Aviation Investigation Final Report

Location:	Basehor, Kansas	**Accident Number:**	ERA22FA320
Date & Time:	July 18, 2022, 10:00 Local	**Registration:**	N6170
Aircraft:	KNIGHT AA Nieuport 28	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

On the day of the accident, the pilot intended to fly the airplane for the first time since it had been repaired following a previous hard landing. The pilot, who was the builder of the experimental biplane, was taking off on a personal flight when the airplane veered to the left, lifted off the runway, and flew back toward the runway centerline. A witness noted that the airplane was going “very slow.” When the airplane reached an altitude of about 200 ft above ground level, the airplane started to make a slow left turn. The witness then observed the tail of the airplane drop down and the left wing roll, and the airplane subsequently spun to the ground. A postcrash fire ensued.

About 2 years before the accident, the airplane was involved in a hard landing, which damaged the landing gear. The pilot subsequently repaired the landing gear, which would have included removal and reassembly of the wing struts. Postaccident examination of the airplane found that the left outer interplane strut was not correctly attached to the lower left wing compression strut. The bolt and nut were present through the outer interplane strut but had not been secured to the lower wing compression strut.

The disconnected strut would have resulted in an out-of-rig condition and change the flight characteristics of the upper and lower left wings, potentially inducing drag while in flight. In this case, the upper and lower left wings would have each displayed different flight characteristics because the lower wing angle was pushed down and the upper wing was pushed up during the wire-tensioning process. The faster the airplane flew in the out-of-rig condition, the more pronounced the changed flight characteristics of the upper and lower left wings would have become. During the accident sequence, the pilot likely tried to slow the airplane to improve the changed flight characteristics, but the airplane’s critical angle of attack was exceeded and resulted in the airplane’s subsequent stall and spin to the ground.

Probable Cause and Findings

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

The pilot's incorrect installation of the left-wing strut, which resulted in a loss of airplane control during takeoff and a subsequent aerodynamic stall and spin from which the pilot could not recover.

Findings

Aircraft	Attach fittings (on wing) - Incorrect service/maintenance
Personnel issues	Repair - Owner/builder

Factual Information

History of Flight

Prior to flight	Aircraft maintenance event
Takeoff	Loss of control in flight (Defining event)
Initial climb	Aerodynamic stall/spin
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On July 18, 2022, about 1000 central daylight time, an experimental amateur-built AA Nieuport 28, N6170, was destroyed when it was involved in an accident near Basehor, Kansas. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to a witness, he met the pilot about 0900 on the day of the accident and helped him perform the preflight inspection and pull the airplane from its hangar. The witness stated that there were no issues with the preflight inspection and that the 12-gallon fuel tank was full. The witness also stated that the pilot planned to climb straight out to an altitude of about 500 ft above ground level (agl) and then turn left and stay close to the runway while he checked the airplane. The pilot started the engine and let it warm up for about 10 minutes. The pilot then gave the witness a thumbs up and applied full throttle for the takeoff.

During the takeoff roll, the airplane veered to the left, and the witness thought that the airplane was going to hit a large round hay bale next to the runway. The airplane lifted off the ground and cleared the hay bale by 6 ft. The pilot flew back toward the runway centerline but was going “very slow.” After clearing the treetops, the airplane started to make a slow left turn at an altitude of about 200 ft agl. The witness then observed the tail drop down and the left wing roll, and the airplane subsequently spun to the ground. A postcrash fire ensued.

According to the witness, the pilot built the biplane from a kit in 2016 and equipped it with a Volkswagen engine. Between 2016 and the accident date, the pilot had operated the airplane about 30 hours. During that time, the airplane had several problems with the engine and oil leaks. In 2020, the pilot made a hard landing that fractured the main landing gear. During the next 2 years, the pilot repaired the landing gear, which would have included removing and reassembling the wing struts, and installed a Lycoming O-320 engine on the airframe. The work was completed in April 2022. The pilot performed several slow-speed taxies during the weeks that followed and, on the day of the accident, the pilot intended to fly the airplane for the first time since 2020. The current airplane’s maintenance logbooks and the pilot’s logbook were not located.

The accident site was located in a field about 1,600 ft east of the runway. The airplane impacted the ground in a nose-down attitude. The wooden propeller blades were splintered into numerous pieces at the impact point. The main landing gear separated and the airplane slid about 60 ft before it came to rest upright on a 15° magnetic heading.

The center portion of the wings and fuselage were almost completely consumed by fire. The engine was fractured at its mounts and was located under the left wing. The fabric was burnt except for a small piece on the tips of the upper and lower right wing. Flight control continuity was established from the control surfaces to the control stick, which was thermally destroyed. Examination of the engine revealed no preimpact mechanical anomalies that would have precluded normal operation. Examination of the airframe revealed the left outer interplane strut was not correctly attached to the left lower wing compression strut. The bolt andnut were present through the outer interplane strut, but the interplane strut had not been attached to the lower wing compression strut through the bolt mounting hole.

Pilot Information

Certificate:	Airline transport	**Age:**	68,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):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 22, 2021
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	9525 hours (Total, all aircraft), 999999 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	KNIGHT	**Registration:**	N6170
Model/Series:	AA Nieuport 28	**Aircraft Category:**	Airplane
Year of Manufacture:	2016	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	001
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	1200 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	0-320
Registered Owner:	On file	**Rated Power:**	150
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KMCI,1025 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	09:53 Local	**Direction from Accident Site:**	43°
Lowest Cloud Condition:	Few / 4000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	28°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Basehor, KS	**Type of Flight Plan Filed:**	None
Destination:	Basehor, KS	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	HOELTING SN22	**Runway Surface Type:**	Grass/turf
Airport Elevation:	960 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	18	**IFR Approach:**	None
Runway Length/Width:	2200 ft / 50 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	39.110946,-94.952586

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	Tom Davis; FAA/FSDO; Kansas City, MO Troy Helgeson; Lycoming Engines; Denver, CO Jeffery Givens; Graystone Defense, LLC; Basehor, KS
Original Publish Date:	January 30, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=105504