Aviation Investigation Final Report

Location:	Vernon, Texas	**Accident Number:**	CEN18FA004
Date & Time:	October 8, 2017, 13:00 Local	**Registration:**	N580LL
Aircraft:	Aero Vodochody L39C	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot of the jet trainer airplane departed on a local personal flight and flew for about an hour before returning to the airport. Witnesses saw the airplane make a high-speed pass over the runway at low altitude. Some thought the pilot may have been conducting a go-around. The airplane then entered a steep left bank, estimated to vary between 45° and 90°, then impacted the ground. The airplane was destroyed by impact and a postcrash fire, which precluded a thorough examination of its systems, including the flight controls; however, the engine displayed signatures of power production at the time of impact. Toxicology testing and autopsy of the pilot did not detect any impairing substances or identify significant physiological issues that may have resulted in incapacitation. It is likely that the pilot experienced an in-flight loss of control while maneuvering at low altitude; however, the reason for the loss of control could not be determined based on the available information.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An in-flight loss of control and collision with terrain for reasons that could not be determined based on the available information.

Findings

Personnel issues	Incorrect action performance - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	(general) - Not attained/maintained
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Maneuvering-low-alt flying	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On October 8, 2017, about 1257 central daylight time, an Aero Vodochody L39C, N580LL, collided with terrain 1/2 mile south of Wilbarger County Airport (F05), Vernon, Texas. The commercial pilot was fatally injured and the airplane was destroyed. The airplane was owned and operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident, and no flight plan was filed for the local personal flight, which originated from F05 about 1153.

There were eight witnesses to the accident, and their accounts of the sequence of events varied. All the witnesses agreed that the airplane made a pass over runway 20; estimates of the airplane's altitude varied from 50 to 300 ft above ground level. One witness thought the airplane may be conducting a go-around. The airplane then made a sharp left bank; witnesses estimated the bank angle between 45° and 90°. Two witnesses thought that the pilot was trying to do a "barrel roll." One witness stated that the airplane entered an inverted attitude and "spun to the ground"; other witnesses stated that the left wing hit the ground before the airplane impacted terrain.

Another witness, who was driving north along the highway adjacent to the airport, saw the airplane fly by at low altitude. He stated that the airplane's nose came up slightly and that it entered a steep left bank such that, "you could see the whole profile." He then saw a fireball and black smoke.

A GoPro camera was recovered from the wreckage and sent to NTSB's Vehicle Recorders Division. The GoPro had a 64GB internal microSD card that was catastrophically damaged during the accident; the data was unrecoverable.

Pilot Information

Certificate:	Commercial	**Age:**	56,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	August 25, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 1124 hours (Total, all aircraft), 8 hours (Last 90 days, all aircraft)		

The pilot held a commercial pilot certificate with ratings for airplane single- and multi-engine land and instrument airplane. He also held a type rating in the Aero Vodochody L39. His second-class Federal Aviation Administration airman medical certificate, dated August 25, 2017, contained the restriction, "Must wear corrective lenses." On the application for that medical certificate, the pilot estimated that he had accrued 1,124 total hours of flight experience, 17 hours of which were accrued in the previous six months.

Aircraft and Owner/Operator Information

Aircraft Make:	Aero Vodochody	**Registration:**	N580LL
Model/Series:	L39C	**Aircraft Category:**	Airplane
Year of Manufacture:	1984	**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	432921
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	August 8, 2017 Condition	**Certified Max Gross Wt.:**	10028 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo fan
Airframe Total Time:	1441 Hrs as of last inspection	**Engine Manufacturer:**	Ivchenko
ELT:		**Engine Model/Series:**	AI-25TL
Registered Owner:	On file	**Rated Power:**	3792 Lbs thrust
Operator:	On file	**Operating Certificate(s) Held:**	None

The airplane was manufactured in Czechoslovakia in 1984. It was designed as a training aircraft for Warsaw Pact countries. The airplane was equipped with an Ivchenko AI-25-TL turbofan engine, rated at 3,792 lbs of thrust.

The most recent condition inspection of the airplane and engine was completed on August 8, 2017, at an airframe and engine total time of 1,440.5 and 894.7 hours, respectively. At that time, the engine had accrued 107.7 hours since last overhaul. The transponder, altimeter, and encoder were also checked and re-certified.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KF05,1265 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	12:55 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	14 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.7 inches Hg	**Temperature/Dew Point:**	28°C / 6°C
Precipitation and Obscuration:			
Departure Point:	Vernon, TX (F05)	**Type of Flight Plan Filed:**	None
Destination:	Vernon, TX (F05)	**Type of Clearance:**	None
Departure Time:	12:45 Local	**Type of Airspace:**	Class G

The 1255 automated observation at F05 recorded wind from 210° at 14 knots, 10 miles visibility, clear skies, temperature 28°C, dew point 6°C, and an altimeter setting of 29.70 inches of mercury.

Airport Information

Airport:	Wilbarger County F05	**Runway Surface Type:**	Asphalt
Airport Elevation:	1265 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	20	**IFR Approach:**	None
Runway Length/Width:	5099 ft / 100 ft	**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	34.211666,-99.289169

The on-scene investigation revealed a 40-ft long ground scar, consistent with the left wing contacting the ground, which led to a 50-ft long crater. The airplane broke apart, leaving a 580-ft long debris path aligned on a 170° magnetic heading. There was evidence of a flash fire of the surrounding grass likely ignited by vaporized fuel. The airplane itself was fragmented and burned. The right wing separated, and the aileron was missing. The left wing was destroyed. The empennage was identified. The engine compressor showed signatures consistent with rotation followed by sudden stoppage. The guide vanes were broken or crushed, and there was scoring of the engine case. Flight control continuity could not be established due to impact damage, but pushrod movement was identified when the elevators and rudder were moved by hand.

Medical and Pathological Information

The Office of the Chief Medical Examiner, Tarrant County, Texas, performed an autopsy on the pilot. The pilot's death was attributed to "multiple traumatic injuries due to (an) airplane crash." The toxicology report was negative for ethanol and drugs. Carbon monoxide tests could not be performed. Although thermal injuries were present, the trachea showed no soot deposition.

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicology testing on specimens of the pilot. Testing revealed 24 (mg/dL) ethanol in muscle tissue; however, putrefaction of the samples was noted, and the ethanol was likely from sources other than ingestion. Additionally, ondansetron was detected in liver and muscle tissue. Ondansetron (Zofran) is a non-sedating serotonin 5-HT3 receptor antagonist used mainly as an antiemetic to treat nausea and vomiting.

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	
Original Publish Date:	May 29, 2019
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=96157