

National Transportation Safety Board

Office of Aviation Safety
Central Region



CEN21LA287

MEMORANDUM FOR THE RECORD

Maintenance Logbook Calculations

July 31, 2023

ACCIDENT

Location: Sedgwick, Arkansas
Date: June 20, 2021
Time: 0700 central daylight time (1500 UTC)
Airplane: Grumman G-164B; Registration No. N62375

DISCUSSION

A postaccident review of maintenance logbooks for the accident airplane, Grumman G-164B, serial number 806B, FAA registration number N62375, identified a calculation error for the engine logbook entry dated March 23, 2015.

The NTSB Investigator-in-Charge and the NTSB Powerplants Group Chairman reviewed the available logbook information, and recalculated the airframe total time (AFTT), engine time since new (TSN), and engine time since overhaul (TSO) using the February 10, 2013, logbook entry as the baseline for all subsequent calculations.

On February 10, 2013, the logbooks listed the airplane hour meter reading as 3,673 hours. The listed AFTT was 10,855 hours, the engine TSN was 17,396 hours, and engine time since overhaul (TSO) was 14,836 hours.

February 10, 2013 (baseline logbook entry)

AFTT	10,855 hours
Engine TSN	17,396 hours
Engine TSO	14,836 hours

On February 11, 2015, the airplane hour meter indicated 4,748 hours when an overhauled torque sensor (p/n 3101726-3; s/n P-4184) was installed on the engine.

When based on airplane hour meter readings, the airframe/engine accumulated 1,075 hours (4,748 - 3,673 = 1,075) since February 10, 2013.

February 11, 2015 (calculated)

AFTT	11,930 hours (1,075 + 10,855 = 11,930)
Engine TSN	18,471 hours (1,075 + 17,396 = 18,471)
Engine TSO	15,911 hours (1,075 + 14,836 = 15,911)
Torque Sensor TSO	0 hours

According to the March 23, 2015, engine logbook entry, the airplane hour meter indicated 4,748 hours (same as February 11, 2015) and the listed engine TSN and TSO were 17,964 hours and 15,404 hours, respectively. However, based on calculations using the previous hour meter readings, the listed engine TSN and TSO were 507 hours less than actual. The TSN and TSO were also incorrect in subsequent logbook entries.

When using airplane hour meter readings, the airframe/engine accumulated 1,075 hours ($4,748 - 3,673 = 1,075$) since February 10, 2013.

March 23, 2015 (recalculated)

AFTT	11,930 hours ($1,075 + 10,855 = 11,930$)
Engine TSN	18,471 hours ($1,075 + 17,396 = 18,471$)
Engine TSO	15,911 hours ($1,075 + 14,836 = 15,911$)
Torque Sensor TSO	0 hours

On April 1, 2020, hour meter indicated 6,682 hours when it was removed from the airplane and replaced with a new hour meter (0.0 hours).

When using airplane hour meter readings, the airframe/engine accumulated 3,009 hours ($6,682 - 3,673 = 3,009$) since February 10, 2013. The torque sensor accumulated 1,934 hours ($6,682 - 4,748 = 1,934$) since it was replaced on February 11, 2015.

April 1, 2020 (recalculated)

AFTT	13,864 hours ($3,009 + 10,855 = 13,864$)
Engine TSN	20,405 hours ($3,009 + 17,396 = 20,405$)
Engine TSO	17,845 hours ($3,009 + 14,836 = 17,845$)
Torque Sensor TSO	1,934 hours ($6,682 - 4,748 = 1,934$)

On March 1, 2021, the last annual/100-hour inspection, the airplane hour meter indicated 517 hours. When based on airplane hour meter readings, the airframe/engine accumulated 3,526 hours ($3,009 + 517 = 3,526$) since February 10, 2013.

March 1, 2021 (recalculated)

AFTT	14,381 hours ($3,526 + 10,855 = 14,381$)
Engine TSN	20,922 hours ($3,526 + 17,396 = 20,922$)
Engine TSO	18,362 hours ($3,526 + 14,836 = 18,362$)
Torque Sensor TSO	2,451 hours ($517 + 1,934 = 2,451$)

On June 20, 2021, after the accident, the airplane hour meter indicated 607.5 hours. When based on airplane hour meter readings, the airframe/engine accumulated 3,616.5 hours (3,009 + 607.5 = 3,616.5) since February 10, 2013.

June 20, 2021 (calculated)

AFTT	14,471.5 hours (3,616.5 + 10,855 = 14,471.5)
Engine TSN	21,012.5 hours (3,616.5 + 17,396 = 21,012.5)
Engine TSO	18,452.5 hours (3,616.5 + 14,836 = 18,452.5)
Torque Sensor TSO	2,541.5 hours (607.5 + 1,934 = 2,541.5)
