Aviation Investigation Final Report

Location:	Slaughters, Kentucky	**Accident Number:**	ERA23LA144
Date & Time:	March 2, 2023, 13:05 Local	**Registration:**	N9420N
Aircraft:	Piper PA-28R-200	**Aircraft Damage:**	Substantial
Defining Event:	Powerplant sys/comp malf/fail	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot purchased an airplane that had not flown in 22 years and that had an extensive annual inspection completed the day before the accident flight. On the day of the accident, the pilot flew the airplane on a short flight to an airport and topped off the fuel tanks. About 5 minutes after he departed on the second leg, the engine started to lose power so he performed an off-airport forced landing. The airplane landed hard, which resulted in substantial damage to the wings.

Postaccident examination of the airplane revealed that when electrical power was applied to the electric fuel pump, fuel leaked from the fuel strainer bowl. Further examination of the fuel strainer bowl revealed that the thumb wheel, which secured the fuel strainer bowl to the firewall, was loose and not secured with safety wire. Examination of the fuel system forward of the fuel strainer bowl revealed no fuel was present up to the fuel nozzles. Once the fuel strainer bowl was secured and the thumb wheel tightened, fuel flowed to the fuel nozzles and no leaks were noted. Additionally, one of the fuel injector nozzles was completely obstructed and another was partially obstructed. Since the fuel bowl was not safety wired, it likely loosened from vibration after the annual inspection which resulted in fuel leaking from the fuel strainer bowl. The fuel leak likely starved the engine of adequate fuel to operate normally, and contributed to the partial loss of engine power. The obstructed fuel injector nozzles also likely negatively impacted the engine's performance during the flight.

Probable Cause and Findings

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

Maintenance personnel’s failure to secure the fuel strainer bowl with safety wire, which resulted in the fuel strainer bowl leaking and starving the engine of fuel. Also causal was the obstruction of two fuel injector nozzles.

Findings

Aircraft	Fuel filter-strainer - Incorrect service/maintenance
Personnel issues	Scheduled/routine maintenance - Maintenance personnel

Factual Information

History of Flight

Enroute-climb to cruise	Powerplant sys/comp malf/fail (Defining event)
Landing	Hard landing

On March 2, 2023, at 1305 central standard time, a Piper PA-28R-200, N9420N, was substantially damaged when it was involved in an accident near Slaughters, Kentucky. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, he purchased the airplane in April 2021, and the airplane had not flown for 22 years. He hired a mechanic to complete an extensive annual inspection, and the mechanic endorsed the airplane's logbooks on March 1, 2023. The pilot planned on flying the airplane back to San Diego, California.

On the day of the accident, he flew from Bowman Field Airport (LOU), Louisville, Kentucky, to Madisonville Regional Airport (2I0), Madisonville, Kentucky, which was about 97 nautical miles. He topped off the fuel tanks at 2I0 and visited a friend in town for a couple hours before departing for Lebanon Springfield Airport-George Hoerter Field (6I2), Springfield, Kentucky. About 5 minutes after he departed 2I0, at an altitude of 1,600 ft mean sea level, the engine started to "lose power and slow down." He did not remember if the engine was sputtering, he just remembered the engine was losing power. He knew he could not make it back to the airport, so he set up for a forced landing to a field. The airplane landed hard, and all three landing gear separated from their mounts. The main landing gear were forced up through the wings, which substantially damaged the wing ribs and main spar.

Examination of the engine revealed that, when electrical power was applied to the electric fuel pump, fuel leaked from the fuel strainer bowl. The thumb wheel, which secured the fuel strainer bowl to the firewall, was loose and not secured with safety wire, which allowed fuel to exit the fuel strainer bowl. The fuel system forward of the fuel strainer was examined and no fuel was noted up to the fuel nozzles. The fuel strainer bowl was secured by the mechanic and when the fuel pump was powered up fuel flowed from the strainer bowl, through the fuel lines, to the fuel nozzles. The fuel nozzles were examined, and the No. 3 nozzle had a small piece of unidentified material in it and the No. 4 nozzle was totally clogged. The Nos. 1 & 2 nozzles were found clear of debris. No other anomalies were noted with the engine.

Pilot Information

Certificate:	Private	**Age:**	76,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:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	December 2, 2021
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 1, 2022
Flight Time:	1700 hours (Total, all aircraft), 16 hours (Total, this make and model), 1700 hours (Pilot In Command, all aircraft), 7 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N9420N
Model/Series:	PA-28R-200	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	28R-35132
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 1, 2023 Annual	**Certified Max Gross Wt.:**	2650 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2550 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	C126 installed, not activated	**Engine Model/Series:**	IO-360-C1C
Registered Owner:	SPACE CADETS INC	**Rated Power:**	200
Operator:	SPACE CADETS INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:	13:30 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	90°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:		**Temperature/Dew Point:**	10°C / -1.1°C
Precipitation and Obscuration:			
Departure Point:	Madisonville, KY (210)	**Type of Flight Plan Filed:**	None
Destination:	Springfield, MO (SGF)	**Type of Clearance:**	None
Departure Time:	13:40 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	37.490436,-87.517488(est)

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	Nick Anderson; FAA/FSDO; Louisville, KY
Original Publish Date:	May 14, 2024
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=106850