Aviation Investigation Final Report

Location:	Lawrenceville, Illinois	**Accident Number:**	CEN20LA367
Date & Time:	August 29, 2020, 01:23 Local	**Registration:**	N607SR
Aircraft:	Cirrus SR22	**Aircraft Damage:**	Destroyed
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The instrument-rated pilot was conducting a night instrument approach to an airport 22 nautical miles south from his departure airport in instrument meteorological conditions. Shortly after departure, the pilot established communications with air traffic control and was instructed to maintain 2,600 ft and fly direct to the initial approach fix for the GPS approach. Air traffic data revealed the airplane flew past the initial approach fix before turning south then remained west of the final approach course while inbound on the approach. For the last 2 minutes of the flight, the airplane descended from 2,200 ft to 600 ft at an average rate of 800 ft per minute and an average groundspeed of 116 knots. The airplane impacted trees and terrain about 1.5 miles north of the runway threshold at the destination airport and was destroyed by impact and postimpact fire.

Examination of the accident site revealed multiple tree impacts north of where the main wreckage came to rest. The impact signatures observed on the trees and the wreckage fragmentation pattern were consistent with the airplane having a slight nose-down, near-level attitude with high forward velocity at impact. Postaccident examination of the airframe and engine revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation.

Toxicological testing detected carboxyhemoglobin in the pilot's blood at 11%; however, soot was detected in the pilot's throat during autopsy, indicating the source of the carboxyhemoglobin was likely from the postimpact fire.

The pilot had purchased the airplane about 2 months before the accident and had completed the Cirrus Embark training program, which included ground and flight instruction. The pilot had logged about 46 flight hours, including 9.1 night hours, 1.8 hours in actual instrument conditions, and 7 instrument approaches prior to the day of the accident. The day before the accident, the airplane's GPS/NAV/COM system was changed from a Garmin system to a new

Avidyne system. Based on available information, the accident approach was the pilot's second instrument approach flown with the new system.

Based on the wreckage distribution and the low visibility present at the time of the accident, it is likely that the airplane impacted trees and terrain as a result of the pilot's controlled flight into terrain due to the improper execution of the instrument approach. The pilot's lack of familiarity with a new avionics system likely contributed to his inability to maintain approach parameters in night instrument meteorological conditions.

Probable Cause and Findings

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

The pilot's controlled flight into terrain as a result of his failure to properly execute an instrument approach and maintain clearance from trees in night instrument meteorological conditions. Contributing to the accident was the pilot's unfamiliarity with a newly installed avionics system.

Findings

Environmental issues	Dark - Effect on operation
Environmental issues	Fog - Effect on operation
Environmental issues	Low visibility - Effect on operation
Personnel issues	Monitoring environment - Pilot
Aircraft	Descent/approach/glide path - Not attained/maintained
Aircraft	Altitude - Not attained/maintained

Factual Information

History of Flight

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

On August 29, 2020, about 0123 central daylight time, a Cirrus SR22 airplane, N607SR, was destroyed when it was involved in an accident near Lawrenceville, Illinois. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to air traffic control (ATC) communications and automatic dependent surveillance-broadcast (ADS-B) data, the airplane departed Peter O Knight Airport, Tampa, Florida, about 2046 eastern daylight time (EDT), and landed at Sullivan County Airport (SIV), Sullivan, Indiana, about 0126 EDT. For the arrival into SIV, the pilot completed a RNAV GPS approach to runway 36. At 0211 EDT, the pilot departed SIV on an instrument flight rules (IFR) flight plan after refueling the airplane, en route to Lawrenceville-Vincennes International Airport (LWV), Lawrenceville, Illinois, which was located about 22 nautical miles south.

The airplane departed SIV to the north, established communications with ATC and was instructed to maintain 2,600 ft direct to the JEBDU waypoint, which was the initial approach fix. The controller asked the pilot to verify if he had the weather and NOTAMs at LWV and that he was requesting the RNAV GPS Runway 18 approach. The pilot verified he had the weather and NOTAMs, and the controller cleared the pilot for the approach starting at JEBDU. About 0118, the airplane crossed JEBDU and continued southwest before turning left toward the final approach course. The controller terminated radar service when the airplane was about 13 miles north of LWV (near JEBDU) and instructed the pilot to cancel the IFR flight plan in the air or on the ground at LWV. There were no further communications from the pilot to air traffic control.

From 0118 to 0121, the airplane descended and reduced airspeed as it continued toward LWV and west of the final approach course. About 0121, at LUKMY, the final approach fix, the airplane was at 2,200 ft and west of the LUKMY. For the next 2 minutes, the airplane descended from 2,200 ft to 600 ft at an average rate of 800 ft per minute and an average ground speed of 116 knots. The airplane's final recorded altitude was 600 ft (See figures 1 and 2).

