

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN16LA314	08/05/2016 1450 CDT	Regis# N5599X	Valley City, ND	Apt: Private Strip -
Acft Mk/Mdl AERO COMMANDER S2R--		Acft SN 1699R	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl PRATT & WHITNEY R1340-59		Acft TT 11395	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 137
Opr Name: LAKEVIEW AVIATION INC		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPR

Summary

The commercial pilot reported that, before departure for the agricultural application flight, the airplane was loaded with 300 gallons of water and spray solution and an undetermined amount of fuel was added to the left fuel tank. The pilot did not visually check the fuel tanks during the preflight inspection. After departure, he flew 5 miles south of the private strip and proceeded to spray a 130-acre field. When the spray solution was depleted, the pilot flew back toward the private strip and noticed that the fuel quantity indicators showed 1/4 full in the right tank and 1/8 full in the left tank. The pilot stated that, about 1.5 miles southeast of the private strip and about 400 ft above ground level, the engine "sputtered" and experienced a loss of power. He made a forced landing to a field, and the airplane entered a swampy area and then nosed over. The pilot reported that there were no mechanical malfunctions or failures with the airplane that would have precluded normal operation.

During a postaccident examination of the airplane, no fuel was found in the fuel lines to the engine or in the fuel tanks. Based on the evidence, it is likely that the airplane was not fueled with sufficient fuel to complete the flight and that this, combined with the pilot's failure to check the fuel quantity before departure and ensure that sufficient fuel was onboard for the flight, resulted in fuel exhaustion.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's inadequate preflight inspection and fuel planning, which resulted in a loss of engine power due to fuel exhaustion.

Events

1. Maneuvering - Fuel exhaustion

Findings - Cause/Factor

1. Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid level - C
2. Personnel issues-Task performance-Inspection-Preflight inspection-Pilot - C
3. Personnel issues-Task performance-Planning/preparation-Fuel planning-Pilot - C
4. Environmental issues-Physical environment-Terrain-Wet/muddy terrain-Contributed to outcome

Narrative

On August 5, 2016, about 1450 central daylight time, an Aero Commander S2R airplane, N5599X, made a forced landing to a swampy field following a total loss of engine power. The commercial pilot was not injured and the airplane sustained substantial damage. The airplane was registered to and operated by Lakeview Aviation Inc., under the provisions of 14 Code of Federal Regulations Part 137 as an aerial application flight. Visual meteorological conditions prevailed at the time of the accident and no flight plan had been filed. The local flight departed from a private grass strip at an unknown time.

The pilot reported that prior to the departure the airplane was loaded with 300 gallons of water and spray solution and an undetermined amount of fuel. After departure, the pilot flew 5 miles south of the private strip and proceeded to spray a 130 acre field. When the spray solution was depleted, the pilot flew back toward the private strip and noticed the fuel quantity indicators showed 1/4 remaining in the right tank and 1/8 remaining in the left tank. About 1.5 miles southeast of the private strip and about 400 ft above ground level the engine "sputtered" and experienced a loss of power. He made a forced landing to a field and the airplane nosed over when it entered a swampy area. The pilot noted that there were no mechanical malfunctions or failures with the airplane that would have precluded normal operation.

According to the pilot's statement, the person who fueled the airplane stated that before the fueling process began, the fuel indicators were reading « full in the right tank and ¼ full in the left tank. The fueler only added fuel to the left tank, but he could not remember the exact amount added and assumed the fuel system would equalize the amount both tanks. The pilot stated the capacity of each fuel tank is 53 gallons and if the fueler only added fuel to the left tank then he couldn't have added more than 40 gallons. The pilot did not visually check the fuel tanks before departure for the flight that reportedly lasted over an hour.

The responding Federal Aviation Administration (FAA) inspector examined the engine and found no presence of fuel in the fuel lines to the engine. The fuel filler caps were removed and no fuel was present. The propeller blades did not sustain any leading edge damage or chordwise scratches. The inspector noted that the airplane sustained substantial damage to the left wing and fuselage.

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Accident Rpt# CEN16FA269 07/18/2016 2007 EDT Regis# N85893 Ishpeming, MI Apt: Private Airstrip NONE
Acft Mk/Mdl AERONCA 11AC Acft SN 11AC-277 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL MOTORS A-65-8F Acft TT 1934 Fatal 2 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: DEAN HONKALA Opr dba: Aircraft Fire: NONE
AW Cert: STN

Summary

During a personal local flight, the private pilot made a low pass in the airplane over the runway and turned left to enter the traffic pattern for landing. A witness stated that the airplane "looked mushy" when it made its left crosswind turn. Another witness reported that the airplane appeared to enter a "close-in" traffic pattern at an estimated altitude of 100 to 150 ft above ground level. He further stated that the airplane's airspeed seemed slower than normal. He stopped watching the airplane until he heard a change in its engine noise. When he looked back, the airplane was in a left bank turning from the base leg to final approach, and the engine stopped producing power. The airplane immediately went into a left spiral and turned about 360° before impacting the ground. The accident site was located about 1,200 ft from the approach end of the runway near the runway centerline. A postaccident examination of the airframe and engine did not reveal any evidence of a mechanical malfunction or failure that would have precluded normal operation.

Although the airplane's calculated weight at the time of the accident was about 6 pounds over its maximum gross weight, this likely was not a factor in the accident as it would not have significantly increased the airplane's stall speed. A carburetor icing probability chart indicated a probability of serious icing at glide power at the temperature and dew point reported at the time of the accident. Given that no mechanical reason for the loss of engine power was identified, it is likely that the loss of engine power was due to carburetor icing. Following the loss of engine power, the pilot likely failed to maintain adequate airspeed, resulting in the airplane's wing exceeding its critical angle-of-attack and a subsequent aerodynamic stall.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain airspeed following a loss of engine power due to carburetor icing while turning from base to final at a low altitude, which resulted in the airplane's wing exceeding its critical angle of attack and a subsequent aerodynamic stall.

