

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



CEN24LA140

ENGINE DATA MONITOR

Specialist's Factual Report

September 12, 2024

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A. ACCIDENT

Location: San Saba, Texas
Date: March 25, 2024
Time: About 1142 CDT
Airplane: Cessna T210M, N498TB

B. ENGINE DATA MONITOR SPECIALIST

Specialist Joshua Lindberg
Senior Aviation Accident Investigator
National Transportation Safety Board (NTSB)

C. DETAILS OF THE INVESTIGATION

On March 25, 2024, about 1142 central daylight time, a Cessna T210M airplane, N498TB, was substantially damaged when it was involved in an accident near San Saba, Texas. The pilot was not injured. The airplane was operated as a Title 14 Code of Federal Regulations part 91 personal flight.

The pilot reported that during a cross-country flight at 11,000 ft, he noticed that the engine manifold pressure started to decrease slowly. The pilot proceeded to San Saba County Municipal Airport and started a descent for a precautionary landing. The oil pressure gauge went to zero, and the propeller began to overspeed during the descent. With the airport in sight, smoke began to exit the engine cowl as the pilot lined up to land on runway 31. The pilot lowered the landing gear but kept the flaps retracted as the airplane approached stall speed. The pilot landed the airplane about 100 yards short of the runway in wet grass. The landing gear dug into terrain and the airplane flipped over which resulted in substantial damage to the front of the fuselage and wings.

Recorder Manufacturer/Model: J.P. Instruments Inc EDM 930
Recorder Serial Number: 07931

1.0 EDM 930 Data Recovery

The EDM 930 was in good condition (Figure 1 and 2) and the data were downloaded using the manufacturer's procedure.



Figure 1. Recorder screen powered on during data extraction effort.

