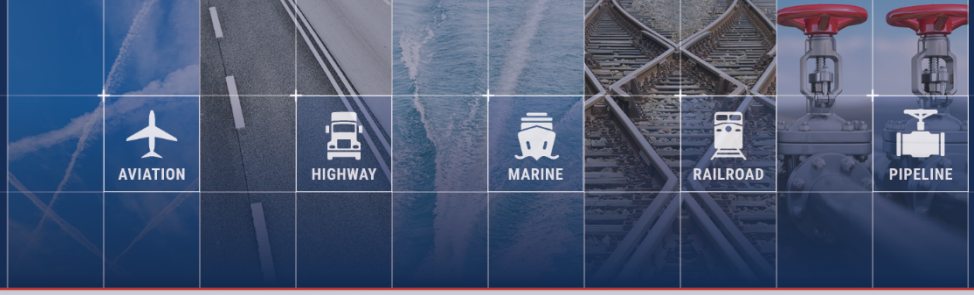

Aviation Investigation Final Report

Location:	Yellow Pine, Idaho	**Accident Number:**	WPR09LA343
Date & Time:	July 14, 2009, 10:10 Local	**Registration:**	N71BS
Aircraft:	Cessna U206G	**Aircraft Damage:**	Substantial
Defining Event:	Collision during takeoff/land	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

During a biennial flight review, at the suggestion of the evaluating instructor pilot, the Pilot-In-Command elected to land at a remote back-country airstrip where he had not made prior plans to land. After landing at the 800- to 900-foot-long strip, the pilot took off in the high-density-altitude environment without having first completed an aircraft performance calculation or checking his airplane's outside air temperature gauge. Although the pilot reported that there did not seem to be any issues with the engine producing full power, soon after liftoff the airplane struck a number of pine trees and descended into the terrain. A postaccident inspection of the airplane did not find any evidence of powerplant anomalies, but did reveal that the elevator trim was set at a five degrees tap up (airplane nose down) position, and that the flaps were extended 25 degrees even though the cockpit indicator indicated that they were at 20 degrees.

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 clearance from the trees while taking off in a high-density altitude. Contributing to the accident were the pilot's failure to perform pre-takeoff performance calculations, his positioning of the elevator trim in a nose-down position, and the discrepancy between the airplane's flap positioning lever and the actual position of the flaps.

Findings

Aircraft	TE flap position ind system - Malfunction
Aircraft	Elevator tab control system - Incorrect use/operation
Environmental issues	Tree(s) - Contributed to outcome
Aircraft	Altitude - Not attained/maintained
Environmental issues	High density altitude - Effect on operation
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Initial climb	Collision during takeoff/land (Defining event)
Initial climb	Collision with terr/obj (non-CFIT)

On July 14, 2009, about 1010 mountain daylight time, a Cessna U206G, N71BS, collided with trees just after taking off from a remote airstrip near, Yellow Pine, Idaho. The private pilot received minor injuries; his instructor pilot received serious injuries, and the airplane, which was owned by the private pilot, sustained substantial damage. The Title 14 Code of Federal Regulations, Part 91 Flight Review evaluation flight, was being conducted in visual meteorological conditions. The flight initially departed Hailey, Idaho, at 0750, and had landed at three other back-county airstrips prior to the accident. No flight plan had been filed.

According to the private pilot, who was acting as pilot-in-command (PIC), the purpose of the flight was for him to receive a signoff for a biennial flight review. Prior to landing at the strip where the accident took place, he and his instructor landed at three other "back-county" airstrips. Then as they flew near Yellow Pine, the instructor suggested to the PIC that they land at the Simonds Airstrip. Although the PIC had not planned to go into the 800 to 900 foot-long airstrip, had not been in there before, and had not familiarized himself with it prior to the flight, he elected to make the landing anyway. He said that he made that decision because one of the other airstrips he already landed at that day was about the same length.

The landing, which the PIC described as "routine," was made on the sloping rough surface of the runway, with the airplane coming to a stop near its uphill end. The two occupants then spent about four minutes discussing the landing and the upcoming takeoff and departure. The PIC then turned back onto the runway, adding power during the turn, and headed downhill for the takeoff.