Events

1. Approach-VFR pattern base - Loss of engine power (total)
2. Approach-VFR pattern base - Loss of control in flight
3. Approach-VFR pattern base - Aerodynamic stall/spin
4. Uncontrolled descent - 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-Airspeed-Not attained/maintained - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of attack-Not attained/maintained - C
4. Environmental issues-Conditions/weather/phenomena-Temp/humidity/pressure-Conducive to carburetor icing-Contributed to outcome - C
5. Aircraft-Aircraft oper/perf/capability-Aircraft capability-Maximum weight-Capability exceeded

Narrative

This report was modified on October 17, 2017. Please see the docket for this accident to view the original report.

HISTORY OF FLIGHT

On July 18, 2016, about 2007 eastern daylight time, an Aeronca 11AC, N85893, sustained substantial damage during impact with terrain after a loss of engine power while in the traffic pattern of a private grass airstrip near Ishpeming, Michigan. The pilot and the pilot rated passenger received fatal injuries. The airplane was owned and operated by private individuals under the 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed at the time of the flight, which was not on a flight plan. The local flight departed the Edward F. Johnson Airport (M61), Ishpeming, Michigan, located 4 nm south of the accident site, about 1945.

According to the pilot's daughter, she owned the airplane, and her father was the pilot. She reported that she had purchased the airplane from the pilot-rated passenger in June 2015 and was in the process of selling the airplane.

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A witness reported that he observed the airplane make a low pass over the grass airstrip. He stated that when the airplane made its left crosswind turn, it "looked mushy." He said that the airplane looked like it was "plowing through the turn." He did not see the accident occur, but he heard the impact. When he arrived at the accident site, the airplane's tail was in the air. The tail lowered when they tried to gain access to the cabin.

A witness located about 800 ft west of the approach end of the grass runway reported that he saw the airplane approaching the airstrip from the southeast. The airplane's flight path and engine sound were normal as the airplane made a low pass over the northeast runway. The airplane turned a left crosswind and appeared to enter a "close-in" traffic pattern on a left downwind at an estimated altitude of 100 to 150 ft above ground level. He stated that the airplane's airspeed seemed slower than normal and he stopped watching the airplane until he heard a change in the engine noise. He stated that the airplane was in a left bank when the engine quit. The airplane immediately went into a left spiral and turned about 360 degrees before impacting the ground.

PERSONNEL INFORMATION

The 49-year-old pilot, who was seated in the right seat, held a private pilot certificate with a single-engine land rating, and he was a certified flight instructor with a sport endorsement for single-engine land airplanes. He held a third class airman medical certificate dated April 4, 2016, with the limitation that he shall possess glasses for near and intermediate vision. During his medical examination, the pilot reported that his total flight time was 750 hours.

The 48-year-old passenger, who was seated in the left seat, held a sport pilot certificate with a single-engine land rating. He did not hold a medical certificate.

AIRCRAFT INFORMATION

The airplane was a single-engine Aeronca 11AC, serial number 11C-277, manufactured in 1946, and equipped with a 65-horsepower Continental Motors A-65-8F engine, serial number 5767568. It seated two and had a maximum gross weight of 1,250 lbs. The empty weight was 782 lbs with a useful load of 468 lbs. The combined weight of the pilot and passenger was 462 lbs. There was 2 gallons (12 lbs) of fuel found in the auxiliary fuel tank and the main fuel tank was breached. The calculated weight and balance indicated that the aircraft was at least 6 lbs over gross weight at the time of the accident.

The carburetor icing probability chart from the Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin (SAIB): CE-09-35 Carburetor Icing Prevention, June 30, 2009, indicated a probability of serious icing at glide power at the temperature and dew point reported at the time of the accident.

METEOROLOGICAL INFORMATION

At 1955, the surface weather observation at the Sawyer International Airport (SAW), Marquette, Michigan, located 13 miles to the northeast of the accident site, was: wind 050 degrees at 8 kts, 10 miles visibility, sky clear, temperature 17 degrees C, dew point 10 degrees C, altimeter 30.17 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The accident site was located about 1,200 feet from the approach end of the runway aligned with an extended runway centerline. The accident site area was uneven terrain covered by tall grass, shrubs, and trees. The airplane was initially found by rescue personnel nose down with the tail in a nearly vertical position. Pieces of the broken wooden propeller were found at the initial point of impact, which was about 21 ft to the northwest of the main wreckage. The nose and engine compartment of the airplane exhibited crushing and buckling which was consistent with about a 45-degree nose down impact. One of the Sensenich wooden propeller blades was broken off near the hub and the other blade was splintered along its entire span. The propeller exhibited damage consistent with aft crushing with few rotational signatures. The entire span of the left wing's leading edge was crushed aft. The outboard section of the left wing was broken outboard of the wing strut, crushed, and buckled aft. The right wing was broken at the front spar attach point to the fuselage and was almost twisted off and facing aft. The leading edge of the outboard section of the right wing was crushed and buckled aft. The rear fuselage and empennage remained largely intact. The flight control cables had continuity from the flight control surfaces to the cockpit flight controls. Breaks in the cockpit flight controls were consistent with overload fractures.

The instrument panel and cockpit exhibited extensive impact damage. The throttle was found full forward. The carburetor heat was full forward. The ignition switch was on BOTH. The engine fuel primer was in the closed and locked position. The mixture control knob was broken off. The throttle, mixture and carburetor heat cables were found attached to the carburetor and carburetor air box. The carburetor was a Stromberg Model MAS3B. Fuel was found in the

carburetor. The throttle lever was found full forward. The airbox was crushed by impact forces. The carburetor heat cable was still attached but did not move due to impact damage.

The 8-gallon auxiliary fuel tank aft of the cabin had about 2 gallons of fuel. The fuel selector was on the main tank. The main 8-gallon fuel tank was forward of the instrument panel. It was completely broken open and no fuel was found in the tank. The cork float was moist. The inside walls of the fuel tank had a film of dirt contamination sticking to it. The vegetation between the point of impact and the main wreckage exhibited fuel blight.

