Aviation Investigation Final Report

Location:	Wrightsville, Arkansas	**Accident Number:**	FTW04FA083
Date & Time:	February 26, 2004, 18:00 Local	**Registration:**	N43005
Aircraft:	Taylorcraft BC12-D	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The 14,800-hour pilot and his pilot rated passenger were conducting touch-and-go landings on a private airstrip in the vintage airplane. After takeoff from the second touch-and-go landing, on the downwind leg of the traffic pattern, a witness located adjacent to the accident site observed the airplane in a "left wing low, nose down" attitude. The nearby witness observed the airplane briefly on left downwind. In the next "instant," he observed the airplane in a "left wing low, nose down" attitude at an altitude of about 70 feet AGL.. The witness also recalled hearing the engine "rev up" prior to losing sight of the airplane below a tree line. According to entries in the pilot's logbook, he had accumulated a total of 19.7-hours in the accident make/model airplane. Evidence at the accident site showed that the airplane impacted the ground in a left wing down, nose low attitude. On site examination of the airframe and the engine did not reveal any anomalies that could have contributed to the accident. Examination of the airframe and engine maintenance logbooks did not reveal any pre-existing anomalies.

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 airspeed sufficient for flight resulting in an inadvertent stall/spin on the downwind leg of the traffic pattern.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH - VFR PATTERN - DOWNWIND

Findings
1. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
2. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On February 26, 2004, approximately 1800 central standard time, a Taylorcraft BC12-D single-engine airplane, N43005, registered to and operated by a private individual, was destroyed when it impacted terrain following a loss of control while in the landing pattern at a private grass airstrip, near Wrightsville, Arkansas. The commercial pilot sustained serious injuries and his pilot-rated passenger was fatally injured. Visual meteorological conditions prevailed and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 personal flight. The local flight originated from the private airstrip at 1625.

According to the owner of the airplane, the pilot departed from the private airstrip to practice formation flight. The owner was the pilot of the other airplane in the formation flight. He stated that the flight lasted about 1 1/2 hours and was uneventful. At the conclusion of the formation flight, both airplanes returned to enter the landing pattern for the private airstrip (known locally as "the pumpkin patch") to conduct individual touch-and-go landings. Each airplane performed 2 touch-and-go landings, in a left pattern, on the east-west oriented airstrip. The airplanes were landing to the west. To the best of his knowledge, the owner was flying in the other airplane approximately 1/4 mile in front of the accident airplane at the time of the accident. He stated that the accident airplane was in trail to his airplane on a left downwind. He did not hear any radio transmissions or distress calls. The two airplanes had been in radio contact with each other from the beginning of the flight.

The pilot reported in a written statement to the NTSB investigator-in-charge, that he was sharing the "flying duties" with his passenger during the flight. The pilot performed the first touch-and-go landing, and the pilot rated passenger performed the second. After the turn from crosswind to downwind, at an altitude of approximately 600-750 feet, the pilot did not recall anything until waking up in the hospital.

A witness, located approximately 1/2 mile west of the accident site reported that he was watching the airplanes in the landing pattern. He stated that he observed the accident airplane on a left downwind. He then saw it in a "left wing low, nose down" attitude at an altitude of approximately 70 feet AGL before losing site of the airplane when it descended below a tree line. The witness added that he heard the airplane's engine "rev up" as he lost sight of the airplane when it descended below a tree line.

PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate with airplane multi-engine land rating, type ratings in the BE-300, BE-1900, LR-60, and LR-JET aircraft, and a commercial pilot certificate

with an airplane single-engine land rating. The pilot also held a flight instructor's certificate with airplane single engine land, airplane multi-engine land, and instrument airplane ratings. The pilot was issued a second-class medical on September 22, 2003 with the limitation of "MUST WEAR CORRECTIVE LENSES." At the time of his last medical application, the instructor reported he had accumulated a total of 14,800 hours of flight time.

Review of the pilot's logbook indicated that the pilot had accumulated a total of 19.7 hours in the accident make/model airplane.

AIRCRAFT INFORMATION

The 1945 model tailwheel-equipped Taylorcraft BC12-D, (serial number 664) was a high wing, fabric covered tubular structure airplane, with a fixed landing gear. The airplane was powered by a normally aspirated, direct drive, air-cooled, horizontally opposed, carbureted, four-cylinder Continental A65-8 engine, (serial number 3646758) rated at 65 horsepower. The airplane was configured to carry a maximum of two occupants.

According to the airframe and engine logbooks, the airplane's most recent 100-hour/annual inspection was performed on December 1, 2003, at an airframe total time of 2,362.67 hours. At the time of the accident, the airframe and engine had accumulated a total of 2,396.52 hours, and 33.85 hours since the last inspection. As reported on the NTSB Form 6120.1/2, the engine was overhauled on August 8, 2002. The engine had accumulated a total of 166.75 hours since overhaul at the time of the accident.

METEOROLOGICAL INFORMATION

The closest weather reporting station to the accident site was located at the Adams Field Airport (LIT), near Little Rock, Arkansas, approximately 6 nautical miles north of the accident site. At 1753, the automated surface observing system at LIT reported wind from 120 degrees at 5 knots, visibility 10 statute miles, few clouds at 25,000 feet, temperature 48 degrees Fahrenheit, dew point 37 degrees Fahrenheit, and an altimeter setting of 30.16 inches of Mercury.

