

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24FA001

INVESTIGATIVE SUPPLEMENTAL MATERIALS

ACCIDENT

Location: Twisp, Washington
Date: 10.01.2023
Time: 1030 Pacific standard time
Airplane: Cub Crafters

INVESTIGATIVE SUPPLEMENTAL MATERIALS

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HISTORY OF FLIGHT

On October 1, 2023, about 1030 Pacific standard time, a Cub Crafters CCK-1865 homebuilt airplane, N56DV, was substantially damaged when it was involved in an accident near Twist, Washington. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot planned to take a local flight with his friend, who owned the same make of airplane. They departed a private airfield in their respective airplanes and flew directly to a hillside located about 2 nm to the east. The friend landed uphill on the slope of the hillside and positioned his airplane to the west of a tree. Using the radio, he communicated to the pilot that he should land his airplane in between his airplane and the tree. The pilot made two low passes over the ridge, performing reconnaissance over the landing area. The friend observed the airplane touchdown on the slope further to the east of his location and land upslope.

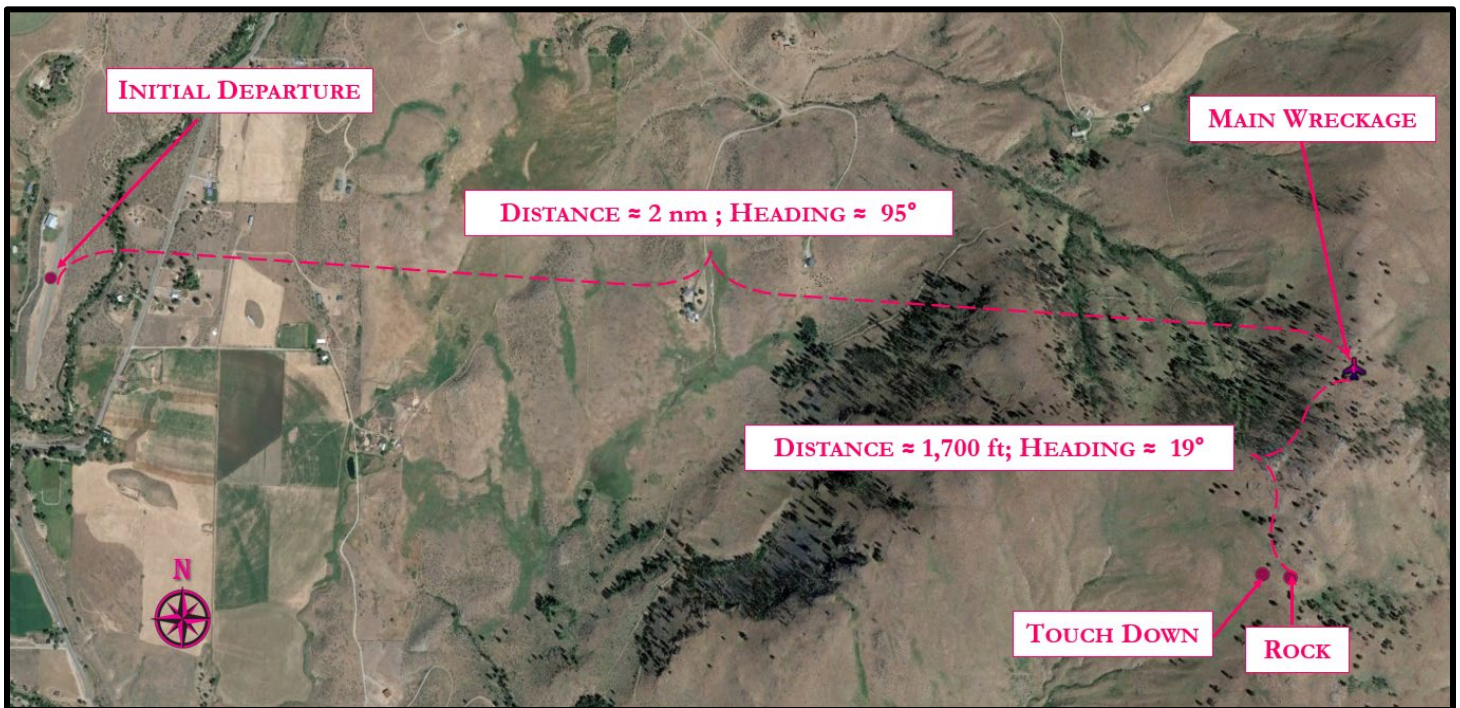


Figure 1: Main wreckage in reference to initial departure point

After a short landing roll, the pilot appeared to abort the landing and the airplane became airborne again. The airplane then collided with a large rock resulting in the airplane's left landing-gear folding under the fuselage.

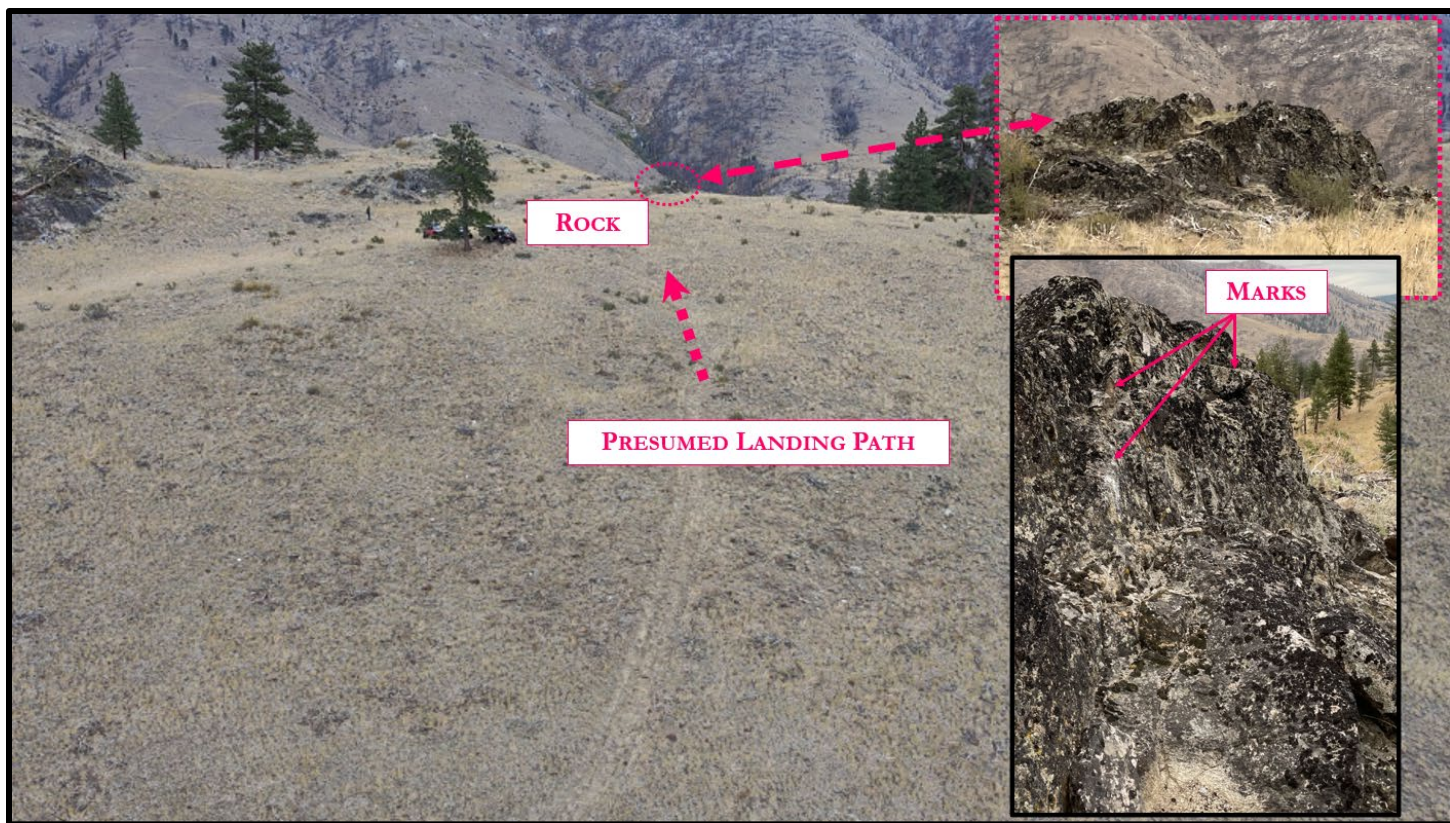


Figure 2: Rock with marks

The friend observed the airplane continue over the ridge to the east (the presumed bail-out path) and then he lost sight. He asked the pilot if he was okay and the pilot replied, “I’m flying, but I’m having problems.” The airplane collided with terrain shortly thereafter. The airplane came to rest about 1,700 ft to the northeast of the rock with an approximate 3,430 peak between the locations.