The examination of the engine revealed that the cylinder Nos. 1 and 3 upper spark plugs were finger tight. The engine crankshaft was rotated by hand. Suction and compression was produced on cylinders Nos. 1, 2, and 3. Cylinder No. 4 did not exhibit "thumb" compression due to impact damage, but the piston and valves continuity was established. Oil was found in the No.4 cylinder. Drive train continuity was established. The upper spark plugs were in good condition with normal color and round electrodes. The examination of the bottom spark plugs revealed that the No.1 plug was normal. The No. 2 bottom spark plug lead cable was connected, but loose. The No. 3 spark plug gap was measured at 0.009 of inch gap, which typically has a 0.018 - 0.022 inch gap.

The left Slick 4333 magneto was still attached to the engine. The impulse coupling operated and spark was observed on all 4 towers. The right Slick 4333 magneto was separated from the engine. The magneto was rotated, and the impulse coupling operated and spark was observed on all 4 towers.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy of the pilot was performed at the Duke LifePoint Hospital, Marquette, Michigan, on July 19, 2016. The cause of death was from multiple traumatic injuries sustained during an airplane crash. A Forensic Toxicology Fatal Accident Report was prepared by the FAA Civil Aerospace Medical Institute. The results were negative for all substances tested.

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Accident Rpt# GAA17CA421	07/02/2017 2030	Regis# N368HY	Dixie, ID	Apt: N/a
Acft Mk/Mdl AVIAT AIRCRAFT INC A 1-B		Acft SN 2363	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A1P		Acft TT 1235	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BABOCHKA LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

3. Approach-VFR pattern final - Loss of control in flight

Narrative

The pilot reported that, while on short final approach to a back-country airstrip, approaching into a setting sun glare, he encountered a downdraft. He added that he increased power and pitched up slowly, but the "sun came lower" and blocked his vision to the runway. Subsequently, the airplane landed short of the runway in a ravine that was about 20 ft. lower than the runway.

The fuselage, wings, and elevator sustained substantial damage.

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

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Accident Rpt# CEN17FA005	10/04/2016 1826 CDT	Regis# N76S	Hitchcock, TX	Apt: N/a
Acft Mk/Mdl BEECH D95A		Acft SN TD-605	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360-B1B			Fatal 1 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: DAVID SANDERS		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Maneuvering - Loss of control in flight

Narrative

HISTORY OF FLIGHT

On October 4, 2016, at 1826 central daylight time, a Beech D95A airplane, N76S, was destroyed after impacting trees and terrain near Hitchcock, Texas. The flight instructor was fatally injured and the pilot receiving instruction was seriously injured. The instructional flight was operated by Bay Area Flying Club, Pearland, Texas, under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local flight, which originated from Pearland Regional Airport (KLVJ), Pearland, Texas.

According to the pilot's brother who spoke with the pilot in the hospital following the accident, the purpose of the flight was for the flight instructor to demonstrate aerodynamic stalls. The pilot said that a stall was initiated from about 4,000 ft mean sea level (msl). The pilot then vaguely remembered the instructor "cursing" the airplane because the flight instructor was unable to recover from the stall maneuver. The pilot was unable to recall any further details of the accident.

A duck hunter, located about 1 mile south of the accident site, took a cell phone video that captured the airplane descending in a fully-developed right spin.

According to data retrieved from an onboard GPS unit, the airplane entered a climb from about 4,000 ft at 1825:23, reaching a peak altitude of about 4,800 ft about 1825:50. The airplane then entered a descent that continued until the end of the recorded data at 1826:44.

PERSONNEL INFORMATION

Flight Instructor

The flight instructor held an airline transport pilot certificate with an airplane multiengine land rating, and commercial privileges with airplane single-engine land, and glider ratings. He also held a flight instructor certificate with airplane single-engine, multiengine, glider, and instrument ratings. His most recent second-class Federal Aviation Administration (FAA) medical certificate, dated September 2, 2015, contained the restriction, "Must wear corrective lenses."

According to the flight instructor's logbooks, he had accumulated 9,898 total hours of flight experience, of which 4,635 hours were in multiengine airplanes, 16 of the multiengine airplane hours were logged in the previous 11 years. He had logged 11.6 total hours in the accident airplane make and model, all within the previous two months, of which 6.7 hours were as a flight instructor. His logbooks indicated that he had never practice stalls in the accident airplane make and model.

Pilot Receiving Instruction

The pilot receiving instruction held a private pilot certificate with an airplane single-engine land rating. His third-class FAA medical certificate, dated September 2, 2014, contained no restrictions or limitations.

According to the pilot's logbook, he had acquired 113.7 total flight hours, of which 110.3 hours were in single-engine airplanes. The remaining 3.4 hours were in the accident airplane make and model.

AIRCRAFT INFORMATION

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The accident airplane, serial number TD-605, was manufactured by the Beech Aircraft Corporation in 1965. It was powered by two Lycoming IO-360-B1B engines, serial numbers RL-29744-51A (left) and RL-28158-51A (right), each rated at 180 horsepower, and driving Hartzell HC-92WK-2B two-blade, all-metal, constant-speed propellers.

The left engine and propeller were overhauled on February 28, 2014, due to a propeller strike. It had accumulated 2,672.1 total hours (1,042.7 hours since the previous major overhaul). According to the maintenance records, the airframe, both engines, and both propellers received a 100-hour/annual inspection on August 1, 2016. The tachometer read 2,696.1 hours, and the airframe has accumulated 4,085.2 hours at the time of the inspection. At the time of the 100-hour/annual inspection,

- the left engine had accrued 2,696.1 total hours (1,066.9 hours since major overhaul).
- the left propeller had accrued 4,085.2 total hours (24.0 hours since major overhaul)
- the right engine had accumulated 700.7 since being factory-remanufactured on July 25, 2003, and
- the right propeller had accrued 4,085.2 total hours, and 329.2 hours since major overhaul.

The last altimeter, transponder, encoder, and static system checks were made on August 12, 2014.

