

# National Transportation Safety Board

Office of Aviation Safety  
Washington, DC 20594



WPR21FA265

## INVESTIGATION MATERIALS SUPPLEMENT

## **ACCIDENT**

Location: Albany, Oregon  
Date: 07/09/2021  
Time: 2051 Pacific standard time  
Airplane: Northwing Mustang 3

IIC Zoë Keliher  
National Transportation Safety Board  
Portland, Oregon

## HISTORY OF FLIGHT

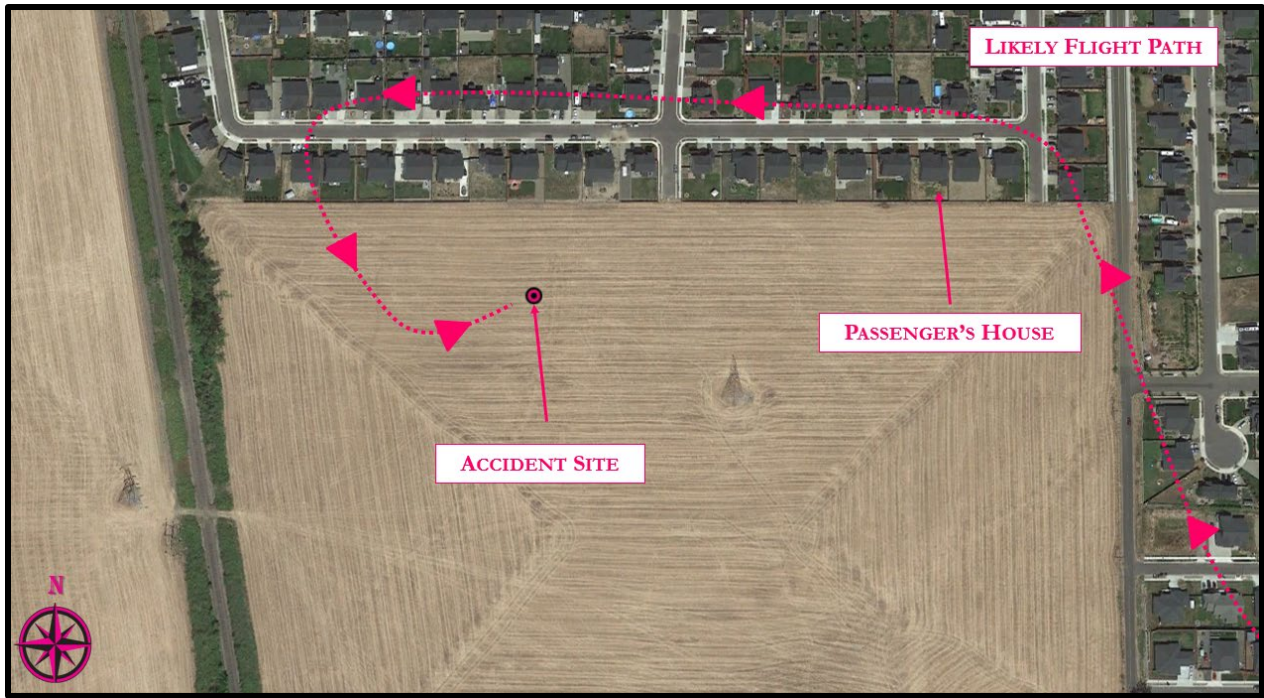
On July 9, 2021, about 2051 Pacific daylight time, an unregistered experimental, amateur-built North Wing Mustang 3 weight-shift-control trike, was substantially damaged when it was involved in an accident near Millersburg, Oregon. The noncertificated pilot and passenger were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to family members, the pilot and passenger departed from the pilot's home airport in Albany, Oregon.



Figure 1: Departure in Reference to the Accident Site

After overflying the pilot's home, located about 4,000 ft north of the airport, the flight continued northeast for about 3.3 miles. The aircraft then turned left and overflew close to the passenger's home (see picture 1).



*Figure 2: Likely Flight Path Prior to Impact*

Several witnesses on the ground recorded the airplane maneuvering on their mobile phone devices. A review of those videos disclosed that the airplane banked to the left to a near 90° turn. The left wing continued to drop down and the aircraft descended toward the ground as the turn tightened. The aircraft impacted the terrain in a left-wing low attitude (see picture 2).



