



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Muskogee, Oklahoma	Accident Number:	CEN25LA051
Date & Time:	November 27, 2024, 00:05 Local	Registration:	N5757C
Aircraft:	Cessna 340	Aircraft Damage:	Substantial
Defining Event:	Fuel exhaustion	Injuries:	2 Minor, 3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that the airplane was “topped off” with fuel before departing on the night cross-country flight. The pilot performed a preflight inspection, but he did not have his headlamp with him, only his cellular phone. The pilot reported that he typically verified fuel levels at night by feeling inside the fuel tank with his finger, but recalled not verifying the fuel level in the right main fuel tank before departing on the night of the accident flight.

The pilot reported that the fuel consumption rate during the first half of the flight was higher than normal due to his operation of the engines slightly rich and his use of the airplane’s heater. While enroute, the pilot transferred fuel from the auxiliary fuel tanks and the left side locker fuel tank to the main fuel tanks. After the “final transfer” was completed, the pilot calculated that there was adequate fuel remaining, including the required reserve fuel, to reach the destination airport; however, he noticed that the indicated fuel remaining levels were less than he expected.

Shortly after the pilot was cleared for a visual approach at the destination, the right engine lost total power, followed by the left engine. The pilot reported that, at the time of the initial power loss, gauges indicated that the left side of the airplane had about 30 pounds (about 4.84 gallons) of fuel remaining and the right side had about 30 to 35 pounds (about 4.84 to 5.65 gallons) of fuel remaining.

During the subsequent forced landing, the right wing impacted a permanent elevated static display and the airplane came to rest upright on airport property. The airplane sustained substantial damage to the fuselage and the right wing.

Examination of the airplane revealed no evidence of fuel at the accident site. The right main fuel tank and the right auxiliary fuel tank were separated from the right wing during the impact

sequence and sustained damage. All other fuel tanks were found intact. All the fuel tank caps were found installed on their respective fuel tank. Fuel was not observed in any of the fuel tanks. All the fuel tank bladders were found intact, and they were not collapsed. The left side fuel selector was found on the left main fuel tank. The right side fuel selector was found on the right auxiliary fuel tank. No signs of fuel leakage were observed on the airframe or on the two engines. During the recovery operation, no usable fuel was recovered from the airplane.

It is possible that the pilot departed on the accident flight with less fuel than he calculated, given that he did not verify the level of fuel in the right main tank. Additionally, he reported higher than normal fuel consumption during the accident flight, and as he neared the destination, he observed that the indicated fuel remaining was less than expected.

The absence of fuel at the accident site and onboard the airplane during postaccident examination is consistent with the pilot's improper fuel planning, which resulted in fuel exhaustion, a total loss of power to both engines, a subsequent forced landing, and collision with an obstacle and terrain.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's improper fuel planning, which resulted in fuel exhaustion and a total loss of power to both engines.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Fuel planning - Pilot
Personnel issues	Knowledge of procedures - Pilot
Personnel issues	Decision making/judgment - Pilot

Factual Information

History of Flight

Approach-VFR pattern final	Fuel exhaustion (Defining event)
Landing	Collision during takeoff/land
Post-impact	Evacuation

On November 27, 2024, about 0005 central standard time, a Cessna 340A airplane, N5757C, sustained substantial damage when it was involved in an accident near Muskogee, Oklahoma. The pilot and one passenger sustained minor injuries, and three passengers were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that, before departing on the cross-country flight, the airplane was “topped off” with 100 low lead fuel, resulting in a total of 183 gallons onboard for the flight. The pilot performed a preflight inspection of the airplane at night, but he did not have his headlamp with him, only his cellular phone. The pilot reported that, when verifying fuel levels in the dark, he typically feels inside the fuel tank with his finger, but he recalled not doing that with the right main fuel tank before departing on the accident flight.

The pilot’s fuel calculations showed that the flight would require a total of 150 gallons of fuel. The airplane was equipped with two main fuel tanks, each with a total capacity of 51 gallons, of which 50 gallons was usable; two auxiliary fuel tanks, each with a capacity of 32 gallons (31.5 gallons usable each tank); and one left side locker fuel tank, which had a total capacity of 20.5 gallons (20 gallons usable).

A review of ADS-B data showed that the airplane departed from Mission Field Airport (LVM), Livingston, Montana, about 1840 on an instrument flight rules flight plan to the intended destination of Muskogee-Davis Regional Airport (MKO), Muskogee, Oklahoma.

The pilot reported a higher than usual fuel consumption rate during the first half of the flight, which was in instrument meteorological conditions (IMC). While operating in IMC, the pilot was operating the engines at 100° degrees rich of peak versus the normal peak engine gas temperature. Additionally, the pilot was operating the heater for the first half of the flight and then occasionally for the second half of the flight. The pilot reported that, while enroute, he transferred fuel from the auxiliary fuel tanks and the left side locker fuel tank to the main fuel tanks. After the “final transfer” was completed, the pilot calculated that there was adequate fuel remaining, including the required reserve fuel, to make the destination airport. However, he reported that, over Tulsa (about 50 miles from the destination airport), the indicated fuel levels were less than he expected.

Shortly after the pilot was cleared for a visual approach at the destination, the right engine lost total power, followed by the left engine. The pilot attempted to restart both engines to no avail.

At the beginning of the loss of engine power sequence, the pilot reported that the left side of the airplane had about 30 lbs (about 4.84 gallons) of fuel remaining and the right side had about 30 to 35 lbs (about 4.84 to 5.65 gallons) of fuel remaining.

