialist's Factual Report
By W. Deven Chen

1. EVENT SUMMARY

Location: Bridgeport, Texas
Date: March 26, 2021
Aircraft: Beech 35
Registration: N3953N
Operator: Private
NTSB Number: CEN21LA167

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

On April 16, 2021, the National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following electronic devices:

Device 1 Manufacturer/Model: **JPI FS-450**
Serial Number: **2583**

Device 2 Manufacturer/Model: **Insight GEM 610**
Serial Number: **1195**

3.1. JPI FS-450 Description

The JPI FS-450 is a panel mounted gauge capable of displaying fuel information to the operator. The fuel status is dependent on the user to properly program the amount of fuel onboard the aircraft prior to each flight. The device stores the last remaining record of fuel used and fuel remaining in gallons.

3.1.1. JPI FS-450 Data Recovery

The device was in good condition upon arrival at the Vehicle Recorder Division, as shown in Figure 1. Upon powering on, the device displayed that the last remaining record of fuel used was 0.9 gallons, and the fuel remaining was 52.1 gallons, as shown in Figure 2.



Figure 1: JPI FS-450 received.



Figure 2: JPI FS-450 displaying fuel used (left) and fuel remaining (right) data.

3.2. Insight GEM 610 Description

The Insight GEM-610 is a panel-mounted gauge that allows the operator to monitor and record parameters related to engine operations. The unit contains non-volatile memory¹ for data storage of the parameters. The data can then be downloaded by the operator using manufacturer tools.

3.2.1. Insight GEM 610 Data Recovery

The device was in good condition upon arrival at the Vehicle Recorder Division, as shown in Figure 3. The device powered up normally, and data were downloaded using the manufacturer's tools.



Figure 3: Insight GEM 610 as received.

3.2.2. Insight GEM 610 Data Description

The downloaded data included 7 sessions from March 2, 2021 to March 26, 2021. The last three sessions were recorded on March 26, 2021, and the last session was determined to be related to the event. The last three sessions are included in this report. The time on the device was found to be 3:47:10 ahead of the central daytime time (CDT). All times were

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

converted to CDT for the rest of this report. Table 1 is a summary of the last three sessions recorded on the accident date. The data were recorded at a rate of one data point per six seconds.

Table 1: Three recording sessions on the accident date.

Recordings	Time (CDT)
First Session	13:56:24 – 14:40:00
Second Session	15:01:15 – 15:15:39
Third Session (accident flight)	15:17:21 – 15:27:51

3.2.3. Insight GEM 610 Parameters Provided

Table 2: Insight GEM 610 Data Parameters.

Parameter Name	Parameter Description
Time	Time (CDT) for recorded data point (HH:MM:SS)
EGT 1-6 (degF)	Exhaust Gas Temperature in degrees Fahrenheit
CHT 1-6 (degF)	Cylinder Head Temperature in degrees Fahrenheit

3.3. Plots and Corresponding Tabular Data

The following five figures contain data recorded on the Insight GEM 610 on March 26, 2021. Figures 4-6 show the data parameters plots for each session recorded on the accident date. Note that the third session was the accident flight. Figures 7 and 8 show multiple sessions on one plot for comparison.

The corresponding tabular data used to create figures 4 through 8 are provided in electronic comma-delimited (.csv) format as Attachment 1 to this report.

