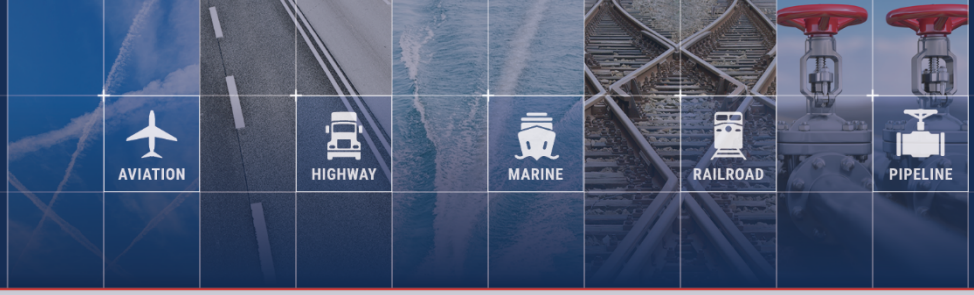

Aviation Investigation Factual Report

Location:	Albany, Ohio	**Accident Number:**	CEN14FA185
Date & Time:	April 5, 2014, 18:30 Local	**Registration:**	N8259R
Aircraft:	Bellanca 17-30A	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

On April 5, 2014, about 1830 eastern daylight time, a Bellanca 17-30A airplane, N8259R, impacted trees and terrain while on approach to runway 7 at the Ohio University Airport-Snyder Field (UNI), near Albany, Ohio. The airline transport rated pilot was fatally injured. The airplane sustained substantial wing and fuselage damage. The flight was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Day visual flight rules (VFR) conditions prevailed for the flight, which did not operate on a flight plan. The flight originated from the Tri-Cities Regional Airport (TRI), near Blountville, Tennessee about 1715, and was destined for UNI.

The pilot was flying the airplane to its based location following a cross-country flight. Fueling service receipts showed and witnesses at TRI reported that about 1500 the airplane was serviced with 36 gallons of aviation gasoline (avgas), which complied with the pilot's request to "top all tanks." A witness said that the pilot observed the fuel service and rechecked the securing of the airplane's filler neck caps.

Flight service had no record of a pilot representing N8259R requesting a weather briefing or filing a flight plan in reference to the flight. The pilot used VFR flight following services from air traffic control (ATC) during the flight to UNI. According to information from the Federal Aviation Administration (FAA), about 12 miles from UNI, the pilot reported to the Huntington, West Virginia, ATC approach controller that he had UNI in sight. The ATC controller subsequently terminated flight following services and advised the pilot to switch to the advisory frequency for UNI.

A witness, who lived across and south of US Highway 50 by the Diamond Stone Quarries, heard and saw the airplane fly by at the end of her driveway. She said that the airplane's left wing was low and the right wing was high. She stated that the airplane hit a neighbor's tree at the end of her driveway. The engine was running "normal" and had a constant pitch sound. The airplane was described as flying up and down sideways. She subsequently contacted 9-1-1.

According to witness statements given to the Ohio State Highway Patrol, a group of witness who were in a vehicle traveling on US Highway 50 near the stone quarries reported that the airplane was traveling in the direction towards the airport. The weather was sunny with "some clouds." They saw the airplane "nose dive" onto the quarry property. The airplane's altitude was "low" and the back of the airplane hit a tree. The airplane subsequently impacted the ground. A witness in the vehicle said that the left side of the airplane made contact with the ground and that the airplane was "angled pretty hard" when it impacted the ground. Another witness in the car said that the airplane engine was making a "buzzing" noise after the "crash" and he did not hear anything before it crashed.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	73
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 28, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 11, 2013
Flight Time:	25075 hours (Total, all aircraft)		

The pilot held a FAA airline transport pilot certificate with an airplane multi engine land rating. He held commercial pilot privileges for single-engine land airplanes. The most recent medical certificate issued to the pilot was a third-class medical certificate issued on October 28, 2013, with limitations for wearing corrective lenses. On the application for this medical certificate, he reported a history of diabetes requiring oral medication and this medical certificate was issued as a time-limited special issuance certificate. The pilot reported that he had accumulated 25,075 hours of total flight time and 20 hours of flight time in the six months prior to the application. A logbook endorsement showed the pilot completed a flight review on June 11, 2013.

