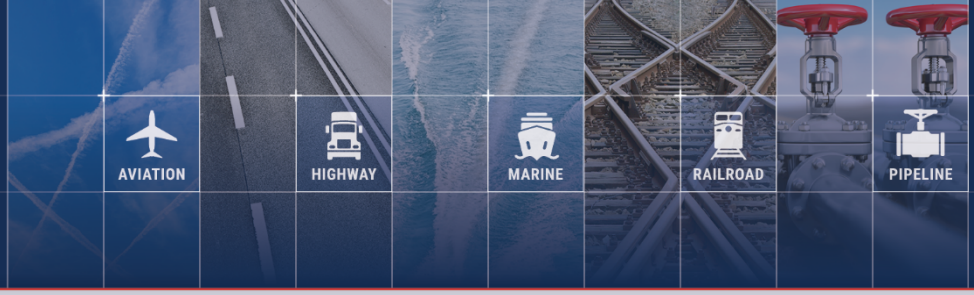

Aviation Investigation Final Report

Location:	Brockton, Montana	**Accident Number:**	WPR12FA123
Date & Time:	March 5, 2012, 15:56 Local	**Registration:**	N5542K
Aircraft:	Bellanca 7GCBC	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Witnesses reported that the airplane made two low altitude 360 degree turns then ascended rapidly followed by a descent into the ground characteristic of a stall. The airplane “belly flopped” onto the edge of an elevated drive likely due to insufficient altitude for the pilot to recover. The witnesses further reported that the engine sounded normal throughout the accident sequence. A postaccident examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. A GPS receiver was recovered from the accident; however, no data was recovered for the accident flight. Previous flight paths revealed flight maneuvers at low altitudes similar to the one described during the accident sequence.

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 adequate airspeed and aircraft control while maneuvering at a

low altitude, which resulted in a stall and subsequent impact with terrain.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Aircraft	Altitude - Not attained/maintained

Factual Information

History of Flight

Maneuvering-low-alt flying	Abrupt maneuver
Maneuvering-low-alt flying	Aerodynamic stall/spin (Defining event)
Maneuvering-low-alt flying	Collision with terr/obj (non-CFIT)

On March 5, 2012, about 1556 mountain standard time, a Bellanca 7GCBC, N5542K, impacted terrain about 12 miles southeast of Brockton, Montana. The private pilot was fatally injured and the one passenger received serious injuries. The airplane was substantially damaged. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local personal flight. The pilot departed Sidney-Richland Municipal Airport (SDY), Sidney, Montana at an unknown time.

Witnesses reported that it was a clear day with no wind; the airplane approached from the north and flew over them before conducting a 360 degree turn at a low altitude. The airplane flew over the witnesses a second time and appeared to depart to the west when it ascended and made a left turn followed by a descent into the ground. The airplane appeared to "belly flop" onto the edge of the elevated drive and came to rest on the other side of the drive. Witnesses further reported that the engine sounded normal throughout the accident sequence.

Pilot Information

Certificate:	Private	**Age:**	54
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
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:**	January 11, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	72 hours (Total, all aircraft), 5 hours (Total, this make and model), 31 hours (Pilot In Command, all aircraft)		

At the time of the accident, the pilot, age 54, held a private pilot certificate with airplane single engine land privileges that was issued on January 17, 1981. His most recent FAA third class medical was issued on January 11, 2011, with the restriction of required corrective lenses for near and far. Examination of the pilot's logbook revealed that, as of the last entry on December 20, 1992, he had accumulated approximately 72 hours of flight experience, 5 of which were in the accident airplane.

Aircraft and Owner/Operator Information

Aircraft Make:	Bellanca	**Registration:**	N5542K
Model/Series:	7GCBC	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1030-78
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	May 1, 2010 Annual	**Certified Max Gross Wt.:**	1650 lbs
Time Since Last Inspection:	72 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	932 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-320 SERIES
Registered Owner:	STEPPLER JAMES M	**Rated Power:**	180 Horsepower
Operator:	STEPPLER JAMES M	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SDY,1985 ft msl	**Distance from Accident Site:**	27 Nautical Miles
Observation Time:	15:35 Local	**Direction from Accident Site:**	128°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.59 inches Hg	**Temperature/Dew Point:**	16°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Sidney, MT (SDY)	**Type of Flight Plan Filed:**	None
Destination:	Sidney, MT (SDY)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

The nearest weather reporting station was approximately 27 nautical miles southeast of the accident site. At 1535, the weather was reported as wind from 280 at 8 knots, visibility 10 statute miles, clear skies, temperature 16 degrees Celsius (C), dewpoint -1 degrees C, and an

altimeter setting of 29.59 inches of Mercury.

