National Transportation Safety Board
Aviation Accident Final Report

Location:	Salt Lake City, Utah	**Accident Number:**	WPR15LA203
Date & Time:	June 30, 2015, 08:00 Local	**Registration:**	N6199D
Aircraft:	Beech C 99	**Aircraft Damage:**	Substantial
Defining Event:	Flight control sys malf/fail	**Injuries:**	2 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The commercial pilot and copilot reported that, after a normal start and taxi, the airplane was cleared for takeoff. The pilot reported that he began the takeoff roll and, once the airplane reached 100 knots, he rotated the airplane. He added that the airplane immediately experienced an uncommanded right yaw and that the right rudder pedal was "at the floor." Both pilots applied pressure to the left rudder pedal; however, the pedal barely moved. The pilot then tried to manipulate the rudder trim; however, the airplane continued to yaw right. He then manipulated the throttle controls and landed the airplane on the left side of the runway. The airplane remained difficult to control, and subsequently, the left landing gear collapsed, and the airplane slid to a stop on its left side.

Postaccident examination of the cockpit revealed that the rudder trim was fully trimmed to the nose-right position. Examination of the rudder and rudder trim assembly revealed no anomalies that would have precluded normal operation. The reason for the unmanageable right yaw could not be determined.

Probable Cause and Findings

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

The airplane's unmanageable right yaw during takeoff for reasons that could not be determined because postaccident examination of the rudder and rudder assembly did not reveal any anomalies that would have precluded normal operation.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	Yaw control - Not attained/maintained

Factual Information

History of Flight

Takeoff	Flight control sys malf/fail (Defining event)
Takeoff-rejected takeoff	Runway excursion
Takeoff-rejected takeoff	Abnormal runway contact

On June 30, 2015, about 0800 mountain daylight time, the pilots of a Beech C-99, N6199D, aborted takeoff at the Salt Lake City International Airport (SLC), Salt Lake City, Utah after experiencing a flight control malfunction shortly after liftoff. The two commercial pilots were uninjured and the airplane sustained substantial damage to the left wing. The airplane was registered to UAS Transervices Inc and operated by Ameriflight under the provisions of 14 Code of Federal Regulations Part 135. Visual meteorological conditions prevailed for the flight which operated on an instrument flight rules flight plan.

The pilots reported that after a normal start and taxi the airplane was cleared to takeoff. The airplane rolled down the runway and the pilot in command (PIC) rotated the airplane about 100 knots. Immediately, the airplane yawed to the right and the right rudder pedal was at the floor. The copilot did not note anything abnormal with the engines and instruments. Both pilots applied pressure to the left rudder pedal, however, the pedal barely moved. The PIC then manipulated the rudder trim, however, that also did not reduce the right yaw. He jockeyed the throttles and attempted to land the airplane back onto the runway. The airplane touched down onto the left side of the runway and the airplane remained difficult to control; the left landing gear collapsed and the airplane slid to a stop on its left wing.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	35
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	April 7, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 15, 2015
Flight Time:	1458 hours (Total, all aircraft), 151 hours (Total, this make and model), 1278 hours (Pilot In Command, all aircraft), 151 hours (Last 90 days, all aircraft), 81 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial	**Age:**	27
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	January 22, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	June 23, 2015
Flight Time:	953 hours (Total, all aircraft), 718 hours (Total, this make and model), 162 hours (Pilot In Command, all aircraft), 280 hours (Last 90 days, all aircraft), 116 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Pilot in Command (PIC)

The PIC held a commercial pilot certificate for airplane single- and multi-engine land with an instrument rating. The pilot also held an instructor certificate for airplane single- and multi- engine land. The pilot's most recent second-class airman medical certificate was issued on April 7, 2015 with the limitation that he must wear corrective lenses. At the time of the accident, the pilot had accumulated about 1,458 total flight hours, of which 151 hours were in the accident airplane make and model.

The pilot had been employed by the company since April 13, 2015 and was checked off to fly as a first pilot on May 15, 2015.

