

Dan Baker
Senior Air Safety Investigator
AS-WPR

Date: 01/23/2023

Subject: WPR23FA092, N4765G, Insight Engine Monitor Examination Report

On January 18, 2023, at 1307 Pacific daylight time, a Cessna 414 airplane, N4765G, was destroyed when it was involved in an accident near Modesto, California. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The airplane was equipped with a G4 Insight Graphic Engine Monitor. The engine monitor is capable of presenting engine performance to the pilot. It is also capable of storing recorded data on an SD card for both engines. The unit installed in the airplane was impact damaged. However, an SD card was recovered from the unit.

According to the manufacturer's Pilot Guide for the Insight G Series, the unit automatically records parameters during every flight. Each flight's data is stored in an individual log file on an SD card. Every file has an identification header containing the date, time, aircraft- registration and data log configuration. All data is sampled and recorded every one second of flight with essentially no limit as to size. The acquired data can be viewed directly in raw form or imported into spreadsheet and database programs for graphical analysis.

The SD card recovered from the accident airplane was inserted into a laptop computer and data from three events was downloaded. The three event files were dated October 19, 2022, November 9, 2022, and January 18, 2023. Some of the data recorded from the events included manifold pressure (MAP), fuel flow (FF), oil pressure (OP), and engine revolutions per minute (RPM). Select data from each event is presented in graphical form in Figures 1-3.