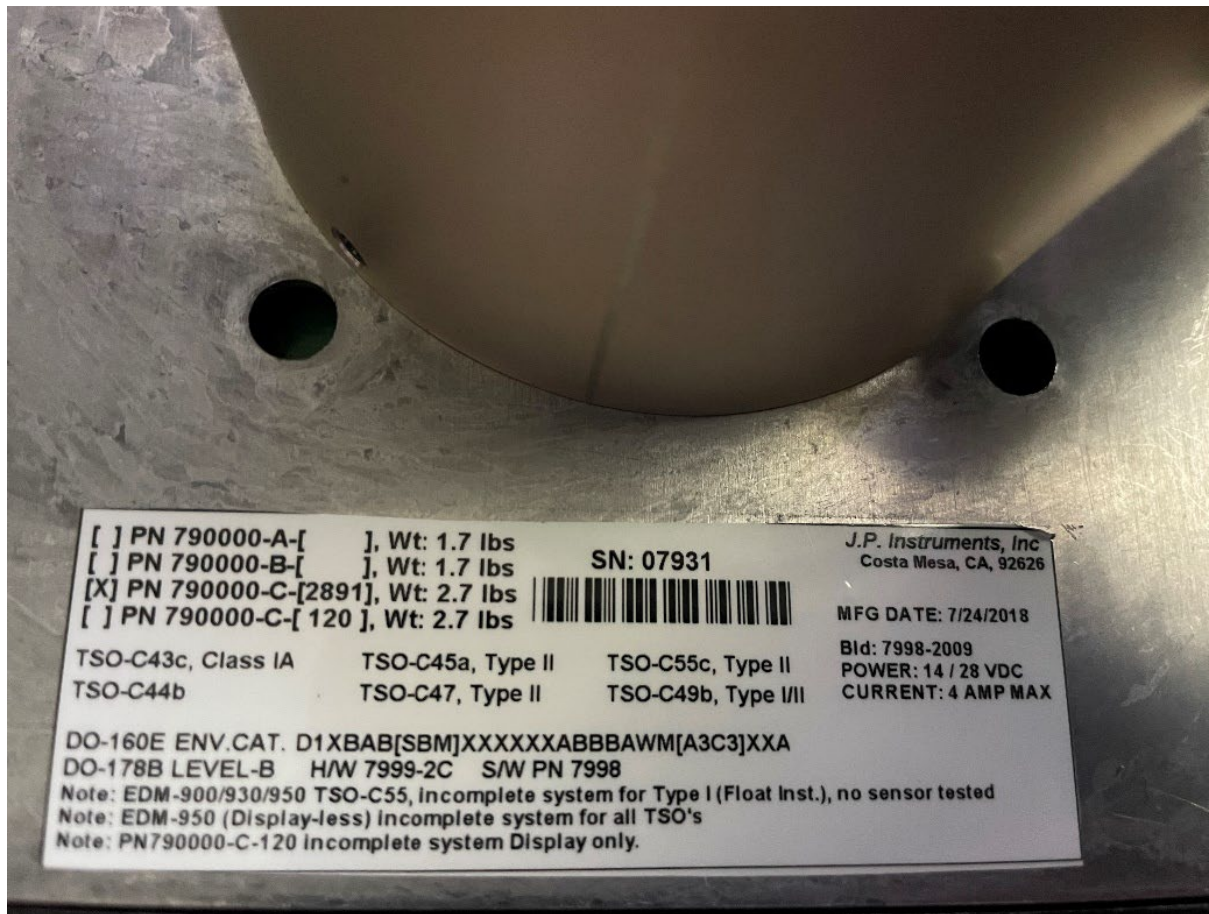


Figure 2. EDM 930 data tag on the rear of the unit face

1.1 Time Correlation

The EDM 930 data was recorded in universal coordinated time (UTC) and was slightly offset from the actual time when compared to the official U.S. time according to www.time.gov. The difference between Central Daylight Time and UTC is 5 hours. The accident flight time in this report has been offset from the recorded time by subtracting 4 hours, 14 minutes and 45 seconds.

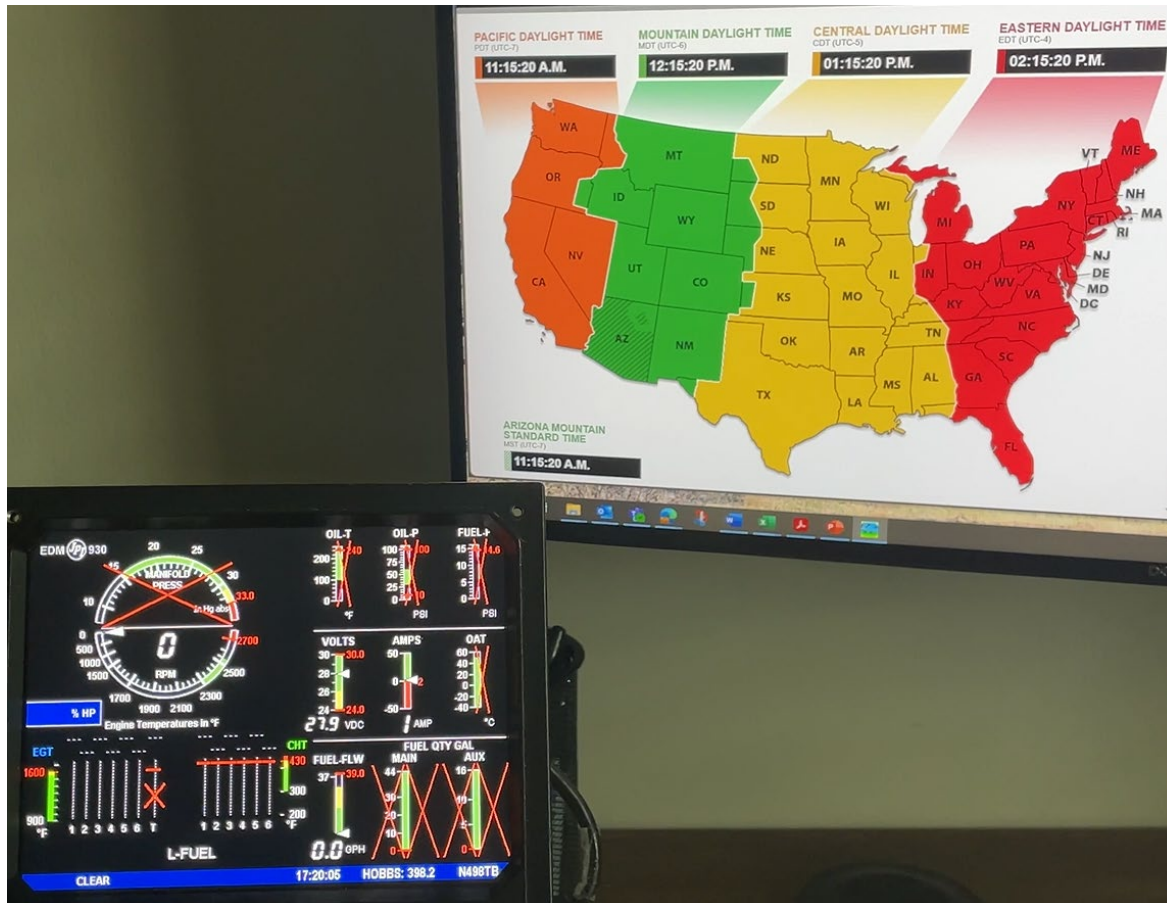


Figure 3. Recorder screen powered on for actual time correlation.

