Aviation Investigation Final Report

Location:	Kentland, Indiana	**Accident Number:**	CEN16LA132
Date & Time:	March 26, 2016, 13:45 Local	**Registration:**	N8154P
Aircraft:	Piper PA24	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor reported that he had demonstrated the use of the airplane's fuel quantity gauge during the instructional flight. As part of the demonstration, he had changed the position of the fuel selector but did not recall in what position he had left the selector at the conclusion of the exercise. While approaching the airport to land, the engine experienced a total loss of power, and the flight instructor assumed control of the airplane. During the subsequent forced landing to a field, the airplane stalled about 10 feet above the ground and landed hard, resulting in substantial damage. Postaccident examination found fuel in all fuel tanks with the exception of the right auxiliary tank. No mechanical anomalies were found with the airplane. The position of the fuel selector before the loss of engine power could not be determined, as the flight instructor turned the selector to the off position during the postaccident egress. The airplane was operating in an area conducive to the formation of serious icing at glide power, however, it could not be determined if the loss of engine power was a result of fuel starvation with the right auxiliary fuel tank selected, or if carburetor icing had formed during the airplane's descent. It is likely that the stall experienced during the forced landing contributed to the severity of damage to the airplane.

Probable Cause and Findings

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

The loss of engine power for reasons that could not be determined because postaccident examination of the airframe and engine did not reveal any mechanical anomalies that would have precluded normal operation. Contributing to the accident was the flight instructor's inadequate airspeed management during the forced landing, which led to an aerodynamic stall at low altitude.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	Airspeed - Not attained/maintained
Aircraft	Fuel - Fluid level
Environmental issues	Conducive to carburetor icing - Not specified

Factual Information

History of Flight

Approach-VFR pattern final	Unknown or undetermined
Approach-VFR pattern final	Loss of engine power (total) (Defining event)
Landing	Aerodynamic stall/spin

On March 26, 2016, about 1345 central daylight time, a Piper PA-24-250 airplane, N8154P, was substantially damaged during a forced landing near Kentland, Indiana. The flight instructor and private rated pilot receiving instruction sustained minor injuries. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed for the flight, which operated without a flight plan. The local flight originated from the Kentland Municipal Airport (50I), Kentland, Indiana.

According to the flight instructor, following air work he demonstrated how to use the single fuel gauge and the momentary selector buttons to display how much fuel was in each tank. He then demonstrated the gauge using the fuel selector. The instructor could not recall which position he left the fuel selector in. He reduced power and descended from 3,000 ft mean sea level through 1,500 ft and set up for a 500 ft per minute descent towards runway 09 with approximately 14 inches manifold pressure, fuel pump on, and carburetor heat on.

At an undetermined time, the private pilot began flying the airplane. About ½ mile from the approach end of the runway 9, the airplane's descent rate increased so the instructor called for the private pilot to add engine power. When the engine did not respond, the instructor took control of the airplane and turned right to land in a field. He checked the engine instruments and fuel quantities and could not get the engine to respond. The airplane stalled about 10-15 ft above ground level and the airplane landed hard. The instructor turned off the cockpit switches to include the fuel selector and both pilots exited the airplane.

The responding Federal Aviation Administration inspectors examined that wreckage and found substantial damage to the fuselage and both wings. In addition, each fuel tank contained an unmeasured amount with the exception of the right auxiliary tank which was found empty. No anomalies were discovered which would have precluded normal operation of the engine.

After the accident, the instructor recalled that during the air work portion of the flight, the right wings seemed to be "a bit heavy" but he was not surprised since most of the indicated fuel was contained in the right main and right auxiliary tanks.

A review of the Carburetor Icing Probability Chart located in the FAA's Special Airworthiness Information Bulletin CE-09-35, Carburetor Icing Prevention, dated June 30, 2009, found that the airplane was operated in an area conducive to the formation of serious icing while operating at glide power.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	77,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
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:**	April 29, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 11, 2015
Flight Time:	5016 hours (Total, all aircraft), 2101 hours (Total, this make and model), 4400 hours (Pilot In Command, all aircraft), 2.7 hours (Last 90 days, all aircraft), 1.1 hours (Last 30 days, all aircraft), 1.1 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	61,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:**	October 13, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	778 hours (Total, all aircraft), 1 hours (Total, this make and model), 718 hours (Pilot In Command, all aircraft), 8.6 hours (Last 90 days, all aircraft), 3.5 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N8154P
Model/Series:	PA24 250	**Aircraft Category:**	Airplane
Year of Manufacture:	1963	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-3409
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	February 14, 2016 Annual	**Certified Max Gross Wt.:**	2899 lbs
Time Since Last Inspection:	4131 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	C91 installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-540-A1D5
Registered Owner:	On file	**Rated Power:**	250 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:	KRZL,696 ft msl	**Distance from Accident Site:**	18 Nautical Miles
Observation Time:	13:55 Local	**Direction from Accident Site:**	79°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	110°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	11°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kentland, IN (50I)	**Type of Flight Plan Filed:**	None
Destination:	Kentland, IN (50I)	**Type of Clearance:**	None
Departure Time:	12:35 Local	**Type of Airspace:**	

Airport Information

Airport:	KENTLAND MUNI 50I	**Runway Surface Type:**	Asphalt
Airport Elevation:	699 ft msl	**Runway Surface Condition:**	Rough;Vegetation
Runway Used:	09	**IFR Approach:**	None
Runway Length/Width:	4004 ft / 60 ft	**VFR Approach/Landing:**	Touch and go

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:**	40.758888,-87.437774(est)

Administrative Information

Investigator In Charge (IIC):	Aguilera, Jason
Additional Participating Persons:	Edmond Pottle; FAA FSDO; West Chicago, IL
Original Publish Date:	October 6, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92903