



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Chesapeake, Virginia	Accident Number:	ERA18LA101
Date & Time:	March 13, 2018, 11:30 Local	Registration:	N5646V
Aircraft:	Piper PA28	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was conducting touch-and-go landings; the airplane was about 200 ft above ground level after a takeoff when the engine lost total power. The pilot cycled the throttle during the straight-ahead descent, which restored power momentarily before the forced landing. During the ground roll, the nose landing gear separated, and the airplane sustained substantial damage to the wings and fuselage. A postaccident test run of the engine using the fuel available in the airplane's tanks and the intact fuel system revealed that the engine operated normally with no anomalies noted. The weather conditions at the time of the accident were conducive to the formation of serious carburetor icing at descent engine power settings. The pilot stated that he had not activated the carburetor heat at any point during the flight. Because the engine operated normally after the accident, the weather conditions were conducive to the formation of carburetor icing, and the pilot failed to use carburetor heat during the approach, it is likely that the engine lost power due to the accumulation of carburetor ice before and during the takeoff.

Probable Cause and Findings

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

The pilot's failure to apply carburetor heat during the approach for a touch-and-go landing, which resulted in a total loss of engine power during the subsequent takeoff.

Findings

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

Factual Information

History of Flight

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

On March 13, 2018, about 1130 eastern daylight time, a Piper PA-28-181, N5646V, was substantially damaged during a forced landing shortly after takeoff from Chesapeake Regional Airport (CPK), Chesapeake, Virginia. The private pilot and pilot-rated passenger were not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight conducted under the provisions of Title 14 *Code of Federal Regulations* Part 91.

In a written statement, the pilot described completing the preflight inspection, run-up, takeoff, and one circuit in the airport traffic pattern with no anomalies noted. He performed a touch-and-go landing on runway 23, and when the airplane had climbed to about 200 feet, the engine stopped producing power. The pilot elected to land straight ahead off the departure end of the runway, and cycled the throttle during the descent, which only restored power momentarily before the forced landing was completed.

During the ground run, the nose landing gear separated, and the airplane sustained substantial damage to the wing structure and the fuselage.

In a telephone interview with a Federal Aviation Administration (FAA) inspector, the pilot provided an account that was consistent with his written statement. He provided greater detail about the positions of the fuel selector, fuel boost pump switch, mixture control, and his use and positioning of engine and flight controls throughout the flight. When asked at what point he had applied carburetor heat, the pilot replied that he did not apply carburetor heat at any point during the flight.

The pilot held a private pilot certificate with ratings for airplane single engine land and instrument airplane. His most recent FAA first-class medical certificate was issued January 9, 2017. The pilot reported 188.1 total hours of flight experience, of which 139.8 were in the accident airplane make and model.

According to FAA records, the airplane was manufactured in 1977. Its most recent 100-hour inspection was completed at 3,618 total aircraft hours.

At 1115, the weather reported at CPK included clear skies, 10 miles visibility, and winds from 290 degrees at 12 knots gusting to 21 knots. The temperature was 6° C, the dew point was -4° C, and the altimeter setting was 29.87 inches of mercury.

A review of atmospheric conditions at CPK at the time of the accident revealed conditions conducive to formation of "serious" carburetor icing at descent engine power settings.

The wreckage was examined at the operator's facility by the FAA inspector who confirmed the damage and noted that the remainder of the airplane was intact. He raised the nose of the airplane by anchoring the tail, and an engine start was attempted using the airplane's own battery, fuel system, and the fuel present in the fuel tanks. The engine started immediately, accelerated smoothly, and ran continuously without interruption. Magneto and carburetor heat checks were performed, and the results were within the manufacturer's parameters.

Pilot Information

Certificate:	Private	Age:	25, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Unknown
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	January 9, 2017
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	188.1 hours (Total, all aircraft), 139.8 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N5646V
Model/Series:	PA28 181	Aircraft Category:	Airplane
Year of Manufacture:	1977	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	28-7790487
Landing Gear Type:	Tricycle	Seats:	
Date/Type of Last Inspection:	February 16, 2018 100 hour	Certified Max Gross Wt.:	
Time Since Last Inspection:	19 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	3618 Hrs at time of accident	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	O-360 SER
Registered Owner:		Rated Power:	180 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KCPK,20 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	11:15 Local	Direction from Accident Site:	321°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / 21 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	290°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.87 inches Hg	Temperature/Dew Point:	6°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Chesapeake, VA (CPK)	Type of Flight Plan Filed:	None
Destination:	Chesapeake, VA (CPK)	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Airport Information

Airport:	CHESAPEAKE RGNL CPK	Runway Surface Type:	Asphalt
Airport Elevation:	18 ft msl	Runway Surface Condition:	Soft;Vegetation;Water-calm
Runway Used:	23	IFR Approach:	None
Runway Length/Width:	5500 ft / 100 ft	VFR Approach/Landing:	Forced landing;Touch and go

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	Latitude, Longitude:	36.665554,-76.320556(est)

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Ken Bain; FAA/FSDO; Richmond, VA
Original Publish Date:	May 29, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=96865

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).