



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Fulton, NY	<b>Accident Number:</b>	ERA12FA093
<b>Date &amp; Time:</b>	12/01/2011, 1440 EST	<b>Registration:</b>	N865JT
<b>Aircraft:</b>	Wing John R Wittman Tailwind	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Aerodynamic stall/spin	<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

According to the spouse of the pilot, the purpose of the flight was for him to become more familiar with the airplane in order to complete the required 40 flight hours of the phase one operating limitations. According to several witnesses, they heard the engine "sputter" and saw the airplane pitch nose down and descend through trees before impacting the ground. Such a descent is indicative of an aerodynamic stall. A postaccident examination of the airplane revealed no anomalies that would have precluded normal operation of the airframe or engine. Based on the temperature and dew point at the time of the accident, the conditions were favorable for serious carburetor icing at a cruise power setting. The carburetor heat control was in the full forward or "closed" position. The witness statements about the engine, as well as the favorable conditions for serious carburetor ice formation, suggest a partial loss of power. The pilot, still becoming familiar with the handling characteristics of the airplane, likely became preoccupied with restoring full engine power and maneuvering the airplane toward the airport in order to land and unintentionally entered an aerodynamic stall.

## 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, which resulted in an aerodynamic stall. Contributing to the accident was a partial loss of engine power due to the formation of carburetor ice.

## Findings

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<b>Aircraft</b>	Airspeed - Not attained/maintained (Cause)
<b>Personnel issues</b>	Aircraft control - Pilot (Cause)
<b>Environmental issues</b>	Conducive to carburetor icing - Response/compensation (Factor)

## Factual Information

### HISTORY OF FLIGHT

On December 1, 2011, about 1440 eastern standard time, an experimental amateur-built, Wittman Tailwind W10, N865JT, was substantially damaged when it impacted trees and terrain near Fulton, New York. Day visual meteorological conditions prevailed and no flight plan had been filed. The private pilot was fatally injured. The personal local flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. The airplane departed Oswego County Airport (FZY), Fulton, New York, just prior to the accident.

According to the spouse of the pilot, the purpose of the flight was to become more familiar with the airplane and continue building hours in order to complete 40 flight hours for phase one as required in the experimental operating limitations. Two witnesses that worked at the airport about a mile from the accident site reported that they saw the airplane performing touch and go landings on runway 33, about 1430. They both noted that the airplane was traveling "fast."

According to several witnesses near the accident location, they reported hearing the engine "sputter" before the airplane appeared to pitch nose down and impact trees and terrain.

According to the pilot's logbook, the airplane performed its first flight on November 21, 2011, and had a recorded tach time of 111.8 hours. A witness who observed the airplane prior to the first flight stated that the pilot completed a preflight inspection and the witness verified that the airplane control system was functioning properly when the pilot moved the controls. According to an email sent by the pilot to a Federal Aviation Administration (FAA) inspector, the first flight was performed successfully and further flight testing would continue when the "weather conditions would allow."

### PERSONNEL INFORMATION

According to FAA records, the pilot held a private pilot certificate with a rating for airplane single-engine land. He also held a repairman experimental aircraft builder certificate for a Wittman Tailwind WL10. The pilot's most recent third class medical certificate was issued on May 24, 2011 with a limitation of "must wear corrective lenses." According to the pilot's logbooks, he had accumulated 759.6 hours of total flight time.

### AIRCRAFT INFORMATION

According to FAA records, the airplane was issued a special airworthiness certificate on November 8, 2011, and was registered to the pilot. It was equipped with a Lycoming O-320 engine with a tach time of 112.14 hours of time in service. On November 8, 2011, a conditional inspection was signed off in the airframe logbook with the aircraft total time of zero hours.

The airplane was a high wing, plans-built, tail wheel equipped airplane that was constructed out of wood and welded metal tubing with fabric covering. The airplane was not equipped with a stall warning indicator.

### METEOROLOGICAL INFORMATION

The 1453 recorded weather observation at FZY, included wind from 300 degrees at 5 knots, visibility 10 miles, clear skies, temperature 7 degrees C, dew point 0 degrees C; barometric altimeter 30.24 inches of mercury.

## AIRPORT INFORMATION

The airport, 475 feet above mean sea level, had two crossing runways, designated runway 15/33 and 6/24, and did not have an operating air traffic control tower. Runway 15/33 was a 5,196 feet-long by 100 feet-wide asphalt runway. Runway 6/24 was a 3,996 feet-long by 100 feet-wide asphalt runway.

## WRECKAGE AND IMPACT INFORMATION

The airplane was found in a nose down attitude, fractured into several pieces, and came to rest inverted in a heavily wooded area. The main wreckage was located 41.5 feet from a 100 foot-tall tree that the airplane initially impacted. The wreckage was located about 7,000 feet away from the airport center point and on the extended centerline for runway 24. An odor of fuel was detected around the wreckage.

