

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR21FA232

ACCIDENT SITE, AIRFRAME AND ENGINE EXAMINATION

6/24/2021

A. ACCIDENT

Location: Likely, California
Date: June 20, 2021
Time: 0900 Pacific daylight time
Airplane: Kitfox Series 6, N617Y

B. ACCIDENT SITE, AIRFRAME AND ENGINE EXAMINATION

IIC Joshua Cawthra
National Transportation Safety Board
Federal Way, Washington

C. SUMMARY

Examination of the wreckage at the accident site and at a storage area once it was recovered. The examination of the airframe and engine revealed no evidence of preexisting mechanical malfunction that would have precluded normal operation.

D. DETAILS OF THE INVESTIGATION

1.0 Accident Site Examination

Examination of the accident site revealed that the airplane impacted the eastern edge of an irrigation canal. Debris remained within about 5 ft of the main wreckage and consisted of both main landing gear, one propeller blade, and plexiglass. The fuselage came to rest upright on a magnetic heading of about 243° magnetic, with the engine and left wing partially submerged within water. A ground impression consistent with the size of a tire was observed about 4 ft north of the main wreckage.

Examination of the field the airplane was departing from revealed flattened grass, consistent with tire tracks extended from the western edge of the field toward the canal. The length of the field from the western edge to the eastern edge was about 1,151 ft and featured rough terrain, with vegetation about 2 to 3 ft in height. Along the eastern edge of a field, was an area of elevated terrain/levy, that was about 10 to 20 ft above the field.

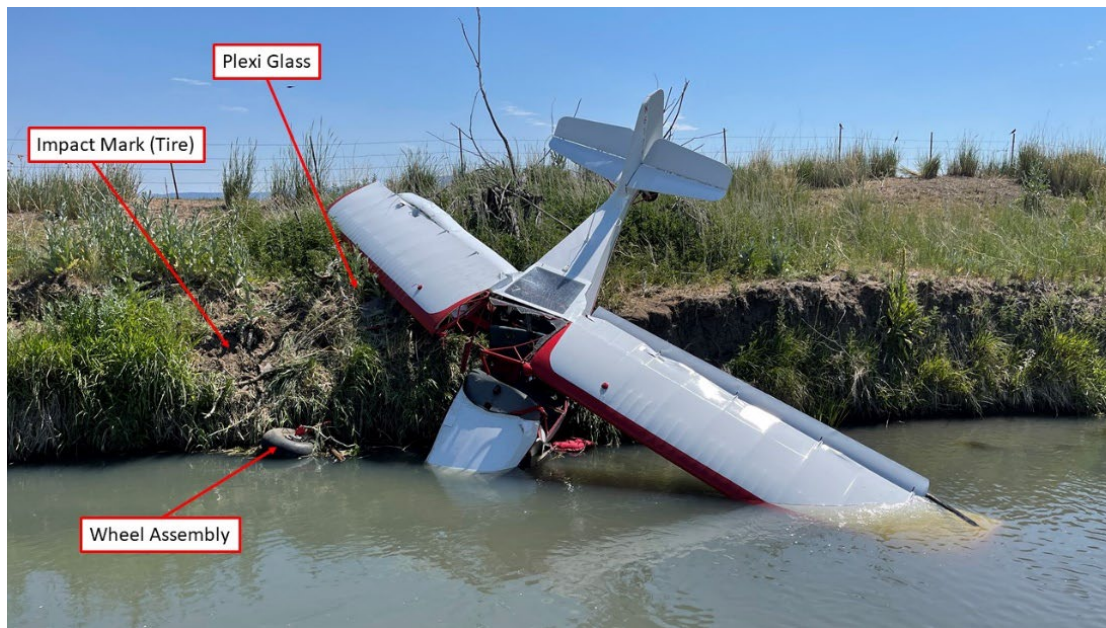


Figure 1: View of the main wreckage.



Figure 2: Overview of the accident site depicted on Google Earth.

