



# Aviation Investigation Final Report

<b>Location:</b>	Greenwood, Illinois	<b>Accident Number:</b>	CEN18LA228
<b>Date &amp; Time:</b>	June 16, 2018, 10:40 Local	<b>Registration:</b>	N81047
<b>Aircraft:</b>	RGJ AVIATION LLC JOHNSON AIR CAM	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	2 Minor
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

After a fly-in event, the airline transport pilot was attempting a short-field takeoff from a 2,802-ft runway. The pilot added flaps to increase aircraft performance; he checked the flight controls and confirmed the flap setting before takeoff. He stated that he rarely used flaps, that the airplane does not require the use of flaps for a short takeoff roll, and that the airplane make and model had a takeoff roll of 300 ft. The pilot stated that he had about 1,400 ft of runway available and that he rotated the airplane at 50 knots. However, a witness stated the airplane back taxied only about 100 ft past the runway threshold and then turned around for what appeared to be getting ready for takeoff. A second witness stated he heard the pilot make a radio transmission that he was going to back taxi. The witness watched the airplane back taxi and very shortly after it crossed the numbers of the runway, it stopped and turned around. A few seconds later, the pilot applied full throttle, and the airplane began to roll forward. A third witness stated that the pilot attempted the takeoff with about 600 ft remaining to the end of the runway and that the airplane lifted off surprisingly quickly, perhaps 350 ft from the west edge of the runway, maybe further back. Shortly after takeoff, the right wing dropped, and the pilot experienced a loss of aileron control, which were consistent with the exceedance of the airplane's critical angle of attack and an aerodynamic stall. The airplane impacted the ground to the right of the runway and cartwheeled before coming to a stop. Postaccident examination of the airplane revealed no mechanical malfunctions or failures that would have precluded normal operation. It is likely that the pilot took off with insufficient runway available and exceeded the airplane's critical angle of attack.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's decision to take off with insufficient runway available and his exceedance of the airplane's critical angle of attack, which resulted in an aerodynamic stall.

## Findings

<b>Aircraft</b>	Angle of attack - Capability exceeded
<b>Personnel issues</b>	Aircraft control - Pilot
<b>Personnel issues</b>	Decision making/judgment - Pilot

## Factual Information

### History of Flight

Initial climb	Loss of control in flight (Defining event)
Initial climb	Aerodynamic stall/spin
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On June 16, 2018, at 1040 central daylight time, an RGJ Aviation LLC Johnson Air Cam, N81047, impacted terrain during an initial climb from runway 27 at Galt Field Airport (10C), Greenwood, Illinois. The airplane was destroyed by impact forces, and the airline transport pilot and a passenger sustained minor injuries. The airplane was registered to Two If By Sea LLC, and operated by the pilot under Title 14 *Code of Federal Regulations* Part 91 as a personal flight that was not operating on a flight plan. Visual meteorological conditions prevailed at the time of the accident. The flight was originating at the time of the accident and was destined to Twin Lakes, Wisconsin.

The pilot stated that he arrived at 10C at 0800 to attend the Barnstormer Fly-In. For the departure from 10C, he back taxied the airplane on runway 27 to a point that had 1,400 ft of available runway. He performed a preflight check of the flight controls and configured the wing flaps for the takeoff to the second notch setting, which he said was about a 20 degrees extension for added performance. He visually verified the extension of the flaps. He reported that the airplane does not require the use of flaps for a short takeoff roll, and the airplane make and model had a takeoff roll of 300 ft. He said that he rarely used flaps and the accident takeoff was with flaps selected was the only thing that was different from previous takeoffs.

The pilot stated during the takeoff he rotated the airplane at 50 knots at which time the airplane lifted off the runway. He said that as he set his pitch attitude, very shortly after lift-off, the airplane started an uncommanded slow roll to the right. He stated that he applied full left aileron control input and pushed forward on the control stick. He glanced at the airspeed indicator and at "last look" it indicated 50-55 knots. He then retarded [left] engine power to stop the roll, which was unsuccessful. The pilot stated that he had practiced stalls at high density altitude and in his experience roll effectiveness was not degraded until a full stall condition was present.

A witness stated the airplane back taxied only about 100 ft past the runway threshold and then turned around for what appeared to be getting ready for take-off. He heard the engines throttle up, and the airplane began to rotate for take-off. After the initial pitch for takeoff, the airplane did not get higher than about 75 ft when it was clear that the airplane was not going to be able to gain further altitude. The right wing dropped, and the airplane began a sharp right bank toward the right fence off the runway. The airplane hit the ground with the right wing first, cartwheeled onto its nose, and finally came to rest onto its floats directly on the north property line of the airport.