1.2 EDM 930 Description

The J. P. Instruments EDM 930 is a panel mounted gauge that the operator can monitor and record parameters related to engine and flight operations. The parameters recorded by this unit were:

- Exhaust Gas Temperature (EGT)
- Cylinder Head Temperature (CHT)
- Oil pressure and temperature
- Outside Air Temperature
- Manifold pressure
- Engine Revolutions per Minute (RPM)
- Fuel flow and fuel pressure
- Oil pressure and temperature
- Battery voltage
- Amperage
- Right tank, left tank, right aux, left aux fuel levels
- Engine operation hours elapsed
- Airplane speed
- Altitude
- Latitude and Longitude

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 unit contains 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. Data recording typically

begins when EGT's are greater than 500°F or RPM is greater than 500 rpm. The memory can store up to 100 hours of data at a 6 second sample rate. For a non-damaged unit, the data can then be downloaded by the operator using a USB flash drive and following the instructions on the unit.

D. FIGURES AND TABULAR DATA

Figures 4 to 8 contain data recorded during the event on March 25, 2024.

Figure 4 shows that near the halfway point in the flight the oil pressure started to steadily decrease, and the altitude remained about 11,000 ft. Near the end of the flight the oil pressure decreased below 10 psi and the manifold pressure decreased below 10 inches of mercury, as the altitude rapidly decreased and the engine RPM rapidly increased to about 3,500 RPM from about 2,500 RPM. In the remainder of the flight the oil pressure fluctuated between 4 and 18 psi, the manifold pressure increased to about 18 inches, and the RPM steadily decreased.

The final recorded data indicated: 8 psi oil pressure, 28.6 inches manifold pressure, 386 RPM, 4.9 gph fuel flow, 1.4 psi fuel pressure, and altitude 1,254 mean sea level (about 20 ft agl).

The corresponding tabular data used to create figures 4 to 8 are provided in electronic comma-separated value (CSV) format as attachment 1 to this report.

Mar 25, 2024 14:31 UTC ← →

Terlingua Airport (3TE8) → San Saba County Municipal Airport (K81R)



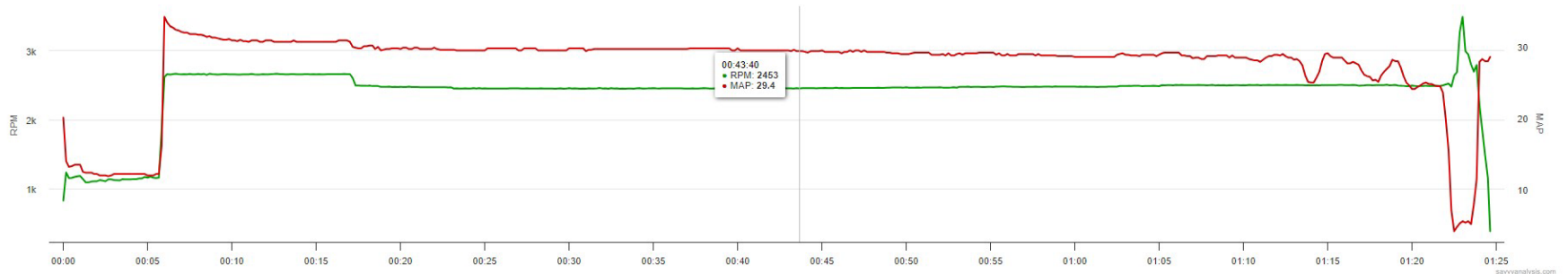
Request Analysis

Show Details



Primary

RPM | Appearance



Primary

OIL_PRESS | Appearance

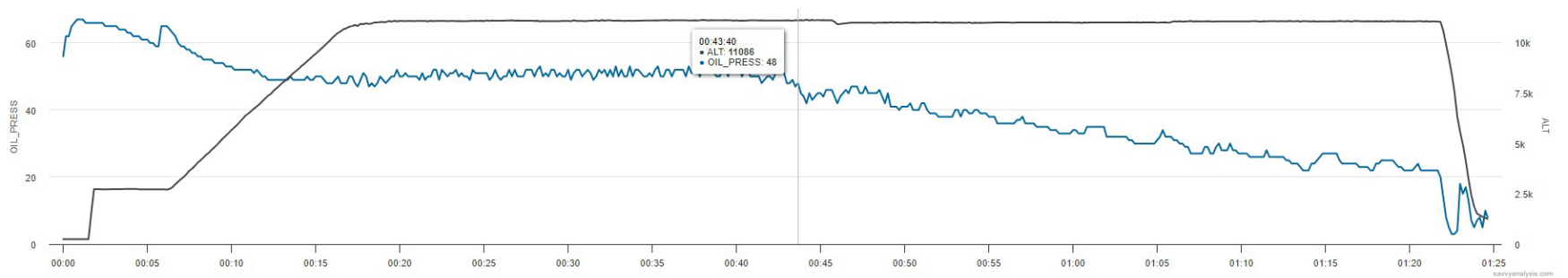


Figure 4. Plot of basic parameters for the entire accident flight.

