

On May 2, 2019 at approximately 1700 local time, the right side aileron of a Cirrus SR-20 registration number N8160C departed the aircraft while in flight. The aircraft was ½ mile from the airport, on a final approach for one of a series of practice landings, when the aileron departed. VFR conditions prevailed. The aircraft landed without further incidence, the loss of the aileron constitutes substantial damage. The aircraft had 1 and 1 passenger onboard, there were no injuries. The flight originated from the Fort Worth Meacham (KFTW) at approximately 1620 local time. The flight ended at Mineral Wells Airport (KMWL) at approximately 1700 local time.

The right aileron departed the aircraft in flight during final approach to an airport where it was practicing landings while awaiting weather to clear at a nearby airport where the flight was intended to arrive. The aircraft had departed from Fort Worth Meachum (KFTW) and travelled 82 miles during the 40 minute flight prior to the accident. The aircraft had performed 4 practice approaches at the airport prior to the accident.

Pilot and passenger statements were collected and they are agreement with each other's recollection of the event. During a routine left turn and alignment for landing approach the passenger, who was sitting right seat, spotted an unusual flutter of the right aileron which she reported to the pilot. Following a slow rollout to final approach, she then saw it depart down and away. Since the aircraft was already positioned for landing, only minor control inputs were used to land. The aircraft landed without further incident and taxied to the local FBO where it was shut down and moored.

Review of the Cirrus SR-20 Maintenance Manual shows that the aileron is attached to the wing by two bolts that pass through spherical bearings housed in struts of the rear spar. The bolts thread into nutplates that are riveted to the aileron. The bolts are torqued to between 20-25 inlbs. And safety wired to tabs attached to the aileron. Review of the aircraft maintenance records show the last maintenance performed to be an annual inspection 6 months and 15 flight hours prior to the accident. The owner states in interview that to his knowledge the aileron has not been removed from the aircraft since he's owned it, approximately two years. In an interview with the mechanic who performed the last documented maintenance, he stated that he followed the Cirrus annual inspection checklist, did not disturb the aileron bolts, and that the safety wire was present at the time of inspection. There is no task in the Cirrus Annual Inspection checklist that requires removal of the aileron to complete the inspection.

Inspection of the attachment points of the rudder, elevators, flaps and left aileron revealed proper attachment and presence of required safeties. Inspection of the aircraft right wing showed that the inboard aileron attachment bolt was present in the spherical bearing with the associated washers and spacer. The threads of the bolt were not galled or stripped. The safety wire holes on the bolthead were intact. The bolt moved freely in the spherical bearing. The visible portions of the bolt grip did not show evidence of corrosion, stepping, or galling. The outboard attachment point showed the bolt still threaded into the associated nutplate with the torn away remains of the aileron captured between. The safety wire to the bolt head was present and found still engaged between the bolthead and the broken tab of the aileron. The safety wire did not appear new and matched the appearance of the left aileron bolt safeties.

The aileron was found in one piece located in a wooded area approximately ½ mile from the airport along the approach path to runway 31. The outboard attachment point was compacted with grass and mud and the outboard trailing edge corner bent. The remainder surface of the aileron was relatively straight and had minor cosmetic scratches. The inboard attachment point was complete and a double

