



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Clinton, Montana	<b>Accident Number:</b>	WPR16FA170
<b>Date &amp; Time:</b>	August 28, 2016, 14:45 Local	<b>Registration:</b>	N9936T
<b>Aircraft:</b>	Cessna 182	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The private pilot was conducting a local flight in the airplane, which he was planning to purchase. A witness saw the airplane initially overfly the runway from east to west, then turn back to the east and onto a right downwind for landing to the west on runway 25; the witness, who was a pilot, reported that the wind was directly down the runway about 8 knots. When the airplane was on a short final approach about 15 ft above the runway, it suddenly turned 90° to the right, in what the witness estimated was a bank angle of about 30° to 40°. The airplane continued at a low altitude toward the north perimeter of the airport where it impacted a stand of trees, then proceeded through the trees before coming to rest upright on the south shoulder of an interstate highway. Shortly thereafter, a postcrash fire erupted and consumed the airplane. A postaccident examination of the airframe and engine did not reveal any mechanical anomalies that would have precluded normal operation. The reason for the sudden right turn while on short final approach could not be determined during the investigation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The sudden right turn on approach to landing for reasons that could not be determined because postaccident examination did not reveal any anomalies that would have precluded normal operation.

## Findings

<b>Not determined</b>	(general) - Unknown/Not determined
<b>Personnel issues</b>	Aircraft control - Pilot

## Factual Information

### History of Flight

<b>Approach-VFR pattern final</b>	Loss of control in flight (Defining event)
<b>Uncontrolled descent</b>	Collision with terr/obj (non-CFIT)

On August 28, 2016, about 1445 mountain daylight time, a Cessna 182D, N9936T, impacted terrain following a loss of control while attempting to land at the Rock Creek Airport (RC0), Clinton, Montana. The private pilot and the passenger were fatally injured, and the airplane was destroyed. The local flight was being operated as a 14 *Code of Federal Regulations* Part 91 personal, and a flight plan was not filed. Visual meteorological conditions prevailed for the flight, which departed about 1400 from Missoula International Airport (MSO), Missoula, Montana, with RC0 as its destination.

According to a friend of the pilot who is also a pilot and witnessed the accident, the airplane initially overflew the airport from east to west, then turned back to the east on an extended right downwind for runway 25. The witness stated that when the airplane was on final approach it was stable, and the wind was out of the west, "...right down runway 25 at about 8 knots." The witness further stated that when the airplane was about 15 ft above the runway and preparing to land, it suddenly turned 90° to the right, at what he estimated to be about a 30° to 40° bank angle. The airplane subsequently collided with a stand of trees that bordered the runway on the north and then impacted the ground before coming to rest upright on the shoulder of an interstate highway (I-90). Shortly thereafter, a fire erupted, which consumed the forward two-thirds of the airplane.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	56, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<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>	December 12, 2014
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	632 hours (Total, all aircraft)		

The pilot held a private pilot certificate for airplane single-engine and multiengine land airplane ratings. The pilot's personal flight logbook was not recovered during the investigation. According to data provided by the Federal Aviation Administration (FAA), the pilot was issued a third-class airman medical certificate on December 12, 2014, with the restriction, "must have available glasses for near vision." On the application for this medical certificate, the pilot listed a total flight time of 632 hours.

The witness/friend reported that for several months, the pilot had been attempting to purchase the airplane and had been flying it. He estimated that the pilot had accumulated 5 to 8 hours of flight time in the airplane.

#### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N9936T
<b>Model/Series:</b>	182 D	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1961	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	18253036
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	June 22, 2016 Annual	<b>Certified Max Gross Wt.:</b>	2650 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	931.2 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Continental Motors
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-470L
<b>Registered Owner:</b>		<b>Rated Power:</b>	230 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

The Cessna 182D was a four-seat, high-wing, fixed-gear airplane, serial number 18253036. The airplane was equipped with a Continental Motors O-470-L1 engine, serial number 66983-6-L, and a McCauley 2A36C29-A, two-bladed, adjustable pitch propeller.

According to partial copies of maintenance records, as of the most recent annual inspection, which was completed on June 22, 2016, the total time on the engine since major overhaul was 934.8 hours, with a tachometer reading of 2,135.0 hours. The previous annual inspection was completed on June 15, 2005, at a tachometer reading of 2,133.0 hours; the engine had accumulated 2 hours in the 11-year span between the two inspections.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	MSO, 3206 ft msl	<b>Distance from Accident Site:</b>	21 Nautical Miles
<b>Observation Time:</b>	14:53 Local	<b>Direction from Accident Site:</b>	305°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/ None
<b>Wind Direction:</b>	250°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.06 inches Hg	<b>Temperature/Dew Point:</b>	23°C / -1°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Missoula, MT (MSO )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Clinton, MT (RC0 )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	14:00 Local	<b>Type of Airspace:</b>	Class G

At 1453, MSO, located about 23 nautical miles west of the accident site, reported wind calm, visibility 10 miles, sky clear, temperature 23&deg;C, dew point -1&deg;C, and an altimeter setting of 30.07 inches of mercury.

