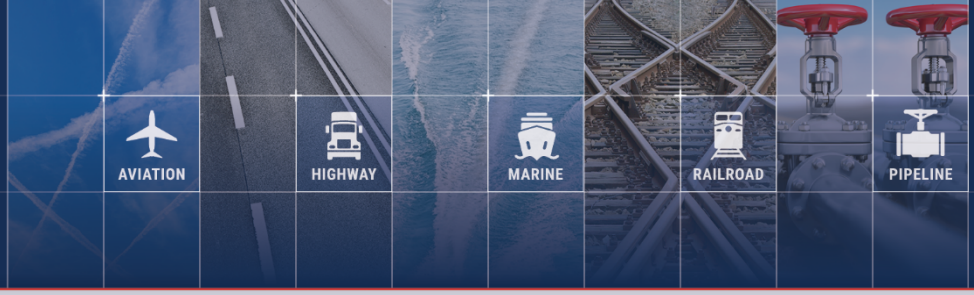

Aviation Investigation Final Report

Location:	Battle Ground, Washington	**Accident Number:**	SEA01LA160
Date & Time:	August 28, 2001, 11:30 Local	**Registration:**	N2136F
Aircraft:	Shank Kitfox Model II	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The accident aircraft was assembled for flight at the airport immediately before the accident flight. The pilot reported that following a normal takeoff and climbout, at approximately 150 feet above ground level and 50 MPH, he experienced a simultaneous reduction in airspeed and rate of climb. The airport owner reported that he watched the aircraft take off and get to an altitude about 200 to 250 feet above the runway when it began to flounder and mush as it drifted off to the right of the runway. The airport owner reported that the aircraft then settled into the trees and crashed. The airport owner stated that the aircraft took what he felt was an excessive take off roll, about 1,000 feet, and that the aircraft did not appear to have an excessive angle of attack as the aircraft climbed out. He also stated that the engine appeared to be operating normally and that he did not notice any power loss. The airport owner reported that the winds at the airport surface were calm when the accident happened. METAR weather observations at several nearby weather observation facilities near the time of the accident reported generally northerly to northwesterly or variable winds at 5 to 7 knots, with clear skies or few clouds and no significant temperature or pressure gradients across the area. According to performance specifications published by the aircraft kit manufacturer, a comparable model in the Kitfox line with power loading in the range of the accident aircraft has a takeoff roll of 250 feet, a climb rate of 1,200 to 1,450 feet per minute, and a stall speed of 37 MPH.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain adequate airspeed during climbout.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

On August 28, 2001, approximately 1130 Pacific daylight time, a Shank Kitfox Model II experimental-category amateur-built airplane, N2136F, registered to and being operated by a private pilot, was destroyed by impact forces and a post-crash fire in a collision with trees and terrain following a loss of control during climbout from Goheen Airport, Battle Ground, Washington. The pilot, who was the aircraft's sole occupant at the time, was seriously injured. Visual meteorological conditions, with winds from 350 degrees true at 6 knots, were reported at Pearson Field, Vancouver, Washington, at 1153, and no flight plan was filed for the planned 14 CFR 91 local personal flight.

In his accident report to the NTSB, the pilot reported that on the morning of the accident flight, he took the accident airplane to Goheen Airport and assembled it for flight there. He further reported:

> ...A moderate left crosswind favored runway 33 so I elected to use that for some full-stop landing practice. Following a normal runup I began my takeoff roll. I rotated at 35 MPH indicated and immediately accelerated to 50 mph, climbing at a normal rate. At approximately 150' AGL I experienced a simultaneous reduction in airspeed and rate of climb. The airplane drifted to the right of the runway while I was lowering the nose in an effort to regain airspeed.
>
> I recall seeing treetops immediately below and realizing I could not continue to trade altitude for airspeed. My descent to the ground must have been slowed by tree branches but I hit very hard at what seemed to be vertical or slightly inverted....

The owner of Goheen Airport, who witnessed the crash, reported to an FAA inspector that he watched the aircraft take off and get to an altitude about 200 to 250 feet above the runway when it began to flounder and mush as it drifted off to the right of the runway. The airport owner reported that the aircraft then settled into the trees and crashed. The airport owner stated that the aircraft took what he felt was an excessive take off roll, about 1,000 feet, and that the aircraft did not appear to have an excessive angle of attack as the aircraft climbed out. He also stated that the engine appeared to be operating normally and that he did not notice any power loss. The airport owner reported to the FAA inspector that the winds at the airport surface were calm when the accident happened. The Goheen Airport owner stated that he did not know whether or not there were any winds aloft at treetop height above the runway, but that in "thousands of hours" of his own flying out of the airport, "he had never encountered a wind shear or winds severe enough to affect his flights."