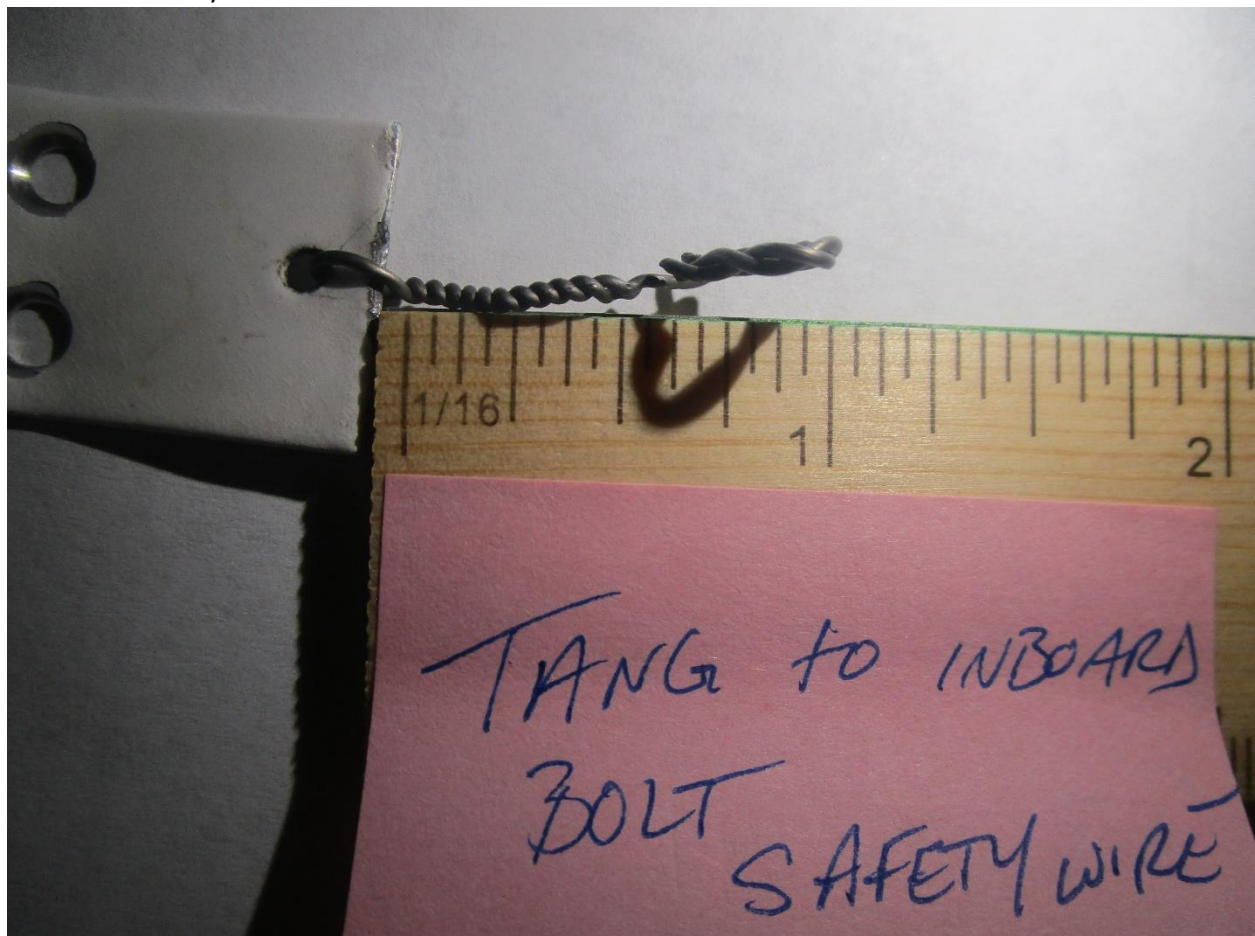
twisted strand of 0.032in safety wire was found attached to the aileron tab. The safety wire was broken at the contact point where it would enter the bolthead. The safety wire had the same aged appearance as the others. The break points were of the same dulled appearance. The surface of the safety wire was uniform except the portion between the body twists and pigtail that showed marks indicative of those left by pliers.

Cirrus SR20 AMM Chapter 20-50 paragraph 2.A.(3): Safety wire 0.032 inch (0.8 mm) in diameter shall have 6 to 12 twists per one inch (25.4 mm).

Terry M. Collins

ASI NTX FSDO SW19

The broken safety wire was twisted 9 times in 0.5 inches.



Plier marks visible between the end of twists and breakpoint



Vertical bolt safety wire present and intact prior to disassembly. (Horizontal bolt inserted for reference only)



Left aileron still installed. Inboard bolt attachment with safety wire shown for reference.

