National Transportation Safety Board
Aviation Accident Final Report

Location:	Centerville, MO	**Accident Number:**	CEN10LA370
Date & Time:	07/02/2010, 1215 CDT	**Registration:**	N5798P
Aircraft:	PIPER PA-24-250	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane sustained a loss of engine power in cruise flight at 6,000 feet mean sea level. The pilot observed the propeller RPMs increase and then noticed the engine was not producing full power. He selected both main fuel tanks and turned on the electric fuel pump. The airplane impacted a tree during the forced landing, resulting in substantial damage to the right wing. A postaccident examination of the wreckage, which included an engine operational test run, revealed no evidence of a mechanical malfunction. The recorded temperature, dew point, and calculated values aloft were plotted on an icing chart and their intersection fell in the “serious icing (glide power)” range. The airplane Owner’s Handbook for emergency procedures during an engine failure indicated, in part, that the pilot should apply carburetor heat. The pilot reported that he did not use carburetor heat following the loss of engine 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 not using carburetor heat.

Findings

Personnel issues	Use of checklist - Pilot (Cause)
Environmental issues	Conducive to carburetor icing - Effect on equipment (Cause) Tree(s) - Contributed to outcome

Factual Information

On July 2, 2010, about 1215 central daylight time, a Piper PA-24-250, N5798P, piloted by a private pilot, sustained substantial damage on impact with a tree during a forced landing near Centerville, Missouri, following a loss of engine power in cruise flight. The personal flight was operating under 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed in the area at the time of the accident. The flight was on an activated instrument flight rules flight plan. The pilot and passenger reported no injuries. The flight originated from the Moraine Air Park, near Dayton, Ohio, about 1040 and was destined for the Branson Airport, near Springfield, Missouri.

The pilot reported that he was in cruise at 6,000 feet above mean sea level when he saw the propeller RPMs jump and then noticed the engine not producing full power. He turned on both main fuel tanks and the electric fuel pump. He advised the air traffic controller that he had a problem. He indicated that the terrain was hilly and wooded. He lined up for a forced landing on a road. When he descended, he noted a bridge across the road. He "hopped" the airplane over a fence and landed in a pasture that contained low brush and a small tree. The airplane's right wing sustained substantial damage on impact with the tree.

The airplane was examined on-scene by Federal Aviation Administration (FAA) inspectors. No airframe anomalies were detected. The airplane wreckage was recovered from the field and held for further examination by a FAA inspector. The FAA inspector was able to get the engine to run during the examination.

At 1152, the recorded weather about 112 nautical miles and 260 degrees from the accident site at the Springfield-Branson National Airport (SGF), near Springfield, Missouri, was: Wind 120 degrees at 7 knots; Sky condition clear; Temperature 26 degrees C; Dew point 14 degrees C; Altimeter 30.17 inches of mercury.

A -2 degrees C per 1,000 feet standard lapse rate to 6,000 feet above mean sea level in reference to SGF was applied to the recorded temperature and dew point. The surface temperature and dew point values and the calculated aloft values were plotted on the icing chart listed in Special Airworthiness Information Bulletin CE-09-35. Both their intersection fell in the "serious icing (glide power)" range.

The airplane owner's handbook emergency procedures, in part, indicated:

> Engine Failure:
>
> The most common cause of engine failure is mismanagement or malfunction of the fuel system. Therefore, the first step to take after engine failure is to move the fuel selector valve to the tank not being used. This will often keep the engine running even if there is no apparent reason for the engine to stop on the tank being used.
>
> If changing to the opposite fuel tank does not restore the engine:
>
> (1) Check fuel pressure and turn on electric fuel pump, if off.
>
> (2) Push mixture control to full rich.

(3) Apply carburetor heat.

(4) Check ignition switch.

The pilot reported that he did not use carburetor heat following the loss of engine power and did not note the indications on the carburetor temperature gauge.

History of Flight

Enroute-cruise	Other weather encounter Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Private	**Age:**	60, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With Waivers/Limitations	**Last Medical Exam:**	07/22/2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	07/05/2008
Flight Time:	2002 hours (Total, all aircraft), 447 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PIPER	**Registration:**	N5798P
Model/Series:	PA-24-250	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	24-878
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	11/05/2009, Annual	**Certified Max Gross Wt.:**	3000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4662 Hours	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-540-A1A5
Registered Owner:	On file	**Rated Power:**	250 hp
Operator:	On file	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	SGF, 1268 ft msl	**Observation Time:**	1152 CDT
Distance from Accident Site:	112 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	260°	**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Clear	**Temperature/Dew Point:**	26°C / 14°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	7 knots, 120°	**Visibility (RVR):**	
Altimeter Setting:	30.17 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Dayton, OH (I73)	**Type of Flight Plan Filed:**	IFR
Destination:	Branson, MO (BBG)	**Type of Clearance:**	IFR
Departure Time:	1040 CDT	**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):	Edward F Malinowski	**Adopted Date:**	05/11/2011
Additional Participating Persons:	Steven Long; Federal Aviation Administration; St Ann, MO		
Publish Date:	05/11/2011		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=76533		

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