



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Juneau, Wisconsin	<b>Accident Number:</b>	CEN17LA224
<b>Date &amp; Time:</b>	June 7, 2017, 09:30 Local	<b>Registration:</b>	N31313
<b>Aircraft:</b>	MCKENNA SD-1A	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Flight control sys malf/fail	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The private pilot stated that, immediately after takeoff, the left wing felt "extremely heavy" and required "an exceptional amount of right aileron" to maintain level flight. During the precautionary landing, the airplane bounced, turned left, and the left main landing gear collapsed.

The pilot had recently reinstalled the wings; however, he made no measurements during the reinstallation, and the mechanic who signed off on the condition inspection did not confirm the wings' angle of incidence. Postaccident examination of the airplane revealed that the angle of incidence was incorrect. Given this was the first flight since the reinstallation of the wings, it is likely the incorrect angle of incidence led to the pilot's difficulty controlling the airplane.

## Probable Cause and Findings

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

The pilot's difficulty controlling the airplane due to his incorrect reinstallation of the wings, which led to a bounced precautionary landing. Contributing to the accident was the failure of the pilot and the mechanic to verify the wings' angle of incidence.

## Findings

<b>Aircraft</b>	Flight surfaces (wing) - Incorrect service/maintenance
<b>Personnel issues</b>	Installation - Pilot
<b>Aircraft</b>	(general) - Incorrect service/maintenance
<b>Personnel issues</b>	Post maintenance inspection - Pilot
<b>Personnel issues</b>	Post maintenance inspection - Maintenance personnel

# Factual Information

## History of Flight

Takeoff	Flight control sys malf/fail (Defining event)
Landing-flare/touchdown	Off-field or emergency landing
Landing-flare/touchdown	Abnormal runway contact
Landing-landing roll	Landing gear collapse

On June 7, 2017, about 0930 central daylight time, an experimental amateur-built SD-1A airplane, N31313, was substantially damaged during a precautionary landing at Dodge County Airport (KUNU), Juneau, Wisconsin. The private-rated pilot was not injured. The personal flight was conducted under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed and no Federal Aviation Administration (FAA) flight plan had been filed for the flight. The local flight had departed about 0900.

According to the pilot, immediately after takeoff the left wing felt "extremely heavy" and required an "exceptional amount of right aileron" to maintain level flight. The pilot was able to fly the airplane around the traffic pattern and perform a precautionary landing on runway 20. During the landing, the airplane bounced, and turned to the right. The left main landing gear collapsed, and the engine mount was substantially damaged.

According to the FAA inspector who responded to the accident, the wings had been taken off the airplane prior to its purchase. The pilot purchased the airplane in April of 2016. During the reinstallation of the wings, in April of 2017, the pilot installed the wing bolts where he thought they should go. He did not perform any measurements during this reinstallation. The Airframe and Powerplant Mechanic who signed off on the condition inspection did not confirm the position of the wings and more specifically, the angle of incidence.

The accident flight was the first flight after the reinstallation of the wings. Postaccident examination of the airplane revealed that the flight controls were continuous and correct; however, the angle of incidence, on the wings, was incorrect. No other anomalies were noted that would have precluded normal operation.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	72,Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Sport pilot None	<b>Last FAA Medical Exam:</b>	April 1, 2007
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	June 6, 2016
<b>Flight Time:</b>	388.2 hours (Total, all aircraft), 1 hours (Total, this make and model), 120.5 hours (Pilot In Command, all aircraft), 4.6 hours (Last 90 days, all aircraft), 4.6 hours (Last 30 days, all aircraft), 0.5 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	MCKENNA	<b>Registration:</b>	N31313
<b>Model/Series:</b>	SD-1A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1977	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	7
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	April 26, 2017 Condition	<b>Certified Max Gross Wt.:</b>	1300 lbs
<b>Time Since Last Inspection:</b>	197 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Continental Motors
<b>ELT:</b>	C91A installed, not activated	<b>Engine Model/Series:</b>	O-200G
<b>Registered Owner:</b>		<b>Rated Power:</b>	100 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KUNU,934 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	09:35 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/ None
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/ N/A
<b>Altimeter Setting:</b>	30.2 inches Hg	<b>Temperature/Dew Point:</b>	19°C / 9°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Juneau, WI (UNU )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Juneau, WI (UNU )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:00 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	Dodge County Airport UNU	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	934 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	20	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4027 ft / 75 ft	<b>VFR Approach/Landing:</b>	Full stop;Precautionary landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	43.426387,-88.703887(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Rodi, Jennifer
<b>Additional Participating Persons:</b>	Timothy Spreen; Federal Aviation Administration; Milwaukee , WI
<b>Original Publish Date:</b>	June 5, 2018
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=95361">https://data.nts.gov/Docket?ProjectID=95361</a>

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).