



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Indianola, IA	<b>Accident Number:</b>	CEN16LA310
<b>Date &amp; Time:</b>	08/05/2016, 1113 CDT	<b>Registration:</b>	N4707M
<b>Aircraft:</b>	PIPER PA-11	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Aerodynamic stall/spin	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The commercial pilot was using a company airplane to accumulate flight time and experience. Two witnesses reported seeing the airplane climbing after takeoff and noted that the airplane was flying slowly and that it had a "hard time getting any lift." The airplane finally started to climb; however, the wings started rocking and the airplane subsequently descended into terrain. The witness statements were consistent with the prestall motions of the airplane.

The pilot and passenger were employed as company ground personnel. According to company policy, the pilot was not allowed to fly with passengers, and the passenger was only allowed to fly with a company flight instructor. The pilot was not a flight instructor. Examination of the airplane revealed no mechanical anomalies that would have precluded normal operation. A postaccident estimation of the airplane's weight and balance showed that the airplane exceeded its maximum gross weight at the time of the takeoff. It is likely that the pilot's inadequate preflight planning led to the airplane being operated above its maximum gross weight and degraded its climb performance and led to 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 inadequate preflight planning, which resulted in the airplane being operated above its maximum gross weight, degraded its climb performance, and led to an aerodynamic stall during the initial climb.

## Findings

<b>Aircraft</b>	Angle of attack - Not attained/maintained (Cause) Airspeed - Not attained/maintained (Cause) CG/weight distribution - Capability exceeded (Cause) Climb rate - Not attained/maintained (Cause)
<b>Personnel issues</b>	Aircraft control - Pilot (Cause) Weight/balance calculations - Pilot (Cause) Decision making/judgment - Pilot Use of policy/procedure - Pilot

## Factual Information

On August 5, 2016, about 1113 central daylight time, a Piper PA-11; N4707M, impacted a field while maneuvering near Indianola, Iowa. The airplane was destroyed by impact forces. The commercial pilot and a student pilot rated passenger sustained fatal injuries. The airplane was registered to and operated by Agri-Flite Inc under 14 Code of Federal Regulations Part 91 for the personal flight that was not operating on a flight plan. Visual meteorological conditions prevailed at the time of the accident. The flight originated from Laverty Field Airport, Indianola, Iowa at 1045.

According to the president of Agri-Flight Inc, the pilot and the passenger were employed by Agri-Flite Inc as ground crew personnel and not as pilots. The pilot was not a company flight instructor, was not allowed to fly with passengers, and was only allowed to fly with company flight instructors. The passenger was only allowed to fly with company flight instructors and not with any other pilots. The president said that ground personnel were allowed to fly company airplanes in order to accumulate flight time, but it was not a method in which ground personnel would transition from their ground personnel positions to pilot positions within the company. The president said there were no upcoming company pilot positions available for the pilot or passenger and that ground personnel are allowed to fly company airplane as a benefit.

On the day of the accident, the president saw the pilot perform at least two stop and go's in N4707M. The president said that the passenger was sitting outside of the company office using his phone and later speculated that the passenger was communicating with the pilot. The president said the pilot landed N4707M, and the student pilot got on board without the airplane being shut down. According to the company security video, they both departed in the N4707M toward the west.

According to local law enforcement, two witnesses stated that they saw the airplane takeoff toward the east, and it appeared to be moving "very sluggishly." The said that appeared as if there was something wrong with the airplane because it was it was having difficulty in attaining enough speed to takeoff and "more trouble" climbing after it lifted off the runway. The airplane flew to the east, then circled to the west, continued to be flying "very slowly," and "a hard time getting any lift." The airplane finally started to climb but then the left wing "dipped down" toward the ground. The airplane seemed to wobble back and forth three or four times, first the left wing followed by the right wing dipping down toward the ground. The airplane then "dropped out of the air."