*Figure 3: Excerpts of the Video Prior to Impact*



Figure 4: Excerpts of Video Passing Over House

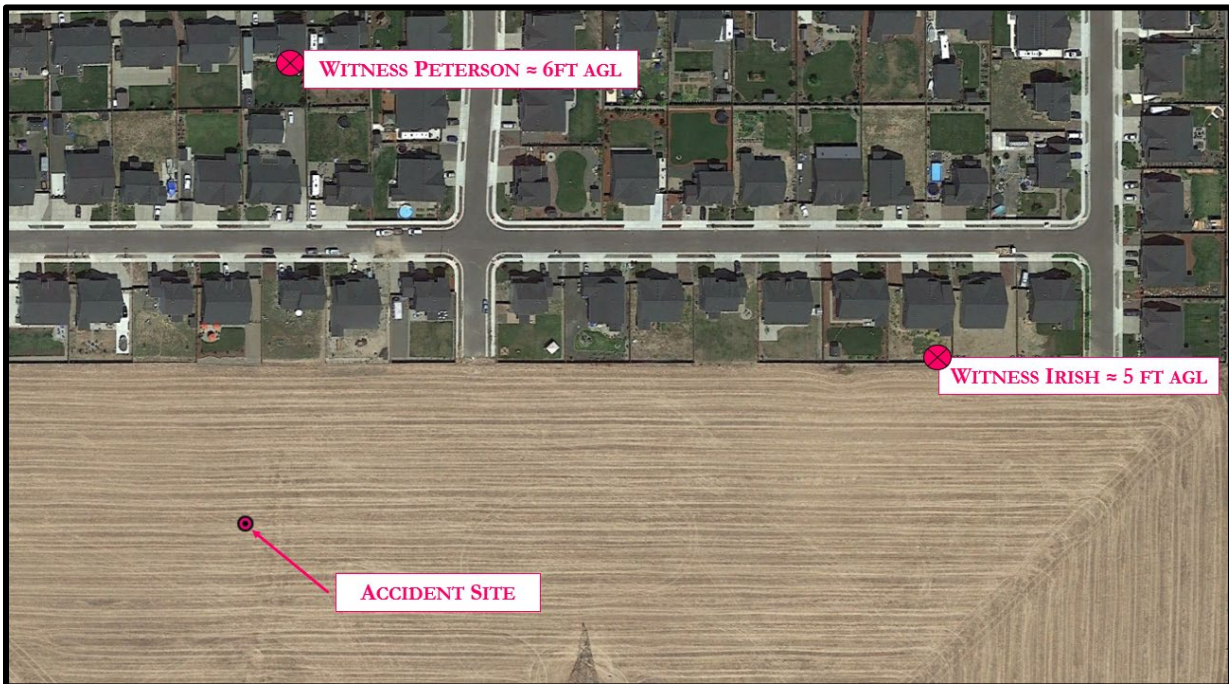


Figure 5: Witness Locations

## AIRCRAFT INFORMATION

The aircraft was a North Wing Mustang 3-15, serial number 510282. It was a home-built experimental light sport, weight-shift control aircraft, with tricycle landing gear and a braced fabric wing. The two-place tandem cockpit frame was constructed of welded steel framing with a fiberglass cockpit fairing encompassing the frame. The wing was manufactured on December 8, 2015 and was a maximum gross weight of 1,060 lbs. The stall speed at gross weight indicated it was 37 mph, a maximum speed of 62 mph and a never exceed speed of 70 mph. The flight operation was limited to not exceeding bank angles of 60° and pitch angles of 30°.



Figure 6: Trike Prior to Accident

The aircraft was equipped with a tachometer that indicated the engine had amassed a total of 287 operating hours.

According to the North Wing Mustang 3 Wing manual, “No wing on the market is totally safe. It is entirely possible to push any aircraft beyond its tolerances and damage or even break a wing. Very strong weather conditions may also cause structural failure. Aerobatics maneuvers, pitch angles beyond 30 degrees up or down, bank angles exceeding 60 degrees, aggressive stalls, and spins are maneuvers that should never be attempted under any circumstance. CAUTION The speed never to exceed for the MUSTANG 3-15 is 70 mph. The MUSTANG 3-15, even when flown in its lightest wing loading, can exceed airspeed of 70 mph.”

## WRECKAGE AND IMPACT

On-site examination of the aircraft, including the flight controls, structure and engine, revealed no evidence of any mechanical anomalies. Ground scars and the orientation of the wreckage were consistent with the aircraft impacting the ground in a nose-low attitude. No manufacturing anomalies were noted with the aircraft. The wooden propeller assembly was shattered and exhibited signatures consistent with the engine producing power at the time of impact. The flying wires were separated at the nose; the wires were sent to the NTSB Materials Laboratory for examination. Below includes photos of the wreckage.

The pilot's family stated that following the accident they performed an engine examination. They stated that there was no evidence of preimpact mechanical malfunction or failure.

