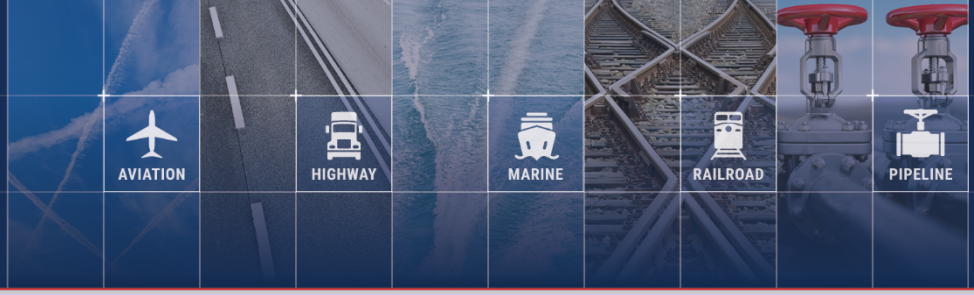

Aviation Investigation Final Report

Location:	Pembroke Pines, Florida	**Accident Number:**	ERA20LA177
Date & Time:	May 12, 2020, 08:58 Local	**Registration:**	N887SP
Aircraft:	Piper PA34	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor reported that, about 10 minutes into the instructional flight, the right engine lost power. The flight instructor took control of the airplane and according to radar data turned right 180° toward the departure airport. The airplane descended from about 775 ft to 450 ft during the turn. The flight instructor stated that the right engine was windmilling while in the turn and that he did not secure it until after completing the turn back to the departure airport. The flight instructor stated that after the turn, the airplane was unable to maintain altitude as a result of the left engine not producing full power, so he attempted to land the airplane on a residential street. The airplane impacted powerlines and then a road, resulting in substantial damage to the fuselage, wings, and empennage.

Postaccident examination of the airframe and engines revealed no evidence of any mechanical malfunctions or failures that would have precluded normal operation prior to the accident. Therefore, it could not be determined why the right engine lost power and why the left engine appeared to only produce partial power. It is likely the flight instructor's decision to turn 180° before securing the right engine resulted in a loss of altitude needed to make the return flight back to the airport at a safe altitude above ground obstacles.

Probable Cause and Findings

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

A total loss of power in the right engine for reasons that could not be determined based on available information. Contributing to the accident was the flight instructor's decision to turn

180° before securing the right engine, which resulted in a loss of altitude and subsequent impact with powerlines.

Findings

Aircraft	(general) - Unknown/Not determined
Aircraft	Altitude - Not attained/maintained
Personnel issues	Decision making/judgment - Instructor/check pilot

Factual Information

History of Flight

Enroute-climb to cruise	Loss of engine power (total) (Defining event)
Uncontrolled descent	Loss of engine power (partial)

On May 12, 2020, about 0858 eastern daylight time, a Piper PA-34-200, N887SP, was destroyed when it was involved in an accident near Pembroke Pines, Florida. The flight instructor was seriously injured, and the commercial pilot receiving instruction was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 141 instructional flight.

According to the flight instructor, he and the pilot receiving instruction conducted a preflight inspection of the airplane and found no anomalies. They departed North Perry Airport (HWO), Hollywood, Florida, about 0845, and headed toward the practice area, which was located about 14 miles west of HWO. He stated that about 6 miles from HWO, at about 1,000 ft mean sea level, "the right engine failed," he took over controls of the airplane and according to radar data turned right to an easterly heading. Prior to the turn, the airplane was about 775 ft msl, and then it descended to 450 ft msl in the turn. The flight instructor stated that the right engine was windmilling while in the turn and that he did not secure the right engine until after completing the turn back to HWO. Then he followed the engine checklist, secured the right engine, and communicated with the HWO control tower of his intentions to return to the airport. After making the turn back to HWO, the flight instructor stated that the left engine "didn't produce enough power to maintain altitude," so he lined the airplane up to land on a residential street. While crossing an intersection the airplane struck powerlines, then impacted the road before striking trees and a streetlight and becoming engulfed in fire. The flight instructor was able to evacuate the airplane; however, the pilot receiving instruction was not.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	21,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 multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	February 28, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	535.6 hours (Total, all aircraft)		

Student pilot Information

Certificate:	Commercial	**Age:**	25,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	September 5, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	43 hours (Total, all aircraft), 0 hours (Total, this make and model), 19 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N887SP
Model/Series:	PA34 200	**Aircraft Category:**	Airplane
Year of Manufacture:	1973	**Amateur Built:**	
Airworthiness Certificate:	Certificate of authorization or waiver (COA)	**Serial Number:**	34-7350124
Landing Gear Type:	Tricycle	**Seats:**	6
Date/Type of Last Inspection:	April 3, 2020 100 hour	**Certified Max Gross Wt.:**	3999 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	IO-360-C1E6
Registered Owner:	Delaware Trust Co Trustee	**Rated Power:**	
Operator:	Delaware Trust Co Trustee	**Operating Certificate(s) Held:**	Pilot school (141)

According to FAA airworthiness records, the airplane was manufactured in 1973. It was powered by two Lycoming IO-360 series, 200-horsepower engines equipped with Hartzell, counter-rotating, constant speed, controllable pitch, full feathering propellers.