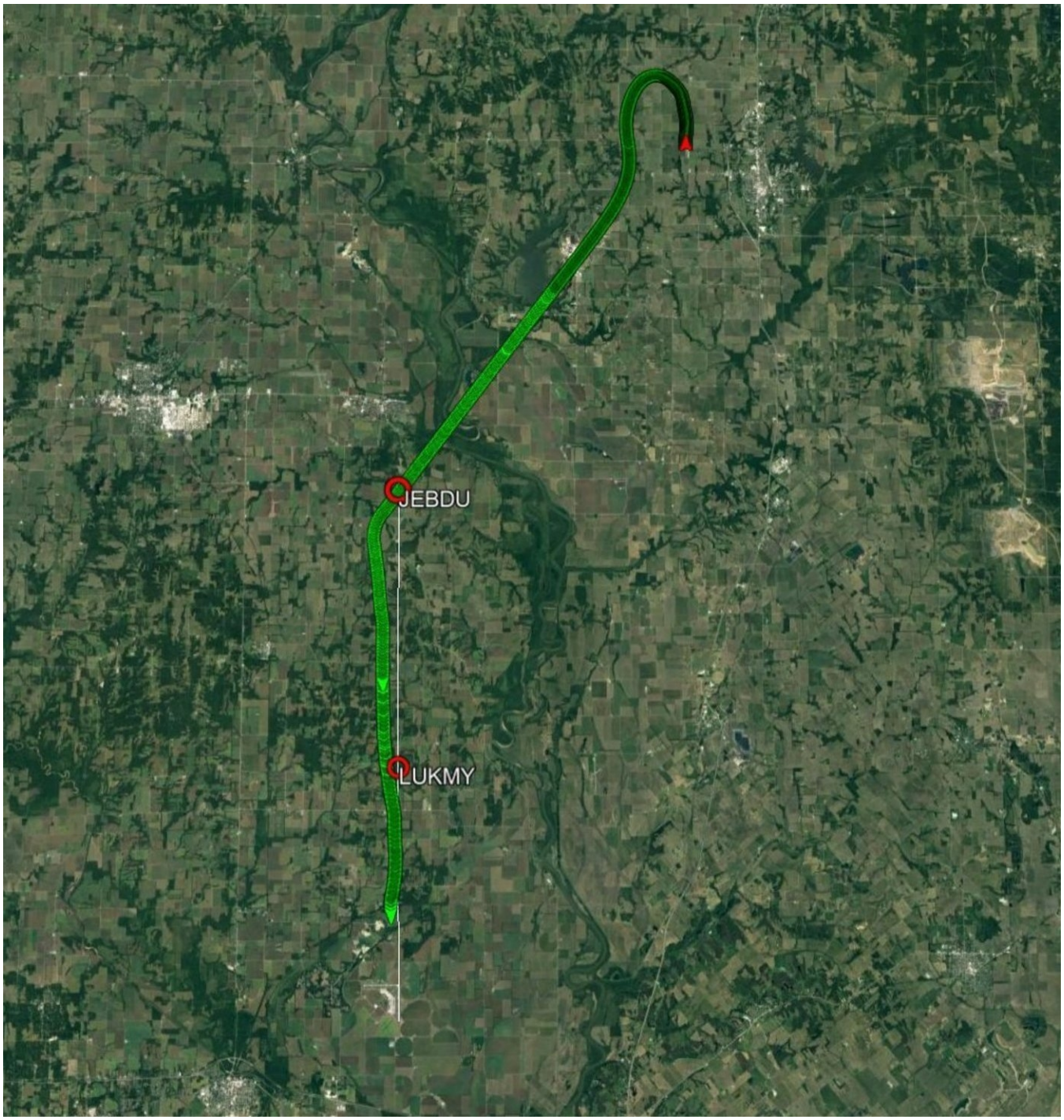

Figure 1. Airplane flight track (Google Earth image)