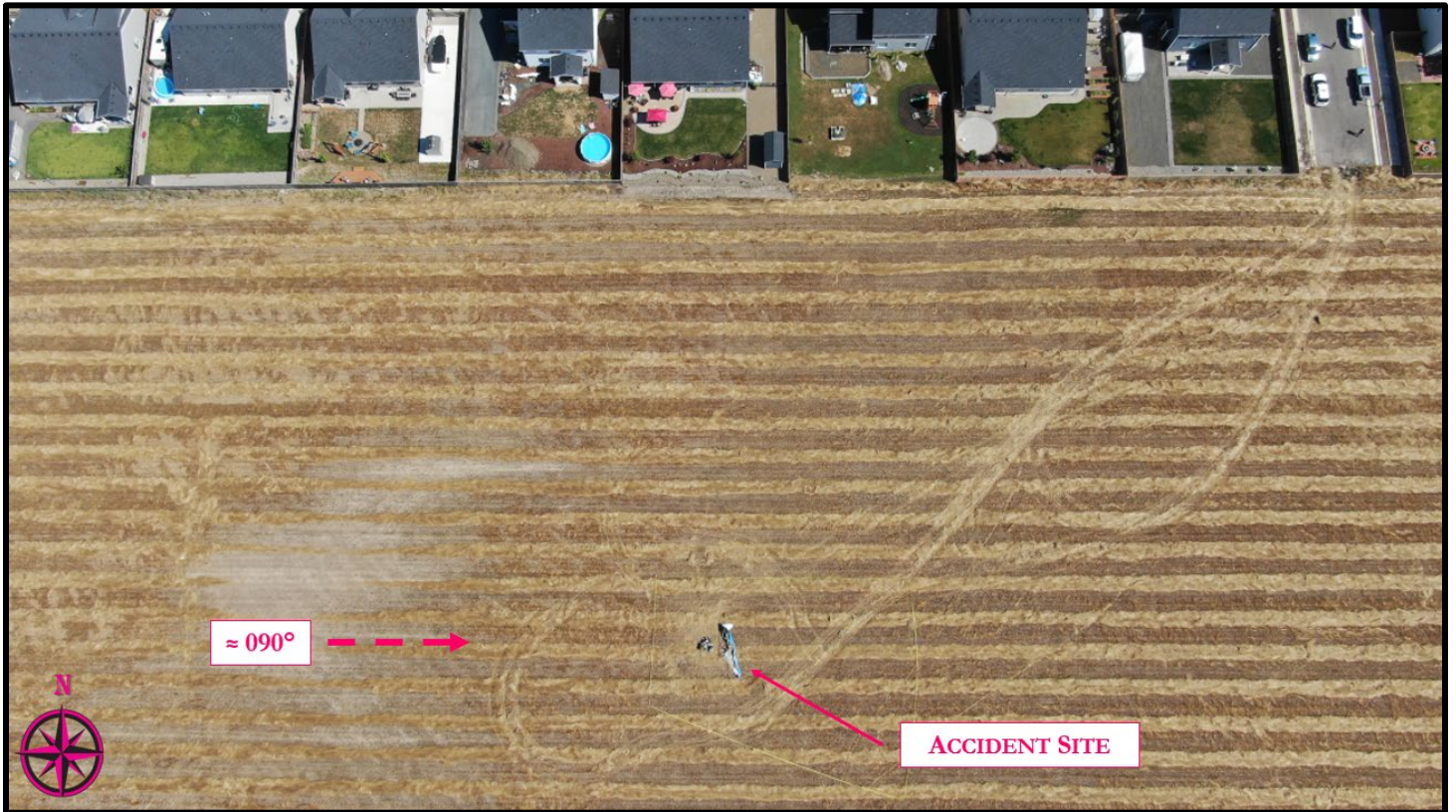


Figure 7: Accident Site Overview

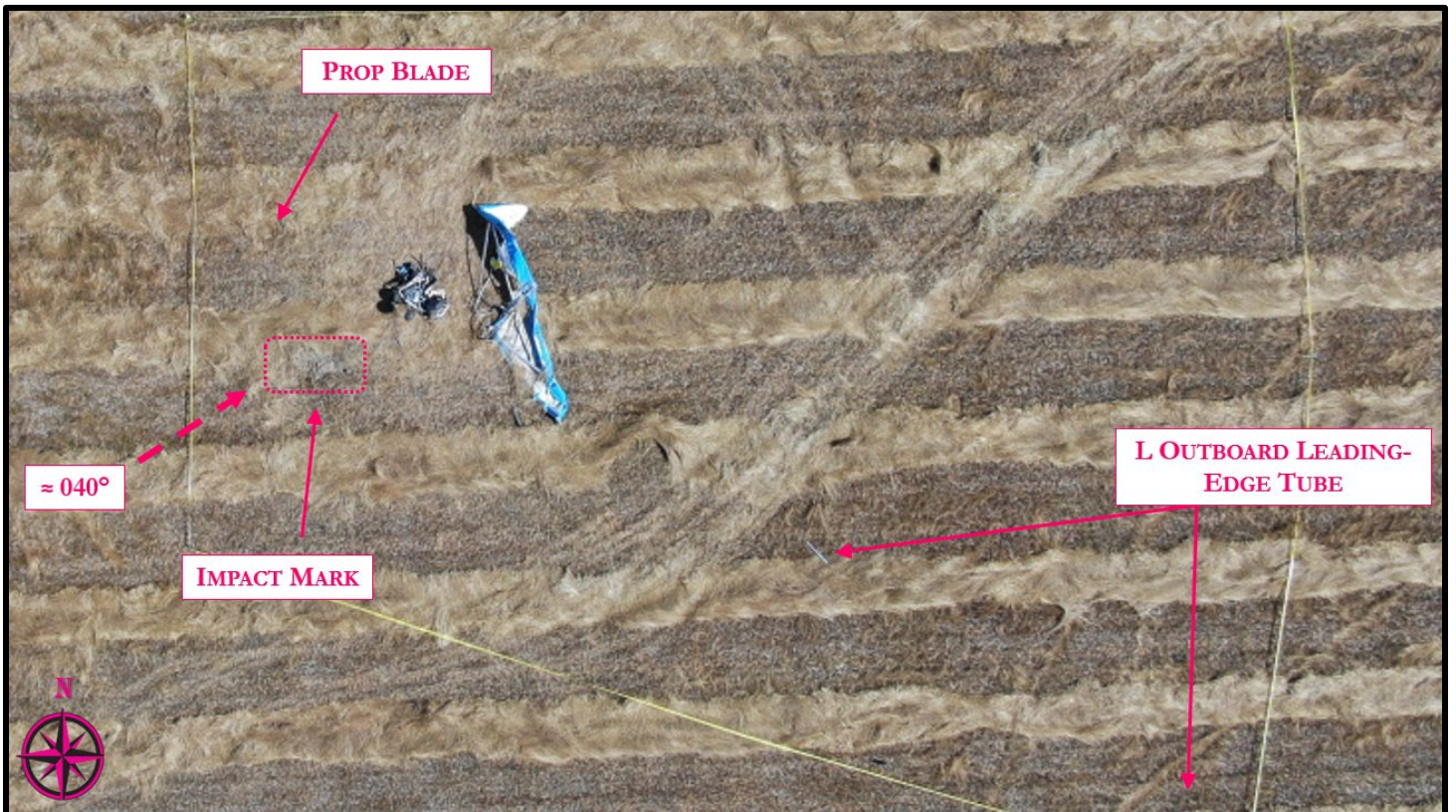


Figure 8: Accident Site Referencing Initial Impact

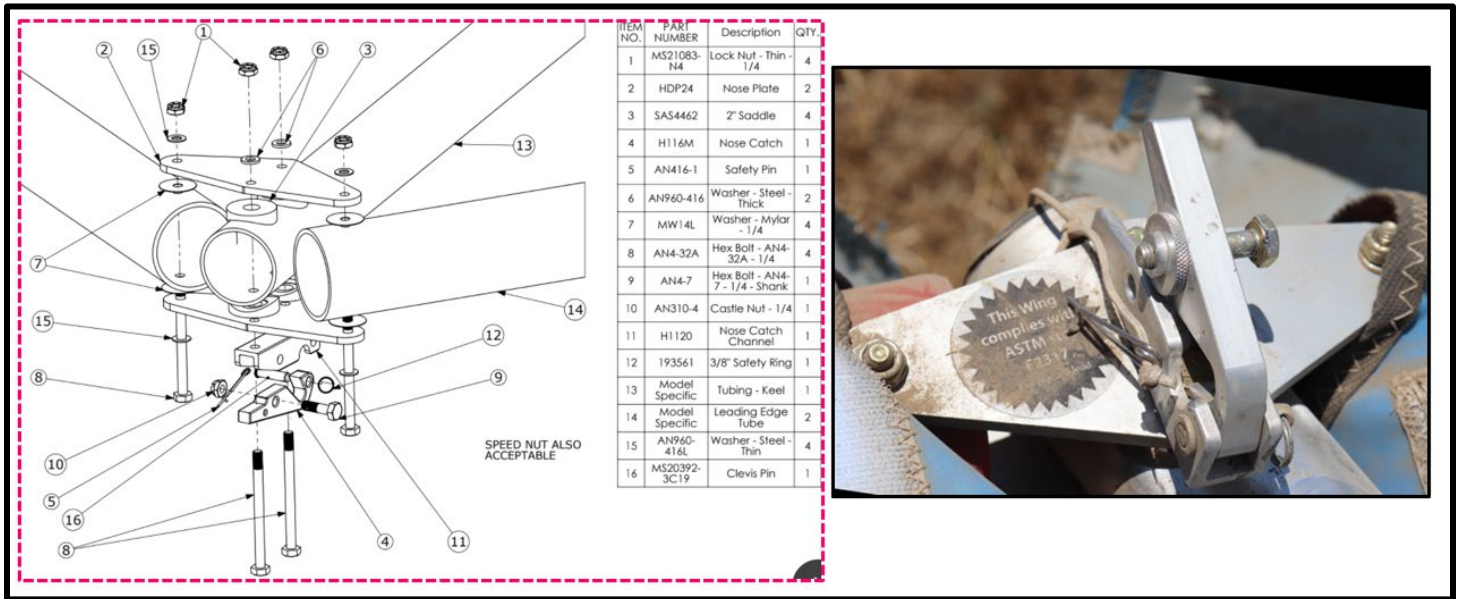


Figure 9: Connection

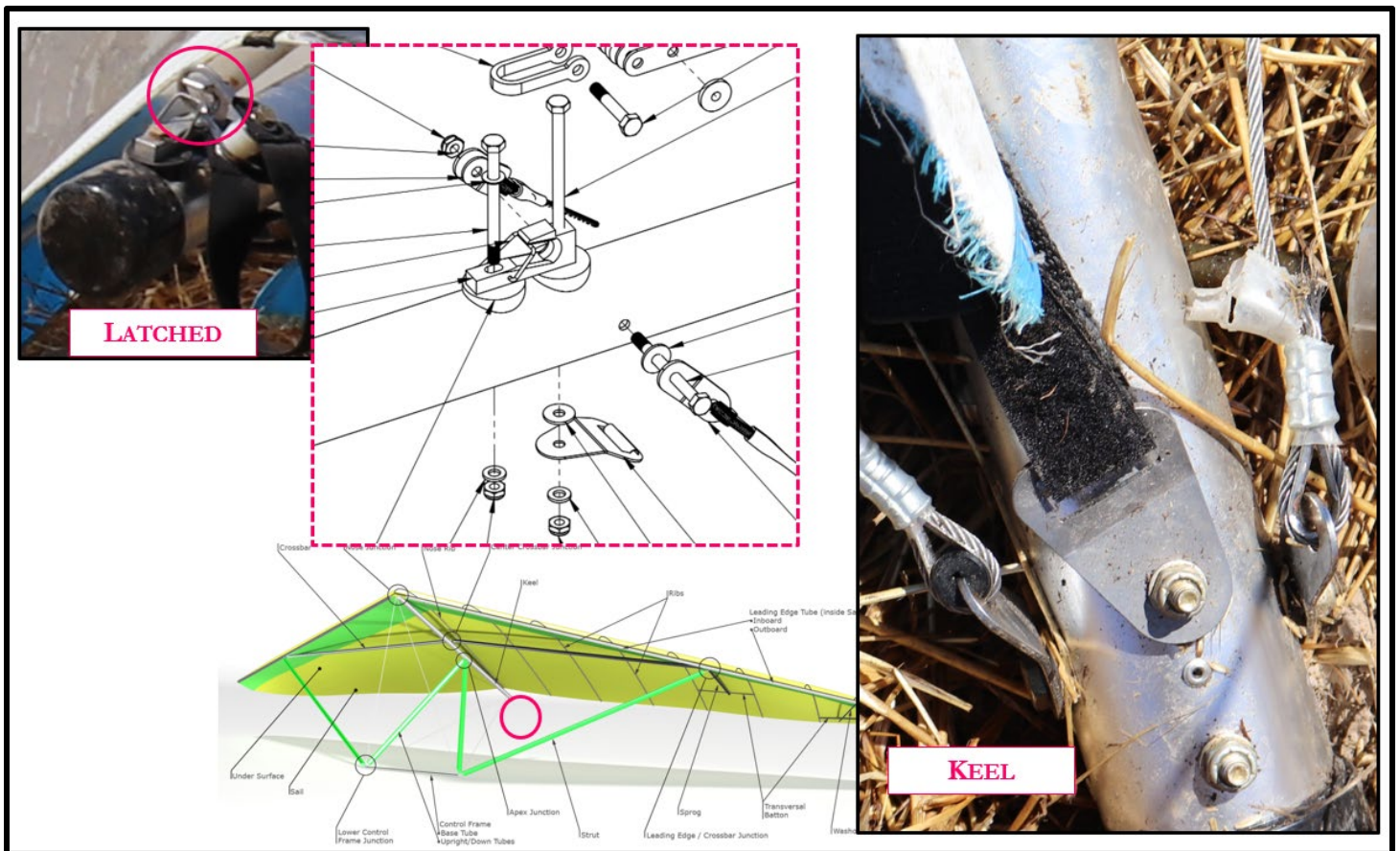


Figure 10: Keel



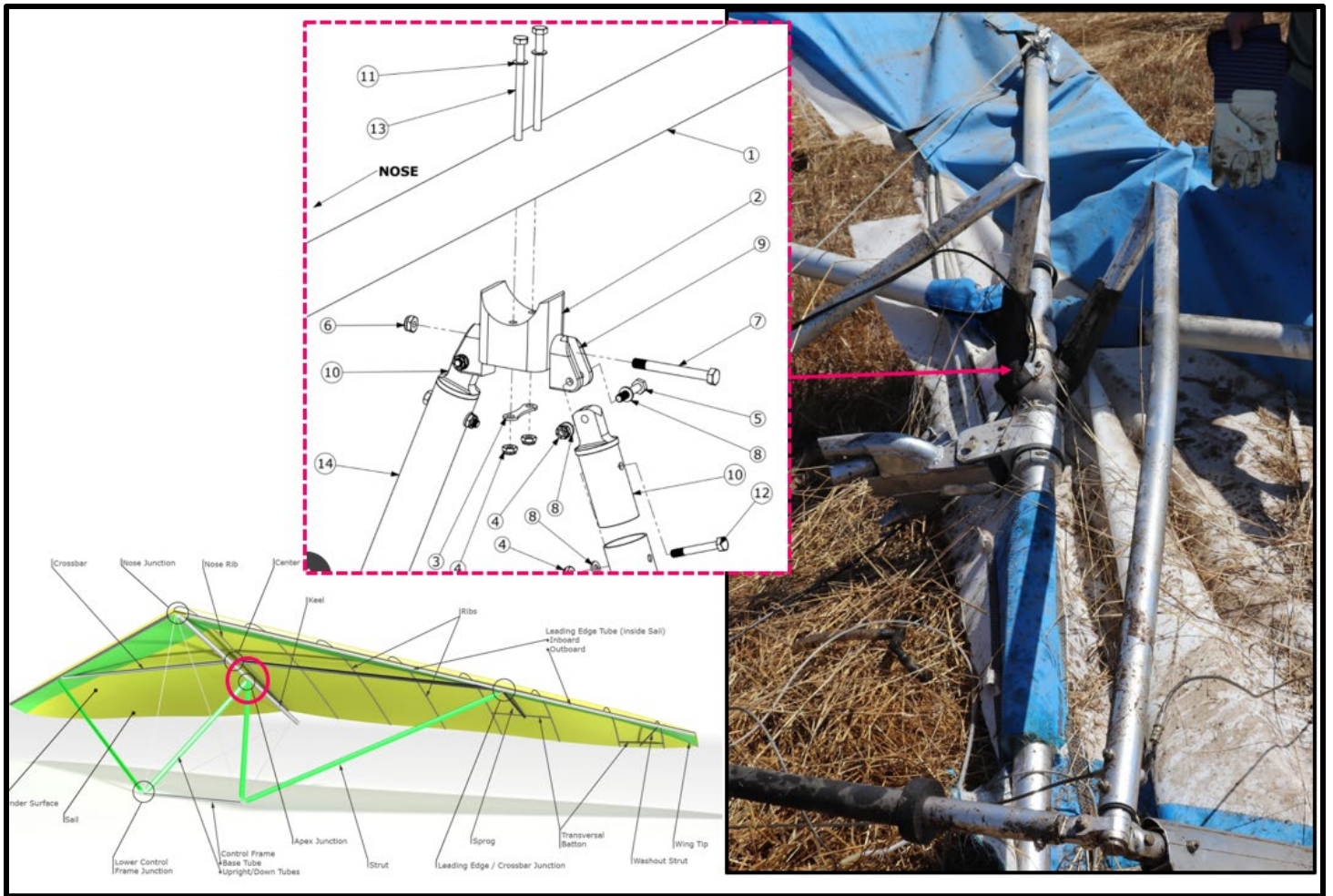


Figure 11: Apex Junction



Figure 12: Nose

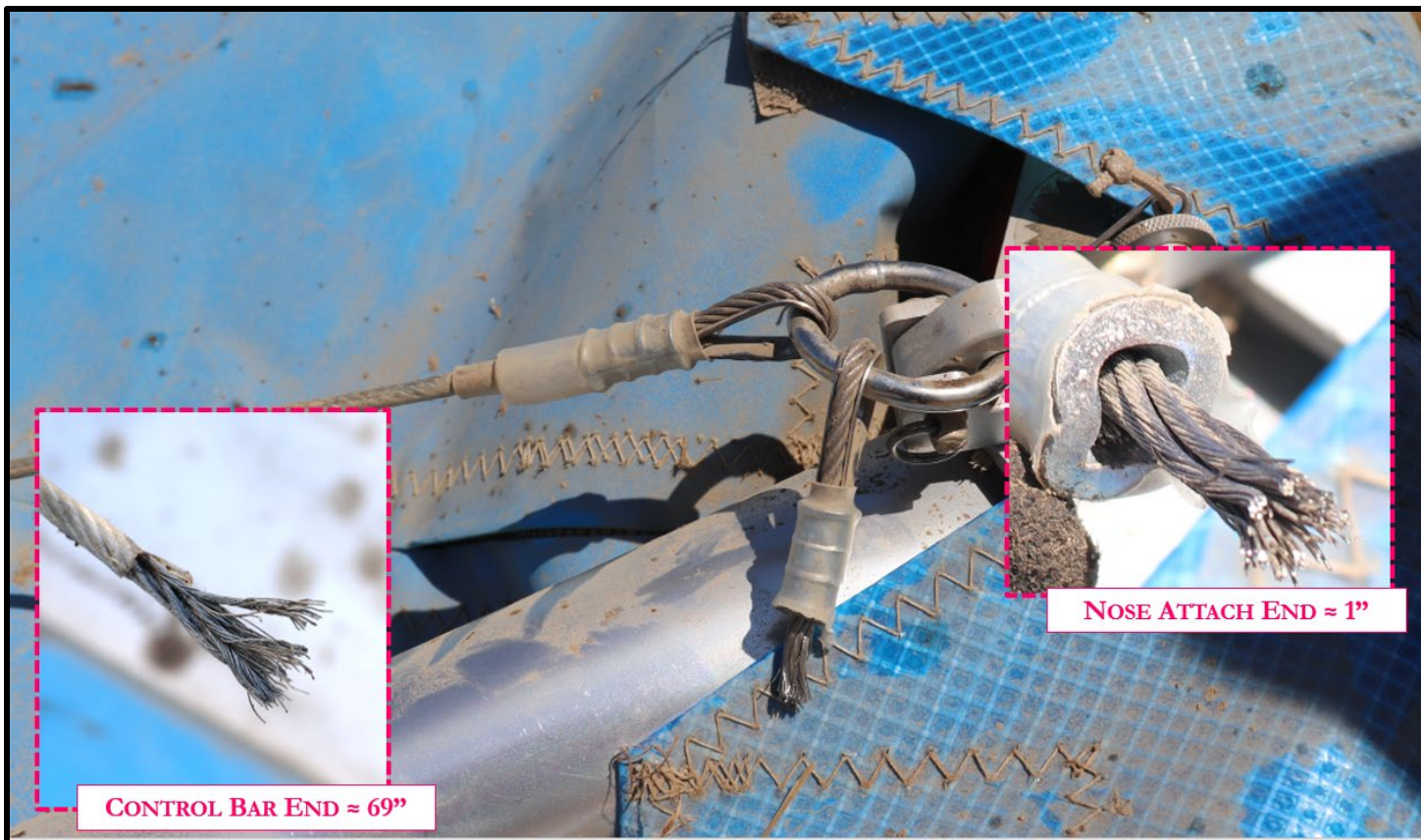


Figure 13: Nose Flying Wire Attachment