The pilot, who also held an FAA airframe and powerplant (A&P) mechanic certificate, reported on his NTSB accident report that no mechanical malfunction or failure was involved in the accident. He reported that he performed and signed off the aircraft's last condition inspection on August 27, 2001 (the day before the accident), that the accident flight was the aircraft's first flight since the condition inspection, and that the engine and airframe total time was 55 hours. According to the FAA aircraft registry, the aircraft received its experimental-category airworthiness certificate on October 18, 1999.

Review of hourly METAR weather observations at several nearby weather observation facilities near the reported time of the accident disclosed the following:

Pearson Field (VUO), Vancouver, Washington, at 1153: wind from 350 degrees true at 6 knots; clear skies with 10 statute miles visibility; temperature 22 degrees C; dewpoint 17 degrees C; altimeter setting 30.04 inches Hg.

Scappoose Industrial Airpark (SPB), Scappoose, Oregon, at 1153: wind from 360 degrees true at 7 knots; clear skies with 10 statute miles visibility; temperature 23 degrees C; dewpoint 16 degrees C; altimeter setting 30.04 inches Hg.

Portland International Airport (PDX), Portland, Oregon, at 1155: variable winds at 5 knots; few clouds at 3,500 feet; 10 statute miles visibility; temperature 22 degrees C; dewpoint 16 degrees C; altimeter setting 30.04 inches Hg.

Portland-Hillsboro Airport (HIO), Hillsboro, Oregon, at 1153: variable winds at 5 knots; few clouds at 3,100 feet; 10 statute miles visibility; temperature 24 degrees C; dewpoint 16 degrees C; altimeter setting 30.04 inches Hg.

Portland-Troutdale Airport (TTD), Troutdale, Oregon, at 1153: winds from 320 degrees true (variable between 290 and 350 degrees) at 7 knots; few clouds at 2,300 feet; 10 statute miles visibility; temperature 23 degrees C; dewpoint 16 degrees C; altimeter setting 30.03 inches Hg.

The pilot reported that the aircraft's maximum gross weight was 950 pounds, that its actual gross weight at the time of the accident was approximately 850 pounds, and that the aircraft's center of gravity (CG) at the time was in the center of its allowable envelope. The pilot also reported that the aircraft was equipped with a Mosler 74X engine rated at 74 HP. Based on the maximum gross weight and horsepower figures reported by the pilot, the aircraft's power loading at its maximum gross weight was computed by the NTSB investigator-in-charge to be 950/74 or 12.8 pounds/HP. According to performance specifications for the Kitfox Classic IV aircraft obtained from the SkyStar Aircraft Corporation website (www.skystar.com), the takeoff roll for a Kitfox Classic IV (maximum gross weight 1,200 pounds) equipped with an 80-HP Rotax 912 engine (corresponding to a power loading of 15.0 pounds/HP at maximum gross weight) is 250 feet, and its rate of climb is 1,200 feet per minute. The takeoff roll for the same aircraft equipped with a 100-HP Rotax 912S engine (power loading 12.0 pounds/HP at

maximum gross weight) is 250 feet, and its climb rate is 1,450 feet per minute. The stall speed of the Kitfox Classic IV aircraft with a Rotax 912 or 912S engine is given as 37 MPH.

According to the U.S. Government Airport/Facility Directory (A/FD), Goheen Airport runway 33 is a 2,600-foot by 50-foot turf runway. The A/FD airport remarks indicate that the runway surface is "uneven with an incline." The airport elevation is 285 feet above sea level.

Pilot Information

Certificate:	Private	**Age:**	51,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	January 3, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	October 1, 1999
Flight Time:	644 hours (Total, all aircraft), 55 hours (Total, this make and model), 604 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Shank	**Registration:**	N2136F
Model/Series:	Kitfox Model II	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	385
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	August 27, 2001 Annual	**Certified Max Gross Wt.:**	950 lbs
Time Since Last Inspection:	0 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	55 Hrs	**Engine Manufacturer:**	Mosler
ELT:	Installed	**Engine Model/Series:**	74X
Registered Owner:	On file	**Rated Power:**	74 Horsepower
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:	VUO,25 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	152°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	331°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	22°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Battle Ground, WA (W52)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	11:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Goheen W52	**Runway Surface Type:**	Grass/turf
Airport Elevation:	285 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	33	**IFR Approach:**	None
Runway Length/Width:	2600 ft / 50 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	45.800834,-122.480384(est)

Administrative Information

Investigator In Charge (IIC):	Nesemeier, Gregg
Additional Participating Persons:	Robert J Bilak; FAA - Portland FSDO; Hillsboro, OR
Original Publish Date:	May 28, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=53128