The pilot held a commercial pilot certificate with an airplane single-engine land rating. He held a second class medical certificate dated November 6, 2015. The medical certificate was issued without any limitations. According to the operator's accident report, the pilot had accumulated about 260 hours of total flight time of which about 2.5 hours was in the same make and model as the accident airplane.

A Federal Aviation Administration (FAA) Principal Airworthiness Inspector from the Des Moines Flight Standards District Office stated that the wreckage was oriented facing east on a 090-degree heading The airplane's left wing rested flat on the ground. The right wing root was

up off the ground slightly due to how the fuselage was twisted and laying on its left side. The post-crash fire consumed all fabric from the left and right wings and fuselage. Small pieces of fabric were still attached to parts of the fuselage frame tubing. Flight control continuity was confirmed. The Continental A-65-8, serial number 33822-5-8, engine magnetos were broken out of the back of the engine but were on the accessory case. The propeller was still bolted to the flange. The left blade was splintered several inches from the hub. The separated portion was located on the ground, under the engine. Approximately 30 percent of the right blade was missing. The instrument panel and all instruments were badly damaged by the fire. The only recognizable instrument was the turn and slip indicator. The positions of the throttle, carburetor heat, and fuel selector could not be determined due to the condition of the wreckage.

The FAA final Forensic Toxicology Fatal Accident Report for the pilot stated: no carbon monoxide detected in blood, cyanide testing not performed, no ethanol detected in urine, and no listed drugs detected in urine.

The president of Agri-Flite Inc. said that based on a pilot's weight of approximately 225 pounds and a passenger's weight of approximately 285 pounds, N4707M had a weight above the maximum certified weight of the airplane. The calculated takeoff weight of the airplane for the accident flight was about 1,338 lbs and the maximum certified weight was 1,220 lbs.

## History of Flight

Prior to flight	Aircraft loading event
Enroute-climb to cruise	Aerodynamic stall/spin (Defining event) Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

## Pilot Information

Certificate:	Commercial	Age:	23, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	None
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 None	Last FAA Medical Exam:	10/06/2015
Occupational Pilot:	No	Last Flight Review or Equivalent:	04/29/2016
Flight Time:	255 hours (Total, all aircraft), 3 hours (Total, this make and model)		

## Pilot-Rated Passenger Information

Certificate:	Student	Age:	, Male
Airplane Rating(s):	None	Seat Occupied:	Rear
Other Aircraft Rating(s):	None	Restraint Used:	None
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 None	Last FAA Medical Exam:	02/06/2015
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

## Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N4707M
Model/Series:	PA-11	Aircraft Category:	Airplane
Year of Manufacture:	1947	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	11-216
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	10/01/2015, Annual	Certified Max Gross Wt.:	1220 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	6231 Hours at time of accident	Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	A-65-8
Registered Owner:	AGRI-FLITE INC	Rated Power:	65 hp
Operator:	AGRI-FLITE INC	Operating Certificate(s) Held:	Agricultural Aircraft (137)

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	DSM, 958 ft msl	Distance from Accident Site:	9 Nautical Miles
Observation Time:	1054 CDT	Direction from Accident Site:	327°
Lowest Cloud Condition:	Few / 4000 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 30000 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	20°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	30.04 inches Hg	Temperature/Dew Point:	26 °C / 15 °C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Indianola, IA (IA41)	Type of Flight Plan Filed:	None
Destination:	Indianola, IA (IA41)	Type of Clearance:	None
Departure Time:	1045 CDT	Type of Airspace:	

## Airport Information

Airport:	Laverty Field Airport (IA41)	Runway Surface Type:	
Airport Elevation:	950 ft	Runway Surface Condition:	
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	41.415278, -93.561389 (est)

## Administrative Information

Investigator In Charge (IIC):	Mitchell F Gallo	Report Date:	07/26/2017
Additional Participating Persons:	Brian Lundquist; Federal Aviation Administration; Des Moines, IA		
Publish Date:	07/26/2017		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	<a href="http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=93787">http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=93787</a>		

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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](#).