According to the United States Naval Observatory, official sunset time on February 26, 2004, was 1802. The end of civil twilight was 1827.

AERODROME INFORMATION

The private airstrip featured a 3,000-foot long unlit turf runway oriented on an east/west heading. Pilots who operated out of the private airstrip reported it was common practice to over-fly the runway to check the condition prior to landing.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located in a field, approximately .22 miles southwest of the private airstrip. The Global Positioning System (GPS) coordinates recorded at the accident site using a hand held GPS unit were 034 degrees 37.906' north latitude and 092 degrees 13.010' west longitude, at an elevation of approximately 248 feet MSL. The airplane impacted soft, flat terrain on a magnetic heading of 330 degrees, and came to rest upright on a heading of 170 degrees. The debris along the energy path measured approximately 56 feet in length. The initial ground impression measured about 3-feet in length, followed by a second impression which measured 8-feet in length. Both impressions contained portions of colored paint chips and inspection panels corresponding to the left wing tip and leading edge of the left wing. A 9-foot long, 5-foot wide, and 2-foot deep crater was located approximately 30 feet from the initial ground impression. Within the crater, slash marks consistent with propeller blade strikes were observed. Adjacent to the right side of the crater, a ground impression that measured 2-feet by 2-feet, displayed markings consistent with a landing gear tire.

The wing support strut of the left wing was severely bent and deformed, and both forward and aft wood spars of the left wing were cracked. The outboard 2 feet of the left wingtip was crushed aft and upward approximately 45 degrees. The left aileron remained attached to its respective mounts and the vented fuel cap on the left wing was found intact and secure. The right wing was partially attached to the fuselage and was buckled throughout the span of the wing. The right aileron remained attached to its respective mounts. The vented fuel cap on the right wing was found secure and intact. The empennage was found intact with minor cosmetic damage. Both horizontal and vertical stabilizers were intact, and their respective flight control surfaces and cables were attached. Flight control cable continuity was established to the left aileron, the elevator, and the rudder from the cockpit controls. Control continuity was established throughout the right wing from the wing root (fuselage attach point) to the right aileron. Control cable continuity from the cockpit to the right wing could not be established. Both control cables to the right wing were separated adjacent to the fuselage attach point. One cable displayed "broom straw" fraying consistent with overload, and the other cable appeared to have been cut by emergency rescue personnel during the on scene response to the accident. The roof above the cabin section of the fuselage was found torn open toward the engine compartment. According to the first responders to the accident, both wings and roof were moved to facilitate emergency access to the two occupants.

Examination of the cockpit revealed that both left and right control yokes were intact. The single bench seat was attached to the fuselage. The airspeed indicator needle displayed "180 knots," the tachometer needle displayed "2,700 rpm," and the tach time showed "525.75 hours." The ball/slip indicator was deflected to the left. The oil temperature gauge indicated "45 degrees" Fahrenheit, and the oil pressure gauge indicated "zero." The throttle was approximately 1 1/2 inches outward, the mixture position was "full rich," and the carburetor heat was "on." The fuel selector was in the full forward (open) position. The magneto switch was in the "both" position.

The engine was found mostly intact, and was crushed downward to the left. Both metal propeller blades displayed "S" bending and twisting opposite direction of rotation.

A Federal Aviation Administration (FAA) inspector, who responded to the accident site, reported that a "strong" odor of fuel was present when he arrived.

MEDICAL AND PATHOLOGICAL INFORMATION

Toxicological tests were not preformed on the pilot.

TESTS AND RESEARCH

On April 21, 2004, at the facilities of Dawson Aircraft, near Clinton, Arkansas, under the supervision of an FAA inspector, a representative from Teledyne Continental Motors conducted an engine teardown. Rotational continuity was established throughout the engine when the propeller was rotated by hand. Compression was verified on all four cylinders. Both magnetos sustained impact damage and would not produce a spark on all leads.

ADDITIONAL INFORMATION

The wreckage was released to the owner's representative on April 29, 2004.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	50,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:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	September 22, 2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	September 20, 2002
Flight Time:	14734 hours (Total, all aircraft), 14 hours (Total, this make and model), 13824 hours (Pilot In Command, all aircraft), 205 hours (Last 90 days, all aircraft), 57 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Taylorcraft	**Registration:**	N43005
Model/Series:	BC12-D	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	6664
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	December 1, 2003 Annual	**Certified Max Gross Wt.:**	1200 lbs
Time Since Last Inspection:	33.85 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2362.67 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	A65-8
Registered Owner:	Russell Adam Coonfield	**Rated Power:**	65 Horsepower
Operator:	Gregory Lawrence Heinze	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LIT,262 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	17:53 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Few / 25000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	9°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wrightsville, AR (PVT)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	16:25 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Private PVT	**Runway Surface Type:**	Grass/turf
Airport Elevation:	248 ft msl	**Runway Surface Condition:**	Dry;Wet
Runway Used:	270	**IFR Approach:**	None
Runway Length/Width:	3000 ft / 60 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	34.716667,-92.224166

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Michael Church; FAA Flight Standards District Office; Little Rock, AR
Original Publish Date:	June 30, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=58814