Aviation Investigation Final Report

Location:	Comstock, Texas	**Accident Number:**	CEN21FA327
Date & Time:	July 17, 2021, 20:40 Local	**Registration:**	N2054B
Aircraft:	Luscombe 8F	**Aircraft Damage:**	Destroyed
Defining Event:	Unknown or undetermined	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot departed on a personal flight, and the wreckage was located about 20 nautical miles from the departure airport by the property owner. There were no witnesses to the accident. Recorded data showed that, after maneuvering over the area of the accident site for about 6 minutes, the airplane entered a near-vertical descent. The airplane impacted terrain and was destroyed. The wreckage was consistent with a wings-level, near-vertical impact. Postaccident examination revealed no mechanical anomalies that would have precluded normal operation.

Toxicology testing of the pilot identified ethanol. The large discrepancy among the ethanol levels in muscle, heart, and liver indicates that at least some of the detected ethanol was likely from sources other than consumption. Notably, the severity of injury made postmortem microbial ethanol production more likely, and the detectable n-propanol and n-butanol in muscle and heart indicate likely postmortem microbial activity in these tissues (although such activity does not always produce ethanol).

Although at least some of the detected ethanol was likely from sources other than consumption, the available ethanol results are insufficient to exclude the possibility that consumed ethanol may have exerted impairing effects on the pilot, particularly given that diphenhydramine was also detected. Like ethanol, diphenhydramine may exert impairing sedative effects, and such effects may combine with those of ethanol. There is insufficient medical and operational evidence to determine whether ethanol or diphenhydramine caused impairment that contributed to the accident.

Probable Cause and Findings

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

Impact with terrain for reasons that could not be determined based on the available information.

Findings

Personnel issues	(general) - Flight crew

Factual Information

History of Flight

Maneuvering	Unknown or undetermined (Defining event)

On July 18, 2021, about 2040 central daylight time, a Luscombe 8F, N2054B, was destroyed when it was involved in an accident near Comstock, Texas. The commercial pilot sustained fatal injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The airplane departed from Del Rio International Airport (DRT), Del Rio, Texas, about 2015. The wreckage was found by a landowner while he was checking the field's fence; he did not hear or see the accident. There were no known witnesses to the accident.

Pilot Information

Certificate:	Commercial	**Age:**	34,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	December 27, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 717 hours (Total, all aircraft)		

The pilot was a United States Air Force pilot. He accumulated a total military flight experience of 2,084 hours, and his total civilian flight time was 717 hours as of his most recent logbook entry, dated September 2, 2018.

Aircraft and Owner/Operator Information

Aircraft Make:	Luscombe	**Registration:**	N2054B
Model/Series:	8F	**Aircraft Category:**	Airplane
Year of Manufacture:	1949	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	6481
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	December 7, 2020 Annual	**Certified Max Gross Wt.:**	1400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3953 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	C91 installed, activated, did not aid in locating accident	**Engine Model/Series:**	C90-8F
Registered Owner:	On file	**Rated Power:**	90 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	DRT,1002 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	20:53 Local	**Direction from Accident Site:**	315°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots / None	**Turbulence Type Forecast/Actual:**	None /
Wind Direction:	110°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.97 inches Hg	**Temperature/Dew Point:**	33°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Del Rio, TX (DRT)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	20:11 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	29.640618,-101.06117

The wreckage was located about 20 miles north-northwest of DRT. The airplane came to rest inverted on a magnetic heading of 202°. The propeller, located several feet forward of the nose, exhibited chordwise scratching consistent with rotation. The propeller hub was split in half, consistent with impact damage. Ground scarring was limited to the areas under the propeller and the airframe. There was no ground scarring across the field. The airplane exhibited substantial damage to the fuselage, wings, and empennage.

The crush damage to the nose and both wings was consistent with a wings-level, nearly vertical impact angle. All control surfaces were located with the fuselage at the accident site. Both wing flaps were retracted.

Postaccident examination of the airplane confirmed continuity each of the flight control surfaces to the cockpit controls. All separations in the control system were consistent with overstress due to impact forces.

The engine crankcase was broken open. The internal engine components did not exhibit failure.

The tachometer gauge needle was deformed along the tachometer face. The tachometer indicated about 2,600 rpm.

Medical and Pathological Information

The pilot's most recent third-class Federal Aviation Administration medical certificate was issued on December 27, 2006. At that time, he reported no medication use and no active medical conditions.

The Webb County Medical Examiner's Office, Laredo, Texas, performed the pilot's autopsy. According to the autopsy report, the cause of death was multiple traumatic injuries, and the manner of death was accident. The autopsy was limited by the severity of injuries, with no

major heart or brain structures described. Within this limitation, the autopsy did not identify significant natural disease.

Toxicological testing at the FAA Forensic Sciences Laboratory detected ethanol in muscle at 0.182 g/dL, in heart at 0.065 g/dL, and in liver at 0.034 g/dL. Ethanol testing in brain was inconclusive. N-propanol and n-butanol were detected in muscle and heart. Diphenhydramine was detected in muscle and liver.

Ethanol is the intoxicating alcohol in beer, wine, and liquor. It can impair judgment, psychomotor performance, cognition, and vigilance. FAA regulation imposes strict limits on flying after consuming ethanol. This includes a prohibition on acting as a crewmember of a civil aircraft while having a blood ethanol level of 0.04 g/dL or greater. Ethanol can also be produced by microbes in a person's body tissues after death. N-propanol and n-butanol are other alcohols that can be produced by microbes in a person's body tissues after death.

Diphenhydramine is a sedating antihistamine available over the counter in multiple cold and allergy products as well as sleep aids. Diphenhydramine can cause drowsiness and cognitive and psychomotor impairment. It typically carries a warning to be cautious with tasks like driving and operating machinery, and to avoid use with alcohol, which can increase its sedative effects. The FAA states that pilots should not fly within 60 hours of using diphenhydramine, to allow time for it to be eliminated from circulation.

Additional Information

Download of data from the pilot's watch indicated that he was maneuvering the airplane near the accident site for about 6 minutes before the airplane entered a steep descent over the accident site.

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Jeffrey Johnson; Federal Aviation Administration; San Antonio FSDO; San Antonio, TX Jose Ojeda; Federal Aviation Administration; San Antonio FSDO; San Antonio, TX Gary Watson; Federal Aviation Administration; North Texas FSDO; Irving, TX
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