Airport Information

Airport:	Sidney SDY	**Runway Surface Type:**	
Airport Elevation:	1985 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	47.989723,-104.71833

The wreckage was located in a field planted with trees in the yard of a residence. The first identified point of impact was an 8 by 13 foot crater located on the southern edge of an elevated east/west driveway. The debris path continued approximately 211 feet in length from the impact crater to the main wreckage.

A topped tree, approximately 100 feet northeast, followed the initial impact point. Approximately 50 feet beyond the topped tree was approximately 2 feet of the airplane's left wing tip at the base of another tree. The airplane came to rest in thick dirt approximately 205 feet beyond the initial impact point; the airplane's approximate heading was 240 degrees. The forward fuselage sustained extensive aft crushing and deformation throughout. The cabin area sustained side crushing. The inboard portion of the left wing remained attached to the fuselage. The left fuel tank and fuel cap were intact. The fuel cap was secured to the filler housing, although torn from the fabric around it. The right wing was partially attached to the fuselage; the wing root sustained crush damage. The right fuel tank cap was still secured to the filler housing. The aft fuselage was mostly intact although sustained lateral deformation. The empennage was mostly intact and undamaged; the left elevator outboard most section was bent upward.

Control continuity was established from all flight control surfaces to their respective cockpit controls.

Medical and Pathological Information

An autopsy was not completed on the pilot; the cause of death was reported as blunt force injuries. Toxicology testing was completed by the Richland County Coroner. The results were negative for ethanol; caffeine was detected in the blood.

Tests and Research

The airplane was recovered from the accident site to a storage facility and later examined by the National Transportation Safety Board (NTSB) Investigator-in-charge (IIC).

Engine

Visual inspection of the recovered engine revealed no visual anomalies. The cylinder rocker covers and spark plugs were removed; the spark plug electrode areas were consistent with, 'worn out – normal', when compared to the Champion AV-27 chart. The valves were undamaged and contained no abnormal thermal discoloration. Cylinder compression and valve continuity was obtained from all cylinders. Both magnetos were removed from the engine; when manually rotated, both impulse couplings fired appropriately and spark was obtained from all ignition lead ends. The carburetor was removed from the engine and disassembled. Carburetor screen was clear of debris, no fuel was found within the carburetor bowl and crushing deformation was noted on one of the carburetor floats.

Airframe

Examination of the cabin area revealed that the throttle was in the full forward/full throttle position. The fuel selector valve was removed and examined; it was found in the "closed" position. The gascolator was removed and found to be clear of debris. It was noted that there was no stall warning system installed on the airplane.

Examination of the airframe and engine revealed no evidence of preimpact mechanical failures or malfunctions that would have precluded normal operations.

Additional Information

A GPS receiver was recovered in the wreckage and retained for further examination by the NTSB Vehicle Recorders Laboratory, Washington, DC. Data was successfully downloaded; however, there was no data for the accident flight. Data recovered from previous flights revealed flight maneuvers at low altitudes similar to the one described during the accident sequence.

The NTSB IIC calculated the approximate weight and balance at the time of the accident. It was revealed that the airplane weighed approximately 1,834 pounds with a center of gravity of 16.38 inches. Maximum gross weight of the airplane is 1,650 pounds, and the Center of gravity range for normal operations at maximum gross weight is between 14.2 and 19.2 inches.

Administrative Information

Investigator In Charge (IIC):	Link, Samantha
Additional Participating Persons:	Cliff Carpenter; Federal Aviation Administration; Helena, MT Troy Helgeson; Lycoming Engines; Williamsport, PA
Original Publish Date:	December 2, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=83042