WRECKAGE AND IMPACT

The wreckage was found distributed over a 90 ft distance on a median magnetic bearing of about 245°. The first identified points of contact consisted of disrupted dirt on the upslope of a hillside making up the far northeastern end of the debris field. The disruption in the terrain contained chips of silver paint and small pieces of fabric. The disrupted dirt widened into a crater that continued toward the wreckage with numerous vortex generators in the dirt and outboard wingtip structure. A large portion of the forward left-wing tip was 25 ft from the wreckage and pieces of plexiglass and splinters of propeller led up to the wreckage. There were fragments of the wooden propeller surrounding the accident site, and made up the farthest debris to the south.



Figure 3: Main wreckage with reference to touchdown point

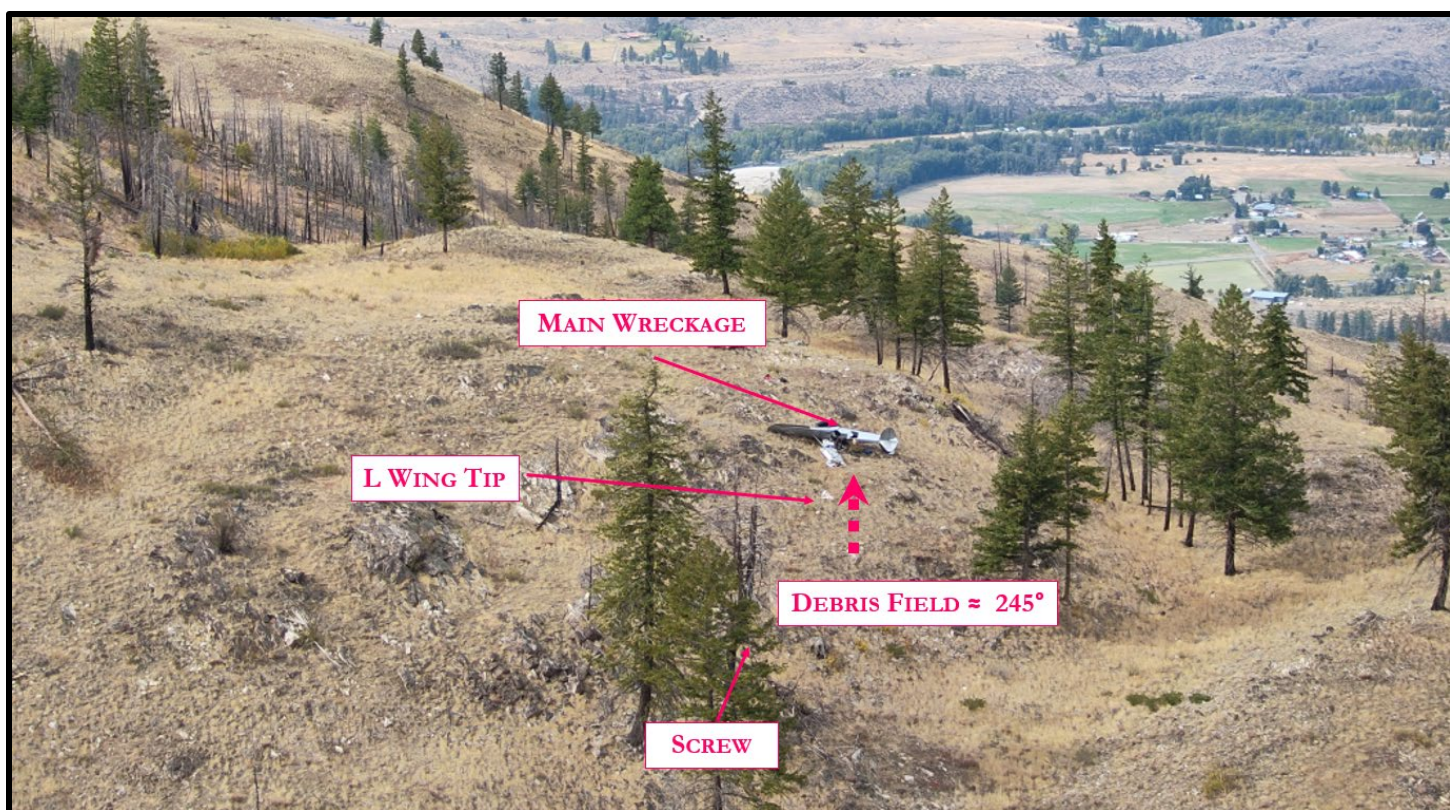


Figure 4: Main wreckage

The fuselage came to rest on its left side with the right wing folded forward over the engine. The left wing sustained crush deformation and came to rest inverted. The left forward and aft lift struts had separated, but remained attached to their respective fittings on the fuselage and wing. An approximate 1.5 ft piece of the left aft-lift strut remained attached to the airframe; the trailing edge of both portions of that strut contained black

marks consistent with the rubber from the tire. The flaps appeared to be partially down and the fuel selector was in the off position (it could not be confirmed if this was done by first responders).

