



Aviation Investigation Final Report

Location:	Katy, Texas	Accident Number:	CEN18LA195
Date & Time:	May 27, 2018, 17:15 Local	Registration:	N67Y
Aircraft:	CIRRUS DESIGN CORP SR20	Aircraft Damage:	Substantial
Defining Event:	Flight control sys malf/fail	Injuries:	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that immediately after takeoff, the airplane began to roll to the left. He attempted to counteract the roll with right aileron input but could not control the rolling motion; the airplane continued to roll to the left. The pilot continued to use right aileron and trim, lowered the nose, and executed a forced landing in a field adjacent to the departure airport.

Examination of the wreckage showed that the left aileron actuation arm and attachment bolt were missing; there was no associated impact damage. Impact marks were present on the inboard hinge consistent with the aileron striking it. No distress or markings were found in the hole for the attachment bolt. The bolt or remnants of safety wire were not found.

The pilot reported that he had flown the airplane the day before the accident and noted no problems with the flight controls. The most recent annual inspection and maintenance documents did not show any work performed on the ailerons. It could not be determined when the bolt came loose from the attachment. The absence of the bolt would severely affect aileron flight control as reported by the pilot, allowing the aileron to rotate freely around the hinge point with no connection to the flight controls.

After the accident, the Federal Aviation Administration issued an aviation maintenance alert advising owners and operators of SR20 and SR22 airplanes to visually inspect the bolt for the aileron actuation arm for the presence of a safety wire.

Probable Cause and Findings

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

The loss of airplane control on takeoff due to the absence of the attachment bolt for the left aileron actuation arm.

Findings

Aircraft	Aileron control system - Not installed/available
Aircraft	Fasteners - Not installed/available

Factual Information

History of Flight

Takeoff	Flight control sys malf/fail (Defining event)
Takeoff	Loss of control in flight

On May 27, 2018, about 1715 central daylight time, a Cirrus SR20 airplane, N67Y, was substantially damaged when it was involved in an accident near Katy, Texas. The pilot sustained minor injuries. The airplane was being operated as a Title 14 *Federal Code of Regulations* Part 91 personal flight.

The pilot was departing Houston Executive Airport (TME), Houston, Texas. He reported that he performed a preflight inspection and an engine run-up; completed a before takeoff checklist, which included a check of the flight controls; and taxied to runway 18 for departure. After receiving takeoff clearance, the pilot applied power and accelerated down the runway. He stated that during the takeoff roll, he had no difficulty maintaining directional control using the rudder; however, at rotation, the airplane began a slight left rolling motion. The pilot stated that he applied right aileron but could not control the rolling motion; the airplane continued rolling to the left. He informed the tower that he had a problem and prepared for a forced landing. He continued to use right aileron and trim, lowered the nose, and landed in a field adjacent to TME. The pilot reported that he had flown the airplane the day before and noted no problems with the flight controls.

Postaccident examination revealed that the left side of the wing was separated at the wing root and at the inboard end of the aileron. The left wingtip exhibited impact damage, and parts of it were identified at the initial point of impact. The left aileron exhibited impact damage and remained attached to the wing at both hinge points with hardware and safeties present. The left aileron actuation arm and attachment bolt were missing; there was no associated impact damage. Impact marks were present on the inboard hinge consistent with the aileron striking it. No distress or markings were found in the hole for the attachment bolt. The bolt or remnants of safety wire were not found. See Figures 1, 2 and 3.



Figure 1. Missing left aileron attachment bolt.

