

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

July 13, 2021

Cockpit Display

Specialist's Factual Report
By Gerald Kawamoto

1. EVENT SUMMARY

Location: Ellicott, New York
Date: November 1, 2020
Aircraft: Grumman GA7
Registration: N791GA
Operator: Private
NTSB Number: ERA21LA035

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following device:

Device Manufacturer/Model:	Garmin GDU 700L
Serial Number:	3LP000862

3.1. Device Description

The Garmin GDU 700L is a 7-inch multifunctional display. Engine instruments are dedicated to 40% of the screen and the remaining portion is configured using a pilot-selectable menu. Flight data can be logged to the unit's internal memory and then exported to an SD card for analysis.

3.2. Data Recovery

Upon arrival at the Vehicle Recorder Laboratory an external examination revealed the device had sustained damage to its display, as shown in Figure 1. The device powered on normally and data were exported to an SD card.



Figure 1. Garmin GDU 700 as received.

3.3. Data Description

The data extracted included 183 log files. The naming convention of the log files was consistent with the pilot guide's description for files that do not contain valid date and time stamps. The sampling frequency of the data was unable to be confirmed due to the absence of time stamps in the data. Settings on the device did not reveal the sampling frequency of the data, therefore, the data are plotted at a constant interval as discrete values on the time axis and data from the last recorded log file are included for trending purposes. Position data (latitude and longitude) were not recorded on the device.

Table 1 describes data parameters provided by the device.

Table 1. Garmin GDU 700L Parameters

Parameter Name	Parameter Description
CHT # (degF)	Cylinder Head Temperature (degrees Fahrenheit)
EGT # (degF)	Exhaust Gas Temperature (degrees Fahrenheit)
CHT CLD (degF/min)	Shock Cooling Rate (degrees Fahrenheit per minute)
FFLow (gph)	Fuel Flow (gallons per hour)
FPres (psi)	Fuel Pressure (pounds per square inch)
MAP (Hg)	Manifold Pressure (inches of Mercury)
OilP (psi)	Oil Pressure (pounds per square inch)
OilT (degF)	Oil Temperature (degrees Fahrenheit)
RPM	Engine Revolutions Per Minute

3.4. OVERLAYS AND TABULAR DATA

Figure 2 is a plot of Engine 1 parameters from the last log file recorded. Data is plotted at a constant interval as discrete values on the x-axis. There were a total of 9452 data points.

Figure 3 is a plot of Engine 2 parameters from the last log file recorded. Data is plotted at a constant interval as discrete values on the x-axis. There were a total of 9452 data points.

Tabular data used to generate figures 2 and 3 are included as Attachment 1. This attachment is provided in electronic comma-delimited (.CSV) format.