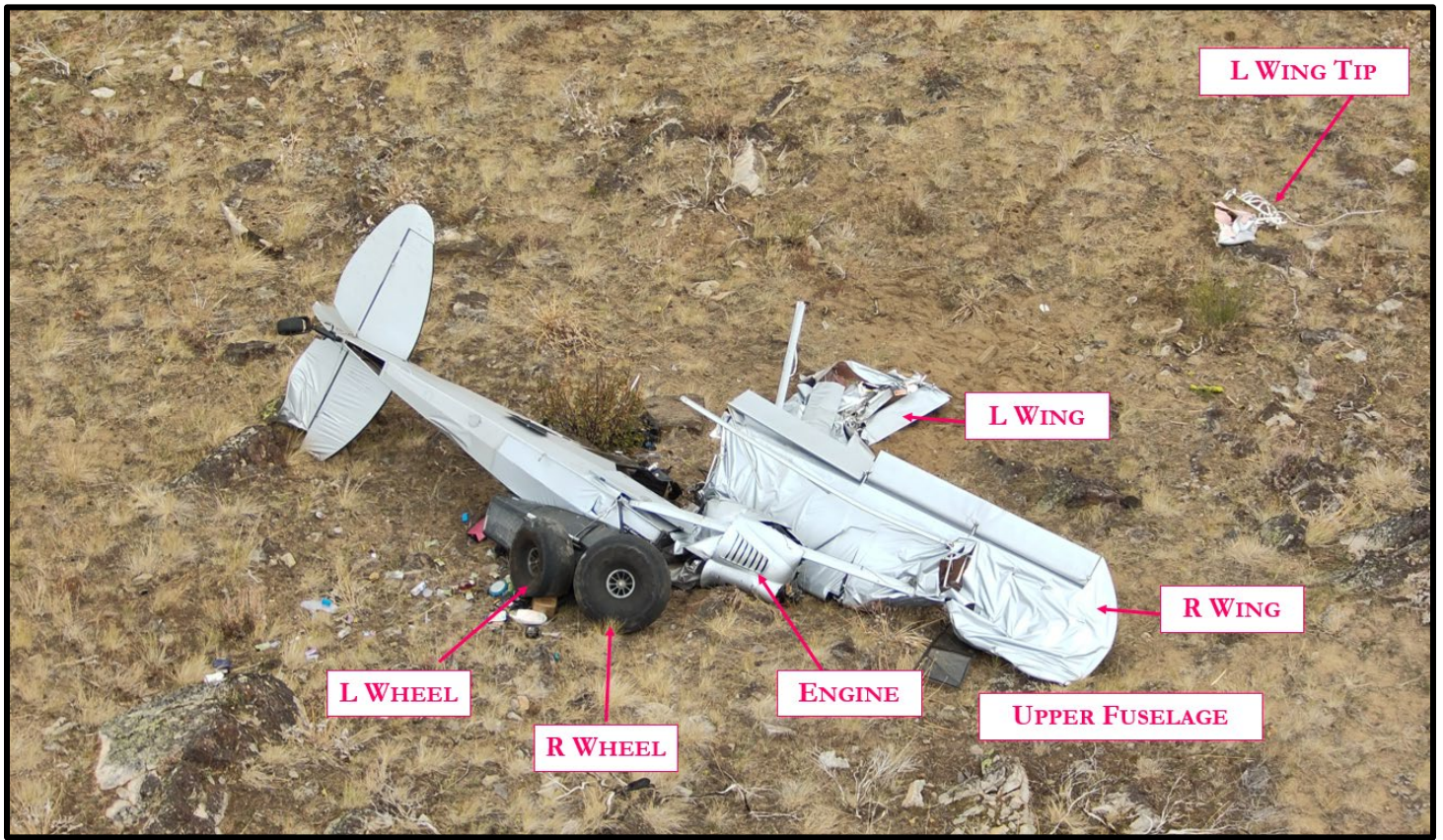


Figure 5: Main wreckage aerial view

Both tires came to rest on near the belly pod. The left tire was flat and showed several gouges and scrapes on the rubber; the metal hub was bent and folded over itself in one area.



Figure 6: Left wheel

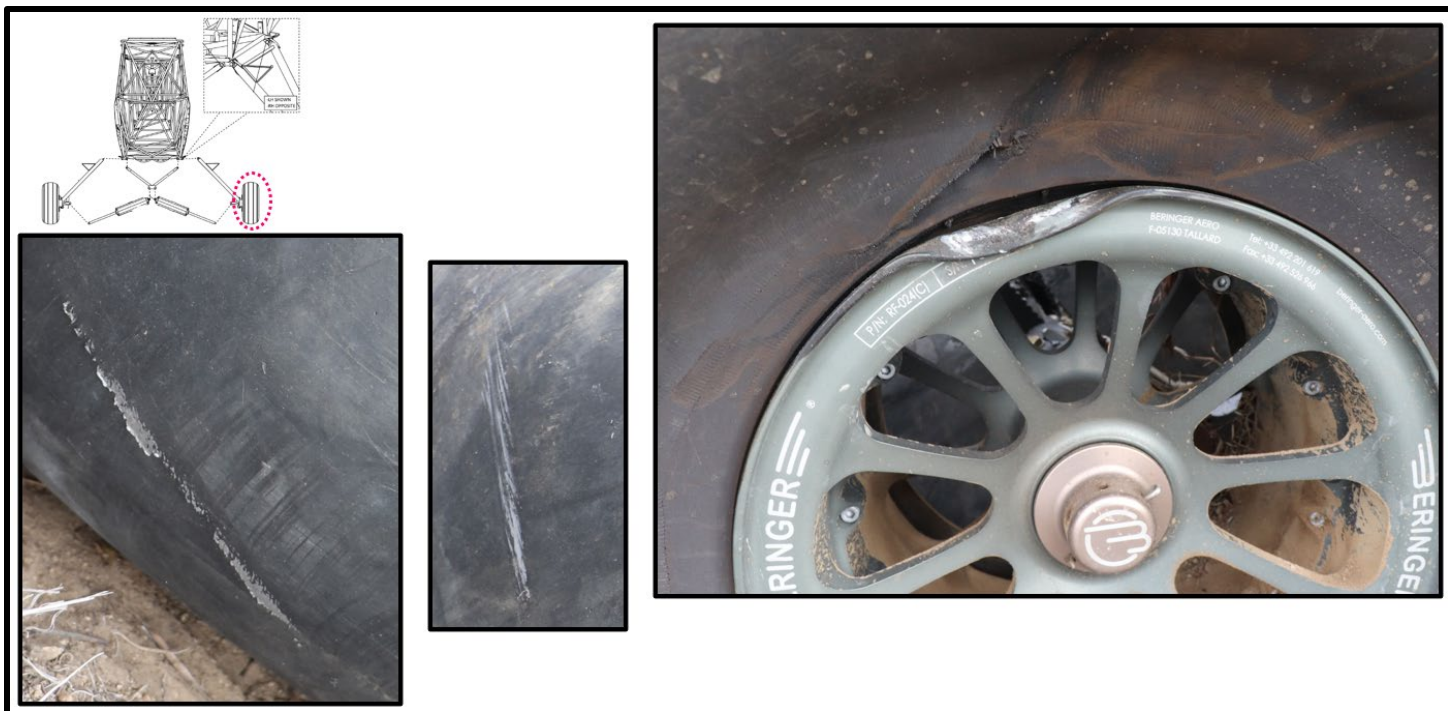


Figure 7: Left main tire

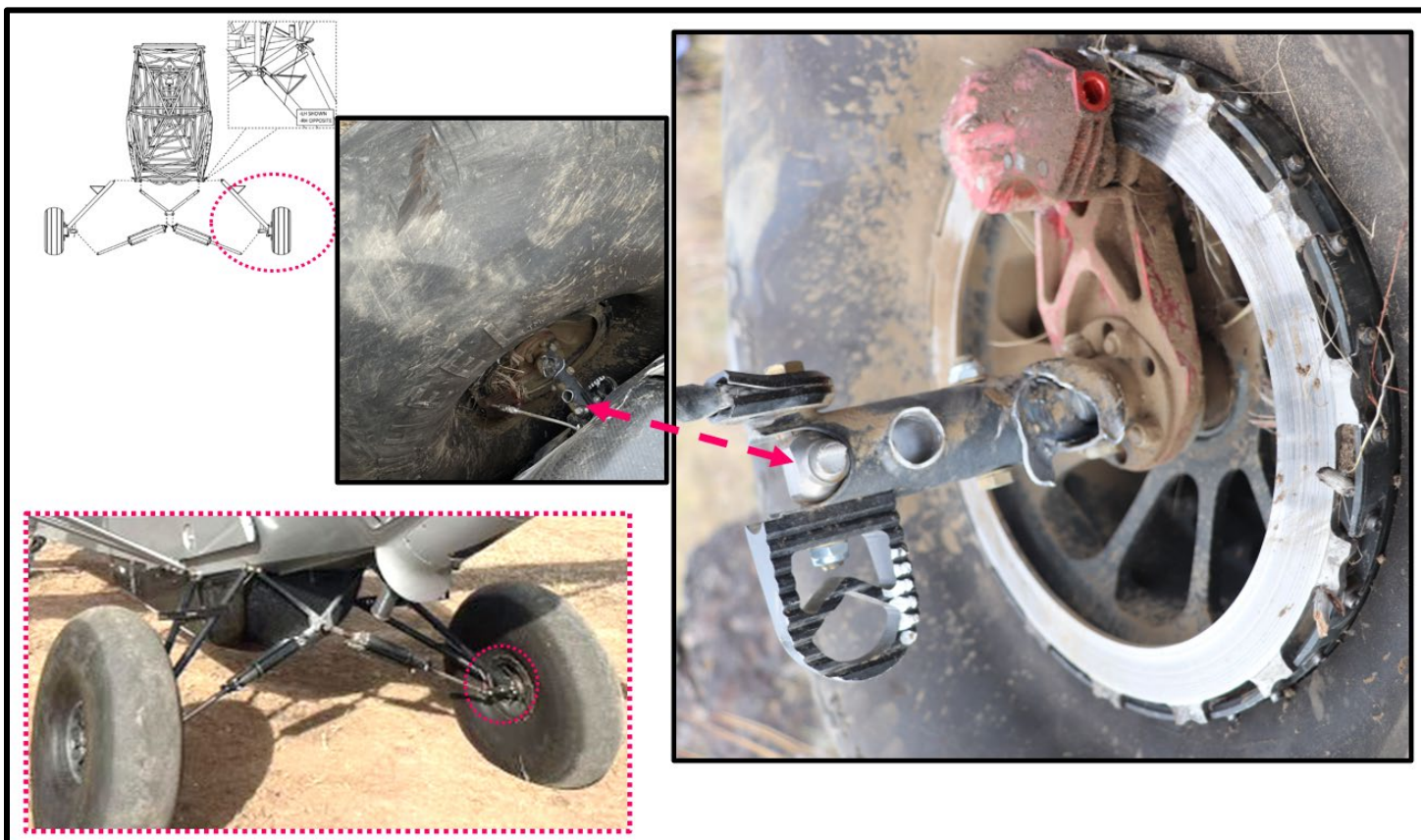


Figure 8: Left main landing gear strut

The landing gear struts were collapsed the bottom of the left struts were separated and appeared to have been worn from being dragged across terrain.

