Aviation Investigation Final Report

Location:	Loveland, Colorado	**Accident Number:**	CEN22LA010
Date & Time:	October 7, 2021, 06:54 Local	**Registration:**	N5585P
Aircraft:	Piper PA-24	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated the airplane accelerated slowly during the takeoff roll and did not climb normally during the initial takeoff. The pilot reported the engine oversped and he heard a loud noise that came from the engine during the takeoff climb. A review of flight data showed the takeoff roll was about 1,300 ft longer than normal and immediately after takeoff, the airplane decelerated about 10 knots. The pilot executed a forced landing on a road and the airplane struck a pole, which substantially damaged the left wing.

Postaccident examination revealed no evidence of a mechanical failure or malfunction that would have precluded normal operation. No reason for the reported overspeed or noise heard by the pilot was discovered during the postaccident examination.

The pilot reported the engine “ran a little rough” when the carburetor heat lever was pulled out for a few seconds during the engine run-up. The weather conditions at the time of the accident were conducive to serious carburetor icing at cruise power. The pilot recalled setting the mixture lever “about a finger width” toward the lean position during the takeoff.

The airplane’s extended takeoff roll and deceleration after liftoff were consistent with degraded engine power, which was most likely due to carburetor icing and/or a lean mixture setting. Following the accident, the pilot stated that he should have aborted the takeoff due to the airplane’s slow acceleration.

Probable Cause and Findings

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

The pilot’s failure to recognize the degraded engine power and abort the takeoff in a timely manner.

Findings

Personnel issues	Understanding/comprehension - Pilot
Aircraft	(general) - Incorrect use/operation
Environmental issues	Conducive to carburetor icing - Effect on equipment
Environmental issues	Sign/marker - Contributed to outcome

Factual Information

History of Flight

Takeoff	Loss of engine power (partial) (Defining event)
Landing	Ground collision

On October 7, 2021, about 0654 mountain daylight time, a Piper PA-24, N5585P, was substantially damaged when it was involved in an accident near Northern Colorado Regional Airport (FNL), Fort Collins, Colorado. The pilot sustained minor injuries and the passenger was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

During takeoff from FNL on Runway 15, pilot reported the airplane was not able to climb normally and that an overspeed occurred of about 2,900 engine rpm. The pilot retarded the throttle, observed a loss of airspeed, and heard a loud bang from near the engine. The pilot executed a forced landing on a road and the airplane impacted a pole, which substantially damaged the left wing.

Automatic dependent surveillance-broadcast (ADS-B) data indicated the airplane started to taxi about 0645 and the takeoff roll occurred about 0652. The airplane accelerated to 62 knots groundspeed about 1,800 ft past the runway threshold and the airplane lifted off at 71 knots groundspeed about 3,200 ft past the threshold, which was 5,300 ft from the departure end of the 8,500 ft runway.

During the initial climb, about 3,500 ft from the departure end of the runway, the airplane decelerated to 60 knots groundspeed. The airplane flew at 50-60 knots groundspeed and low altitude for the remainder of the flight.

About 2,800 ft beyond the departure end of Runway 15, the airplane touched down on a paved road at 59 knots groundspeed. Initial propeller strike marks on the road were 1.17 ft apart, which calculated to an engine speed of about 2,554 rpm at touchdown.

Postaccident examination of the airplane revealed no evidence of mechanical anomalies or malfunction. The propeller governor was bench tested and met manufacturer specifications.

The pilot reported the airplane's takeoff weight was about 300 lbs below the maximum gross weight. Manufacturer performance data indicated a takeoff ground roll with no wind of about 1,900 ft at maximum gross weight.

During the engine runup before takeoff, the pilot reported pulling the carburetor heat lever out "for a few seconds" and that the engine ran "a little rough" during that period. Review of the

icing probability chart contained within Federal Aviation Administration Special Airworthiness Information Bulletin CE-09-35 revealed the atmospheric conditions at the time of the accident were "conducive to serious icing at cruise power."

The pilot recalled setting the mixture lever "about a finger" width toward the lean position for the takeoff.

Following the accident, the pilot stated that he should have aborted the takeoff due to the airplane's slower than normal acceleration.

Pilot Information

Certificate:	Private	**Age:**	34,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	January 6, 2021
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 15, 2020
Flight Time:	398 hours (Total, all aircraft), 398 hours (Total, this make and model), 350 hours (Pilot In Command, all aircraft), 58 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft), 8 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		**Age:**	
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	3-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N5585P
Model/Series:	PA-24	**Aircraft Category:**	Airplane
Year of Manufacture:	1958	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-649
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	September 22, 2021 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	5097 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-360-A1A
Registered Owner:	On file	**Rated Power:**	180 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:	KFNL,5015 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	06:56 Local	**Direction from Accident Site:**	319°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.1 inches Hg	**Temperature/Dew Point:**	11°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fort Collins, CO (FNL)	**Type of Flight Plan Filed:**	None
Destination:	Caspar, WY (CPR)	**Type of Clearance:**	None
Departure Time:	06:52 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	NORTHERN COLORADO RGNL FNL	**Runway Surface Type:**	Asphalt
Airport Elevation:	5020 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	15/33	**IFR Approach:**	None
Runway Length/Width:	8500 ft / 100 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	40.435654,-105.00072(est)

Administrative Information

Investigator In Charge (IIC):	Folkerts, Michael
Additional Participating Persons:	Brett Proud; Flight Standards District Office; Denver, CO Troy Helgeson; Lycoming Engines; Williamsport, PA Kathryn Whitaker; Piper Aircraft; Vero Beach, FL Les Doud; Hartzell Propeller; Piqua, OH
Original Publish Date:	April 5, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=104068