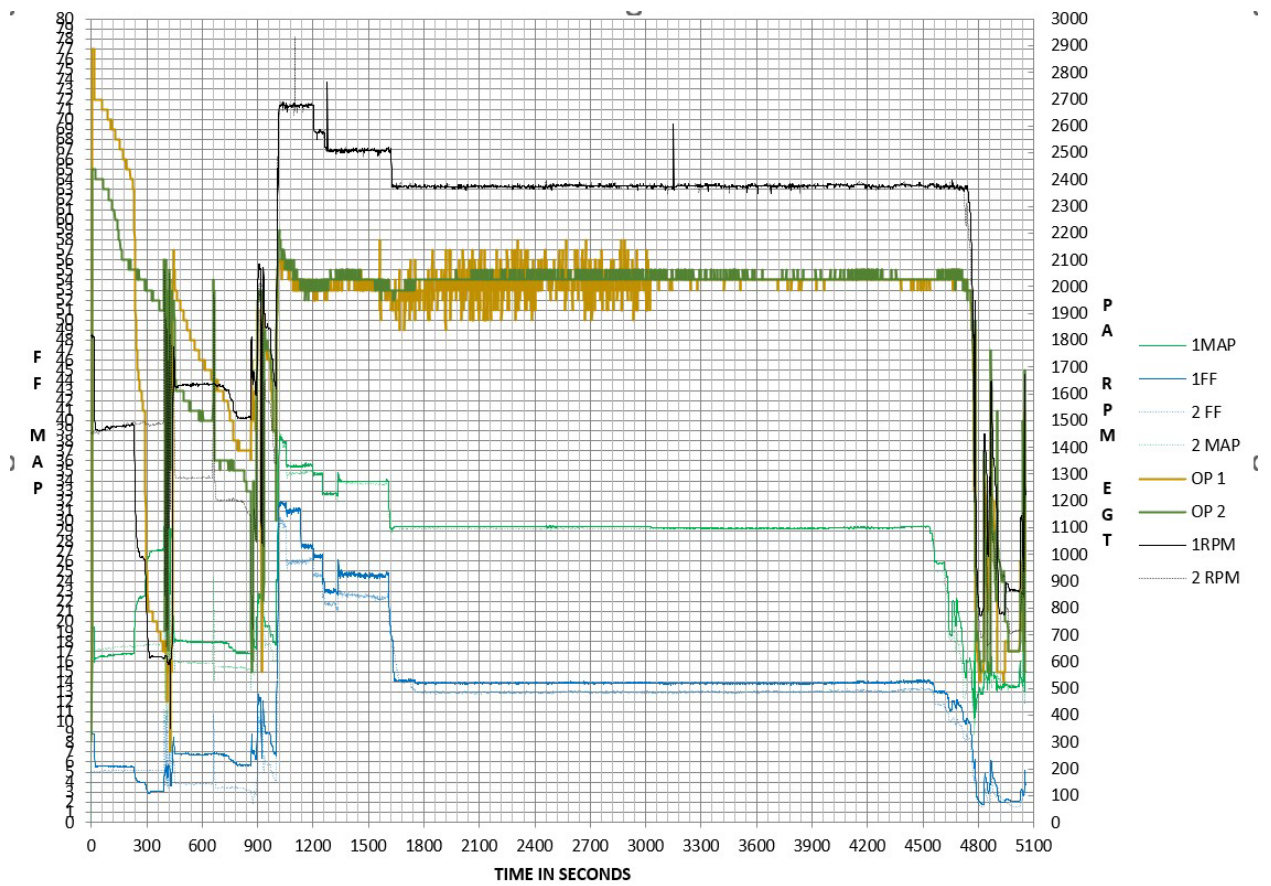


Figure 1 - October 19, 2022, Charted Engine Data



Figure 2 - November 9, 2022, Charted Engine Data

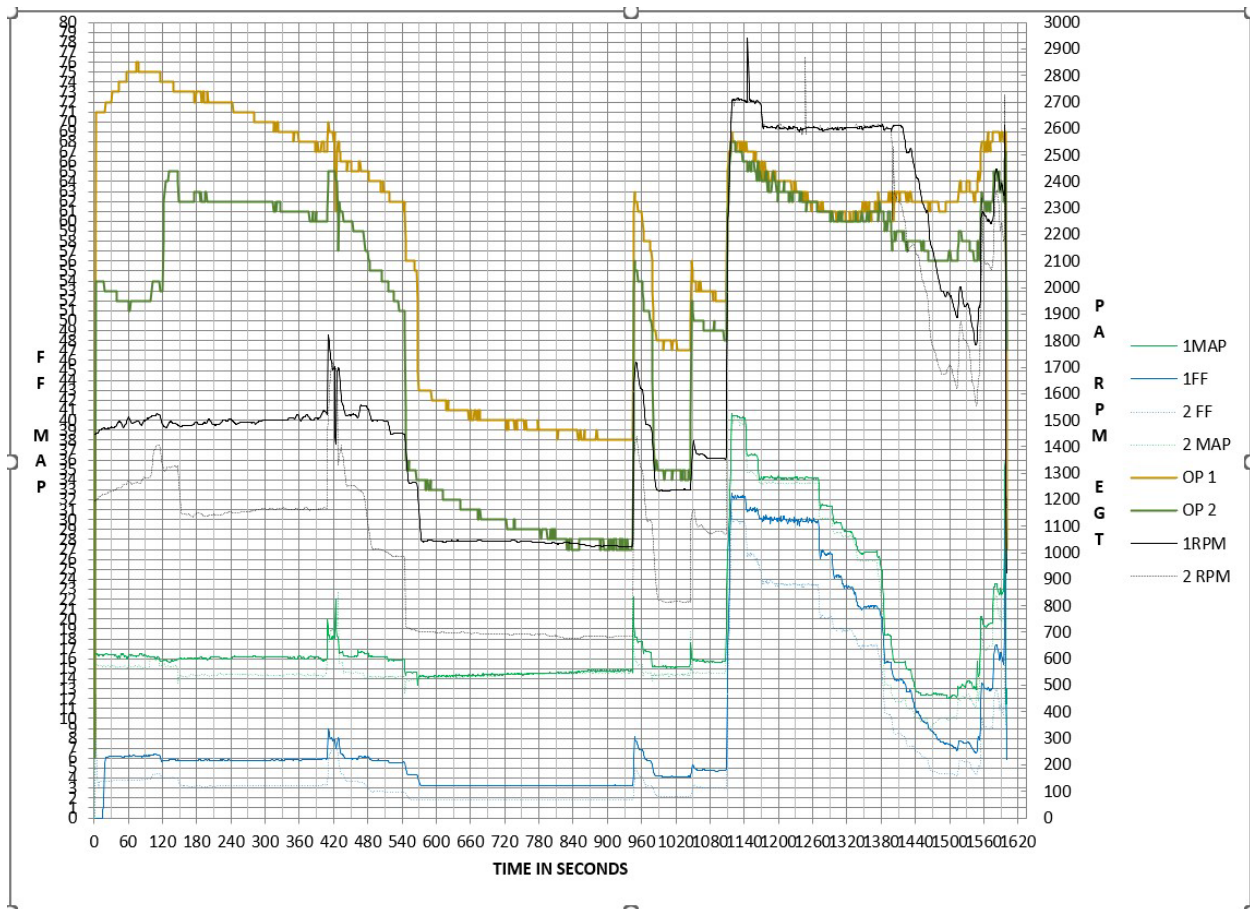


Figure 3 - January 18, 2023, Charted Engine Data

The event data dated January 10, 2023, began at a system time of 15:50:45 and ended at 16:17:25 and was comprised of 1600 lines of data recorded about 1 line/second. The system time was not correlated/corrected to the local time.

SUMMARY OF DATA

The data did not record identical performance parameters for each engine during all phases of flight. Generally, the data for the No. 1 engine reflected higher performance numbers than the No. 2 engine. The disparity was more evident when the data reflected both engines were operating at lower power settings. No anomalous data was observed when viewing the data for each engine individually.