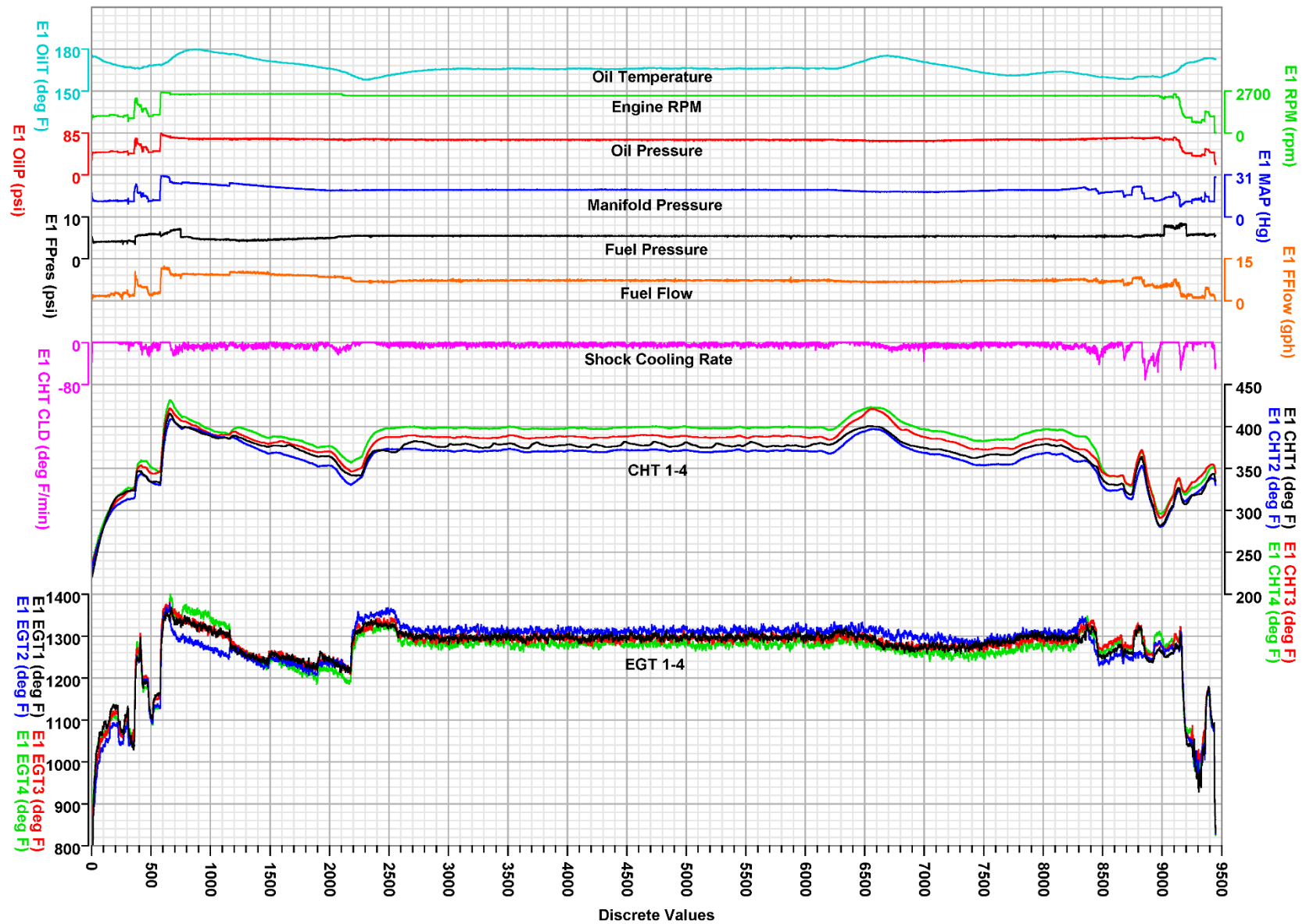


Figure 2. Plot of Engine 1 parameters from the last session recorded.

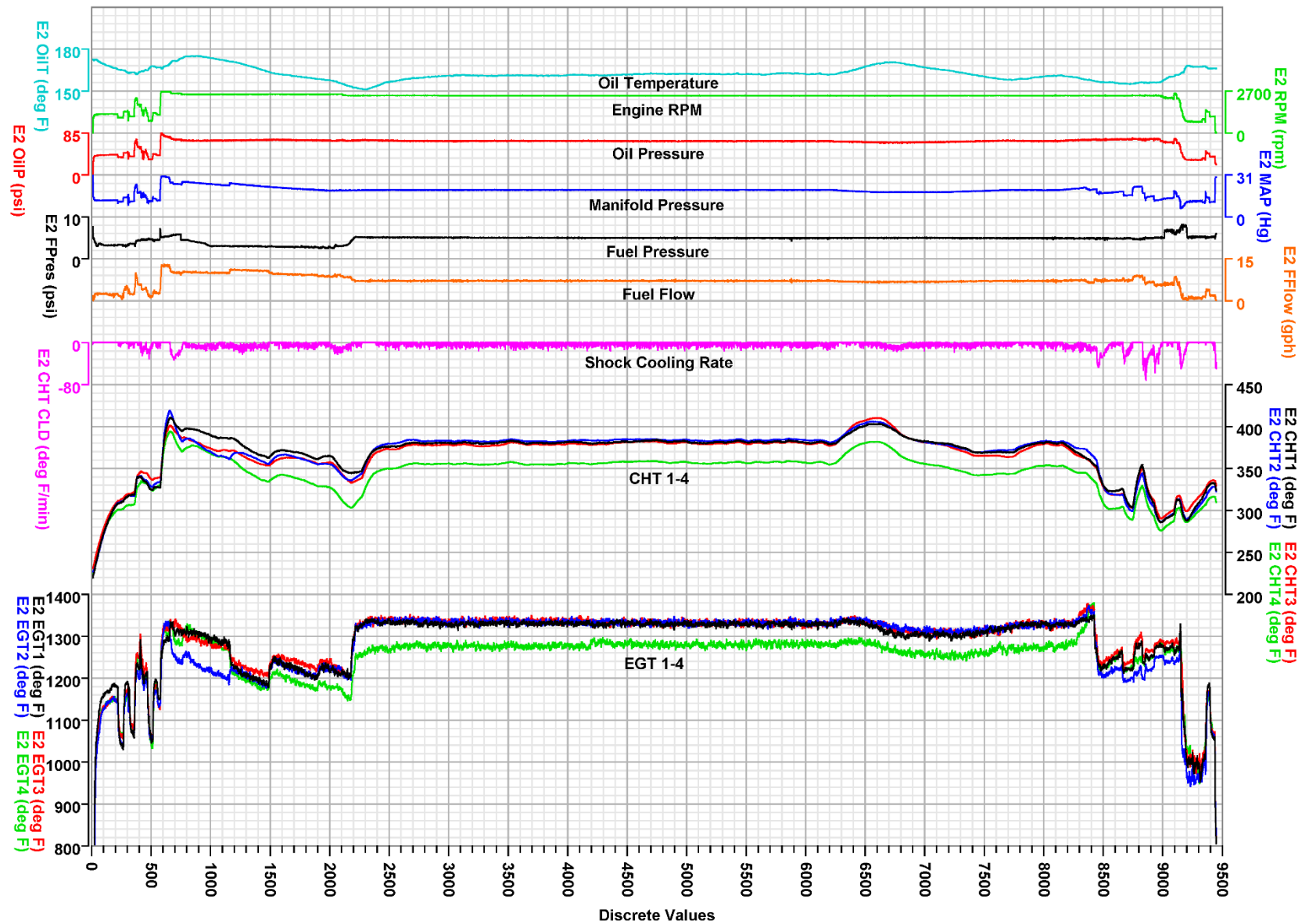


Figure 3. Plot of Engine 2 parameters from the last session recorded.