METEOROLOGICAL INFORMATION

At 1752, Scholes International Airport (KGLS), Galveston, Texas, Automated Surface Observation System, about 11 miles east of the accident site, reported wind from 110ø at 11 knots, visibility, 10 miles, scattered clouds at 2,300 ft, temperature, 28ø C., dew point, 24ø C., and an altimeter setting of 29.79 inches of mercury. Data from the U. S. Naval Observatory showed that sunset occurred at 1902 and the end of evening nautical twilight occurred at 1925.

WRECKAGE AND IMPACT INFORMATION

The airplane impacted a tree-lined canal next to a fallow rice field in a slightly wings-level, nose-down attitude. The aircraft wreckage was recovered and transported to Air Salvage of Dallas, Lancaster, Texas, where examinations were conducted. No pre-existing discrepancies or anomalies were noted with the airframe or either engine, and nothing was found that would have precluded the engines from developing power. The bottoms of both propeller spinners were flattened.

MEDICAL AND PATHOLOGICAL INFORMATION

The Galveston County Medical Examiner, Texas City, Texas, conducted an autopsy on the flight instructor. The cause of the pilot's death was listed as blunt force injuries.

FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing. Testing was negative for carbon monoxide and ethanol. Metoprolol was detected in urine and subclavian blood. According to FAA's Forensic Toxicology Drug website, metoprolol is a "beta-adrenergic receptor antagonist, 'beta blocker,' used in the treatment of hypertension and certain arrhythmias."

ADDITIONAL INFORMATION

Following a series of fatal accidents in Beech Baron- and Travel Air-series airplanes, the National Transportation Safety Board issued Safety Recommendations A-81-49 through -53 on May 7, 1981, because of the propensity of these airplanes to enter flat spins under conditions of high asymmetric power and low speed. Training for a potential emergency, such as an engine-out condition, "may be more hazardous than the emergency itself." In 1974, the U.S. Army issued a report on the stall characteristics of the Beech T-42A, which is similar to the B55B and D95A airplanes.

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Section 3, page 6, of the Beech D95A Owner's Manual states: "This is a normal category airplane. Maneuvers, including spins, are prohibited."

Section 4, page 9, states: "If a spin is entered inadvertently, cut the power on both engines. Apply full rudder opposite the direction of rotation and then move the elevator forward until rotation stops. When the controls are fully effective, bring the nose up smoothly to a level flight attitude. Don't pull out too abruptly."

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Accident Rpt# CEN16FA005	10/06/2015 1125	Regis# N877DM	Chadron, NE	Apt: N/a
Acft Mk/Mdl BEECH P35		Acft SN D-7238	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL IO-520-CB-C-B		Acft TT 4079	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JOHN J. PRICKETT		Opr dba:		Aircraft Fire: GRD
				AW Cert: STN

Summary

The airline transport pilot departed in the single-engine airplane on a cross-country flight under visual flight rules (VFR) in visual meteorological conditions (visibility 9 miles and ceiling broken at 1,500 ft above ground level); however, instrument meteorological conditions existed along the planned route of flight. Shortly after departure, the pilot established radio communications with air traffic control and requested activation of the instrument flight rules (IFR) flight plan he had previously filed. The flight was issued a discrete transponder code; however, due to other workload in his airspace sector, the controller did not immediately confirm radar contact or issue an IFR clearance to the pilot. Because the pilot had not received an IFR clearance, he remained under VFR and responsible for maintaining terrain, obstacle, and cloud clearance. According to track data and topographic elevation data, the airplane encountered rising terrain as it flew south from the departure airport. The airplane subsequently impacted treetops and a ridgeline about 10 miles south of the departure airport at 4,200 ft msl. The height of the ridgeline was about 900 ft above the departure airport elevation. An individual working outside near the accident site reported that weather conditions included light precipitation, mist, fog, and low clouds that obscured the surrounding ridgelines. Thus, the airplane likely encountered instrument meteorological conditions before it collided with the ridgeline during cruise flight. Further, a postaccident wreckage examination did not reveal any anomalies that would have precluded normal operation of the airplane during the flight. Although the departure airport was equipped with a remote communication outlet, it was out of service at the time of the accident and could not be used to obtain an IFR clearance. However, the pilot could have obtained an IFR clearance on the ground by telephoning a flight service station. Alternatively, the pilot could have departed under VFR and maneuvered over the airport in visual meteorological conditions until he received an IFR clearance. The pilot's decision to attempt VFR flight into instrument meteorological conditions resulted in controlled flight into rising terrain during cruise flight.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's continued visual flight rules flight into instrument meteorological conditions, which resulted in controlled flight into rising terrain during cruise flight.

Events

1. Enroute-cruise - VFR encounter with IMC
2. Enroute-cruise - Controlled flight into terr/obj (CFIT)
3. Post-impact - Fire/smoke (post-impact)

Findings - Cause/Factor

1. Environmental issues-Conditions/weather/phenomena-Ceiling/visibility/precip-Below VFR minima-Effect on operation - C
2. Environmental issues-Physical environment-Terrain-Mountainous/hilly terrain-Effect on operation - C
3. Environmental issues-Physical environment-Terrain-Mountainous/hilly terrain-Awareness of condition - C
4. Personnel issues-Task performance-Planning/preparation-Flight planning/navigation-Pilot - C
5. Personnel issues-Psychological-Perception/orientation/illusion-Situational awareness-Pilot - C

Narrative

HISTORY OF FLIGHT

On October 6, 2015, about 1125 mountain daylight time, a Beech P35 (Bonanza) single-engine airplane, N877DM, collided with trees and terrain during cruise flight near Chadron, Nebraska. The airline transport pilot was fatally injured, and the airplane was destroyed. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations (CFR) Part 91 as a personal flight with an instrument flight rules (IFR) flight plan on file. Day instrument meteorological conditions (IMC) prevailed at the accident site. The cross-country flight departed Chadron Municipal Airport (CDR), Chadron, Nebraska, at 1121, and was destined for Alliance Municipal Airport (AIA), Alliance, Nebraska.

