

EXAMINATION NOTES

HISTORY OF FLIGHT

On May 11, 2019, at 2030 Pacific daylight time, an unregistered light-sport aircraft (LSA) experimental weight-shift-control TopDog Ultralights trike, collided with a tree while maneuvering near the Hobby Field Airport, Creswell, Oregon. The non-certified pilot was operating the personal flight under the provisions of 14 *Code of Federal Regulations* Part 91. The pilot sustained fatal injuries; the trike sustained substantial damage. The local flight departed at 2028. Visual meteorological conditions prevailed and no flight plan had been filed.

An acquaintance of the pilot was at the airport, adjacent to the taxiway) recording the flight on his cellular phone. A review of the video disclosed that the pilot departed on runway 34 at 2028:20. After departure, the trike made a right turn and briefly continued south until making another right turn. The trike crossed west over the runway about midfield and then made a left turn to fly south over the hangars (refer to Figure 1). The trike began to descend and the acquaintance lost visual contact as it disappeared below the hangar roof line. The acquaintance ran to reposition further west on the airport by the pilot's hangar. The video again showed the trike at 2030:36. The trike began a left turn which became steeper where the entirety of the upper wing surface could be seen. The trike briefly disappeared behind a tree and then at 2030:41 an orange shape can be seen low in the trees, consistent with the color of the lower wing.

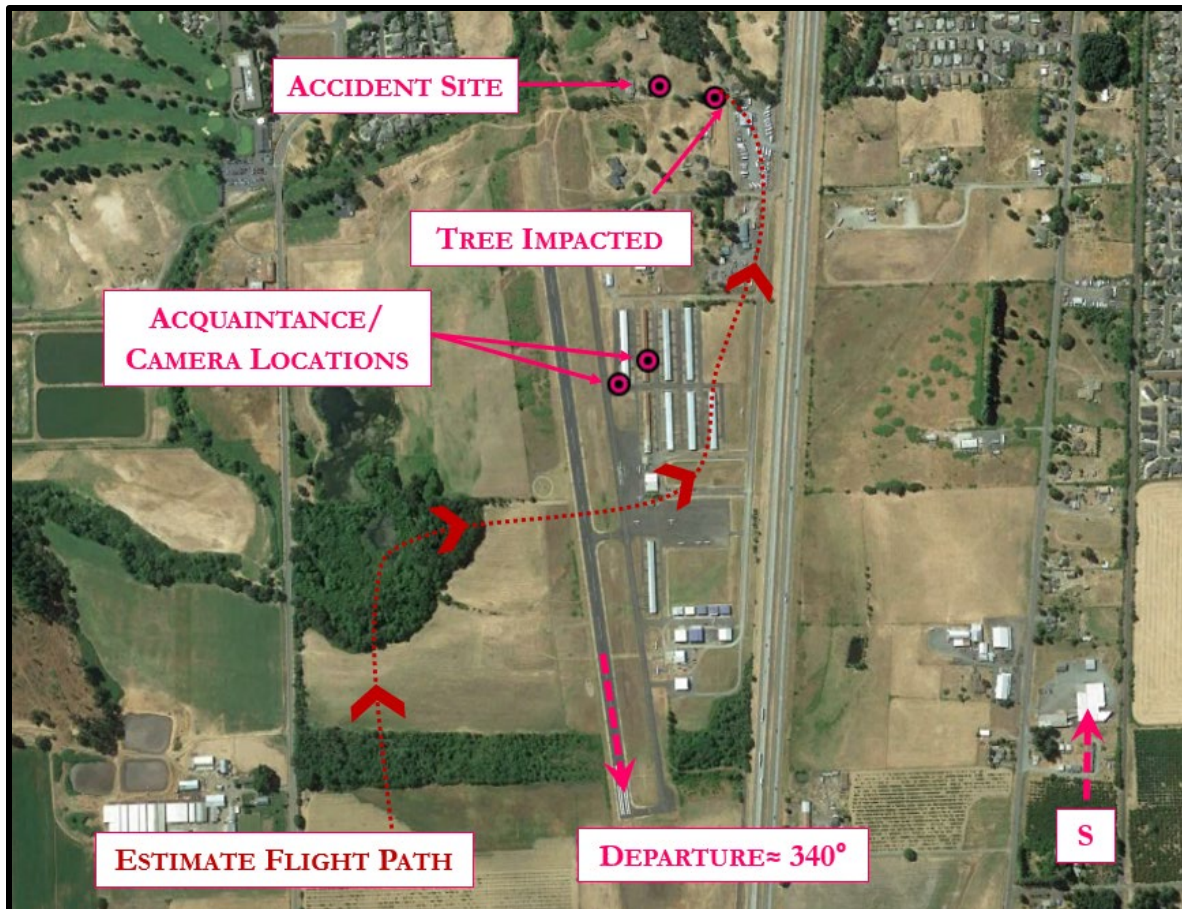


Figure 1: Accident Site in Reference to the Estimated Flight Path

A witness, located at a residence 825 ft south of the accident site (refer to Figure 02), stated that he observed the trike maneuvering very low to the west of his location. He recalled that the trike continued south and then made a left turn. The trike impacted a tree and the wing folded over upon itself. He did not hear any unusual noises but did reference that the trike seemed lower than they normally fly.