Mar 25, 2024 14:31 UTC ← →

Terlingua Airport (3TE8) → San Saba County Municipal Airport (K81R)



Request Analysis

Hide Details

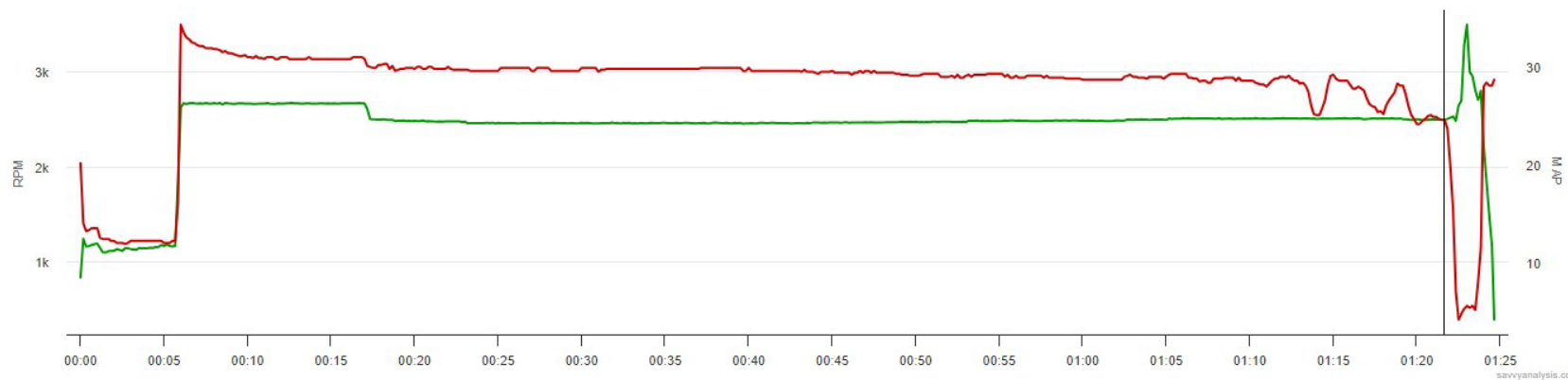


Primary

RPM | Appearance

Secondary

MAP | Appearance



Primary

OIL_PRESS | Appearance

Secondary

OIL | Appearance

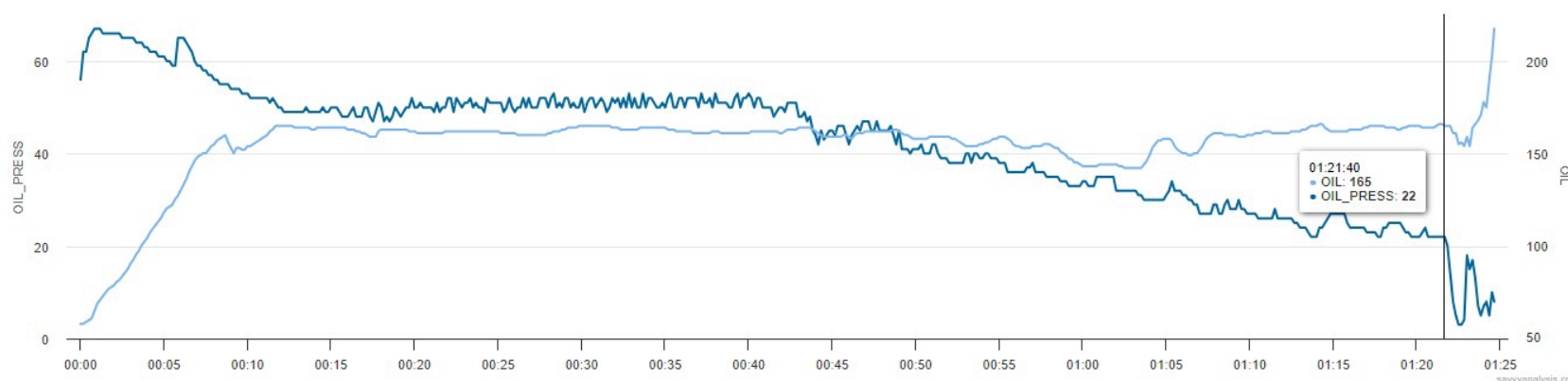


Figure 5. Plot of basic parameters for the entire accident flight.