According to available flight plan information, on the morning of the accident the pilot filed two flight plans using a direct user access terminal service. The first flight plan was for an IFR flight from North Platte Regional Airport, North Platte, Nebraska, to CDR. The second IFR flight plan was for the accident flight between CDR and AIA. The pilot filed for a direct routing from CDR to BOOKY (a IFR reporting point), then direct to JIVAM (an initial approach fix to AIA), and a cruise altitude of 7,000 ft mean sea level (msl). A fixed-base operator (FBO) employee at CDR reported seeing the airplane arrive on the ramp about 1050. The pilot and passenger subsequently entered the main lobby briefly to use the restroom. The pilot did not use the FBO's weather system before he exited the lobby to the ramp. The FBO employee then observed the pilot walk around the airplane a couple of times before he boarded. The airplane taxied from the ramp

about 1110.

According to Federal Aviation Administration (FAA) air traffic control (ATC) track data, the airplane transmitted automatic dependent surveillance-broadcast (ADS-B) position data throughout the flight. A review of the ADS-B data established that the flight departed CDR on runway 11 about 1121:19. After departure, the flight turned right toward the south and proceeded toward the intended destination.

At 1122:16, the pilot established radio contact with Denver Air Route Traffic Control Center (ARTCC) and transmitted, "Eight seven seven delta mike, off of Chadron, I would like to pick up an IFR to, ah, Alliance." The controller replied, "November eight seven seven delta mike, Denver Center roger, ah, stand-by." About 8 seconds later, the controller issued a discrete transponder code, which the pilot correctly acknowledged. At 1122:52, the assigned transponder code updated on the controller's display, which indicated the flight was at 4,200 ft msl and had a ground speed of 145 knots. According to the ADS-B data, the flight proceeded south between 4,200 and 4,400 ft msl and at ground speeds between 135 and 155 knots.

According to recorded ATC transmissions, there were no verbal exchanges between the controller and the pilot during the 2.5 minutes following the issuance of the transponder code; however, the controller was actively communicating with several other aircraft that were operating within his airspace sector. At 1125:16, the ADS-B data indicated that the airplane was at 4,200 ft msl and had a ground speed of 143 knots. No additional track data was received from the airplane. At 1125:23, the controller transmitted, "November eight seven seven delta mike, radar contact nine miles south of the Chadron airport, say altitude." There was no response from the pilot.

According to ADS-B track data and topographic elevation data, the airplane encountered rising terrain as it continued south from the departure airport. The airplane subsequently impacted treetops and a ridgeline about 10 miles south of the departure airport at 4,200 ft msl. The height of the ridgeline was about 900 ft above the departure airport elevation.

PERSONNEL INFORMATION

According to FAA records, the 61-year-old pilot held an airline transport pilot certificate with single-engine land, multi-engine land, and instrument airplane ratings. The single-engine land rating was limited to commercial privileges. He had been employed as a pilot by American Airlines since 1989 and was type-rated for the Boeing 727, Boeing 737, Boeing 757, Boeing 767, Douglas DC-9, Fokker 100, and Lockheed JetStar. He also held a flight instructor certificate with single-engine, multi-engine, and instrument airplane ratings and a flight engineer certificate for turbojet airplanes. His most recent FAA first-class medical certificate was issued on June 10, 2015, with a limitation for corrective lenses. On the application for his current medical certificate, the pilot reported having accumulated 18,900 hours of total flight experience, of which 400 hours were flown within the previous 6 months.

A current pilot logbook was not located during the investigation; the pilot's most recent logbook entry was dated December 16, 2004. According to an insurance application that was submitted for the operation of the airplane, dated July 24, 2015, the pilot reported having a total flight experience of 19,010 hours, of which 939 hours were flown within the previous year. The pilot reported having flown 195 hours in Beech Bonanza airplanes. According to the insurance application, the pilot's last flight review was completed on June 20, 2015.

AIRCRAFT INFORMATION

The airplane was a 1963 Beech P35 (Bonanza), serial number D-7238. The airplane was a single-engine, low-wing, monoplane of conventional aluminum construction. The airplane was powered by a 285-horsepower, 6-cylinder Continental IO-520-CB-C-BB reciprocating engine, serial number 576182. The engine provided thrust through a constant-speed, three-blade, Hartzell PHC-C3YF-1RF propeller, serial number EE2277A. The airplane was equipped for operations in IMC. The airplane had a maximum allowable takeoff weight of 3,300 pounds and a total fuel capacity of 110 gallons. The FAA issued the airplane a standard category airworthiness certificate on August 6, 1963.

The airplane's recording tachometer was destroyed during the postimpact fire, which precluded a determination of the airplane's total service time at the time of the accident. According to the maintenance logbooks, the last annual inspection was completed on June 11, 2015, at 4,078.86 total airframe hours. At the time of the annual inspection, the engine had accumulated 1,953.08 hours since new and 212.77 hours since the last major overhaul, which was completed on April 29, 2005. The static system, altimeter system, automatic pressure altitude reporting system, and transponder were last tested on March 13, 2015. A postaccident review of the maintenance records found no history of unresolved airworthiness issues.

National Transportation Safety Board - Aircraft Accident/Incident Database

METEOROLOGICAL INFORMATION

The National Weather Service (NWS) Surface Analysis Chart issued at 1200 depicted a cold front extending from southern Wyoming east into central Nebraska then northeast into southern Minnesota. The weather station models depicted cloudy skies and a variable surface wind under 5 knots for locations near the accident site. The NWS Area Forecast Discussion issued at 0704 mentioned areas of dense fog and low cloud ceilings near the departure airport and the planned destination. Further, the forecast indicated a slow improvement in weather conditions through the morning hours; however, the conditions were not forecast to improve above marginal visual meteorological conditions (VMC). At the time of the accident, the terminal forecast for CDR indicated a surface wind from 100° at 8 knots, visibility greater than 6 miles, scattered clouds at 700 ft above ground level (agl), and an overcast ceiling at 2,000 ft agl.