Continuity was confirmed to all flight control surfaces from the cockpit area through breaks in the control tubes and rudder cables. Elevator continuity was confirmed from the cockpit area to just aft of the seats where the fuselage was fractured, then from the fracture to where the first responders cut the control tubes, then aft to the elevator. Right aileron control continuity was confirmed from the control column through the aileron interconnect tube, to a break in the control tube immediately inboard of the right wing, and then to the right aileron. Left aileron control continuity was confirmed from the cockpit, through the aileron interconnect tube, to a break in the control tube immediately inboard of the left wing, then inside of the flap tube assembly, and continuity was confirmed from the hidden hinge assembly to the aileron. Cable continuity was confirmed from the rudder pedals, through a cut made by first responders, to the rudder.

The right wing exhibited impact damage and was separated from the main wreckage. The outboard 6 feet section of the wing was impact separated, exposing the main wing spar. The main wing spar was made of wood, it was impact damaged, and fractured in several areas along the spar. The aileron and flap remained attached at all wing attachment points. The leading edge of the wing and the wing tip were separated from the trailing edge of the wing. The right main landing gear remained attached at the fuselage attachment point. The upper portion of the right wing strut remained attached to the wing attachment point.

The empennage was cut by first responders just aft of the cockpit area. The rudder and vertical stabilizer remained attached to the empennage and were impact damaged in the negative and aft direction. The right horizontal stabilizer and elevator remained attached to the empennage. The right elevator was impact damaged in the negative and forward direction. The left horizontal stabilizer and elevator were separated from the empennage. The left horizontal stabilizer was located approximately 50 feet above ground level in the initial impact tree. The left elevator was located in the vicinity but aft of the main wreckage, and was impact damaged. The tail wheel remained attached to the empennage and was bent slightly to the right.

The outboard approximate 4-foot section of the left wing was impact separated. The inboard section was fragmented, located in several trees, and in the vicinity of the main wreckage. The aileron was separated from the left wing and located aft of the main wreckage. The wing flap was impact separated and located aft of the main wreckage. The left main landing gear remained attached to the fuselage attach point. The upper portion of the left wing strut remained attached to the wing.

The engine remained attached to the firewall, was partially buried about 3-feet in the ground,

and the engine mounts exhibited impact damage. The engine was a Lycoming O-320 engine. The propeller was an Aymar-DeMuth 3200 wooden propeller and was impact damaged at the propeller hub. The wood propeller blades were impacted separated. The propeller spinner exhibited impact crush damage and exhibited slight torsional damage.

The engine driven fuel pump remained attached, was removed, and examined. It was found containing a blue fluid similar in color and smell as 100LL aviation fuel. The diaphragms remained intact. The fuel strainer was disassembled and the fuel strainer screen was relatively clear with a small amount of debris

The Nos. 1, 2, and 3 top sparkplugs were removed. The Nos. 1, 3, and 4 bottom sparkplugs were removed. The other two sparkplugs were damaged and were unable to be removed. All sparkplugs remained intact and appeared to be relatively new with little wear and were light gray in color.

Thumb compression was achieved on all cylinders via hand rotation of the propeller hub. All cylinder covers were removed and all lifters and rockers were observed operating normally and smoothly with no malfunctions noted. The cylinders were borescoped and the Nos. 1, 2, and 4 cylinders exhibited normal wear. The No. 3 cylinder exhibited corrosion around the cylinder head.

Both magnetos were rotated by hand utilizing the magneto gear. The left magneto produced spark on all towers and no spark was observed on the right magneto.

The cockpit throttle and mixture controls were found forward and slightly bent; however, due to cockpit, firewall, and airframe damage and exact power setting on the engine could not be determined. The carburetor heat control was in the full forward or "closed" position. The carburetor was impacted separated and the brass floats were collocated with the engine. The floats exhibited hydraulic deformation.

The engine oil dipstick was found in the engine. Oil was present in the engine and was dark brown in color.

The seats remained attached to the airframe and the 4-point seatbelts and shoulder harness remained attached at their respective attach points. The left seat buckle was cut by first responders about midspan. The right seat belt remained connected and operated normally, but the shoulder harness was cut by first responders. The windscreen was impact damaged and pieces of the plexiglass were collocated with the wreckage.

The master switch was a dual rocker switch, one switch was in the "ON" position, and one was in the "OFF" position. The ignition switch was in the "BOTH" position. The fuel pump was in the "OFF" position. The fuel primer handle was "IN" and in the unlocked position. The tachometer indicated 112.14 hours.

Both doors were separated from the fuselage and the locks were in the "locked" position.

