



National Transportation Safety Board Aviation Accident Final Report

Location:	Burley, ID	Accident Number:	WPR09LA323
Date & Time:	07/01/2009, 0930 MDT	Registration:	N87487
Aircraft:	REPUBLIC RC-3	Aircraft Damage:	Substantial
Defining Event:	Collision during takeoff/land	Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The student pilot reported that despite his request for the airplane to be refueled with 30 gallons of fuel prior to takeoff, the fixed base operator had filled the airplane with 67.7 gallons of fuel. The flight instructor reported that after the student pilot was notified that the airplane had been topped off with fuel, he "ran the numbers in [his] head and determined it would be fine because of the same conditions that were present" for takeoff from a different airport earlier in the day. The student pilot reported that while on the initial climb from the airport, the airplane stopped climbing and began to descend. At an altitude of 100 feet above ground level, the flight instructor took control of the airplane to ensure a proper climbout speed was maintained. The airplane continued to descend and collided with power lines. Subsequently, the airplane nosed over and impacted the ground in a vacant lot. A witness reported that the airplane slowly accelerated down the 4,067-foot-long runway and used approximately 85 to 90 percent of the available runway to become airborne. The witness observed the airplane "climbing at an extremely slow rate," and stated it appeared that "the pilot attempted to increase the rate of climb twice," which resulted in the airplane's "left wing starting to dip as it appeared to be approaching a stall." Examination of the airplane by a Federal Aviation Administration inspector revealed that the empennage had separated from the fuselage just aft of the cabin and that the rudder, vertical stabilizer, nose, and wings were structurally damaged. No mechanical anomalies were noted with the engine or airframe. Takeoff performance calculations for the reported weather conditions revealed that the airplane's required takeoff distance to clear a 50-foot obstacle was 3,921 feet on a paved surface.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's failure to maintain clearance from power lines during takeoff.

Findings

Aircraft	Climb rate - Not attained/maintained (Cause)
Personnel issues	Aircraft control - Instructor/check pilot (Cause)
Environmental issues	Wire - Contributed to outcome

Factual Information

On July 1, 2009, at 0930 mountain daylight time, a Republic RC-3 airplane, N87487, was substantially damaged when it struck power lines during takeoff initial climb from the Burley Municipal Airport (BYI), Burley, Idaho. The airplane was registered to and operated by the student pilot under the provisions of Title 14 Code of Federal Regulations Part 91. The certificated flight instructor sustained serious injuries and the student pilot sustained minor injuries. Visual meteorological conditions prevailed and no flight plan was filed for the cross-country flight. The instructional flight was originating at the time of the accident with an intended destination of Caldwell, Idaho.

In a written statement, the student pilot reported that upon arrival to a fixed base operator (FBO) located at BYI, the flight instructor requested that the airplane be serviced with 30 gallons of fuel. The flight instructor and student pilot then borrowed a "courtesy vehicle" and went to a nearby café for breakfast. The student pilot stated that upon returning to the airport, he "found that the attendant had serviced N87487 with 67.70gl [gallons] (full capacity) of fuel." The student pilot added that the flight instructor said "we should be ok" after he asked if there "was any way of siphoning out the excess fuel." The student pilot and flight instructor conducted a "quick preflight" prior to departure.

The student pilot further reported that prior to takeoff, "the engine sounded normal and the run-up went fine." After verifying the wind direction, the student pilot taxied to runway 24 and proceeded to take off. During the takeoff roll, the airplane became airborne about three-quarters of the way down the runway. As the airplane climbed to about 100 feet above ground level (agl), "it seemed like it wasn't climbing well." The flight instructor verified the throttle, mixture, and propeller control lever positions and noted "no change in the airplane's climb performance." The student pilot stated that the airplane overflew a set of trees and "started to settle as if the airplane was within dead air." Subsequently, the airplane struck a set of power lines about 60-feet in height, 0.7 miles west of the departure end of the runway and impacted the ground.

In a written statement, the flight instructor reported that prior to arriving at BYI they refueled at the Preston Municipal Airport (U10), Preston, Idaho. Prior to departing Preston, the flight instructor performed "a performance calculation to determine that the aircraft would perform at that runway and elevation." During the flight, he noticed the "fuel gauge was low" and decided to land in Burley "to put on some fuel." The flight instructor further reported that after the student pilot was notified that the airplane had been topped off with fuel, he "ran the numbers in [his] head and determined it would be fine because of the same conditions that were present at Preston, Idaho."

After completing a normal run up, the student taxied the airplane into position at the end of runway 24, ensuring to use all of the runway available. The flight instructor instructed the student to hold the brakes and verify that the engine was producing at least 2,300 rpm. As the airplane began the take off roll the flight instructor noted that all engine gauges were indicating normally. The student rotated the airplane at 70 miles per hour (mph) and continued to climb out at 80 mph. The flight instructor stated that upon reaching 100 to 150 feet agl, "the airplane quit climbing" as they maintained airspeed of 80 mph. Shortly after, the flight instructor observed the airspeed beginning to decrease and the airplane began to descend. The flight instructor took control of the airplane and told the student that there were power lines in their

flight path and to brace for impact. Subsequently, the airplane impacted the power lines and "pitched downwards directly into the vacant lot."

