Aviation Investigation Final Report

Location:	Bolingbrook, Illinois	**Accident Number:**	CEN13FA558
Date & Time:	September 25, 2013, 17:15 Local	**Registration:**	N406DC
Aircraft:	CIRRUS DESIGN CORP SR20	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was captured on airport surveillance cameras as the pilot attempted to land. A review of the video revealed that the airplane touched down multiple times about halfway down the runway. During the go-around, witnesses reported that they observed the airplane depart the runway and make a left turn at low altitude. The airplane descended with the wings level as it flew over a few buildings. The airplane then struck a tree and a light pole, and then impacted terrain next to a bank building. A postimpact fire ensued and consumed most of the airplane. The slash marks found in the dirt next to the main wreckage were consistent with the propeller rotating at the time of impact. A postaccident examination of the airframe and engine did not reveal any evidence of mechanical malfunctions or failures that would have precluded normal operation.

The substances found in the pilot's toxicology report were consistent with a resuscitation effort. Based on the available medical history, physical examinations, toxicology and autopsy, the pilot had no known or reported pre-existing medical issues that would have posed a hazard to flight safety.

A witness who spoke with the pilot immediately after the accident stated that the pilot told him that the airplane's speed was too fast (witnesses stated that he was landing with a tailwind), so he decided to go around and attempt the landing again. He then stated that as he was banking, he lost power and control of the aircraft. Based on the evidence, it is likely that the pilot lost control of the airplane during the go-around and subsequently impacted 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 maintain control of the airplane during a go-around.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Lateral/bank control - Not attained/maintained
Aircraft	Altitude - Not attained/maintained

Factual Information

History of Flight

Approach-VFR go-around	Collision with terr/obj (non-CFIT)
Approach-VFR go-around	Loss of control in flight (Defining event)

On September 25, 2013, about 1715 central daylight time (CDT), a Cirrus SR20 airplane, N406DC, impacted terrain after executing a go-around from Bolingbrook's Clow International Airport, (1C5), Bolingbrook, Illinois. The pilot and one passenger were fatally injured. The airplane was destroyed. The airplane was registered to GDK International LLC and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which operated without a flight plan. The flight originated from Georgetown Scott County Airport (27K), Georgetown, Kentucky, at 1505 eastern daylight time (EDT) and was en route to 1C5.

The airplane was captured on airport surveillance cameras as the pilot attempted to land on runway 18. A review of the video revealed that the airplane touched down multiple times at least half way down the runway. The airplane was observed to takeoff from the runway and then made a left turn. The airplane then descended and continued out of the camera's field of view.

Witnesses reported that they observed the airplane depart the runway and make a left turn at a low altitude. The airplane continued to descend with the wings nearly level and flying northbound. After the airplane flew over the last building the wing struck a tree and a light pole before impacting terrain next to a building. A post impact fire ensued and consumed most of the airplane.

In a statement provided by one witness, a Federal Aviation Administration Designated Pilot Examiner, who observed the landing attempt and go-around, the airplane touched down three fifths to three quarters of the way down the runway and bounced. It appeared to her that after the bounced landing the pilot increased engine power and started a climb and then rolled left. The accident pilot appeared to then regain control and level the airplane's wings. The airplane continued out of the witness' view.

According to a statement provided by another witness, an off-duty fire department Lieutenant, who observed the airplane flying eastbound after departing 1C5, the airplane was at a low altitude and the wings were nearly perpendicular to the ground. The airplane disappeared from view and then he saw several large plumes of black smoke. When he arrived at the wreckage he saw the pilot on the ground so he began to question him. The pilot stated that he was flying in from Kentucky and that on his first attempt to land at 1C5, his speed was too fast so he decided to go-around and attempt the landing again. He then stated that as he was banking, he lost power and control of the airplane.

The pilot succumbed to his serious injuries at the hospital hours after the accident. The only accident information provided by the pilot was to the witness on scene.

Pilot Information

Certificate:	Private	**Age:**	63
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	November 2, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 300 hours (Total, all aircraft), 90 hours (Total, this make and model)		

Passenger Information

Certificate:		**Age:**	
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

The pilot, age 63, held a private pilot certificate for airplane single engine land. On November 11, 2011, the pilot applied for a Federal Aviation Administration (FAA) medical certificate. On the application the pilot reported his flight experience as 200 total flight hours and 40 hours in preceding six months. The pilot was issued a third class limited medical certificate with the limitations "must wear corrective lenses for near and distant vision."

