Aviation Investigation Final Report

Location:	El Cajon, California	**Accident Number:**	WPR17LA208
Date & Time:	September 17, 2017, 13:47 Local	**Registration:**	N2587X
Aircraft:	Piper PA 28-161	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 Minor, 1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot reported that he and the pilot-rated passenger returned to the airport to practice touch-and-go landings after a local flight. The first two landings were uneventful. While on the downwind leg of the traffic pattern for the third landing, the pilot reduced engine power and started to descend the airplane. After turning base, the pilot increased power, but the engine did not respond and remained at idle. There was no change in engine noise and the engine was not running rough. The pilot manipulated the throttle and primer several times, but the engine did not respond, and the pilot elected to land the airplane on a nearby road. During the descent, the airplane struck powerlines and a tree before it impacted the road and slid to a stop.

A postaccident engine examination did not reveal any anomalies that would have precluded normal operation. A review of the carburetor icing probability chart revealed that the airplane was operating in conditions favorable to the formation of serious carburetor icing at glide power. In addition, on-scene photographs revealed that the carburetor heat lever was in the off position; therefore, it is likely that carburetor ice accumulated during the descent, which resulted in a partial loss of engine power.

Probable Cause and Findings

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

A partial loss of engine power due to the formation of carburetor ice during descent for landing. Contributing to the accident was the pilot's failure to apply carburetor heat.

Findings

Environmental issues	Conducive to carburetor icing - Effect on operation
Aircraft	Intake anti-ice, deice - Not used/operated
Personnel issues	Use of equip/system - Pilot

Factual Information

History of Flight

Approach-VFR pattern base	Loss of engine power (partial) (Defining event)
Approach-VFR pattern base	Other weather encounter
Approach-VFR pattern base	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

On September 17, 2017, about 1347 Pacific daylight time, a Piper 28-161 airplane, N2587X, experienced a loss of engine power while on downwind for runway 27L at Gillespie Field Airport (SEE), El Cajon, California. The certified flight instructor (CFI) sustained minor injuries and pilot rated passenger was not injured. The airplane sustained substantial damage to the left wing. The airplane was registered to and operated by the pilot as a Title 14 *Code of Federal Regulations Part* 91 personal flight. Visual meteorological conditions prevailed, and no flight plan was filed. The flight originated from SEE at about 1250.

The pilot reported that after flying around the area they returned to the airport to practice a few touch-and-go landings. The first two left traffic touch-and-goes were uneventful; after the third takeoff, the tower informed them to make right traffic. While on downwind they were cleared to land; the pilot reduced power and started to descend. After turning base, the pilot increased power, but the engine did not respond and remained at idle. There was no change in engine noise and the engine was not running rough. Both pilots manipulated the throttle several times, but the engine did not respond; they also manipulated the primer, but to no avail. The pilot elected to land the airplane onto a nearby road. During the descent the airplane struck powerlines and a tree, before it impacted the roadway and slid to a stop.

A postaccident engine examination revealed no anomalies that would have precluded normal operations. The throttle and mixture controls moved freely from stop to stop. The gascolator bowl was removed and the screen was clear of debris. The oil filter was removed and opened; oil was present and no contaminates or debris were noted. The spark plugs were removed from the engine and exhibited wear consistent with normal operations per the Champion check-a-plug chart. The rocker covers were removed and the propeller was rotated by hand. Spark was obtained in proper firing order and the rockers moved at the appropriate time. Thumb compression was obtained on all cylinders, except for the number 2 cylinder. Further examination revealed the intake valve was unseated due to impact damage. The engine was boroscoped and all cylinders exhibited normal operating signatures. The carburetor bowl was removed from the engine. The fuel screen was clear of debris; the carburetor bowl was removed and no fuel was present in the bowl or the accelerator pump well. The floats were intact and undamaged. Air was blown from the gascolator to the wing root, as well as from the electric driven fuel pump to the carburetor inlet; all lines were clear of blockages and debris.

At the time of the accident, weather at SEE reported a temperature of 25°C and a dewpoint of 15°C. A review of the carburetor icing probability chart, located in the Federal Aviation Administration's (FAA)

Special Airworthiness Information Bulletin CE-09-35, dated June 30, 2009, revealed that the airplane was operating in an area favorable for the formation of serious carburetor icing at glide power.

On scene photographs provided by the FAA inspector revealed the carburetor heat lever was in the off position.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	49,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	March 31, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 4, 2016
Flight Time:	2475 hours (Total, all aircraft), 1854 hours (Total, this make and model), 2374 hours (Pilot In Command, all aircraft), 112 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Pilot-rated passenger Information

Certificate:	Private	**Age:**	49,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 27, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 11, 2016
Flight Time:	112 hours (Total, all aircraft), 112 hours (Total, this make and model), 14 hours (Pilot In Command, all aircraft), 1 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N2587X
Model/Series:	PA 28-161	**Aircraft Category:**	Airplane
Year of Manufacture:	1985	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	28-8516083
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 25, 2017 100 hour	**Certified Max Gross Wt.:**	2440 lbs
Time Since Last Inspection:	16 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	11906 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Installed	**Engine Model/Series:**	O-320 SERIES
Registered Owner:		**Rated Power:**	160 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SEE,388 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	13:45 Local	**Direction from Accident Site:**	290°
Lowest Cloud Condition:	Scattered / 3800 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	25°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	El Cajon, CA (SEE)	**Type of Flight Plan Filed:**	None
Destination:	El Cajon, CA (SEE)	**Type of Clearance:**	None
Departure Time:	12:50 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	Gillespie Field Airport SEE	**Runway Surface Type:**	Asphalt
Airport Elevation:	388 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27L	**IFR Approach:**	None
Runway Length/Width:	2738 ft / 60 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor, 1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor, 1 None	**Latitude, Longitude:**	32.822223,-116.970275(est)

Administrative Information

Investigator In Charge (IIC):	Link, Samantha
Additional Participating Persons:	Brian Brown; Federal Aviation Administration; San Diego, CA
Original Publish Date:	March 18, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=96032