



Aviation Investigation Final Report

Location:	Ormond Beach, Florida	Accident Number:	ERA11LA393
Date & Time:	July 10, 2011, 11:15 Local	Registration:	N9202C
Aircraft:	Piper PA-28-161	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	2 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

During a 1.2-hour instructional flight, with the student pilot at the controls, the airplane lost engine power after takeoff. The airplane was climbing through 200 feet above ground level when the loss of power occurred, and the flight instructor maneuvered the airplane to a forced landing before it impacted trees beyond the departure end of the runway. Examination of the engine and airplane at the accident site did not reveal any preexisting mechanical anomalies that may have caused the loss of engine power. The flight instructor stated that each wing tank contained about 12 gallons of fuel before the flight. According to performance charts in the airplane's operating handbook, at best economy mixture settings, the engine would burn about 8.5 gallons per hour, which would result in about 1.4 hours of flight time for 12 gallons of fuel. The preflight ground checks of 0.2 hours and flight time of 1.2 hours would equate to about 12 gallons of fuel burn for the accident flight. Both the flight instructor and student pilot stated that the fuel selector was in the right tank position throughout the flight and was not switched to the left tank, even though the left tank had about 12 gallons of fuel. This resulted in fuel starvation to the engine when the right tank was depleted of fuel.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to fuel starvation, which resulted from the flight instructor's inadequate in-flight fuel management.

Findings Personnel issues Use of equip/system - Instructor/check pilot Aircraft Fuel selector/shutoff valve - Incorrect use/operation Aircraft Fuel - Fluid management

Factual Information

History of Flight	
Initial climb	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Emergency descent	Collision with terr/obj (non-CFIT)

On July 10, 2011, about 1115 eastern daylight time, a Piper PA-28-161, N9202C, registered to the Euro American School of Aviation Inc (EASA)., was substantially damaged during a forced landing after a loss of engine power shortly after takeoff from the Ormond Beach Municipal Airport (OMN), Ormond Beach, Florida. The flight instructor and student pilot sustained serious injuries. The airplane was operated under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed, and no flight plan was filed for the local flight that originated at 1030 from OMN.

The flight originated about 45 minutes prior to the accident from OMN, at which time the flight instructor and student pilot flew in the local area to practice flight maneuvers. The flight then returned to OMN to practice takeoffs and landings on runway 26. After the flight's second takeoff, the Ormond Beach Tower Control lost sight of the airplane. The airplane first collided with trees in a wooded area approximately 150 feet beyond the departure end of runway 26. The wreckage came to rest on the ground just south of the extended runway centerline with its nose perpendicular to the centerline. The airplane sustained substantial damage to the fuselage and wings.

In a written statement, the flight instructor reported that the flight was his second of the day in N9202C. He stated that the student pilot was new to the flight school and this was his first flight in the USA. The student had about 26 hours of previous flight training in the United Kingdom. During the preflight, the instructor said that he verified the amount of fuel and talked about the differences between the airplanes the student had previously flown and the PA-28. The instructor reported that there was at least 12 gallons of 100LL fuel per tank equaling a total of 24 gallons. He stated that based on his experience with the aircraft, 24 gallons should have been sufficient for 3 hours of training flight at a fuel consumption of 8 gallons per hour.

The instructor stated that since the flight was the student's first in the PA-28 and also his first in the USA, the startup process and taxi took longer than usual. He said that it took a minimum of 0.2 hours until they were ready to go through the power check checklist, which included switching fuel tanks. After takeoff, the airplane was flown to a local practice area to perform routine training maneuvers, then returned to the airport for touch and go practice landings and takeoffs. The instructor performed the first touch and go to show the student the procedures used at the flight school. On the second touch and go takeoff which was flown by the student, the engine lost power after climbing to about 200 feet AGL. The instructor took the flight controls and realized that the airplane was too low to reach a safe landing area.

The instructor stated that about 40 minutes after the accident, a thunderstorm passed through the area and contaminated the accident site.

The NTSB did not travel to the accident site. On site examination of the airplane and engine was done by an FAA inspector, and his findings were relayed to the NTSB during a telephone interview.

