Aviation Investigation Final Report

Location:	Remsen, New York	**Accident Number:**	ERA17FA226
Date & Time:	July 4, 2017, 14:30 Local	**Registration:**	N45851
Aircraft:	Luscombe 8	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot departed a private grass airstrip and was observed by a witness returning about 14 minutes later. The witness stated that the airplane was headed east when it made a steep right turn followed by a steep left turn to get lined up on the final approach path for runway 9. The airplane straightened out as it descended toward the runway on a normal approach path. The airplane's wings were level, and the engine was running, when the airplane suddenly nosed over and descended into a hayfield from a height of about 75 ft above the ground. Examination of the accident site indicated that the airplane impacted the hayfield in a nose-down attitude and came to rest upright about 660 ft from the end of the runway on a magnetic heading of about 261°. A postaccident examination of the airframe and a test-run of the engine found no evidence of any mechanical deficiencies that would have precluded normal operation at the time of the accident. A review of the pilot's logbook revealed that he had 13 hours of flight time in the accident airplane and had not flown in the 8 months before the accident. Since no mechanical issues were identified and based on the witness description and the wreckage, it is most likely that the pilot failed to maintain a safe airspeed as he approached the runway and exceeded the airplane's critical angle of attack, which resulted in an aerodynamic stall.

The airplane was equipped with lap belts only, and the pilot was wearing a lap belt at the time of the accident. The pilot had recently purchased new lap belt/shoulder harness assemblies that were to be installed in the airplane. The lack of a properly installed and worn upper body restraint may have contributed to the severity of some of the pilot's injuries.

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 the proper airspeed and his exceedance of the airplane's critical

angle of attack during landing, which resulted in an aerodynamic stall at an altitude too low for him to recover.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Not attained/maintained

Factual Information

History of Flight

Approach-VFR pattern final	Loss of control in flight (Defining event)
Approach-VFR pattern final	Aerodynamic stall/spin
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On July 4, 2017, about 1430 eastern daylight time, a Luscombe 8A airplane, N45851, was substantially damaged when it impacted terrain while on final approach to runway 9 at Remsen City Airport (NY57), Remsen, New York. The commercial pilot was fatally injured. The airplane was registered to the pilot, who was operating it as a Title 14 *Code of Federal Regulations* Part 91 personal flight. No flight plan was filed, and visual meteorological conditions prevailed for the local flight that originated at NY57 about 1416.

The pilot's girlfriend took a short video of the airplane just after it departed runway 27, a 2,000-ft-long by 100-ft-wide grass runway. As the airplane made a normal climb toward the west, a windsock was visible in the video. The windsock indicated that the wind was out of the northwest about 6 knots. About 14 minutes later, a witness observed the airplane heading east. He saw the airplane make a steep right turn followed by a steep left turn to get lined up on the final approach path for runway 9. The witness said that the airplane straightened out as it descended toward the runway and appeared to be on a normal approach path. The witness could not recall the airplane's ground speed. The airplane's wings were level when it suddenly nosed over into a hayfield from about 75 ft above the ground. The witness did not see the airplane rotate as it descended but thought that it probably did because it came to rest heading in the opposite direction of travel. The witness said that the airplane's engine was running normally right up until impact. He did not see or hear anything unusual with the airplane or engine before it nosed over. He added that the weather was "beautiful" that afternoon, and he did not remember it being windy.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with ratings for airplane single-engine land and instrument airplane. A review of the pilot's logbook revealed that he had a total flight experience of 1,783 hours of which 13 hours were in the accident airplane. The last entry made before the accident flight was on November 14, 2016, about 8 months before the accident. The flight was in the accident airplane and lasted 0.7 hour, and the remarks stated that the pilot practiced stalls, level flight, and landings. The pilot's last flight review was completed on September 13, 2016. His last Federal Aviation Administration (FAA) third-class medical certificate was issued in March 2017 with a limitation to wear corrective lenses.