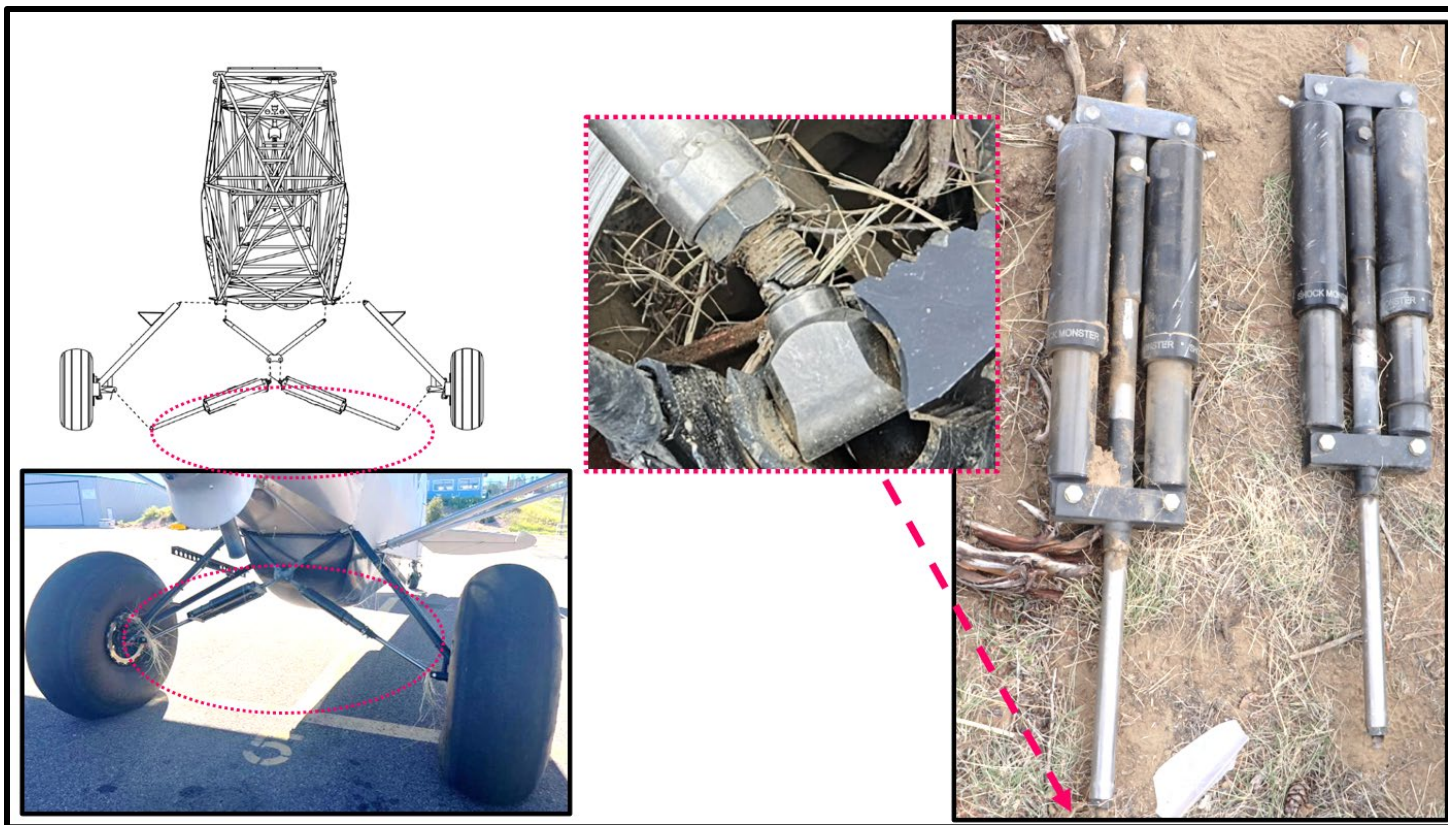


Figure 9: Landing gear struts

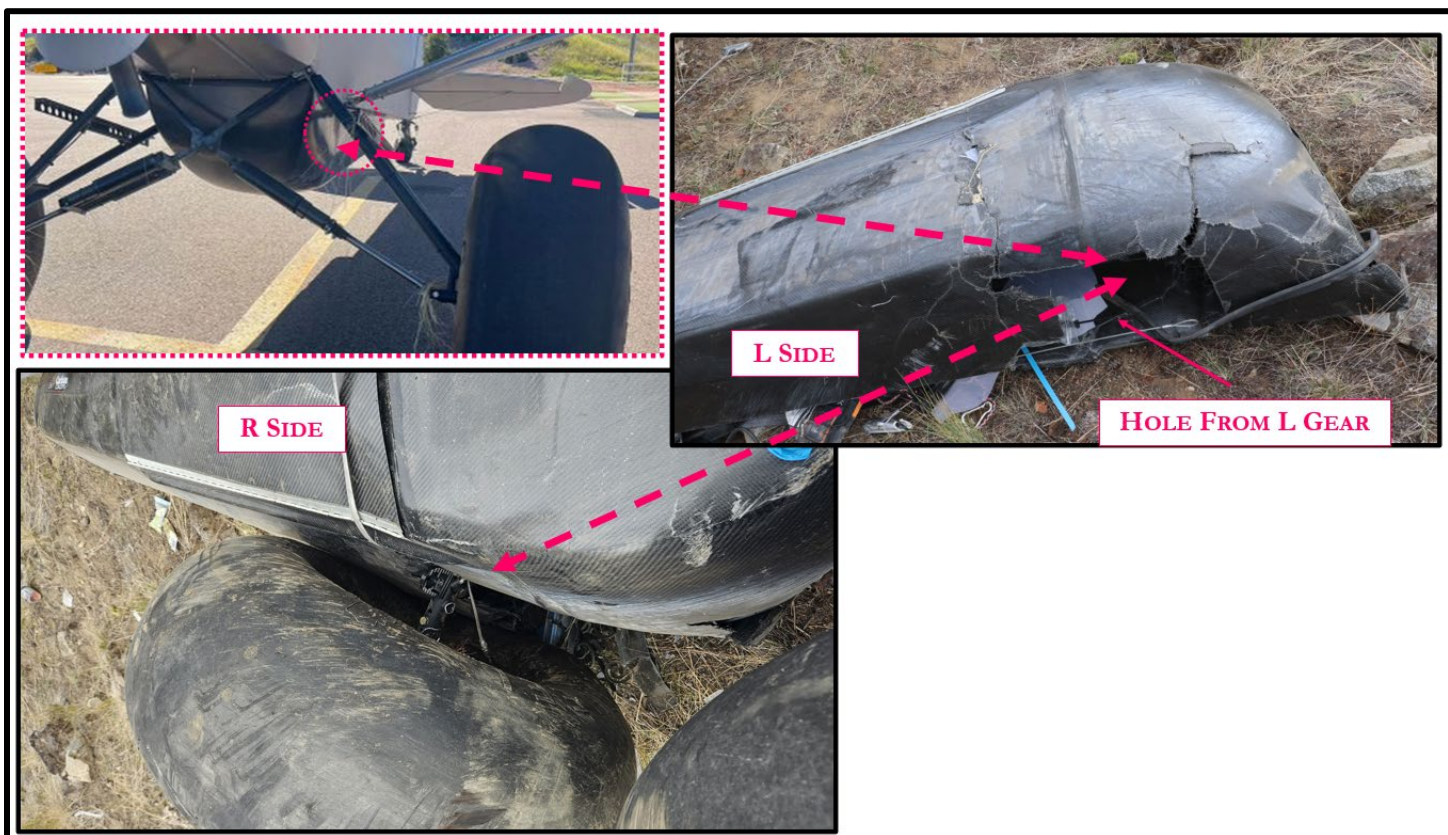


Figure 10: Fuselage underside

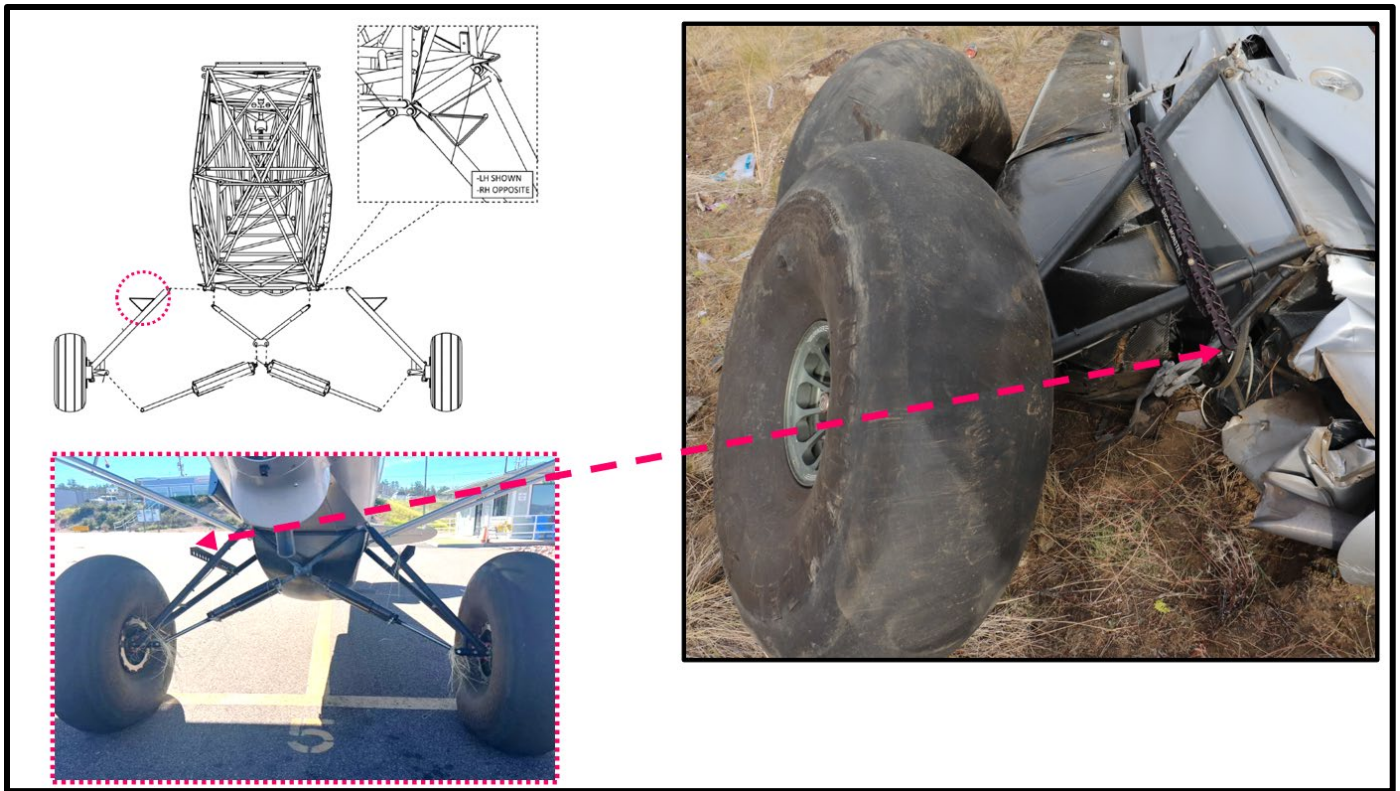


Figure 11: Right side of fuselage

The fuselage frame behind the left lift-strut fork and gear-strut connection fittings was deformed. The left-aileron pulley, located adjacent to the deformed frame, would not move. The aileron cable was trapped between the frame and the pulley and could not move. Removal of the pulley hardware revealed that pulley bracket was bent