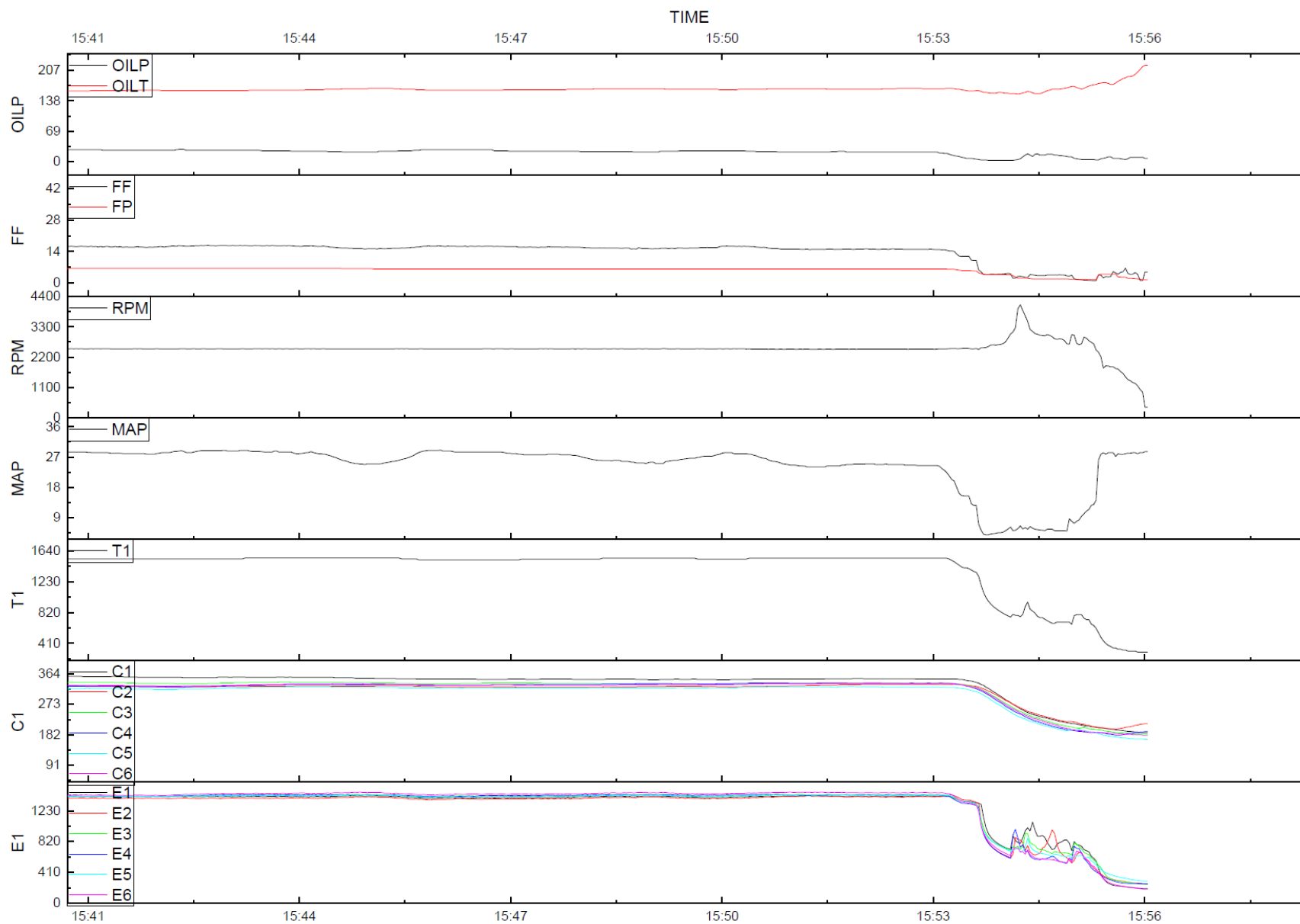


Figure 6. Plot of basic parameters for the end of the accident flight.



Figure 7. End of accident flight track overlaid on Google Earth.



Figure 8. Google Earth view showing the distance (891 yards) from the final recorded point to the beginning runway 31 at San Saba County Municipal Airport.

Submitted by:

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