Aircraft and Owner/Operator Information

Aircraft Make:	Bellanca	**Registration:**	N8259R
Model/Series:	17-30A	**Aircraft Category:**	Airplane
Year of Manufacture:	1972	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	30475
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 1, 2013 Annual	**Certified Max Gross Wt.:**	3200 lbs
Time Since Last Inspection:	23 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3891 Hrs at time of accident	**Engine Manufacturer:**	CONT MOTOR
ELT:	C91A installed, not activated	**Engine Model/Series:**	IO 520 DCK
Registered Owner:	On file	**Rated Power:**	285 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

N8259R was a 1972 model Bellanca 17-30A airplane with serial number 30475. The airplane was a single-engine, low wing monoplane with an all-wood wing construction and a fabric covered steel-tube fuselage. The four-seat airplane was equipped with retractable landing gear and a constant speed three-bladed propeller. The FAA issued a Standard Airworthiness Certificate for the airplane on August 25, 1972.

According to a copy of an airplane logbook excerpt, the airplane's last annual inspection was completed on October 1, 2013. An endorsement indicated the airplane's airframe accumulated a total time of 3,867.69 hours on that date.

According to its data plate, the engine was a fuel-injected, six cylinder, Continental IO-520-DCK model marked with serial number 158316-6-D. It was rated at 300-horsepower for takeoff and 285-horsepower for maximum continuous operations. The engine had accumulated 3,746.54 hours of total time and had accumulated 676.18 hours since overhaul.

The engine drove a three-bladed Hartzell HC-C3YF-1RF propeller with serial number EC75. According to a copy of an airplane logbook excerpt, the propeller had accumulated an unknown total time and had accumulated 688.94 hours since its last overhaul.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	UNI,766 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	18:35 Local	**Direction from Accident Site:**	93°
Lowest Cloud Condition:	Scattered / 5000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	9°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	BRISTOL/JOHNSON/KINGS PORT, TN (TRI)	**Type of Flight Plan Filed:**	None
Destination:	Albany, OH (UNI)	**Type of Clearance:**	None
Departure Time:	17:15 Local	**Type of Airspace:**	

At 1835, the recorded weather at UNI was: Wind 340 degrees at 4 knots; visibility 10 statute miles; sky condition scattered clouds at 5,000 feet; temperature 9 degrees C; dew point -3 degrees C; altimeter 30.15 inches of mercury.

Airport Information

Airport:	OHIO UNIVERSITY SNYDER FIELD UNI	**Runway Surface Type:**	Asphalt
Airport Elevation:	766 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	07	**IFR Approach:**	None
Runway Length/Width:	5600 ft / 100 ft	**VFR Approach/Landing:**	Full stop

UNI was a public, non-towered airport, which was owned by Ohio University. The airport had a surveyed elevation of 766 feet above mean sea level. The airport's runway 7/25 was a 5,600 feet by 100 feet runway with an asphalt surface. The airport listed 123.075 megahertz as its common traffic advisory frequency. Runway 7 had a four-light precision approach path indicator (PAPI) on located on the left side of the runway and that PAPI provided a 3.00-degree glide path. Runway 7 obstruction remarks listed 89-foot trees, located 1,560 feet from the runway, and 618 feet left of centerline, which indicated a 15:1 slope to clear that obstruction. It further indicated that runway 7's threshold was displaced due to the 89-foot trees.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	39.212501,-82.243057

