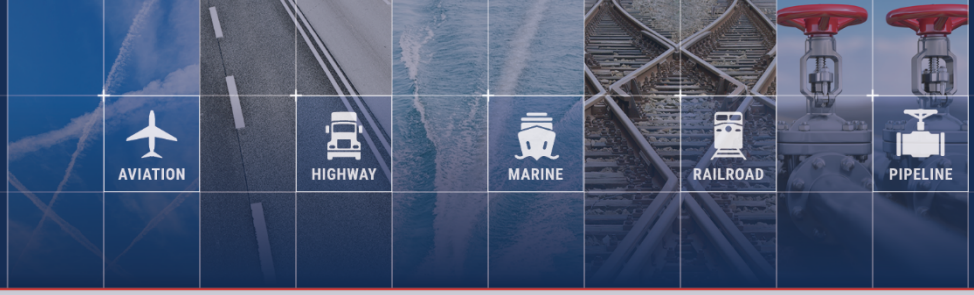

Aviation Investigation Final Report

Location:	Oklahoma City, Oklahoma	**Accident Number:**	CEN11FA075
Date & Time:	November 17, 2010, 21:30 Local	**Registration:**	N314DP
Aircraft:	Hawker-Beechcraft Corporation A36	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot flew the night cross-country flight under instrument flight rules in instrument meteorological conditions (IMC). As the pilot approached his destination airport, he reported to the air traffic controller that he had problems with his landing gear indicator. The controller told the pilot to maintain 3,000 feet and turn to a heading of 360 degrees. The pilot acknowledged the instructions; there were no further communications between the controller and pilot. Radar data showed that, as the airplane approached the airport, it was headed generally north-northeast at an altitude of 3,000 to 3,300 feet. The last radar return showed the airplane at 2,600 feet, heading north. Several witnesses reported that they saw the airplane's red lights appear from the clouds and descend rapidly before the airplane impacted the ground. The wreckage showed damage indicative of a vertical or near-vertical impact. A postcrash fire ensued. Examination of the airplane found no evidence of any preimpact mechanical anomalies.

Postmortem toxicology testing for the pilot indicated positive results for Butalbital, a prescription barbiturate; Citalopram, a prescription antidepressant; Cyclobenzaprine, a prescription muscle relaxant; and Tramadol, which is used for moderate to severe pain. Although such medications can have sedating and/or impairing effects, it was not possible to determine to what extent, if any, the pilot may have been impaired. Both night IMC and the pilot's diverted attention to troubleshooting the landing gear indicator or working the alternate landing gear extension can increase the risk of spatial disorientation, and the airplane's rapid, near-vertical descent is consistent with pilot spatial disorientation and a loss of airplane control.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of control of the airplane during night instrument meteorological conditions, likely due to spatial disorientation.

Findings

Personnel issues	(general) - Pilot
Personnel issues	Spatial disorientation - Pilot
Aircraft	Gear position and warning - Not specified
Environmental issues	Dark - Not specified

Factual Information

History of Flight

Maneuvering	Miscellaneous/other
Maneuvering	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)
Post-impact	Fire/smoke (post-impact)

HISTORY OF FLIGHT

On November 17, 2010, about 2130 central standard time, a single-engine Hawker-Beechcraft, A36, airplane, N314DP, was substantially damaged when it collided with terrain while maneuvering for an approach to the Wiley Post Airport (PWA), Oklahoma City, Oklahoma. The pilot, the sole occupant, was fatally injured. The airplane was registered to and operated by a private individual. An instrument flight rules (IFR) flight plan was filed for the flight that originated from the Lawton-Fort Sill Regional Airport (LAW), Lawton, Oklahoma. Night instrument meteorological conditions prevailed for the personal cross-country flight conducted under 14 Code of Federal Regulations Part 91.

During the airplane's approach to PWA, the pilot reported a landing gear indicator problem to air traffic control (ATC).

Several witnesses reported seeing the airplane's red lights appear from the clouds and descend rapidly before impacting the ground, and subsequently lighting the sky with a post-crash fire.