and there was evidence of the cable rubbing against the bracket and part of the airframe. The phenolic pulley had a groove for the cable that extended around the pulley. The groove contained a peak edge on each side. One side of the peak edge was fractured, consistent with overstress. The side face of the pulley, adjacent to the fractured peak edge) contained a long, imprinted streak consistent to the location where the cable had pulled out/de-railed from the groove.

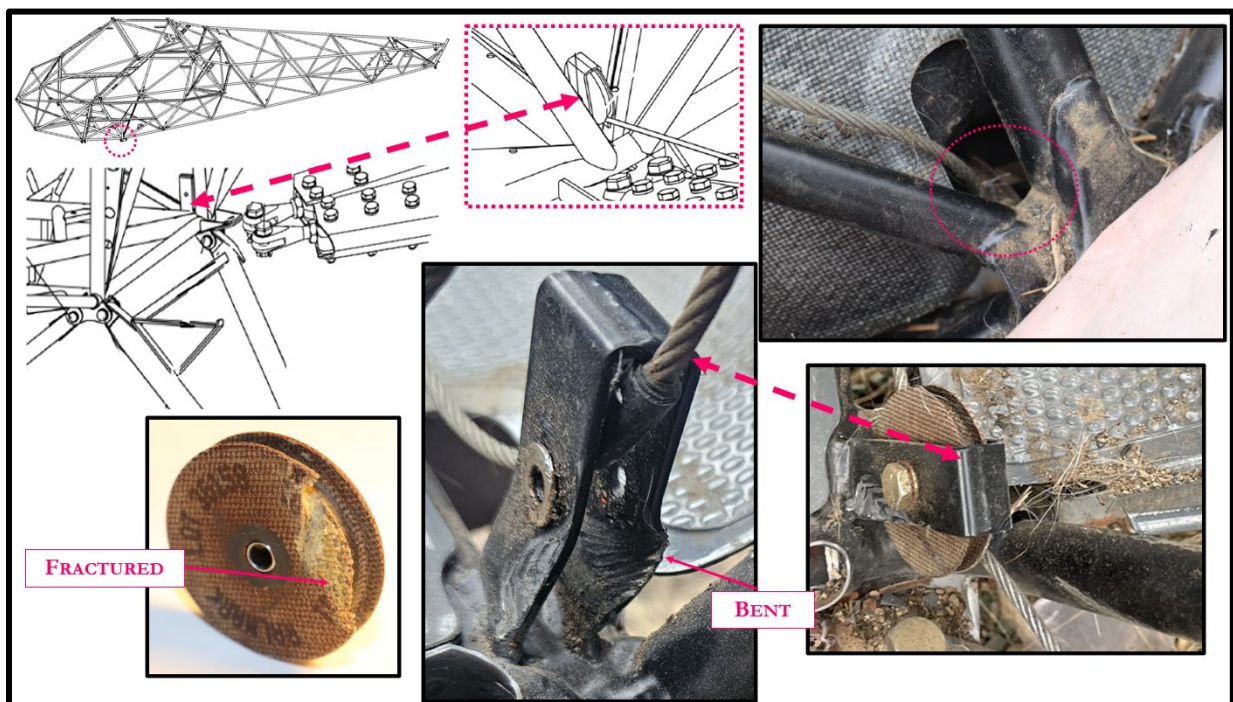


Figure 12: Internal pulley frame (bent)

