

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA104	02/14/2017 1330 EST	Regis# N88EB	Columbus, OH	Apt: Bolton Field TZR
Acft Mk/Mdl BEECH D55		Acft SN TE-611	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL IO 520C		Acft TT 5356	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PILOT		Opr dba:		Aircraft Fire: NONE

Events

1. Takeoff - Loss of engine power (partial)

Narrative

On February 14, 2017, about 1330 eastern standard time, a Beech D55 airplane, N88EB, impacted runway 22 at the Bolton Field Airport (TZR), near Columbus, Ohio, following a loss of left engine power during takeoff. The pilot and pilot rated passenger were uninjured. The airplane sustained substantial fuselage and wing damage when the left main landing gear collapsed. The airplane was registered to Absten Aviation LLC and was operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Day visual meteorological conditions prevailed for the flight, which did not operate on a flight plan. The local flight was originating from TZR at the time of the accident.

According to information provided by a Federal Aviation Administration Inspector, the pilot seated in the left seat reported that he wanted to get current on his takeoffs and landings. He performed the taxi and takeoff procedure. The left seated pilot stated that after rotation, the airplane began to climb. About 50 feet above ground level, the left engine began to lose power and its rpm began dropping to around 1,700 rpm. He told the right seated pilot that he was giving him control of the airplane. The right seated pilot tried to land the airplane within the remaining runway. The left main landing gear struck hard on the runway. The right seated pilot was able to stop the airplane on the prepared runway surface. The pilots thought the tire had blown during the hard landing. However, the left main landing gear had collapsed.

According to the pilot in command's accident report, seconds after rotation when the airplane was about 12 feet above ground level and at minimum controllable airspeed (Vmc) "plus 3" the left engine had a "power loss." As emergency procedures were performed, the airplane drifted left of the runway where it reached a maximum height of 24 feet at a maximum speed of Vmc "plus 6." During a forced landing to last 1,500 feet of runway at 30-degree descent angle, the airplane sustained a hard landing. The airplane was steered on the ground back to the runway centerline. Upon brake application, the left upper strut housing failed and the left engine sustained a propeller strike. The airplane then skidded to stop on the centerline about 500 feet from the runway end with no fire or fluid leaks.

At 1349, the recorded weather at TZR was: Wind 260 degrees at 13 knots gusting to 24 knots; visibility 10 statute miles; sky condition clear; temperature 11 degrees C; dew point -2 degrees C; altimeter 29.81 inches of mercury.

A Federal Aviation Administration Inspector and an Air Safety Investigator from the engine manufacturer examined the wreckage. During the examination of the left engine, top spark plugs were removed and they exhibited dark combustion deposits with normal wear. All cylinders were inspected with a lighted bore scope and no anomalies noted. A thumb compression was obtained on all six cylinders when the engine was rotated. Additionally, engine continuity was established. No fuel was found in the engine fuel lines that were disconnected. The fuel supply line to the fuel manifold valve was disconnected and the left engine fuel boost pump pumped fuel from the left main fuel tank and the right main fuel tank in cross feed to the manifold valve. No anomalies were observed that would have prevented normal operations.

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Accident Rpt# GAA16CA519 09/16/2016 1400 PDT Regis# N168B Kooskia, ID Apt: Shearer /usfs/ 2U5
Acraft Mk/Mdl BEECH G35-NO SERIES Acft SN D-4453 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL IO-550-B Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: BECKER LARRY Opr dba: Aircraft Fire: NONE
AW Cert: STN

Summary

According to the pilot of the retractable landing gear airplane, his normal approach to the backcountry grass airstrip was to follow the terrain until established on a "5-10 second" final approach. The pilot recalled that there was a 5-knot tailwind at the airstrip during the approach. On final, he increased the flaps, the airspeed was 70 knots, and the airplane touched down on the approach end of the runway. He reported that he did not extend the retractable landing gear and that, following the touchdown, the airplane slid about 1,000 ft down the runway. The airplane sustained substantial damage to the fuselage longerons and the firewall.

The pilot reported that there were no mechanical failures or anomalies with the airframe or engine that would have prevented normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to extend the landing gear during landing.

Events

1. Landing-landing roll - Landing gear not configured
2. Landing-landing roll - Abnormal runway contact
3. Landing-landing roll - Loss of control on ground

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Use of equip/system-Pilot - C
2. Personnel issues-Action/decision-Action-Forgotten action/omission-Pilot - C
3. Aircraft-Aircraft systems-Landing gear system-Gear extension and retract sys-Not used/operated - C
4. Personnel issues-Task performance-Use of equip/info-Use of checklist-Pilot

Narrative

According to the pilot in the retractable landing gear airplane, his normal approach to the backcountry grass airstrip was to follow the terrain until established on a "5-10 second" final approach. The pilot recalled that there was a five-knot tailwind at the airstrip during the approach. On final, he increased the flaps, the airspeed was 70 knots, and the airplane touched down on the approach end of the runway. However, he reported that he did not extend the retractable landing gear and following the touch down, the airplane slid about 1,000 feet down the runway. The airplane sustained substantial damage to the fuselage longerons and the firewall.

The pilot reported that there were no mechanical failures or anomalies with the airframe or engine, that would have prevented normal operation.

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Accident Rpt# GAA17CA138	02/11/2017 1730 EST	Regis# N18PS	St. Petersburg, FL	Apt: Albert Whitted SPG
Acft Mk/Mdl BEECH T 34B-NO SERIES		Acft SN BG-327	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO-470 SER		Acft TT 4307	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JOHN KLINOWSKI		Opr dba:		Aircraft Fire: NONE
				AW Cert: STA

Summary

The pilot reported that, after maneuvering in the local area for about 45 minutes, he returned to his home airport for landing. During the final approach, the airplane sunk below the proper glidepath, and he increased the power three separate times, but the airplane continued to sink. Subsequently, the airplane struck a seawall located about 380 ft from the runway threshold, which resulted in the propeller separating from the propeller hub and the collapse of the landing gear.

The fuselage and both wings sustained substantial damage.

According to the Federal Aviation Administration Aviation Safety Inspector who interviewed the pilot after the accident, the pilot reported that the engine did not contribute to the accident.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain an appropriate glidepath to the runway.

Events

1. Approach-VFR pattern final - Attempted remediation/recovery
2. Approach-VFR pattern final - Loss of control in flight
3. Approach-VFR pattern final - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Descent/approach/glide path-Not attained/maintained - C
3. Environmental issues-Physical environment-Object/animal/substance-(general)-Contributed to outcome

Narrative

The pilot reported after maneuvering in the local area for about 45 minutes, he returned to his home airport for landing. He further reported that during the final approach, the airplane sunk below the proper glide path and he increased the power three separate times, but the airplane continued to sink. Subsequently, the airplane struck a seawall located about 380 feet from the runway threshold, which resulted in the propeller separating from the propeller hub and the collapse of the landing gear.

The fuselage and both wings sustained substantial damage.

According to a Federal Aviation Administration Aviation Safety Inspector who interviewed the pilot after the accident, the pilot reported that the engine did not contribute to the accident.

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Accident Rpt# GAA17CA071	11/14/2016 1530 PST	Regis# N120MD	Lincoln, CA	Apt: Lincoln Rgnl/karl Harder Field LHM
Acft Mk/Mdl CESSNA 120-NO SERIES		Acft SN 10770	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL C85-12F			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CHRISTOPHER BRAUN		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that, during the landing roll, the airplane veered to the right. He added that he attempted to correct the veer but was unsuccessful. The airplane continued to the right and exited the runway. During the runway excursion, the airplane nosed over.

The airplane sustained substantial damage to the right forward lift strut and empennage.

The pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain directional control during the landing roll, which resulted in a runway excursion.

Events

1. Landing-landing roll - Loss of control on ground
2. Landing-landing roll - Runway excursion
3. Landing-landing roll - Nose over/nose down

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C

Narrative

The pilot of the tailwheel-equipped airplane reported that during the landing roll the airplane veered to the right. He added that he attempted to correct the veer, but was unsuccessful. The airplane continued to the right and exited the runway. During the runway excursion, the airplane nosed over.

The airplane sustained substantial damage to the right forward lift strut and empennage.

The pilot reported no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

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Accident Rpt# GAA17CA156	02/24/2017 1520 EST	Regis# N77116	Orange, MA	Apt: Orange Muni ORE
Acft Mk/Mdl CESSNA 120-NO SERIES		Acft SN 11574	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-200-A		Acft TT 5466	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: FRANK J. KEEFE		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that, while attempting to land on the "grass portion of the runway" parallel to the paved runway, the ground was soft. Subsequently, the main wheels sunk into the ground, and the airplane nosed over.

The airplane sustained substantial damage to its right-wing lift strut and vertical stabilizer.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's selection of unsuitable terrain for landing, which resulted in a nose-over.

Events

1. Landing - Loss of control on ground
2. Landing - Nose over/nose down

Findings - Cause/Factor

1. Aircraft-Aircraft systems-Landing gear system-Wheel/ski/float-Capability exceeded - C
2. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - C
3. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
4. Environmental issues-Physical environment-Terrain-Wet/muddy terrain-Decision related to condition - C
5. Environmental issues-Physical environment-Runway/land/takeoff/taxi surface-Soft surface-Decision related to condition - C
6. Environmental issues-Physical environment-Terrain-Wet/muddy terrain-Effect on operation
7. Environmental issues-Physical environment-Runway/land/takeoff/taxi surface-Soft surface-Effect on operation

Narrative

The pilot of the tailwheel equipped airplane reported that while attempting to land on the "grass portion of the runway", parallel to the paved runway, the ground was soft. Subsequently, the main wheels sunk into the ground and the airplane nosed over.

The airplane sustained substantial damage to its right-wing lift strut and vertical stabilizer.

The pilot reported that there were no pre-accident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

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Accident Rpt# CEN17LA153	04/12/2017 1215 CDT	Regis# N95551	La Porte, TX	Apt: La Porte Municipal Airport T41
Acft Mk/Mdl CESSNA 152		Acft SN 15285919	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING 0-235			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name:		Opr dba:		Aircraft Fire: NONE
				AW Cert: STU

Events

1. Approach-VFR pattern final - Loss of engine power (partial)

Narrative

On April 12, 2017, about 1215 central daylight time, a Cessna 152 airplane, N95551, was substantially damaged when it nosed over following a forced landing at the La Porte Municipal Airport (T41), La Porte, Texas. The commercial pilot was not injured. The flight test flight was conducted under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. Visual meteorological conditions prevailed. The local flight departed about 1150.

According to the Federal Aviation Administration inspector who took the notification, during a low approach to runway 23, the engine lost power. The airplane landed on the remaining runway, however, the pilot was unable to stop the airplane and the airplane overran the runway. The airplane encountered soft ground and the nose wheel dug into the ground. The airplane nosed over resulting in substantial damage to the empennage and firewall.

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Accident Rpt# ERA16CA303	07/01/2016 1300 EDT	Regis# N4916B	Augusta, ME	Apt: Augusta State AUG
Acft Mk/Mdl CESSNA 152G		Acft SN 15283704	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-235-L2C		Acft TT 13499	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: UNIVERSITY FLYING CLUB		Opr dba:		Aircraft Fire: NONE
				AW Cert: STU

Events

2. Approach-VFR go-around - Abnormal runway contact

Narrative

The pilot was taking his private pilot checkride, and was demonstrating a short field landing. During the landing the wind was gusty and he decided to go around. During the go-around, the left wing dropped and struck the runway. The Designated Pilot Examiner (DPE) took control of the airplane and completed the go-around. He then returned control of the airplane to the pilot, and the pilot then performed another short field landing with a full stop. After the full stop landing, he taxied to the fixed base operator (FBO) at the airport, and he and the DPE exited the aircraft and went into the FBO to complete the paperwork for the check ride. After the DPE had completed the paperwork, the pilot returned to the airplane with the intent to fly back to his home airport. During his preflight inspection he noticed that the wing was damaged. Examination of the damage by a Federal Aviation Administration inspector revealed that both wing spars were substantially damaged.

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Accident Rpt# GAA17CA141	02/13/2017 1450 MST	Regis# N1421D	Wheatland, WY	Apt: Phiefer Airfield KEAN
Acft Mk/Mdl CESSNA 170-A		Acft SN 20134	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR C-145-2		Acft TT 2619	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ED SNELL		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The flight instructor in the tailwheel-equipped airplane reported that, during the landing roll, as soon as the tailwheel touched the runway, the airplane veered to the right. He added that he attempted to recover by applying full left rudder, left brake, and right aileron, but the left wing impacted the ground as the airplane exited the runway to the right. Subsequently, the airplane nosed over.

The airplane sustained substantial damage to the right wing lift strut, both wings, and empennage.

The flight instructor reported that skid marks on the runway indicated that the tailwheel was not rolling freely. He added that, during a postaccident inspection, the left brake pedal went to the lower limit on an initial depression, but later held brake pressure during a second depression. He reported that he would not have been able to recover the airplane back to centerline because of the initial brake pressure response.

Further, the flight instructor reported that, about 10 minutes before the accident, the wind was 310ø at 13 knots, gusting to 19 knots.

In a followup e-mail, the flight instructor reported that there were no brake or tailwheel anomalies noted during the run-up or departure. He also reported that the student pilot did not make any noticeable control inputs during the landing sequence.

The Federal Aviation Administration inspector reported that, during a postaccident examination of the airplane 2 days after the accident, he "saw nothing abnormal with the brakes," and he added that the tailwheel was turning.

The airplane landed on runway 26. An online commercial weather service provider reported that a nearby station, about 2 minutes before the accident, reported wind 010ø at 21 mph, gusting to 24 mph.

The passenger in the rear seat provided a video showing the landing roll from the rear seat looking forward. Both the right and left control yokes can be seen, but the rudder pedals cannot be seen. During the beginning of the sequence, the instructor, in the right seat, had his right hand on the control yoke, and the student, in the left seat, had his left hand on the control yoke. Right aileron was applied. During the landing roll, the student added his right hand to the control yoke, and as the airplane veered to the right, left aileron was applied. The camera panned to the left as the right wing lifted and the left wing impacted the ground. The airplane veered left, then nosed over.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The flight instructor's incorrect compensation for the gusting crosswind during the landing roll, which resulted in a loss of directional control and runway excursion.

Events

1. Landing-landing roll - Loss of control on ground
2. Landing-landing roll - Attempted remediation/recovery
3. Landing-landing roll - Runway excursion
4. Landing-landing roll - Nose over/nose down

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C
2. Environmental issues-Conditions/weather/phenomena-Wind-Crosswind-Response/compensation - C
3. Environmental issues-Conditions/weather/phenomena-Wind-Gusts-Response/compensation - C
4. Personnel issues-Task performance-Use of equip/info-Aircraft control-Instructor/check pilot - C
5. Aircraft-Aircraft systems-Landing gear system-Brake-Malfunction

Narrative

The flight instructor in the tailwheel equipped airplane reported that during the landing roll, as soon as the tailwheel touched the runway, the airplane veered to the right. He added that he attempted to recover by applying full left rudder, left brake, and right aileron, but the left wing impacted the ground as the airplane exited the runway to the right. Subsequently, the airplane nosed over.

The airplane sustained substantial damage to the right wing lift strut, both wings, and empennage.

The flight instructor reported that skid marks on the runway indicated that the tailwheel was not rolling freely. He added that during a postaccident inspection,

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the left brake pedal went to the lower limit on an initial depression, but later held brake pressure during a second depression. He reported that he would not have been able to recover the airplane back to centerline because of the initial brake pressure response.

Further, the flight instructor reported that about 10 minutes prior to the accident, the wind was 310ø true at 13 knots, gusting to 19 knots.

In a follow-up email correspondence, the flight instructor reported that there were no brake or tailwheel anomalies noted during the run-up or departure. He also reported that the student pilot did not make any noticeable control inputs during the landing sequence.

The Federal Aviation Administration (FAA) Inspector reported that during a postaccident inspection of the airplane two days after the accident, he "saw nothing abnormal with the brakes". He further reported that the tailwheel was turning.

The airplane landed on runway 26. An online commercial weather service provider, reported that a nearby station, about 2 minutes before the accident, reported wind 010ø at 21 miles per hour (mph), gusting to 24 mph.

The passenger in the rear seat provided a video showing the landing roll from the rear seat looking forward. Both the right and left control yokes can be seen, the rudder pedals cannot be seen. During the beginning of the sequence the instructor, in the right seat, had his right hand on the control yoke, and the student, in the left seat, had his left hand on the control yoke. Right aileron was applied. During the landing roll, the student added his right hand to the control yoke, and as the airplane veered to the right, left aileron was applied. The camera panned to the left as the right wing lifted and the left wing impacted the ground. The airplane veered left, then nosed over.

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Accident Rpt# ERA16CA277	06/29/2016 1500 EDT	Regis# N288GB	Gray, GA	Apt: N/a
Acft Mk/Mdl CESSNA 172		Acft SN 17249244	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL O-300-D		Acft TT 3456	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PATRICK MCLAUGHLIN		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The commercial pilot, his passenger, and his 80- to 100-lb dog were on a cross-country flight and had just leveled off at 2,500 ft when the engine suddenly stopped producing power. The pilot was unable to restart the engine and made a forced landing to a field. During the landing, the airplane struck a tree and a fence, which resulted in substantial damage to the firewall, fuselage, and wings.

Postaccident examination of the airplane revealed the right fuel tank had 15 gallons of fuel in it and that the left tank was empty. The fuel selector valve was found between the "left" and "both" tank positions. The front right seat had been removed before the flight to accommodate the pilot's dog, who sat on the floor during the flight. The pilot said he departed with the fuel selector valve in the "both" position, but during the flight, the dog must have inadvertently moved the valve's handle toward the "left" tank position, which resulted in the loss of engine power due to fuel exhaustion. A functional check of the fuel selector valve revealed no mechanical issues, and the valve seated securely into each detent. The pilot reported that there were no mechanical deficiencies with the engine that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to properly manage the available fuel supply, which resulted in a total loss of engine power due to fuel starvation.

Events

1. Enroute - Loss of engine power (total)
2. Emergency descent - Loss of engine power (total)
3. Landing-landing roll - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid management - C
2. Personnel issues-Task performance-Use of equip/info-Use of equip/system-Pilot - C

Narrative

The commercial pilot, his passenger, and his 80 to 100 lb dog, were on a cross country flight and had just leveled off at 2,500 ft when the engine suddenly stopped producing power. The pilot was unable to re-start the engine and made a forced landing to a field. During the landing the airplane struck a tree and a fence resulting in substantial damage to the firewall, fuselage, and wings. A postaccident examination of the airplane revealed the right fuel tank had 15 gallons of fuel in it and the left tank was empty. The fuel selector valve was found between the "left" and "both" tank positions. The front right seat had been removed prior to the flight to accommodate the pilot's dog, who sat on the floor during the flight. The pilot said he departed with the fuel selector valve in the "both" position but during the flight the dog must have inadvertently moved the valve's handle toward the "left" tank position, which resulted in the loss of engine power due to fuel exhaustion. A functional check of the fuel selector valve revealed no mechanical issues and the valve seated securely into each detent. The pilot reported there were no mechanical deficiencies that would have precluded normal operation of the engine at the time of the accident.

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Accident Rpt# GAA16CA286	06/06/2016 1200 PDT	Regis# N539MT	Arlington, WA	Apt: Arlington Muni AWO
Acft Mk/Mdl CESSNA 172-D		Acft SN 17249604	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A4M		Acft TT 4741	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: MISSION AVIATION TRAINING ACADEMY		Opr dba:		Aircraft Fire: NONE AW Cert: STN

Events

1. Landing-landing roll - Landing gear collapse

Narrative

According to the pilot of the tri-cycle landing gear-equipped airplane, he made a normal landing, but the airplane began to veer left of the centerline during the landing roll. He corrected with right rudder and heard a "thump" as if something affixed to the airplane was being dragged and the rudder steering became ineffective. He recalled that with constant hard right rudder input, coupled with dynamic braking, he turned the airplane to the right, the nose landing gear collapsed, and the airplane skidded to a stop. The airplane sustained substantial damage to the firewall.

The photographs provided by the Federal Aviation Administration (FAA) Inspector revealed that the right steering rod end had failed. Photographs also revealed that the bolts of the nose gear firewall mount were pulled from the firewall. The nose gear assembly had rotated more than 90° to the left and was found underneath the fuselage.

The NTSB Investigator-in-charge asked that the two additional airplanes in the operator's inventory be inspected. The operator found that the steering rod ends of the inspected airplanes, were bent and showed signs of cracking between the threads. The steering bungees were visually inspected; however, they could not be thoroughly inspected without damaging the component.

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Accident Rpt# ERA15FA203	05/03/2015 1134 EDT	Regis# N3969L	Penn Yan, NY	Apt: Penn Yan PEO
Acft Mk/Mdl CESSNA 172-G		Acft SN 17254138	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-300		Acft TT 4625	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: SEELY STEVEN P		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Initial climb - Loss of control in flight

Narrative

HISTORY OF FLIGHT

On May 3, 2015, at 1134 eastern daylight time, a Cessna 172G, N3969L, impacted terrain and an airport perimeter fence during initial climb at Penn Yan Airport (PEO), Penn Yan, New York. The airplane was being operated as a 14 Code of Federal Regulations Part 91 personal flight. The student pilot was fatally injured, and the airplane sustained substantial damage. Visual meteorological conditions prevailed at PEO about the time of the accident, and no flight plan was filed. The flight originated from Finger Lakes Regional Airport (0G7), Seneca Falls, New York, about 1115.

On the morning of the accident, the pilot contacted flight service and requested a weather briefing for a flight from PEO to Oswego County Airport (FZY), Fulton, New York, departing about 0730 and returning about 1100. The briefer advised the pilot of the current conditions at PEO and FZY, the forecast sky conditions for the area, and the NOTAMs applicable for the proposed flight.

Review of airport security video footage showed that the accident airplane began taxiing at PEO about 0800. Data downloaded from a handheld GPS receiver recovered from the accident site showed that the device began recording on the morning of the accident at 0818. The airplane's first recorded position was about 22 nautical miles (nm) northeast of PEO, roughly along a course line between PEO and FZY. Over the next 17 minutes, three additional positions were recorded, the last of which was at 0835 and showed the airplane about 3 nm south of FZY. The next position was recorded at 0944 and showed the airplane about 2 nm southwest of FZY. Over the next 17 minutes, three additional positions were recorded; the last recorded position showed the airplane about 5 nm northeast of 0G7.