## Airport Information

<b>Airport:</b>	Rock Creek RC0	<b>Runway Surface Type:</b>	Grass/turf
<b>Airport Elevation:</b>	3547 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	25	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4100 ft / 75 ft	<b>VFR Approach/Landing:</b>	Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	1 Fatal	<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Fatal	<b>Latitude, Longitude:</b>	46.727779,-113.652778

Examination of the accident site indicated that the airplane struck trees that were located about 650 ft.

west-northwest of the approach end of runway 25 and about 270 ft. north of the runway centerline. The airplane came to rest upright on the south shoulder of I-90 on a magnetic heading of about 145°. The airplane was destroyed by thermal and impact damage.

A postaccident examination of the airframe and engine, attended by representatives from the National Transportation Safety Board, the Federal Aviation Administration, Textron Aviation, and Continental Motors, Inc., revealed the following:

The majority of the fuselage was consumed by the postcrash fire. The right wing leading edge was crushed aft in a curve pattern, which was most pronounced about mid-span. The left wing leading edge was crushed aft, with slightly more crushing at the wing tip area. The empennage aft of the baggage compartment was not burned and remained intact.

Flight control cable continuity was established for all flight controls from the cockpit to the control surface attach points. There was a separation of the aileron balance cable, which appeared to be a result of a tension overload. The flap handle was found in a flap extended position; however, as it was not in a detent, exact flap position could not be determined. The trimmable horizontal stabilizer screw jack was measured at 7.1 inches, which equates to the normal takeoff position.

The engine remained partially attached to the airframe and exhibited thermal and impact damage. The induction and exhaust systems were impact damaged, and the oil sump was crushed upward. The airframe firewall was wrapped around the rear of the engine.

The exhaust system was crushed upward, and the muffler was partially crushed and pushed into the oil sump. The induction system balance tube was crushed into the crankcase.

Both magnetos were partially separated from their mounting flanges and exhibited thermal and impact damage. Each rotated freely when rotated by hand but did not produce spark, and water was observed leaking from both. Examination of both magnetos by a magneto repair station revealed that the left magneto did not function due to thermal damage. The right magneto functioned properly producing spark at all terminals.

The spark plugs exhibited light and dark colored combustion deposits, and the electrodes were worn out when compared to the Champion Check-a-Plug chart. The ignition harness exhibited thermal damage.

The carburetor remained attached to the induction system and was thermally damaged. The mixture control arm and shaft were bent. The throttle control arm moved with resistance; however, debris from the post impact fire was observed around the throttle plate. The fuel screen was removed and found to be free of debris. When the fuel bowl was removed, thermal damage to all of the interior components was observed.

The fuel strainer sustained thermal and impact damage, which compromised the component. Some light debris was noted on the fuel strainer screen. The glass bowl was intact.

The oil pump was disassembled. The pump housing contained oil and exhibited normal operating signatures and evidence of light particle passage. The oil cooler remained attached to the engine and

exhibited thermal and impact damage.

The exterior of the cylinders exhibited thermal damage. When the combustion chambers were examined with a lighted borescope, no anomalies were noted. The crankshaft was rotated by hand using the propeller. Continuity through the valve train to the accessory section was confirmed, and there was thumb compression on all six cylinders.

The starter was separated from the starter adaptor. The generator remained attached to the engine and exhibited thermal and impact damage.

The vacuum pump was removed and disassembled with no anomalies noted.

With the propeller governor removed, the drive gear turned freely by hand; no oil was being discharged. The control arm moved freely by hand from stop to stop.

The two-bladed propeller remained attached to the crankshaft propeller flange. One blade was relatively undamaged. The other blade was loose in the hub, bent slightly forward at mid blade, and exhibited leading edge polishing and chord-wise scratches.

The examination of the engine and airframe did not reveal any anomalies that would have precluded normal operation.

## Medical and Pathological Information

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The Montana State Medical Examiner performed an autopsy on the pilot. The cause of death was attributed to multiple blunt force injuries.

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, conducted forensic toxicology examinations on specimens from the pilot. No carbon monoxide was detected in blood; no ethanol was detected in urine, and testing was not performed for cyanide. The drug salicylate, a metabolite of aspirin, was detected in urine.

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Little, Thomas
<b>Additional Participating Persons:</b>	Bobby Radtke; Federal Aviation Administration; Helena, MT Andrew Hall; Textron Aviation; Wichita, KS Chris Lang; Continental Motors, Inc.; Mobile, AL
<b>Original Publish Date:</b>	August 9, 2017
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=93899">https://data.nts.gov/Docket?ProjectID=93899</a>

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).