At 1053, about 32 minutes before the accident, the CDR automated surface observing system (ASOS) reported: calm wind, 9 miles surface visibility, broken ceiling at 1,500 ft agl and an overcast ceiling at 3,400 ft agl, temperature 14°C, dewpoint 11°C, and an altimeter setting of 30.25 inches of mercury.

At 1153, about 28 minutes after the accident, the CDR ASOS reported: calm wind, 9 miles surface visibility, few clouds at 1,600 ft agl and an overcast ceiling at 3,000 ft agl, temperature 15°C, dew point 11°C, and an altimeter setting of 30.24 inches of mercury.

An individual, who had been working outside near the accident site, reported that throughout the morning there had been light precipitation, mist, fog, and low clouds that obscured the surrounding ridgelines. The individual also recalled that the weather conditions had improved shortly before noon.

A review of weather briefing requests made to official vendors revealed that the pilot had not received a formal weather briefing before departure.

COMMUNICATIONS

A review of available ATC information confirmed that the flight had received normal services and handling. A transcript of the voice communications recorded during the flight are included in the docket materials associated with the investigation.

The departure airport was equipped with a remote communication outlet (RCO) that provided a radio link to Columbia Flight Service Station; however, on the day of the accident, a notice to airman (NOTAM) indicated that the RCO was out of service. A RCO is routinely used by pilots to obtain an IFR clearance while on the ground. If a RCO is out of service, a pilot can telephone a flight service station to obtain an IFR clearance or, if the weather conditions permit, they can choose to depart under VFR and obtain an IFR clearance when airborne.

WRECKAGE AND IMPACT INFORMATION

The initial impact point was identified by broken treetops that preceded a ridgeline, fractured tree limbs found along the ridgeline, red paint chips found on the ridgeline that matched the paint color of the airplane's lower fuselage, and a portion of the airplane's VHF marker beacon antenna. The initial impact point was about 250 ft south-southeast of the final recorded ADS-B position.

The main wreckage was in a canyon/ravine to the south-southeast of the initial impact point. A wreckage debris path, which initiated from the ridgeline, was about 560 ft long and oriented on a 160° magnetic heading. A large area of burnt ground and vegetation surrounded the main wreckage, which consisted of the fuselage, empennage, right wing, engine, and propeller. A majority of the fuselage, including the cockpit and cabin, had been consumed during the postimpact fire. The left wing had separated from the fuselage and was located further down in the ravine. Flight control cable continuity could not be established due to impact and fire damage; however, all observed separations were consistent with overstress. The flaps were fully retracted. The nose and right main landing gear were fully retracted. The left main landing gear had separated from the wing during the impact sequence. The altimeter's Kollsman window was centered on 30.24 inches of mercury.

The engine remained partially attached to the firewall, and the propeller remained attached to the crankshaft flange. The three-blade propeller exhibited chordwise scratches, spanwise S-shape bends, and a leading edge gouge. One blade exhibited significant blade twisting along its span. Internal engine and valve train continuity were confirmed as the engine crankshaft was rotated. Compression and suction were noted on all cylinders in conjunction with crankshaft rotation. Neither magneto provided a spark when rotated by hand; however, both magnetos exhibited damage consistent with impact and prolonged exposure to fire. The upper spark plugs were removed and exhibited features consistent with normal engine operation. A borescope inspection of each cylinder did not reveal any anomalies with the cylinders, pistons, valves, or valve seats. The vacuum pump produced suction when rotated by hand. The mechanical fuel pump

did not rotate freely by hand; however, further disassembly revealed thermal damage to the internal pump components. The fuel pump vanes and drive coupling were not fractured. The fuel metering unit inlet screen was clear and free of any obstructions. The postaccident examination did not reveal any anomalies that would have precluded normal engine operation during the flight.

MEDICAL AND PATHOLOGICAL INFORMATION

The Regional West Medical Center, located in Scottsbluff, Nebraska, performed an autopsy on the pilot at the request of the Dawes County Attorney. The cause of death was attributed to multiple blunt-force injuries sustained during the accident. The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicology tests on specimens obtained during the autopsy. The test results were negative for carbon monoxide, ethanol, and all tested drugs and medications.

ADDITIONAL DATA/INFORMATION

According to available ATC information, the pilot had not received an IFR clearance and, therefore, was still operating under VFR when the airplane impacted rising terrain at 4,200 ft msl. According to federal regulations, the Aeronautical Information Manual (AIM), and FAA Order 7110.65 (Air Traffic Control), a pilot operating under VFR is responsible for terrain, obstacle, and cloud clearance until reaching the minimum en route altitude (MEA) or the minimum IFR altitude (MIA). The MEA is the lowest published altitude between radio navigation fixes that assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. However, any flight segment not on a published airway or route, such as the direct routing used on the accident flight, the MIA is 1,000 ft above the highest obstacle within a horizontal distance of 4 nautical miles (nm) from the course to be flown in a non-mountainous area. The departure airport and accident site were in a designated non-mountainous area. According to ATC documentation, the MIA was 6,000 ft msl over the departure airport and increased to 6,300 ft msl about 10 nm south of the airport.

According to the FAA Terminal Procedures Publication, the departure airport had non-standard takeoff minimums for runway 11 (a climb to 4,800 ft msl at 240 ft per nm if departing in IMC, or 1,200 ft agl ceiling and 3 sm visibility if departing in VMC). Although adherence with takeoff minimums and departure procedures are not required for 14 CFR Part 91 operations, the AIM encourages their use to ensure obstacle and terrain clearance.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN18LA010 10/06/2017 1337 CDT Regis# N8234R Sweetwater, TX
Acft Mk/Mdl BELLANCA 17-30A Acft SN 30409 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: Opr dba: Aircraft Fire: NONE

Events

3. Enroute-cruise - Loss of engine power (total)

Narrative

On October 6, 2017, at 1329 central daylight time, a Bellanca 17-30A, N8234R, experienced a total loss of electrical power, and about 18 minutes later, a total loss of engine power during cruise flight. The pilot performed a forced landing to a field near Sweetwater, Texas. The airplane received substantial damage on impact with terrain. The airplane was registered to and operated by an individual under the Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident. The flight originated from Midland International Air and Space Port Airport (MAF), Midland, Texas, and was destined to Abilene Regional Airport (ABI), Abilene, Texas.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA455	07/28/2017 1530 CDT	Regis# N6368K	Mckinney, TX	Apt: Mckinney National TKI
Acft Mk/Mdl CESSNA 150-M		Acft SN 15077669	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-200 SERIES			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ASHLEY HURT		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The student pilot reported that, during landing, the airplane bounced. She added that, upon the second touchdown, the airplane landed on the nose landing gear, and it collapsed.