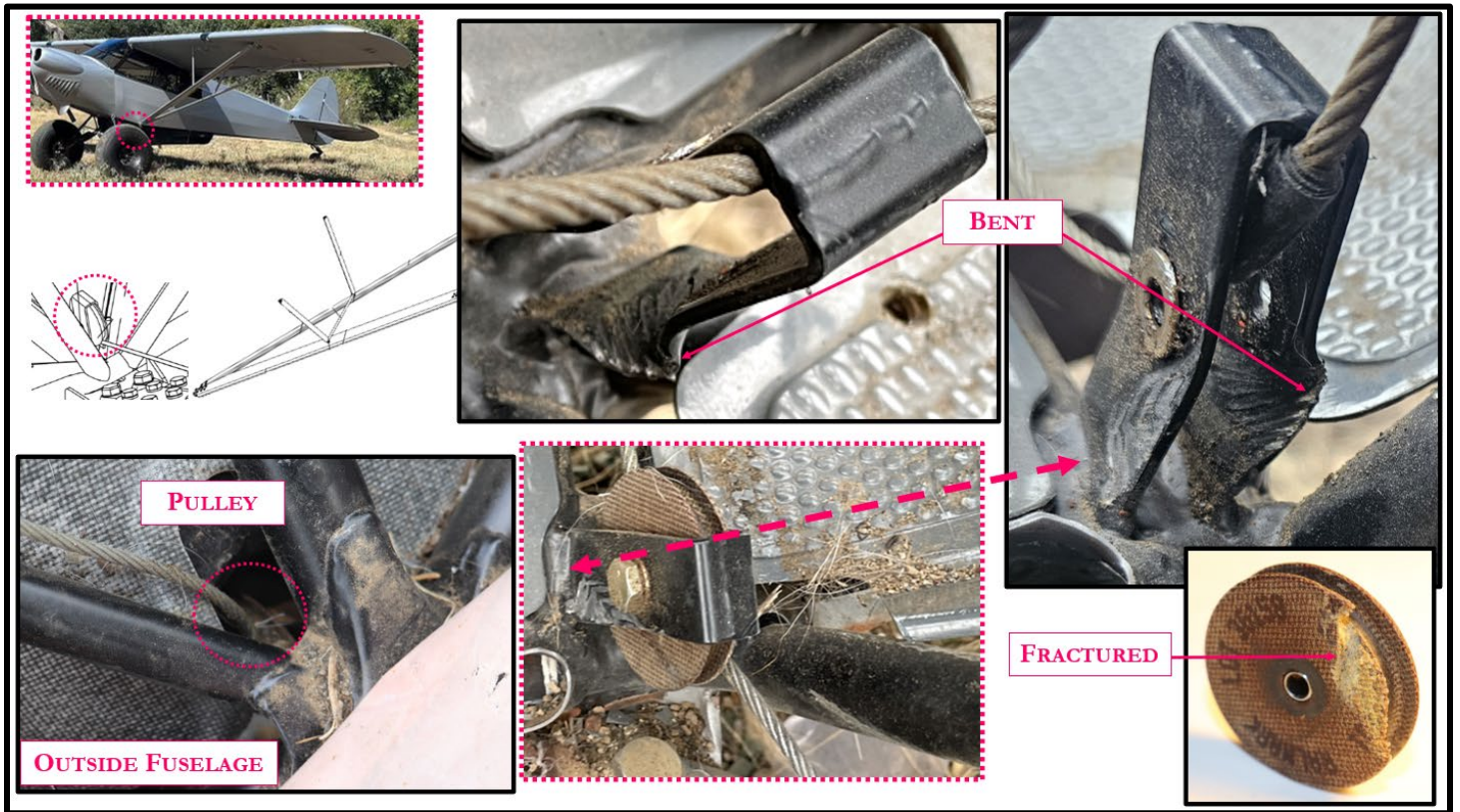


Figure 13: Pulley frame bent

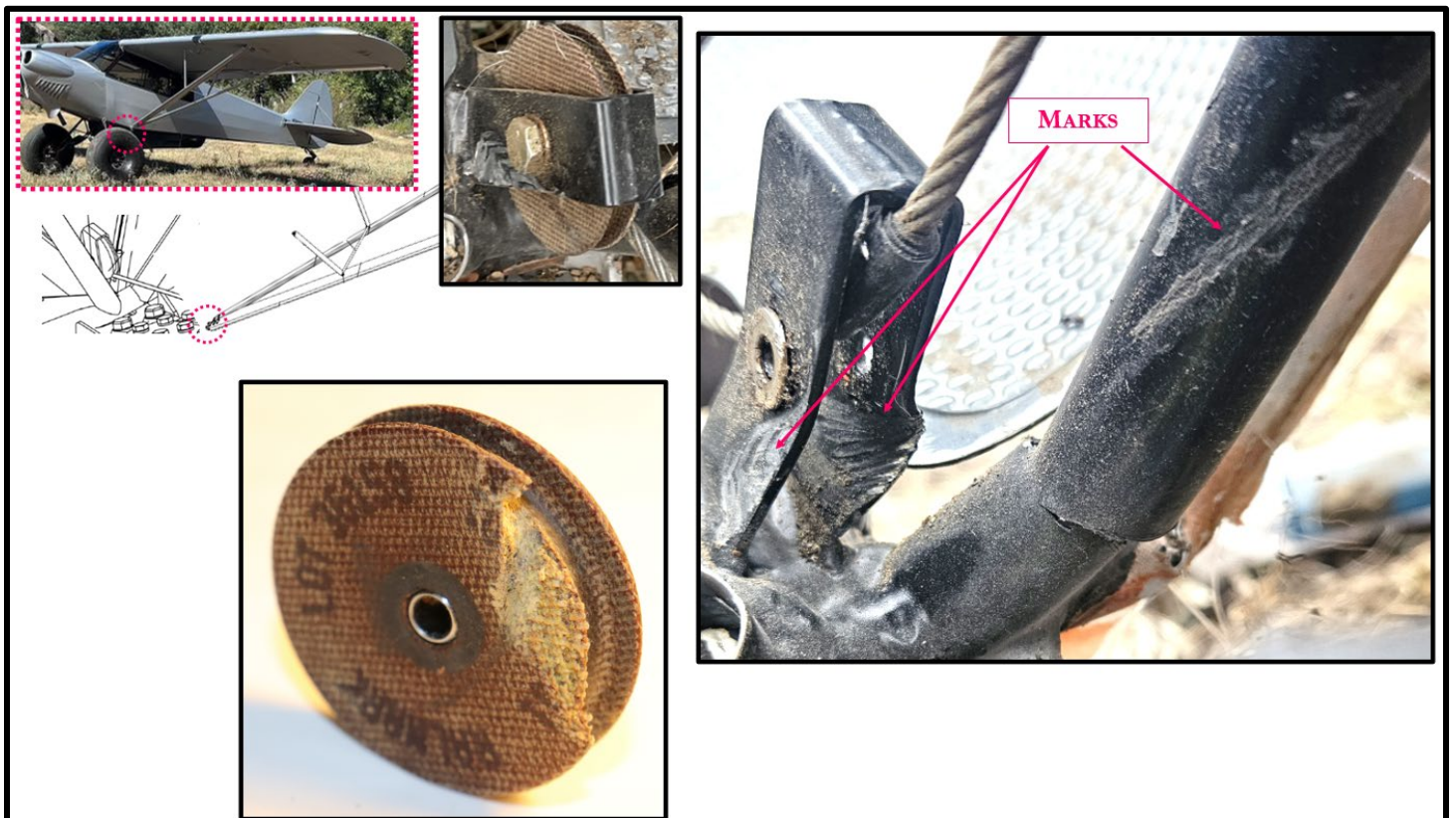


Figure 14: Impact marks on pulley retainer

The initial touchdown area could not definitely be determined, but tracks in the dry grass were found on the slope consistent with the landing direction. A large rock was located on the saddle of the hill. There were numerous marks and scrapes found on the south rock face and on the top of the rock. In the surrounding area, there were several silver chips of paint and a zip-tie that would have been on the landing gear.

AIRFRAME

FUSELAGE

The airplane came to rest on its left side. The left and right tires were upright next to one another at the fuselage's belly.

The left wing tip was at the far end of the debris field. The left-wing forward lift strut was partially severed and punctured through the right wing. The fracture surface was bent down and contained black marks on the trailing edge. The other piece of the forward lift strut remained attached to the airframe and the fracture surface was deformed downward with the silver paint flaked off. An approximate 1.5 ft piece of the left aft lift strut remained attached to the airframe; the trailing edge contained black marks. The fracture surface had a small paint transfer that was blue and similar in color to the plastic locks of containers found in the wreckage.