During the subsequent forced landing, the right wing impacted a permanent elevated static display on MKO property, a U.S. Air Force T-33A jet trainer, located about 3,350 ft northwest of the approach end of runway 13, and came to rest upright. The pilot and passengers egressed the airplane without further incident. The airplane sustained substantial damage to the fuselage and the right wing.

During an onsite examination, fuel blighting was not observed on the grass. The right main fuel tank and the right auxiliary fuel tank were separated from the right wing during the impact sequence and sustained damage. All other fuel tanks were found intact. All the fuel tank caps were found installed on their respective fuel tank. The fuel tank caps were removed to view the inside of the fuel tanks. Fuel was not observed in any of the fuel tanks. All the fuel tank bladders were found intact, and they were not collapsed. The left side fuel selector was found on the left main fuel tank. The right side fuel selector was found on the right auxiliary fuel tank. No signs of fuel leakage were observed on the airframe or on the two engines. During the recovery operation, no usable fuel was recovered from the airplane.

According to the Cessna 340A Pilot's Operating Handbook and Federal Aviation Administration (FAA) Approved Airplane Flight Manual, the airplane has an optional fuel low level warning light system. This system provides a visual warning in the cockpit when the left main fuel tank or the right main fuel tank, or both, contain about 60 lbs (about 9.68 gallons) of fuel. The airplane was not equipped with this system, nor was it required to be.

The configuration of the airplane's fuel system did not allow the transfer of fuel from an auxiliary fuel tank to either of the main fuel tanks; auxiliary fuel could only be provided to the engine on the same side as the auxiliary fuel tank, via the fuel selector. The fuel in a locker fuel tank was fed to the associated main fuel tank when the transfer pump was activated by the pilot.

The airplane was not equipped with a digital engine monitor or a digital fuel flow indicator system.

A review of the airplane maintenance records showed that the airplane's most recent annual inspection was completed on October 3, 2023, at an airframe total time of 2,980.4 hours.

The FAA Pilot's Handbook of Aeronautical Knowledge FAA-H-8083-25C discusses fuel tank quantity gauges and states in part:

The fuel quantity gauges indicate the amount of fuel measured by a sensing unit in each fuel tank and is displayed in gallons or pounds. Aircraft certification rules require accuracy in fuel gauges only when they read "empty." Any reading other than "empty" should be verified. Do not depend solely on the accuracy of the fuel quantity gauges. Always visually check the fuel level in

each tank during the preflight inspection, and then compare it with the corresponding fuel quantity indication.

The document also discusses fuel consumption rates and states in part:

The rate of fuel consumption depends on many factors: condition of the engine, propeller/rotor pitch, propeller/ rotor revolutions per minute (rpm), richness of the mixture, and the percentage of horsepower used for flight at cruising speed. The pilot should know the approximate consumption rate from cruise performance charts or from experience. In addition to the amount of fuel required for the flight, there should be sufficient fuel for reserve. When estimating consumption, you must plan for cruise flight as well as startup and taxi, and higher fuel burn during climb. Remember that ground speed during climb is less than during cruise flight at the same airspeed. Additional fuel for adequate reserve should also be added as a safety measure.

Pilot Information

Certificate:	Private	Age:	49, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 None	Last FAA Medical Exam:	January 14, 2023
Occupational Pilot:	No	Last Flight Review or Equivalent:	September 1, 2023
Flight Time:	(Estimated) 756 hours (Total, all aircraft), 245 hours (Total, this make and model), 703 hours (Pilot In Command, all aircraft), 39 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N5757C
Model/Series:	340 A	Aircraft Category:	Airplane
Year of Manufacture:	1980	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	340A0975
Landing Gear Type:	Retractable - Tricycle	Seats:	5
Date/Type of Last Inspection:	October 3, 2023 Annual	Certified Max Gross Wt.:	6430 lbs
Time Since Last Inspection:	182.7 Hrs	Engines:	2 Reciprocating
Airframe Total Time:	3163.1 Hrs at time of accident	Engine Manufacturer:	Continental Motors
ELT:	C126 installed, not activated	Engine Model/Series:	TS10-520-NB
Registered Owner:	On file	Rated Power:	310 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None
Operator Does Business As:	On file	Operator Designator Code:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night
Observation Facility, Elevation:	KMKO,602 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	23:53 Local	Direction from Accident Site:	142°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	150°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.96 inches Hg	Temperature/Dew Point:	7°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Livingston, MT (LVM)	Type of Flight Plan Filed:	IFR
Destination:	Muskogee, OK (MKO)	Type of Clearance:	IFR
Departure Time:	18:40 Local	Type of Airspace:	Class G

Airport Information

Airport:	MUSKOGEE-DAVIS RGNL MKO	Runway Surface Type:	Asphalt
Airport Elevation:	611 ft msl	Runway Surface Condition:	Dry
Runway Used:	13/31	IFR Approach:	Visual
Runway Length/Width:	7202 ft / 150 ft	VFR Approach/Landing:	Forced landing;Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Minor, 3 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor, 3 None	Latitude, Longitude:	35.667484,-95.375133(est)

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Maxwell Bradley; FAA Will Rogers FSDO; Oklahoma City, OK Henry Soderlund; Textron Aviation; Wichita, KS Julie Crowell; Continental Aerospace Technologies; Mobile, AL
Original Publish Date:	March 12, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=195556

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).