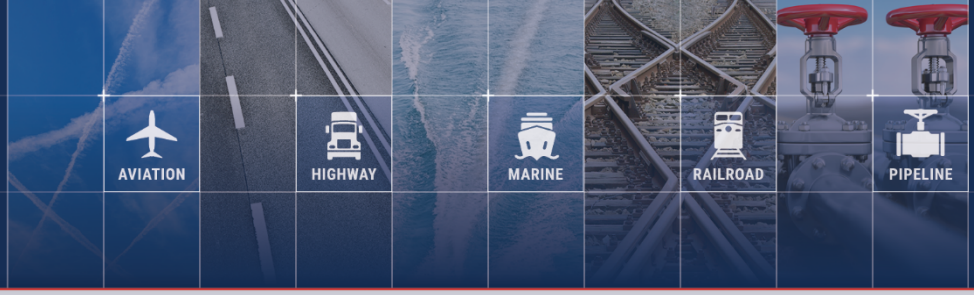

Aviation Investigation Final Report

Location:	Winterville, North Carolina	**Accident Number:**	ERA11FA426
Date & Time:	July 28, 2011, 15:11 Local	**Registration:**	N24369
Aircraft:	Taylorcraft BL-65	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After a local flight, the vintage airplane was approaching the pilot's home airport on a very hot day (36 degrees C [97 degrees F]), and the cockpit was most likely hot as well. As the airplane approached perpendicular to the runway, it maintained a nose-down, left bank attitude, consistent with no further control inputs from the pilot. The airplane impacted the left side of runway, approximately one-third down the runway, pivoted 180 degrees, and came to rest about 20 feet from the initial impact point. Examination of the airframe and engine did not reveal evidence of any preimpact mechanical malfunctions. Although the autopsy report listed the cause of death as multiple injuries related to the crash, it also noted significant coronary artery disease and a tiny scar of the papillary muscle. Both suggested the possibility of a cardiac arrhythmia or heart attack that may have resulted in incapacitation. Additionally, the pilot's medical history revealed a vasovagal (fainting) episode due to nausea and vomiting about 2 years prior to the accident. Neither a vasovagal episode nor cardiac arrhythmia would have left any evidence for discovery during autopsy. As such, pilot incapacitation is possible in this accident because of the lack of control inputs as the airplane approached the runway.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of airplane control for undetermined reasons as the autopsy was unable to reveal any definitive conditions that would have led to the loss of control.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Approach	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On July 28, 2011, at 1511 eastern daylight time, a Taylorcraft BL-65, N24369, operated by a private individual, was substantially damaged when it impacted runway 25 during an attempted landing at South Oak Aerodrome (NC47), Winterville, North Carolina. The airline transport pilot was fatally injured. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local flight, which departed NC47 about 1345.

Runway 25 at NC47 was 1,850 feet long, 50 feet wide, and consisted of turf. According to surveillance video provided by the owner of a nearby residence, the airplane approached the runway from south to north in a nose-down, left-bank attitude, with no apparent additional control inputs. The airplane impacted the left side of runway 25, approximately one-third down the runway. It then pivoted 180 degrees and came to rest about 20 feet from initial impact. The wreckage was resting upright, on a heading of 150 degrees magnetic. The right main landing gear had partially separated and the airplane was resting on its right side. Ground scars were located about 20 feet from the wreckage, oriented about a 300-degree magnetic bearing to the wreckage. The shape, orientation, and distribution of the ground scars were consistent with the left wing and left main landing gear.

PERSONNEL INFORMATION

The pilot, age 42, held an airline transport pilot certificate with a rating for airplane multiengine land. He also held a private pilot certificate with a rating for airplane-single engine land. The pilot's most recent Federal Aviation Administration (FAA) first-class medical certificate was issued on March 16, 2011. At that time, he reported a total flight experience of 11,800 hours. The pilot's logbook was recovered; however, it was not current and the most recent entry was dated March 18, 2010. The pilot's total flight experience or total hours in the accident airplane make and model could not be determined.

AIRCRAFT INFORMATION

The two-seat, high-wing, fixed tricycle-landing gear airplane, serial number 1705, was manufactured in 1940. It was powered by a Continental A65-8, 65-horsepower engine. The airplane's maintenance logbooks were not located and the tachometer indicated 1,294.0 hours

of operation.

