Aviation Investigation Final Report

Location:	Belvidere, Tennessee	**Accident Number:**	ERA21LA124
Date & Time:	February 7, 2021, 16:47 Local	**Registration:**	N44776
Aircraft:	Cessna 441	**Aircraft Damage:**	Destroyed
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was conducting a cross-country flight and was beginning an instrument flight rules approach from the south. Weather conditions at the destination airport included a ceiling between 800 and 1,000 ft and light rime icing conditions in clouds; the pilot was aware of these conditions. Elevated, wooded terrain existed along the final approach course.

Radar and automatic dependent surveillance-broadcast data revealed that the airplane crossed the intermediate approach fix at the correct altitude; however, the pilot descended the airplane below the final approach fix altitude about 4 miles before the fix. The airplane continued in a gradual descent until radar contact was lost. No distress calls were received from the airplane before the accident. The airplane crashed on a north-northwesterly heading about 5 miles south of the runway threshold. The elevation at the accident site was about 1,880 ft, which was about 900 ft higher than the airport elevation. Postaccident examination of the airframe, engines, and propellers revealed no evidence of a pre-existing mechanical failure or anomaly that would have precluded normal operation.

Because of the weather conditions at the time of the final approach, the pilot likely attempted to fly the airplane under the weather to visually acquire the runway. The terrain along the final approach course would have been obscured in low clouds at the time, resulting in controlled flight into terrain.

Probable Cause and Findings

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

The pilot's failure to follow the published instrument approach procedure by prematurely descending the airplane below the final approach fix altitude to fly under the low ceiling conditions, which resulted in controlled flight into terrain.

Findings

Aircraft	Altitude - Not attained/maintained
Personnel issues	Incorrect action performance - Pilot
Environmental issues	Obscuration - Contributed to outcome

Factual Information

History of Flight

Approach-IFR final approach	Controlled flight into terr/obj (CFIT) (Defining event)

On February 7, 2021, about 1647 central standard time, a Cessna 441, N44776, was destroyed when it was involved in an accident near Belvidere, Tennessee. The airline transport pilot and the commercial pilot-rated passenger were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to automatic dependent surveillance-broadcast (ADS-B) data, radar, and voice communications obtained from the Federal Aviation Administration (FAA), the flight departed from Thomasville Regional Airport (TVI), Thomasville, Georgia, about 1527 with a destination of Winchester Municipal Airport (BGF), Winchester, Tennessee. The flight was cleared to flight level 220 after departing TVI. About 1616, the flight was cleared to begin the descent into BGF. About 1640, as the airplane was descending to 4,000 ft mean sea level (msl), the pilot established contact with the Bowling Green, Kentucky, radar controller. The flight was then cleared for the area navigation (RNAV) GPS runway 36 approach into BGF. The airplane crossed the intermediate fix at an altitude of about 4,000 ft. The approach procedure allowed the pilot to cross the intermediate fix at or above 4,000 ft and then descend to cross the final approach fix at or above 3,000 ft. The airplane was observed descending slowly from 3,000 ft when the airplane was about 4 nautical miles (nm) south of the final approach fix.

As the airplane descended through 2,300 ft, its radar target disappeared, which was expected due to the limited radar coverage in the area. The last ADS-B target for the airplane showed that it was about 0.6 nm south of the final approach fix and at an altitude of 2,100 ft on a northerly heading. Shortly thereafter, the controller attempted to contact the pilot but received no response. The airplane subsequently impacted trees and terrain about 0.25 nm north-northeast of the final approach fix, which was about 5 nm south of the runway 36 threshold. A postcrash fire ensued. No distress calls were received.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	78,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	February 13, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 18800 hours (Total, all aircraft)		

Pilot-rated passenger Information

Certificate:	Commercial; Flight instructor	**Age:**	58,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	August 5, 2020
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 775 hours (Total, all aircraft)		

The logbooks for the pilot and the pilot-rated passenger were not located after the accident. All flight times were obtained from FAA sources.

