



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Richmond, MO	<b>Accident Number:</b>	CEN16FA037
<b>Date &amp; Time:</b>	11/10/2015, 1858 CST	<b>Registration:</b>	N96381
<b>Aircraft:</b>	CESSNA 182Q	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (partial)	<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

As the airplane neared the destination airport in dark night visual meteorological conditions at the conclusion of a cross-country flight, the private pilot reported a partial loss of engine power. The air traffic controller provided the pilot with a vector and information for the nearest airport, which, according to his display, was equipped with a lighted, grass runway. Although the airport was equipped with a rotating beacon and runway lighting, these lights could not be pilot-operated and required manual activation by the airport owner. This information was not available to the controller. In attempting to assist the pilot in restoring engine power, the pilot-rated controller suggested that the pilot turn off the carburetor heat. Eventually, radar contact with the airplane was lost, and the controller continued to provide vectors to the pilot while also attempting to obtain more information about the airport, including a common traffic advisory frequency to activate the lighting system. Radio contact was lost with the airplane about 7 minutes after the loss of radar contact.

The airplane impacted trees and terrain about 1 nautical mile from the diversionary airport. All of the engine's spark plugs displayed carbon fouling, consistent with an overly rich fuel-air mixture. No other anomalies were detected with the airframe or engine that would have precluded normal operation. Although the airplane was operating in an area conducive to the formation of carburetor icing at glide power, it could not be determined if the engine experienced carburetor icing at the time the pilot reported that she had engine problems because she had the carburetor heat on and was likely operating at cruise power. Additionally, the effect of the controller's suggestion to turn off the carburetor heat could not be determined.

## Probable Cause and Findings

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

The airplane's impact with trees and terrain during an off-airport forced landing in dark night conditions following a partial loss of engine power. The reason for the partial loss of engine power could not be determined because postaccident examination did not reveal any mechanical anomalies that would have precluded normal operation.

## Findings

<b>Environmental issues</b>	Tree(s) - Contributed to outcome Dark - Effect on personnel
<b>Not determined</b>	Not determined - Unknown/Not determined (Cause)

## Factual Information

### History of Flight

Enroute-cruise	Loss of engine power (partial) (Defining event)
Approach	Collision during takeoff/land

On November 10, 2015, about 1858 central standard time, a Cessna 182Q, N96381, impacted trees and terrain during an off-airport forced landing near Richmond, Missouri. The pilot was fatally injured and the airplane was substantially damaged. The airplane was registered to 96381 Inc., Ortonville, Michigan, and was operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Dark night visual meteorological conditions prevailed and no flight plan was filed. The airplane departed Oakland County International Airport (PTK), Pontiac, Michigan, about 1530 eastern standard time, and was destined for Charles B. Wheeler Downtown Airport (MKC), Kansas City, Missouri.

The pilot was receiving visual flight rules flight following services from air traffic control. At 1848:46 (all times are central standard time unless otherwise noted), about 40 nautical miles northwest of MKC, the pilot contacted the Kansas City International Airport departure east radar air traffic controller. The controller responded with the MKC landing runway information and advised the current Automatic Terminal Information Service code. The pilot replied that she had the current weather information.

At 1849:44 while heading approximately 245°, the pilot transmitted, "...I need some help." After the controller acknowledged, the pilot said, "I need an airport right now, I've lost a lot of my engine power, and I don't know why." The controller advised the pilot of an airport about 5 miles southwest of her position (Curtis Field Airport, 8MO3), provided a vector of 225°, and stated that the runway was 2,400 ft long and 80 ft wide and was lit. At 1850:21, the pilot acknowledged, but stated, "I think I'm turning the wrong way." In a subsequent transmission, the pilot stated, "I am just really nervous if you could help me please." The controller advised the pilot, who had turned the airplane northwest, to turn southwest, and the pilot acknowledged.

Shortly thereafter, the controller asked the pilot if the engine had "any power at all," to which the pilot replied, "...I have some power but it's just really reduced." The controller then asked the pilot if the airplane's pitot heat was on. The pilot replied that it was, and the controller advised the pilot to turn it off. The controller subsequently asked if the airplane's carburetor heat was on. The pilot confirmed that it was, and the controller advised the pilot to turn it off; the pilot replied, "Carb heat off."

At 1852:52, about 3 miles from 8MO3, the pilot stated to the controller that she did not have the airport or its beacon in sight. The controller instructed the pilot to continue southbound and described the runway. The pilot asked if the airport was lit and if the controller could, "...ask them to turn on the lights." The controller responded that it was an uncontrolled airport.

