National Transportation Safety Board
Aviation Accident Final Report

Location:	Cortez, Colorado	**Accident Number:**	CEN14LA476
Date & Time:	September 3, 2014, 12:38 Local	**Registration:**	N747TH
Aircraft:	Piper PA-46-350P	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The accident occurred during a local instructional flight to satisfy the commercial pilot's annual insurance currency requirements in the accident airplane. The flight instructor reported that the pilot was demonstrating a simulated loss of engine power during initial climb and return for a downwind landing. During initial climb, upon reaching 1,200 ft above ground level (agl), the flight instructor reduced engine power to flight idle and feathered the propeller. In response, the pilot reduced airplane pitch and entered a left, 45-degree-bank turn back toward the airport. The flight instructor stated that, upon rolling wings level, the airplane appeared to be lower than he had expected as it glided toward the runway; however, he believed there was sufficient altitude remaining to safely land on the runway and told the pilot to continue without increasing the engine power. The flight instructor ultimately decided to abort the maneuver as the airplane crossed over the runway threshold at 40 ft agl. The flight instructor advanced the engine power lever to the full-forward position and increased airplane pitch to arrest the descent; however, he did not perceive an increase in engine thrust. Without an increase in engine thrust and with the increased pitch, the airplane's airspeed decreased rapidly, and the airplane entered an aerodynamic stall about 30 ft above the runway. The airplane impacted the runway before sliding into a grassy area.

The flight instructor reported that he did not recall advancing the propeller control when he decided to abort the maneuver, and, as such, the perceived lack of engine thrust was likely because the propeller remained feathered after he increased engine power. Additionally, the flight instructor postulated that the airplane's landing gear had not been retracted after takeoff, which resulted in a reduced climb gradient, and, as such, the airplane entered the maneuver farther away from the airport than anticipated. Further, with the landing gear extended, the airplane experienced a reduction in glide performance during the simulated forced landing. The flight instructor reported that the accident could have been prevented if he had maintained a safe flying airspeed after he took control of the airplane. Additionally, he believed that his delayed decision to abort the maneuver resulted in an insufficient margin of safety.

Probable Cause and Findings

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

The flight instructor's delayed decision to abort the simulated engine out maneuver, his failure to unfeather the propeller before restoring engine power, and his inadequate airspeed management, which led to an aerodynamic stall at low altitude.

Findings

Personnel issues	Delayed action - Instructor/check pilot
Personnel issues	Aircraft control - Instructor/check pilot
Aircraft	Propeller feather/reversing - Incorrect use/operation
Aircraft	Airspeed - Not attained/maintained
Personnel issues	Use of equip/system - Pilot

Factual Information

On September 3, 2014, about 1238 mountain daylight time, a Piper model PA-46-350P airplane, N747TH, was substantially damaged while landing at the Cortez Municipal Airport (CEZ), Cortez, Colorado. The commercial pilot and his flight instructor sustained minor injuries. The airplane was registered to and operated by Philburto Aviation, LTD, under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. Day visual meteorological conditions prevailed for the local instructional flight, which had departed shortly before the accident.

The flight instructor reported that the purpose of the flight was to satisfy the pilot's annual insurance currency requirements in the accident airplane. The flight instructor stated that earlier in the morning they had completed several visual flight rules (VFR) flight maneuvers before deciding to conduct takeoff-and-landings at CEZ. The flight instructor reported that following several uneventful landings, they decided to perform a simulated loss of engine power following a takeoff from runway 21 (7,205 feet by 100 feet, asphalt) and return for a downwind landing on runway 3.