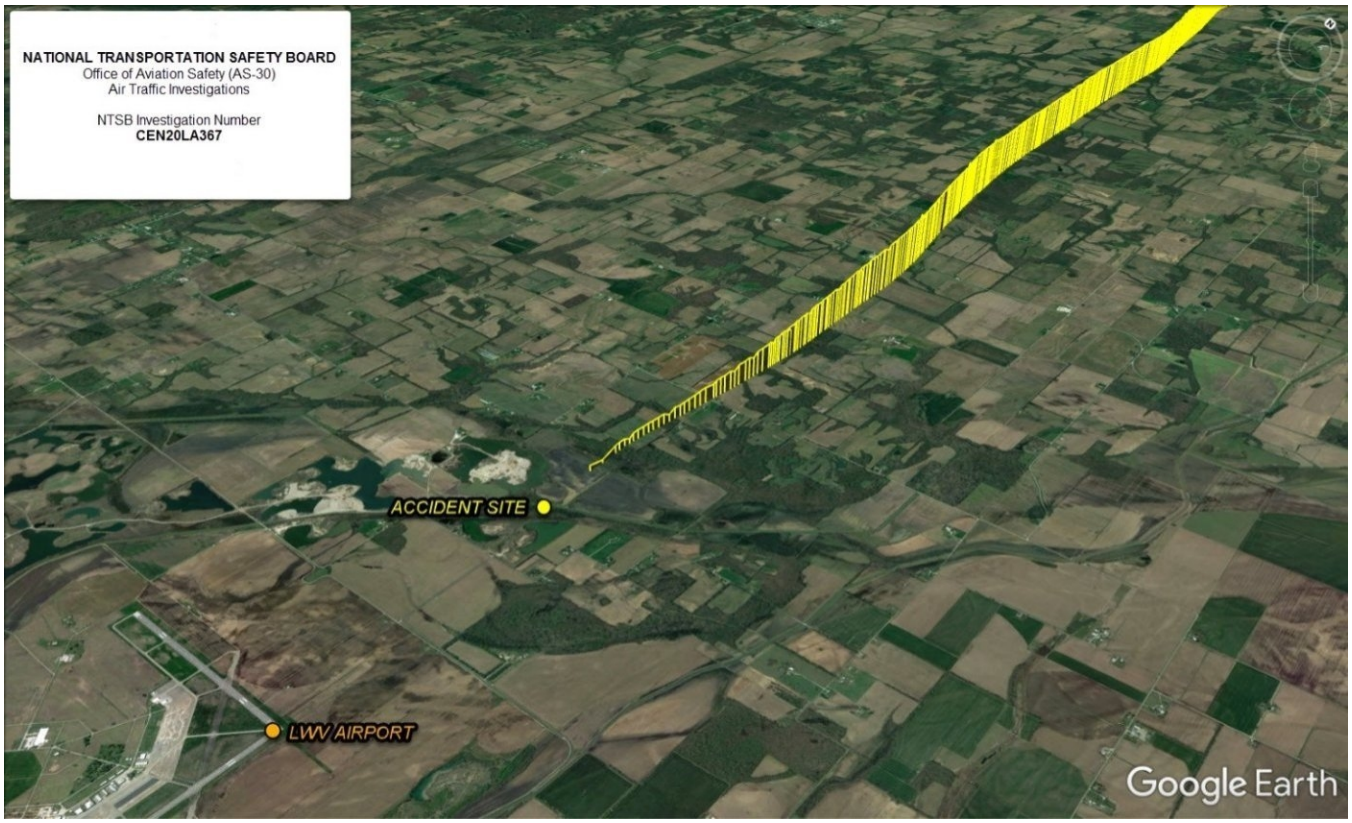

Figure 2. Accident flight track (Google Earth image)

Multiple attempts to contact the pilot by air traffic control were unsuccessful, and an alert notice was issued for the airplane.

According to law enforcement, due to fog conditions, air search and rescue efforts were not initially available until the weather conditions improved. The airplane was located by search and rescue personnel about 0730.

Pilot Information

Certificate:	Private	**Age:**	44,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	December 13, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 23, 2020
Flight Time:	669.7 hours (Total, all aircraft), 45.6 hours (Total, this make and model), 581.2 hours (Pilot In Command, all aircraft), 107.7 hours (Last 90 days, all aircraft), 27.7 hours (Last 30 days, all aircraft)		

The pilot and another individual purchased the airplane on July 16, 2020. Through the Cirrus Embark training program, the pilot, with instruction provided by a Cirrus standardized instructor pilot, completed 4.5 hours of ground school and 12.2 flight hours in the accident airplane. The ground school and training flights were conducted on July 22 and 23, and August 13 and 14.

A review of the pilot's logbook, last entry dated August 27, revealed he had completed 45.6 total flight hours in the accident airplane. Of those total flight hours, 9.1 hours were recorded as night flight time, 1.8 flight hours in actual instrument conditions, and 7 instrument approaches.

The pilot's most recent instrument proficiency check was satisfactorily completed on April 5, 2020, in a Beech BE-36 airplane.

The day prior to the accident, the airplane's GPS/NAV/COM system was changed to a new system. Based on available information, the accident approach was the pilot's second instrument approach flown with the new system.