The airplane sustained substantial damage to the firewall.

The student 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 student pilot's improper landing flare, which resulted in bounced landing and the collapse of the nose landing gear.

Events

1. Landing - Abnormal runway contact
 2. Landing - Landing gear collapse
-

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-Student/instructed pilot - C
-

Narrative

The student pilot reported that, during landing, the airplane bounced. She added that, upon the second touchdown, the airplane landed on the nose landing gear and it collapsed.

The airplane sustained substantial damage to the firewall.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR16FA002	10/05/2015 1300	Regis# N6449M	Cedar City, UT	Apt: Cedar City Rgnl CDC
Acft Mk/Mdl CESSNA 152-NO SERIES		Acft SN 15284733	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-235 SERIES		Acft TT 9715	Fatal 2 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: UPPER LIMIT AVIATION		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

A company chief pilot was performing a company check flight of a newly hired flight instructor. Data recovered from an on-board flight tracking system indicated that the airplane was maneuvering about 3,000 ft above ground level in the accident area; the final 35 seconds of data showed a near vertical descent toward the accident location. A witness saw the airplane descending vertically in a slight nose-down attitude "like a fluttering leaf." The airplane impacted the ground in a slightly nose-down and wings-level attitude, and ground impact marks around the airplane did not indicate any forward momentum. Examination of the airframe and engine found no abnormalities that would have precluded normal operation. The flight tracking data, the witness description, and the damage to the airplane are consistent with the airplane entering an aerodynamic stall and descending to ground impact. It could not be determined whether the stall was inadvertent or intentional (stall demonstration). Weight and balance calculations indicated that the airplane was about 40 pounds over maximum gross weight at takeoff and about 10 pounds over gross weight at the time of the accident; however, it is unlikely that this weight exceedance contributed to the loss of control.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The failure of the pilots to maintain control of the airplane while maneuvering, which resulted in an aerodynamic stall from which they did not recover.

Events

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

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of attack-Not attained/maintained - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Flight crew - C
3. Personnel issues-Task performance-Planning/preparation-Weight/balance calculations-Flight crew

Narrative

HISTORY OF FLIGHT

On October 5, 2015, at 1300 mountain daylight time, a Cessna 152, N6449M, impacted a dry lake bed about 6 nautical miles southwest of Cedar City Municipal Airport (KCDC), Cedar City, Utah. The two flight instructors were fatally injured, and the airplane was destroyed by impact forces. Upper Limit Aviation was operating the airplane under the provisions of 14 Code of Federal Regulations Part 91. The local company check flight departed KCDC about 1215. Visual meteorological conditions prevailed, and no flight plan had been filed.

The operator reported that the purpose of the flight was for the chief pilot of the flight school to demonstrate the airplane to a newly hired flight instructor. Witnesses saw the airplane performing various maneuvers over the dry lake bed, which was used as a training area. One witness reported that, just before the accident, the airplane was descending in a near vertical fashion in a slight nose-low attitude and looked "like a fluttering leaf."

The airplane was equipped with an on-board flight tracking system that uploaded recorded data points via satellite to the operator every 2 minutes. The unit retained the recorded data in non-volatile memory at 5 second intervals. The unit was downloaded, and a review of the last 14 minute segment of flight data showed the airplane departing from KCDC at 1246 using runway 26. The data showed the airplane making a right turn to the north at 1248:04. The airplane continued the right turn and made a touch-and-go landing on runway 20.

At 1251:04, the airplane was climbing away from the runway. The flight track continued southwest toward the accident location. At 1256:04, the flight track passed over the accident site elevation (5,457 ft) at an altitude of 7,656 ft mean sea level (msl) and continued southwest in a gradual climb. The flight track showed a gradual left turn followed by a widening right climbing turn back toward the north. At 1259:49, the airplane's altitude was 8,661 ft msl, and the data then showed a descent to 8,179 ft msl during a 15 second period. By 1300:04, the airplane had climbed to an altitude of 8,353 ft msl. At 1300:19, the airplane was at an altitude of 8,559 ft msl (about 3,100 ft above ground level), and the remaining 35 seconds of data showed a near vertical descent toward the accident location. The last recorded data point at 1300:54 showed that the airplane was over the accident site, had a ground speed of 40 knots, and was at 5,580 ft msl.

PERSONNEL INFORMATION

AIRCRAFT INFORMATION

The two-seat, high-wing, fixed-gear airplane, serial number 15284733, was manufactured in 1980. It was powered by a 125-horsepower Lycoming O-235-L2C engine and equipped with a Sensenich 70CK56-0-52 fixed-pitch propeller. Review of copies of maintenance logbook records showed that an annual inspection was completed on July 17, 2015, at an hour meter reading of 99.4 hours, airframe total time of 9,678.2 hours, and engine time since major overhaul of 99.4 hours. Examination of the maintenance and flight department records revealed no unresolved maintenance discrepancies against the airplane before departure.

Fueling records at KCDC established that the airplane was last fueled on October 5, 2015, with 14 gallons of 100-octane aviation fuel. The operator calculated, based on previous flight records, that the airplane departed with a total of 23 gallons of fuel on board.

The current weight and balance documentation for the airplane was found in the airplane flight manual. The maximum gross weight for the airplane was 1,670 pounds. The gross weight at departure was estimated at 1,709 pounds. Based on estimated fuel burn and flight time, at the time of the accident, the airplane had a gross weight of 1,681 pounds.