During initial climb from runway 21, upon reaching 1,200 feet above ground level (agl), the flight instructor reduced engine power to flight idle and feathered the propeller. In response, the pilot reduced airplane pitch and entered a 45-degree bank left turn back toward the airport. The pilot maintained best-glide airspeed (90 knots) throughout the left turn and rolled wings-level when the airplane was aligned with runway 3. The flight instructor stated that, upon rolling wings level, the airplane appeared to be lower than he had expected as it glided toward the runway; however, he believed there was sufficient altitude remaining to safely land on the runway and told the pilot to continue without an increase in engine power. The flight instructor ultimately decided to abort the maneuver as the airplane crossed over the runway 3 threshold at 40 feet agl. He reported that despite the airplane having sufficient altitude remaining to land on the remaining runway, he thought it would be safer to abort the simulated engine failure and recover under powered-flight. He took control of the airplane, advanced the engine power lever to the full forward position, and increased airplane pitch to arrest the descent; however, he did not perceive an increase in thrust from the engine. Without an increase in engine thrust, the airplane's airspeed decreased rapidly and the airplane entered an aerodynamic stall about 30 feet above the runway. The airplane impacted the runway, about 500 feet from the approach threshold, before it slid off the runway into a grassy area. The flight instructor reported that the engine continued to operate after the accident, and that he secured it by pulling the condition lever to the full aft position. The main wing spar and fuselage were substantially damaged during the impact sequence.

The flight instructor reported that he did not recall advancing the propeller control when he decided to abort the maneuver, and as such, the perceived lack of engine thrust was likely because the propeller remained feathered as he increased engine power. Additionally, the flight instructor reported that neither he or the pilot remember extending the landing gear following the simulated engine failure; however, both pilots recalled seeing the landing gear position lights illuminated during the maneuver. The flight instructor postulated that the airplane's landing gear had not been retracted after takeoff, which resulted in a reduced climb gradient due to the additional aerodynamic drag of the extended landing gear, and as such, the airplane entered the maneuver farther away from the airport than anticipated. Furthermore, with the landing gear extended, the airplane experienced a reduction in glide performance during the simulated forced landing.

The flight instructor reported that the accident could have been prevented had he maintained a safe flying airspeed after he took control of the airplane. Additionally, the flight instructor believed that his delayed decision to abort the maneuver had resulted in an insufficient margin of safety.

At 1253, the CEZ automated surface observing system (ASOS) reported: wind 220 degrees at 12 knots, visibility 10 miles, clear sky, temperature 29 degrees Celsius; dew point 1 degrees Celsius; and an altimeter setting of 30.07 inches of mercury.

History of Flight

Initial climb	Simulated/training event
Landing	Aerodynamic stall/spin (Defining event)
Landing	Collision with terr/obj (non-CFIT)

Flight instructor Information

Certificate:	Airline transport; Flight instructor	**Age:**	54,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**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 3 With waivers/limitations	**Last FAA Medical Exam:**	December 21, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 18, 2014
Flight Time:	4184 hours (Total, all aircraft), 1648 hours (Total, this make and model), 3979 hours (Pilot In Command, all aircraft), 63 hours (Last 90 days, all aircraft), 21 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Commercial	**Age:**	60,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	June 20, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	August 31, 2013
Flight Time:	(Estimated) 4000 hours (Total, all aircraft), 2050 hours (Total, this make and model), 3917 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 29 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N747TH
Model/Series:	PA-46-350P	**Aircraft Category:**	Airplane
Year of Manufacture:	1999	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4636200
Landing Gear Type:	Retractable - Tricycle	**Seats:**	5
Date/Type of Last Inspection:	December 2, 2013 Annual	**Certified Max Gross Wt.:**	4300 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo prop
Airframe Total Time:	2900 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	PT6A-35
Registered Owner:		**Rated Power:**	560 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	CEZ,5918 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	29°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cortez, CO (CEZ)	**Type of Flight Plan Filed:**	None
Destination:	Cortez, CO (CEZ)	**Type of Clearance:**	None
Departure Time:	12:38 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Cortez Municipal Airport CEZ	**Runway Surface Type:**	Asphalt
Airport Elevation:	5918 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	03	**IFR Approach:**	None
Runway Length/Width:	7205 ft / 100 ft	**VFR Approach/Landing:**	Simulated forced landing

Wreckage and Impact Information

Crew Injuries:	2 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	37.303054,-108.628051(est)

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Mark M Rushton; Federal Aviation Administration - Salt Lake City; Salt Lake City, UT
Original Publish Date:	January 18, 2017
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=90011