PERSONNEL INFORMATION

The pilot held a private certificate for airplane single-engine land and instrument rating-airplane. The pilot was issued a third class Federal Aviation Administration (FAA) medical, on April 13, 2010. On the medical application, the pilot annotated that he had accumulated a total of 1,400 flight hours with 100 hours in the previous six months. The pilot's logbooks were not made available during the course of this investigation.

AIRCRAFT INFORMATION

The airplane was a 1998 model, Hawker-Beechcraft Corporation, A36, which is a single-engine, low-wing airplane, with retractable, tricycle landing gear, and was configured for 6 seats.

The airplane was powered by a Continental IO-550-B-AP reciprocating engine, rated at 300 horsepower. The engine was modified with a turbocharger, under an STC (Supplement Type Certificate) from Tornado Alley Turbo, Inc. The engine drove a Hartzell 3-blade constant speed propeller.

The airplane's complete maintenance records were not made available during the investigation; however, excerpts from work orders, revealed the last annual inspection was completed on May 26, 2010, with an aircraft time of 2,592.2 hours. The work orders also revealed the engine and propeller STC were installed in April, 2010. Engine oil and filter changes were conducted on July 20, 2010 and again on October 1, 2010 with an engine compression check. The airplane's engine had accumulated 71.6 hours since last overhaul.

METEOROLOGICAL

The automated weather reporting station at PWA reported at 2153, overcast clouds at 1,400 feet, 7 miles visibility, wind at 350 degrees at 19 gusting to 24 knots, a temperature of 39 degrees Fahrenheit (F), a dew point of 34 degrees F, and an altimeter setting of 30.33.

COMMUNICATIONS

As the airplane approached PWA, the pilot (N314DP) was transferred from Fort Worth Air Route Traffic Control Center (ARTCC), to the Oklahoma City approach controller.

Upon receiving a call from the pilot that he was having a gear indicator problem, ATC told the pilot to maintain an altitude of 3,000 feet and turn to a heading of 360 degrees. The pilot acknowledged the instructions; there was no further communications between the controller and the pilot. Additionally, there were no reported emergency or distress calls from the pilot.

RADAR INFORMATION

A review of the airplane's radar track showed the airplane approaching PWA from the southwest. The radar track also revealed that the airplane's attitude varied from 3,000 to 3,300 feet with gentle "S" turns, turning northeast and north as the airplane approached the airport. The data showed that at 2131:15, the airplane was at 3,200 feet heading in a northeast direction. At 2131:19 the airplane was at 3,300 feet and has turned in a northerly direction. The last radar hit at 2131:24 had the airplane at 2,600 feet heading north.

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was examined at the site on November 18-19, 2010. The airplane

impacted a ditch, in a near vertical attitude. The on-site examination was conducted by the NTSB, FAA, and a technical representative from the Hawker-Beechcraft Corporation. The impact crater contained largely fragmented and burnt airplane wreckage. At the base of the crater and submerged in the mud, was the airplane's engine and 3-bladed propeller. Several small pieces were scattered in an open field near the impact area. The components; fuselage, engine, wings, and empennage, were either destroyed or heavily damage by the impact/post-crash fire. The landing gear and flaps appeared to be in their retracted (up) positions. Flight control continuity was established from each control surface to the base of the control column or rudder pedals. All major components of the airplane were accounted for on scene.

MEDICAL AND PATHOLOGICAL INFORMATION

The Board of Medicolegal Investigations, Office of the Chief Medical Examiner, Oklahoma City, Oklahoma, conducted an autopsy on the pilot. The cause of death was determined to be "multiple blunt force trauma."

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed forensic toxicology on specimens from the pilot. The report noted the following:

13 (mg/dL, mg/hg) ETHANOL detected in Muscle
No ETHANOL detected in Liver

The report noted: The ethanol found in this case is from sources other than ingestion.