METEOROLOGICAL INFORMATION

Pitt-Greenville Airport (PGV), Greenville, North Carolina was located about 10 miles north of the accident site. The recorded weather at PGV, at 1515, was: wind from 190 degrees at 4 knots; visibility 10 miles; scattered clouds at 7,000 feet; scattered clouds at 9,000 feet; temperature 36 degrees Celsius; dew point 17 degrees Celsius; altimeter 30.02 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Both wings remained attached to the airframe, with the ailerons attached to their respective wing. The left wing exhibited impact damage at the outboard leading edge and the right wing was not damaged. The airplane was not equipped with flaps. The left aileron was found in a down position and the right aileron was up. The fuel caps remained secured to their respective wing fuel tanks, and approximately one-quarter tank of fuel remained in the right wing. No fuel remained in the left wing; however, the wing tanks were interconnected, which allowed fuel to drain from the left wing to the right wing and vice versa. Additionally, fuel was observed leaking from the engine compartment, in the vicinity of a damaged carburetor. The fuel displayed a brown tint, but was otherwise clear and had an appearance and smell consistent with automobile gasoline. Control continuity was confirmed from the cockpit controls to the rudder, elevator, elevator trim tab, and left aileron. The right aileron bellcrank had separated and was retained for further examination. Control continuity was confirmed from the cable at the bellcrank separation, to the yoke.

The seatbelts and shoulder harnesses remained intact and were unlatched by rescue personnel. The mixture control was in the full rich position, the carburetor heat control was off, and the throttle control was mid-range. First responders reported that they positioned the fuel selector and magnetos to off. The engine primer was in and locked.

The engine remained attached to the airframe, and except for the carburetor, was undamaged. The propeller remained attached to the engine. Both propeller blades exhibited s-bending and chordwise scratching. The top spark plugs were removed and examined; their electrodes were intact and dark gray in color. The valve covers were removed and oil was noted in each cylinder head. The propeller was then rotated by hand and thumb compression was attained on all cylinders. Crankshaft, and valve train continuity was confirmed throughout the engine. Both magnetos produced spark at all leads when rotated by hand. The carburetor had partially separated due to impact damage, and was disassembled for inspection. The float and needle valve remained intact, and fuel was recovered from the carburetor.

The right aileron bellcrank was forwarded to the NTSB Materials Laboratory, Washington, DC. Metallurgical examination of the bellcrank revealed five fracture faces, which displayed rough grainy surfaces consistent with an overload event.

A Lowrance Airmap 500 handheld global positioning system (GPS) receiver was also recovered from the wreckage and forwarded to the NTSB Vehicle Recorders Laboratory, Washington, DC. Data were successfully downloaded from the receiver and plotted. The plot depicted a route from NC47, west to Kenley, North Carolina, and return; however, the receiver did not store date or time with each of the recorded positions. As such, the plot could not be positively identified as the accident flight.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on July 29, 2011, by the Office of the Chief Medical Examiner, Chapel Hill, North Carolina. The autopsy report noted the cause of death as "Multiple injuries;" however, the report also noted that the left anterior descending focal coronary artery had 85 to 90 percent atherosclerotic narrowing. Additionally, the papillary muscle exhibited focal scarring. Review of the pilot's FAA and personal medical records revealed a fainting episode in 2009, immediately following nausea and vomiting due to a common illness. Considerable cardiac and neurologic testing did not reveal any concerning cause of the fainting episode and the pilot was cleared to continue flying.

Toxicological testing was performed on the pilot by the FAA Bioaeronautical Science Research Laboratory, Oklahoma City, Oklahoma. The results were negative for carbon monoxide, alcohol, and drugs.

Pilot Information

Certificate:	Airline transport	**Age:**	42,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
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 1 Without waivers/limitations	**Last FAA Medical Exam:**	March 16, 2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	11800 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Taylorcraft	**Registration:**	N24369
Model/Series:	BL-65	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1705
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-145
Registered Owner:	BREHM JOSHUA C	**Rated Power:**	65 Horsepower
Operator:	BREHM JOSHUA C	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PGV,26 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	15:15 Local	**Direction from Accident Site:**	355°
Lowest Cloud Condition:	Scattered / 7000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	190°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	36°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Winterville, NC (NC47)	**Type of Flight Plan Filed:**	None
Destination:	Winterville, NC (NC47)	**Type of Clearance:**	None
Departure Time:	13:45 Local	**Type of Airspace:**	

Airport Information

Airport:	South Oak Aerodrome NC47	**Runway Surface Type:**	Grass/turf
Airport Elevation:	50 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	25	**IFR Approach:**	None
Runway Length/Width:	1850 ft / 50 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	35.482223,-77.354446

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	John Combrinck-Graham; FAA/FSDO; Greensboro, NC
Original Publish Date:	April 10, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=81267