According to the pilot's airplane insurance provider, the pilot reported 299 total flight hours as of December 31, 2012.

Aircraft and Owner/Operator Information

Aircraft Make:	CIRRUS DESIGN CORP	**Registration:**	N406DC
Model/Series:	SR20	**Aircraft Category:**	Airplane
Year of Manufacture:	2004	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1475
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	January 10, 2013 Annual	**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental Motors
ELT:	Not installed	**Engine Model/Series:**	IO-360 ES
Registered Owner:	On file	**Rated Power:**	210 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The Cirrus SR20 was a four-seat, low wing, fixed gear, single engine airplane which was manufactured in 2004. The airplane was powered by a Continental Motors IO 360-ES engine, rated at 210 horsepower and drove a 3 blade metal Hartzell propeller.

An examination of the airplane's logbook revealed that an annual inspection was completed on January 10, 2013 at 1,399 hours on the Hobbs meter.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KLOT	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	17:15 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.94 inches Hg	**Temperature/Dew Point:**	21°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	GEORGETOWN, KY (27K)	**Type of Flight Plan Filed:**	None
Destination:	BOLINGBROOK, IL (1C5)	**Type of Clearance:**	VFR flight following
Departure Time:	15:05 Local	**Type of Airspace:**	

At 1715, an automated weather report at the Lewis University Airport (KLOT), which was 5 miles south of the accident site, reported wind from 070 degrees at 8 knots, a clear sky,

temperature 70 degrees Fahrenheit (F), dew point 48 degrees F, and an altimeter setting of 29.94 inches of mercury.

Airport Information

Airport:	BOLINGBROOK'S CLOW INTL 1C5	**Runway Surface Type:**	Asphalt
Airport Elevation:	670 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	18	**IFR Approach:**	None
Runway Length/Width:	3362 ft / 50 ft	**VFR Approach/Landing:**	Full stop;Traffic pattern

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:**	On-ground
Total Injuries:	2 Fatal	**Latitude, Longitude:**	41.691112,-88.125

The accident was located in front of a bank building, which was 0.2 nautical miles east of the departure end of runway 18 at 1C5 at an elevation of 661 feet.

During the accident sequence, the airplane descended toward the bank building when it collided with a tree top and then a light pole. The airplane impacted the ground next to a small tree and came to rest upright on a heading of 350 degrees. The engine separated from the fuselage and continued into the bank parking lot. Slash marks were present in the dirt next to the main wreckage. A postimpact fire consumed a majority of the airplane.

A postaccident examination of the airplane revealed that a 4 foot outboard section of the right wing tip separated from the inboard section and remained mostly intact. The left aileron was partially damaged by fire but was still recognizable. The cowling and engine mount were separated from the fuselage and were not damaged by fire. The nose landing gear remained attached to the cowling area and was not damaged by fire. The main landing gear remained attached to the fuselage and was damaged in the fire.

The rudder and elevator control cables were separated in tension overload. The right aileron control cable was separated in tension overload about 2 feet inboard of the right aileron actuation pulley. The left aileron control cable continuity was confirmed. The flight control cables and the associated hardware remained attached to the master pulley in the cockpit area. The elevator trim position could not be determined as the pitch trim motor was consumed by fire. The roll trim was between the neutral and the full left trim position. Based on the flap actuator position, the flaps would have been in the full up

position.

The Cirrus Airframe Parachute System (CAPS) rocket and parachute were found in the main wreckage. The position of the CAPS activation handle could not be verified due to thermal damage. The parachute was found in a packed state and received thermal damage. The CAPS activation cable was examined and no stretching was observed. The rocket motor was found with the propellant expended.

The engine continued in the directional of travel and came to rest about 20 yards forward of the main wreckage. The three propeller blades were labeled A, B and C for identification purposes only. Blade A exhibited leading edge damage, chordwise scratches and was bent slightly aft. Blade B was bent aft and exhibited leading edge damage and chordwise scratches. Blade C exhibited leading edge damage and was bent forward. The left magneto was separated from its mount; when actuated by hand, the magneto's impulse coupling engaged. The ignition harness was impact damaged. All 4 engine mount legs were impact damaged. The oil sump was breached and the oil filter adapter was impacted damaged. The number 1 spark plug was impact damaged.