The fuel tank was located aft of the firewall and forward of the cockpit area. It had an indicated capacity of 24 gallons of fuel. The fuel cap was located on a chain attached to the fuel tank, but was not seated in the opening.

A fuel receipt was produced by a local fixed base operator indicating that on November 12, 2011, the airplane was fueled with 5.41 gallons of fuel.

The Emergency Locator Transmitter was located in the wreckage and was fragmented.

## MEDICAL AND PATHOLOGICAL INFORMATION

The Medical Examiner's Office of Onondaga County Health Department Center for Forensics Sciences performed the autopsy on the pilot in Syracuse, New York. The autopsy report indicated that the pilot died as a result of "multiple blunt force injuries."

The FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma, performed toxicological testing of the pilot. Fluid and tissue specimens from the pilot tested negative for carbon monoxide, cyanide, and ethanol, but naproxen was detected in the urine.

## TESTS AND RESEARCH

The elevator control torque tube was retained to be further examined by the NTSB Materials Laboratory in Washington, District of Columbia. The larger portion of the control tube, sustained plastic deformation in multiple areas and also included areas with buckling, overstress fractures and a failure of a welded joint. Examination of the fractured weld joint using a stereo microscope revealed that the weld failed at the interface between the filler metal and the base metal suggesting a lack of fusion consistent with a cold weld. The smaller portion of the push pull tube sustained general plastic deformation and an overstress fracture on the end.

## ADDITIONAL INFORMATION

The carburetor icing probability chart from Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin (SAIB): CE-09-35 Carburetor Icing Prevention, June 30, 2009, shows a probability of serious icing at cruise power at the temperature and dew point reported around the time of the accident.

According to the Pilot's Handbook of Aeronautical Knowledge, FAA-H-8083-25A, Chapter 4, "Aerodynamics of Flight" states in part "An aircraft stall results from a rapid decrease in lift caused by the separation of airflow from the wing's surface brought on by exceeding the critical AOA [angle of attack]... The stalling speed of an aircraft is also higher in a level turn than in straight-and-level flight. Centrifugal force is added to the aircraft's weight and the wing must produce sufficient additional lift to counterbalance the load imposed by the combination of centrifugal force and weight. In a turn, the necessary additional lift is acquired by applying back pressure to the elevator control. This increases the wing's AOA, and results in increased lift. The AOA must increase as the bank angle increases to counteract the increasing load caused by centrifugal force. If at any time during a turn the AOA becomes excessive, the aircraft stalls."

According to FAA Advisory Circular 61-67C "Stall and Spin Awareness Training" states in part "Accelerated stalls can occur at higher-than-normal airspeeds due to abrupt and/or excessive control applications. These stalls may occur in steep turns, pullups, or other abrupt changes in flight path. Accelerated stalls usually are more severe than unaccelerated stalls and are often unexpected because they occur at higher-than-normal airspeeds."

## History of Flight

Approach-VFR pattern downwind	Loss of engine power (partial) Aerodynamic stall/spin (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

## Pilot Information

Certificate:	Private	Age:	64, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With Waivers/Limitations	Last Medical Exam:	06/01/2011
Occupational Pilot:	No	Last Flight Review or Equivalent:	07/12/2010
Flight Time:	760 hours (Total, all aircraft), 1 hours (Total, this make and model), 1 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Wing John R	Registration:	N865JT
Model/Series:	Wittman Tailwind W10	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	001
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	11/01/2011, Conditional	Certified Max Gross Wt.:	1425 lbs
Time Since Last Inspection:	1 Hours	Engines:	Reciprocating
Airframe Total Time:	1 Hours	Engine Manufacturer:	Lycoming
ELT:	C91A installed, not activated	Engine Model/Series:	O-320
Registered Owner:	On file	Rated Power:	150 hp
Operator:	On file	Air Carrier Operating Certificate:	None

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	FZY, 475 ft msl	Observation Time:	1654 EST
Distance from Accident Site:	1 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	47°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	7° C / 0° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 300°	Visibility (RVR):	
Altimeter Setting:	30.243 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fulton, NY (FZY)	Type of Flight Plan Filed:	None
Destination:	Fulton, NY (FZY)	Type of Clearance:	None
Departure Time:	1410 EST	Type of Airspace:	

## Airport Information

Airport:	Oswego County Airport (FZY)	Runway Surface Type:	N/A
Airport Elevation:	475 ft	Runway Surface Condition:	
Runway Used:	33	IFR Approach:	Visual
Runway Length/Width:	5196 ft / 100 ft	VFR Approach/Landing:	Traffic Pattern

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal		

## Administrative Information

Investigator In Charge (IIC):	Shawn Etcher	Adopted Date:	08/29/2012
Additional Participating Persons:	Peter J LaCagnina; FAA/FSDO; Latham, NY		
Publish Date:	09/14/2015		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=82437">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=82437</a>		

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