Copilot

The copilot held a commercial pilot certificate for airplane single- and multi-engine land with instrument rating. The pilot's most recent first-class airman medical certificate was issued January 22, 2015 with no limitations. At the time of the accident the pilot had accumulated about 952 total flight hours, of which 718 hours were in the accident airplane make and model.

The pilot was a part of a program where he is designated to fly about 750 hours with the operator to gain experience before he transitioned to a foreign airline.

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N6199D
Model/Series:	C 99	**Aircraft Category:**	Airplane
Year of Manufacture:	1981	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	U-169
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	June 28, 2015 AAIP	**Certified Max Gross Wt.:**	11300 lbs
Time Since Last Inspection:	0 Hrs	**Engines:**	2 Turbo prop
Airframe Total Time:	31957.2 Hrs as of last inspection	**Engine Manufacturer:**	Pratt and Whitney
ELT:	C91 installed, not activated	**Engine Model/Series:**	PT6
Registered Owner:		**Rated Power:**	715 Horsepower
Operator:		**Operating Certificate(s) Held:**	On-demand air taxi (135)

The two-seat, low-wing, retractable gear airplane, serial number U169, was manufactured in 1981. It was powered by two Pratt & Whitney PT6A 715 horsepower engines, and was equipped with Hartzell HC-B3TN-3B controllable pitch propellers. Review of the maintenance logbook records revealed the airplane's most recent maintenance was a routine examination that occurred on June 28, 2015, at an airframe total time of 31,957.2 hours. The accident flight was the first flight after maintenance.

The airplane's most recent maintenance was an "Event III and Routine Inspection," performed in accordance with the Ameriflight approved aircraft inspection program. During the inspection, the rudder pedals were removed from the pedal arms and the arm bolt holes were inspected for elongations and wear. The rudder control system components were also inspected throughout. The rudder free play limit check was performed, and all flight controls and tabs were checked for freedom of operations. There were no system anomalies documented within the maintenance log.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SLC,4227 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	07:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Broken / 14000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	28°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salt Lake City, UT (SLC)	**Type of Flight Plan Filed:**	IFR
Destination:	Ely, NV (ELY)	**Type of Clearance:**	IFR
Departure Time:	08:00 Local	**Type of Airspace:**	

At 0753, the weather at SLC was reported as wind from 160 degrees at 3 knots, visibility 10 statute miles, broken clouds at 14,000 feet above ground level (agl) and 22,000 feet agl, temperature 28 degrees C, dewpoint 12 degrees C, and an altimeter setting of 30.07 inches of mercury.

Airport Information

Airport:	Salt Lake City Intl Airport SLC	**Runway Surface Type:**	Asphalt
Airport Elevation:	4227 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	16L	**IFR Approach:**	None
Runway Length/Width:	12002 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	40.786388,-111.973335(est)

Due to the nature of the accident, an on scene examination was completed by the Federal Aviation Administration. The airplane came to rest about midway down the runway. Examination of the cockpit revealed the rudder trim was fully trimmed to the nose right position. The cargo was removed from the airplane; during the removal, it was noted that the cargo was secured in place and properly balanced.

Tests and Research

A postaccident examination of the airframe revealed that the rudder and rudder trim controls were properly rigged, and continuity was established. There was evidence of rubbing on the left rudder cable pulley located in the lower tail cone; however, there was no evidence of binding or jamming of the rudder control cables. Foreign object debris (FOD) was also noted underneath the fuselage floor; however, there was no evidence that the pieces interfered with the rudder control system.

The rudder pedals were tested and it was harder to move the left rudder pedal than the right pedal. It was noted that there was damage to the nose wheel which kept the wheel slightly turned to the right. The nose steering disconnect motor was removed and tested; it operated normally. The left and right rudder pedals were manipulated a second time, both pedals required similar pressure to move and the neutral positions were near neutral.

Administrative Information

Investigator In Charge (IIC):	Link, Samantha
Additional Participating Persons:	Scott Hartley; Federal Aviation Administration; Salt Lake City, UT Peter Basile; Textron Aviation; Wichita, KS Daniel Ho; Ameriflight LLC; Dallas-Fort Worth, TX
Original Publish Date:	June 14, 2017
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=91473

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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