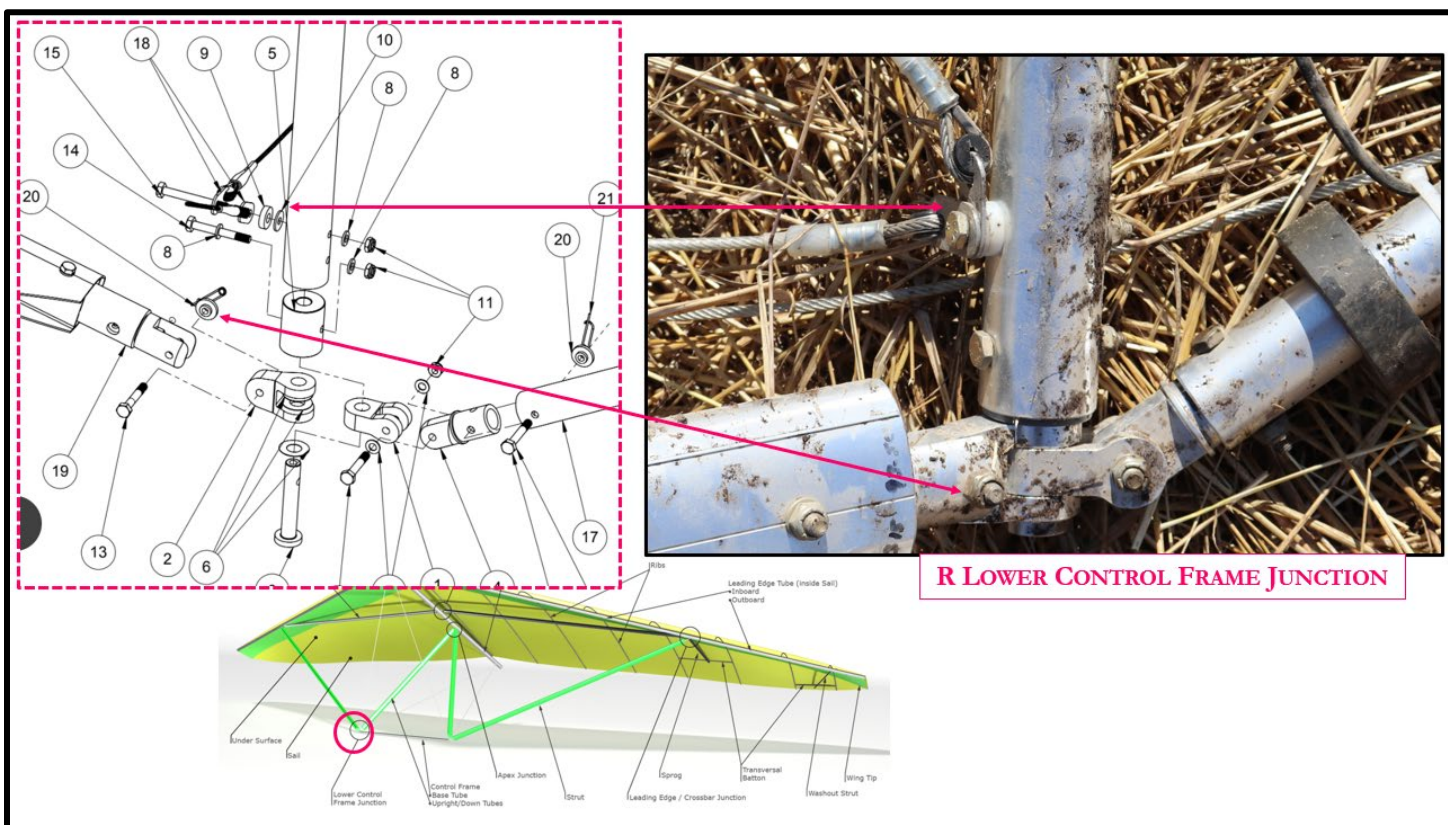


Figure 14: Lower Frame Junction



Figure 15: Control Bars

#### WEATHER INFORMATION

closest METAR site was KCVO with no wx reporting at S12 (Albany, OR airport):

KCVO 100656Z AUTO 31016G21KT 10SM CLR 17/13 A3008 RMK AO2 PK WND 31026/0640 SLP186 T01670128

KCVO 100556Z AUTO 31015G20KT 10SM CLR 18/13 A3006 RMK AO2 SLP179 T01830133 10328 20183 53021

accident ~ 0545 UTC