A witness, an airline transport rated pilot, who was located on the ramp of BYI, reported that the airplane appeared to be accelerating down runway 24 at a very slow rate. The witness estimated that the airplane used between 85 to 90 percent of the available runway before it rotated. The witness stated that the airplane was "climbing at an extremely slow rate." As the airplane was about one-quarter to one-half mile from the departure end of the runway, the witness estimated it was about 60 to 80 feet agl. The witness further reported that it appeared "the pilot attempted to increase the rate of climb twice," which resulted in the airplane's "left wing starting to dip as it appeared to be approaching a stall."

Examination of the airplane by a Federal Aviation Administration (FAA) inspector revealed that the empennage was separated from the fuselage aft of the cabin area. The vertical stabilizer and rudder were structurally damaged. Flight control continuity was established from the cockpit controls to all primary flight control surfaces. The engine remained attached to the airframe. Engine control continuity was also established and the positions of the controls matched the throttle and mixture controls in the cockpit. The inspector reported that the fuel samples taken from the aircraft and the refueling facility were free of contamination. Examination of the engine and airframe revealed no mechanical anomalies that would have precluded normal operation.

The Burley Municipal Airport's reported field elevation is 4,150 feet mean sea level (msl). Runway 24 is a 4,067-foot long and 75-foot wide asphalt runway, which features a 0.2 percent upward gradient.

The Automatic Surface Observation System (ASOS) at BYI reported at 0853, wind from 260 degrees at 7 knots, visibility 10 statute miles, few clouds at 11,100 feet agl, temperature 19 degrees Celsius, dew point 8 degrees Celsius, and an altimeter setting of 30.04 inches of Mercury.

Using a Safety Board computer program, the Safety Board investigator-in-charge (IIC) calculated the density altitude to be 5,581 feet and the pressure altitude to be 4,040 feet. Using the "Distance Required to Takeoff and Clear 50' Obstacle" performance chart for a Republic RC-3 equipped with a Franklin engine, reported weather conditions, reported weight of the airplane, and the calculated pressure altitude, the IIC calculated the distance required for take off and climb to clear a 50 ft obstacle was 3,921 feet on a paved runway surface with the landing gear down and flaps up. The published maximum gross weight of the airplane is 3,150 pounds. The student pilot and flight instructor reported that the weight of the airplane at the time of the accident was 3,150 pounds.

The Preston Airport (U10), Preston, Idaho, is at a recorded field elevation of 4,728 feet msl. U10 is equipped with two runways, 3/21, a 3,457-foot long asphalt runway, and 16/34, a 2,437 gravel runway. Both runways feature a 0.3 percent gradient. The closest weather reporting station to U10 was located 20 miles south at the Logan-Cache Airport, Logan, Utah. Recorded weather reports indicate that the morning of July 1, between 0451 to 0751, temperatures varied from 16 degrees Celsius and 18 degrees Celsius.

History of Flight

Initial climb Collision during takeoff/land (Defining event)

Student Pilot Information

Certificate:	Student	Age:	46, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without Waivers/Limitations	Last Medical Exam:	12/18/2007
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	23 hours (Total, all aircraft), 5 hours (Total, this make and model), 23 hours (Last 90 days, all aircraft)		

Flight Instructor Information

Certificate:	Airline Transport; Commercial	Age:	34, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	04/01/2009
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	04/21/2009
Flight Time:	3400 hours (Total, all aircraft), 6 hours (Total, this make and model), 60 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	REPUBLIC	Registration:	N87487
Model/Series:	RC-3	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	38
Landing Gear Type:		Seats:	4
Date/Type of Last Inspection:	06/26/2009, Annual	Certified Max Gross Wt.:	3150 lbs
Time Since Last Inspection:	15 Hours	Engines:	1 Reciprocating
Airframe Total Time:	1192 Hours	Engine Manufacturer:	FRANKLIN
ELT:	Not installed	Engine Model/Series:	6A8 SERIES
Registered Owner:	Ken Paulsen	Rated Power:	215 hp
Operator:	Ken Paulsen	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	BYI, 4150 ft msl	Observation Time:	0853 MDT
Distance from Accident Site:	1 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	0°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Few / 11000 ft agl	Temperature/Dew Point:	19° C / 8° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	7 knots, 260°	Visibility (RVR):	
Altimeter Setting:	30.04 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Burley, ID	Type of Flight Plan Filed:	Unknown
Destination:	Caldwell, ID (EUL)	Type of Clearance:	None
Departure Time:	0930 MDT	Type of Airspace:	

Airport Information

Airport:	Burley Municipal Airport (BYI)	Runway Surface Type:	Asphalt
Airport Elevation:	4150 ft	Runway Surface Condition:	Dry
Runway Used:	24	IFR Approach:	None
Runway Length/Width:	4067 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 Minor		

Administrative Information

Investigator In Charge (IIC):	Joshua Cawthra	Adopted Date:	03/03/2010
Additional Participating Persons:	Craig Carroll; Federal Aviation Administration; Boise, ID		
Publish Date:	03/03/2010		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=74183		

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