The airplane arrived at 0G7 on the morning of the accident, and the student pilot spoke with his mechanic. According to the mechanic, he and the pilot discussed an ongoing issue with the airplane involving water contamination of its fuel. The pilot and mechanic then drained about 1 quart of fuel through the fuel strainer before it was clear of water. At the pilot's request, the mechanic inspected the airplane's right main landing gear, relubricated the wheel bearings, and reinstalled the wheel and tire. The mechanic noted no discrepancies with the landing gear, wheel, or brakes during his inspection. The mechanic stated that the pilot departed 0G7 about 1100 and planned to return to PEO. After departure, three GPS positions were recorded starting at 1117; the first recorded position showed the airplane about 1.5 nm southwest of 0G7, and the final position, which was recorded at 1129, showed the airplane about 2 nm southeast of PEO.

Airport security video footage from PEO showed a high-wing airplane on approach to runway 19 at 1131. During a second approach to the runway at 1134, the airplane crossed the runway threshold at a significantly higher altitude than during the first approach. Review of the videos could not determine whether the airplane touched down during either of the approaches, based on the viewing angle of the camera.

A pilot-rated witness observed the accident airplane in the traffic pattern for runway 19 before the accident. Regarding the second approach, he stated that, as the airplane turned left from the base leg of the traffic pattern, it was in a "very aggressive slip." About the same time, he observed the windsock and estimated the wind to be from about 320° and "greater than 10 knots." He stated that, while on final approach, the airplane appeared to be "high and fast." He estimated it was about 100 to 150 ft above the ground as it crossed over the runway threshold, and it then appeared to "float" down the runway. He then lost sight of the airplane behind terrain and obstructions. He realized that the airplane had crashed when he saw first responders arriving at the airport several minutes later. He noted that, during the landing approach, the flaps appeared to be fully extended, the propeller was rotating, and the engine sounded as if it was at idle speed.

Another witness was located on a golf course adjacent to the airport near the midpoint of runway 19. When he first saw the airplane, it was almost abeam his position adjacent to the runway, and it looked like it was taking off. He added that the engine sounded "normal," and the climb appeared normal from the time the airplane lifted off until it reached about 50 ft. At that point, the airplane began climbing at a faster rate than it had been previously and then banked left. The airplane also appeared to be higher and climbing faster than other airplanes he had previously observed about the same location. He added that the airplane then descended while continuing the left banking arc, as if the left wing was "tied to the ground with a string."

PERSONNEL INFORMATION

The pilot held a student pilot certificate and Federal Aviation Administration (FAA) third-class medical certificate, which was issued on January 20, 2014. The medical certificate was issued with the limitation, "Must wear corrective lenses." The pilot's flight logs were not recovered.

According to the pilot's flight instructor, the pilot had completed some initial flight instruction in an airplane that belonged to a local flying club. The pilot began flight training with the flight instructor about 1 year before the accident, and all of their flights were in the accident airplane. The flight instructor endorsed the pilot for solo flight around October 2014. After completing additional dual instructional and solo flights, the pilot took a hiatus from flying during the winter, and they began their training again in March 2015. At that time, the flight instructor provided the pilot with an additional 90-day solo endorsement. The flight instructor had not yet provided the pilot with an endorsement to fly to airports other than PEO and was not previously aware that the pilot had flown his airplane solo to FZY and 0G7 on the morning of the accident. The flight instructor estimated that the pilot had accumulated 40 total hours of flight experience.

The flight instructor reported that the pilot generally performed well landing the airplane but that landings were his weakest area. During their training, they practiced performing go-arounds from a full-flap configuration, and the pilot excelled at it. The flight instructor also thought it was important to fly with the pilot in strong crosswinds, and as such, the additional challenge of these conditions delayed his initial solo. By the time the pilot did solo, the flight instructor had confidence in his ability to handle crosswinds, and, recently, his landings had greatly improved. Their last flight together was on April 29, and it was a cross-country flight to Zelenople, Pennsylvania. The flight instructor stated that, during all of his flights in the accident airplane, he did not note any mechanical discrepancies.

AIRCRAFT INFORMATION

According to FAA registration records, the pilot purchased the accident airplane in May 2014. A review of maintenance logbooks revealed that new main and nose landing gear tires were installed on May 15, 2014, at an airframe total time of 4,558 flight hours. The airplane's most recent annual inspection was completed on August 17, 2014, at an airframe total time of 4,575 flight hours and 784 hours since the engine's most recent overhaul. An airframe maintenance log entry made the day of the accident noted that the right main landing gear wheel bearing and brake pads were installed, and that the wheel bearing was regreased and then reinstalled. At the time of the accident, the airframe had accumulated 4,625 total flight hours.

METEOROLOGICAL INFORMATION

The 1135 weather observation at PEO included wind from 310° at 8 knots, 10 statute miles visibility, clear skies, temperature 73° F, dew point 37° F, and an altimeter setting of 30.08 inches of mercury.

AIRPORT INFORMATION

Runway 19 at PEO was 5,499 ft long and 100 ft wide. The approach end of the runway had an elevation of 916 ft, and the departure end of the runway had an elevation of 987 ft, or a 1.4% gradient. A two-light precision approach path indicator was available at both runway ends.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest upright with the right wing resting on the airport perimeter fence, about 300 ft left of the runway centerline and about 2,800 ft from the runway 19 approach threshold. All of the major components of the airplane were accounted for at the accident site. Areas of disturbed soil and intermittent ground scars extended from the initial impact point oriented on a magnetic heading of 145°. A piece of left wing navigation light was located in the wreckage path about 20 ft from the initial impact point. About 15 ft further down the path, a ground scar was found oriented 90° to the path, about the length of the propeller diameter and the width of a propeller blade. About 2 ft further down the path was an impact crater that was 3 ft wide and 8 ft long and contained paint chips and windscreen fragments, followed by the main wreckage, which came to rest oriented on a magnetic heading of about 340°.

The propeller remained attached to the crankshaft flange, and both blades displayed s-bending, chordwise scratching, and leading-edge gouging. The engine remained partially attached to the firewall by its mounts. The nose landing gear was fractured and separated from the airplane at the firewall attachment point, consistent with impact. The nose section from the firewall forward had separated from the fuselage on both sides, and the windscreen was fractured and

separated from the fuselage. The outboard portion of the left wing was deformed upward and displayed aft crush damage, consistent with ground contact. The right wing displayed a concave depression and was deformed aft beginning outboard of the wing strut.

First responders reported that, upon their arrival, they observed fuel leaking from the left wing near the vent tube and that they subsequently drained about 7 gallons of fuel from the left wing and about 10 gallons of fuel from the right wing. Fuel samples from both tanks displayed a color and odor consistent with automotive gasoline. A trace amount of water was detected in the sample from the left wing and in fuel recovered from the carburetor float bowl.

Flight control continuity was established from each control surface to the cockpit area. The elevator trim tab actuator position was consistent with 5ø to 10ø of tab deflection in the nose-up direction. The flap actuator extension was measured and found in a position consistent with a 40ø flap extension. The front seat tracks and seat roller brackets for both seats were checked for wear and found to be within prescribed limits. The left seat positioning rod was found bent forward about 1 inch from the engagement end.

The engine crankshaft was rotated by hand at the propeller flange, and continuity was confirmed from the valve and powertrains to the rear accessory gears. The oil screen and paper oil filter element were unobstructed and free of metallic contamination. The spark plugs were removed, and the No. 6 cylinder plugs displayed black-colored, carbon-type fouling. Thumb compression was confirmed on all cylinders. The fuel strainer screen and carburetor inlet screen were free of debris. The carburetor floats were intact, and both displayed concave, inward, uniform deformation. The magnetos were removed and actuated by hand, and spark was observed at each of their respective terminal leads.

MEDICAL AND PATHOLOGICAL INFORMATION

The Geneva General Hospital Laboratory, Geneva, New York, performed an autopsy of the pilot. The reported cause of death was "crash related injuries." The autopsy report also identified significant coronary artery disease with a heart weight of 510 grams. The right ventricle was 0.5 centimeter (cm) thick, and the left ventricle was 1.5 cm thick. In addition, all three main coronary arteries were narrowed at least 50% and up to 75% by atherosclerosis, but there were no areas of scarring from previous heart attacks. The liver and stomach were also mildly inflamed.

The FAA's Civil Aerospace Medical Institute performed toxicological testing on specimens from the pilot. The results were negative for ethanol, carbon monoxide, and drugs.

ADDITIONAL INFORMATION

According to the 1966 Cessna Model 172 and Skyhawk Owner's Manual, "Slips are prohibited in full flap approaches because of a downward pitch encountered under certain conditions of airspeed and sideslip angle." Additionally, the manual stated that "In a balked landing (go-around) climb, the wing flap setting should be reduced to 20ø immediately after full power is applied," and that "Flap settings of 30ø to 40ø are not recommended at any time for takeoff."

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA16CA496	08/30/2016 1100	Regis# N734AV	Delta, UT	Apt: Delta Muni DTA
Acft Mk/Mdl CESSNA 172-N		Acft SN 17268710	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A4M		Acft TT 11228	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: UPPER LIMIT AVIATION, INC.		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

According to the student pilot, following the first leg of his solo cross-country flight, he entered the traffic pattern to land on runway 17 "because other traffic was using runway 17 even though winds were 050ø at 3 knots."

He reported that, as the airplane approached the runway, the airspeed was too high, and the airplane landed hard on the nosewheel and porpoised. He conceded, "I knew it was a hard landing, but did not hear the prop strike occur."

The student pilot departed the airport and accomplished two approaches and a landing at a third airport before returning to his home airport where he accomplished two approaches, a landing, and then taxied to parking.

The student pilot reported that he could have prevented the accident by performing a go-around when he realized that his approach speed was too high. The airplane sustained substantial damage to the firewall.

The student pilot reported that there were no mechanical malfunctions or anomalies with the engine or airframe that would have prevented normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The student pilot's improper landing flare, which resulted in a hard, porpoised landing.

Events

1. Landing-flare/touchdown - Hard landing
2. Landing-flare/touchdown - Attempted remediation/recovery
3. Landing-flare/touchdown - Abnormal runway contact

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Student/instructed pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Landing flare-Not attained/maintained - C
3. Environmental issues-Conditions/weather/phenomena-Wind-Tailwind-Effect on equipment

Narrative

According to the student pilot, following the first leg of his solo cross-country flight, he entered the traffic pattern to land on runway 17; "because other traffic was using runway 17 even though winds were 050ø at 3 knots".

He reported that as the airplane approached the runway, the airspeed was too high, and the airplane landed hard on the nose wheel and porpoised. He conceded, "I knew it was a hard landing, but did not hear the prop strike occur."

The student pilot departed the airport, and accomplished two approaches and a landing at a third airport, before returning to his home airport where he accomplished two approaches, a landing, and then taxied to parking.

The student pilot reported that he could have prevented the accident by performing a go around when he realized that his approach speed was too high. The airplane sustained substantial damage to the firewall.

The student pilot reported that there were no mechanical malfunctions or anomalies with the engine or airframe prior to the landing that would have prevented normal flight operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA069	11/04/2016 1600 EDT	Regis# N456SP	Danville, KY	Apt: Stuart Powell Field DVK
Acft Mk/Mdl CESSNA 172-S		Acft SN 172S8320	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360-L2A			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: MIKE PRATT		Opr dba: LOUISVILLE AVIATION		Aircraft Fire: NONE
				AW Cert: STN

Summary

The solo student pilot reported that, while on final approach following a cross-country flight, he experienced what felt like a down draft or wind shear. The airplane touched down hard on the runway, bounced, and on the second touchdown, the nosewheel impacted the surface first. The student pilot taxied the airplane to the ramp without further incident.

Postaccident examination of the airframe and engine revealed substantial damage to the firewall.

The student pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

A review of recorded data from the automated weather observation station located on the airport revealed that, about 5 minutes before the accident, the wind was 040ø at 5 knots. The airplane landed on runway 30.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The student pilot's improper landing flare, which resulted in a hard landing.

Events

1. Landing - Hard landing

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Landing flare-Incorrect use/operation - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Student/instructed pilot - C
3. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Student/instructed pilot - C
4. Environmental issues-Conditions/weather/phenomena-Wind-Crosswind-Effect on equipment

Narrative

The solo student pilot reported that while on final approach following a cross country flight, he experienced what felt like a down draft or wind shear. The airplane touched down hard on the runway, bounced, and on the second touchdown, the nose wheel impacted the surface first. The student pilot taxied the airplane to the ramp without further incident.

A postaccident examination of the airframe and engine revealed substantial damage to the firewall.

The student pilot reported no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

A review of recorded data from the automated weather observation station located on the airport, revealed that, about 5 minutes before the accident the wind was 040ø at 5 knots. The airplane landed on runway 30.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA154	02/19/2017 1445 EST	Regis# N123GT	Bally, PA	Apt: Butter Valley Golf Port 7N8
Acft Mk/Mdl CESSNA 180-H		Acft SN 18051689	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-470-R		Acft TT 2674	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JEFFERY L. SCHULTZ		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that, during takeoff, the airplane encountered a wind gust and veered to the left. He corrected with right rudder and left aileron, and the airplane veered to the right. Subsequently, the airplane exited the runway to the right, the left main landing gear sheared off, and the airplane impacted two trees.

The airplane sustained substantial damage to the fuselage, empennage, and left wing.

The pilot reported there were no preaccident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

A review of local weather at the airfield about the time of the accident showed the wind was 300ø at 10 knots. The pilot was departing on runway 34.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain directional control during takeoff in crosswind conditions.

Events

1. Takeoff - Loss of control on ground
2. Takeoff - Attempted remediation/recovery
3. Takeoff - Runway excursion
4. Takeoff - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Crosswind correction-Not attained/maintained - C
3. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
4. Environmental issues-Conditions/weather/phenomena-Wind-Crosswind-Effect on operation
5. Environmental issues-Physical environment-Object/animal/substance-Tree(s)-Contributed to outcome

Narrative

The pilot of the tailwheel equipped airplane reported that during takeoff the airplane encountered a gust of wind and veered to the left. He corrected with right rudder and left aileron, and the airplane veered to the right. Subsequently, the airplane exited the runway to the right, the left main landing gear sheared off, and the airplane impacted two trees.

The airplane sustained substantial damage to the fuselage, empennage and left wing.

The pilot reported there were no pre-accident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

A review of local weather on the airfield about the time of the accident showed, the wind was 300ø at 10 knots. The pilot was departing on runway 34.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA129	01/26/2017 1730 CST	Regis# N38EE	Midland, TX	Apt: Midland Intl MAF
Acft Mk/Mdl CESSNA 182-N		Acft SN 18260257	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl TELEDYNE/ CONTINENTAL IO-550-D		Acft TT 3564	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ROBERT ANDERSON		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The solo student pilot reported that, after completing maneuvers in the local area, he returned to his home airport and was cleared for a straight-in approach. During touchdown, the nosewheel and propeller struck the runway hard, and the airplane bounced. During the second bounce, he increased power to abort the landing but was unsuccessful due to the damaged nosewheel and propeller. Subsequently, the student pilot stopped the airplane on the runway. The airplane sustained substantial damage to the firewall and fuselage. The student pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The student pilot's improper landing flare, which resulted in a bounced landing.

Events

1. Landing-flare/touchdown - Abnormal runway contact

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Student/instructed pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Landing flare-Not attained/maintained - C

Narrative

The solo student pilot reported that after completing maneuvers in the local area, he returned to his home airport and was cleared for a straight-in approach. The student pilot further reported that during touchdown, the nose wheel and propeller struck the runway hard and the airplane bounced. During the second bounce, he increased power to abort the landing, but was unsuccessful due to the damaged nose wheel and propeller. Subsequently, the student pilot stopped the airplane on the runway.

The firewall and fuselage sustained substantial damage.

The student pilot did not report any preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16CA229	06/23/2016 1025 EDT	Regis# N892BV	Crystal River, FL	Apt: Crystal River Airport CGC
Acft Mk/Mdl CESSNA 182T-T		Acft SN 18281329	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-540-AB1A5		Acft TT 1040	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: GD AVIATION, INC.		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot stated that she had executed four full-stop, taxi-back landings to runway 09 and one full-stop, taxi-back landing to runway 27. She departed runway 27, remained in the traffic pattern for that runway, but while on short final approach, she realized that the airplane was lined up with the taxiway. She maneuvered to the left in an attempt to salvage the approach, and the airplane then touched down and bounced. The airplane travelled off the left side of the runway onto grass and collided with a ditch, which resulted in substantial damage to the firewall. The pilot reported that there were no preimpact mechanical malfunctions or failures with the airplane that would have precluded normal operation. She also stated that the accident could have been prevented if she had conducted a go-around.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to execute a go-around following an unstabilized approach, which resulted in a bounced landing and runway excursion.

Events

1. Approach-VFR pattern final - Abrupt maneuver
2. Landing-flare/touchdown - Abnormal runway contact
3. Landing-flare/touchdown - Runway excursion
4. Landing-landing roll - Loss of control on ground
5. Landing-landing roll - Collision with terr/obj (non-CFIT)
6. Landing-flare/touchdown - Landing gear collapse

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Descent/approach/glide path-Not attained/maintained - C
2. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - C
3. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
4. Environmental issues-Physical environment-Terrain-(general)-Contributed to outcome

Narrative

The pilot stated that she had executed four full-stop taxi back landings to runway 09, and one full-stop taxi back landing to runway 27. She departed runway 27, remained in the traffic pattern for that runway, but while on short final approach realized she was lined up with the taxiway. She maneuvered to the left in an attempt to salvage the approach, and touched down then bounced. The airplane travelled off the left side of the runway onto grass and collided with a ditch, resulting in substantial damage to the firewall. The pilot reported that there were no preimpact mechanical malfunctions or failures with the airplane that would have precluded normal operation. She also stated that the accident could have been prevented by execution of a go-around.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA16CA503	09/21/2016 1745 AKD	Regis# N5892T	Fairbanks, AK	Apt: N/a
Acft Mk/Mdl CESSNA 185-D		Acft SN 185-0792	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL IO-470F		Acft TT 5916	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: MICHAEL PALM		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

According to the pilot of the tailwheel-equipped airplane, he and his passenger waited most of the day for the 30-knot wind to subside before departing the 1,200-ft-long dirt and grass airstrip.

He reported that the wind velocity had decreased to 10 knots and that he had calculated that, with the 10-knot headwind, the airplane would rotate about 700 ft down the runway. The pilot monitored the wind via ribbons placed at various locations around the airstrip. During takeoff, the airplane rotated about 700 ft down the runway and climbed to about 8 ft above the ground. The pilot stated that it "then it felt like we lost our lift." The pilot recalled that there wasn't enough runway remaining to land and that there was a brush-covered bank at the departure end of the runway. The airplane started to settle to the ground, and although operating at full power and on the cusp of a stall, they cleared the bank. Beyond the bank, the pilot landed the airplane on a short sand bar, but the airplane overran the sand bar and impacted several large rocks.

After exiting the airplane, the pilot noticed that he had departed with an 8- to 10-knot tailwind. The airplane sustained substantial damage to the left-wing strut, the aileron, the horizontal stabilizer and the elevator.

The pilot reported that there were no mechanical malfunctions or anomalies with the airframe or engine that would have prevented normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to recognize he was taking off with a tailwind and his inadequate compensation for taking off with a tailwind, which led to the airplane's failure to attain a climb and a subsequent forced landing.

Events

1. Takeoff - Other weather encounter
2. Takeoff - Loss of lift
3. Initial climb - Attempted remediation/recovery
4. Landing-landing roll - Collision with terr/obj (non-CFIT)
5. Landing - Off-field or emergency landing

Findings - Cause/Factor

1. Personnel issues-Action/decision-Info processing/decision-Identification/recognition-Pilot - C
2. Environmental issues-Conditions/weather/phenomena-Wind-Tailwind-Effect on equipment - C
3. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
4. Environmental issues-Conditions/weather/phenomena-Wind-Tailwind-Response/compensation - C
5. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Climb rate-Not attained/maintained - C
6. Environmental issues-Physical environment-Object/animal/substance-Debris/dirt/foreign object-Contributed to outcome

Narrative

According to the pilot of the tailwheel-equipped airplane, he and his passenger waited for the majority of the day for the 30-knot wind to subside before departing the 1,200-ft. dirt and grass airstrip.

He reported that the wind velocity had decreased to 10 knots and that he had calculated that with the 10-knot headwind, the airplane would rotate about 700 feet down the runway. The pilot monitored the wind via ribbons placed at various locations around the airstrip.

He reported that during takeoff the airplane rotated about 700 feet down the runway, and climbed to about 8 feet above the ground; "then it felt like we lost our lift". The pilot recalled that there wasn't enough runway remaining to land, and there was a brush covered bank at the departure end of the runway.

He reported that the airplane started to settle to the ground, and although operating at full power and on the cusp of a stall, they cleared the bank. Beyond the bank, the pilot landed the airplane on a short sand bar, but the airplane overran the sand bar and impacted several large rocks.

National Transportation Safety Board - Aircraft Accident/Incident Database

The pilot reported that after exiting the airplane, he noticed that he had departed with an 8-10 knot tailwind. The airplane sustained substantial damage to the left-wing strut, the aileron, the horizontal stabilizer and the elevator.

The pilot reported that there were no mechanical malfunctions or anomalies with the airframe or engine that would have prevented normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ANC15FA049	07/17/2015	1318 AKD	Regis# N62AK	Juneau, AK	Apt: N/a
Acft Mk/Mdl CESSNA 207A			Acft SN 20700780	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO-520-F			Acft TT 26613	Fatal 1 Ser Inj 4	Flt Conducted Under: FAR 135
Opr Name: SEA PORT AIRLINES, INC			Opr dba: WINGS OF ALASKA		Aircraft Fire: NONE
					AW Cert: STN

Events

1. Enroute-cruise - Controlled flight into terr/obj (CFIT)

Narrative

HISTORY OF FLIGHT

On July 17, 2015, about 1318 Alaska daylight time, a Cessna 207A airplane, N62AK, sustained substantial damage following an in-flight collision with tree-covered terrain about 18 miles west of Juneau, Alaska. The commercial pilot sustained fatal injuries, and four passengers sustained serious injuries. The flight was being operated as flight 202 by SeaPort Airlines, Inc., dba Wings of Alaska, as a 14 Code of Federal Regulations (CFR) Part 135 visual flight rules (VFR) scheduled commuter flight. (Wings of Alaska has been sold and is currently under different ownership.) Visual meteorological conditions were reported at the Juneau International Airport at the time of departure. A company flight plan had been filed, and company flight-following procedures were in effect. Flight 202 departed the Juneau Airport about 1308 for a scheduled 20-minute flight to Hoonah, Alaska.