Medical and Pathological Information

An autopsy was performed on the pilot by the Cook County Medical Examiner, Chicago, Illinois, on September 27, 2013. The cause of death was thermal injuries. The FAA Civil Aeromedical Institute completed a Final Forensic Toxicology Fatal Accident Report and the following Tested-for-Drugs were found:

>> 148 (ng/mL, ng/g) Fentanyl detected in Blood

>> 89 (ng/mL, ng/g) Fentanyl detected in Liver

>> Lidocaine detected in Liver

>> Lidocaine detected in Blood

>> 1.372 (ug/mL, ug/g) Midazolam detected in Blood

>> Midazolam detected in Liver

The substances were administered to the pilot during medical treatment after the accident.

An autopsy was performed on the passenger by the Will County Coroner, Joliet, Illinois, on September 26, 2013. The cause of death was thermal injuries. The FAA Civil Aeromedical Institute completed a Final Forensic Toxicology Fatal Accident Report and the following was found:

>> 22 (%) CARBON MONOXIDE detected in Blood

Tests and Research

Engine Examination and Test Run

On December 17, 2013, the engine was examined at Continental Motors, Inc., under the supervision of the NTSB investigator-in-charge. The examination revealed external impact damage concentrated to aft and under side of the engine. The left magneto sustained impact damage so it was tested on a magneto test bench and then disassembled with no anomalies noted. The engine was subjected to functional tests in an engine test cell per the manufacturer test procedures. The engine start and test were completed with no anomalies noted.

Additional Information

Avidyne Primary Flight Display (PFD) and Multi-function Display (MFD)

The PFD and MFD were damaged from the postimpact fire. The recorded data from the devices was not able to be retrieved due to the extensive fire damage.

Flight Service Information

At 1104 eastern daylight time the pilot called the Washington FAA Contract Flight Service Station Preflight position by telephone and obtained a preflight pilot briefing for a visual flight rules (VFR) flight from 27K to 1C5.

Air Traffic Control (ATC)

During the flight, from 1506 to 1710 CDT, the pilot was in contact with ATC and was directed to maintain visual meteorological conditions throughout the entire flight. During the descent and approach into 1C5, the pilot requested multiple altitude and frequency changes. The air traffic controllers advised the pilot that he could descend at his discretion and to maintain VFR. The pilot continued to request approval for altitude changes.

Radar Summary (All times below are central daylight time unless otherwise specified)

1505 - The pilot departed the 27K from runway 03.

1506 - The pilot contacted Lexington approach, reported departing 27K and requested flight following to 1C5. Lexington Approach control assigned him beacon code 6752.

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1710:49 - The airplane was 1.5 nautical miles southeast of 1C5. At this time the pilot acknowledged the frequency change approval.

1710:58 - The pilot changed transponder code to 1200 and turned onto the left downwind leg for runway 18 at the 1C5. On the downwind leg, he flew at 1,400 feet above ground level (AGL) with an average ground speed of 109 knots.

1712:12 - The airplane was 1.3 nautical miles north of the runway 18 threshold; the pilot started a 180 degree left turn to final course at an average rate of 5.5 degrees per second.

1512:26 - The pilot started his descent out of 2,100 feet to land at 1C5.

1712:44 - The pilot stopped his turn to final about 1.1 nautical miles north of the runway 18 threshold.

1713:08 - The last radar return recorded for the airplane occurred at 500 feet AGL, 0.4 nautical miles north of the runway 18 threshold.

The data revealed that from 1712:26 to 1713:08, the airplane had an average rate of descent of 1,301 feet per minute and an average ground speed of 117 knots on final approach.

Administrative Information

Investigator In Charge (IIC):	Lindberg, Joshua
Additional Participating Persons:	Chris Lang; Continental Motors; Mobile, AL Brannon Mayer; Cirrus Aircraft; Duluth, MN Pat Knight; Federal Aviation Administration; DuPage, IL Robert Stack; Federal Aviation Administration; DuPage, IL
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