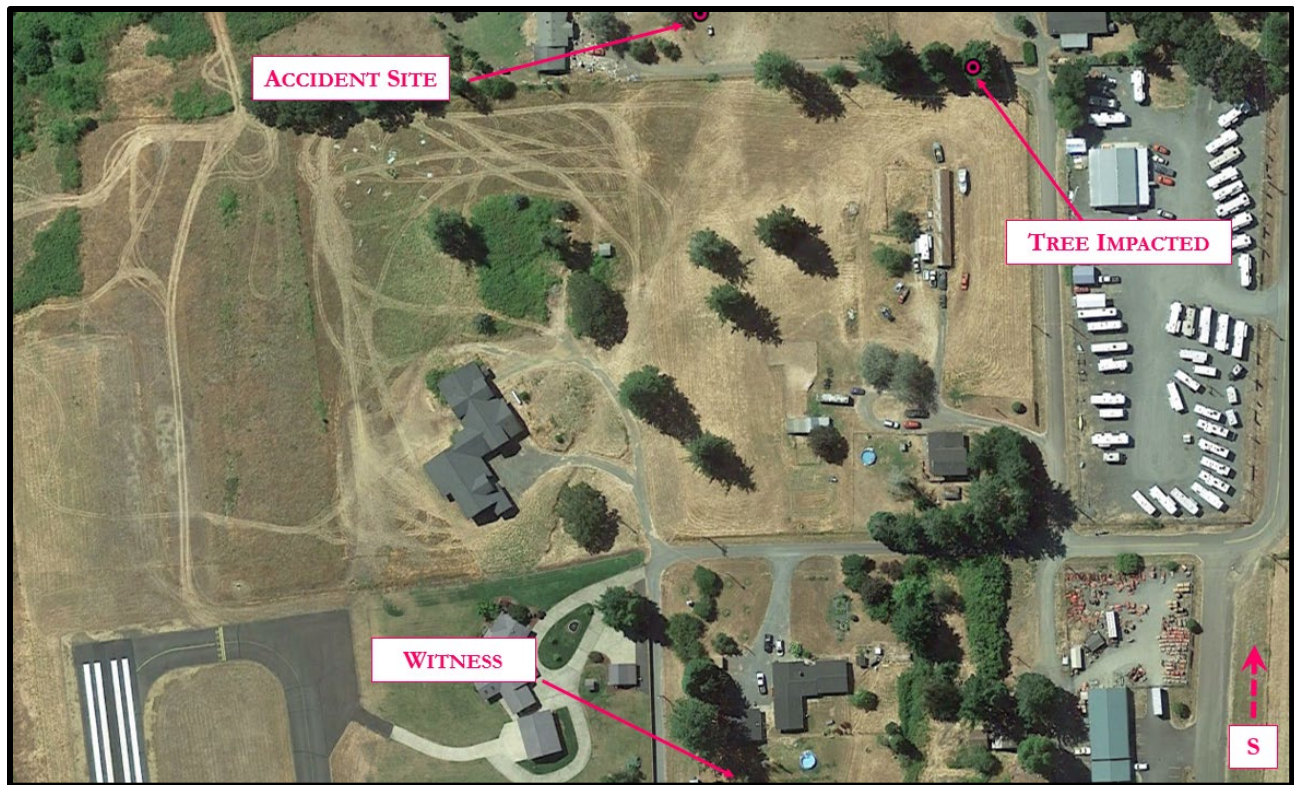


Figure 02: Accident Site in Reference to the Witness

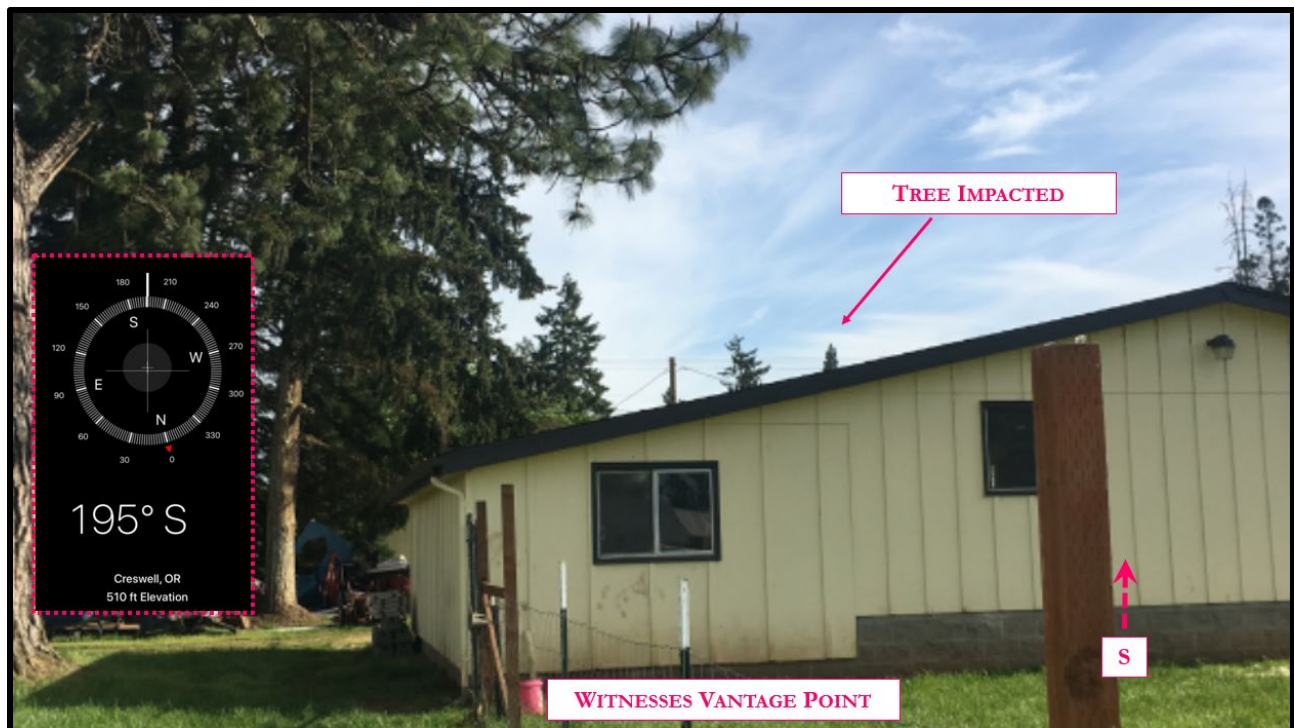


Figure 03: Witness Vantage Point

WRECKAGE AND IMPACT

The accident site was located on the property of a residence about 900 feet south of the runway. In character, the terrain was composed of dirt and soft grass. The wreckage was found distributed over a 100-foot distance on a median magnetic bearing of about 226°. The impact marks on the more westerly tree in a cluster were consistent