On the day of the accident, the pilot arrived at the company office in Juneau about 1200. The accident flight was the pilot's first scheduled flight of the day. The company flight coordinator on duty at the time told the pilot that most flights to Hoonah were cancelled in the morning due to poor weather conditions and that one pilot had turned around due to weather. The flight coordinator said that the weather had started lifting around 1000 and that the first flight to Hoonah had departed at 1045. He suggested that the accident pilot talk with the pilot who had just returned. The dispatch group had a shift change between the time the accident pilot came on duty and when the pilot departed. The company flight coordinator on duty at the time of the accident only communicated with the pilot when she reported taxiing off the ramp for departure. No weather information was discussed, and no further radio communications were received from the pilot by the company.

According to Juneau Air Traffic Control Tower (ATCT) personnel, the pilot requested and received taxi clearance to depart for the 20-minute VFR flight to Hoonah at 1306. The flight was cleared for takeoff about 2 minutes later by the ATCT specialist on duty with no reported problems. About 15 minutes later, Juneau Police dispatchers received a 911 cell phone call from a passenger on board stating that the airplane had crashed.

During an interview with one of the surviving passengers, who was sitting directly behind the pilot, he stated that the pilot seemed normal during the preflight and briefing. After takeoff, the turbulence was heavy, and there were layers of fog and clouds and some rain. He had taken this flight numerous times and thought that the flight route that the pilot was taking was somewhat unusual. Before the impact, he thought that the pilot was trying to climb over the approaching mountain and skirt between a layer of clouds. He saw the trees coming at the windshield, and the pilot jerked back on the controls, and then he heard a "loud boom." The next thing that he remembered was sitting outside the airplane. He said that there were no unusual sounds from the engine and that the airplane appeared to be flying normally before the impact.

Automatic dependent surveillance-broadcast (ADS-B) data received by the Anchorage ATCT showed the following:

At 1308:09, the accident airplane took off from JNU.

At 1312:33, the accident airplane started a northwesterly turn around the west side of Portland Island at an ADS-B reported altitude of 825 ft mean sea level (msl).

At 1314:20, the accident airplane began a turn to a westerly heading at an ADS-B reported altitude of 825 ft msl.

At 1316:25, the accident airplane crossed the western shoreline of Admiralty Island at an ADS-B reported altitude of 675 ft msl and continued on a constant heading until the last ADS-B point was recorded.

The last ADS-B point was received at 1317:27, when the airplane was over Lynn Canal, about 1 mile from the eastern shoreline of the Chilkat mountain range

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at an ADS-B reported altitude of 525 ft msl. The last 30 seconds of the flight was missing from the ADS-B data.

PERSONNEL INFORMATION

The pilot, age 45, held a commercial pilot certificate with airplane single-engine land and sea, multiengine land, and instrument ratings. The pilot was issued a first-class airman medical certificate on April 9, 2015, with the limitation that she "must wear corrective lenses."

Company training records indicated that the pilot completed basic indoctrination on May 25, 2015, and initial ground training on June 2, 2015. Ground training curriculum was completed in two locations: Portland, Oregon, and Juneau. The pilot's most recent Part 135 proficiency checks (135.293 (a) (b) and 135.299) were completed in the Cessna 207 on June 12, 2015. Company records indicated that she had a total time of 840 flight hours.

The base chief pilot, who provided about half of the accident pilot's flight training, said that she was very good on systems but that she needed a few additional hours of flight training and initial operating experience before he was comfortable signing her off. He noted that the one thing that he really liked about her was that she wasn't afraid of turning around if she was uncomfortable. He did not notice any negative attitudes or habits with her flying.

The pilot's normal shift was the p.m. shift, which typically began at 1200 and ended at 2200. The pilot's flight and duty time records indicated that, the day before the accident, she flew 3.7 hours and then went off duty at 2200. The accident flight was the pilot's first flight of the day.

In June 2015, the pilot was on duty for 27 days, flew about 23 hours, and had 3 days off. In July 2015, the pilot was on duty for 11 days, including the day of the accident; flew about 41 hours; and had 6 days off. The pilot had not had a day off in the 72 hours preceding the accident flight. During that time, she flew a total of 19 flight segments, totaling 9.4 hours, not including the accident flight.

The pilot's roommates and family members reported no unusual activity in the 72 hours preceding the accident. However, in an interview with the pilot's sister, she said that the pilot had told her about an incident that had happened 2 or 3 weeks before the accident where she had gotten into a bad storm during a flight. The pilot said that she and her passengers were praying together to get through the weather and that eventually she saw the runway and was able to land the airplane uneventfully. Other than this event, the accident pilot never mentioned to her sister any concerns about flying for the company for which she worked.

AIRCRAFT INFORMATION

The accident airplane, a Cessna 207A, N62AK, was manufactured in 1984. Before the accident flight, the airplane had logged a total time in service of 26,613.1 flight hours. The airplane was maintained under a 100-hour/annual inspection program, and the most recent 100-hour inspection of the airframe and engine was on July 6, 2015.

The airplane was equipped with a Continental Motors IO-520-F 285-horsepower reciprocating engine. The engine was factory rebuilt on June 16, 2015; installed on the airplane July 14, 2015; and had accumulated about 8.2 hours of operation before the accident flight.

METEOROLOGICAL INFORMATION

The area forecast issued by the National Weather Service Alaska Aviation Weather Unit (AAWU) at 1210 included an AIRMET for mountain obscuration due to clouds and precipitation, and the AIRMET was valid at the accident site at the accident time. The area forecast mentioned scattered clouds at 1,200 ft msl with broken to overcast ceilings at 2,000 ft msl with cloud tops to flight level 250 and an occasional broken ceiling at 1,200 ft msl with 5 miles visibility and light rain. Isolated instrument flight rules (IFR) conditions were also forecast with rain and mist. The AAWU weather charts produced at 1200 indicated that the accident site was on the boundary of marginal VFR to IFR conditions with isolated moderate low-level turbulence between the surface and 6,000 ft msl.

The closest official weather observation station is Juneau, which is located about 18 miles east of the accident site. At 1253, a METAR was reporting, in part, wind 110ø at 14 knots; visibility 7 statute miles in light rain and mist; clouds and ceiling 200 ft few, 3,500 ft overcast; temperature 57ø F; dew point 55ø F; altimeter 30.24 inches of Mercury.

Numerous Federal Aviation Administration (FAA) weather cameras are located in the vicinity of the Juneau Airport. Images from several of the cameras closest to the pilot's flight route were obtained for the period from 1100 to 1600 on the day of the accident. Figure 1 shows an image that was taken about 5 minutes

before the estimated accident time, facing the direction of the accident location. (Refer to the Meteorology Group Chairman's Factual Report in the public docket for further weather information and weather camera images.)

No record was found indicating that the pilot used the company computer to review weather information before the flight nor of her having received or retrieved any weather information before the flight. The flight coordinator did not review weather camera images with the accident pilot before the flight and had no further communication with the pilot about the weather.

FLIGHT RECORDERS

The accident airplane was not equipped, nor was it required to be equipped with, a cockpit voice recorder or a flight data recorder.

WRECKAGE AND IMPACT INFORMATION

On-scene examination revealed that the airplane impacted a large spruce tree at an elevation of about 1,250 ft msl. After the initial impact, the airplane fuselage separated into two pieces. The forward section of the airplane, consisting of the cockpit and engine, separated just forward of the main landing gear assembly and came to rest inverted about 50 ft forward of the initial impact point; the cockpit survivable space was severely compromised. The remaining section, consisting of the main cabin, wings, and empennage, came to rest inverted just below the initial impact point. The wreckage path was on a magnetic heading of about 215ø and oriented uphill. The trees surrounding the accident site were on average over 100 ft tall.

The wreckage was recovered from the accident site on July 20, 2015, and placed in a secure hangar at the Juneau Airport. The National Transportation Safety Board (NTSB) investigator-in-charge (IIC), FAA IIC, a Textron Aviation air safety investigator, and a party representative from the operator examined the airplane on July 20 and 21.

The fuselage and engine compartment forward of fuselage station (FS) 65.33 was separated from the main fuselage and was found inverted 50 ft from the main fuselage. Both crew seats were observed in the forward fuselage. The engine remained in the forward fuselage. Both wings remained attached to the main fuselage. The left pilot's door had separated from the fuselage and was in the trees. The right passenger door had separated from the forward fuselage. The forward section of the cargo door remained attached to the fuselage. The aft section of the cargo door was separated from the fuselage. The empennage remained attached to the main fuselage and exhibited tree impact damage from FS 168.0 to 210.6. The outboard section of the right horizontal stabilizer from stabilizer station (SS) 54.4 outboard was not found. A section of the right elevator from SS 35.9 outboard was separated from the elevator and found at the main impact site.

The left wing had a large tree impact mark near wing station (WS) 56.53, which displaced the leading edge back to the main spar and displaced the main spar aft about 10 inches. The flap and aileron remained attached to the wing.

The right wing had a tree impact mark near WS 85.62, which displaced the leading edge back to the main spar. The leading edge was damaged from right WS 136.00 to the tip. The outboard section of the right wing from WS 172.00 to the tip and aileron were displaced upward. The flap and aileron remained attached to the wing.

The aileron direct cable to the left wing was found with the ball end pulled out of the control pulley. The cable was continuous out to the left aileron bellcrank. The aileron crossover cable was continuous to the right aileron bellcrank. The right direct cable was continuous from the right aileron bellcrank to a tension overload separation in the doorpost area.

The elevator cables were attached to the elevator torque tube and extended to about FS 95.33 where they exhibited a tension overload type separation. The elevator cables were attached to the aft elevator bellcrank and extended forward to about FS 95.33 where they exhibited a tension overload type separation. The elevator trim cables exhibited a tension overload type separation. The elevator trim tab actuator rod was observed extended the full length of the rod, and when slightly turned, the rod separated from the actuator.

Both rudder cables were attached to the rudder bars in the cockpit and exhibited a tension overload type separation near FS 59.70. The aft section of each rudder cable was attached to the rudder, and the rudder actuated when the cables were moved.

The flap actuator was observed in the "up" position. The flap follow up/indicator cable was stretched during the accident sequence. The indicator was observed in the "full flaps down" position, and the flap handle was in the "10ø" position. The cables from the left wing to the right flap were attached.

The fuel strainer was removed from the airplane, and it contained fuel. A sample could not be obtained due to the position of the strainer in the wreckage. Air was passed through both the left and right wing vent systems. Both fuel caps on both wings were observed installed on their filler necks, and their seals were pliable.

The restraint systems of both crew seats consisted of compatible Cessna and Air Carriers Interiors, Inc., Kent, Washington, parts. Both of the crew seats remained partially attached to the seat tracks. The pilot's seat was equipped with an SEB07-5 Pilot and Copilot Secondary Seat Stop Installation.

All the passenger seats were separated from the seat tracks. Rescue personnel removed some of the seats from the airplane during the rescue. Several of the passenger seats exhibited damage to the seat base and attachment feet.

No preaccident anomalies were noted with the airframe that would have precluded normal operation.

MEDICAL AND PATHOLOGICAL INFORMATION

The State of Alaska Medical Examiner, Anchorage, Alaska, conducted an autopsy of the pilot. The cause of death for the pilot was attributed to "multiple blunt force injuries."

The FAA's Civil Aerospace Medical Institute performed toxicological testing on specimens from the pilot on September 9, 2015, which were negative for carbon monoxide and ethanol. The toxicological testing detected Valsartan in the pilot's urine and blood. Valsartan is a prescription medication used to treat high blood pressure. The pilot reported the use of this medication on her last application for an airman medical certificate.

SEARCH AND RESCUE

About 1336, the US Coast Guard (USCG) in Alaska received a 406-megahertz emergency locator transmitter (ELT) signal assigned to the accident airplane. At 1421, after being notified of an overdue airplane and after learning about reports of an ELT signal along the accident pilot's anticipated flight route, search and rescue personnel from the USCG Air Station Sitka began a search for the missing airplane. About 1650, the crew of a USCG HH-60 helicopter located the airplane's wreckage in an area of mountainous, tree-covered terrain. A rescue swimmer was lowered to the accident site and discovered that the pilot had died at the scene and that the four other occupants had survived the crash. The four survivors were hoisted aboard the HH-60 helicopter in two trips and then transported to Juneau.

SURVIVAL ASPECTS

All four passengers in the main cabin survived the accident. After the initial impact, the fuselage section, consisting of the main passenger cabin, fell straight down the trunk of the tree and came to rest inverted. The cabin's structure remained relatively intact with sufficient survivable space.

The pilot, who was in the cockpit, sustained fatal injuries. The forward fuselage and cockpit separated from the main fuselage and traveled about 50 yards forward before impacting in an inverted position. The survivable space in the cockpit was severely compromised.

TEST AND RESEARCH

The engine was shipped to Anchorage, and on August 17, 2015, it was tested and run at the Alaskan Aircraft Engines facility. The engine was placed on a test stand with a replacement propeller.

Before the engine test, fuel was noted leaking from the fuel-metering plug retention screw on the fuel-metering unit when the electric boost pump was used to prime the engine. The fuel leak was not noticeable during the engine test, and further examination of the leak showed that the screw was likely fractured during the accident sequence.

The engine started on the first attempt with no hesitations or anomalies noted. The engine was run for about 8 minutes through various power settings, including full power, with no anomalies noted.

ORGANIZATIONAL AND MANAGEMENT INFORMATION

At the time of the accident, SeaPort Airlines was operating 21 airplanes, of which 5 were based in Juneau. The company employed about 80 pilots and had bases in Juneau; Portland; Memphis, Tennessee; and San Diego, California.

Operational Control

The FAA issued Operations Specifications Paragraph A008, "Operational Control," to SeaPort Airlines on January 21, 2011, and it stated, in part, the following:

(1) Reference AJAA GOM [General Operations Manual] Section A and L

SeaPort Airlines GOM section A, as referenced above, contains policies for Operational Control, but does not explain the procedures utilized for the initiation or conduct of flight movements. The policies contained in this section are a restatement of the certificate holder responsibilities listed on Operations Specifications Paragraph A008.

SeaPort Airlines GOM section L, as referenced above, contains the procedures for conducting flight locating, but does not contain procedures for the initiation or conduct of flight movements.

The SeaPort GOM, Section A, which described the company's organization, including its organizational chart, and the duties and responsibilities of managers, stated, in part, the following:

- SeaPort Airlines, Inc. operational control system includes a system of ensuring that SeaPort Airlines, Inc. has complete, effective, and sustainable operational control over each aircraft operated, and that no surrender or loss of operational control exists.

- Operational Control is the exercise of authority over initiating, conducting or terminating a flight. Operational Control includes, but is not limited to the following:

All flights operated by SeaPort Airlines, Inc. will be initiated, conducted or terminated only by those having been given operational control authority of SeaPort Airlines, Inc. as described in our General Operations Manual. Prior to any 135 flight or series of flight, at least the PIC [pilot-in-command] assigned must determine, whether the flight can be initiated, conducted, or terminated safely and in accordance with SeaPort Airlines, Inc. operation specifications, manuals, and regulations.

However, a review of the SeaPort GOM that was in effect at the time of the accident did not reveal any policies and procedures for initiation and conduct of flights.

A company representative stated that all the people listed in Flight Operations Bulletin 4-15, "Operational Control Personnel," were authorized to exercise operational control, including initiating or terminating flights. This list included the director of operations (DO), chief pilot, director of systems operation control (SOC), base and assistant base chief pilots, director and assistant director of maintenance, dispatchers (flight coordinators), and the company president; the list did not include PICs as approved operational control personnel.

The Flight Operations Bulletin and the Seaport GOM, Section A.2, stated, the following:

- Any of the above personnel may be responsible for the control of flight operations under FAR [Federal Aviation Regulations] 135.77 at any given time. These individuals are qualified through training, experience, and expertise (ref. 119.69(d)(1))

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(Refer to the Operations Group Chairman's Factual Report in the public docket for further information regarding operational control.)

Dispatcher (Also referred to as "Flight Coordinators") Duties and Training

The GOM, Section A.4.10, stated the following regarding dispatcher training:

Operations personnel, as referred to in this manual, are also known as dispatchers. Prior to service, they must have received training and be knowledgeable of the General Operations Manual, Operation Specifications, Minimum Equipment List, and Operational Control policies and procedures of SeaPort Airlines, Inc.

Specific responsibilities and duties of the dispatcher include, but are not limited to, the following:

- Schedule flights and assist pilots in flight preparation by gathering and disseminating pertinent information for all stations regarding weather or runway conditions and any information deemed necessary for the safety of flight.
- Ensure that the pilot is qualified and current in the assigned aircraft.
- Monitor pilot flight and duty time records to ensure they are in compliance with FAR 135.263, .265, .267, as applicable.
- Monitor pilot status board to ensure pilots meet the requirements of FAR 135.293, .297, and .299, as applicable.
- Monitor pilot status board to ensure pilots' medicals are current.

In an interview, the flight coordinator that provided the accident pilot her "duty-on" briefing the day of the accident stated that there was no formal classroom training for flight coordinators and only on-the-job training, which consisted of shadowing a flight coordinator, followed by performing the duties while being observed.

In an interview, the DO stated that there was no formalized training program for flight coordinators but that it was a 4- to 6-week process, largely comprising on-the-job training. He also stated that he was unaware of there being any specific training documentation forms to keep track of training.

In an interview, the director of SOC stated that the flight coordinators in Portland were trained for Alaska-specific items, such as weather cameras, flight risk assessment (FRA) forms, and unique weather patterns, but that "at the end of the day, it's still Caravans or Cessnas flying up a canal." When asked about recurrent training for flight coordinators, he stated that, although they completed annual training, there was nothing documented at the time and nothing Juneau-specific.

The director of SOC later stated that he maintained dispatcher training records for the Medallion safety program and that the records were located in Portland. The NTSB received a copy of the dispatcher training forms on November 23, 2015. The records contained training certificate forms for the dispatcher that provided the accident pilot her "duty-on" briefing, the dispatcher on duty at the time of the accident, and several other dispatchers. Numerous training dates and certification signatures on the forms were inconsistent with information provided to the NTSB during interviews with SeaPort personnel. (Refer to the Operations Group Chairman's Factual Report in the public docket for further information regarding flight coordinator training and documentation.)

Flight Risk Assessment

SeaPort Airlines implemented an FRA process for Alaska operations. The use of the FRA process was not elaborated upon in the GOM; however, the GOM assigned responsibility for the FRA to the PIC and director of flight control, which was changed to the director of SOC in Flight Operations Bulletin 4-15.

The SeaPort GOM, Section A.4.7, stated that one of the duties of the PIC was to complete an FRA, if applicable, before the flight to determine the risk level associated with the flight. To satisfy this requirement, pilots were to complete the FRA form during flight planning and to provide the completed forms to the

flight coordinator before flight.

The FRA form applied numerical values to certain situations/circumstances, including, in part human, destination, and weather factors. According to the FRA form, risk values of 0 to 20 were considered a low risk factor and required only pilot and SOC concurrence. Risk values of 21 to 35 were classified as a risk factor of "caution," which required management notification. Risk values of 36 to 45 were classified as "medium risk," which required management approval. Risk values of 46 and higher were classified as "high risk," which required mitigation or flight cancellation. The pilot also had to complete a section listing the proposed true airspeed and altitude.

At the time of the accident, flight coordinators and PICs were required to sign off on the FRA form. The FRA form was part of the company's operational control and flight release system and was provided to the FAA, but it was not incorporated into the GOM, training program, or other company manuals. In an interview, the company president stated that the use of the FRA form was limited to Alaska and was used as part of the Medallion program. Although the form was not described in the GOM, it was intended to be used for every flight.

The flight coordinator who was on duty at the time of the accident stated that the PIC would complete the FRA form and fax it to the SOC. The coordinator's job was to just make sure the form "looked good." If management notification was required, he would sign that block on the form. He stated that he would only inform management if their approval was required as determined by a risk value between 36 and 45.

The flight coordinator who provided the accident pilot her "duty-on" briefing stated that, after a pilot completed the FRA form, sometimes the pilot would fax it to the SOC, and sometimes the form would be maintained in Juneau. If he saw one on the fax machine at the SOC, he would glance over it to determine if he agreed with the values and would hold onto it for his own records because he was not required to do anything specific with the forms. He further stated that he received no training on the use of the FRA form. The accident pilot did not submit an FRA form before departing on the accident flight.

The NTSB Operational Factors Group obtained three FRA forms dated June 9, 2015. This date was selected due to the existence of marginal VFR weather conditions in the Juneau area that day. A review of the forms revealed that all three of them were incomplete or incorrectly completed. Three of the forms were not signed off by the flight coordinator. Two of the forms did not follow the guidance at the top of the page that stated the lowest total for any section could be 0 and that no negative values could be entered. Also, the same two forms required management notification; however, there was no notation indicating that management was notified.

The NTSB Operational Factors Group also obtained 11 FRA forms dated August 20, 2015. Three of the forms were incorrect or incomplete. A review of one of the forms revealed that it was incomplete and that it listed a proposed altitude of "1000 hopefully" for a flight requiring the crossing of a channel about 2.5 nautical miles wide at the narrowest point. Additionally, the pilot entered a negative value for the section labeled "destination factors" and omitted a 2-point value from the human factors section titled "ADO and ACP not on duty," which every other pilot who completed an FRA that day applied to their score. The pilot assessed a total risk value of 17. However, when the omitted 2-point value was added and the negative "destination factors" value was removed, the total risk value was 21, which would have required management notification.

Another FRA by the same pilot who filled out the three incorrect or incomplete forms discussed above also contained assigned values inconsistent with the guidance provided at the top of the page. Also, for proposed true airspeed and altitude, a question mark was entered. (Refer to the Operations Group Chairman's Factual Report in the public docket for further information regarding FRAs.)

FAA Oversight

FAA Order 8900.1, Volume 3, Chapter 25, Section 5, 3-2029, K, stated, in part:

Only approved persons may exercise operational control on the certificate holder's behalf.

The certificate holder must have adequate controls in place to ensure that officials in a position of authority over flights conducted under the certificate do so safely, and in compliance with the regulations, OpSpecs, GOM, as applicable, and accepted or approved procedures.

Management of operations should never be inattentive, distracted, or careless. Hands-off management is not a legitimate excuse for failing to maintain operational control.

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The FAA front line manager responsible for the SeaPort Airlines certificate was the principal operations inspector (POI) for SeaPort Airlines until January 2015. During postaccident interviews, when asked if he knew the ceiling and visibility requirements for Part 135 flights over open water, he stated that SeaPort Airlines used the minimum regulatory standard and did not have company minimums in place. He said that in reference to power-off gliding distance to shore, there was a regulatory standard that had to be met. Cloud ceilings of 500 feet and 2 miles visibility would not allow for power-off glide to land, but that they had to meet the regulation. He stated that it was a changing number and up to the pilot to decide. When asked if he believed the practice of allowing the pilot to decide was adequate, he said it was not and there should have been route altitudes.