AIRCRAFT INFORMATION

A review of the airplane's maintenance logbooks revealed that the engine was overhauled in April 2016 after the airplane had been in storage for many years. In September 2016, the airplane underwent an annual inspection before it was sold to the pilot in October 2016. At the time of the accident, the airplane had accrued about 2,897.9 hours, and the engine had accrued about 13 hours since overhaul.

A mechanic, who was also a friend of the pilot, stated that he had been working on the airplane since May 2017. On June 26, 2017, he and the pilot installed a new fuel selector valve and checked it for leaks. They also ran the engine for about 15 minutes. The mechanic said that "everything was in proper working order." However, he had not released the airplane back into service since there was outstanding work that needed to be done, which he described as "small stuff." These maintenance items included installing shoulder harnesses and checking the airplane's alignment since the tail traveled "slightly" to the right.

METEOROLOGICAL INFORMATION

At 1453, the weather reported at Griffiss International Airport (RME), Rome, New York, about 12 miles southwest of the accident site, included calm wind, visibility 10 miles, broken clouds at 7,000 ft, overcast clouds at 9,500 ft, temperature 24°C, dewpoint 13°C, and an altimeter setting of 30.01 inches of mercury.

AIRPORT INFORMATION

NY57 was a privately-owned airport that was closed in November 2016 when the owner of the property died. Large, white, wooden X's were placed at the approach end of each runway. According to the mechanic, the pilot knew the airport was closed, and the wooden X's were visible in the video provided by the girlfriend.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest upright in a hayfield about 660 ft from the end of runway 9 on a magnetic heading of about 261°. There was no evidence of postimpact fire, and all major components of the airplane were accounted for at the site. A cluster of three ground scars were observed about 10 ft forward and to the right of where the airplane came to rest. The engine remained on the airframe but had been displaced up and to the left from impact. The two-bladed propeller remained secured to the engine. Both wings, the fuselage, and the forward empennage area sustained structural damage. No damage was observed to the tail control surfaces. Flight control continuity for all major flight controls was established to the cockpit. The single fuel tank located behind the front seats was breached, and fuel was observed leaking from the tank.

According to NY57 fuel records, the pilot obtained 5 gallons of 100LL fuel on the day of the accident. A sample of 100LL fuel from the fuel farm located at NY57 was absent of water and debris. Shop air was blown from the main fuel line that attached to the fuel tank and ran all the way through to the carburetor. There was a breach in the line just aft of the gascolator, and the glass gascolator was broken from impact. No obstructions were noted in the main fuel line.

An examination and test-run of the engine was conducted on October 18, 2017. The engine sustained some impact damage, and the left magneto was partially separated from the engine. The oil pan was also partially separated at its attachment point. The engine was prepped for the test-run by removing and

replacing the broken left magneto and the oil sump. The engine started and ran through its entire power range without interruption. No mechanical anomalies were noted that would have precluded normal operation of the engine at the time of the accident.

MEDICAL AND PATHOLOGICAL INFORMATION

The Medical Examiner's Office - Onondaga County Health Department Center for Forensic Sciences, Syracuse, New York, conducted an autopsy of the pilot. The cause of death was determined to be multiple blunt force injuries.

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing of the pilot. Fluid and tissue specimens from the pilot tested negative for carbon monoxide and ethanol. Atropine and etomidate were detected in blood from the heart. These drugs were most likely administered by medical personnel providing emergency care after the accident.

SURVIVAL FACTORS

The airplane was equipped with lap belts only. According to law enforcement personnel who responded to the scene, the pilot was wearing his lap belt, and paramedics unclasped the belt upon their arrival. Examination of both sides of the belt revealed they were securely fastened to the floor structure, and the buckle worked as designed. No mechanical issues were found with the lap belt. The airplane was not equipped with shoulder harnesses; however, the pilot's mechanic stated that the pilot had purchased two lap belt/shoulder harness assemblies to be installed in the airplane. The assemblies were part of a supplemental type certificate (STC), but the mechanic could not recall who owned the STC or where the harnesses were purchased. A search of STCs for the Luscombe 8A airplane revealed there was an STC (SA01092WI) for a "3-point Lap Belt- Shoulder Harness Restraint System Installation using an inertial reel."

