



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Somerville, Tennessee	Accident Number:	ERA23LA111
Date & Time:	January 10, 2023, 16:43 Local	Registration:	N5841W
Aircraft:	Piper PA-28-160	Aircraft Damage:	Substantial
Defining Event:	Unknown or undetermined	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

During an instructional flight, while flying on the left downwind leg of the traffic pattern at an altitude of about 1,000 ft above the ground, the flight instructor and the student pilot heard a momentary grinding noise of what sounded like "metal on metal." The flight instructor described that the noise lasted no more than 2 to 3 seconds and immediately abated. The flight instructor and student did not see anything approaching the airplane or its flight path before the noise occurred, nor did they report any sensation similar to an impact.

The flight instructor and student pilot subsequently landed the airplane without issue and during a postflight inspection with the airplane's owner, the flight instructor noted damage to the right side of the engine cowling and substantial damage to the inboard aft face of one of the propeller blades. There were no visible blood or bird remains present on the propeller or cowling. The flight instructor and airplane owner postulated that the airplane may have impacted an unmanned aerial system (UAS), and the airplane owner subsequently coordinated a ground search for debris in the days following the accident; however, no UAS components was located. Review of Federal Aviation Administration (FAA) records revealed that no Low Altitude Authorization and Notification Capability authorizations were requested for the area at the time of the accident, nor had any UAS operational waivers had been filed with the FAA for operation in the area at the time of the accident. Given all available information, the reason that the airplane's engine cowling and propeller were damaged during the flight could not be definitively determined.

Probable Cause and Findings

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

Based on available evidence, the reason for the damage to the airplane's propeller and engine cowling could not be determined.

Findings

Not determined	(general) - Unknown/Not determined
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Factual Information

History of Flight

Approach-VFR pattern downwind	Unknown or undetermined (Defining event)
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Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	34,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	November 29, 2022
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	September 3, 2022
Flight Time:	560 hours (Total, all aircraft), 55 hours (Total, this make and model), 454 hours (Pilot In Command, all aircraft), 162 hours (Last 90 days, all aircraft), 59 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Student	Age:	54,Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	August 2, 2022
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	38 hours (Total, all aircraft), 8.5 hours (Total, this make and model), 19 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N5841W
Model/Series:	PA-28-160	Aircraft Category:	Airplane
Year of Manufacture:	1965	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	28-2216
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	December 2, 2022 Annual	Certified Max Gross Wt.:	2200 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3920.8 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-320-D2A
Registered Owner:	DESTINATION FLYER LLC	Rated Power:	160 Horsepower
Operator:	First Team Pilot Training LLC	Operating Certificate(s) Held:	None
Operator Does Business As:	First Team Pilot Training	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	OLV,404 ft msl	Distance from Accident Site:	24 Nautical Miles
Observation Time:	16:50 Local	Direction from Accident Site:	235°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Overcast / 1800 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	200°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.96 inches Hg	Temperature/Dew Point:	15°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Somerville, TN	Type of Flight Plan Filed:	None
Destination:	Somerville, TN	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Airport Information

Airport:	FAYETTE COUNTY FYE	Runway Surface Type:	Asphalt
Airport Elevation:	435 ft msl	Runway Surface Condition:	Dry
Runway Used:	19	IFR Approach:	None
Runway Length/Width:	5000 ft / 75 ft	VFR Approach/Landing:	Full stop;Precautionary landing;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	35.217222,-89.380019(est)

Administrative Information

Investigator In Charge (IIC):	Freeze, Christopher
Additional Participating Persons:	Steven R Morgan; FAA/FSDO; Memphis , TN
Original Publish Date:	June 15, 2023
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=106583

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).