Title 14 CFR 135.183, "Performance Requirements: Land Aircraft Operated Over Water," stated, in part, the following:

No person may operate a land aircraft carrying passengers over water unless it is operated at an altitude that allows it to reach land in the case of an engine failure, or it is necessary for takeoff or landing.

A chart located in the Pilot's Operating Handbook of the accident airplane titled Maximum Glide showed that following an engine failure, the altitude required to glide 3 miles is about 2,000 ft. No record of enforcement action was located during the investigation related to this regulatory deviation.

The POI assigned to the certificate at the time of the accident was located in the Portland Flight Standards District Office and was assigned to the certificate in January 2015. She had been employed with the FAA for about 7 years at the time of the accident.

She stated in an interview that, in addition to SeaPort Airlines, she was the POI for a Part 135 air ambulance company and a Part 135 operator considered high risk. The POI was also assigned oversight of a designated pilot examiner, and she was the only inspector in the office qualified for tailwheel and turbine operations. She stated there probably should have been assistant inspectors, but they did not have the resources in the Portland FSDO.

The POI added that, although legally operating in the Juneau area under VFR, the company did not respect the environmental challenges and proactively increase company weather minimums. She also questioned if there was enough oversight from company management of pilots new to flying in Alaska.

When asked if the company's minimum altitudes changed when flights were operated over water, the POI replied that SeaPort was operating at 500 ft with 2 miles visibility over a 3-mile-wide channel. She stated that 500 ft would not provide 3 miles of gliding distance. The POI added that, while conducting surveillance in the operations center for SeaPort in September 2015, she observed an airplane making 360° turns; she told the flight coordinator that they should call the pilot and tell him to turn back. The flight coordinator tried to call the flight back to JNU but was unable to make radio contact with the pilot. The airplane descended to 800 ft above the channel, and radio contact still could not be established. The POI called it a loss of operational control and a risk that needed to be mitigated. She thought a letter needed to be sent from the FAA to the company, but it was being held by the FAA Alaska Regional Deputy Division Manager. She stressed to an NTSB investigator that the findings needed to go to the company but that they were still going through the process.

Title 14 CFR 119.69, "Management Personnel Required for Operations Conducted Under Part 135," stated, in part, the following:

That anyone in a position to exercise control over operations conducted under the operating certificate must be qualified through training, experience, and expertise, and to the extent of their responsibilities, have a full understanding of the following material with respect to the certificate holder's operation; aviation safety standards and safe operating practices; 14 CFR Chapter I (Federal Aviation Regulations); the certificate holder's operations specifications; all appropriate maintenance and airworthiness requirements of this chapter (e.g., parts 1, 21, 23, 25, 43, 45, 47, 65, 91, and 135 of this chapter); and the manual required by Sec. 135.21 of this chapter; and discharge their duties to meet applicable legal requirements and to maintain safe operations.

When asked how the requirements for persons exercising operational control in accordance with 14 CFR 119.69 were met, the POI stated that they are trained but that she had never observed the training. As for prerequisites, she said there were none because they did not need to be pilots or certified dispatchers.

The previous POI for the company stated that Part 119 required operational control personnel to be knowledgeable in certain subjects. He said that the flight coordinators were trained and that it was documented that they had certain training, but there was no approved training program.

Medallion Foundation

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According to the Medallion Foundation Shield Program website, the purpose of the Shield Program was to create and maintain a higher level of safety through the use of system safety and safety management system principles. An applicant needed to earn a "star" in each of the following categories to earn a shield:

- Controlled flight into terrain (CFIT) avoidance
- Operational control
- Maintenance and ground service
- Safety
- Internal evaluation

To earn a star, an applicant organization had to complete specific training classes, produce a required manual, and undergo an external audit to determine if the company had incorporated the information into its corporate culture. Following the initial audit, annual independent audits were to be conducted.

According to the Medallion website, the benefits of being a Shield carrier "include reduced insurance rates, cross promotional marketing of Shield carriers and recognition by DOD [Department of Defense], OGP [Oil and Gas Producers] and the FAA as an operator who incorporates higher standards of safety than required by regulations."

On March 25, 2016, the company provided a document to the NTSB dated March 23, 2009, titled "client access website for Medallion Foundation," which established a Shield Program award date of May 23, 2008, for SeaPort Airlines. The document indicated that SeaPort Airlines, doing business as Wings of Alaska Airlines, held the following stars: CFIT avoidance, operational control, safety, internal audit, and maintenance and ground service.

Documents and emails provided to the NTSB by SeaPort Airlines indicated that the company met with Medallion staff on April 21, 2015, in Juneau to discuss the status and necessary revisions to maintain a Medallion Shield. On May 6, 2015, SeaPort Airlines sent an e-mail to the Deputy Director of the Medallion Foundation that contained an attached letter outlining the changes to the Medallion program manuals and a timeline for audits and revisions. The letter of intent was dated May 5, 2015, and SeaPort Airlines provided a draft copy to the NTSB.

On May 8, 2015, Deputy Director of the Medallion Foundation sent an e-mail to the President of SeaPort Airlines responding to the letter of intent. In the e-mail, the Deputy Director stated that, after discussions with the Executive Director, two options were available to SeaPort Airlines regarding the Medallion Shield.

The e-mail noted that the first option would be a voluntary suspension of Shield status by SeaPort Airlines. The e-mail stated that Wings of Alaska would be removed from the list of Shield Carriers on the Medallion Foundation website but Medallion would not remove the status of the stars. It further stated, "With this process of voluntary suspension, there will be no official communication to the FAA, nor will we retain any records within the Medallion files kept on the participating members." The e-mail stated that the second option would be an involuntary suspension of Shield status by Medallion. In this case, Medallion Foundation would "have to go through a paperwork trail, including official notification made into Medallion files." The email did not explain the reason for the suspension.

Review of the documents provided by SeaPort Airlines indicated that SeaPort voluntarily suspended its Medallion shield on May 15, 2015. The documents also showed the company was allowed to maintain the status of its stars but was removed from the list of Medallion Shield Carriers.

On June 29, 2015, the Executive Director of Medallion sent a letter to the President of SeaPort Airlines expressing concern about how the Medallion Foundation was managing each operator's fulfillment of the CFIT avoidance program. The executive director requested a copy of SeaPort's CFIT avoidance program, pilot roster, and CFIT avoidance training records. SeaPort's July 10, 2015 (which was 7 days before the accident), response letter indicated that the accident pilot and three other pilots had not completed initial CFIT avoidance training but that eight other trainees had completed the training.

According to the CFIT avoidance training records that the company provided to Medallion, no minimum training time was required, and pilots were trained to proficiency. Of the 12 training records provided, all 12 of the trainees completed the training for flat light recognition, whiteout recognition, deteriorating visibility, and inadvertent IMC training in 1 hour. SeaPort Airlines also submitted a copy of its CFIT Avoidance Training Manual, which contained policies and procedures for the dispatch and conduct of flights. These policies and procedures were not contained in the FAA-accepted GOM or the FAA-approved training program. There is no regulatory requirement for compliance with the Medallion program manuals. (Refer to the Operations Group Chairman's Factual Report in the public docket for further information regarding Medallion Foundation.)

ADDITIONAL INFORMATION

Integrated Display Unit Recorded Data

The accident airplane was equipped with two Chelton integrated display units (IDU). The IDUs are identical part numbers and are configured to operate as primary flight displays (PFD) or multifunction displays (MFD). Using sensors, including a solid-state air data and attitude heading reference system and ADS-B technology, the PFD displayed aircraft parameter data including altitude, airspeed, attitude, vertical speed, and heading. The MFD displayed navigational information on a moving map, and glide distance was indicated by a ring around the airplane that changed size and shape based on aircraft altitude and wind.

The IDUs recorded valid data for the entire accident flight. The IDU flight route was consistent with the initial ADS-B data. However, the data showed the airplane altitude slightly higher than the ADS-B data with the airplane crossing Admiralty Island about 1,100 ft msl and then beginning a constant descent from about the western shore of the island until about 30 seconds before impact when an abrupt climb was initiated. The airplane continued in a westerly direction before making a series of erratic pitch-and-roll maneuvers. The highest altitude reached during the accident flight was 1,220 ft msl, which occurred just before impact. The last data point was recorded at 1318:10.

Terrain Awareness and Warning System

The FlightLogic electronic flight instrument system (EFIS) IDUs includes a terrain awareness and warning system (TAWS) that provided color-coded warnings of terrain on the MFD and, when enabled, aural alerts. The IDU provided Technical Standard Order-C151b TAWS functionality. As part of the TAWS, the PFD was capable of providing a profile view of terrain ahead of the aircraft ("synthetic vision"). The system features integrated Class C TAWS or, depending upon aircraft configuration settings and external sensors/switches, the system is configurable as a Class A, B or C TAWS or a Class A or B Helicopter TAWS.

The Class C TAWS provides the following functions:

1. Terrain display: Displays terrain and obstacles on the PFD and MFD.
2. Forward looking terrain awareness: A warning function that uses a terrain and obstruction database to alert the pilot to hazardous terrain or obstructions in front of the aircraft.
3. Premature descent alert: A warning function that alerts the pilot when the aircraft descends well below a normal approach glidepath on the final approach segment of an instrument approach procedure.
4. Excessive descent rate alert (ground proximity warning system [GPWS] Mode 1): A warning function that alerts the pilot when the rate of descent is hazardously high compared to height above terrain (for example, when descending into terrain).
5. Sink rate after takeoff or missed approach alert (GPWS Mode 3): A warning function that alerts the pilot when a sink rate is detected immediately after takeoff or initiation of a missed approach.

The Chelton system included a TAWS inhibit switch that could be used to manually inhibit TAWS alerting functions. The switch was of the latching type and gave an obvious indication of actuation (that is, a toggle switch). The TAWS inhibit switch was connected directly to the EFIS IDU. Data recovered from the accident airplane's IDU showed that the TAWS alerting function was set to the "inhibit" position at the time of impact. The toggle switch was found in the "inhibit" position in the wreckage, and a digital image from a passenger's personal electronic device showed that the switch was in the inhibit position during the flight.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA128	01/28/2017 1615 EST	Regis# N59196	Charleston, WV	Apt: Yeager CRW
Acft Mk/Mdl CESSNA 210-L		Acft SN 21060155	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO 520 L7		Acft TT 4199	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JAMES THOMAS LANE		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot reported that, during the landing flare in gusting wind conditions, as he "expected" to touch down, he reduced engine power. The airplane ballooned, followed by a hard landing and a bounce. During a subsequent second bounce, the nose gear collapsed. The airplane then veered left, exited the runway, and came to a stop nose down.

The airplane sustained substantial damage to the firewall.

The pilot reported there were no preaccident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The pilot landed on runway 23, and the reported the wind was 260ø at 11 knots, gusting to 17 knots.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's improper landing flare in gusting wind conditions, which resulted in a hard landing and runway excursion.

Events

1. Landing-flare/touchdown - Loss of control in flight
2. Landing - Hard landing
3. Landing - Loss of control on ground
4. Landing - Runway excursion
5. Landing - Nose over/nose down

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Landing flare-Not attained/maintained - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained
4. Environmental issues-Conditions/weather/phenomena-Wind-Gusts-Effect on operation

Narrative

The pilot reported that during the landing flare in gusting wind conditions, as he "expected" to touch down he reduced engine power. He further reported that the airplane ballooned, followed by a hard landing and a bounce. During a subsequent second bounce, the nose gear collapsed. The airplane then veered left, exited the runway, and came to a stop nose down.

The airplane sustained substantial damage to the firewall.

The pilot reported there were no pre-accident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The pilot landed runway 23, and reported the wind as 260ø at 11 knots, gusting to 17 knots.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN15FA400	09/05/2015 1408	Regis# N1099Q	Silverton, CO	Apt: N/a
Acft Mk/Mdl CESSNA 310H		Acft SN 310H0099	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL MOTORS IO-470-D		Acft TT 5367	Fatal 4 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PILOT		Opr dba:		Aircraft Fire: NONE

Events

1. Enroute - Controlled flight into terr/obj (CFIT)
2. Enroute - Controlled flight into terr/obj (CFIT)

Narrative

HISTORY OF FLIGHT

On September 5, 2015, about 1408 mountain daylight time a Cessna 310H, N1099Q, impacted mountainous terrain near Silverton, Colorado. The private pilot, a pilot-rated passenger, and two passengers were fatally injured. The airplane was destroyed by impact forces. The airplane was registered to and operated by the pilot as a 14 Code of Federal Regulations Part 91 a personal flight. Instrument meteorological conditions (IMC) prevailed at the time of the accident, and no flight plan had been filed. The pilot was not using air traffic control (ATC) services. The flight departed from Flagstaff Pulliam Airport (FLG), Flagstaff, Arizona, about 1150 and was destined for Tradewind Airport (TDW), Amarillo, Texas.

A fuel receipt from the Big Bear City Airport (L35), Big Bear, California, showed that 20.04 gallons of fuel was purchased for the airplane on September 4, 2015.

The pilot's daughter stated that the airplane was kept at L35 during the summer and afterward at Barstow-Daggett Airport (DAG), Daggett, California. She said that her father departed from L35 on September 5, 2015, about 0615 PDT, and arrived at DAG about 0630 PDT to pick up the passengers. He was then going to fly to Amarillo, Texas, following Interstate 40, where they were going to have dinner and then return the same day. She said that her father did not call her after he refueled and departed Flagstaff and that she called for help on September 6 because she had not heard from him. She said that there was another pilot aboard and that they had a GPS. She said that her father did not know anyone in Colorado or Montana.

A part-time Unicom operator at L35 said that the pilot talked about conducting the flight about 1 week before the accident. The pilot asked "a lot of different pilots to go along as copilot" and asked him to go on the flight. The Unicom operator did not know what time the pilot departed on September 5, but "it was pretty early in the morning" when the pilot left to pick up passengers. The Unicom operator stated that the pilot purchased the airplane "not too long ago," that the airplane radios were "very old," and that the "instruments were not all that good."

The pilot's initial contact with an air traffic control (ATC) facility on the day of the accident occurred during a visual approach to FLG. A rerecording of provided radio transmissions between the pilot and an FLG air traffic controller between 1011 and 1038 follows:

N1099Q: "Flagstaff traffic this is Piper Comanche N1099Z I'm sorry quebec we're approximately thirty miles west of the field anybody know what how the weather is down there you socked in there cause we are flying over the top here."

FLG tower: "Comanche 1099Q flagstaff tower we are open. The uh the ATIS is also broadcasting we're 900 broken, 1,600 broken, 2,400 overcast, visibility 10."

N1099Q: "Oh thank you I just turned the ATIS then. I appreciate it thank you Flagstaff."

N1099Q: "Flagstaff tower 1099Q about to land we are we are approximately 10 miles west of the airport."

FLG tower: "Comanche uh 99Q flagstaff tower the uh we're IFR at the airport 900 broken 1600 broken visibility 10."

1099Q: "We are now approximately 8,000 feet we have visibility looks like greater than 10 miles."

FLG tower: "Comanche 99Q I concur with the visibility uh are you requesting something special."

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FLG tower: "Comanche 99Q the field is now VFR the uh ceiling is well I have a scattered layer of 1,200 ceiling 1,600 report a right base for runway 21."

N1099Q: "Report right base for runway 21 will do quebec."

FLG tower: "Comanche 99Q uh verify you have information charlie."

N1099Q: "Copy that we have we got a little bit of a . here."

FLG tower: "Comanche 99Q roger the wind is 220 at 8 temperature 16 density altitude is 8,400 dew point 13 and the altimeter 30.26."

N1099Q: "30.36 thank you."

FLG tower: "altimeter 30.26 26."

N1099Q: "Flagstaff tower this is quebec were gonna report left base runway 21 I just want to confirm that quebec."

FLG tower: "Comanche 99Q are you set up for a right base or a left base you're coming from the west you said."

N1099Q: "Oh its showing left base on my uh GPS left traffic on runway 21."

FLG tower: "Comanche 99Q uh we can make whichever way you want I just need to know which direction you're coming from."

N1099: "Well we're comin we're we're coming from 270 right now."

FLG tower: "From 270 you should be west of the airport where was the destination you left from."

N1099Q: "Well we can report let's see the winds are from uh what."

FLG tower: "Comanche 99Q the wind is 240 at 6 just report base."

N1099Q: "Well. we're right now."

FLG tower: "Comanche 99Q that came in broken and unreliable."

N1099Q: "The winds are 210."

FLG tower: "Wind 210 at 8."

FLG tower: "Comanche 99Q how far from the airport are you."

N1099Q: "We're downwind 21 left we're settin up for uh base for 21 left."

FLG tower: "Okay we only have runway 21 okay I see you now you are on a left downwind runway 21 cleared to land wind 210 at 8."

FLG tower: "Comanche 99Q runway 21 cleared to land."

N1099Q: ".the end of the runway now.on the downwind we'll make base to final."

FLG tower: "Comanche 99Q runway 21 cleared to land."

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N1099Q: "Cleared to land runway 21."

FLG tower: "N99Q are you going to uh wiseman aviation the FBO."

N1099Q: "Yes we want to gas up can we exit."

FLG tower: "N99Q continue on the runway turn right alpha seven self-serve fuel will be towards the base of the rotating beacon if you want the uh FBO it's a green building near the uh rotating beacon."

N1099Q: "Okay I see the rotating beacon I guess we can make a right taxi here."

FLG tower: "N99Q you make right turn alpha seven that will get you more direct."

N1099Q: "Gotcha alpha seven."

N1099Q: "Flagstaff down and clear of runway taxi to fuel pump."

N1099Q: "Yep."

N1099Q: "Quebec gettin ready to touchdown here runway 21 here flagstaff."

A fixed-base operator (FBO) employee at FLG stated that, during the airplane's taxi to the fuel pumps, the airplane almost hit an "Eclipse jet," and he thought it was going to hit golf carts that were near the FBO building. When the airplane arrived, it taxied close enough to the self-serve fuel pumps that it "knocked" a ladder with one of its propellers. He said that the pilot was not "observant about his surroundings." The airplane had white "house letters" painted on its side similar to those on fighter or Air Force aircraft. The house letters had "pilot" followed by a name, which he could not remember seeing, and "copilot" followed by "God." The airplane "looked clean." The employee stated that the pilot told him that he hoped there were no more clouds, there was no more weather, and that he wanted 75 gallons of fuel for the airplane. The pilot pointed east and added that it should be 2 more hours to their destination. The employee thought the destination was Amarillo but was certain that it was in Texas.

The FBO employee said he showed the pilot how to use the fuel pump. The pilot gave the fuel order and payed for the fuel with cash. A passenger helped fuel the airplane at the self-serve fuel pump; he added about 15 gallons of fuel to the left and right wing fuel tanks (auxiliary fuel tanks) and put the fuel caps back on. The wing tip fuel tanks (main fuel tanks) were topped off.

The FBO employee stated that another passenger said that he bought a "brand new GPS" and could not get "ADAS[Automated Weather Observing System Data Acquisition System]" to work and thought he also said, "oh well we'll figure it out later."

At 1054, the pilot called Lockheed Martin Flight Services (LMFS) while at FLG and requested an abbreviated weather briefing for a visual flight rules flight from FLG to Amarillo, Texas. The pilot told the weather briefer that the Amarillo, Texas, airport identifier was "L51"; this was not the correct identifier for Tradewind Airport. The correct identifier was TDW; the L51 airport identifier was assigned to Heller Farm Airport, Winifred, Montana. Despite providing the weather briefer with the wrong airport identifier, the briefer did provide information for the flight to Amarillo. The pilot received the latest weather information in the briefing, which included Airmen's Meteorological Information for mountain obscuration, convective outlooks (the briefer mentioned that there was no convective activity yet but told the pilot to stay updated via Flight Watch), the terminal aerodrome forecast for Rick Husband Amarillo International Airport, Amarillo, Texas, the Meteorological Terminal Aviation Routine Weather Report for Tucumcari Municipal Airport, Tucumcari, New Mexico, and the winds aloft at 9,000 and 12,000 ft between the departure and destination airports. No record was found indicating that the accident pilot received or retrieved any other weather information before or during the flight.

The FBO employee at FLG stated that, after the airplane was fueled, it taxied past the FLG ATC tower without making any radio communications with ATC. The airplane taxied onto a runway while an "air shuttle" was landing, and the air shuttle (SkyWest 2992) had to abort its landing. The pilot then turned the radio on and taxied off the runway and onto a taxiway near the air carrier ramp. A FLG airport rescue and firefighting (ARFF) employee drove to the airplane to talk to the pilot. The ARFF personnel told the left front pilot seat occupant that he had to move the airplane because it was blocking an air carrier ramp entrance. The

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employee said that FLG ATC had a "lengthy conversation" with the pilot after he had taxied the airplane off the runway and was told to call the FLG ATC tower. The employee said that he overheard on the FLG ATC frequency the air shuttle pilot asking about the airplane, and FLG ATC responded by saying it was "a case of situational awareness."

According to an Air Traffic Mandatory Occurrence Report, SkyWest 2992, CRJ2/L, was on the instrument landing system (ILS) runway 21 approach and was cleared to land on runway 21. The accident airplane was observed northbound on taxiway A without authorization from the FLG tower. N1099Q turned right onto the connecting taxiway A2 continuing toward runway 21. At that time, the tower controller issued go-around instructions to SkyWest 2992 on about 1 1/2 mile final and coordinated missed approach instructions with Phoenix Approach. The accident airplane continued onto runway 21 and initiated the takeoff roll and then established communication with the tower. The tower controller instructed the accident pilot to cancel takeoff and exit the runway. SkyWest 2992 was vectored back to the ILS approach course and landed without further incident.

The FLG ATC tower controller stated that, during his telephone conversation with the accident pilot following the runway incursion, the pilot "kind of missed the point," "came up with excuses" for the runway incursion, and did not know there was another airplane "out there" during the runway incursion. The controller stated that, when he told the pilot that there was an airliner on final, and it was at that point that the pilot "realized the gravity of the situation." The pilot then said that he had been flying for 50 years and nothing like this happened before. The controller said it "seemed" that the pilot "really didn't register" what had happened. The controller added that he did not remember having to repeat questions that he asked the pilot. The pilot did not seem upset nor did the pilot ask questions in response to the questions asked by the controller. The controller said that, during the second takeoff attempt, the accident airplane settled onto the runway after it had lifted off and then climbed out with a left turn.