According to the PIC, everything seemed normal until just after the airplane became airborne. At that point the amount of aft pressure he needed to apply to the control yoke to get the airplane to climb seemed to increase substantially. Then, no more than two seconds after passing the end of the runway, at about 50 feet above ground level (AGL), the airplane began to impact the tops of a group of dead standing pines, each of which had diameters of between six to ten inches. Soon thereafter the airplane descended rapidly into the terrain.

During a post-accident phone interview, the pilot said that the temperature at the time of the accident was between 50 and 60 degrees Fahrenheit, and the field elevation was 5,243 feet mean sea level (MSL). These ambient conditions resulted in a density altitude of about 6,300 feet (based upon 55 degrees). When asked if he had done any performance calculations prior to either the landing or takeoff, he stated that he had not. When asked if he had checked his

airplane's Outside Air Temperature (OAT) gauge prior to the takeoff, he said that he had not. During the same interview, the pilot said that he had landed at many of the back-country airstrips in the area over a period of many years, but would not have gone into this one except for the fact that the instructor suggested it.

During further discussions the PIC said that from the time he added power for the takeoff, until the plane started impacting the trees, he did not detect anything unusual about the engine, and that there had not been any missing, coughing sputtering, or rpm changes.

A post-accident inspection of the engine found fuel in the fuel pump, fuel distribution valve, and the fuel injector lines. Spark was produced at all spark leads by both of the magnetos. There was no evidence of engine anomalies or malfunctions that would have affected the performance of the airplane.

A post-accident inspection of the airframe found two issues of interest. The first was that the elevator trim had been set at the five degrees tab up (airplane nose down) position. The second was that although the flap position lever in the cockpit was in the 20 degrees extended position, the flap position jackscrew was determined to be extended 4.6 inches, which equates to a flap position of 25 degrees. According to Cessna Aircraft Company, both of these conditions may have contributed to the need for the pilot to apply more backpressure on the yoke just after liftoff than he had expected.

In further discussions with Cessna Aircraft Company it was determined that the discrepancy between the cockpit flap position indicator and the flap jackscrew was most likely from either 30 years of wear in the system since the airplane was manufactured in 1979, or as a result of adjustments made when the Supplemental Type Certificate (STC) which added the Short Takeoff and Landing (STOL) kit onto the airplane was performed.

In the pilot report that he submitted to the NTSB, the PIC stated, "For my airplane, this runway leaves too little margin for the unexpected." In addition, he stated that, "…it would have been helpful if the departure end trees were removed or shortened."

Pilot Information

Certificate:	Private	**Age:**	50,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	June 5, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 17, 2007
Flight Time:	1944 hours (Total, all aircraft), 1400 hours (Total, this make and model), 1944 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N71BS
Model/Series:	U206G	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	U20605307
Landing Gear Type:	Tricycle	**Seats:**	6
Date/Type of Last Inspection:	April 28, 2009 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2958 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	C126 installed, activated, aided in locating accident	**Engine Model/Series:**	IO 520 SERIES
Registered Owner:	SWANSON BLAKE J	**Rated Power:**	285 Horsepower
Operator:	SWANSON BLAKE J	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Yellow Pine, ID	**Type of Flight Plan Filed:**	None
Destination:	McCall, ID (KMYL)	**Type of Clearance:**	None
Departure Time:	10:10 Local	**Type of Airspace:**	

Airport Information

Airport:	Simonds Airstrip	**Runway Surface Type:**	Dirt
Airport Elevation:	5243 ft msl	**Runway Surface Condition:**	Dry;Rough
Runway Used:		**IFR Approach:**	None
Runway Length/Width:	900 ft / 37 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	44.979442,-115.460556(est)

Administrative Information

Investigator In Charge (IIC):	Anderson, Orrin
Additional Participating Persons:	Jack Pahlas; Federal Aviation Administration; Boise, ID
Original Publish Date:	March 3, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=74277