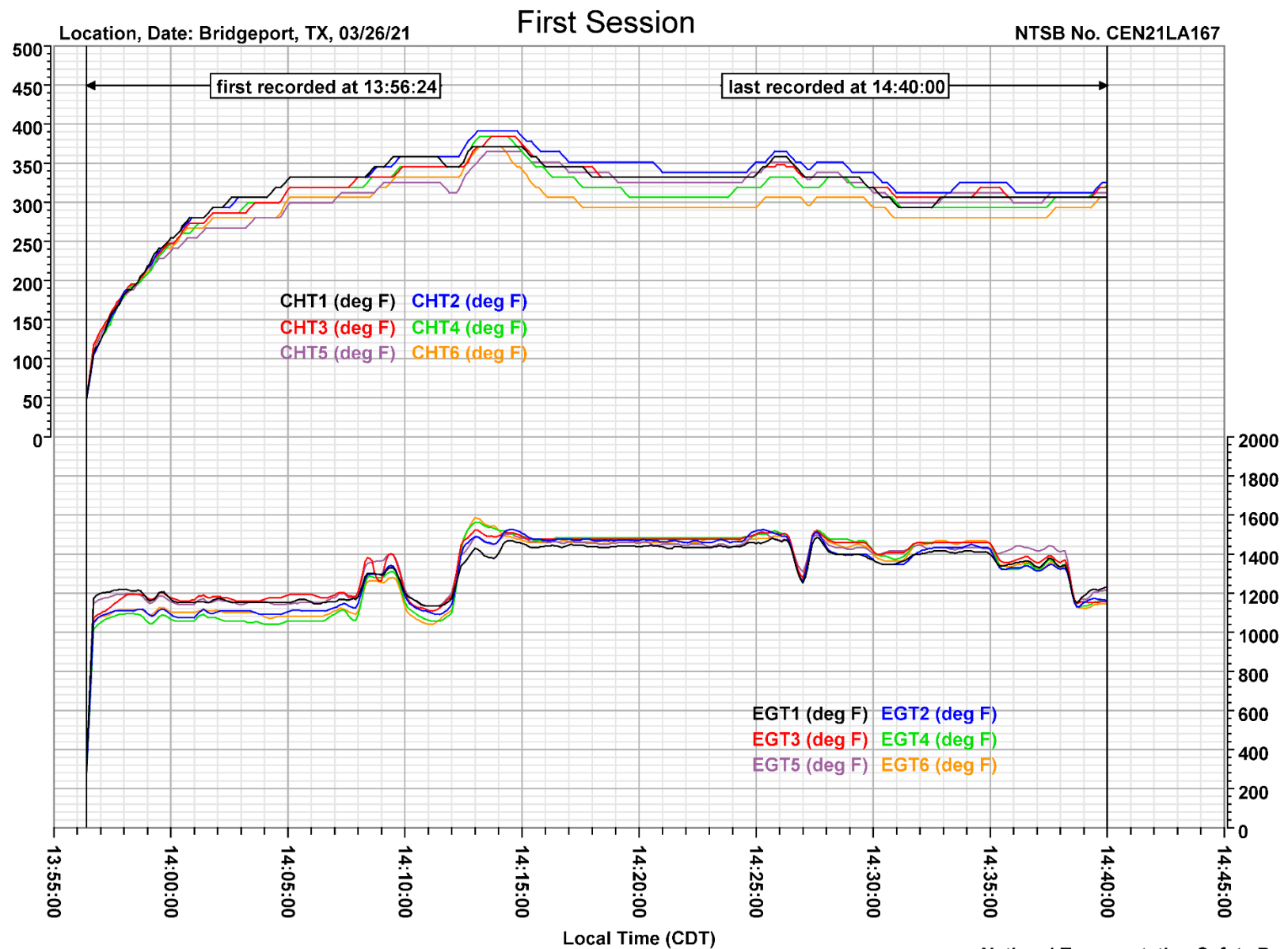


Figure 4: Plot of the data parameters of the first session on the accident date.