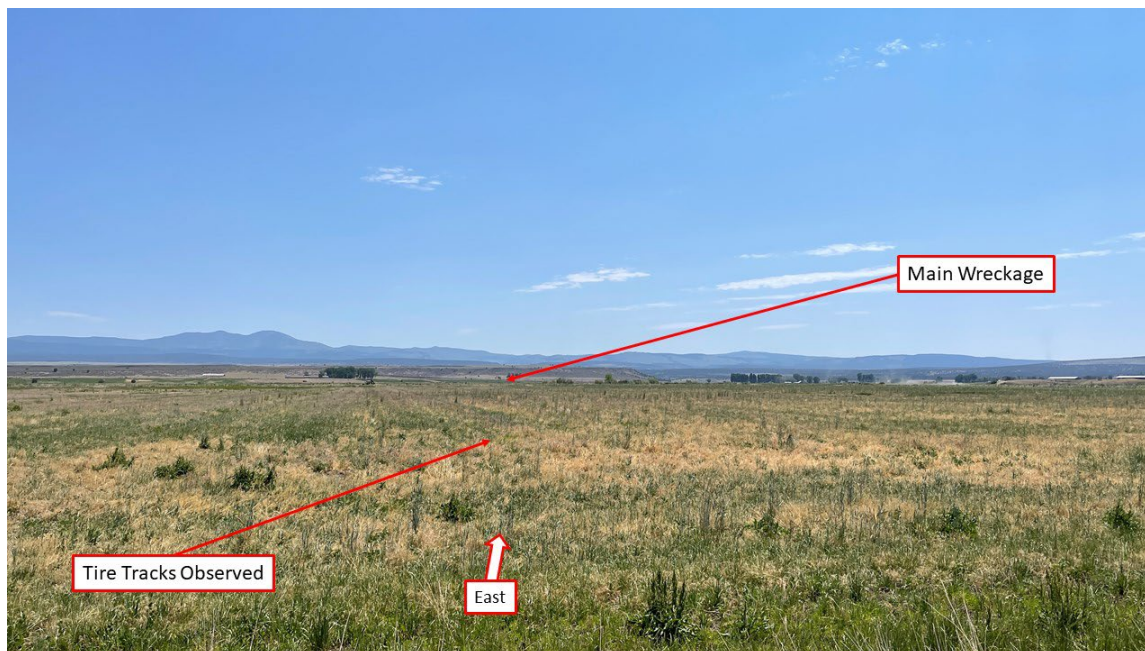


Figure 3: View of the departure field looking east.

2.0 Airframe Examination

The right wing was partially separated from the airframe. The forward structure of the airframe where the right wing attached was impact damaged and pulled away. The right aileron/flap remained attached via all its respective mounts. Some buckling of the rear spar was observed forward of the aileron/flap mounts and the aileron/flap exhibited upward bending (bowing) about mid span. The left wing remained attached to the airframe. The left aileron/flap remained attached via all its respective mounts. Some buckling of the rear spar was observed forward of the aileron/flap mounts.

The empennage was intact and undamaged. The left and right horizontal stabilizers, left and right elevators, and rudder remained attached, and were relatively undamaged.

Flight control continuity was established from all primary controls throughout the airframe to area where both left and right control sticks would normally be. Both the left and right control sticks were separated. The flap position was unable to be obtained due to impact damage.

The fuselage structure below the seats and above the seats was impact damaged. The instrument panel remained attached. Fuel system continuity was established from both wing tanks throughout the system to the engine. The fuel system was compromised between the fuel tanks and the fuel selector valve and found to be consistent with impact damage. The airframe fuel filter was slightly impact damaged.

ACCIDENT SITE, AIRFRAME AND ENGINE EXAMINATION

The fuel filter was disassembled, and the screen was free of debris with no debris within the bowl.

The throttle and mixture levers were in the full forward position. The magneto switch was in the "off" position. A lever immediately to the left of the magneto switch was extended and bent to the right. The nav lights, strobes, and boost pump switches were in the off position. The primer was in and locked. Master Switch was damaged, alternator switch was up. Throttle and mixture control continuity was established from the cockpit controls to the engine.

Instruments:

Tach: 325 rpm, hour meter: 815.6
Altimeter: 4,500 / Kollsman: 30.06 inches
Attitude Indicator: about 90° right bank, 10° nose up
DG: 085 degrees
Airspeed: 36 knots
EGT: 0
Oil: 110°
CHT: deflected left
Oil Psi: Below 0, deflected low
Fuel Selector: Off
Volts: 6
Turn Coordinator: full left bank, ball deflected full right

All circuit breakers in / not tripped.

3.0 Engine Examination

The engine remained partially attached to the airframe. The engine was removed from the airframe and slung from a forklift to facilitate further examination.

All engine accessories remained attached to the engine. All of the engine cylinders remained attached to the crankcase. The upper spark plugs, and rocker box covers were removed from the engine. The crankshaft was rotated by hand using the propeller. Thumb compression was obtained on all four cylinders. Equal movement of the intake and exhaust valve rocker arms was observed. Engine to magneto timing was verified at 25 degrees BTDC.

The left and right magneto were intact and remained attached to the engine. Both magnetos were removed. When the drive shafts of both magnetos were rotated by hand, impulse coupling engagement was verified, and spark was produced on all four posts of each magneto.

The ignition harness was intact and exhibited some impact damaged.

The upper spark plugs were removed and exhibited normal operational signatures and light gray deposits within the electrode areas. The upper number two spark plug exhibited some corrosion and dirt debris within the electrode area (consistent with water submersion).

The carburetor mount flange was impact damaged. The carburetor was removed from the engine. The mixture and throttle levers moved freely by hand from stop to stop. The carburetor was disassembled. Water was observed in the float bowl (consistent with being partially submerged in water). The metal floats were intact, and the needle valve was intact. The inlet fuel screen was free of debris.

4.0 Propeller Examination

The propeller remained attached to the crankshaft. One blade remained attached to the hub, however, was fractured / separated about mid span, with splintering of the blade in a manner that appeared to be opposite direction of rotation. The opposing blade remained attached and was fractured about 12 inches from the propeller hub. The separated portion of the blade was recovered from the water and exhibited some slight chordwise striations on the cambered side of the blade.

Submitted by:

Joshua Cawthra
Senior Aviation Accident Investigator