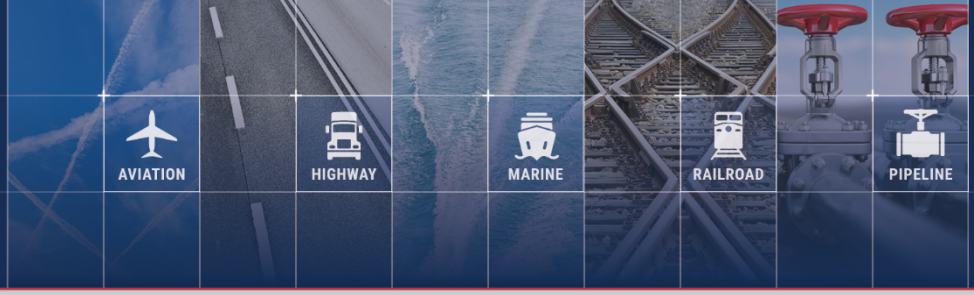

Aviation Investigation Final Report

Location:	La Porte, Texas	**Accident Number:**	CEN18FA267
Date & Time:	July 15, 2018, 09:00 Local	**Registration:**	N3135J
Aircraft:	Kolb Twinstar	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot, who had recently purchased the experimental amateur-built light-sport airplane, and a passenger were conducting a local flight in day visual meteorological conditions. Witnesses stated that the airplane departed and remained in the airport traffic pattern. While the airplane was on approach to the runway for landing, witnesses heard the engine power decrease then and immediately increase. The airplane appeared to enter an aerodynamic stall from a low altitude and impact terrain in a nose-low attitude. Postaccident examination of the airplane revealed no evidence of mechanical malfunctions or failures that would have precluded normal operations. Based on available information and examination of the wreckage, it is likely that the pilot did not maintain sufficient airspeed while maneuvering during the approach for landing. The airplane subsequently exceeded its critical angle of attack and entered an aerodynamic stall at an altitude too low for recovery.

The pilot's logbook was not located during the investigation, and the pilot's experience level in experimental and light-sport airplanes was not determined. Additionally, it could not be determined if the pilot had obtained transition training in the accident airplane, which was classified as a low-inertia/high-drag airplane. Low-inertia/high drag airplanes are particularly susceptible to unintentional aerodynamic stalls due to their margin between low cruise speed and stall speed and their tendency to experience significant airspeed decay with increased load factor (such as during a turn).

Toxicology revealed that the pilot was using pain and allergy medications at the time of the accident; however, whether the pilot had impairing levels of either of the medications around the time of the accident or whether the potentially-impairing medications degraded his ability to safely operate the airplane could not be determined.

Probable Cause and Findings

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

The pilot's failure to maintain airspeed during a visual approach for landing, which resulted in an exceedance of the airplane's critical angle of attack and a subsequent aerodynamic stall at an altitude too low for recovery.

Findings

Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Capability exceeded
Aircraft	Altitude - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Approach-VFR pattern base	Aerodynamic stall/spin (Defining event)
Approach-VFR pattern base	Loss of control in flight
Approach-VFR pattern base	Collision with terr/obj (non-CFIT)

On July 15, 2018, about 0900 central daylight time, an experimental, amateur-built Kolb Twinstar III airplane, N3135J, impacted terrain while maneuvering for landing at the La Porte Municipal Airport (T41), La Porte, Texas. The private pilot and passenger sustained fatal injuries, and the airplane sustained substantial damage. The airplane was owned by the pilot who was operating it as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Day visual meteorological conditions prevailed at the time of the accident, and no flight plan was filed for the local flight, which departed T41 about 0855.

According to witnesses and local authorities, the airplane departed T41 and remained in the airport traffic pattern. While the airplane was on approach for landing to runway 23, several witnesses heard the engine power decrease then and immediately increase. Other witnesses stated that the airplane appeared to "stall" from a low altitude and impact terrain in a nose-low attitude.

Pilot Information

Certificate:	Private	**Age:**	64,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	5-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	BasicMed	**Last FAA Medical Exam:**	April 14, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 2400 hours (Total, all aircraft), 7 hours (Total, this make and model)		

According to acquaintances, the pilot had purchased the airplane about 1 or 2 months before the accident. The pilot would conduct "taxi tests" at T41 with the airplane. The day before the accident, the pilot and an unknown passenger experienced a runway excursion while conducting a high-speed taxi. It was unknown if any damage occurred during the excursion.

The pilot's logbooks were not located during the investigation. Based on the airplane purchase date, airplane logbook information, and witness accounts, the pilot likely accumulated about 7 hours in the accident airplane.

The pilot was also the owner of a Cessna 210 airplane. Whether the pilot obtained any transition training in the accident airplane could not be determined.