with the trike impacting the branches at about 80 feet above ground level (agl). The 300 feet between the tree and accident site contained debris consisting primarily of right-wing rib pieces and portions of tree debris.

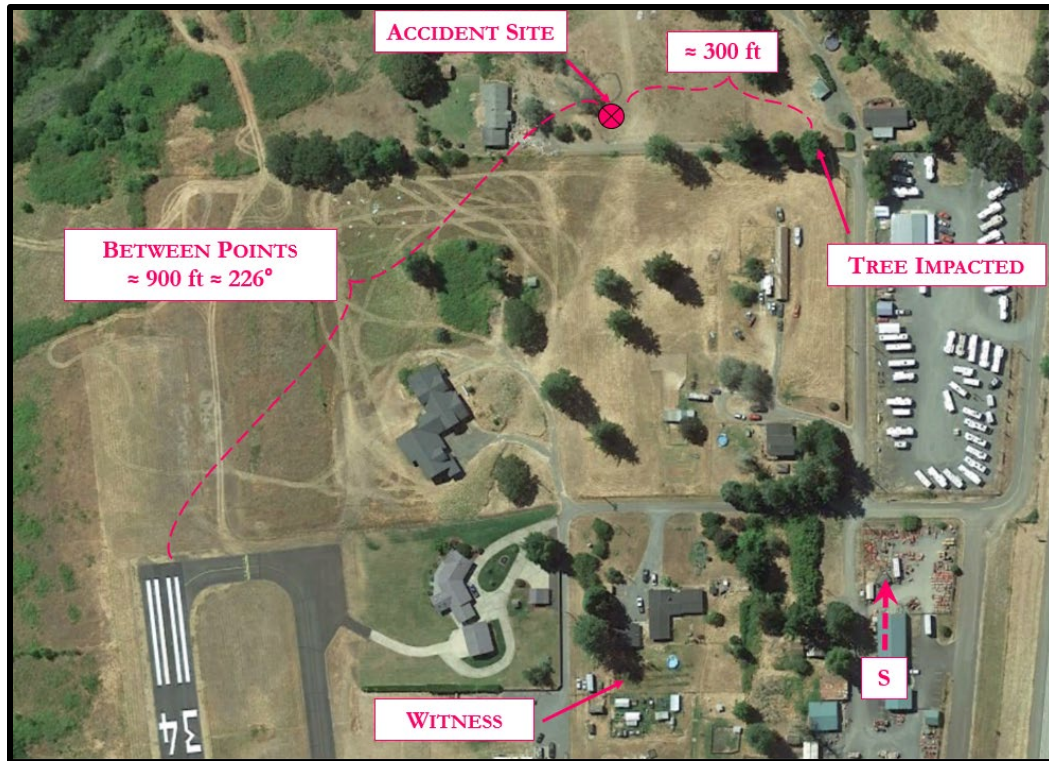


Figure 04: Accident Site in Reference to the Airport Showing Debris Field

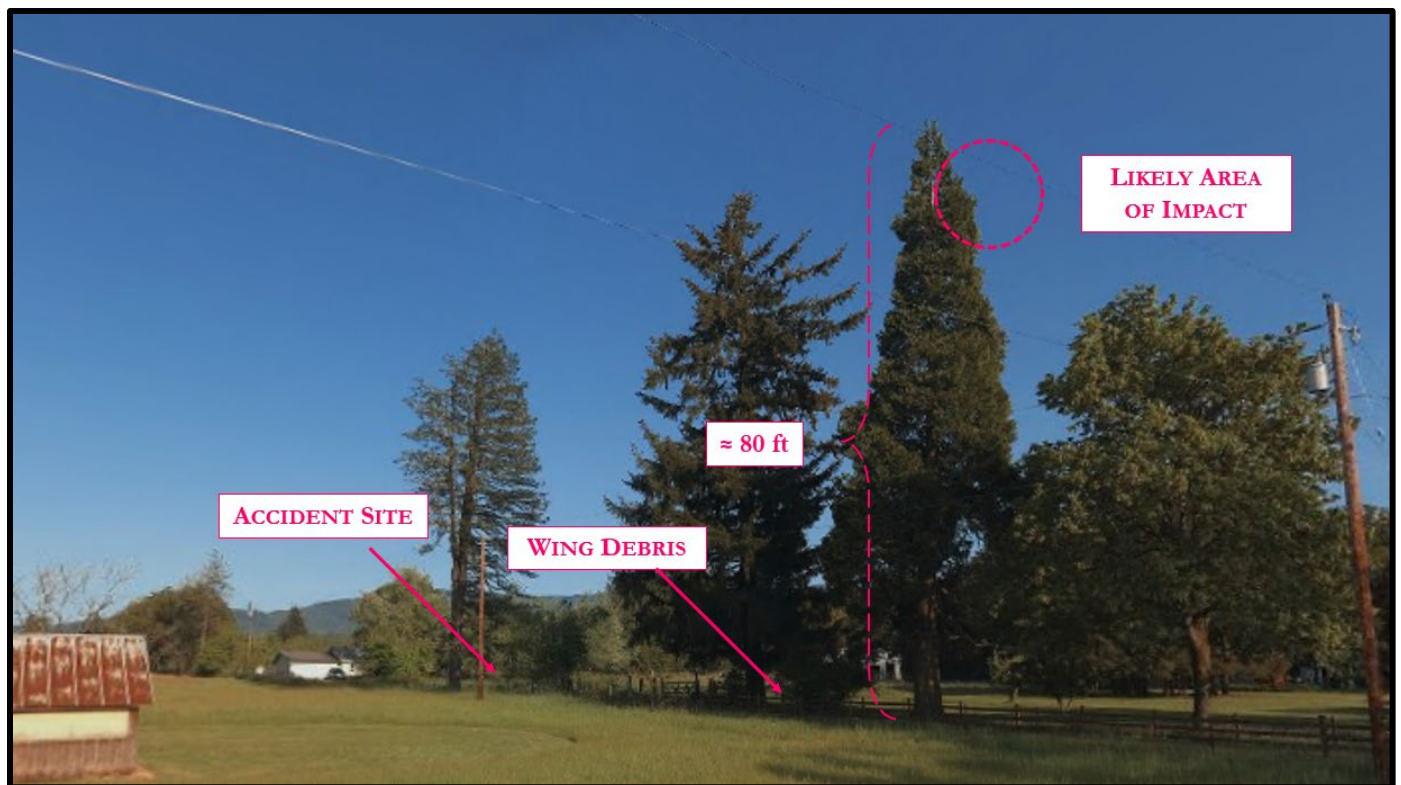


Figure 05: Tree Impacted and Debris Field in Reference to Accident Site

A resident that lived in the house adjacent to the accident site reported that she was the first person to arrive on scene. She stated that at that time, the trike you come to rest with both leading edge services on the ground and the cockpit area nosed in to the terrain. At the time investigators arrived at the accident site, the wreckage had been

moved to facilitate trying to provide medical assistance to the pilot. The left wing was folded upward in the right wing was on the ground.



Figure 06: Wreckage

The carriage was fractured and numerous areas. The left shock strut was slightly bowed in the carriage keel was bent and numerous places. The keel under the saddle-style fuel tank had broken. There was an impression in the dirt that was square and orientation and red in color consistent with the most forward area of the carriage keel. The keel nose contained impacted dirt imbedded at least 8 inches into the tubing. The ground scar impressions and areas of fracture were consistent with the trike impacting a near vertical attitude, banked slightly left.