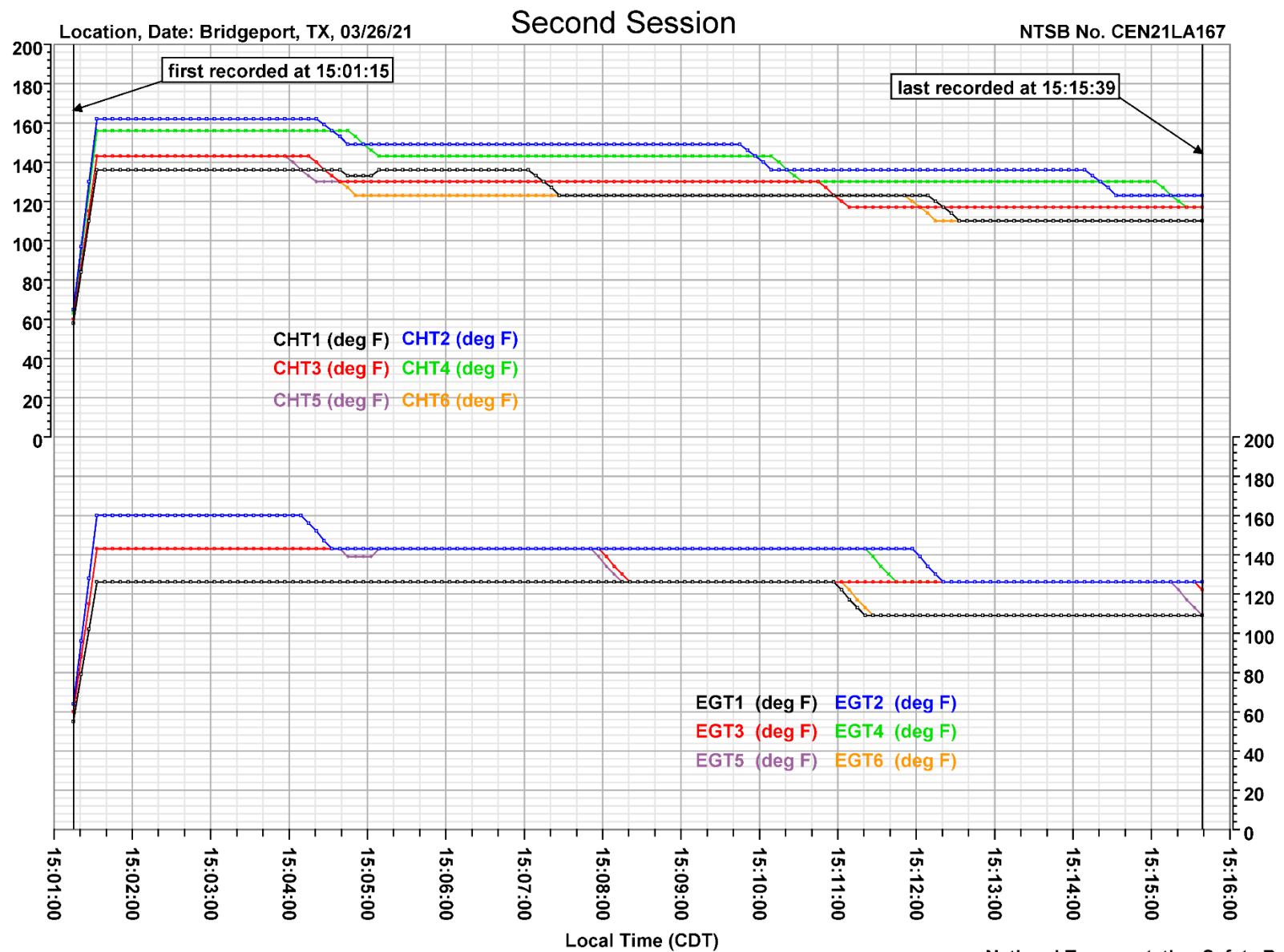


Figure 5: Plot of the data parameters of the second session on the accident date.