The main airplane wreckage came to rest inverted, next to a tree line that bounded the quarry property north of US Highway 50. This was about 1,970 feet northwest of the start of runway 7's prepared surface and about 2,300 feet northwest of runway 7's displaced threshold. Trees on the quarry property exhibited broken and cut branches along a path about 300 feet long. The color of the separation surfaces of these broken and cut branches was consistent with fresh separations. Along this path of separated branches were debris items to include red broken glass fragments, the left outboard wing tip, colored flakes consistent with paint chips, wood fragments, and clear plastic fragments. Also on this path, a ground scar was observed that paralleled Highway 50. A depression and displaced tree roots and trunks were observed east of the ground scar. The propeller was found mostly below the surface of the depression with one blade tip exposed. Charred tree trunks were visible on the east side of the depression. The three propeller blades remained attached to their hub. The crankshaft propeller flange separated from its crankshaft. The distance and direction from the start of the ground scar to the propeller was about 35 feet and was 080 degrees respectively. Tree branches in the area of the ground scar were cut on a diagonal and one cut surface had a color transfer consistent with the black color from the flat face of a propeller blade. The inverted main wreckage was found about 20 feet east of the depression. The right wingtip was found in the area of the main wreckage. The engine was displaced rearward onto its firewall and the firewall was deformed rearward into cabin space. The left outboard fuel tank was separated from

its wing. Fuel smell was present at the accident site. Fuel was observed exiting from the covers over the filler necks caps. The amount of fuel on-scene could not be determined due to the fuel leaking from the covers. The battery was subsequently disconnected. The emergency locator transmitter's switch was found in its off position.

The tree at the end of the witnesses' driveway was examined. Tree branches were found to be broken and the dark color of their separations was not consistent with recent separations. Additionally no airplane debris was found under the separated branches at this location on the south side of Highway 50. The Fire Chief was asked where his first responders found separated debris from the airplane and he indicated that the debris was found on quarry property, which was north of Highway 50.

The airplane wreckage was relocated to a hangar for examination. Flight control cable continuity was traced from the empennage flight control surfaces up to the cockpit area under the control yokes. Both aileron control cables' continuity was traced to their respective bellcranks and their cables moved when the yoke tube was rotated by hand. Push pull tubes, attached to the bellcranks, moved when their aileron cables were pulled. The left wing tube separated from its out board section in overload. No preimpact anomalies were detected that would have precluded flight control. Engine control cables from the cockpit controls to the engine were traced and no preimpact anomalies were detected that would have prevented engine control. The fuel selectors were found in thier detents and a liquid consistent with avgas exited the fuel hose to the engine driven fuel pump when air pressure was applied to the left inboard fuel tank filler neck. The electric fuel pump pumped a liquid consistent with avgas from the same fuel hose when electric power was applied to the pump. The airplane's tachometer read 3,891.10 and the altimeter's Kollsman window indicated 30.14 inches of mercury.

The propeller was disassembled by a manufacturer's safety investigator under supervision of the National Transportation Safety Board (NTSB) investigator in charge and the examination revealed no preimpact anomalies that would have precluded normal propeller operation.

The engine was subsequently separated from the airframe for a field examination. A manufacturer's safety investigator and the NTSB investigator in charge examined the engine. All six cylinders remained attached and intact except for impact damage to the cooling fins on the front section of the number six cylinder. The ignition harness was undamaged and all ignition leads remained attached to their respective sparkplugs. Top sparkplugs were removed and inspected. Each sparkplug exhibited "normal" combustion discoloring and a "worn out, normal condition" when compared to a Champion Check-A-Plug chart. All cylinders were inspected using a lighted borescope. Valves and piston faces exhibited normal combustion deposits. Valve train continuity was confirmed when each cylinder produced a thumb compression as the engine was rotated by hand. Both right and left magnetos remained intact and attached at their respective mounts. When the engine was rotated by hand, the impulse couplings could be heard to release and spark was produced to all upper sparkplug leads. The muffler and its heat shield were deformed and compromised. The heat shield was removed and examined. The heat shield exhibited no signs of an exhaust leak. The fuel manifold remained intact and connected to each cylinders fuel injector through metal fuel lines. The fuel manifold data plate was missing. The fuel manifold top cover was removed and a liquid consistent with avgas was present. Sar-Gel paste was used to test the residual fuel and no water was detected. The fuel-metering unit was intact. The fuel strainer was found to be free of debris when it was removed from the fuel-metering unit. The engine driven fuel pump remained attached and intact. The fuel pump was removed and its drive link was found intact. The pump was free

