Aviation Investigation Final Report

Location:	Likely, California	**Accident Number:**	WPR21FA232
Date & Time:	June 20, 2021, 09:00 Local	**Registration:**	N617Y
Aircraft:	Kitfox Series 6	**Aircraft Damage:**	Substantial
Defining Event:	Collision during takeoff/land	**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Witnesses located near the accident site reported that the pilot attempted to take off from the field on a westerly heading; however, it appeared that the airplane could not attain adequate speed to get off the ground. The witnesses heard the engine sound decrease and watched the pilot turn the airplane 180° and initiate a second takeoff, this time to the east. The airplane became airborne about 20 yards from a canal road and climbed to about 10 to 20 ft above the ground. As the airplane approached the canal, it began to descend and impacted the upper eastern edge of the canal, spun around, and slid down into the water. The pilot had no recollection of the accident sequence.

Examination revealed no anomalies with the airframe or engine that would have precluded normal operation, and damage signatures and witness accounts indicated that the engine was producing power at the time of the accident. The departure field, which was about 1,150 ft long, comprised rough terrain with vegetation about 2 to 3 ft in height. The calculated density altitude about the time of the accident was 6,635 ft, with a pressure altitude of 4,297 ft.

The height of the vegetation most likely increased resistance on the tires during the takeoff roll, which reduced the airplane's acceleration. Coupled with the high-density altitude conditions, it is likely that the airplane's required takeoff distance exceeded the field length available, which resulted in impact with terrain.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's poor decision making in attempting a takeoff from a field with high vegetation and a high-density altitude, which resulted in decreased takeoff performance and impact with terrain.

Findings

Personnel issues	Decision making/judgment - Pilot
Aircraft	Takeoff distance - Attain/maintain not possible
Personnel issues	Use of equip/system - Pilot
Environmental issues	High density altitude - Effect on operation
Environmental issues	(general) - Contributed to outcome
Environmental issues	(general) - Effect on operation

Factual Information

History of Flight

Takeoff	Collision during takeoff/land (Defining event)

On June 20, 2021, about 0900 Pacific daylight time, an experimental, amateur-built Kitfox Series 6 airplane, N617Y, was substantially damaged when it was involved in an accident near Likely, California. The pilot was seriously injured, and the passenger sustained fatal injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Witnesses located near the accident site reported that they had spoken to the pilot and passenger about 10 minutes before the accident. Following their conversation, they watched the pilot and passenger board the airplane. The witnesses stated that the pilot attempted to take off from the field on a westerly heading; however, it appeared that the airplane could not get enough speed to get off the ground. The witnesses heard the engine throttle down and watched the airplane turn 180° and initiate a second attempt to takeoff in an easterly direction. The witnesses stated that the airplane became airborne about 20 yards from the canal road and climbed to about 10 to 20 ft above the ground. As the airplane approached the canal, it began to descend and then impacted the upper eastern edge of the canal, spun around, and slid down into the water.

The pilot had no recollection of the accident sequence.

Pilot Information

Certificate:	Private	**Age:**	65,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	May 1, 2019
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1010 hours (Total, all aircraft), 794 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Kitfox	**Registration:**	N617Y
Model/Series:	Series 6	**Aircraft Category:**	Airplane
Year of Manufacture:	2003	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	S60003-017
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	1550 lbs
Time Since Last Inspection:		**Engines:**	1
Airframe Total Time:		**Engine Manufacturer:**	
ELT:		**Engine Model/Series:**	
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSVE,4149 ft msl	**Distance from Accident Site:**	52 Nautical Miles
Observation Time:	08:55 Local	**Direction from Accident Site:**	182°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	26°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Likely, CA	**Type of Flight Plan Filed:**	None
Destination:	Alturas, CA	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

The calculated density altitude was 6,635 ft, with a pressure altitude of 4,297 ft.