The FAA published Seat Belts and Shoulder Harnesses, Smart Protection for Small Airplanes (AM-400-90/2). In the publication it states that if an airplane was manufactured without shoulder harnesses, the owner should obtain a kit to install them from the manufacturer or manufacturer's local representative. In addition, the publication notes that seat belts alone will only protect the occupant in very minor impacts and that using shoulder harnesses in small aircraft would reduce injuries by 88 percent and fatalities by 20 percent.

Pilot Information

Certificate:	Commercial	**Age:**	74,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 27, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 13, 2016
Flight Time:	1783 hours (Total, all aircraft), 13 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Luscombe	**Registration:**	N45851
Model/Series:	8 A	**Aircraft Category:**	Airplane
Year of Manufacture:	1946	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2378
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	September 22, 2016 Annual	**Certified Max Gross Wt.:**	1351 lbs
Time Since Last Inspection:	13 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2897.9 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	C91A installed, not activated	**Engine Model/Series:**	A-65-8
Registered Owner:	On file	**Rated Power:**	65 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	RME,5037 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	14:53 Local	**Direction from Accident Site:**	220°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 7000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	24°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Remsen, NY (NY57)	**Type of Flight Plan Filed:**	None
Destination:	Remsen, NY (NY57)	**Type of Clearance:**	None
Departure Time:	14:16 Local	**Type of Airspace:**	Unknown

Airport Information

Airport:	Remsen City Airport NY57	**Runway Surface Type:**	Grass/turf
Airport Elevation:	1220 ft msl	**Runway Surface Condition:**	Dry;Vegetation
Runway Used:	09	**IFR Approach:**	None
Runway Length/Width:	2000 ft / 100 ft	**VFR Approach/Landing:**	None

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:**	43.355834,-75.188056(est)

Preventing Similar Accidents

Prevent Aerodynamic Stalls at Low Altitude (SA-019)

The Problem

While maneuvering an airplane at low altitude in visual meteorological conditions, many pilots fail to avoid conditions that lead to an aerodynamic stall, recognize the warning signs of a stall onset, and apply appropriate recovery techniques. Many stall accidents result when a pilot is momentarily distracted from the primary task of flying, such as while maneuvering in the airport traffic pattern, during an emergency, or when fixating on ground objects.

What can you do?

- Be honest with yourself about your knowledge of stalls and your preparedness to recognize and handle a stall situation in your airplane. Seek training to ensure that you fully understand the stall phenomenon, including angle-of attack (AOA) concepts and how elements such as weight, center of gravity, turbulence, maneuvering loads, and other factors affect an airplane's stall characteristics.
- Remember that an aerodynamic stall can occur at any airspeed, at any attitude, and with any engine power setting.
- Remember that the stall airspeeds marked on the airspeed indicator (for example, the bottom of the green arc and the bottom of the white arc) typically represent steady flight speeds at 1G at the airplane's maximum gross weight in the specified configuration. Maneuvering loads and other factors can increase the airspeed at which the airplane will stall. For example, increasing bank angle can increase stall speed exponentially. Check your airplane's handbook for information.
- Reducing AOA by lowering the airplane's nose at the first indication of a stall is the most important immediate response for stall avoidance and stall recovery.
- Manage distractions when maneuvering at low altitude so that they do not interfere with the primary task of flying.
- Resist the temptation to perform maneuvers in an effort to impress people, including passengers, other pilots, persons on the ground, or others via an onboard camera. "Showing off" can be a deadly distraction because it diverts your attention away from the primary task of safe flying.
- Understand that the stall characteristics of an unfamiliar airplane may differ substantially from those of airplanes with which you have more flight experience.

See https://www.ntsb.gov/Advocacy/safety-alerts/Documents/SA-019.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Read, Leah
Additional Participating Persons:	Michael Baringer; FAA/FSDO; Albany, NY John Kent; CMI; Mobile, AL
Original Publish Date:	April 8, 2019
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=95493

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties … and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available here.