The ARFF employee stated that the accident airplane taxied from the FBO to taxiway A2, held at A2, and then taxied onto an active runway with a commercial regional airplane on short final without any radio contact to ATC. The employee said that the accident pilot transmitted that he did not have the airplane's radio turned on or "something to that effect" and stated that they were going to take off. The employee said that the radio transmissions from the accident pilot were "screwy" and "lacked organization and context, and was not current." The employee said that it seemed like the pilot had spent a lot of time around uncontrolled airports. The employee said that during the airplane's second takeoff attempt, the airplane remained low over runway 21 for a long time and that, about 1,000 ft from the departure end of the runway, the airplane pulled up, "not steep," and entered a left turn to the east and headed northeast.

The flight was not receiving ATC services and was not assigned a transponder squawk code. The airplane used a squawk code of 1200 based upon ATC recordings and the arrival/departure times to and from FLG. The radar track of an airplane with a squawk code correlating to those times was plotted to provide an overview of the flight and is shown in figure 1.

Figure 1. A radar plot of an airplane flight track consistent with the accident airplane. The plot shows a turn toward the north.

PERSONNEL INFORMATION

Pilot/Airplane Owner Information

The pilot, age 71, held a private pilot certificate with a single-engine land airplane rating. The pilot's most recent FAA third-class airman medical certificate was issued December 17, 2013, with the limitation that he must wear corrective lenses for near and distant vision. At that time, the pilot reported a total flight time of 1,000 hours, 200 hours of which were in last 6 months. There was no military record received showing that the pilot had any flight experience in military airplanes.

The pilot's daughter stated that her father flew F-4 Phantoms. An L35 employee reported that he believed that the pilot said he flew F-4 Phantoms in the military and transitioned to helicopters and was injured in Vietnam. A Department of Defense (DOD)/Uniformed Services identification card that belonged to the pilot was recovered from the accident site. The card showed that he served in the US Marine Corps at grade "E3," which according to DOD's Enlisted Rank Insignias was a grade of Lance Corporal.

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The L35 employee said the pilot told him he was a doctor and "had an MD." He stated that he researched the things told to him by the pilot, and none of it was true. He said the pilot had "some speech issues" and that he had a "high pitched garbled voice." He said that pilot could not "keep a fluent conversation" without having an "issue with talking." He said that the pilot's aircraft radio transmissions were "very short," which "concerned" him and L35 staff. He said "there were a lot of circumstances that concerned people about his [the pilot's] flying."

A review of the pilot's FAA airman record revealed that, on July 18, 2009, the pilot failed the practical portion of the examination in his first attempt for a private pilot certificate with a single-engine land airplane rating. Upon reexamination for the certificate/rating, he was to be reexamined on the following: IX. Basic Instrument Maneuvers, V. Performance Maneuver, and VII. Navigation. At the time of the examination, the pilot reported a total time of 301 hours and a total instruction time received of 52 hours. On September 21, 2009, the pilot successfully passed his second attempt and was issued a private pilot certificate with a single-engine land rating. At the time of reexamination, the pilot reported a total time of 305 hours and a total instruction time received of 55 hours. No record was found indicating that the pilot had been issued a multiengine airplane rating or that he had flown military aircraft..

The pilot's logbook, which was recovered from the accident site by first responders, had flight entries beginning July 7, 2007, and ending August 15, 2015. The logbook showed that the pilot's total flight time in single and multiengine airplanes was 801.9 hours, 255.6 hours of which were in single-engine airplanes and 217.7 hours of which were in multiengine airplanes. The first logbook page entry of a multiengine airplane flight time was dated January 6, 2013, in a Piper PA-23-250, N54155 and it showed a total multiengine flight time of 10.5 hours. The page also showed that the pilot's a total multiengine flight time for previous flights was 150 hours; however, there were no logbook entries documenting flights in multiengine airplanes before the page indicating that he had 150 hours of multiengine flight time. The pilot's logbook showed a total flight time in night conditions of 17.0 hours, of 0.2 hour of which was in the accident airplane. The most recent flight entry in night conditions was dated December 2, 2014, in the accident airplane for 0.1 hour.

The accident airplane's Application for Registration to the pilot was dated June 27, 2014. The Aircraft Bill of Sale shows the airplane title was transferred to the pilot on July 2, 2014, from Aerobanc of America, Inc. The first flight entry in the pilot's logbook for the airplane was dated July 3, 2014. No record was found indicating that the pilot had received training in the airplane after its purchase/registration. The pilot's logbook contained a total of 72 flight entries for the airplane with a total flight time of 35.4 hours. During this period, the logbook's remarks sections had entries that showed the pilot had flown with passengers. There was one logbook entry dated March 7, 2015, for a flight in the airplane that had the following remark: "I let [name of pilot-rated passenger] fly part way back."

A logbook entry showed that the pilot's most recent flight review, as required by Part 61.56, was dated July 17, 2013, with a departure and destination of Apple Valley Airport, Apple Valley, California. The flight was in a Piper PA-28-180 with a flight time of 1.0 hour, a ground instruction time of 1.0 hour, and the remarks, "FAR 61.56 FLT. REVIEW VFR PROCEDURES." The flight review was conducted by the same flight instructor that had provided the pilot-rated passenger's flight review. Title 14 CFR Section 61.56(c) stated that a flight review must have been accomplished within the 24 calendar months preceding the month in which a pilot acts as pilot-in-command in an aircraft for which that pilot is rated. The pilot was overdue for his flight review by about 2 months.

A logbook entry dated July 4, 2012, showed a flight from DAG to DAG in a Piper PA-28-180 that was 1.0 hours in duration. The remarks section for the flight had the following entry: "Flew over parade 10 feet off ground made six passes." A logbook entry dated July 4, 2013, showed a flight from DAG to DAG in a Piper PA-28-180 that was 2.0 hour long. The remarks section for the flight had the following entry: "Landed on Rt. 66 4 July Parade. With Mayor." A logbook entry dated November 2, 2013, showed a flight from DAG to "Rt.66," in a Piper PA-28-180 that was 0.2 hour long. The remarks section for the flight had the following entry: "Flew to the barn landed on RT. 66 for auto show." According to 14 CFR 91.119, "Minimum safe altitudes," a pilot should not operate an aircraft at an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

A logbook entry dated June 14, 2014, showed a flight in a Piper PA-28-180 that was 2.0-hour long and included five landings from "DAG" to "Big Bear" with the remarks: "Young Eagles." Regarding this entry, the L35 employee reported that nothing at the time made him question the pilot's flying ability. He said the pilot wanted to fly in the Young Eagles program and that they have a large Young Eagles program at L35. He said that they had asked the pilot to produce the required paperwork for the Young Eagles program, but the pilot never produced the paperwork, so the program representative decided about 8 to 10 months before the accident to not allow the pilot to fly in the Young Eagles program.

A logbook entry dated August 15, 2015, showed a 0.3-hour-long flight in the accident airplane "L35" to "L35." The remarks section for the flight stated: "Big Bear airshow. made it. speed passes over runway." Regarding this entry, the L35 employee stated that there was "some issue" with the pilot during the Big Bear Airport air show. When the airport opened for departures, the pilot departed with passengers. Upon the pilot's return to the airport, he turned the airplane onto

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the final leg of the airport traffic pattern and did not have the airplane radio on. The shows's air boss cleared another airplane to depart from the active runway while the accident pilot was flying his airplane on short final. He stated that, instead of the pilot offsetting the airplane to the side of the runway during the go-around, the pilot performed a "low-level left turn over the crowd" with the landing gear and flaps extended.

The pilot had no previous FAA record of accident(s), incidents(s), or enforcement(s) actions. A search of publically available information of airman certificate information from on the FAA's website, FAA.govGOV, using only the pilot/airplane owner's first and last name, revealed that the pilot/airplane owner only held a private pilot certificate with a single-engine land rating.

Pilot-Rated Passenger Information

The pilot-rated passenger, age 67, held a private pilot certificate with a single-engine land airplane rating. His most recent FAA third-class airman medical certificate was issued May 28, 2015, with the limitation that he must wear corrective lenses. At that time, he reported 1,000 hours of flight experience.

On March 25, 2003, the pilot-rated passenger successfully passed, on his first attempt, an examination for a private pilot certificate with a single-engine land airplane rating. At the time of examination the pilot-rated passenger reported a total time of 168 hours, and a total instruction time received of 90 hours.

The pilot-rated passenger's logbook, which was recovered from the accident site by first responders, had flight entries beginning February 26, 2009, and ending August 31, 2015. The logbook showed that his total flight time in all aircraft was 785.5 hours, all of which was in single-engine airplanes.

A logbook entry showed that the pilot-rated passenger's most recent flight review as required by Part 61.56 was dated June 11, 2015. The flight review was conducted by the same flight instructor who had provided the pilot's flight review.

The pilot-rated passenger's logbook showed a total flight time in night conditions of 17.0 hours. The most recent flight entry in night conditions was dated January 5, 2011.

The pilot-rated passenger had no previous FAA record of accident(s), incident(s), or enforcement action(s).

AIRCRAFT INFORMATION

The accident airplane was a 1963 twin-engine Cessna 310H, serial number 310H-0099, airplane. It was powered by a Continental IO-470-VOCD, serial number 455693, engine and a Continental IO-470-D, serial number 79334, engine. The airplane was equipped with two 51-gallon capacity main fuel tanks and two 15.5-gallon capacity auxiliary fuel tanks.

According to FAA airworthiness records, the most recent airworthiness certificate for the airplane was a Special Airworthiness Certificate dated April 11, 2006. The Special Airworthiness Certificate was a Special Flight Permit for the purpose of "Out of Annual Inspection - Maintenance." The airplane did not have a current airworthiness certificate at the time of the accident. A standard airworthiness certificate remains valid as long as the aircraft meets its approved type design, is in a condition for safe operation and maintenance, and preventative maintenance and alterations are performed in accordance with Parts 21, 43, and 91.

The pilot's daughter provided copies of the aircraft logbooks . These copies showed that the airplane's last annual inspection was dated May 1, 2014, at a Hobbs time of 1,541.3 hours and a total time in service of 5,367.3 hours.

Logbook entries annotated the left engine as serial number 455693 and the right engine as serial number 79334 and noted that the most recent annual inspections of the left and right engines were dated May 1, 2014. At the time of the inspections, the left engine had a time since major overhaul of 1,241.6 hours; the Hobbs time was not annotated. The right engine had a time since major overhaul of 858.4 hours and a Hobbs time of 1,541.3 hours.

Title 14 CFR 43.7 states that every airplane is required to undergo an annual inspection: "no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an annual inspection and has been approved for return to service by a person authorized by Part 43.7."

METEOROLOGICAL INFORMATION

Astronomical Data

The astronomical data obtained from the United States Naval Observatory for the accident site on the day of the accident indicated that civil twilight began 0618, sunrise was 0645, sun transit was 1310, sunset was 1935, and civil twilight ended 2001.

Weather Information

Telluride Regional Airport (TEX), located 12 miles north-northwest of the accident site at an elevation of 9,070 ft mean sea level (msl) was the closest official weather station to the accident site. TEX had an Automated Weather Observing System, and its reports were not supplemented.

At 1415, TEX reported wind from 190 degrees at 5 knots, 10 miles visibility, present weather thunderstorms in the vicinity, sky condition scattered clouds at 4,700 ft above ground level (agl), broken ceiling at 6,000 ft agl, broken skies at 7,000 ft agl, temperature of 17 \emptyset C, dew point temperature of 7 \emptyset C, and an altimeter setting of 30.34 inches of mercury. Remarks: automated station with a precipitation discriminator, lightning distant northwest, temperature 17.4 \emptyset C, dew point temperature 6.6 \emptyset C.

Closer to the accident site, observations from the nonofficial surface stations within 12 miles of the accident site reported gusting wind between 8 and 39 mph. The strongest wind was at the nonofficial surface stations closest to the accident site altitude and near the tops of the mountains between 10,000 and 12,000 ft. In addition, these stations reported rain showers in the vicinity and had relative humidity values greater than 80 percent around the accident time. These stations were above 10,000 ft, and the high relative humidity values were consistent with cloud cover at or above 10,000 ft and mountain obscuration due to clouds, precipitation, and mist. Figure 2 shows the three-dimensional Grand Junction, Colorado, weather surveillance radar-88 Doppler base reflectivity from the scan initiated at 1406 and the ATC Flight Track.

Figure 2. Three-dimensional Grand Junction, Colorado, weather surveillance radar-88 Doppler base reflectivity from the scan initiated at 1406 and the ATC Flight Track. Blue and green colored areas depict reflectivity of greater than 10 decibels (dBZ) and greater than 20 dBZ, respectively.

AIRPORT INFORMATION

TDW was located about 482.7 nautical miles on a true course of 087 \emptyset from FLG. The VFR sectional chart for the Amarillo area, shown in figure 3, depicted an airport identifier of TDW, not L51 as stated by the pilot, next to the airport name. L51 is shown once, but it referred to the maximum runway length available at TDW, which was 5,100 ft.

Figure 3. The VFR sectional chart depicting the airport identifier for Tradewind as TDW with L 51 as the maximum runway length for the airport.

As noted previously, L51 was the designator for Heller Farm Airport, Winifred, Montana, which was located about 586 nautical miles on a heading 354 \emptyset from the accident site.

WRECKAGE AND IMPACT INFORMATION

The accident site was located at latitude 37.76 \emptyset north, longitude 107.84 \emptyset west at an elevation of 11,500 ft. The wreckage path was estimated to be about 1,050 ft long along an estimated northerly direction in up-sloping mountainous terrain. See figures 4 and 5 for photographs of the wreckage.

Figure 4. Aerial view taken the day after the accident by first responders showing a white-colored object, which was a portion of the aircraft fuselage, resting on the face of up-sloping terrain. The photo also shows the cloud height at the time first responders arrived on-scene. The view of the western ridgeline averaged about 12,000 ft msl.

Figure 5. A photograph of the main wreckage, which was destroyed by impact forces with no evidence of soot or fire. The airplane wings, horizontal and vertical stabilizers, engines, and propellers were located at accident site.

Wreckage Examination

The largest piece of recovered wreckage was the tail section, which had the horizontal and vertical stabilizers attached. There was no evidence of soot or fire on the pieces of wreckage. Both engines were separated from the airframe. The propellers from both engines were separated from their hubs and displayed chordwise gouging/scratching and S-shaped bending/twisting. Accident impact damage to the airframe, accessories, and both engines precluded functional operational testing of these components/systems.

The instrument panel was destroyed by impact forces, and none of the instruments were attached. The electrical, lighting, and ignition switches were destroyed.

The altimeter face was separated from its case, and the altimeter altitude indicator needles were not intact. The altimeter setting window of the face was intact and indicated a setting of 30.40 inches of mercury.

The attitude indicator unit was separated from the instrument panel and crushed. The attitude indicator display was internally separated and loose within the unit and did not yield an attitude. The gyro within the attitude indicator was removed, and it showed circumferential scoring on the gyro and the gyro's housing.

The horizontal situation indicator heading select bug and compass both displayed about a 360° heading.

An oxygen bottle, consistent with a pilot oxygen system, was recovered, and its airworthiness/servicing was unknown due to the impact damage. A handheld GPS was not found/recovered from the accident site. The Hobbs meter and tachometers were destroyed.

The airplane's two fuel selector valve assemblies were separated from the airframe. One valve had its fuel selector control separated due to impact forces and was positioned to "off." The second valve was positioned to "main."

Examination of the flight control system revealed that the flight control cables were attached to the control horns/bell cranks. Separated sections of the flight control cables exhibited broom straw features.

Examination of both engines revealed no preimpact anomalies that would have precluded normal operation.

MEDICAL AND PATHOLOGICAL INFORMATION

The NTSB's Chief Medical Officer reviewed the pilot's and pilot-rated passenger's FAA medical case reviews, toxicology results, autopsy reports, the investigator's reports, and the audio tapes of the ATC conversations in Flagstaff. The pilot/airplane owner's personal medical records were obtained and reviewed.

Pilot/Airplane Owner

The pilot's last aviation medical examination was dated December 17, 2013. According to the records, he was 70 inches tall, weighed 165 pounds, and had reported no chronic medical conditions and no medications to the FAA. He had reported a number of previous surgical procedures and a disability related to a

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military gunshot wound but the aviation medical examiner noted "no residual."

Rocky Mountain Forensic Services, PLLC, performed an autopsy of the pilot. The autopsy report noted the cause of death was "multiple injuries" and the manner of death was "accident." Examination of the body for natural disease was limited by the severity of the pilot's injuries; no organs were available for evaluation.

The FAA's Bioaeronautical Research Laboratory performed toxicology testing on the only available specimen, which was muscle, from the pilot. The testing identified ethanol at 0.015 gm/dl as well as citalopram and its metabolite N-desmethylycitalopram. Federal Aviation Regulations, Section 91.17 (a), prohibits any person from acting or attempting to act as a crewmember of a civil aircraft while having 0.040 gm/dl or more ethanol in the blood. Detected ethanol may be to the result of ingestion or microbial activity in the body after death.

Citalopram is an antidepressant that carries a warning: "May impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery)." However, it has not been shown to degrade performance in psychological testing experiments using healthy volunteers.

According to records obtained from the pilot's Veteran's Administration Hospital, in January 2013, he was documented as having multiple chronic medical conditions including spinal stenosis, hypothyroidism, depressive disorder, posttraumatic stress disorder, panic disorder, gastroesophageal reflux disease, esophageal stricture, chronic neck pain, paraplegia, peptic ulcer disease, type 2 diabetes, and emphysema. In a single note from an outside physician, the pilot's paraplegia was documented as relating to a motor vehicle accident in 1996.

The Veterans Administration records show that, in January 2015, the pilot was hospitalized for being unable to swallow. Eventually, he had a gastrostomy tube placed for feeding. He was admitted for a rotator cuff repair in March, 2015, and remained in the hospital for rehabilitation until May 2015. During that time, the feeding tube was removed. His active medications as of July 2015 included albuterol, formoterol, citalopram, hydromorphone (4mg tab every 4 active hours), aspart insulin (short acting), glargine insulin (long acting), levothyroxine, lidocaine patch, prazosin, and zolpidem.

Albuterol and formoterol are beta-agonists available as inhaled medication for the short-term treatment of wheezing and the longer term prevention of wheezing, respectively. Hydromorphone is an opioid analgesic Schedule II controlled substance available by prescription that is commonly marketed with the name Dilaudid and carries a warning about central nervous system depression so severe it may cause respiratory failure.

The pilot was on two forms of injected insulin: aspart, which is short acting, and glargine, which is long acting. Their common names are Novolog and Lantus, respectively. Levothyroxine is a replacement thyroid hormone typically used to treat hypothyroidism; it is commonly marketed with the name Synthroid. Lidocaine is a local anesthetic available in patch format to treat localized pain. Prazosin is a blood pressure medication commonly marketed with the name Minipress. Zolpidem is a short-acting sleep aid commonly marketed with the name Ambien and carries a warning about sedation and changes in judgment or behavior.

Finally, in a visit from September 1, 2015, the pilot was described as having a T12 spinal cord injury, "in a wheelchair but able to transfer."

Pilot-Rated Passenger

The pilot-rated passenger's last aviation medical exam was dated May 28, 2015. At that time, he was 67 inches tall and weighed 255 pounds. He had previously reported high blood pressure to the FAA and reported using atenolol and naproxen as medications.

Rocky Mountain Forensic Services, PLLC, performed an autopsy Rocky Mountain Forensic Services, PLLC. The autopsy reported the cause of death was "multiple injuries" and the manner of death was "accident." Examination of the body for natural disease was limited by the severity of the pilot's injuries; no organs were available for evaluation.

The FAA's Bioaeronautical Research Laboratory performed toxicology testing on the only available specimen from the pilot-rated passenger, which was muscle. The testing identified ethanol at 0.043 gm/dl, as well as atenolol, diphenhydramine, and D-methamphetamine.

Atenolol is a medication used to treat high blood pressure and prevent recurrent heart attacks. It is commonly marketed with the name Tenorman.

Diphenhydramine is a sedating antihistamine used to treat allergy symptoms and as a sleep aid. It is available over the counter under the trade names Benadryl and Unisom. Diphenhydramine carries the following Federal Drug Administration warning: "may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery). Compared to other antihistamines, diphenhydramine causes marked sedation; it is also classed as a CNS depressant and this is the rationale for its use as a sleep aid. Altered mood and impaired cognitive and psychomotor performance may also be observed. In fact, in a driving simulator study, a single dose of diphenhydramine impaired driving ability more than a blood alcohol concentration of 0.100%."

Methamphetamine is a Schedule II controlled substance and is available in low doses by prescription to treat attention deficit hyperactivity disorder, attention deficit disorder, obesity, and narcolepsy. It is also commonly available as a street drug. Even in prescription form, methamphetamine can cause a host of physiological and psychoactive effects.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17LA150	04/08/2017 1140 EDT	Regis# N1362G	South Lakeland, FL	Apt: Lakeland Linder Rgnl LAL
Acft Mk/Mdl CESSNA 310R-R		Acft SN 310R0717	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
		Acft TT 7714	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: VILLANUEVA JUAN G		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing-landing roll - Landing gear collapse

Narrative

On April 8, 2017, about 1140 eastern daylight time, a Cessna 310R, N1362G, sustained substantial damage when the left main landing gear collapsed during landing at Lakeland Linder Regional Airport (LAL), Lakeland, Florida. The commercial pilot and passenger were not injured. The airplane sustained substantial damage. The airplane was registered to and operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions were reported at the airport at the time of the accident and no flight plan was filed. The flight originated from North Perry Airport (HWO), Hollywood, Florida, about 1030 and was destined for LAL.

The pilot stated that he confirmed the landing gear was down and locked prior to landing. He said he landed "perfectly" but as the airplane rolled down the runway, the left wing began to sink. The pilot shut off the left engine, and the airplane veered to the left off the runway onto the grass. The pilot then shut off the right engine. When the airplane came to a stop, the pilot secured the airplane and he and his passenger exited. The airplane was towed to a maintenance facility for further examination. The left wing, and left horizontal stabilizer, and left propeller assembly were substantially damaged.

The pilot held a commercial pilot certificate with ratings for airplane single and multiengine land, and instrument airplane. His last Federal Aviation Administration first-class medical certificate was issued on September 19, 2016. At that time, he reported a total of 4,550 flight hours.

