National Transportation Safety Board
Aviation Accident Final Report

Location:	Mansfield, MA	**Accident Number:**	ERA09LA496
Date & Time:	09/01/2009, 1053 EDT	**Registration:**	N32146
Aircraft:	PIPER PA28-151	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot performed a preflight inspection prior to departure, including "topping off" the fuel tanks, and he observed no contamination in the fuel. After departure, the pilot maneuvered in the local area for about 20 minutes. He performed a stall maneuver and shortly after the airplane's engine started to "sputter and run rough." The pilot attempted unsuccessfully to troubleshoot the problem, including turning on the carburetor heat and switching fuel tanks. When he realized that he would be unable to make it to a nearby airport, the pilot prepared for a forced landing to the highway below. During the landing, the left wing struck a barrier resulting in substantial damage. Examination of the airplane revealed sufficient fuel in the right tank and the left tank was breached. Examination of the engine revealed no mechanical anomalies. Review of the Federal Aviation Administration carburetor ice probability chart revealed that the temperature and dew point at the time of the accident were conducive to "serious icing" conditions at glide power.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power due to carburetor icing as a result of the pilot's delayed use of carburetor heat.

Findings

Personnel issues	Use of equip/system - Pilot (Cause)
Environmental issues	Wall/barricade - Contributed to outcome Conducive to carburetor icing - Effect on equipment (Cause)

Factual Information

On September 1, 2009, at 1053 eastern daylight time, a Piper PA-28-151, N32146, was substantially damaged during a forced landing in Mansfield, Massachusetts. The certificated commercial pilot and passenger were not injured. Visual meteorological conditions prevailed, and no flight plan had been filed for the local flight which originated at Laurence Hanscom Field Airport (BED), Bedford, Massachusetts, at 1010. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

According to the pilot, prior to takeoff he performed a pre-flight inspection and "topped off" the fuel tanks. He strained the fuel tanks and noted no contamination. The pilot also noted no anomalies during the pre-flight inspection or the subsequent run-up inspection.

The pilot departed to the northeast, flew around Boston, and then toward Gillette Stadium. As the airplane was southeast of the stadium, the pilot performed a power-on stall at an altitude of 2,500 feet. Shortly after recovery from the stall, the airplane's engine started to "sputter and run rough." The pilot turned the carburetor heat on, adjusted the airplane's pitch attitude to maintain "best glide airspeed," and flew toward the Mansfield Airport. The airplane's engine maintained 1500 RPM. The pilot noted the oil pressure, oil temperature, and fuel pressure were "in the green." Both fuel tanks indicated "plenty of fuel," and the pilot subsequently switched fuel tanks.

The pilot realized the airplane would not be able to reach Mansfield Airport and prepared for a landing on the highway below (I-495). During the approach, he overflew a sign and touched down prior to an overpass. The left wing struck a barrier during the landing, and the airplane came to rest on the side of the highway.

Examination of the airplane after the accident by a Federal Aviation Administration (FAA) inspector revealed substantial damage to both wings and the nose of the airplane. Fuel was drained from the right fuel tank, and no contamination was noted in the fuel. The left fuel tank was ruptured during the accident. The engine crankshaft was rotated, and valvetrain continuity and thumb compression was confirmed on all cylinders. Testing of both magnetos revealed spark at all terminal leads, and examination of the spark plugs revealed normal wear. No anomalies or contamination was noted with the fuel pump or fuel lines.

The pilot held a commercial pilot certificate with ratings for airplane single-engine land and instrument airplane. He also held a flight instructor certificate with a rating for airplane single engine. His most recent FAA second-class medical certificate was issued on January 29, 2009. At the time of the accident, the pilot reported 664 hours of total flight experience, 64 of which were accumulated in the previous 90 days.

Examination of the airplane and engine logbooks revealed the airplane was on an Approved Inspection Program. The most recent inspection was performed on the airplane on August 13, 2009 at a tachometer time of 917 hours. The engine had accumulated 774 hours since major overhaul.

Weather reported at Norwood Memorial Airport, about 10 miles from the accident site, at 1053, included wind from 350 degrees at 4 knots, 10 miles visibility, clear skies, temperature 68 degrees F, dew point 45 degrees F, and altimeter setting 30.29 inches mercury.

Review of the FAA carburetor ice probability chart revealed that the temperature and dew

point at the time of the accident were conducive to "serious icing" conditions at glide power.

History of Flight

Maneuvering	Loss of engine power (partial) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Flight Instructor; Commercial	**Age:**	24, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane Single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without Waivers/Limitations	**Last Medical Exam:**	01/29/2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	10/23/2007
Flight Time:	664 hours (Total, all aircraft), 405 hours (Total, this make and model), 502 hours (Pilot In Command, all aircraft), 64 hours (Last 90 days, all aircraft), 24 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PIPER	**Registration:**	N32146
Model/Series:	PA28-151	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	28-7515079
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	08/12/2009, Continuous Airworthiness	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	20 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	12681 Hours	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-320 SERIES
Registered Owner:	PLANE NONSENSE INC	**Rated Power:**	180 hp
Operator:	PLANE NONSENSE INC	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	OWD, 49 ft msl	**Observation Time:**	1053 EDT
Distance from Accident Site:	10 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	20°	**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Partial Obscuration	**Temperature/Dew Point:**	20°C / 7°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	4 knots, 350°	**Visibility (RVR):**	
Altimeter Setting:	30.29 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Precipitation		
Departure Point:	Bedford, MA (BED)	**Type of Flight Plan Filed:**	None
Destination:	Bedford, MA (BED)	**Type of Clearance:**	VFR
Departure Time:	1035	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None		

Administrative Information

Investigator In Charge (IIC):	Jill M Andrews	**Adopted Date:**	10/21/2010
Additional Participating Persons:	Ed Stalzer; FAA/FSDO; Lexington, MA Richard Bunker; MA Division of Aeronautics; Boston, MA		
Publish Date:	10/21/2010		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=74641		

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