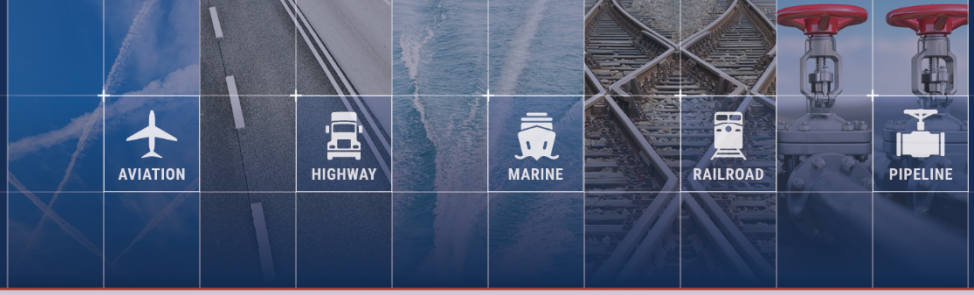

Aviation Investigation Final Report

Location:	Blanket, Texas	**Accident Number:**	CEN22LA189
Date & Time:	April 30, 2022, 13:00 Local	**Registration:**	N47JB
Aircraft:	RAYTHEON AIRCRAFT COMPANY A36	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he departed with “just over half a tank of fuel in each tank,” which matched the indications on the fuel gauges. He reported that he decided not to “top off” the fuel tanks for the flight of about one hour and twenty-minutes as he had about 40 gallons of fuel on board. The pilot reported that the takeoff and en route portions of the flight were normal. As the airplane descended to 6,000 ft above mean seal level, and with the destination airport in sight, the engine lost power. The pilot “immediately pulled the yoke back to best glide,” selected a grass field for the landing, and began the engine out checklist. The pilot reported that he switched fuel tanks during the engine out procedure. After he completed the checklist twice, with no success at restarting the engine, he maneuvered the airplane and performed a forced landing to a field. During the forced landing, the nose gear collapsed, and the right wing sustained substantial damage.

During a postaccident examination, no fuel was found in the right fuel tank and about 5.5 gallons of fuel was found in the left fuel tank (per the airframe manufacturer, 3 gallons in each fuel tank is classified as unusable). Both fuel tanks were found intact, along with the airframe and engine fuel lines. Both fuel tank caps appeared normal and were found installed properly. There was no evidence of a fuel leak or spillage on the airframe or at the accident site. There were no odors of fuel at the accident site. The fuel tank selector was found at the right fuel tank position. The fuel line to the fuel pressure regulator and the fuel injection distribution manifold was opened and there was no visible fuel found in the line.

The investigation could not determine the amount of fuel onboard before the accident flight. Based on the available evidence, it is likely the engine lost power due to the low level of fuel available in the right fuel tank due to the pilot’s improper fuel management.

Probable Cause and Findings

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

The pilot's failure to properly manage fuel while enroute, which resulted in a loss of engine power due to fuel starvation and a subsequent forced landing.

Findings

Aircraft	Fuel - Fluid level
Aircraft	Fuel - Fluid management
Personnel issues	Fuel planning - Pilot

Factual Information

History of Flight

Prior to flight	Preflight or dispatch event
Enroute-descent	Fuel starvation (Defining event)
Enroute-descent	Loss of engine power (total)
Enroute-descent	Off-field or emergency landing
Landing-flare/touchdown	Landing gear collapse

On April 30, 2022, about 1300 central daylight time, a Raytheon Aircraft Company A36 airplane, N47JB, sustained substantial damage when it was involved in an accident near Blanket, Texas. The pilot and passenger sustained no injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that the cross-country flight departed from the Majors Airport (GVT), Greenville, Texas, and was enroute to the Brownwood Regional Airport (BWD), Brownwood, Texas, via a navigational aid in Cedar Creek, Texas. During the preflight, the pilot "visibly confirmed" that there was "just over half a tank of fuel in each tank." He reported that this amount matched the indications on the fuel gauges, which equated to 40 gallons of fuel. He reported that he decided not to "top off" the fuel tanks for the approximate one hour and twenty-minute flight. The pilot utilized the ForeFlight app for his preflight planning and the system calculated that the engine would consume about 22 gallons total for the flight.