Figure 15: Left wing

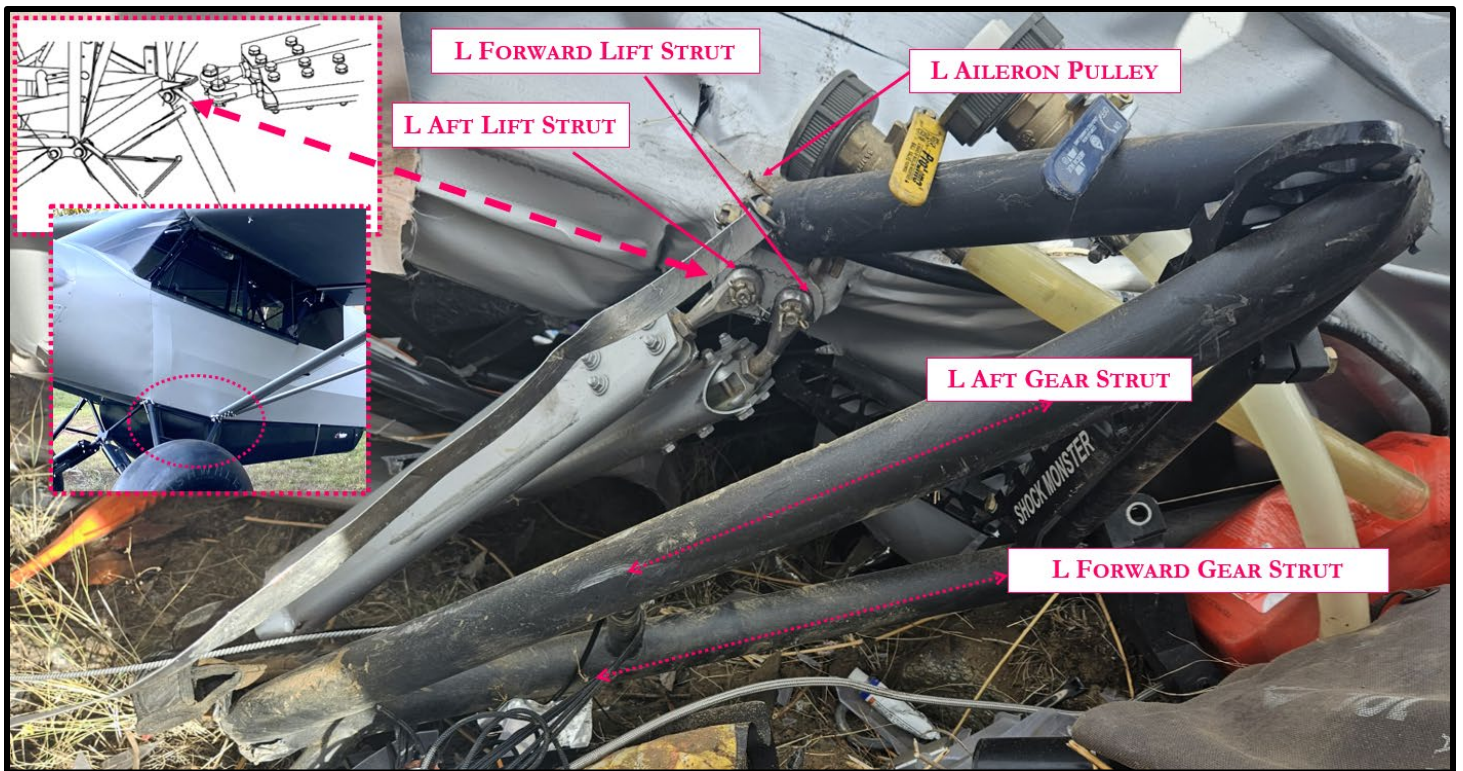


Figure 16: Left strut attachment

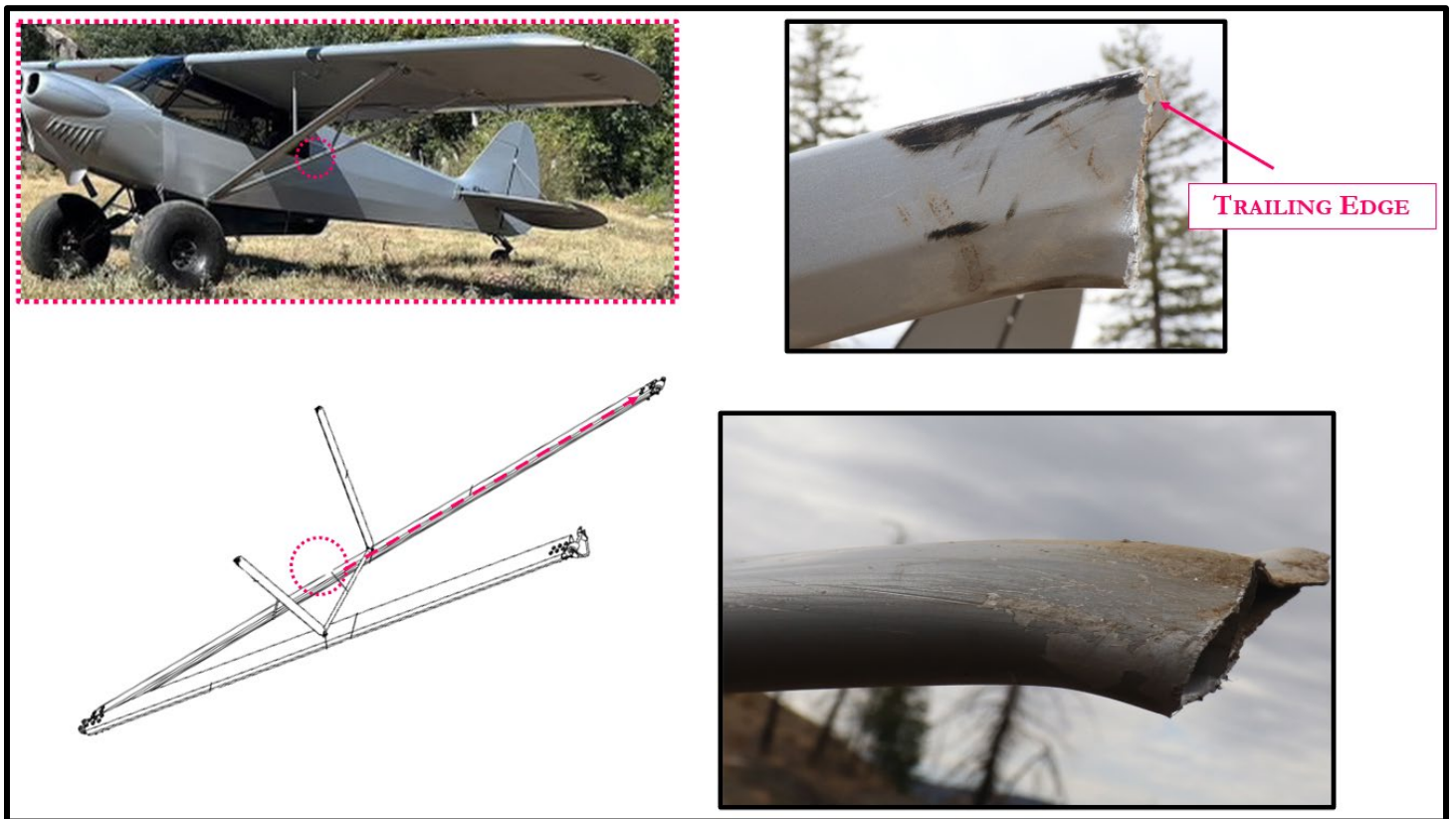


Figure 17: Left aft strut (upper portion)



Figure 18: Left aft strut (lower portion)



Figure 19: Left forward strut (lower portion)

