Aviation Investigation Final Report

Location:	Terrell, Texas	**Accident Number:**	GAA16CA106
Date & Time:	January 19, 2016, 11:15 Local	**Registration:**	N2119N
Aircraft:	Piper PA 28RT-201	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor reported that the private pilot receiving instruction was flying a simulated engine failure approach to an airport in gusty crosswind conditions. When the airplane approached 50 feet above the ground on final, the flight instructor called "go-around." He reported that the instructed pilot "simultaneously pulled back and went full throttle." The flight instructor stated that the airspeed was about 80 knots, and "the airplane fell straight to the ground" short of the runway. After the impact, the airplane bounced forward onto the runway, the left main landing gear collapsed, and the airplane departed the runway to the left about 550 feet from the runway threshold. The flight instructor reported that he verified that the throttle was full forward before the impact. A postaccident examination revealed substantial damage to the right wing.

The flight instructor reported there were no mechanical malfunctions or failures with the airplane that would have precluded normal operation.

According to the Federal Aviation Administration (FAA) Airport Facility Directory, trees were listed as an obstacle for the runway used. About the time of the accident, 7 nautical miles southeast of the airport, an automated weather observing system reported wind from 190 true at 13 knots, gusting to 21 knots. The tree line was located upwind and parallel to the airplane's final approach.

The FAA Pilot's Handbook of Aeronautical Knowledge describes effects of obstructions on wind. The handbook states, "It is especially important to be vigilant when flying in or out of airports that have large buildings or natural obstructions located near the runway." The handbook further states, "During the landing phase of flight, an aircraft may 'drop in' due to the turbulent air and be too low to clear obstacles during the approach."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The private pilot's exceedance of the airplane's critical angle-of-attack during a go-around in gusting crosswind conditions, which resulted in an aerodynamic stall and a collision with terrain short of the runway.

Findings

Personnel issues	Aircraft control - Student/instructed pilot
Aircraft	Climb rate - Not attained/maintained
Aircraft	Angle of attack - Capability exceeded
Personnel issues	Delayed action - Instructor/check pilot
Environmental issues	Variable wind - Effect on operation
Environmental issues	Gusts - Effect on operation
Environmental issues	Tree(s) - Effect on operation

Factual Information

History of Flight

Approach-VFR go-around	Other weather encounter
Approach-VFR go-around	Loss of control in flight (Defining event)
Approach-VFR go-around	Collision with terr/obj (non-CFIT)
Landing-landing roll	Abnormal runway contact
Landing-landing roll	Runway excursion

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	38,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	July 30, 2013
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	June 1, 2014
Flight Time:	(Estimated) 6300 hours (Total, all aircraft), 500 hours (Total, this make and model), 5500 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 1.6 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Private	**Age:**	19,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	January 13, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 300 hours (Total, all aircraft), 3 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N2119N
Model/Series:	PA 28RT-201 T	**Aircraft Category:**	Airplane
Year of Manufacture:	1979	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	28R-7918038
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	2750 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360
Registered Owner:	J. LINN AVIATION INC	**Rated Power:**	201 Horsepower
Operator:	J. LINN AVIATION INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KTRL,474 ft msl	**Distance from Accident Site:**	7 Nautical Miles
Observation Time:	17:53 Local	**Direction from Accident Site:**	130°
Lowest Cloud Condition:	Few / 2600 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots / 21 knots	**Turbulence Type Forecast/Actual:**	/ Clear air
Wind Direction:	190°	**Turbulence Severity Forecast/Actual:**	/ Light
Altimeter Setting:	30.17 inches Hg	**Temperature/Dew Point:**	15°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	MESQUITE, TX (HQZ)	**Type of Flight Plan Filed:**	None
Destination:	MESQUITE, TX (HQZ)	**Type of Clearance:**	None
Departure Time:	10:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	AIRPARK EAST 1F7	**Runway Surface Type:**	Asphalt
Airport Elevation:	510 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	13	**IFR Approach:**	None
Runway Length/Width:	2630 ft / 30 ft	**VFR Approach/Landing:**	Go around;Simulated forced landing

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	32.815555,-96.355003(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):	Gerhardt, Adam
Additional Participating Persons:	Joe M Ojeda; North Texas FSDO (FAA); Irving, TX
Original Publish Date:	April 5, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92602