The pilot advised that she did not have the airport's common traffic advisory frequency (CTAF), and the controller instructed her to stand by.

About 1854, the controller advised the pilot that radar contact had been lost. The pilot reported that the airplane was at 1,800 ft and that she did not have the airport in sight. The controller then stated that the airport was a "grass field," and asked, "is there still daylight out?" The pilot replied that she "could not see anything." The controller stated, "The closest airport with lighting and cement is Mosby Airport," but the controller did not provide a direction or distance to this airport. The pilot stated that the airplane was at 1,600 ft and losing altitude. The controller then provided the pilot a CTAF frequency of 122.9, which the pilot acknowledged.

At 1855:47, the controller stated to the pilot, "You need to start looking for the airport there if you can," and asked for the airplane's altitude. The pilot did not reply. About one minute later, the pilot stated, "I can't see at this point...[unintelligible] try again." There were no further communications from the pilot.

A witness, who was about two miles northwest of 8MO3, saw the navigation and landing lights of a southbound airplane. He reported that the airplane passed directly overhead about 500 ft above him and the engine sounded like it was "spitting." The airplane was more than one mile away, had completed a left turn, and was proceeding almost due west when the witness saw the airplane descend and disappear from sight. Shortly afterward, he heard two distinct "thuds." The witness immediately contacted emergency services, and the wreckage was subsequently located at 2126.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	57, Female
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Lap Only
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 With Waivers/Limitations	<b>Last FAA Medical Exam:</b>	05/20/2015
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	08/15/2013
<b>Flight Time:</b>	(Estimated) 744 hours (Total, all aircraft), 119 hours (Total, this make and model)		

A review of the pilot's logbook found flight entries from 2002 until December 6, 2014. No additional logbook was located. Using the pilot's logbook, airplane logs, and interviews with the pilot's family and friends, the pilot's total flight experience was estimated to be 744 total hours, of which 119 hours was in the Cessna 182 variants, 109 hours of night time, and 38 hours of simulated instrument conditions. The pilot's last recorded flight review was dated

August 10, 2011. Although the pilot completed the necessary requirements on August 15, 2013, she did not request a flight review endorsement from the instructor, so no endorsement was signed.

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	CESSNA	<b>Registration:</b>	N96381
<b>Model/Series:</b>	182Q	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1978	<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	18266704
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	10/07/2015, Annual	<b>Certified Max Gross Wt.:</b>	2348 lbs
<b>Time Since Last Inspection:</b>	42 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2257 Hours at time of accident	<b>Engine Manufacturer:</b>	CONT MOTOR
<b>ELT:</b>	C91 installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	O-470-U
<b>Registered Owner:</b>	96381 INC	<b>Rated Power:</b>	230 hp
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

The airplane's last inspection was a combined 100 hour/annual completed on October 2, 2015. At the time of the inspection, the airframe had accrued 2,214.8 hours, and the engine had 1,297.6 hours since major overhaul. The airplane was equipped with a Garmin GNS-430 GPS/NAV/COM radio which provided both navigation and communication capabilities. It could not be determined if the pilot routinely operated the GNS-430.

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	KGPH, 778 ft msl	Distance from Accident Site:	16 Nautical Miles
Observation Time:	1835 CST	Direction from Accident Site:	272°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	120°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	29.82 inches Hg	Temperature/Dew Point:	17° C / 8° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	PONTIAC, MI (PTK)	Type of Flight Plan Filed:	None
Destination:	KANSAS CITY, MO (MKC)	Type of Clearance:	VFR Flight Following
Departure Time:	1538 EST	Type of Airspace:	Class E; Class G

Data from the U. S. Naval Observatory showed that moonset occurred at 1650, sunset occurred at 1706, and the end of evening civil twilight occurred at 1734.

A review of the Carburetor Icing Probability Chart located in FAA Special Airworthiness Information Bulletin CE-09-35 revealed that the airplane was operating in an environment conducive to the formation of serious icing at glide power settings.

## Airport Information

Airport:	CURTIS FIELD (8MO3)	Runway Surface Type:	
Airport Elevation:	760 ft	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	2400 ft / 80 ft	VFR Approach/Landing:	Forced Landing

The diversion airport provided to the pilot by air traffic control was Curtis Field Airport (8MO3), a private use airport located about 3 miles northeast of Richmond, Missouri. The airport was not equipped with a control tower and was attended only during daylight hours. Runway 17/35, a lighted turf runway, was 2,500 ft long and 80 ft wide. Although the airport was equipped with a rotating beacon and runway lighting, it could not be pilot-activated; airport personnel must be called at a phone number to manually turn the lighting on. At the time of the accident, the lights on the field were off.