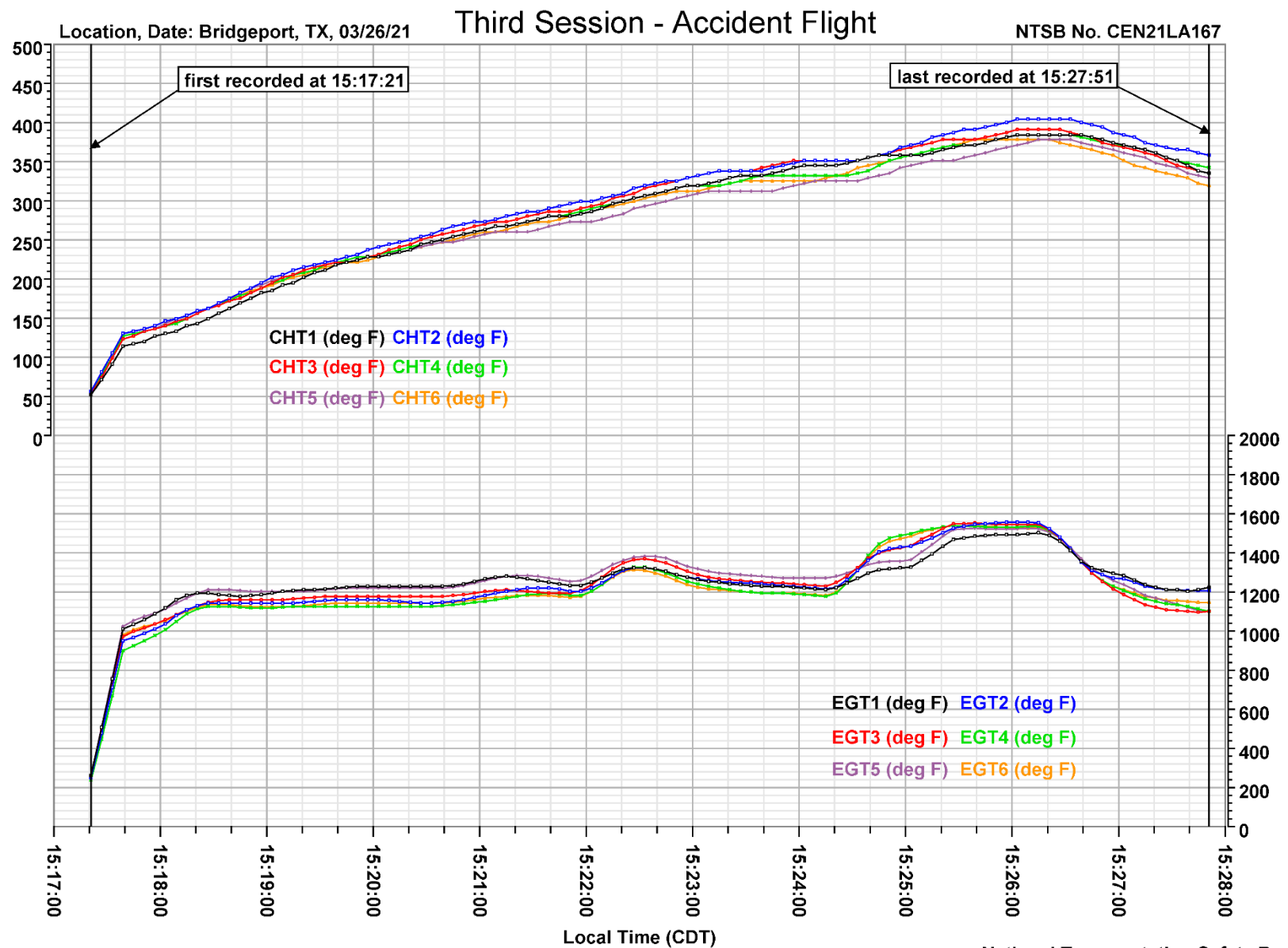


Figure 6: Plot of the data parameters of the third session on the accident date.