Aircraft and Owner/Operator Information

Aircraft Make:	Cirrus	**Registration:**	N607SR
Model/Series:	SR22	**Aircraft Category:**	Airplane
Year of Manufacture:	2007	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2532
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	May 1, 2020 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2237.6 Hrs as of last inspection	**Engine Manufacturer:**	Teledyne Continental Motors
ELT:	Installed, not activated	**Engine Model/Series:**	IO-550-N
Registered Owner:	On file	**Rated Power:**	310 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The airplane was equipped with an Avidyne DFC90 Digital Autopilot system.

On August 28, 2020, an avionics company removed the Garmin GNS430W GPS/NAV/COM system, and it was replaced with an Avidyne IFD440 GPS/NAV/COM system.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	LWV,429 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	01:37 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:		**Visibility**	0.5 miles
Lowest Ceiling:	Broken / 200 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.73 inches Hg	**Temperature/Dew Point:**	22°C / 22°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	Sullivan, IN (SIV)	**Type of Flight Plan Filed:**	IFR
Destination:	Lawrenceville, IL (LWV)	**Type of Clearance:**	IFR
Departure Time:	02:11 Local	**Type of Airspace:**	Class E

At 0041 CDT, LWV was reporting marginal VFR conditions, visibility 6 miles, mist, scattered clouds at 300 ft and an overcast ceiling at 1,200 ft.

At 0050 CDT, the pilot obtained a flight plan and weather briefing from ForeFlight; however, it was not determined which aspects of the briefing the pilot reviewed before the flight.

At 0108 CDT, LWV was reporting IFR conditions, visibility 1 ½ miles, mist, broken clouds at 200 ft and 1,100 ft.

At the time of the accident, AIRMET Sierra was current for IFR conditions over the accident site.

Airport Information

Airport:	Lawrenceville-Vincennes Intl LWV	**Runway Surface Type:**	Asphalt
Airport Elevation:	429 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	18	**IFR Approach:**	RNAV
Runway Length/Width:	5199 ft / 100 ft	**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	38.789722,-87.605003(est)

The airplane impacted trees and terrain about 1.5 miles north of the SIV runway 18 threshold. Examination of the accident site by a responding Federal Aviation Administration (FAA) inspector revealed multiple tree impacts north of the main wreckage.

Several sections of wing skin and wing spar debris were located between the tree impacts and the main wreckage. The debris path measured about 250 ft in length on a measured magnetic heading of 175°. The main wreckage came to rest in wooded terrain, and a post impact fire consumed a majority of the fuselage, empennage, and fragmented wing sections.

There was no evidence of an in-flight Cirrus Airframe Parachute System deployment. A separated section of the flight control cables was found tangled in the trees near the initial impact.

On October 20, 2020, the airplane was examined by a National Transportation Safety Board investigator and a technical representative of Cirrus Aircraft. The airplane's primary and multifunction displays were identified in the wreckage; however, no nonvolatile memory was available due to thermal and impact damage. Flight control continuity was not confirmed due to multiple separations and thermal damage. Postaccident examination of the airframe, engine, and propeller revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation.

Medical and Pathological Information

According to the autopsy report performed for the Lawrence County, Illinois Coroner's Office, the cause of death was impact trauma with fire due to an airplane crash, and the manner of death was accident. The medical examiner detected soot in the pilot's airways. No significant natural disease was identified by the medical examiner.

Toxicological testing was performed on the pilot's specimens at the FAA Forensic Sciences Laboratory. The testing detected carboxyhemoglobin in the pilot's blood at 11%; no ethanol was detected in his blood, and no tested-for drugs were detected in urine.

Carbon monoxide (CO) is an odorless, colorless gas that is a byproduct of combustion, such as from an exhaust system or fire. Carboxyhemoglobin is formed when CO binds to hemoglobin, the protein in red blood cells that carries oxygen. The degree of carboxyhemoglobin formation is related to the concentration of CO and the duration of exposure. The binding of CO impairs oxygen transport and use, and results in symptoms of exposure that can be mild and vague, such as headache and fatigue, to impairing and incapacitating. While poisoning is considered to have occurred at carboxyhemoglobin levels above 10%, non-smokers living in urban areas may have levels of 5% and heavy smokers can have levels as high as 15%. Severe poisoning is usually associated with levels over 20%.

Administrative Information

Investigator In Charge (IIC):	Sauer, Aaron
Additional Participating Persons:	Nicholas Loftus; FAA; Springfield, IL Brannon Mayer; Cirrus Aircraft; Duluth, MN Kurt Gibson; Continental Aerospace Technologies; Mobile, AL Fred Barber; Avidyne Corporation; Melbourne, FL
Original Publish Date:	June 7, 2022
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=101881