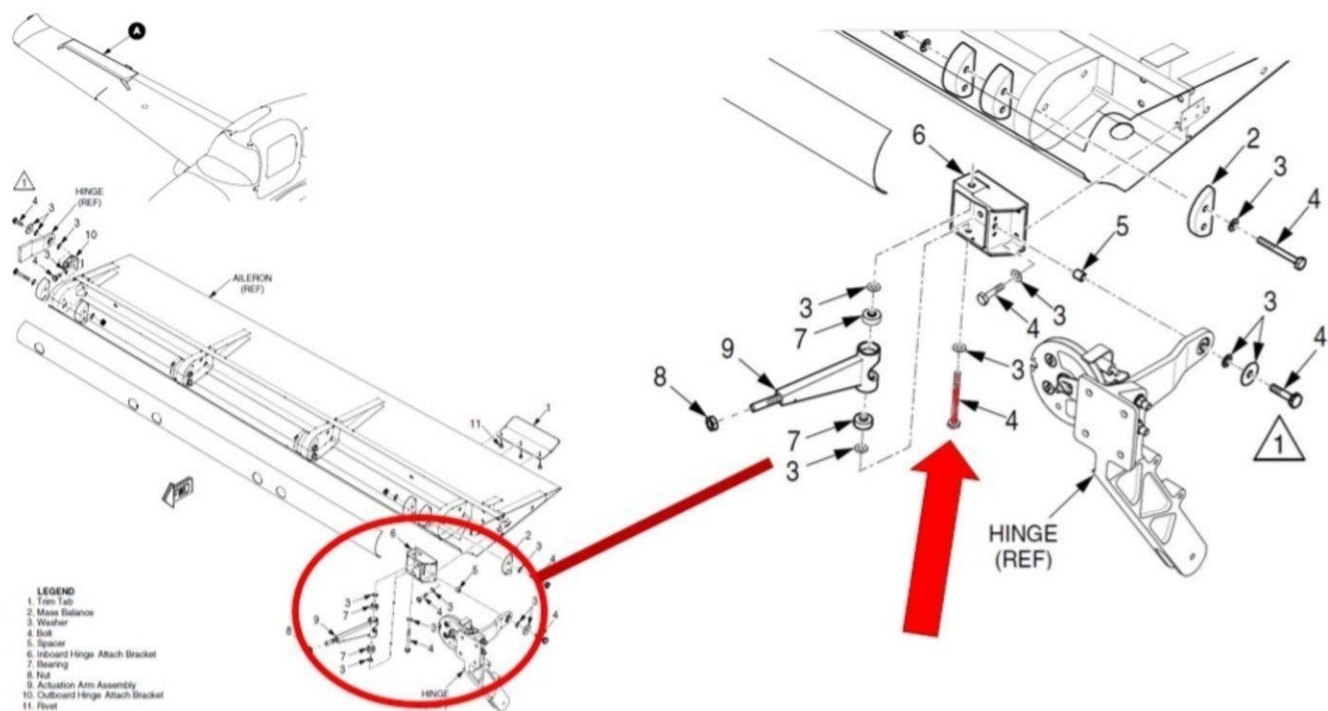


Figure 2. Schematic of aileron attachment hardware. Item 4 denotes missing bolt.

Documentation from the airplane's most recent annual inspection on May 11, 2018, did not show any work performed on the aileron control system. Review of historical maintenance documents did not reveal any recent maintenance performed on the aileron system.

The Federal Aviation Administration Safety Team posted a notice on March 19, 2019, titled "Aviation Maintenance Alert for Cirrus SR20 and SR22 Aircraft," advising owners and operators to visually inspect the bolt for the aileron actuation arm for the presence of a safety wire. The notice stated, in part, the following:

As the bolt is readily visible during a walk around inspection, we recommend that all owners and operators visually verify the presence of the required safety wire before further flight. If safety wire is not present, have a qualified maintenance provider correct the situation before further flight.

In addition, Cirrus aircraft will be updating their recommended pilot preflight walk around to better define the examination of the Aileron area and the maintenance manuals to emphasize the requirement of proper safety wiring of associated hardware. We recommended that all operators adopt the new manual practices and revisions.