The weather conditions reported at LAL, at 1150, included wind 010ø at 4 knots, visibility 10 miles, and clear skies.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17FA136	03/25/2017 1425 CDT	Regis# N6563D	Hayden, AL	Apt: N/a
Acft Mk/Mdl CESSNA T210L-M		Acft SN 21060580	Acft Dmg: DESTROYED	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL TSIO-520-R			Fatal 4 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JOSEPH C. CRENSHAW		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Enroute-descent - Aircraft structural failure

Narrative

On March 25, 2017, about 1425 central daylight time, a Cessna 210L, N6563D, was destroyed during an uncontrolled descent and subsequent inflight breakup near Hayden, Alabama. The pilot and three passengers were fatally injured. Instrument meteorological conditions prevailed and an instrument flight rules flight plan was filed. The flight originated from Kissimmee Gateway Airport (ISM), Orlando, Florida, and was destined for Mc Kellar-Sipes Regional Airport (MKL), Jackson, Tennessee. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

According to preliminary air traffic control (ATC) radar and voice communication data provided by the Federal Aviation Administration, ATC described moderate to extreme precipitation to the pilot and asked if the pilot needed to deviate. The pilot replied that he would go anywhere the controller thought was the quickest route across the weather. The controller replied that he did not have a better route, and allowed the pilot to deviate as necessary, instructing the pilot to proceed to his destination when able. The airplane then began to descend, and the controller instructed the pilot to maintain 12,000 feet. The airplane continued to descend and the pilot advised ATC "I'm doing the best I can." The controller advised the pilot that turning to the east or southeast would be away from the weather. The airplane continued descending and the pilot did not respond. ATC advised the pilot that he was descending thru 5,800 feet and to check his altitude. There was no response, and shortly after radar contact was lost.

According to a witness, he was standing in his driveway and noticed how windy it was, and that the trees were leaning over almost 90 degrees. He said that it was not raining but he did hear thunder in the distance. He reported hearing an airplane flying above making a "weird" sound. He said he heard a loud "boom" and started seeing pieces of the airplane falling out of the sky, but did not see it break apart. He then saw the fuselage of the airplane which was spinning through the air heading towards the ground.

The wreckage was scattered over a large area that included dense vegetation. The debris field was about one mile in length, oriented toward 247 degrees true. The first component located along the debris field was the left elevator. Additional components located along the debris path included fragments of the right wing and the left-wing assembly. The fuselage came to rest at the end of the debris path in a dense wooded area. The fuselage, cockpit, cabin section, empennage and engine were destroyed. The wreckage was recovered from the site and retained for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA148	04/05/2017 1410 CDT	Regis# N1215M	Detroit Lakes, MN	Apt: Detroit Lakes Airport DTL
Acft Mk/Mdl CESSNA T210M-M		Acft SN 21061924	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR TSIO-520 SER			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ON FILE		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing-flare/touchdown - Landing gear collapse
-

Narrative

On April 5, 2017, at 1410 central daylight time, a Cessna 210M single-engine airplane, N1215M, experienced a landing gear collapse at the Detroit Lakes Airport (DTL), Detroit Lakes, Minnesota. The commercial pilot, who was the sole occupant, was not injured, and the airplane sustained substantial damage to the right horizontal stabilizer. The airplane was registered to Great Plains Leasing, LLC, Dickinson, North Dakota, and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a positioning flight. Visual meteorological conditions prevailed at the time of the accident, and a flight plan was not filed. The flight departed the Moorhead Municipal Airport (JKJ), Moorhead, Minnesota, about 1350.

According to the pilot, before the accident flight, the airplane had been experiencing intermittent landing gear problems, and the purpose of the flight was to bring the airplane to a maintenance facility to examine the landing gear system. Before the flight, the landing gear circuit breaker was pulled in order to keep the gear in the down position for the flight to DTL. While landing at DTL, the pilot noticed the left wing slightly dropped after touchdown and the pilot corrected with aileron to maintain runway centerline. Shortly thereafter, the pilot could feel the right main landing gear slowly collapse. The pilot was unable to maintain the airplane on runway centerline, and the airplane exited the runway surface. The airplane came to rest upright with the right main landing gear collapsed. The airplane was recovered for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA162	02/24/2017 1845 EST	Regis# N685V	Linden, NJ	Apt: Linden LDJ
Acft Mk/Mdl CESSNA T337-G		Acft SN P3370265	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL TSIO-360-CB6B		Acft TT 2030	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ROGER LEVY		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot reported that, during approach, he pushed the yoke forward to avoid a flock of birds in his flightpath, which resulted in an "increased and abnormal rate of descent." He was then unable to arrest the descent, and the "main landing gear made very hard contact with the runway." The airplane bounced, the nose landing gear collapsed, and the airplane came to rest nose down.

The airplane sustained substantial damage to the firewall.

The Federal Aviation Administration Airport Facility Diagram page for the destination airport in part states: "Birds on and invof [in vicinity of] arpt."

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's abrupt maneuver to avoid birds during short final approach, which resulted in a hard, bounced landing.

Events

1. Approach-VFR pattern final - Miscellaneous/other
2. Approach-VFR pattern final - Abrupt maneuver
3. Landing - Abnormal runway contact
4. Landing - Hard landing
5. Landing - Landing gear collapse

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Descent/approach/glide path-Attain/maintain not possible - C
3. Environmental issues-Physical environment-Object/animal/substance-Animal(s)/bird(s)-Ability to respond/compensate - C

Narrative

The pilot reported that during approach he pushed the yoke forward to avoid a flock of birds in his flight path, which resulted in an "increased and abnormal rate of descent". He further reported that he was then unable to arrest the descent and the "main landing gear made very hard contact with the runway". The airplane bounced, the nose landing gear collapsed, and the airplane came to rest nose down.

The airplane sustained substantial damage to the firewall.

The Federal Aviation Administration Airport Facility Diagram page for the destination airport in part states: "Birds on and invof [in vicinity of] arpt."

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA046	10/23/2016 1400 CDT	Regis# N528HB	Kirkville, MO	Apt: Kirkville Rgnl IRK
Acft Mk/Mdl CIRRUS SR22		Acft SN 4404	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL IO-550 N		Acft TT 7	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: HARRY S. BATES		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The recently certificated pilot reported that, during the initial climb, he heard a whistling noise and noticed that the passenger door was not secured. Subsequently, he returned to the departure airport to secure the door.

He added that, during the landing flare, he believed that the wind decreased significantly, which resulted in him having "too much right rudder engaged." The airplane touched down 30ø relative to the runway centerline, veered off the runway to the right, and the nose gear collapsed.

The airplane sustained substantial damage to the firewall.

The pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's improper compensation for changing wind during the landing flare, which resulted in an off-centered landing and a subsequent loss of directional control.

Events

1. Landing - Other weather encounter
2. Landing-flare/touchdown - Abnormal runway contact
3. Landing - Loss of control on ground
4. Landing - Runway excursion
5. Landing - Landing gear collapse

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Crosswind correction-Not attained/maintained - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C
4. Environmental issues-Conditions/weather/phenomena-Wind-Crosswind-Response/compensation - C
5. Environmental issues-Conditions/weather/phenomena-Wind-Crosswind-Effect on equipment
6. Aircraft-Aircraft structures-Doors-Passenger/crew doors-Not specified

Narrative

The recently certificated pilot reported that during the initial climb he heard a whistling noise and noticed that the passenger door was not secured. Subsequently, he returned to the departure airport to secure the door.

He added that during the landing flare, he believed that the wind decreased significantly, which resulted in him having "too much right rudder engaged". The airplane touched down 30ø relative to center line, veered off the runway to the right, and the nose gear collapsed.

The airplane sustained substantial damage to the firewall.

The pilot reported no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA144	03/29/2017 2159 EDT	Regis# N580PU	Fort Wayne, IN	Apt: Fort Wayne Intl FWA
Acft Mk/Mdl CIRRUS DESIGN CORP SR20-NO SERIES	Acft SN 2039	Acft Dmg: DESTROYED	Fatal 0	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO-360-ES		Ser Inj 1	Flt Conducted Under: FAR 091	
Opr Name: TRUSTEES OF PURDUE UNIVERSITY	Opr dba:		Aircraft Fire: NONE	

Events

1. Landing - Loss of control in flight
-

Narrative

On March 29, 2017, about 2156 eastern daylight time, a Cirrus SR-20, N580PU, was destroyed when it impacted the ground following a loss of control while landing on runway 5 at the Fort Wayne International Airport, Fort Wayne, Indiana. The certified flight instructor received minor injuries and the student pilot received serious injuries. The student pilot held a private pilot certificate. The airplane received extensive damage to the forward fuselage and both wings. The aircraft was registered to the Trustees of Purdue University and operated by the University under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed for the flight, which operated on a visual flight rules flight plan. The flight originated from the Purdue University Airport, Lafayette, Indiana about 2100.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR17LA084	04/02/2017 1529 PDT	Regis# N167CB	Brinnon, WA	Apt: N/a
Acft Mk/Mdl CIRRUS DESIGN CORP SR22-NO SERIES	Acft SN 0822	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim	Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO-550 SERIES	Acft TT 842	Fatal 0	Ser Inj 2	Flt Conducted Under: FAR 091
Opr Name: THE FLIGHT ACADEMY	Opr dba:	Aircraft Fire: NONE	AW Cert: STN	

Events

1. Maneuvering - Unknown or undetermined
-

Narrative

On April 2, 2017, at 1529 Pacific daylight time (PDT), a Cirrus Design Corporation SR22, N167CB, impacted mountainous terrain near Mount Christie, in Jefferson County, Washington. The airplane was operated by The Flight Academy under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The certified flight instructor (CFI) and student pilot sustained serious injuries. The airplane sustained substantial damage during the accident sequence. The instructional flight departed Langley, Washington, about 1400. Visual meteorological conditions prevailed and no flight plan had been filed.

The operator reported that the instructional flight had departed with no known destination or flight plan. The United States Air Force Rescue Coordination Center (AFRCC) received a 406 mhz Emergency Locator Transmission (ELT) from an unregistered source at 1529 PDT with a location near the accident site. Washington Air Search and Rescue (WASAR) responded to the reported ELT location. Additionally, at 1548 PDT, a Delta Airline flight received a radio transmission from the accident flight stating they had crashed.

The wreckage was subsequently located and both pilots were hoisted from the accident site and transported to a local hospital.

The accident site was located .4 NM southwest of Mount Christie, at an elevation of 4,700 feet MSL. The accident site is located inside the Olympic National Forest.

The airplane wreckage will be recovered for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA170	03/02/2017 1315 CST	Regis# N56552	Roxbury, KS	Apt: N/a
Acft Mk/Mdl MAULE M5-180C		Acft SN 8080C	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-CIF		Acft TT 1116	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: RANDAL S. SHANNON		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing - Loss of control in flight
-

Narrative

The pilot of the tailwheel-equipped airplane reported that during the flare, while landing on a road in gusty crosswind conditions, the right wing lifted to about a 60° angle. He immediately initiated a go-around and added full power, full right aileron, and lowered the nose. The airplane had drifted off the center of the road to the left heading toward powerlines, and he elected to go under them. After the airplane cleared the powerlines, the left wingtip struck the ground and the airplane cartwheeled. The airplane sustained substantial damage to both wings, the fuselage, and the empennage.

The pilot reported that there were no pre-accident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA168	03/01/2017 1530 PST	Regis# N600XX	Live Oak, CA	Apt: Private Airstrip N/A
Acft Mk/Mdl MAULE MX7-180A		Acft SN 20037C	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-C4F		Acft TT 1162	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: RICHARD K. LIBBY		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that, while on base for his private grass airstrip, he noticed he was high, so he added flaps to increase his descent. He added that, on final, the airspeed was a little fast and during the landing, he flared the airplane "a little high." After touchdown, the pilot applied the brakes, but the airplane did not respond, so he applied "a little more brake"; subsequently, the airplane nosed over and came to rest inverted.

The airplane sustained substantial damage to both wings and the empennage.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The pilot reported as a safety recommendation that he should have performed a go-around instead of attempting to "salvage the landing."

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain a stabilized approach and his subsequent incorrect brake application during the landing roll, which resulted in a nose-over.

Events

1. Landing-landing roll - Nose over/nose down

Findings - Cause/Factor

1. Aircraft-Aircraft systems-Landing gear system-Brake-Incorrect use/operation - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Surface speed/braking-Not attained/maintained - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Descent/approach/glide path-Not attained/maintained - C
4. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C

Narrative

The pilot of the tailwheel equipped airplane reported that while on base for his private grass airstrip, he noticed he was high, so he added flaps to increase his descent. He reported that on final the airspeed was a little fast and during the landing, he flared the airplane "a little high". The pilot further reported that after touchdown, he applied the brakes, but the airplane did not respond, so he applied "a little more brake"; subsequently, the airplane nosed over and came to rest inverted.

The airplane sustained substantial damage to both wings and the empennage.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The pilot reported as a safety recommendation that he should have performed a go-around instead of attempting to "salvage the landing".

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16CA227	06/12/2016 1430 EDT	Regis# N438QA	Maysville, WV	Apt: N/a
Acft Mk/Mdl PEZETEL SZD 48-1JANTAR STD 2	Acft SN W 908	Acft Dmg: SUBSTANTIAL	Fatal 0	Prob Caus: Pending
		Ser Inj 0	Fit Conducted Under: FAR 091	
Opr Name: CIOLEK ARI	Opr dba:		Aircraft Fire: NONE	
			AW Cert: SPE	

Summary

The pilot of the glider reported that, during a long distance ridgeline soaring flight, he encountered a loss of lift and dropped below the ridgeline. Unable to find another updraft, he was forced to land in an open field, with tall grass. As the glider touched down, the landing gear struck a large hole that was concealed by the grass, shearing off the landing gear and causing a ground loop when the left wing struck the ground. The fuselage and tail were substantially damaged.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The glider's encounter with insufficient atmospheric lift conditions where the lift was not sufficient to maintain soaring flight, which resulted in an off-airport landing.

Events

1. Maneuvering - Loss of lift
2. Landing - Off-field or emergency landing
3. Landing-landing roll - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Environmental issues-Conditions/weather/phenomena-Temp/humidity/pressure-Thermal lifting-Effect on operation - C
2. Environmental issues-Physical environment-Terrain-Rough terrain-Contributed to outcome
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Altitude-Attain/maintain not possible - C

Narrative

The pilot of the glider reported that during a long distance ridgeline soaring flight, he encountered a loss of lift and dropped below the ridgeline. Unable to find another updraft, he was forced to land in an open field, with tall grass. As the glider touched down, the landing gear struck a large hole that was concealed by the grass, shearing off the landing gear and causing a ground loop when the left wing struck the ground. The fuselage and tail were substantially damaged.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ANC16CA058	08/24/2016	1830 AKD	Regis# N35589	Sterling, AK	Apt: N/a
Acft Mk/Mdl PIPER J5A			Acft SN 5-693	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-290 SERIES				Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BEN MASTRE			Opr dba:		Aircraft Fire: NONE
					AW Cert: STN

Summary

The pilot was returning from a local flight when he intentionally ran the right fuel tank dry. After switching fuel tanks, he attempted to restart the engine, but the attempt was unsuccessful. During an emergency landing on a narrow road, the right wing impacted brush and trees, which resulted in substantial damage to both wings.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's improper fuel management, which led to fuel exhaustion and a subsequent forced landing on a road too narrow for the airplane.

Events

1. Enroute - Fuel related
2. Landing - Collision during takeoff/land

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Use of equip/system-Pilot - C
2. Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid management - C
3. Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid level - C
4. Environmental issues-Physical environment-Object/animal/substance-Residence/building-Contributed to outcome

Narrative

The pilot was returning from a local flight when he intentionally ran the right fuel tank dry. After switching fuel tanks, he attempted to restart the engine, but the attempt was unsuccessful. During an emergency landing on a narrow road, the right wing impacted brush and trees, causing the airplane to turn towards the right and resulted in substantial damage to both wings.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA193	03/19/2017 1320 ADT	Regis# N92544	Palmer, AK	Apt: Palmer Muni PAQ
Acft Mk/Mdl PIPER PA 12-NO SERIES		Acft SN 12-73	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 SERIES		Acft TT 1873	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: LEE R. DEWILDE		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Loss of control on ground
-

Narrative

The pilot of the tailwheel equipped airplane reported that during takeoff he added full power, applied right rudder, and "pushed [the] stick forward to lift [the] tail off the ground". He added that the tail came back onto the ground and the airplane veered to the right. He further added that he overcorrected to the left and the airplane ground looped; subsequently, the right main landing gear collapsed and the right wing and elevator impacted the ground.

The airplane sustained substantial damage to the right wing and elevator.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16CA239	07/02/2016 1850 EDT	Regis# N8130D	Harrisonburg, VA	Apt: Private NA
Acft Mk/Mdl PIPER PA 22-160-160		Acft SN 22-5621	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 SERIES			Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: EMBREE WALTER G		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot/owner of the single-engine, tailwheel-equipped airplane was attempting to depart from a private turf runway. During the takeoff, a wind gust contacted the airplane from the left side, and the airplane veered to the right. The airplane's right wing and propeller then struck a fence post. The pilot tried to fly the airplane back to the runway, but it impacted terrain and slid into a tree. The pilot reported that there were no preimpact mechanical malfunctions or anomalies with the airplane that would have precluded normal operation. Examination of the wreckage revealed substantial damage to both wings and the fuselage. The recorded weather at an airport located about 15 miles from the accident site, about the time of the accident, included a left quartering headwind at 9 knots.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's loss of directional control during takeoff in gusting crosswind conditions.

Events

1. Takeoff - Loss of control in flight
2. Takeoff - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C
3. Environmental issues-Conditions/weather/phenomena-Wind-Crosswind-Effect on operation
4. Environmental issues-Conditions/weather/phenomena-Wind-Gusts-Effect on operation
5. Environmental issues-Physical environment-Object/animal/substance-Fence/fence post-Contributed to outcome

Narrative

The pilot/owner of the single-engine tailwheel airplane was attempting to depart from a private turf runway. During the takeoff, a gust of wind contacted the airplane from the left side, and it veered to the right. The airplane's right wing and propeller then struck a fence post. The pilot tried to fly the airplane back to the runway, but it impacted terrain and slid into a tree. The pilot reported there were no preimpact mechanical malfunctions or anomalies that would have precluded normal operation of the airplane. Examination of the wreckage revealed substantial damage to both wings and the fuselage. The recorded weather at an airport located about 15 miles from the accident site, about the time of the accident, included a left quartering headwind at 9 knots.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN16FA001	10/02/2015 1030 CST	Regis# N3552K	Huntsville, TX	Apt: Huntsville UTS
Acft Mk/Mdl PIPER PA 28-140		Acft SN 28-23623	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-E2A		Acft TT 3942	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JENSEN ROBERT E		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Enroute - Fuel related

Narrative

HISTORY OF FLIGHT

On October 2, 2015, about 1030 central daylight time, a Piper PA-28-140 airplane, N3552K, collided with terrain near Huntsville Municipal Airport (UTS), Huntsville, Texas. The private pilot was fatally injured, and the airplane was substantially damaged. The airplane was registered to a private individual and was being operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Visual flight rules conditions existed near the accident site at the time of the accident, and a flight plan had not been filed. The airplane departed UTS just before the accident and was destined for Lone Star Municipal Airport (CXO), Conroe, Texas.

A mechanic who worked for the fixed-base operator (FBO) reported that, on the day before the accident, the pilot was at UTS and that he replaced the airplane's battery. He added that, on the day of the accident, the pilot taxied the airplane to the maintenance hangar where he inflated the nose tire. The pilot told him that he was flying the airplane to Conroe because someone there was interested in purchasing the airplane. The mechanic stated that he told the pilot that the airplane had not been flown in a while, and the pilot stated that he might fly it around the area before heading to Conroe. The mechanic stated he did not see the pilot taxi the airplane nor take off, and no known witnesses saw the airplane take off.

CXO air traffic control tower personnel reported that the airplane did not land at the airport on the day of the accident.

The airplane owner, who was the pilot's brother-in-law, confirmed that the pilot replaced the airplane's battery on the day before the accident. He stated that the pilot was going to check the radios on the day of the accident, but that he was not supposed to fly the airplane.

About 1900, the pilot's family notified the Walker County Sheriff's Office that the pilot was missing. A search was initiated, and the wreckage was located about 2130 on a law enforcement shooting range that bordered the east side of UTS.

PERSONNEL INFORMATION

The pilot's last Federal Aviation Administration (FAA) third-class medical certificate was issued on July 13, 2006. The medical certificate contained the limitation, "Not valid for any class after 07/31/2007. Must have available glasses for near vision."

On the application for his last FAA medical certificate, the pilot reported having 1,550 hours of flight time, 26 hours of which were flown in the preceding 6 months. The pilot's current flight time could not be determined because no personal flight records were located during this investigation.

AIRCRAFT INFORMATION

The airplane was a low-wing, four-seat, fixed-tricycle-landing gear airplane, serial number 28-23623, manufactured in 1967. The engine, serial number L19195-27A, was installed in the airplane on June 11, 2003, in accordance with Supplemental Type Certificate SE367CH, which increased the horsepower to 160.

The last annual inspection was completed on February 15, 2014, at a tachometer time of 48.2 hours. The tachometer time at the time of the accident was 49.5 hours. The aircraft total time at the time of the accident was calculated to be 3,942 hours.

An employee of the FBO at UTS reported that the airplane was last fueled at UTS on February 14, 2014. The amount of fuel added to the airplane is unknown. The airplane was kept in a hangar until May 5, 2015, when it was relocated to a ramp tie-down space.

National Transportation Safety Board - Aircraft Accident/Incident Database

The airplane owner stated that it had been about 1 year since the airplane was last flown. He reported that he and the pilot were planning on getting a ferry permit on October 5, 2015, so they could fly the airplane to Conroe for an annual inspection and to park the airplane outside the FBO to sell it. FBO personnel reported that the owner had rented a tie down space on their ramp, but as far as they knew, the airplane had not been parked there.

METEOROLOGICAL INFORMATION

WRECKAGE AND IMPACT INFORMATION

The wreckage was located in a narrow clearing in a wooded area about 1/4 mile east of the approach end of runway 18 at UTC. The wreckage was inverted and on a heading of 100. Tree branches were embedded in the bottom of the fuselage.

The aircraft battery power was found in the "on" position, and the wingtip lights were illuminated. The cockpit switches for the fuel boost pump, strobes, and instrument lights were in the "on" position. The magneto switch was in the "both" position. The carburetor heat knob was broken off, and the control cable appeared to be in the "off" (cold) position. The mixture control was full rich, and the throttle was at idle. The fuel selector was in the "off" position.

Examination of the airframe revealed that both sides of the aft fuselage were crushed inward and that the left-side crushing was more extensive. The top of the cockpit area was crushed downward to the top of the seats, but the remainder of the cockpit area was not compromised. All four seats were intact. The seats were equipped with seat belts, but shoulder harnesses were not installed. The airplane was not equipped with an electronic locator transmitter.

Both wings sustained impact damage, but they remained attached to the fuselage. The ailerons and flaps remained attached to their respective wings. Both the left and right fuel tanks were intact, and their fuel caps were secured. The right wing fuel tank contained about 4 gallons of fuel, and the left wing fuel tank contained about 16 ounces of fuel. A slow drip of fuel was observed coming from the right fuel tank filler cap before the airplane was righted. There was no evidence of fuel leakage from the left fuel tank. The fuel was clean and consistent with 100LL aviation fuel.