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	39.323611, -93.966389 (est)

The airplane impacted trees and terrain about 1.28 nautical miles west of 8MO3. The initial impact point was identified by damage to an 80 ft tall tree. The airplane continued about 275 ft to an open field northwest of the initial impact point, and collided with the ground in an approximate 80° nose-low attitude. The airplane's propeller was found separated from the engine near the impact crater. The leading edges of both wings and the forward portion of the fuselage were crushed aft.

Flight control continuity was confirmed to all control surfaces. Elevator trim was found about 6-7° nose-down. All fuel filters and strainers were found clear of debris. The fuel selector was found in the right tank position, and the right tank contained about 11 gallons of fuel. Fuel was found in the sump bowl and the carburetor accelerator pump. The propeller blades were relatively undamaged. One blade was deformed rearward about 30° near its mid-span.

The engine was removed and sent to Continental Motors Analytical Department, Mobile, Alabama, for examination. Disassembly and examination of the engine revealed no mechanical defects with the engine. All twelve spark plugs were found fouled.

## Medical And Pathological Information

The county coroner elected not to perform an autopsy on the pilot. Blood was drawn for toxicology testing.

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed forensic toxicology on blood specimens from the pilot. Testing was negative for carbon monoxide, ethanol, and all tested-for substances.

## Additional Information

Air Traffic Control Services

At the time that the pilot reported engine difficulty, 8MO3 was the nearest airfield, and was located about 5 miles southwest of the airplane's position. The next closest airports were an additional 7 miles away. The Standard Automation Replacement System (STARS) emergency airport function on the controller's displayed that 8MO3 was a lighted, grass runway, and no CTAF frequency was provided. He stated that the airplane was rapidly losing altitude, and he could tell that the pilot was very nervous. He also stated that it was daylight when he had been assigned the position, and he did not realize that it had become dark outside. The controller held a private pilot certificate with instrument rating, and stated that, while attempting to assist the pilot, he recalled his flight training and factors that may have an adverse effect on engine performance. He advised the pilot to turn the airplane's pitot heat off, then later realized that the use of pitot heat would not affect engine power. After discussions with another pilot-rated controller in the room, he advised the pilot to turn the engine's carburetor heat off. Another controller then provided him an incorrect CTAF frequency for a different airport, which he subsequently relayed to the pilot.

According to radar data, radar contact with the airplane was lost at 1851:39; however, the controller did not advise the pilot that radar contact had been lost until 1854:09. FAA Order 7110.65 stated that controllers are required to inform an aircraft of radar contact both when initial radar identification is established and when radar contact is lost. The order also stated that, in the event of an emergency, controllers are required to coordinate search and rescue (SAR) efforts. In order to facilitate SAR, controllers should gather pertinent information from the pilot, including estimated location and altitude, direction of flight, number of persons on board, and a description of the aircraft. The accident controller did not request this information.

After the accident occurred, the controller attempted to call 911, but was unable to dial outside of the facility. Eventually, a frontline manager was able to complete the call. The controller also reported that he did not think that he had not received adequate training to respond to emergency situations, and that the annual simulation training he received "always seemed to be on the same thing."

#### Pilot's Operating Handbook Information

The manufacturer's pilot's operating handbook for the airplane stated, "An unexplained drop in manifold pressure and eventual engine roughness may result from the formation of carburetor ice. To clear the ice, apply full throttle and pull carburetor heat knob full out until the engine runs smoothly; then remove carburetor heat and readjust the throttle. If conditions require the continued use of carburetor heat in cruise flight, use the minimum amount of heat necessary to prevent ice from forming and lean the mixture for the smoothest operation."

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Jason T Aguilera	<b>Report Date:</b>	07/12/2017
<b>Additional Participating Persons:</b>	Chris P Morris; Federal Aviation Administration; Kansas City, MO William Taylor; Federal Aviation Administration; Kansas City, MO Mike Council; Continental Motors; Mobile, AL Paul E Yoos; Textron Aviation; Wichita, KS Scott Guetzko; Federal Aviation Administration; Olathe, KS Adam Rhodes; National Air Traffic Controllers Association; Houston, TX		
<b>Publish Date:</b>	07/12/2017		
<b>Note:</b>	The NTSB traveled to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=92315">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=92315</a>		

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