A review of the right engine logbook revealed that on September 23, 2019, at a Hobbs time of 5,907 hours, the engine was precautionarily shut down while in flight and that a follow-up engine inspection was unable to duplicate the problem that led to the shutdown; the airplane was returned to service. From September 23, 2019, until the last 100-hour inspection on April 3, 2020, the airplane flew 418 hours without issue.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HWO,9 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	13:17 Local	**Direction from Accident Site:**	83°
Lowest Cloud Condition:	Few / 4000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	14 knots / 19 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	50°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	28°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hollywood, FL (HWO)	**Type of Flight Plan Filed:**	None
Destination:	Hollywood, FL (HWO)	**Type of Clearance:**	Unknown
Departure Time:	08:45 Local	**Type of Airspace:**	Unknown

Airport Information

Airport:	North Perry HWO	**Runway Surface Type:**	
Airport Elevation:	8 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Fatal, 1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	25.993112,-80.294519(est)

Examination of the accident site by an FAA inspector and the airframe manufacture revealed that the airplane came to rest upright on the right side of a road near a commercial building about 3.5 miles from HWO. All major components of the airplane were accounted for at the accident site and a postcrash fire consumed most of the cockpit, cabin, and right wing. The left wing had separated during the impact and was located near the main wreckage.

Examination of the airframe revealed no preimpact mechanical malfunctions or failures that would have precluded normal operation. The right engine was discolored from exposure to the postaccident fire. Continuity of the crankshaft from the rear gears to the valve train was observed along with compression and suction on all four cylinders. Each cylinder was examined with a lighted borescope and no anomalies noted. The servo fuel regulator showed sign of thermal damage with no debris observed in the inlet screen. Three of the four fuel injector nozzles were obstructed with debris similar to ash and exhibited thermal damage. The engine driven fuel pump remained attached to the engine and showed signs of thermal damage. Both magnetos remained attached to the engine, were thermally damaged, and could not be rotated. The spark plugs were removed, examined, and exhibited “normal” wear when compared to the Champion Check-A-Plug Chart. The engine ignition harness was destroyed by fire. The oil suction screen was absent of debris and the oil filter media was charred and no metallic debris observed.

The left engine was discolored from exposure to the postaccident fire. Continuity of the crankshaft from the rear gears to the valve train was observed along with compression and suction on all four cylinders. Each cylinder was examined with a lighted borescope with no anomalies noted. The servo fuel regulator showed signs of thermal damage with no debris observed in the inlet screen. The fuel injectors were unobstructed. The engine driven fuel pump remained attached to the engine and showed signs of thermal damage. Both magnetos remained attached to the engine, were thermally damaged, and could not be operated. The spark plugs were removed, examined, and exhibited “normal” wear when compared to the Champion Check-A-Plug Chart. The engine ignition harness was destroyed by fire. The oil suction screen was absent of debris and the oil filter media was charred and no metallic debris observed.

Additional Information

Emergency Procedures

Detecting a Dead Engine

Loss of Thrust

Nose of aircraft will yaw in direction of dead engine (with coordinated controls)

Feathering Procedures

The propellers can be feathered only while the engine is rotating above 800 RPM. Loss of centrifugal force due to slowing RPM will actuate a stop pin that keeps the propeller from feathering each time the engine is stopped on the ground. Single engine performance will decrease if the propeller or the inoperative engine is not feathered.

According to the Airplane Flying Handbook, Chapter 13: Transition to Multiengine Airplanes, "Multiengine and single-engine airplanes operate differently during an engine failure. In a multiengine airplane, loss of thrust from one engine affects both performance and control. The most obvious problem is the loss of 50 percent of power, which reduces climb performance 80 to 90 percent. In some cases, after an engine failure, the ability to climb or maintain altitude in a light-twin may not exist. After an engine failure, asymmetrical thrust also creates control issues for the pilot. Attention to both these factors is crucial to safe OEI [one engine inoperative] flight."

Administrative Information

Investigator In Charge (IIC):	Wentz, Peter
Additional Participating Persons:	Juan Garcia; FAA FSDO; Miami, FL Damian Galbraith; Piper Aircraft; Vero Beach, FL Mike Childers; Lycoming Engines; Williamsport, PA
Original Publish Date:	September 7, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=101263