The pilot reported that the run up, enroute portion, and the descent from cruise altitude at 8,000 ft mean sea level (msl), were normal. The pilot was not able to recall what fuel tank was selected for the taxi, run up, climb out, and enroute portion of the flight. As the airplane descended to 6,000 ft msl, he cancelled the instrument flight rules clearance. When the pilot had the destination airport in sight, the engine lost power. The pilot "immediately pulled the yoke back to best glide," selected a grass field for the landing, and began the engine out checklist. The pilot reported that he switched fuel tanks during the engine out procedure. After he completed the checklist twice, with no success at restarting the engine, he maneuvered the airplane and performed a forced landing to the field. During the forced landing, the nose gear collapsed, and the right wing sustained substantial damage. The airplane came to rest upright, and the two occupants were able to egress from the airplane without further incident.

During a postaccident examination, no fuel was found in the right fuel tank and about 5.5 gallons of fuel was found in the left fuel tank (per the airframe manufacturer, 3 gallons in each fuel tank is classified as unusable). Both fuel tanks were found intact, along with the airframe and engine fuel lines. Both fuel tank caps appeared normal and were found installed properly. There was no evidence of a fuel leak or spillage on the airframe or at the accident site. There

were no odors of fuel at the accident site. The fuel tank selector was found at the right fuel tank position. The fuel line to the fuel pressure regulator and the fuel injection distribution manifold was opened and there was no visible fuel found in the line.

An examination of the airplane's maintenance records revealed no evidence of uncorrected mechanical discrepancies with the airframe and engine. The airplane did not have a fuel totalizer system or an engine monitoring system onboard, nor was it required to have either system.

The pilot did not have any fueling records or receipts from the last time the airplane received fuel, as the pilot received fuel from a family member, and he fueled the airplane himself. Using the information provided by the pilot, postaccident flight planning showed the engine would have consumed 21.9 gallons total for the flight. If the pilot utilized the maximum cruise speed, the engine would have consumed 22.9 gallons total for the flight. These totals do not include the required fuel reserve amounts.

The Raytheon Aircraft Company A36 Pilot's Operating Handbook/Airplane Flight Manual discusses fuel required for flight and states in part:

Plan for an ample margin of fuel for any flight.

The Textron Aviation Pilot Safety and Warning Supplements discusses fuel management and states in part:

It is always the responsibility of the pilot-in-command to ensure sufficient fuel is available for the planned flight.

A pilot should not begin a flight without determining the fuel required and verifying its presence onboard.

Pilot Information

Certificate:	Private	**Age:**	48,Male
Airplane Rating(s):	Single-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 Without waivers/limitations	**Last FAA Medical Exam:**	September 2, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 8, 2020
Flight Time:	(Estimated) 446 hours (Total, all aircraft), 283 hours (Total, this make and model), 446 hours (Pilot In Command, all aircraft), 12 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	RAYTHEON AIRCRAFT COMPANY	**Registration:**	N47JB
Model/Series:	A36 NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:	1998	**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	E3207
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 13, 2021 Annual	**Certified Max Gross Wt.:**	3650 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1630 Hrs at time of accident	**Engine Manufacturer:**	Continental Motors
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-550-B
Registered Owner:	On file	**Rated Power:**	300 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:**	Day
Observation Facility, Elevation:	KBWD,1377 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	12:55 Local	**Direction from Accident Site:**	229°
Lowest Cloud Condition:	Clear	**Visibility**	9 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots / 14 knots	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	27°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Greenville, TX (GVT)	**Type of Flight Plan Filed:**	VFR/IFR
Destination:	Brownwood , TX (BWD)	**Type of Clearance:**	IFR
Departure Time:	11:30 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	31.860024,-98.780039(est)

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Steven White; FAA Lubbock FSDO; Lubbock, TX Henry Soderlund; Textron Aviation; Wichita, KS
Original Publish Date:	November 8, 2023
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=105034