



# Aviation Investigation Preliminary Report

<b>Location:</b>	Fort Pierce North, FL	<b>Accident Number:</b>	ERA24FA157
<b>Date &amp; Time:</b>	March 30, 2024, 13:20 Local	<b>Registration:</b>	N595ND
<b>Aircraft:</b>	PIPER AIRCRAFT INC PA-44-180	<b>Injuries:</b>	1 Fatal, 1 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

On March 30, 2024, about 1320 eastern daylight time, a Piper PA-44-180, N595ND, sustained substantial damage when it was involved in an accident at the Treasure Coast International Airport (FPR), Fort Pierce, Florida. The flight instructor was fatally injured, and the private pilot was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

The private pilot was training for his multi-engine rating at the time of the accident. He and the flight instructor departed FPR about 1140 and climbed to 5,000 ft mean sea level (msl), where they practiced single-engine emergency procedures. These procedures included shutting down and feathering the right engine. They returned to the airport and performed a simulated single-engine instrument “low” approach to runway 10R. To simulate the engine failure, thrust on the right engine was reduced to idle. The left engine was operated normally.

The private pilot said that when the airplane was at 1,000 ft msl, he extended the landing gear and brought the mixture and propeller levers for both engines full forward. When the airplane reached the minimum descent altitude for the approach (about 400 ft), he executed a missed approach. He brought both throttles full forward to go-around, but there was no thrust on either engine. The pilot said he made a right turn to the missed approach heading provided by air traffic control (ATC). The instructor then took control of the airplane. She declared an emergency and continued to turn the airplane back toward the airport to try to land on runway 14; however, they had “no airspeed and no engine thrust.” The airplane stalled and impacted the ground.

A preliminary review of ATC communications revealed the flight instructor informed the control tower that she wanted to return to the traffic pattern. She stated they were “single engine” and two people on board. The controller asked the instructor if she wanted to declare

an emergency, and she replied "yes." The controller then cleared the airplane to land on any runway.

A witness in an airplane parked near taxiway echo stated that he observed the accident airplane in a "moderate" right bank turn at a "slow speed heading in his direction." The airplane appeared to stall, rolled right, inverted, and impacted the ground. The witness said the engine power "sounded normal for this aircraft type at the time of the stall."

The airplane came to rest inverted on the airport ramp. There was no postimpact fire. All major components of the airplane were located at the accident scene. The flaps were retracted, and the landing gear were fully extended. Flight control continuity was established for all major flight controls to the cockpit area. Both wing fuel tanks were breached from impact; however, continuity of the fuel system was confirmed to both engines.

The left engine remained attached to the airframe, but the propeller separated at the crankshaft. Both blades were twisted in the hub and exhibited rotational scoring at the tips. The engine was rotated via the vacuum pump spline. As the engine was rotated, compression and valve train continuity were established on all four cylinders. Both magnetos were removed and rotated via a drill. Spark was produced to each ignition tower. The air filter was absent of debris. The spark plugs appeared gray in color consistent with normal wear per the Champion Check-A-Plug chart.

The carburetor was removed from the left engine. The throttle lever was found in the full power position and the mixture control lever was in the full rich position. Fuel was found in the carburetor bowl. The fuel was tested for the presence of water, and none was observed. The fuel screen was absent of debris.

The right engine separated from the airframe and came to rest next to the right wing. The propeller remained attached to the engine. Both propeller blades appeared straight with some damage observed near the tip of one of the blades. The right engine was rotated manually via the propeller. As the engine was rotated, compression and valve train continuity were established to each cylinder except the No. 1 cylinder due to impact damage. Both magnetos were removed and rotated via a drill. Spark was produced to each ignition tower. The air filter was absent of debris. The spark plugs appeared inconsistent in coloration. The No. 2 top and No. 4 bottom spark plugs were gray in color and consistent with normal wear per the Champion Check-A-Plug chart. However, the other spark plugs had varying degrees of discoloration not consistent with normal wear. The No. 1 bottom spark plug electrodes had no gap on one side and the No. 3 bottom plug had two excessively tight gaps to the electrode.

The carburetor was removed from the right engine. The mixture control arm was secured to the mixture control lever via a castle nut and cotter pin. As first viewed the mixture was halfway between full rich and idle cut-off. The throttle control arm was secured to the throttle control arm lever via castle nut and cotter pin. The serrated interface between the throttle arm and throttle arm lever was not securely mated and the throttle arm lever could be fully rotated

without moving the throttle arm. The teeth on the throttle arm side appeared to be rounded and worn down.

The throttle plate was in the fully closed position, and the throttle control assembly was impact damaged. Fuel was found in the carburetor bowl. The fuel was tested for the presence of water, and none was observed. The fuel screen was absent of debris.

The carburetor was retained by the National Transportation Safety Board (NTSB) for further examination of the throttle lever arm assembly.

A review of maintenance records revealed that the last annual inspection conducted on the airplane and both engines was completed the day before the accident on March 29, 2024. At that time, the airframe total time in service was 6,980.8 hours. Total time since overhaul for both engines was 196.4 hours.

The airplane was equipped with an Avidyne Entegra electronic flight display which included a primary flight display (PFD) and a multi-function display (MFD). The units were removed, and the compact flash (CF) card from the MFD was removed. The CF card and the PFD were sent to the NTSB Recorders Laboratory to be downloaded.

#### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	PIPER AIRCRAFT INC	<b>Registration:</b>	N595ND
<b>Model/Series:</b>	PA-44-180	<b>Aircraft Category:</b>	Airplane
<b>Amateur Built:</b>			
<b>Operator:</b>	Ari Ben Aviator	<b>Operating Certificate(s) Held:</b>	Pilot school (141)
<b>Operator Designator Code:</b>			

#### Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	VMC	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KFPR,19 ft msl	<b>Observation Time:</b>	13:53 Local
<b>Distance from Accident Site:</b>	0 Nautical Miles	<b>Temperature/Dew Point:</b>	26°C /12°C
<b>Lowest Cloud Condition:</b>	Clear	<b>Wind Speed/Gusts, Direction:</b>	7 knots / None, 100°
<b>Lowest Ceiling:</b>	None	<b>Visibility:</b>	10 miles
<b>Altimeter Setting:</b>	30.16 inches Hg	<b>Type of Flight Plan Filed:</b>	NONE
<b>Departure Point:</b>	Fort Pierce North, FL	<b>Destination:</b>	Fort Pierce North, FL

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal, 1 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal, 1 Serious	<b>Latitude, Longitude:</b>	27.493857,-80.370002

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Read, Leah
<b>Additional Participating Persons:</b>	James Holmes; FAA/FSDO; Orlando, FL Kris Wetherell; Piper Aircraft Company; Vero Beach, FL Russel Gait; Textron Lycoming; Williamsport, PA
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	