



# Aviation Investigation Final Report

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<b>Location:</b>	Old Bethpage, New York	<b>Accident Number:</b>	ERA21LA098
<b>Date &amp; Time:</b>	January 10, 2021, 13:01 Local	<b>Registration:</b>	N421DP
<b>Aircraft:</b>	Cessna 421B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel exhaustion	<b>Injuries:</b>	1 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The pilot reported that, during the initial climbout, about 1,000 ft above ground level, one of the engines stopped producing power. He confirmed that all engine controls were full forward and the main fuel tanks were selected. Immediately thereafter, the remaining engine began to surge, then stopped producing power. He established best glide speed and looked for an area to perform a forced landing. The airplane crashed into a solid waste disposal facility, about 2.3 nautical miles northwest of the departure airport.

First responders arrived immediately after the accident and found only a trace amount of fuel within the confines of the accident site or in the fuel tanks. The only postaccident fire was centered on a small, localized area near the right engine turbocharger. Both main fuel tanks were empty, and the auxiliary bladder tanks were ruptured by impact forces. Examination of both engines revealed no evidence of a preaccident malfunction or anomaly. A surveillance video showed no evidence of smoke or mist trailing the airplane seconds prior to impact. The pilot reported that he departed the airport with 112 gallons of fuel on board. The pilot did not provide evidence of the latest refueling when requested by investigators. The available evidence is consistent with a total loss of engine power to both engines due to fuel exhaustion.

## Probable Cause and Findings

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

The pilot's inadequate preflight fuel planning, which resulted in a total loss of engine power due to fuel exhaustion and a forced landing.

## Findings

**Aircraft**

Fuel - Fluid level

**Personnel issues**

Fuel planning - Pilot

## Factual Information

On January 10, 2021, about 1301 eastern standard time, a Cessna 421B, N421DP, was substantially damaged when it was involved in an accident near Old Bethpage, New York. The pilot was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that he departed runway 32 at Republic Airport (FRG), Farmingdale, New York about 1300. During the initial climbout, about 1,000 ft above ground level, one of the engines stopped producing power. He confirmed that all engine controls were full forward and the main fuel tanks were selected. Immediately thereafter, the remaining engine began to surge, then stopped producing power. He established best glide speed and looked for an area to perform a forced landing. The airplane impacted a solid waste disposal facility, about 2.3 nautical miles northwest of FRG.

Surveillance video captured the airplane during the final seconds before the crash. The airplane approached the ground at a nearly flat pitch angle and struck the ground left wing first. There were no visible smoke, vapors, or mist trailing the airplane. The wing flaps and landing gear were in the retracted positions.

One of the first responders, a firefighter, reported that, upon arrival at the accident site after the accident, he did not see or smell any fuel on the ground. During his travels back and forth to the wreckage, he saw no pooling or buildup of fuel anywhere.

Another first responder reported that, when approaching the wreckage, fuel was dripping from the fuselage, but "...it was a minimal leak." He estimated the drip rate to be 5 drops per minute, and after about 5-10 minutes, the leak stopped. He inspected the wreckage and could visibly see that there was no fuel in the left wing. The right wing was too damaged to go under and he was unable to get a better look.

A Federal Aviation Administration (FAA) inspector who traveled to the scene reported that the airframe sustained "major damage" to the nose and both wings and the fuselage came to rest at a 70° angle. He did not observe any signs of fuel under the wreckage, nor did he smell any fuel near the wreckage. There were no signs of fuel spillage on the street adjacent to the wreckage. There were no blue streaks or signs of fuel leaks on the wings, engines, and fuselage. All fuel tanks were checked and found to be empty of fuel. There was a localized area of postaccident fire damage inside the right engine compartment, immediately forward of the turbocharger.

The wreckage was recovered to a secure storage facility where a more complete examination was performed.

All major structural components of the airplane were accounted for. Flight control continuity was established from the cockpit controls to the elevator and rudder. Aileron continuity was established from the cockpit controls to the center cabin bellcrank.

All five fuel filler caps were observed installed at their respective positions. The right, main fuel tip tank was observed to be intact and no signs of hydraulic deformation were evident. The forward section of the left main tip tank was separated from its attachment fittings. Both tip tank center baffles were intact. Both wing auxiliary (bladder) tanks were compromised from impact forces. The left-wing nacelle locker tank was intact and empty.

Examination of the left engine revealed no external damage, cracks, or oil leakage from the engine case. The engine was turned through manually, and compression and suction were observed on all cylinders. Valve movement was correct. The top spark plugs showed normal color and wear when compared to a Champion inspection chart. Both magnetos were removed and tested; they produced spark to all leads when rotated. The oil filter was removed and opened for examination; no ferrous particulates were observed. The engine-driven fuel pump was removed and rotated; it pumped fuel when tested. Disassembly of the fuel manifold valve revealed no internal damage or contamination. The fuel strainer was removed; there was normal to moderate sediment in the bottom of the bowl. The fuel screen was clean and unobstructed.

Examination of the right engine produced the same results, except for the engine oil filter. The outside of the filter was discolored from the postaccident fire damage. The filter was opened, and the element was free of particulates.

The airplane was equipped with a Shadin fuel management system. The cockpit display unit was removed from the wreckage and sent to the National Transportation Safety Board (NTSB) Vehicle Recorders Laboratory for examination and download of the data. The unit recorded the accident flight. The “FUEL REM” (fuel remaining) indication at the time of the accident was 36.1 gallons. The “FUEL USED” indication was 0.0 gallons. The accuracy of the fuel remaining value was dependent on proper input from the operator.

The pilot reported that he departed FRG with 112 gallons of fuel on board. He was requested, through his attorney, to provide documentation of the airplane’s last refueling, including time, date, location, and amount. He did not provide the requested documentation to the NTSB or the FAA.

## History of Flight

<b>Initial climb</b>	Fuel exhaustion (Defining event)
<b>Emergency descent</b>	Off-field or emergency landing

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	57, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	September 10, 2020
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	October 17, 2020
<b>Flight Time:</b>	1893 hours (Total, all aircraft), 12 hours (Last 90 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N421DP
<b>Model/Series:</b>	421B	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1972	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	421B0353
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	8
<b>Date/Type of Last Inspection:</b>	March 27, 2020 Annual	<b>Certified Max Gross Wt.:</b>	7450 lbs
<b>Time Since Last Inspection:</b>	30 Hrs	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	5331 Hrs as of last inspection	<b>Engine Manufacturer:</b>	CONT MOTOR
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	GTSI0-520-H1B
<b>Registered Owner:</b>		<b>Rated Power:</b>	375 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KFRG,81 ft msl	<b>Distance from Accident Site:</b>	2 Nautical Miles
<b>Observation Time:</b>	13:53 Local	<b>Direction from Accident Site:</b>	139°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	330°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.18 inches Hg	<b>Temperature/Dew Point:</b>	5°C / -7°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Farmingdale, NY (FRG)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Bridgeport, CT (BDR)	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	13:00 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	Republic Airport FRG	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	80 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	14	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	6833 ft / 150 ft	<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Serious	<b>Latitude, Longitude:</b>	40.7598,-73.4465(est)

## Administrative Information

**Investigator In Charge (IIC):** Hicks, Ralph

**Additional Participating Persons:** Marvin Daniels; FAA/FSDO; Farmingdale, NY  
Andrew Hall; Textron Aviation; Wichita, KS

**Original Publish Date:** August 12, 2022

**Investigation Class:** 3

**Note:** The NTSB did not travel to the scene of this accident.

**Investigation Docket:** <https://data.nts.gov/Docket?ProjectID=102509>

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).