Figure 07: Accident Site Impact Marks

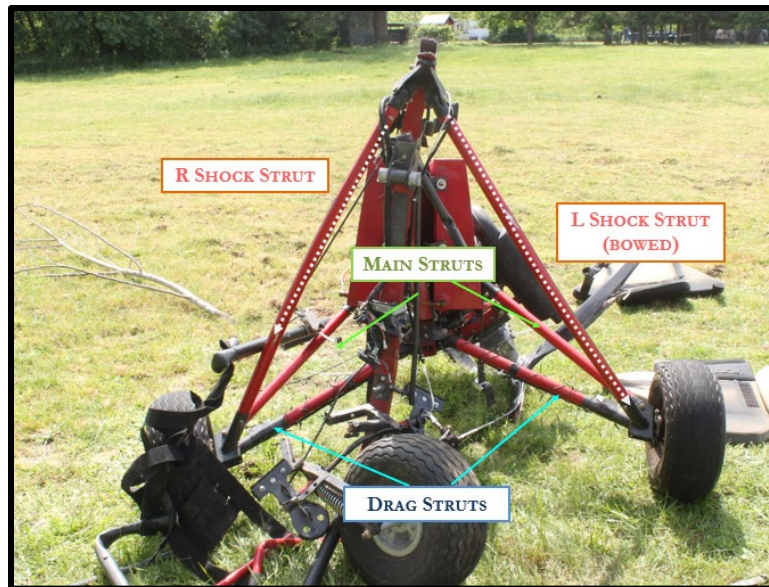


Figure 08: Damage to Carriage



Figure 09: Impact and Damage to Trike Represented by "X" Marks

TESTS AND RESEARCH

AIRFRAME

The right wing had numerous punctures most outboard on the leading edge (around rib 8) with a diagonal tear oriented aft and inboard (around rib 6). The damage started about 10 feet outboard, although there was no damage to the leading edge tubing. The carriage mast was connected at the carriage wing attach point (hang point) and disconnected at the trike body. The front nose tube was attached at the hang point and bent in several locations.



Figure 10: Lower Wings Showing Controls

The control frame corner brackets (located on each of the control bar) had the side, rear and front flying wires attached. The other ends of the wires were connected at their respective attach fittings. The right downtube was bent about midspan and remained attached at the hang point and was disconnected at the control bar, with fracture surfaces consistent to overload. The left downtube had fractured about midspan; the upper portion remained attached to the hang point in the lower portion was attached to the control bar.