6.575 (mg/dL, mg/hg) Butalbital detected in Liver
2.463 (mg/dL, mg/hg) Butalbital detected in Kidney

Citalopram detected in Liver
Citalogram detected in Kidney

Cyclobenazprine detected in Liver
Cyclobenzaprine detected in Kidney

N-Desmethylcitalogram detected in Liver
N-Desmethylcitalogram detected in Kidney

9.682 (mg/dL, mg/hg) Tramadol detected in Liver
8.088 (mg/dL, mg/hg) Tramadol detected in Kidney

Post-mortem toxicology testing indicated positive results for medications; Butalbital is a prescription barbiturate typically used for severe headaches. Citalopram is a prescription antidepressant, also known by the trade name Celexa, and often used for the treatment of

psychiatric disorders. N-desmethylcitalopram is a metabolite of citalopram. Cyclobenzaprine is a prescription muscle relaxant often known by the trade name Flexeril. Tramadol (also known by the trade name Ultram) is used for the management of moderate to severe pain.

TEST AND RESEARCH

The aircraft wreckage was examined at the salvage yard, by the NTSB, FAA, and technical representatives from the engine STC holder, and the engine and airframe manufacturers.

The engine was separated from the airframe and had heavy impact damage in all areas. Both crankcase halves were crushed aft to the number five and six cylinder attachment points. All of the cylinders had heavy impact damage on the cylinder heads, and all of the accessories were separated, except the fuel pump and starter adapter. The intake and exhaust pipes were crushed and partly missing. The crankshaft could not be rotated because of impact damage to the crankcase halves and to the rear of the engine. The propeller attachment flange was separated and the front section of the crankshaft was bent about 40 degrees just aft of the number six connecting rod journal. A visual inspection on the remainder of the crankshaft revealed that there was continuity to the rear gear drive section of the engine. The engine was absent any internal heat stress signatures.

The turbocharger had heavy impact damage and the compressor section was separated from the unit. The turbine remained attached to the engine and the driveshaft would not rotate.

The engine oil filter was opened and no metal particles were observed in the filter element. The oil pump was removed from the engine and dissembled. No scoring was observed on the interior of the pump case. The gears were in place and coated with oil.

The top sparkplugs on cylinders number one, three, and five, and bottom sparkplugs on cylinders two and five were removed and examined. When compared with the Champion Check-A-Plug comparison card they appeared to have “normal wear”.

The fuel pump was impact damaged and had partly separated. The drive coupling housing was cracked and split open. The drive coupling was separated and one end was stuck in the fuel pump housing. No internal damage was observed.

The propeller was separated from the engine and the spinner was crushed. All three blades were loose in the hub and bent towards the non-cambered side of the blades. Two blades appear to have “S” type bending. One blade had a large impact gouge on the leading edge; the other blade had gouges all along the leading edge. The remaining blade had gouges on the trailing edge of the propeller blade.

The airplane’s landing gearbox was located in the wreckage. The landing gear’s electric motor had extensive thermal damage. The landing gear extension handle (alternate gear extension)

was stowed in the “up” position. The gear handle was removed from the gearbox; the gearbox was manually rotated from stop-to-stop.

The examination of the engine and airframe did not reveal any pre-impact mechanical anomalies.

Pilot Information

Certificate:	Private	**Age:**	55,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	April 13, 2010
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 1400 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hawker-Beechcraft Corporation	**Registration:**	N314DP
Model/Series:	A36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	EA-629
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	May 26, 2010 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2592 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-550
Registered Owner:	On file	**Rated Power:**	300 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	KPWA	**Distance from Accident Site:**	
Observation Time:	21:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Thin Overcast / 1400 ft AGL	**Visibility**	7 miles
Lowest Ceiling:	Overcast	**Visibility (RVR):**	
Wind Speed/Gusts:	19 knots / 24 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.32 inches Hg	**Temperature/Dew Point:**	4°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fort Lawton-Sil, OK (LAW)	**Type of Flight Plan Filed:**	IFR
Destination:	Oklahoma City, OK (PWA)	**Type of Clearance:**	IFR
Departure Time:	21:00 Local	**Type of Airspace:**	

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:**	35.499641,-97.640571(est)

Administrative Information

Investigator In Charge (IIC):	Hatch, Craig
Additional Participating Persons:	Tim Wells; FAA FSDO; Oklahoma City, OK Brian Weber; Hawker-Beechcraft Corporation; Wichita, KS John Kent; Continental Aircraft Motors; Mobile, AL David Landreth; Tornado Alley Turbo, Inc; Ada, OK
Original Publish Date:	March 27, 2012
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=77834