Aircraft and Owner/Operator Information

Aircraft Make:	Kolb	**Registration:**	N3135J
Model/Series:	Twinstar III	**Aircraft Category:**	Airplane
Year of Manufacture:	1992	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental light sport (Special)	**Serial Number:**	3-12
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	March 21, 2018 Condition	**Certified Max Gross Wt.:**	1000 lbs
Time Since Last Inspection:	8 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Rotax
ELT:	Not installed	**Engine Model/Series:**	582
Registered Owner:		**Rated Power:**	64 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The two-seat, high-wing, tailwheel equipped airplane was powered by a 64-horsepower Rotax model 582 engine, equipped with a three-blade ground-adjustable propeller. The airplane met the light sport airplane requirements, and the airplane was not equipped with a stall warning system, nor was one required. According to Federal Aviation Administration (FAA) and maintenance records, the airplane was built in 1992 and certified in the experimental amateur-built category. The airplane's most recent condition inspection was completed on March 21, 2018. At the time of the accident, the airplane had accumulated 7.9 hours since the condition inspection.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	EFD,32 ft msl	**Distance from Accident Site:**	7 Nautical Miles
Observation Time:	09:50 Local	**Direction from Accident Site:**	210°
Lowest Cloud Condition:	Scattered / 2000 ft AGL	**Visibility**	8 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.05 inches Hg	**Temperature/Dew Point:**	30°C / 25°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	La Porte, TX (T41)	**Type of Flight Plan Filed:**	None
Destination:	La Porte, TX (T41)	**Type of Clearance:**	None
Departure Time:	08:55 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	La Porte Municipal Airport T41	**Runway Surface Type:**	
Airport Elevation:	25 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	29.674444,-95.056388

The initial ground impact scar contained portions of the forward fuselage and instrument panel. The main wreckage came to rest inverted about 20 ft from the initial impact point. The main wreckage consisted of the fuselage, both wings, empennage, and engine. Both wings exhibited forward-to-aft accordion-type crush damage, and the flap and aileron control surfaces remained attached to each wing. The three-blade composite propeller assembly remained attached to the engine and fragmented blade sections were located in the debris field. The engine remained partially attached to the fuselage structure (see figure 1.).

Figure 1. Main wreckage

Flight control continuity was established from the cockpit flight controls to the flight control surfaces. The propeller assembly was rotated by hand, and mechanical continuity was established throughout the engine.

The instrumental panel was destroyed and several fragmented instrument components were located in the debris field near the initial impact. The seat assemblies were bent and deformed, and both seat restraints were found secured by rescue personnel.

Postaccident examination of the airplane revealed no evidence of mechanical malfunctions or failures that would have precluded normal operations.

Additional Information

According to FAA Advisory Circular 90-109A, Transition to Unfamiliar Aircraft, Appendix 2, the Kolb airplane is considered a low-inertia and/or high-drag airplane, with nontraditional configuration and/or controls. Appendix 4 describes low-inertia and/or high-drag as airplanes that rapidly lose energy (airspeed and/or altitude) when there is a loss or reduction of power.

In addition, Appendix 4 d. Other Hazards, states,

Hazards of low-inertia/high-drag airplanes are not limited to power management issues. While all airplanes experience an increase in stall speed with an increase in load factor, such as during turns, these airplanes may also experience significant airspeed decay with increased load factor. This, coupled with low cruise speed to stall speed margin, make these airplanes particularly susceptible to unintentional stalls.

Medical and Pathological Information

The Harris County - Institute of Forensic Sciences, Houston, Texas, performed an autopsy of the pilot. The cause of death was listed as multiple blunt force injuries.

Toxicology testing performed by the FAA Forensic Sciences Laboratory identified diphenhydramine in urine and liver, 4.36 (ug/mL, ug/g) Tramadol in urine, 0.256 (ug/mL, ug/g) Tramadol in liver, 2.475 (ug/mL, ug/g) Desmethyltramadol (O-) in urine, and 0.145 (ug/mL, ug/g) Desmethyltramadol (O-) in liver. Testing was not performed for carbon monoxide or cyanide, and no ethanol was detected in vitreous.

Tramadol is a prescription medication used to relieve moderate to moderately severe pain. Tramadol is in a class of medications called opiate (narcotic) analgesics. The medication has the potential to impair mental and/or physical ability required for the performance of potentially hazardous tasks, e.g., flying, driving, and operating heavy machinery. O-desmethyltramadol is an active metabolite of tramadol.

Diphenhydramine is an over-the-counter, first-generation antihistamine used to treat allergic conditions and helpful as a sleep aid. This medication could impair mental and/or physical ability required for the performance of potentially hazardous tasks, e.g., flying, driving, and operating heavy machinery. Because of adverse side effects that include somnolence, decreased alertness, and impaired concentration, attention and memory, the FAA recommends waiting at least 60 hours after the last dose before performing safety-related duties.

Administrative Information

Investigator In Charge (IIC):	Sauer, Aaron
Additional Participating Persons:	Robert McGee; Federal Aviation Administration; Houston, TX
Original Publish Date:	September 10, 2019
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97761