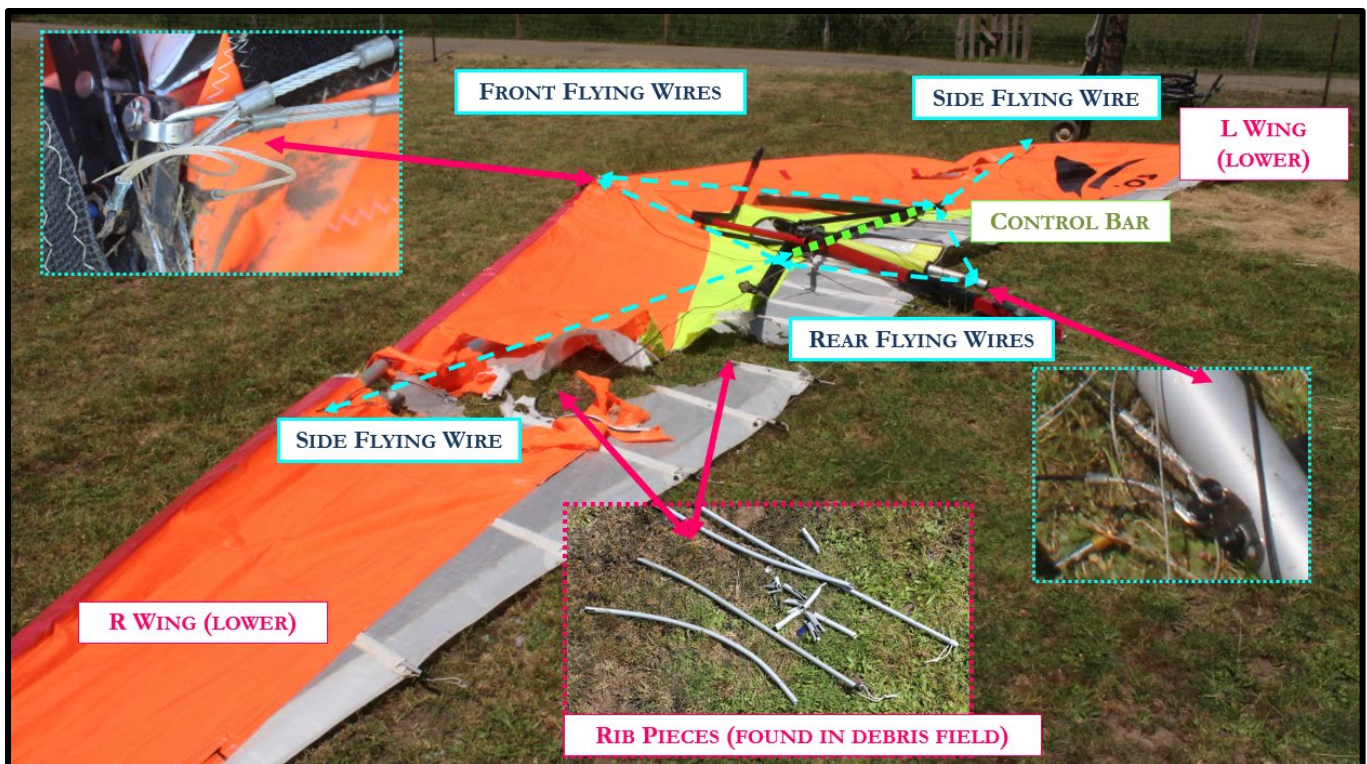


Figure 11: Bottom of the Wing Showing Wires

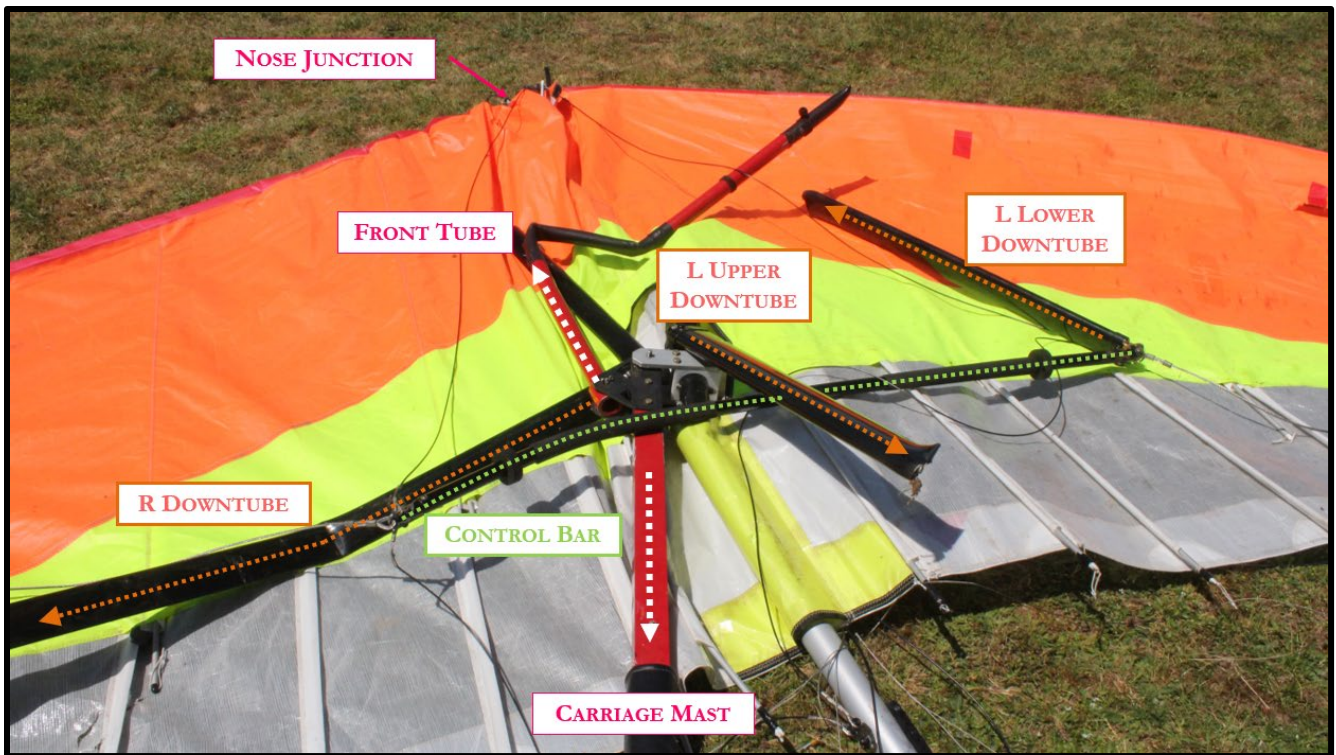


Figure 12: Bottom of the Wing

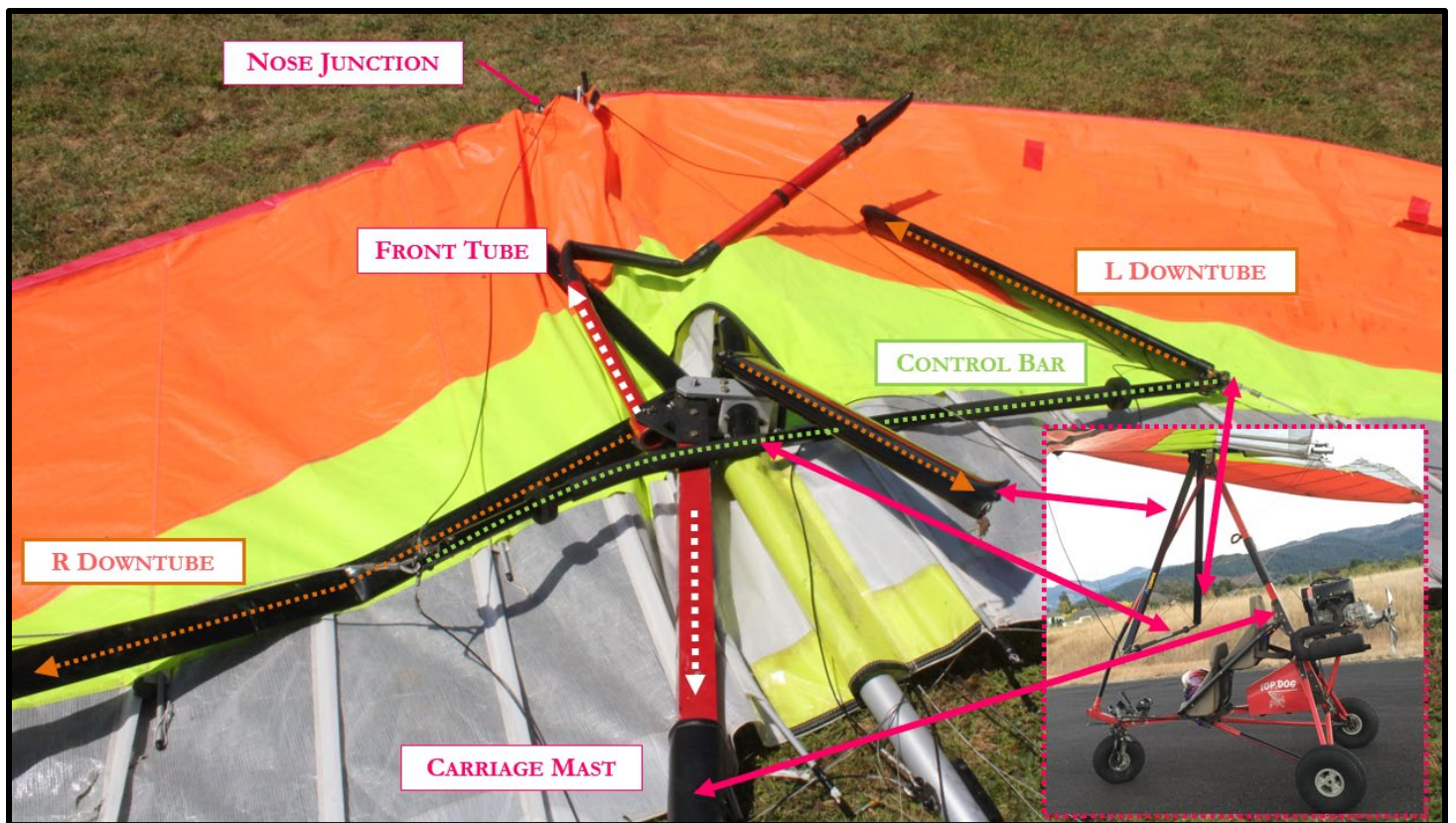


Figure 13: Bottom of the Wing Referencing Locations on Trike

The wing keel had separated midspan with the forward portion remaining attached at the nose junction; the fracture was consistent with the down bending force. The right and left crossbars were attached at their plates and the cross bar tensioning cables were attached. The king post remained attached at the hang point.