The horizontal stabilator, rudder, and vertical stabilizer sustained minor damage, and all remained attached to the empennage. The top of both the rudder and vertical stabilizer were crushed. The pitch trim drum displayed nine threads upper extension of the inner shaft, which was consistent with a trim setting of about 50% or 60 of the available 120 nose-up trim.

Flight control continuity was established from each flight control surface to their respective cockpit controls. Both the left and right flaps were in place, and the flaps were extended about 40. All three landing gears remained attached.

The gascolator bowl was removed, and it was about three-quarters full of clean fuel that was consistent with 100LL aviation fuel. The gascolator screen and fuel boost pump filter were free of debris. The carburetor was removed and disassembled. Metal floats and a one-piece venturi were installed. No fuel was present in the carburetor bowl. The carburetor fuel inlet screen was examined, and it was free of debris.

The engine was rotated by hand using the propeller. Thumb compression, suction, and valve train continuity were confirmed to all cylinders. Accessory gear rotation was verified, and both magnetos sparked all leads when the engine was manually rotated. All spark plugs, Champion (REM40E) were removed and were light grey. All of the spark plugs were mid- to late-service life per the manufacturer's chart. Damage to the starter housing from impact with the ring gear was consistent with slow rotation/no power at the time of impact.

The propeller remained attached to the propeller flange. One propeller blade was straight. The other blade had a slight bend near its tip. No anomalies were identified with the airframe, flight controls, engine, engine components, or the propeller that would have prevented their normal operation.

MEDICAL AND PATHOLOGICAL INFORMATION

The Montgomery County Forensic Services Department conducted an autopsy on the pilot. The manner of death was attributed to "multiple blunt force injuries." The autopsy report stated the pilot had arteriosclerotic cardiovascular disease, diabetes, and kidney stones. The autopsy, FAA medical records, and the pilot's medical records from his personal physician were reviewed, and no evidence was found to suggest that the pilot suffered an acute cardiac event at the time of the accident.

Toxicology testing performed by the FAA's Bioaeronautical Research Sciences Laboratory identified 0.088 ug/ml of diphenhydramine in heart blood, and tamsulosin and yohimbine in cavity blood. All three drugs were also identified in urine. In addition, 366 mg/dl of glucose was confirmed in urine (normal is 0). Clinical lab tests performed on the pilot's vitreous found 8 mg/dl of glucose and his blood revealed a hemoglobin A1C of 9 %.

Diphenhydramine is a sedating common over-the-counter antihistamine used to treat the common cold and hay fever and as a sleep aid. Diphenhydramine carries the following FDA warning: may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g. driving, operating heavy machinery). The therapeutic range for diphenhydramine is 0.0250 to 0.1120 ug/ml. Tamsulosin is an alpha blocker used in the symptomatic treatment of benign prostatic hyperplasia. Yohimbine is an alkaloid with stimulant and aphrodisiac effects found naturally in Pausinystalia Yohimbe. Neither causes significant sedation or other psychoactive effects.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17FA147	04/07/2017 1507 CDT	Regis# N9179J	Oxford, IA	Apt: Green Castle Airport IA24
Acft Mk/Mdl PIPER PA 28-180-180		Acft SN 28-3245	Acft Dmg: DESTROYED	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING O&VO-360 SER			Fatal 2 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: GREEN CASTLE AERO CLUB LTD		Opr dba:		Aircraft Fire: GRD
				AW Cert: STN

Events

1. Maneuvering - Loss of control in flight

Narrative

On April 7, 2017, about 1507 central daylight time, a Piper PA-28-180 airplane, N9179J, collided with the terrain in Oxford, Iowa, following a loss of control. The certified flight instructor (CFI) and private pilot were both fatally injured. The airplane was destroyed by impact forces and a postimpact fire. The airplane was registered to Green Castle Aero Club LTD and was being operated by the CFI as a 14 Code of Federal Regulations Part 91 training flight. Visual flight rules conditions existed near the accident site at the time of the accident, and a flight plan had not been filed for the local flight. The airplane departed the Green Castle Airport (IA24), about 1445.

A witness located about one mile east of the accident site stated he heard an engine popping and backfiring which drew his attention to the airplane. The airplane appeared to be heading south-southeast and it looked like it wasn't moving. The nose of the airplane then dropped and it entered a "downward spiral." He stated he did not hear the engine at this point. The airplane made eight or nine spirals before it stopped rotating and continued in a nose down descent. He lost sight of the airplane behind the hillside and shortly thereafter heard the impact followed by seeing black smoke. The witness stated he believes the airplane was spiraling in a clockwise rotation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA047	10/15/2016 1100 EDT	Regis# N55378	Springfield, OH	Apt: Springfield-beckley Muni SGH
Acft Mk/Mdl PIPER PA 34-200		Acft SN 34-7350207	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING LIO-360-C1E6		Acft TT 4168	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: TIMOTHY IACOBACCI		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot reported that he landed with extra power to compensate for gusting wind. He added that, after the main landing gear touched down, the airplane encountered a wind gust and ballooned up about 50 to 100 ft. The pilot initiated a go-around but was unsuccessful. The airplane impacted the runway in a flat attitude, and the nose landing gear was pushed/driven through the top of the cowling.

The airplane sustained substantial damage to the fuselage.

The pilot reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's inadequate compensation for gusting wind during the landing flare, which resulted in a hard landing.

Events

1. Landing-flare/touchdown - Other weather encounter
2. Landing - Attempted remediation/recovery
3. Landing - Hard landing

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Landing flare-Not attained/maintained - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
3. Environmental issues-Conditions/weather/phenomena-Wind-Gusts-Response/compensation - C

Narrative

The pilot reported that he landed with extra power to compensate for gusting wind. He added that after the main landing gear touched down, the airplane encountered a wind gust, and ballooned up about 50 to 100 ft. The pilot initiated a go-around, but was unsuccessful. The airplane impacted the runway in a flat attitude and the nose landing gear was pushed/driven through the top of the cowling.

The airplane sustained substantial damage to the fuselage.

The pilot reported no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR17FA085	04/07/2017 1046 PDT	Regis# N123SB	Harrisburg, OR	Apt: Mahlon Sweet Field EUG
Acft Mk/Mdl PIPER PA 46-310P-310P		Acft SN 46-8508023	Acft Dmg: DESTROYED	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR TSIO-520 SER			Fatal 4 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PARK CITY AVIATION LLC		Opr dba:		Aircraft Fire: NONE

Events

2. Maneuvering-low-alt flying - Loss of control in flight

Narrative

On April 7, 2017, about 1046 Pacific daylight time, a Piper PA-46-310P, N123SB, was destroyed when it impacted terrain near Harrisburg, Oregon during an instrument approach to Mahlon Sweet Field Airport (EUG), Eugene, Oregon. The pilot and three passengers were fatally injured. The airplane was registered to and operated by Park City Aviation, LLC as a 14 Code of Federal Regulations (CFR) Part 91 personal flight. Instrument meteorological conditions prevailed and an instrument flight rules plan had been filed for the cross-country flight that originated from Van Nuys Airport (VNY), Van Nuys, California at 0727.

Preliminary weather report indicated that the airplane was landing in strong wind conditions, moderate to severe turbulence, and low level wind sheer with precipitation and mountain obscuration due to clouds/mist/precipitation. Several witnesses located near the accident area reported they observed the airplane flying at a treetop level.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA159	02/22/2017	1630 AKS	Regis# N6024D	Big Lake, AK	Apt: Big Lake BGQ
Acft Mk/Mdl PIPER PA22-150			Acft SN 22-4677	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 SERIES			Acft TT 3437	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PATRICK M. DONELSON			Opr dba:		Aircraft Fire: NONE
					AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that, after conducting two touch-and-go landings at a nearby airport, he decided to land at a different airport to speak with a friend. He added that everything seemed normal during the touchdown on the snow-covered runway but that the airplane then "abruptly stopped and [nosed] over."

The airplane sustained substantial damage to both wings and the rudder.

The pilot reported that the inside of the left main landing gear and brake was "packed with ice" and had frozen, which prevented the wheel from rotating during the landing roll.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The contamination of snow and ice on the left main landing gear and brake, which prevented the wheel from rolling during touchdown and resulted in a nose-over.

Events

1. Landing - Nose over/nose down

Findings - Cause/Factor

1. Environmental issues-Physical environment-Runway/land/takeoff/taxi surface-Snow/slush/ice covered surface-Effect on operation - C
2. Aircraft-Aircraft systems-Landing gear system-Wheel/ski/float-Not specified

Narrative

The pilot of the tailwheel equipped airplane reported that after a couple touch-and-go landings at a nearby airport, he decided to land at a different airport to speak with a friend. He further reported that everything seemed normal during the touchdown on the snow-covered runway, but the airplane then "abruptly stopped and [nosed] over".

The airplane sustained substantial damage to both wings and the rudder.

The pilot reported that the inside of the left main landing gear and brake was "packed with ice" and had froze, which prevented the wheel from rotating during the landing roll.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA187	02/15/2017	1600 AKS	Regis# N72999	Ruby, AK	Apt: N/a
Acft Mk/Mdl PIPER PA22-160			Acft SN 22-6507	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 SERIES			Acft TT 3858	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ROGER HUNTINGTON			Opr dba:		Aircraft Fire: NONE
					AW Cert: STN

Events

1. Landing - Loss of control on ground
-

Narrative

The pilot of the tailwheel, ski-equipped airplane reported that while landing off airport in flat light conditions, he was unable to maintain a good visual reference of the hardpacked snow covered landing area. After touchdown, the airplane drifted off the hardpacked snow and the left ski sunk in softer snow. He increased power and attempted to recover with "hard right control" with no prevail. The airplane struck a snow-covered tank with the left ski.

The airplane sustained substantial damage to the left-wing lift strut.

The pilot reported that there were no pre-accident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA15FA128	02/11/2015 1415 EST	Regis# N5985U	Greensboro, NC	Apt: Air Harbor Airport W88
Acft Mk/Mdl PIPER PA28-140		Acft SN 28-26822	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-E2A		Acft TT 3799	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: RONALD O. MURPHY		Opr dba: MURPHY AVIATION / GUILFORD LAKES AVIATION LLC	Aircraft Fire: NONE	AW Cert: STN

Events

3. Initial climb - Loss of engine power (total)

Narrative

HISTORY OF FLIGHT

On February 11, 2015, about 1415 eastern daylight time, a privately owned and operated Piper PA-28-140, N5985U, was substantially damaged when it collided with trees and terrain after takeoff from Air Harbor Airport (W88), Greensboro, North Carolina. The private pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight, which was conducted under the provisions of 14 Code of Federal Regulations (CFR) Part 91.

On the day of the accident, the pilot had rented the airplane from the owner/operator. A witness observed the pilot start the airplane and taxi to an area near the end of runway 27 where he performed an engine run-up. Two witnesses reported that the takeoff sounded normal; however, they did not hear the airplane continue around the airport traffic pattern. As a result, one of the witnesses drove to the end of runway 27 where he found the wreckage. He approached the airplane and saw that fuel was flowing out of the wing area. He then called 911.

PILOT INFORMATION

According to Federal Aviation Administration (FAA) records, the pilot held a private pilot certificate with a rating for airplane single-engine land. His most recent FAA third-class medical certificate was issued on January 20, 2014. According to the pilot's records, he had accrued about 359 total hours of flight experience, 63 of which were in the accident airplane make and model.

AIRCRAFT INFORMATION

The accident airplane was a single-engine, unpressurized, low-wing monoplane manufactured in 1970. It was manufactured using conventional metal construction. It was equipped with tricycle landing gear and wing flaps and was powered by a 4-cylinder, 150 horsepower, Lycoming O-320-E2A, air-cooled engine, which drove a metal, two-bladed, fixed-pitch Sensenich propeller.

According to the individual listed on the airplane's registration at the time of the accident, he sold the airplane on August 21, 2013 to the owner/operator. Review of FAA records revealed that, at the time of the accident (approximately 1 1/2 years later), the owner/operator still had not registered the airplane.

When asked about the reason for the sale of the airplane, the previous owner advised that "it had been sitting for several years without flying." A review of the airplane's maintenance records indicated that the last annual inspection performed before the sale, occurred on January 3, 2008, at 3,690.9 total hours of operation. The first annual inspection performed after the sale occurred on January 1, 2014, at 3,709.4 total hours of operation.

The airplane's most recent annual inspection was completed on January 6, 2015. At the time of the inspection, the airplane had accrued 3,787.86 total hours of operation, and the engine had accrued 1,466.86 hours since major overhaul. In addition, the airplane had been operated about 11 hours since the inspection. Review of the rental sheet for the airplane indicated that the engine run for the annual inspection did not occur until January 21, 2015, and was 6 minutes (0.1 hour) in duration. Further review of maintenance records indicated that, at the time of the accident, the transponder inspection was out of date, and FAA Airworthiness Directive (AD) 2010-15-10, which required inspection of the control wheel shafts, had not been accomplished.

METEOROLOGICAL INFORMATION

The 1354 recorded weather at Piedmont Triad International Airport (GSO), Greensboro, North Carolina, located 8 nautical miles southwest of the accident site, included: calm winds, 10 statute miles visibility, few clouds at 15,000 ft above ground level, temperature 9øC, dew point -1øC, and an altimeter setting of 29.96

inches of mercury.

AIRPORT INFORMATION

Air Harbor Airport was owned by Guilford Lake Aviation, LLC, and was located 6 miles north of Greensboro, North Carolina at an elevation of 822 ft mean sea level (msl). It was classified by the FAA as a privately owned, non-towered, public use airport. The airport was equipped with one runway oriented in a 9/27 configuration, which measured 2,460 ft long by 65 ft wide.

The pilot rented the airplane from Murphy Aviation, the service provider at the airport that provided fuel, maintenance, parking, tie downs, and airplane rentals.

The owner/operator of the airplane was the airport manager and also owned Murphy Aviation. He was listed by the State of North Carolina as the registered agent for Guilford Lakes Aviation LLC, and in the past had also done business at the airport as Air Harbor Airport, Inc.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed that, after takeoff from runway 27, the airplane turned left, descended, and then struck approximately 65 foot high trees, about 400 feet from the end of the runway. The airplane first made contact with the trees about 45 ft above ground level, then dropped to the forest floor, coming to rest on its left side wedged between two trees on a magnetic heading of 192ø at an elevation of approximately 769 feet msl.

The fuselage exhibited multiple areas of crush and compression damage, and the aft fuselage had been bent about 45ø to the left during the impact sequence. The cabin was mostly intact. Examination of the restraint system revealed that the airplane had been equipped with lap belts but was not equipped with shoulder harnesses.

The left wing exhibited crush and compression damage on the leading edges and compression damage at the inboard trailing edge. It remained intact, with the exception of an approximate 4-ft long outboard section that had been separated from the left wing during the impact with trees.

The right wing was almost completely separated from the fuselage at the wing root, and it exhibited impact damage in several places, including a large depressed area at approximately mid-span, where the wing skin had been crushed aft to the wing spar.

The rudder and stabilator remained attached to their mounting points and moved freely. Internal examination of the rudder revealed the presence of wasp nests.

The stall warning vane was in place and operated normally when checked with a volt/ohm meter.

Examination of the instrument panel and flight controls revealed that the throttle was in the full power position, the mixture control was full rich, and the carburetor heat was off. The fuel primer was in and locked. The auxiliary electric fuel pump was "ON." The airspeed indicator needle indicated about 66 knots. The tachometer indicated about 1,100 rpm. The flap handle was in the flaps-retracted position and flight control continuity was established from the ailerons, stabilator, and rudder to the cockpit controls.

Examination of the propeller revealed that the propeller spinner exhibited crush damage on the tip. One side of the spinner and the propeller remained partially attached to the crankshaft flange. The flange was bent and three propeller bolts were broken. One propeller blade was bent aft about 10ø about mid-span. The other propeller blade was bent aft about 30ø about mid-span. Its tip was bent forward about 10ø. There was no evidence of leading edge gouging or chordwise scratching on either blade.

The engine remained attached to the firewall at its mount. The engine was removed from the firewall, suspended from a lift, and partially disassembled to facilitate examination. The drivetrain was rotated and continuity from the crankshaft to the rear gears and valve train was confirmed. Compression and suction were observed on all four cylinders. The interiors of the cylinders were examined using a lighted borescope and no anomalies were noted. Both magnetos produced spark when rotated. The spark plugs appeared normal with the exception of the No. 2 cylinder's bottom spark plug, which was impact-damaged. Oil was present in the engine, and both the oil suction screen and oil filter were clean absent of debris.

The carburetor remained attached to the engine. It was removed and partially disassembled, and about 2 teaspoons of fuel were observed in the float bowl. The carburetor fuel inlet screen was absent of debris and the carburetor internal components were undamaged. The engine-driven fuel pump remained attached to the engine and was impact-damaged. The pump was removed and partially disassembled. A small amount of fuel drained from the pump when it was tilted. No damage to the rubber pump diaphragms or check valves was noted.

The fuel strainer and electric fuel pump were removed and disassembled; both were devoid of fuel. The strainer and pump fuel screens contained no debris.

The fuel selector valve handle was found in the right tank position. The fuel selector valve was then removed from the airplane. With the handle in the right tank position, air was applied to the selector valve but would not pass through the valve. Subsequent attempts to manipulate the selector valve revealed that it was stiff to rotate, and positive engagements of the detents could not consistently be obtained. Further attempts to flow air through the valve produced intermittent results. Disassembly of the fuel selector valve revealed rotational scoring in the valve body and on the plug cock, which also displayed discoloration and worn detents.

MEDICAL AND PATHOLOGICAL INFORMATION

On his most recent FAA medical certification application, the 74-year-old pilot reported that he had glaucoma treated with timolol, prostatic hypertrophy treated with alfuzosin, and was using the cholesterol-lowering medication atorvastatin.

Autopsy

An autopsy was performed on the pilot by the North Carolina Department of Health and Human Services Office of the Chief Medical Examiner. The cause of death was multiple crushing blunt force injuries.

The autopsy revealed evidence of atherosclerotic cardiovascular disease. The pilot's heart weighed 450 grams (average heart weight for a 172-lb man is 345 grams, with a range from 261-455 grams) with concentric left ventricular myocardial hypertrophy. The coronary arteries exhibited up to 70%, 50%, and 60% luminal stenosis of the left anterior descending, circumflex, and right coronary arteries, respectively. The myocardium showed no evidence of scarring.

Toxicological Testing

Toxicological testing was conducted at the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma. Toxicology identified alfuzosin and timolol; both had been reported during the pilot's FAA medical examinations. Additionally, citalopram and its metabolite, N-Desmethylocitalopram, were detected; this medication was not reported to the FAA. FAA toxicological testing does not distinguish between citalopram and the isomer escitalopram.

Both citalopram and escitalopram are prescription antidepressants marketed with the names Celexa and Lexapro, respectively. The medications carry the warning: "May impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery)."

According to the FAA's Guide for Aviation Medical Examiners, pilots treated for depression with citalopram or escitalopram may be considered for a special issuance medical certificate if the pilot has been clinically stable, as well as on a stable dose of medication without any aeromedically significant side effects and/or an increase in symptoms.

According to his family, the pilot was in good health, but had a history of anxiety that was well-managed with escitalopram without noted side effects.

TESTS AND RESEARCH

Fuel System Description and Review

The airplane was equipped with two 25-gallon fuel tanks, which were secured to the leading edge structure of each wing by screws and nut plates. Each tank had an individual fuel drain at the bottom inboard corner, which was used to check for water or sediment. From the outlet of each tank, fuel lines were routed through the wings to the fuel selector valve located on the left side panel forward of the pilot's seat. From the fuel selector valve, a line led to the fuel strainer bowl, which was mounted on the front of the engine firewall. The fuel line then routed from the strainer bowl to the electric fuel pump, engine driven fuel pump,

and carburetor.

Examination of the fuel selector control revealed that it was likely original to the airplane. It had four selectable positions: LEFT TANK, RIGHT TANK, OFF, and OFF, indicating that it had not been modified per Piper Service Bulletin No. 840, issued in 1986, or per Piper Service Bulletin No. 840A, which superseded the previous bulletin and was issued in 2013. The modification would have reconfigured the fuel selector so it had a spring-loaded metal stop and only three selectable positions: L TANK, R TANK, and FUEL OFF. Piper Aircraft considered that compliance with these service bulletins was mandatory, which was clearly stated on the service bulletin, to reduce the possibility of pilot mismanagement of the fuel system through inadvertent selection of the "OFF" position, which could result in power interruption or engine stoppage.

The electric fuel pump was provided in case the engine-driven fuel pump failed; the electric fuel pump was required to be on for takeoff, landing, and when switching tanks. Examination of the pump indicated that it was functional, and the electric fuel pump switch was found in the "ON" position following the accident.

The fuel strainer, which was equipped with a quick drain, was located on the lower left front of the engine firewall and was accessible outside of the nose section. A witness, who saw the airplane taxiing before the accident, observed what he believed was possibly fuel "atomizing" in front of the left wing of the airplane. He advised that it appeared to be coming from the front of the wing root area near the firewall (near where the fuel strainer was located) and dispersing aft over the wing. Examination of the fuel strainer had revealed though, that the quick drain was closed. During further examination of the fuel system for a source of the fuel the witness observed, it was discovered that, fuel staining was seen inside the wings, and the rubber fuel tank vent tube couplers were found age-hardened, split, and leaking.

Fuel Valve Inspection Guidance

According to the Piper Cherokee Service Manual, the operation of the fuel selector valve was required to be confirmed during inspections. The manual advised that, when the fuel selector handle was not in a positive selector detent position, more than one fuel port would be open at the same time. The manual stated, "It should be ascertained that the fuel selector is positioned in a detent, which can be easily felt when moving the handle through its various positions."

According to FAA Advisory Circular (AC) 43.13-1B, Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair, when inspecting fuel crossfeed, firewall shutoff, and tank selector valves, these valves must be inspected for leakage and proper operation. In the case of selector valves, this means the operation of each handle or control needs to be checked to see that it indicates the actual position of the selector valve to the placard location. Movement of the selector handle should be smooth and free of binding, and stops and detents should exhibit positive action and smooth operational feel, as worn or missing detents and stops could cause unreliable positioning of the fuel selector valve. Inaccurate positioning of fuel selector valves could also be caused by worn mechanical linkages between the selector handle and the valve unit. Universal joints, pins, gears, splines, cams, levers, etc., should be checked for wear and excessive clearance, which prevent the valve from positioning accurately or from obtaining fully "off" and "on" positions. An improper fuel valve position setting could seriously reduce engine power by restricting the available fuel flow.

