



Memorandum of Record

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Date: 01/27/2021
Subject: CEN20FA098, N840GS, Engine Data Monitor Downloads

Two MGL Avionics Stratomaster Velocity engine monitors and a Dynojet Power Commander V module were recovered and subsequently examined by personnel from Composite FX. The examinations and subsequent data downloads were observed by the NTSB IIC via a video teleconference.

One Stratomaster engine monitor was defined as the Rotor 1 gauge and the second unit was defined as the Thermo-coupler gauge. Neither unit recorded data that would provide a history of flight. Both units provided a “tattle tale” page.

Rotor 1 Gauge

The Rotor 1 gauge tattle tale page displays the maximum engine and rotor revolutions per minute (RPM) recorded the last time the gauge was powered on. The Rotor 1 gauge displayed a maximum ROTOR RPM of 3389% (19999 rpm) and a maximum ENGINE RPM of 214% (12840 rpm). See figure 1.

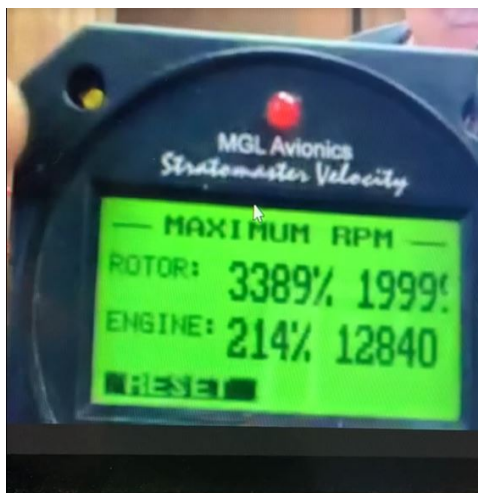


Figure 1 – Rotor 1 Gauge

The Composite FX personnel did not believe the rotor RPM number displayed was a viable number. They stated that the sensor for the main rotor RPM was located under the main rotor gear. They had observed pictures of the helicopter wreckage and noted damage to the area where wiring for the main rotor RPM sensor was located. They stated the engine RPM measurement was a viable number given the circumstances of the accident. They stated pilots regularly “chop the power” or “roll full power” in similar situations and rarely do they see the engine RPM values “stop at 100% where they are supposed to be.”

Thermo-coupler Gauge

The Thermo-coupler gauge tattle tale page displays six maximum temperature measurements measured in F°; top exhaust gas temperature (E1), bottom exhaust gas temperature (E2), cylinder head temperature (C1), water temperature (C2), splitter gearbox temperature (C3), and auxiliary/tail rotor gearbox temperature (C4). The following readings were displayed on the Thermo-couple gauge tattle tale page (figure 2):

E1: 1189
E2: 1216
C1: 1151
C2: 332
C3: 201
C4: 3122

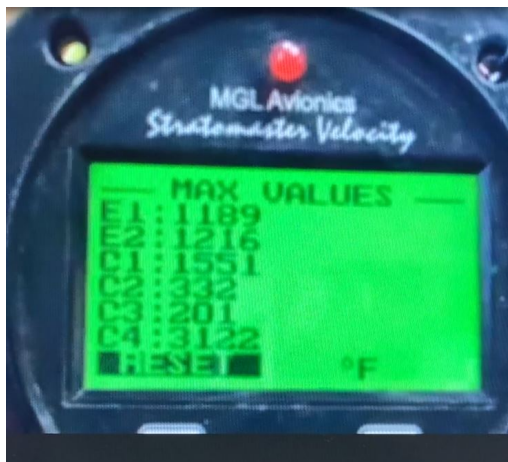


Figure 2 – Thermo-coupler Gauge

All temperatures were deemed “normal” except C4, which was exceptionally higher than normal and anomalous in nature. It was noted the tail-boom containing the wiring for the C4 (auxiliary/tail rotor gearbox temperature) sensor had separated from the fuselage at the accident site.

Dynojet Power Commander V

The Dynojet Power Commander V module provides fuel mapping to the engine and can be manipulated prior to flight to adjust fuel flow to the engine under different conditions. The data

contained within the unit are the settings established by the operator prior to flight. No historical flight data is contained within the module. The data within the accident module were downloaded and no unusual settings were noted within the data.