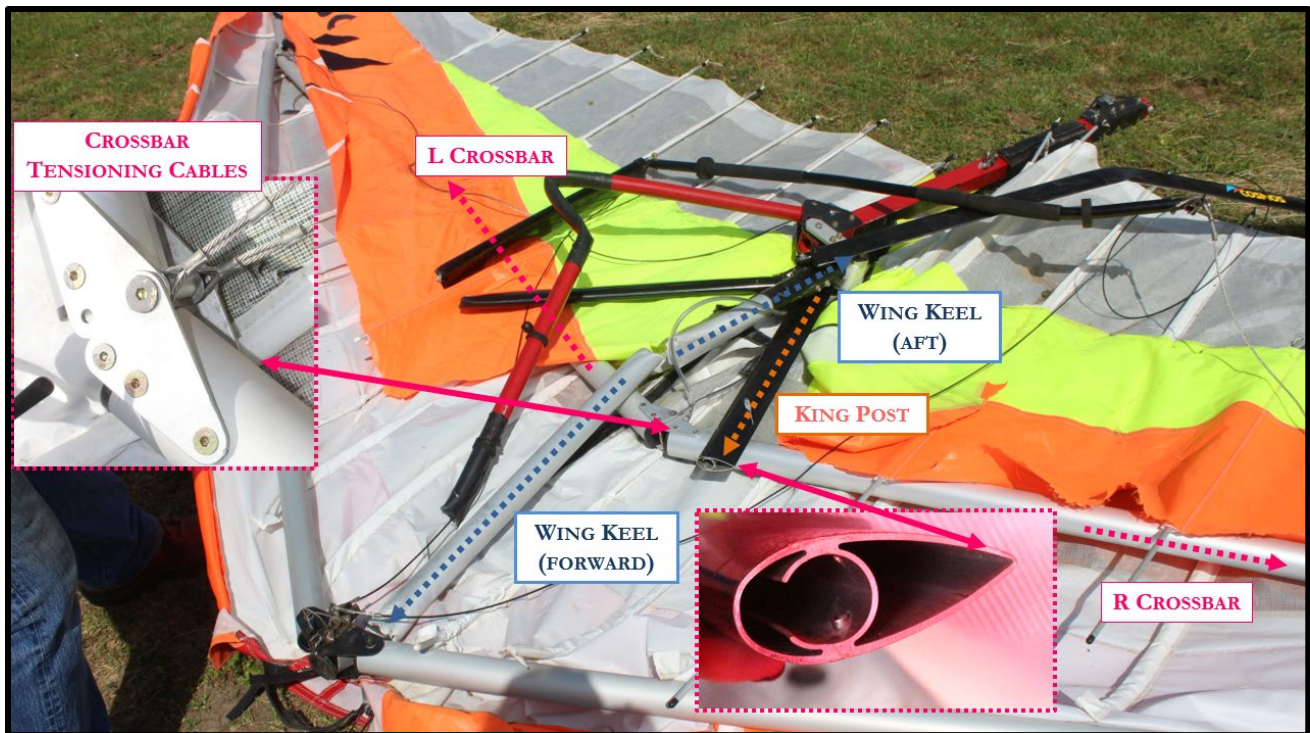


Figure 14: Bottom of the Wing

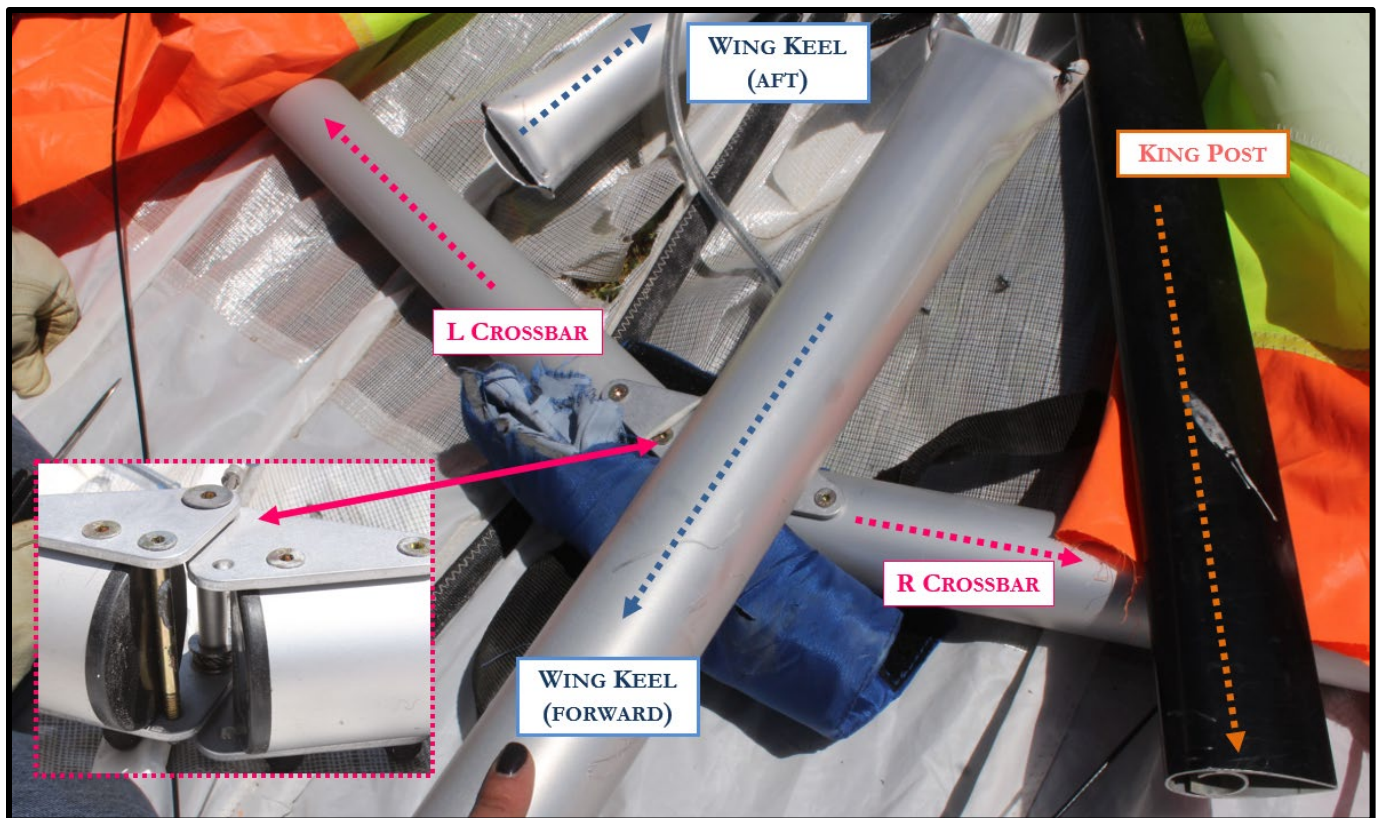


Figure 15: Bottom of the Wing

ENGINE

The engine was a Bombardier Rotax 503 (s/n M5441248). The Hobbs meter hours showed 1,279.1