High Resolution Photography of Valve Body and Plug Cock

Comparison of the fuel selector valve to an exemplar valve removed from another airplane with about 2,206 total hours of operation revealed that the exemplar valve rotated smoothly, and the detents could be felt positively when the valve was selected to each position.

High resolution photography of the fuel selector valve revealed the presence of staining, corrosion, and debris, and the plug cock had debris embedded in its surface. None of the noted anomalies observed in the accident airplane's fuel selector valve were observed with the same severity in the exemplar valve.

Materials Identification and Spectroscopy

Positive material identification was used to determine the materials composition of the valve body, valve stem, and position washer.

Spectroscopy of the debris particles found in the valve body and embedded in the plug cock, revealed that the debris particles contained elements like the ones that made up the composition of the valve body, valve shaft, and position washer.

ADDITIONAL INFORMATION

Information Provided by the Chief Mechanic

The owner/operator's chief mechanic stated that he had assisted the owner in putting the airplane back into service after the owner purchased it. They had replaced all the hoses in the engine compartment, but did not do any work aft of the firewall with the exception of replacing the battery.

The chief mechanic also stated that he performed the airplane's last two annual inspections. He advised that entries for the last annual inspection were incorrect, and the annual was actually completed on January 21, 2015. He used Piper guidelines as well as 14 CFR Part 43 during the inspections of the airplane. The fuel selector was "stiff" to turn, but he thought it was not any tighter than any other older Piper he had worked on, and it seemed to work fine.

According to the chief mechanic, the owner/operator and the mechanic's helper also assisted with the annual inspection. He and the mechanic's helper had worked separate from the owner/operator and had not performed any work on the fuel selector. He and the mechanic's helper would always "check behind each other." He stated that had performed AD 2010-15-10 regarding inspection of the control wheel shafts, but had not entered it into the maintenance records. He stated that he was not in the airplane when the mechanic's helper performed the engine run-up following completion of the annual inspection, so he did not know if he had "exercised the fuel valve in the airplane."

The chief mechanic stated that he did not feel that anything was unairworthy with the airplane, and he was not aware that the owner had not registered the airplane after purchasing it.

Information Provided by the Mechanic's Helper

The mechanic's helper stated that his work was supervised by the owner/operator or the chief mechanic. He had performed most of the annual inspection as well as the engine run, which he performed alone. He was unaware that the engine run was part of the annual inspection and that a certificated mechanic with an inspection authorization was required to perform the engine run. He remembered that he had function-tested the fuel selector as part of the annual inspection and that he cycled it on and off and made sure it had "feel." He also pressurized it with the electric fuel pump and did not notice any fuel leaks. He was unaware that he was required to list his name in the maintenance records when performing work as a mechanic's helper.

He had started working for the owner/operator 8 years before the accident and had performed some of the work on the airplane to bring it back into service. He remembered that they had changed all the hoses forward of the firewall after the purchase, but they had not performed any work on the fuel selector, fuel lines, or vent lines, other than making sure that the vent lines were clear. He was aware that there were numerous discrepancies in the maintenance records for the airplane, including an undocumented oil change. He also knew that the airplane had been purchased by the owner in 2013, but was still registered to the previous owner.

Information Provided by the Owner/Operator

The owner/operator stated that, during the annual inspection, he never felt any "galling, binding, or anything else" when he checked the fuel selector valve. The mechanic's helper then checked it, then he checked the fuel strainer and they ran the electric pump. He never noticed any fuel staining.

He stated that, "there were no complaints or squawks prior to the accident." He also stated that after he purchased the airplane, and, before returning it to service, they "replaced all rubber lines firewall forward."

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA149	12/13/2016 1530 EST	Regis# N3563K	Palm Coast, FL	Apt: Flagler Executive FIN
Acft Mk/Mdl PIPER PA28-140		Acft SN 28-23628	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-E2A		Acft TT 4700	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ROBERT L. MINAHAN		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot reported that, after landing and during the turn onto a taxiway, the left wing impacted a taxiway sign. He added that he was not able to see the sign because of sun glare.

The airplane sustained substantial damage to the left wing.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain clearance from the taxiway sign.

Events

1. Taxi-from runway - Airport occurrence
2. Taxi-from runway - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Personnel issues-Psychological-Attention/monitoring-Monitoring environment-Pilot - C
2. Environmental issues-Physical environment-Object/animal/substance-Sign/marker-Effect on operation - C
3. Environmental issues-Conditions/weather/phenomena-Light condition-Glare-Effect on personnel

Narrative

The pilot reported that after landing during the turn onto a taxiway, the left wing impacted a taxiway sign. He added that he was not able to see the sign because of a sun glare.

The airplane sustained substantial damage to the left wing.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16CA218	06/19/2016 1500 EDT	Regis# N44255	Block Island, RI	Apt: Block Island State BID
Acft Mk/Mdl PIPER PA32-260		Acft SN 32-7400048	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-540 SERIES			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: TELESFORD, LOUIS A		Opr dba:		Aircraft Fire: GRD
				AW Cert: STN

Summary

According to the pilot, while on final approach to land on a 2,502-ft-long, asphalt runway, he observed another airplane back-taxiing on the runway and then depart. He continued the approach, performed a "normal" full-flaps landing, and the airplane touched down about midfield. During the rollout, he determined that there was insufficient runway remaining to stop and chose to attempt a go-around. The airplane subsequently struck the airport perimeter fence and then a roadway guard rail before it impacted terrain, which resulted in substantial damage to the wings and fuselage. The pilot reported that there were no preaccident malfunctions or failures with the airplane that would have precluded normal operation. He also stated that the accident might have been prevented by aborting the landing earlier.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to attain the proper touchdown point and the airplane's subsequent collision with obstacles during an attempted go-around.

Events

1. Landing-flare/touchdown - Landing area overshoot
2. Landing-aborted after touchdown - Collision during takeoff/land

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Descent/approach/glide path-Not attained/maintained - C
2. Aircraft-Aircraft oper/perf/capability-Aircraft capability-Takeoff distance-Capability exceeded - C
3. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
4. Environmental issues-Physical environment-Object/animal/substance-(general)-Contributed to outcome

Narrative

According to the pilot, while on final approach to land on a 2,502-foot-long, asphalt runway, he observed another airplane back-taxiing on the runway and then depart. He continued the approach, performed a "normal" full flaps landing, and the airplane touched down about midfield. During the rollout, he determined that there was insufficient runway remaining to stop, and chose to attempt a go-around. The airplane subsequently struck the airport perimeter fence and then a roadway guard rail before it impacted terrain, which resulted in substantial damage to the wings and fuselage. The pilot further reported he did not experience any pre-accident malfunctions or failures that would have precluded normal operation. He also stated that the accident might have been prevented by aborting the landing earlier.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR15FA135	03/26/2015 1220	Regis# CGAUS	Townsend, MT	Apt: N/a
Acft Mk/Mdl PIPER PA32R - 301-301		Acft SN 3246191	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-540-K1G5		Acft TT 1479	Fatal 1 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: DAVID CHARRON		Opr dba:		Aircraft Fire: UNK
				AW Cert: STN

Events

1. Enroute-change of cruise level - VFR encounter with IMC
2. Enroute-cruise - Controlled flight into terr/obj (CFIT)

Narrative

HISTORY OF FLIGHT

On March 26, 2015, about 1220 mountain daylight time, a Piper PA-32R-301, Canadian registration C-GAUS, collided with mountainous terrain about 16 miles northeast of Townsend, Montana. The private pilot was fatally injured, the passenger was seriously injured, and the airplane sustained substantial damage. The airplane was registered to the pilot, and he was operating it under the provisions of 14 Code of Federal Regulations (CFR) Part 91 as a cross-country flight. Visual meteorological conditions prevailed for the flight, and a flight plan was not filed. The flight departed about 1200 from Great Falls International Airport (GTF), Great Falls, Montana, and the intended destination was Scottsdale Airport (SDL), Scottsdale, Arizona.

According to a fueller at the Springbank Airport (CYBW), near Calgary, Canada, the airplane departed from CYBW on the morning of the accident. The fueller said that the pilot told him that he had decided to delay his departure from CYBW due to unfavorable weather conditions. According to the passenger, who was the pilot's wife, they flew from CYBW to GTF, cleared customs, refueled, and shortly thereafter departed GTF for SDL.

According to Federal Aviation Administration (FAA) air traffic control personnel, after departing from GTF, the pilot received visual flight rules (VFR) flight following services from the non-radar approach control facility at the Helena Regional Airport (HLN), Helena, Montana. The controller solicited and received several position reports from the pilot as the airplane progressed southbound on the east side of HLN's Class D airspace. About 1220, the pilot reported that he was reversing his course due to clouds in the area. The pilot stated that the flight was "going back north," and the controller thought that the flight was returning to GTF. Shortly thereafter, the controller lost communications with the pilot. According to the controller, losing communications with aircraft in that area was not uncommon and did not trigger a search and rescue response. The controller stated that he verbally advised GTF tower that the airplane was returning.

Review of radar data revealed a primary target, consistent with the accident airplane, traveling on a southbound heading at an altitude of 8,450 ft mean sea level (msl), before climbing over the next 10 minutes to about 9,500 ft msl. Two minutes later, the target initiated multiple turns while climbing to 10,125 ft msl over mountainous terrain with peaks reaching 9,400 ft in height. The last 2 minutes of the radar track depicted the target heading southbound, paralleling the northern ridgeline of Mount Baldy, while descending to an altitude of 9,300 ft msl before disappearing from radar.

The passenger stated that, during the flight, the weather started closing in and they were soon in the clouds. She recalled that the pilot turned the airplane right to try to exit the clouds, and she heard the pilot communicate on the radio that they were turning around. She heard a computer voice inside the cabin state "terrain," followed by a partial "terr.," and then the airplane impacted the wooded, snow-covered terrain. The passenger used her cell phone to contact local authorities and report that the airplane had crashed and that the pilot was unconscious. The passenger also reported to the local authorities that she had injuries to her ribs.

A local search and rescue airplane found the wreckage after detecting the airplane's emergency locator transmitter. Coordinates were given to a search and rescue team that reached the accident site at 1810. The team reported encountering severe winter weather conditions.

PERSONNEL INFORMATION

The pilot, age 56, held a Canadian private pilot's license with airplane single-engine land and instrument ratings. A Canadian third-class airman medical certificate was issued on June 19, 2014, with the limitation that glasses must be worn. The pilot reported on his most recent medical certificate application that he had accumulated 628.8 total flight hours.

An examination of the pilot's logbook indicated that an instrument flight rules (IFR) check ride was accomplished on December 12, 2008, when the pilot had a

National Transportation Safety Board - Aircraft Accident/Incident Database

total of 600 hours of flight time and 24 hours of actual instrument flight time. The logbook also indicated that almost 6 years had passed between the IFR check ride and the next entry on October 24, 2014. Between October 24, 2014, and the last entry on February 22, 2015, 12 flights equating to almost 32 flight hours were entered. According to the logbook, the pilot had a total of 632 hours of flight time. He had logged 31 flight hours in the accident airplane make and model, which included 3.8 hours in the last 90 days. He had logged a total of 27 hours of actual instrument flight time, none of which were in the last 90 days. Based on a review of the pilot's logbook, the pilot did not meet the recent instrument experience requirements of the Canadian Aviation Regulations (CARs) Part IV Standard 421.48, Period of Validity, to act as pilot-in-command in instrument meteorological conditions.

AIRCRAFT INFORMATION

The six-seat, low-wing, retractable-gear airplane, serial number 3246191, was manufactured in 2001. A review of the airplane's logbooks revealed that the last 100-hour inspection was completed on September 1, 2014, at a total time of 1,479 hours. The last logbook entry, dated February 22, 2015, indicated the airplane had a total time of 1,520 hours. The engine was a Lycoming IO-540-K1G5, serial number L-28049-48A, rated at 300 horsepower. At the most recent 100-hour inspection, the total time on the engine was 1,479 hours. The airplane was equipped with a Hartzell model HC-13YR-1RF, serial number HK710B, three-bladed, adjustable-pitch propeller.

The airplane was equipped with a panel mounted mini-iPad with terrain avoidance software. This software would have provided an audible voice alert of "terrain" when in close proximity to terrain.

METEOROLOGICAL INFORMATION

At 1153, the automated surface weather observation station at HLN (elevation 3,877 ft, 32 miles northwest of the accident site) reported wind from 280° at 18 knots, visibility 10 statute miles, overcast at 4,800 ft, temperature 12° Celsius, dew point 2° Celsius, and an altimeter setting of 30.25 inches of mercury. The remarks section of the report indicated that, at 1129, the peak wind was from 280° at 29 knots.

The pilot received official weather briefings for the flight from GTF to SDL from Lockheed Martin Flight Service (LMFS) both by phone and electronically. The pilot called LMFS at 1126 while the airplane was on the ground at GTF. During the phone briefing, the pilot and the briefer discussed the overall weather synopsis for the proposed route of flight. The briefing included the presence of clouds along the route of flight in southwestern Montana through the Jackson Hole area and AIRMETs for turbulence, icing, and for mountain obscuration. VFR flight was not recommended in areas of higher terrain with mountain obscuration. The pilot and briefer also discussed problem weather spots including a gusting west wind and ceilings 4,500 to 6,000 ft agl in the Great Falls area and low scattered cloud coverage from Great Falls south to Bozeman, Montana. In addition, the pilot received an official weather briefing text package that was generated via a desktop computer application at 1129. The official weather briefing text package contained winds aloft information, current AIRMETs, Storm Prediction Center convective outlooks, area forecasts, weather observations, and terminal aerodrome forecast information from departure through destination. None of the information received specifically mentioned the possibility of mountain wave activity over the mountainous terrain. The AIRMETs forecast mountain obscuration due to clouds, precipitation, mist, and fog. There is no record of the pilot receiving or retrieving any additional weather information before beginning the flight.

A weather research and forecasting model simulation was run to simulate the weather conditions surrounding the accident site at the accident time. The simulation indicated that horizontal wind speed increased about 15 knots as the flight gained altitude along the flight track between 1216 and 1218. The horizontal wind speed then decreased about 7 to 10 knots between 1218 and 1220. The simulation indicated that the flight likely encountered downdrafts with a velocity between 500 and 900 ft per minute in the accident site area.

WRECKAGE AND IMPACT INFORMATION

The accident site was in heavily wooded and snow covered terrain at an elevation of 8,350 ft msl. The majority of the airplane came to rest at the end of a debris field about 300 ft in length. The debris field maintained a level elevation on a 20° east-northeast facing slope on a heading of about 350° magnetic. Both wings had separated from the fuselage with additional wreckage strewn throughout the debris path. The forward fuselage partially separated forward of the wing attachments revealing the forward cabin seats. The fuselage came to rest on its left side.

The first identified point of contact (FIPC) was an evergreen tree about 25 ft in height, which was missing the top 2 ft of its trunk. Over the next 150 ft, numerous trees were topped along the debris field. The right wing tip fairing and a small piece of broken green navigation light lens were found on the right side

of the debris field about 40 ft from the FIPC. Next were portions of the right outboard wing that displayed accordion type crushing from the leading edge to the trailing edge. Both the left and right inboard sections of the wings were found next in the debris field. Near the midsection of the debris field was a long portion of disturbed snow about 10 ft wide, 20 ft long, and 3 ft deep. Several large trees were down along the debris path. A fresh diagonal cut, consistent with a propeller blade strike, was found on a smaller topped tree at a height of about 6 ft above the ground. The propeller assembly had separated from the engine and was found near the tree that displayed evidence of a blade strike. The propeller assembly had impact damage to two of the three blades, and the spinner was crushed. Throughout the remaining length of the debris field, several larger trees were topped about 4 ft from their bases. All major structural components of the airplane were located within the wreckage debris path.

Examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. For further information, see the Wreckage Examination Summary in the public docket for this accident.

MEDICAL AND PATHOLOGICAL INFORMATION

Forensic Medicine and Pathology, PLLC, in Billings, Montana, conducted an autopsy on the pilot. The medical examiner determined that the cause of death was "massive blunt traumatic injuries to head, chest and left arm, when injured in plane crash into mountain."

The FAA's Civil Aeromedical Institute (CAMI) performed toxicology tests on the pilot. According to CAMI's report, carbon monoxide, cyanide, volatiles, and drugs were not detected. Valsartan, a medication to treat high blood pressure and heart failure, was detected.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA144	02/17/2017 1800 CST	Regis# N591P	Borger, TX	Apt: Hutchinson County BGD
Acft Mk/Mdl PITTS SPECIAL S 1C-NO SERIES		Acft SN CP-1	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: LEE BURGIN		Opr dba:		Aircraft Fire: NONE
				AW Cert: UNK

Summary

The pilot reported that, during the takeoff as the tailwheel lifted, the biplane veered "hard right" and exited the runway. He added that he "felt" he had enough speed to fly and attempted to lift off. Subsequently, the biplane struck a tree.

The biplane sustained substantial damage to the fuselage and both wings.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the biplane that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain directional control of the biplane during takeoff.

Events

1. Takeoff - Loss of control on ground
2. Takeoff - Runway excursion
3. Takeoff - Collision with terr/obj (non-CFIT)
4. Takeoff - Nose over/nose down

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
3. Environmental issues-Physical environment-Object/animal/substance-Tree(s)-Contributed to outcome

Narrative

The pilot reported that during the takeoff as the tailwheel lifted, the biplane veered "hard right" and exited the runway. He added that he "felt" he had enough speed to fly and attempted to lift off. Subsequently, the biplane struck a tree.

The biplane sustained substantial damage to the fuselage and both wings.

The pilot reported that there were no pre-accident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16LA055	12/01/2015 1530 EST	Regis# N8560M	Venice, FL	Apt: N/a
Acft Mk/Mdl ROBINSON R22-UNDESIGNAT		Acft SN 0476	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 SERIES		Acft TT 8359	Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: N8560M, LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Autorotation - Hard landing

Narrative

On December 1, 2015, about 1530 eastern standard time, a Robinson R22, N8560M, made a forced landing to a field near Venice, Florida. The flight instructor sustained minor injuries and the private pilot was seriously injured. The helicopter was registered to N8560M, LLC, and operated by Helicopter Academy under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions existed near the accident site at the time of the accident and no flight plan was filed. The flight originated from the Venice Municipal Airport (VNC), Venice, Florida, about 1430.

The flight instructor reported that he was preparing the pilot for her commercial rotorcraft-helicopter checkride. They had practiced several maneuvers before heading back to the airport. While en route to the airport, the instructor was asking the pilot where she would land in the event of an engine failure when he noticed that the manifold pressure had dropped below 18 inches of mercury, which necessitated activation of the carburetor heat. The instructor did not recall if he told the pilot to turn the carburetor heat on, but remembered looking back outside because they were discussing forced landing areas. The instructor said the pilot then accidentally "pulled the mixture" versus the carburetor heat and "shut off the engine." He immediately took control of the helicopter, entered an autorotation, and landed "hard." The windshield popped out and the helicopter rocked back and forth before it came to rest. The instructor said the pilot then exited the helicopter and ran toward the front. The main rotor blades were still moving and struck the pilot's head. The instructor said he never saw the pilot actually pull the mixture control in flight. He assumed that she did, because when he went to shut the engine down, the mixture control's safety gate was on the floor and the mixture control was pulled out.

The pilot stated that while returning to Venice, the instructor asked her where she would land if they had an engine failure. She said the beach, but the instructor pointed out a more suitable spot. The instructor then called out "3-2-1" and rolled off the throttle to simulate an engine failure. The pilot said that both of them were on the controls and the autorotation looked good until they were about 250 feet from the landing spot. The helicopter landed hard, but she did not know why. Once on the ground, the pilot said she "pulled the mixture" while the instructor had his hand on the rotor-brake. She then exited the helicopter to go retrieve the windshield that had popped off during landing. While standing out in front of the helicopter, one of the main rotor blades struck her on the left side of the head, fracturing her orbital bone.

Both the instructor and pilot reported there were no mechanical deficiencies that would have precluded normal operation of the helicopter or engine.

The instructor held a commercial pilot certificate for rotorcraft-helicopter and was also a certified flight instructor in rotorcraft-helicopter. He reported a total flight experience of 700 hours, of which, 600 hours were in the R22. The instructor's last Federal Aviation Administration (FAA) second class medical was issued on August 11, 2015.

The pilot held a private pilot certificate for rotorcraft-helicopter. She reported a total flight experience of 150 hours, of which, 150 hours were in the R22. The pilot's last FAA second class medical was issued on June 6, 2015.

Weather reported at VNC at 1535 was wind 310 degrees at 6 knots, clear skies, and visibility great than 10 miles. The temperature was 79 degrees F and the dewpoint was 72 degrees F.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17CA099	02/04/2017 1430 EST	Regis# N7518G	Fallston, MD	Apt: Fallston W42
Acft Mk/Mdl ROBINSON HELICOPTER R22-BETA	Acft SN 4005	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360 SERIES	Acft TT 3343	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: MIDDLE RIVER AVIATION LLC	Opr dba:		Aircraft Fire: NONE	
			AW Cert: STN	

Summary

The student pilot, who held a commercial fixed-wing pilot certificate, was performing hovering flight during his first helicopter lesson when the helicopter "suddenly jerked backwards." The helicopter's tail rotor gearbox and a portion of the tail rotor departed the helicopter, and the flight instructor landed the helicopter upright with no injuries to the two occupants. According to the flight instructor, he monitored the cyclic, collective, and tail rotor controls while explaining hovering flight and surrendered each control to the student pilot one at a time until the student pilot was fully controlling the helicopter. As the helicopter transitioned backward and began a "spin to the left," he requested and took control of the helicopter, but the student pilot did not surrender the controls, and the flight instructor could not overpower the student pilot's inputs before the tail rotor collided with terrain. The flight instructor further stated that there were no mechanical deficiencies with the helicopter that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The student pilot's failure to relinquish the flight controls to the flight instructor, which resulted in a collision with terrain.

Events

1. Maneuvering-hover - Loss of control in flight
2. Maneuvering-hover - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Student/instructed pilot - C
2. Personnel issues-Action/decision-Action-Lack of action-Student/instructed pilot - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-(general)-Attain/maintain not possible - C

Narrative

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According to the flight instructor, he monitored the cyclic, collective, and tail rotor controls while explaining hovering flight, and surrendered each control to the student pilot one at a time until the student pilot was fully controlling the helicopter. As the helicopter transitioned backwards, and began a "spin to the left," he requested and took control of the helicopter, but the student pilot did not surrender the controls, and the flight instructor could not overpower the student pilot's inputs before the tail rotor collided with terrain. The flight instructor further stated that there were no mechanical deficiencies with the helicopter that would have precluded normal operation.