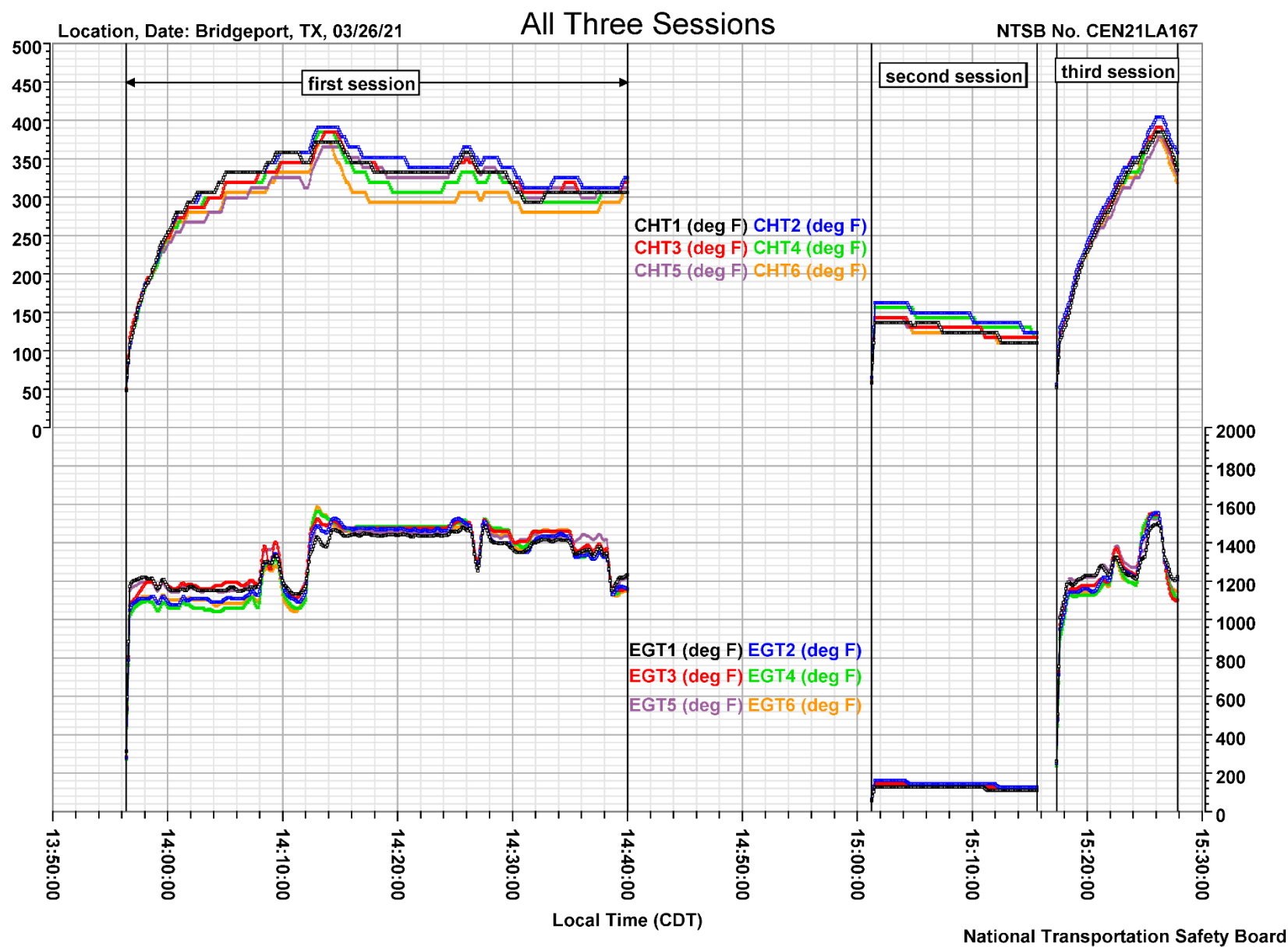
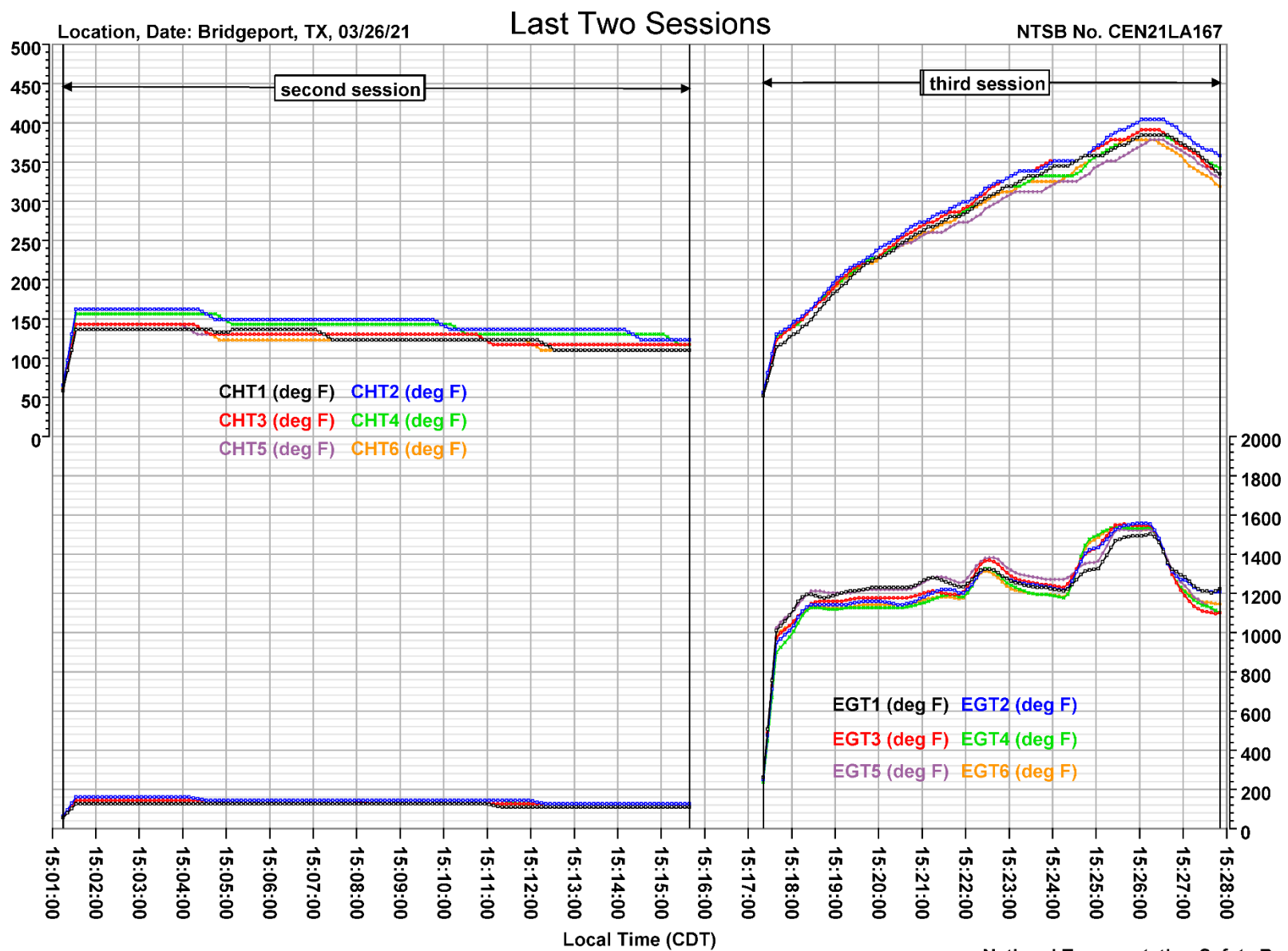


Figure 7: Plot of the data parameters of all the three sessions on the accident date.



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Figure 8: Plot of the data parameters of the last two sessions on the accident date.