KCVO 100456Z AUTO 28011KT 10SM CLR 20/14 A3005 RMK AO2 SLP174 T02000139

KCVO 100356Z AUTO 31015KT 10SM CLR 23/14 A3001 RMK AO2 SLP161 T02330144

no clouds or other things in wx forecast...

some gusting surface winds but otherwise...

WX

KSLE 100356Z AUTO 29005KT 10SM CLR 27/13 A2999 RMK AO2 SLP154 T02670133

#### ADDITIONAL INFORMATION

According to the Federal Aviation Administration (FAA):

##### 103.1 Applicability.

This part prescribes rules governing the operation of ultralight vehicles in the United States. For the purposes of this part, an ultralight vehicle is a vehicle that:

- (a) Is used or intended to be used for manned operation in the air by a single occupant;
- (b) Is used or intended to be used for recreation or sport purposes only;
- (c) Does not have any U.S. or foreign airworthiness certificate; and
- (d) If unpowered, weighs less than 155 pounds; or
- (e) If powered:

- (1) Weighs less than 254 pounds empty weight, excluding floats and safety devices which are intended for deployment in a potentially catastrophic situation;
- (2) Has a fuel capacity not exceeding 5 U.S. gallons;
- (3) Is not capable of more than 55 knots calibrated airspeed at full power in level flight; and
- (4) Has a power-off stall speed which does not exceed 24 knots calibrated airspeed.

#### Recovery from a Steep-banked Spiral Dive

According to the Weight-Shift Control Aircraft Flying Handbook (FAA-H-8083-5) Addendum, the purpose of practicing a steep spiral dive is to "build recognition of and a reflexive response to a steep-banked spiraling dive. Start all practice at an altitude that will permit a recovery at no lower than 1,000 feet above the ground (AGL). An altitude of at least 2,500 AGL is recommended...The pilot must be careful not to stall the aircraft or exceed airspeed limitations at all times."