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N44776
Model/Series:	441	**Aircraft Category:**	Airplane
Year of Manufacture:	1978	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4410121
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	December 10, 2020 Continuous airworthiness	**Certified Max Gross Wt.:**	9850 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo prop
Airframe Total Time:	9860 Hrs as of last inspection	**Engine Manufacturer:**	AIRESEARCH
ELT:		**Engine Model/Series:**	TPE 331-8
Registered Owner:	On file	**Rated Power:**	715 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BGF,978 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	16:55 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 1000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / None	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	30°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	0°C / -1°C
Precipitation and Obscuration:			
Departure Point:	Thomasville, GA (TVI)	**Type of Flight Plan Filed:**	IFR
Destination:	Winchester, TN (BGF)	**Type of Clearance:**	IFR
Departure Time:	15:27 Local	**Type of Airspace:**	Class G

A dissipating cold frontal boundary stretched eastward from Arkansas to Georgia and then northeastward into the mid-Atlantic states. A trough stretched from northeastern Arkansas to northern Tennessee and West Virginia. The accident site was located to the north of the dissipating cold front on the cold side of the front. The station models surrounding the accident site depicted air temperatures in the low 30s (°F), dew point temperatures in the

upper 20s (°F), temperature-dew point spreads of 2°F or less, an easterly wind at 5 knots, and overcast sky cover.

The weather at BGF at 1635, about 12 minutes before the accident, included a ceiling of 800 ft overcast. The BGF weather at 1655, 8 minutes after the accident, included a ceiling of 1,000 ft overcast. The tops of the clouds were about 4,000 ft, and light rime icing conditions prevailed in the clouds.

The pilot received a weather briefing before the flight. The briefing revealed that the pilot was comfortable with ceilings above 500 ft and that he was aware of the icing conditions at the destination. The pilot reported that he had deicing equipment and “onboard weather” on the accident airplane.

Airport Information

Airport:	Winchester Muni BGF	**Runway Surface Type:**	Asphalt
Airport Elevation:	978 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	36	**IFR Approach:**	RNAV
Runway Length/Width:	5003 ft / 75 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	Unknown
Total Injuries:	2 Fatal	**Latitude, Longitude:**	35.086901,-86.072045(est)

The airplane impacted elevated, wooded terrain at an elevation of about 1,880 ft. The debris path was about 260 ft long. The first piece of wreckage found along the debris path was the left-wing tip lens. The farthest piece of wreckage was a light housing. The debris path was on a magnetic heading of about 342°. The fuselage was found inverted on a heading of 260°.

Tree strikes indicated that the airplane impacted trees in a left-wing, nose-low attitude before rolling inverted and colliding with terrain. The postaccident fire consumed most of the cockpit, fuselage, inboard left wing, and outboard left horizontal stabilizer.

All structural components of the airplane were found within the wreckage debris field. Flight control continuity was established from the control surfaces to the cockpit controls except in areas with tension overload failures. The preaccident position of the main landing gear and the wing flaps could not be determined due to impact and postaccident fire damage. The nose landing gear was in the extended position.

The fuel system components were damaged during the postimpact fire. The left fuel cap was securely installed; the right fuel cap separated during the impact sequence.

Postaccident examination of the airframe revealed no evidence of a pre-existing mechanical failure or anomaly that would have precluded normal operation.
Teardown and examination of both engines found no evidence of a pre-existing malfunction or failure was found that would have precluded normal operation. Both engines exhibited internal signatures consistent with normal operation at impact, including rotational scoring and metal spray on internal components and compressor blades bent opposite the direction of engine rotation. Teardown and examination of both propeller assemblies also found no evidence of a pre-existing malfunction or failure that would have precluded normal operation.

Administrative Information

Investigator In Charge (IIC):	Hicks, Ralph
Additional Participating Persons:	Joseph M Patterson; FAA/FSDO; Nashville, TN Jennifer Barclay; Textron Aviation ; Wichita, KS Dana Metz; Honeywell Aerospace; Phoenix, AZ
Original Publish Date:	June 14, 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=102609

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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.