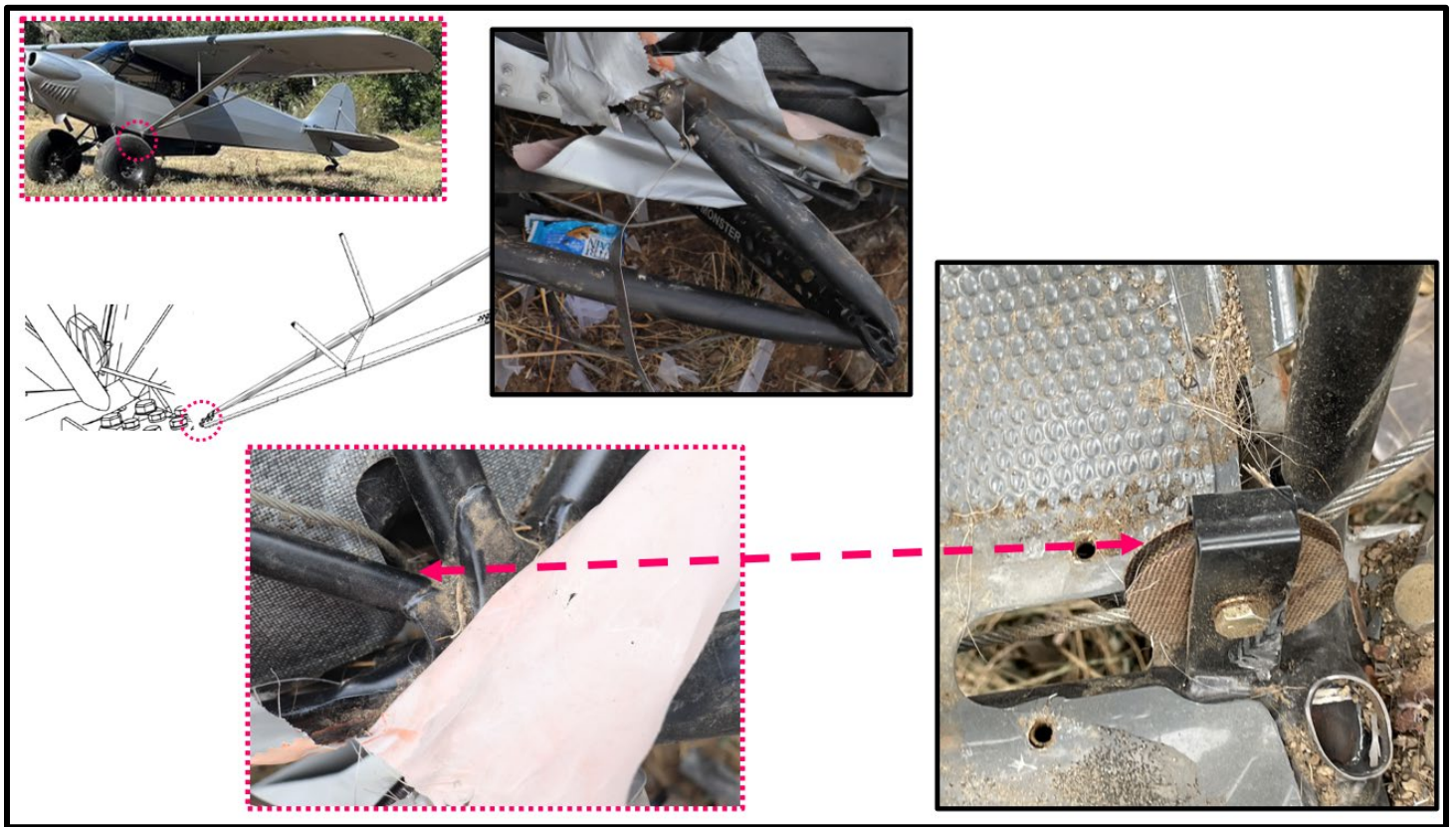


Figure 20: Lower strut connection

The right wing came to rest adjacent to the wreckage and was folded forward. The front lift strut remained attached to the fuselage and the wing fittings coming to rest along the nose cowling. The aft lift strut was attached at the wing fitting and had sheered from the fuselage fitting. The aileron and flaps remained attached. At the aileron hinge area, the leading edge of the right wing contained a semi-circular divot, where the skin was crushed aft about 1 ft.

The elevators remained attached with the left elevator control surface tip bent over from coming to rest on the ground. The bottom tail cone panel was absent. The control cables were attached to the bellcrank and were continuous to the horn.

The airplane had conventional Friesse type ailerons that are operated with a stick and actuated with cables. It could not be determined if the pilot was wearing a seatbelt. The door was open and there were no markings on the pins; it is unknown if the first responders opened the door.

FUEL SYSTEM

There was fuel leaking from the right-wing tank and first responders reported smelling fuel when they arrived on scene. The fuel selector was positioned to the "OFF" position. Removal of the gascolator and the fuel flow divider (spider) revealed that there was fluid in both. The fluid was consistent in odor and appearance with that of 100L Avgas.

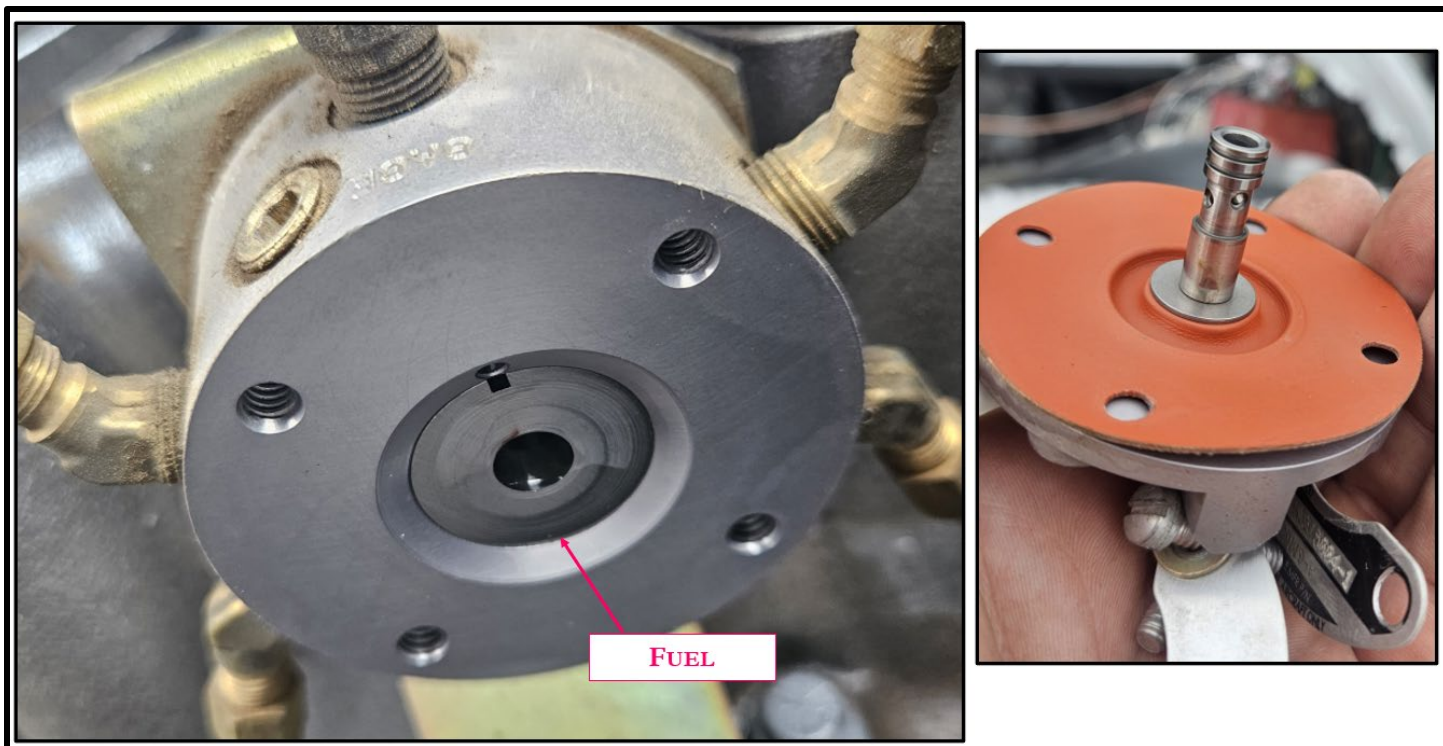


Figure 21: Fuel flow divider (spider)

PILOT INFORMATION

Pilot Certificate (PRIVATE PILOT ASEL, ASES, ROTORCRAFT-HELICOPTER, INSTRUMENT AIRPLANE), was a 59-year-old male. This pilot reported civil flight experience that included 8429 total and 352 hours in last six months as of exam dated 12/1/2021. See the NTSB Medical Specialist report for more details.