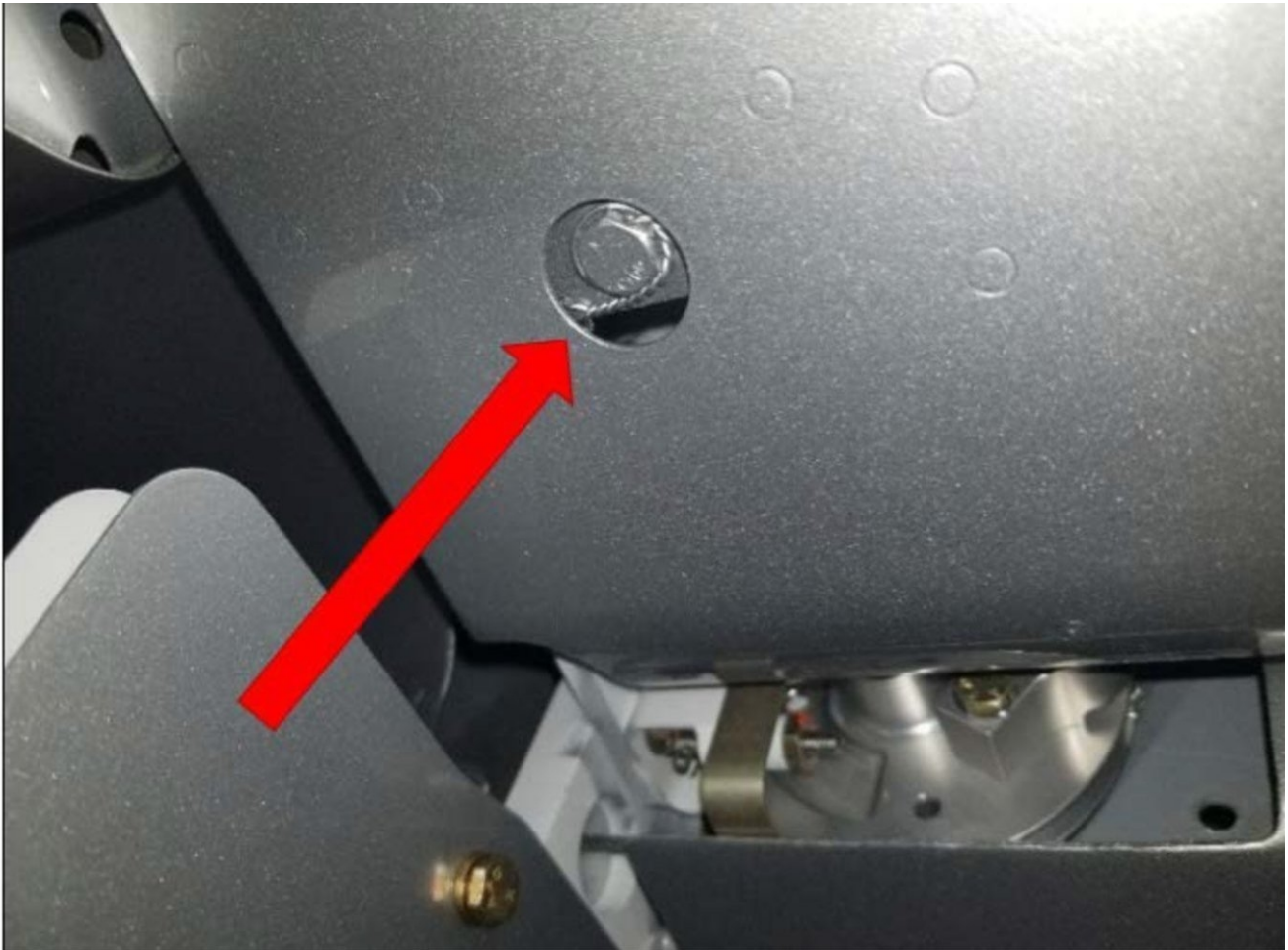


Figure 3. Exemplar properly installed bolt and safety wire.

Pilot Information

Certificate:	Airline transport	Age:	45,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	March 6, 2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 24, 2018
Flight Time:	4673 hours (Total, all aircraft), 13 hours (Total, this make and model), 123 hours (Last 90 days, all aircraft), 39.9 hours (Last 30 days, all aircraft), 1.7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CIRRUS DESIGN CORP	Registration:	N67Y
Model/Series:	SR20 NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	2003	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	1286
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	May 11, 2018 Annual	Certified Max Gross Wt.:	3000 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	992.3 Hrs as of last inspection	Engine Manufacturer:	CONT MOTOR
ELT:	Installed, not activated	Engine Model/Series:	IO-360 SER
Registered Owner:		Rated Power:	200 Horsepower
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:	TME, 166 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	16:55 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	None / None
Wind Direction:		Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.78 inches Hg	Temperature/Dew Point:	34°C / 23°C
Precipitation and Obscuration:			
Departure Point:	Katy, TX (TME)	Type of Flight Plan Filed:	IFR
Destination:	McKinney, TX (TKJ)	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class E

Airport Information

Airport:	Houston Executive Airport TME	Runway Surface Type:	Asphalt
Airport Elevation:	165 ft msl	Runway Surface Condition:	Vegetation
Runway Used:	18	IFR Approach:	None
Runway Length/Width:	6610 ft / 100 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	29.780841,-95.950424(est)

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander		
Additional Participating Persons:	Rick Bolton; FAA FSDO; Houston, TX Brad Miller; Cirrus Aircraft; Duluth, MN		
Original Publish Date:	May 25, 2021	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97333		

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](#).