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	41.249255,-120.53129

The airplane impacted the eastern edge of an irrigation levee as seen in figure 1. Debris remained within about 5 ft of the main wreckage. The fuselage came to rest upright on a magnetic heading of about 243°, 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.

Figure 1: View of the main wreckage.

Examination of the departure field revealed that 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, as noted in figure 2. The field featured rough terrain, with vegetation about 2 to 3 ft in height as seen in figure 3. Along the eastern edge of a field was an area of elevated terrain/levee that was about 10 to 20 ft above the field.

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

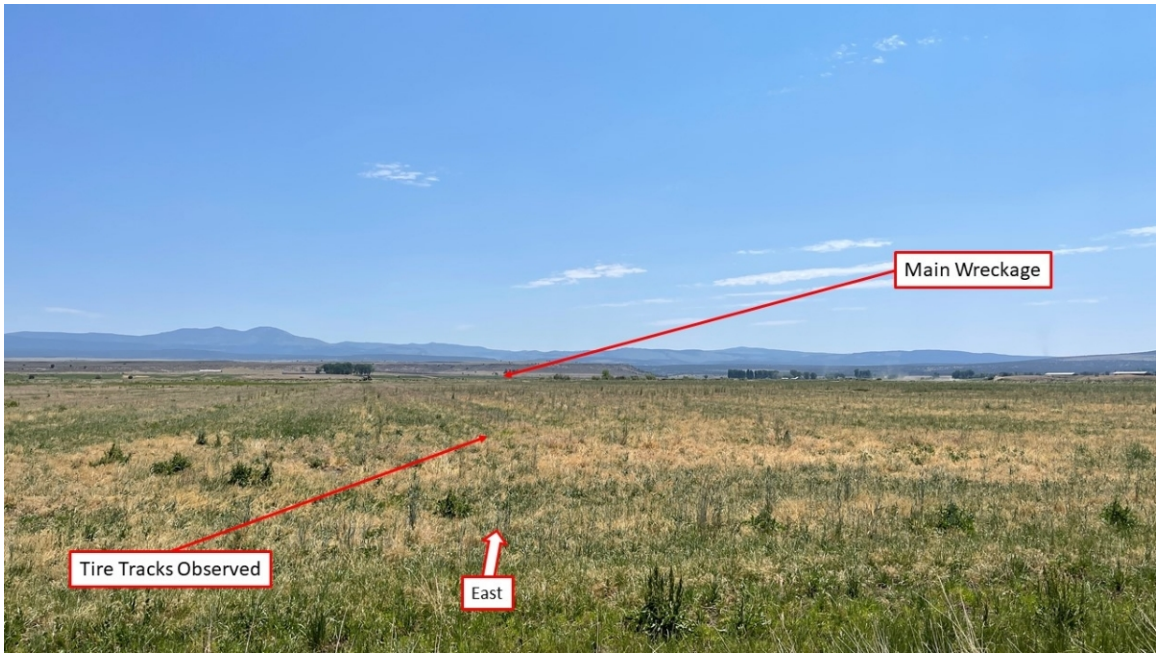

Figure 3: View of the departure field looking east.

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

Both the left and right control sticks were separated. Throttle and mixture control continuity was established from the cockpit controls to the engine. Flight control continuity was established from all primary controls throughout the airframe to area where both left and right control sticks would normally be.

The engine remained partially attached to the airframe. The crankshaft was rotated by hand using the propeller. Thumb compression was obtained on all four cylinders and rotational continuity was established throughout the engine and valve train.

The propeller remained attached to the crankshaft. One blade remained attached to the hub but was fractured/separated about midspan, 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.

No evidence of any preexisting mechanical malfunction was observed with the airframe or engine that would have precluded normal operation.

Administrative Information

Investigator In Charge (IIC):	Cawthra, Joshua
Additional Participating Persons:	Will Geyer; Federal Aviation Administration; Reno, NV
Original Publish Date:	February 7, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=103292

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties … and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available here.