Portions of the wing fabric was wrapped tightly around the propeller. An end portion of the seatback rod had protruded into the fan and pieces of blade had been fractured. A portion of wire was embedded within a propeller blade consistent with the wire contacting the propeller when the wings had flexed.

There was fuel found within the fuel filters and throughout the fuel lines. The foot throttle was still connected at the panel and continuous back to a carburetor. The hand throttle cable had fractured and both ends were broom-strawed consistent with an overload event. From the fracture area, the cable was continuous to another carburetor.

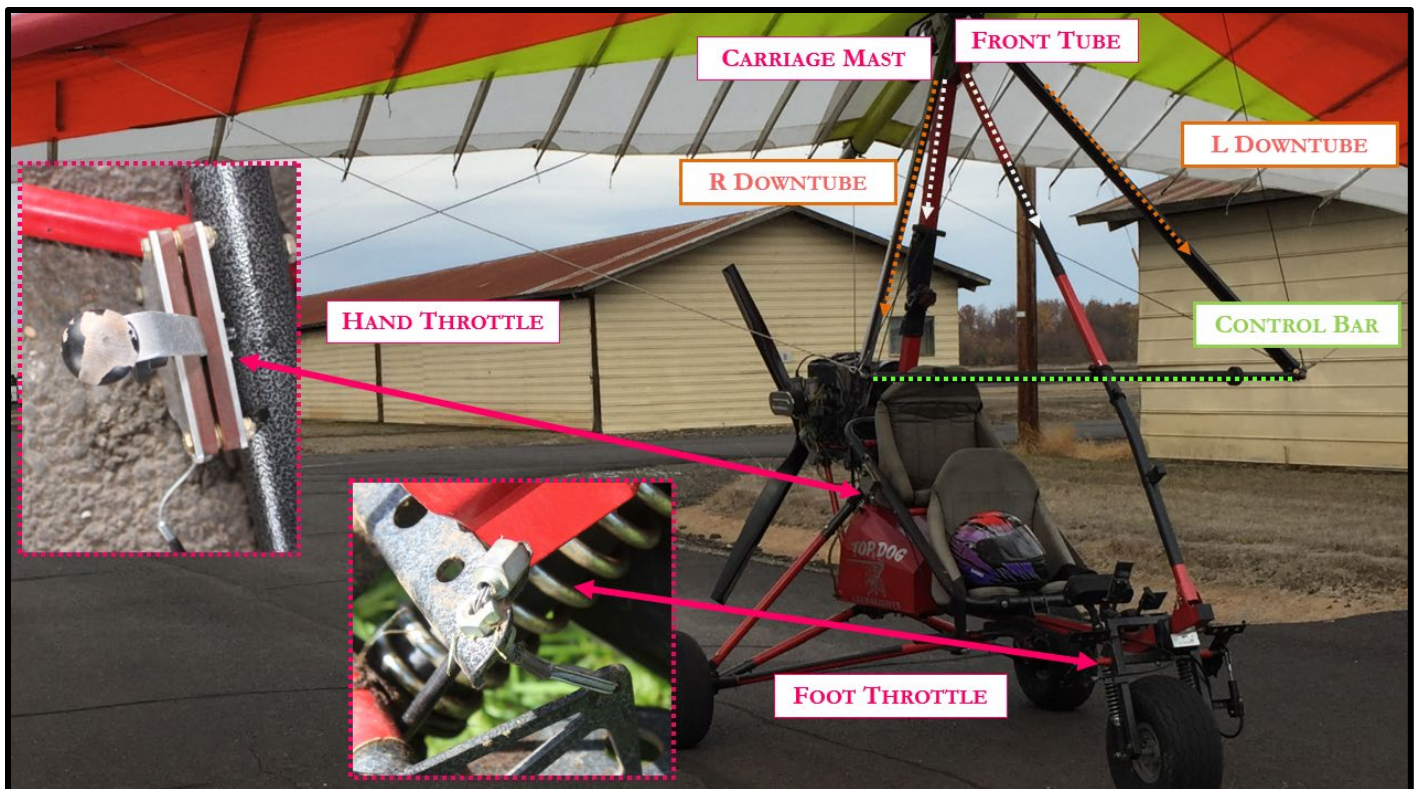


Figure 16: Throttles



Figure 17: Engine and Fuel Lines

BUILD

The carriage was a Top Dog Ultralight. The wing was a Cosmos 14.9.

PERSONNEL INFORMATION

PILOT: GILLEAN JAMES McCOWN

According to the pilot’s text messages on his cellular phone, the pilot’s second flight was on April 28, 2019. His fourth flight was May 01, 2019.

WEATHER INFORMATION



Dawn:	05:18:02
Sunrise:	05:50:28
Culmination:	13:08:24
Sunset:	20:27:03
Dusk:	20:59:37
Daylight duration:	14h36m35s
Distance [km]:	151.105.891
Altitude:	-0.81°
Azimuth:	297.12°

Figure 18: Sun Information at the Time of the Accident