to rotate by hand without binding. A small amount of residual liquid consistent with avgas was found in the fuel hose connecting the engine driven fuel pump and the fuel manifold. A sample of this fuel was captured and tested for water using Sar-Gel paste. No water was detected. The front mounted oil cooler appears to have been pushed rearward. The propeller governor remained intact and attached to its mount. The induction system was compromised and sections of it remained attached to the engine.

Medical and Pathological Information

An autopsy was performed on the pilot by the Athens County Coroner's Office. The cause of death was listed as multiple trauma injuries.

The FAA Civil Aerospace Medical Institute prepared a Final Forensic Toxicology Accident Report. The report showed:

12 (mg/dl) Glucose detected in Urine
6.1 (%) Hemoglobin A1C detected in Blood

Tests and Research

A Garmin GPS 295 found in the wreckage was shipped to the NTSB Recorder Laboratory. A recorder specialist examined the GPS unit and it did not contain any data in reference to the accident flight.

The engine was shipped to its manufacturer for a detailed examination under the supervision of the NTSB investigator in charge. The engine had sustained impact damage and items were replaced, to include the induction Y-pipe, intake risers, engine mounts, and the starter adapter. The engine driven fuel pump's relief valve cover assembly was crushed and was replaced. The separated propeller flange and a centering pilot shaft were welded to the engine's crankshaft separation point. The engine was test run and it ran up to and at full throttle. The engine's throttle was advanced multiple times, from idle to full throttle, and the engine accelerated without hesitation. No engine pre-impact anomalies were detected during the engine run.

Additional Information

A member of the pilot's family supplied a 72-hour history summary. According to the summary, the pilot was in bed by 2300 and was up in time to catch the 0800 bus to "Sun 'n Fun." On the night of April 4, 2014, the pilot stayed up until 0030 completing flight planning for the return trip to UNI. He took off

from Sun 'n Fun at 1005 and landed at Dublin, Georgia, about 1210 to refuel and take a break. The pilot had meals during the prior days and he had a diet coke and two packs of snack crackers while at Dublin. He departed for TRI at 1350 and arrived at TRI about 1520. While at TRI, he had two cups of coffee and a pack of crackers while relaxing and visiting with family.

The family member indicated that he had flown in this accident airplane many times, knew its nuances, and any unusual tendencies it had. While flying with the pilot during this trip, he noticed that it seemed harder to start the engine than usual. At Dublin, it required the boost pump to be "left running" for the engine to start. During cruise to and from Sun 'n Fun, he observed that if the engine was leaned below 14 gallons per hour there was a distinct engine vibration.

When starting the engine at TRI, he observed fuel coming from under the cowling and dripping down on the tarmac. He attributed it to the fuel boost primer and opted not to interrupt the pilot as he prepped for departure in the cockpit. After engine start, the leak stopped and the engine ran normally all the way through runup and magneto check. He stated that there were no other engine or airframe issues. No oil was added throughout this trip and the airplane's fuel tanks were topped off at every stop. The 72-hour history is appended to the docket associated with this case.

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Robert Quesnel; Federal Aviation Administration; Columbus, OH Dan Boggs; Hartzell Propellers; Piqua, OH Mike Council; Continental Motors; Mobile, AL
Report Date:	October 1, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=89010