A second witness, who was about 200 ft from the runway 9 threshold, stated he heard the pilot make a radio transmission that he was going to back taxi on runway 27. The witness watched the airplane back

taxi and very shortly after it crossed the numbers of runway 9, it stopped and turned around. A few seconds later, the pilot applied full throttle, and the airplane began to roll forward. After the airplane lifted off and about 50 - 75 ft of altitude, the right wing dropped, and the airplane began to turn to the right side of the runway towards the property line of the airport. The airplane lost altitude quickly, and the right wing hit first along the property fence line, followed by hitting the front end of the aircraft, and eventually coming to a stop on its wheels/floats. The airplane was pointing towards the runway when the aircraft came to the stop.

A third witness stated the airplane entered the west end of the runway from the west end of the apron and taxied east approximately 600 ft and turned around. The witness said that he questioned [to himself] if the pilot was going to attempt to lift off from that point but figured that the pilot must have turned around to taxi back because he was too close to the end of the runway. The witness was stunned when the airplane began a take-off roll. The airplane lifted off surprisingly quickly, perhaps 350 ft from the west edge of the runway, maybe further back. The airplane began to climb quickly and within a short height above the runway, it began to roll to the right and appeared to experience a tip stall. The airplane turned and continued off the side of the runway, resulting in a cartwheel into brush at the edge of the mowed area. The runway had an immediate rolling hill at the west end that requires more altitude than a "normal" runway.

A video showed the airplane takeoff and after liftoff it entered a right roll to about 45-degree bank angle within about one wingspan height above the runway. The video showed both flaps extended and both propellers rotating.

Post-accident examination of the airplane revealed the outboard section of the right wing was bent upward and had several broken structural components. The empennage was broken off and attached to the fuselage only by the flight control cables. The outboard section of left wing was bent downward and had several broken structural components. The forward section of the fuselage was bent downwards, and the nose section of the airplane was crushed. The instrument panel was laying on top of the nose section exposing the back of the instrument panel switches and circuit breakers. The wing attachment struts, at the wing to fuselage attachment area, were bent and cracked. The left engine and propeller were intact. The right engine did not have any visible damage and all the propeller blades were broken off near the blade roots. The engines were inspected, started, and checked for proper operation. Both engines operated normally and indicated no malfunctions at the time of inspection. Flight and engine control continuity was confirmed. Inspection of the airplane did not reveal any mechanical anomalies that would have precluded normal operation.

## Pilot Information

<b>Certificate:</b>	Airline transport; Commercial	<b>Age:</b>	42,Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land; Multi-engine sea	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	May 22, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	September 17, 2017
<b>Flight Time:</b>	10700 hours (Total, all aircraft), 80 hours (Total, this make and model), 8427 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	RGJ AVIATION LLC	<b>Registration:</b>	N81047
<b>Model/Series:</b>	JOHNSON AIR CAM NO SERIES	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	79
<b>Landing Gear Type:</b>	Amphibian; Float	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	June 23, 2017 Condition	<b>Certified Max Gross Wt.:</b>	2100 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	593.3 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Rotax
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	912 ULS
<b>Registered Owner:</b>		<b>Rated Power:</b>	100 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	BUU,875 ft msl	<b>Distance from Accident Site:</b>	17 Nautical Miles
<b>Observation Time:</b>	10:35 Local	<b>Direction from Accident Site:</b>	360°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	6 knots /	<b>Turbulence Type Forecast/Actual:</b>	/ None
<b>Wind Direction:</b>	190°	<b>Turbulence Severity Forecast/Actual:</b>	/ N/A
<b>Altimeter Setting:</b>	29.96 inches Hg	<b>Temperature/Dew Point:</b>	20°C / 22°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Greenwood, IL (10C )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Twin Lakes, WI	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	Galt Field Airport 10C	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	875 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	27	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2802 ft / 36 ft	<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	1 Minor	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Minor	<b>Latitude, Longitude:</b>	42.402778,-88.375(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Gallo, Mitchell
<b>Additional Participating Persons:</b>	Daniel Bonilla; Federal Aviation Administration; Dupage FSDO; Des Plaines, IL Jordan Paskevich; Rotech Flight Safety Inc.; Vernon B.C
<b>Original Publish Date:</b>	April 13, 2020
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=97490">https://data.nts.gov/Docket?ProjectID=97490</a>

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).