There was no indication or evidence that the propeller was being driven by power prior to impact. Both fuel tanks were found compromised and void of fuel. A visual inspection of the aircraft controls indicated that the primer knob was stowed and the throttle was in the full forward position. The fuel selector knob was found in the left tank position. The electric fuel pump was found in the "ON" position, and the fuel mixture knob was found in a normal range for flight.

Inspection of the firewall mounted fuel filter screen revealed that it was clean and free of obstruction. About one table spoon of fuel was detected in the bottom of the fuel bowl. No fuel was found in the carburetor bowl and the throttle linkage to the carburetor showed no signs of damage. When the carburetor jet was activated, it operated normally. The main fuel line that extended from the fuel tanks to the mechanical fuel pump was void of fuel when it was disconnected from the pump at the fuel pump fitting. Activation of the mechanical fuel pump lever indicated that the diaphragm was intact and operational, with no signs of damage or binding. No fuel was detected in the fuel pump bowl.

Removal of the valve covers, and rotation of the propeller forward and aft resulted in the intake and exhaust valves opened and closed respectively. The left magneto was removed from the engine and checked for a short to ground. The unit showed no evidence of damage or internal failures. The right magneto could not be removed for inspection.

A review of EASA flight logs indicated that on the day of the accident, the airplane was flown on the first flight about 1.5 hours. The airplane crashed about 1.2 hours into the second flight. The log also indicated that the airplane was not refueled between flights. It was not possible to verify the aircraft fuel system quantity prior to the first flight on the day of the accident. However, a refueling slip for the airplane showed that the aircraft was last refueled on the day prior to the accident with about 26 gallons. According to the airplane's operating handbook, the total fuel capacity is 48 usable gallons (26 gallons per tank). Daily flight records for the airplane indicated that three different pilots flew the airplane for about 4.8 hours without evidence of refueling before it crashed.

The instructor pilot stated that there was about 12 gallons of fuel in each wing tank prior to the accident flight. According to performance charts in the airplane's operating handbook, best economy mixture settings would burn about 8.5 gallons per gallons per hour (GPH) which translates to about 1.4 hours of flight time for 12 gallons. The preflight ground checks of 0.2

hours and flight time of 1.2 hours would equate to about 1.4 hours of fuel burn for the accident flight. Both the instructor pilot and student pilot stated that the fuel selector was in the right tank position throughout the flight and was not switched to the left tank.

Certificate:	Airline transport; Flight instructor	Age:	32,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	March 21, 2011
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 6, 2011
Flight Time:	2715 hours (Total, all aircraft), 1909 hours (Total, this make and model), 2697 hours (Pilot In Command, all aircraft), 176 hours (Last 90 days, all aircraft), 29 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Flight instructor Information

Student pilot Information

Certificate:	Student	Age:	17,Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
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:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	26 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N9202C
Model/Series:	PA-28-161	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	2841002
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	0-320 SERIES
Registered Owner:	Euro American School of Aviation Inc	Rated Power:	180 Horsepower
Operator:	Euro American School of 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:	OMN,29 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	10:50 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 3000 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 12000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	290°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.06 inches Hg	Temperature/Dew Point:	29°C / 25°C
Precipitation and Obscuration:	No Obscuration; No Precipitat	tion	
Departure Point:	Ormond Beach, FL (OMN)	Type of Flight Plan Filed:	None
Destination:	Ormond Beach, FL (OMN)	Type of Clearance:	None
Departure Time:	10:00 Local	Type of Airspace:	

Airport Information

Airport:	Ormond Beach Municipal OMN	Runway Surface Type:	
Airport Elevation:	29 ft msl	Runway Surface Condition:	
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	2 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Serious	Latitude, Longitude:	29.300277,-81.108055(est)

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Robert Haynes; FAA North Florida/Orlando FSDO; Orlando, FL
Original Publish Date:	June 12, 2013
Last Revision Date:	
Investigation Class:	<u>Class</u>
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=81057

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available <u>here</u>.