WRECKAGE AND IMPACT INFORMATION

Investigators examined the wreckage at the accident scene. The damage to the airplane was consistent with impact in a right-wing-low, nose-down attitude. There were no ground impact marks around the airplane to indicate any forward momentum. Both fuel tanks exhibited hydraulic deformation in a downward direction and were breached.

The outboard right wing leading edge exhibited tapering compression damage. The left wing was canted forward, and the right wing was canted aft. All primary flight control surfaces and major system components were identified and located at the wreckage site before the wreckage was recovered. The aileron and flap cables were cut by recovery personnel at the wing roots.

MEDICAL AND PATHOLOGICAL INFORMATION

The Utah Department of Health, Office of the Medical Examiner, conducted postmortem examinations of both pilots. The cause of death for both pilots was reported as blunt force injuries.

The Federal Aviation Administration's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing of specimens of both pilots, which were negative for carbon monoxide, cyanide, volatiles, and tested drugs.

TESTS AND RESEARCH

After the wreckage was recovered, the engine was separated from the main wreckage and placed on a table to facilitate examination and disassembly. The propeller hub remained attached to the engine. Both propeller blades remained straight and exhibited no damage indicative of rotation at the time of impact.

Engine compression and valve train continuity were established. The magnetos produced spark at all leads. The top spark plugs appeared new. The fuel strainer bowl was full of fuel, which tested negative for water, and the strainer screen was clean.

The carburetor was impact displaced and was embedded in the left lower firewall. It was fractured radially at the throttle plate. The float bowl was removed and about 10 drops of fuel were observed and tested using Kolor Kut water disclosing paste with negative results. Hydraulic deformation was observed on one of the floats. All fuel lines were empty of any liquid.

The fuel selector was removed, examined, and determined to be in the "ON" position.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17LA336	09/26/2017 2030 EDT	Regis# N53393	Winder, GA	Apt: WDR
Acft Mk/Mdl CESSNA 152-NO SERIES		Acft SN 15283542	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING 0-235 SERIES		Acft TT 1875	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: WACKER PETER K		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Fuel contamination
-

Narrative

On September 26, 2017, about 2030 eastern daylight time, a Cessna 152, N53393, was substantially damaged during a collision with terrain while performing a forced landing following a loss of engine power after takeoff from Barrow County Airport (WDR), Winder, Georgia. The private pilot was not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the personal flight which was conducted under the provisions of 14 Code of Federal Regulations Part 91.

In a telephone interview, the pilot stated that the airplane had been parked for an extended period, and he was preparing it for an annual inspection which was more than 1 year overdue. On the day prior to the accident flight, he charged the airplane's battery, and ran the engine for about 30 minutes. Prior to the accident flight, he performed a preflight inspection of the airplane, measured the level of fuel in each tank, sampled the fuel tanks and fuel strainer for contaminants, and ran the engine for approximately 5-7 minutes with no anomalies noted.

The pilot taxied the airplane for takeoff, performed the before-takeoff checks, and departed from runway 31. When the airplane reached about 200 ft above ground level, the engine "sputtered" and then stopped producing power. The pilot performed a forced landing to a field beyond the departure end of the runway, which resulted in substantial damage to the fuselage and wings.

The pilot held a private pilot certificate with a rating for airplane single engine land. His most recent Federal Aviation Administration (FAA) third-class medical certificate was issued July 31, 2014. The pilot estimated he had 700 total hours of flight experience, 300 hours of which were in the Cessna 152.

According to FAA records, the airplane was manufactured in 1979, and had accrued approximately 1,875.1 total aircraft hours. Its most recent annual inspection was completed November 6, 2012 at 1,864.4 total aircraft hours.

At 2035, the weather recorded at WDR included clear skies and calm wind. The temperature was 25°C, and the dew point was 20°C. The altimeter setting was 29.96 inches of mercury.

The wreckage was examined at the accident site, and all major components were accounted for at the scene. Both wings were substantially damaged. The left wing fuel tank was breached by impact and contained no fuel. The right tank was intact and contained about 8 gallons of fuel. The gascolator was drained, and the first 4 ounces drained were clear water, and the remaining 4 ounces were a mixture of water and fuel.

The carburetor was separated from the engine, and was reattached with an adhesive to facilitate an engine operational check. An external fuel tank was then plumbed to the carburetor, and the engine was started on the airframe utilizing the airplane's own battery. The engine started immediately, accelerated smoothly, and ran continuously without interruption. A magneto check was performed satisfactorily, and the engine was shut down utilizing the airplane's engine controls.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA445	07/27/2017 1330 PDT	Regis# N5596C	San Andreas, CA	Apt: Calaveras Co-maury Rasmussen F CPU
Acft Mk/Mdl CESSNA 170-A		Acft SN 19650	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A1A		Acft TT 4200	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PETER L. SWORD		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing - Hard landing
-

Narrative

The pilot of the tailwheel-equipped airplane reported that, he landed on the main wheels, and while waiting for the tailwheel to drop, the "tailwheel jammed." He added, that when the tailwheel touched down, the airplane was difficult to control, and veered to the left. He corrected for the veer, but the airplane veered to the right. He then did a go-around, however, once airborne the airplane "did not appear to be producing proper power." He then aborted the go-around, and opted to land on the remaining runway. About 25 ft. above the runway, he set the airplane up for a wheel landing and descended. When the airplane was about 5-10 ft. above the runway, the airplane "abruptly" sank, landed hard and collapsed the main landing gear. Subsequently, the airplane came to rest nose down on the runway.

The airplane sustained substantial damage to the fuselage.

During a telephone interview, the pilot reported that he believed the tailwheel had jammed prior to touchdown, and that he had previously re-designed and altered the tailwheel. Further, the airplane produced insufficient power during the go-around. He reported that, the tailwheel was mechanically "okay" when inspected after the accident.

Additionally, an airframe and powerplant mechanic reported that he inspected the tailwheel assembly after the accident, and found no defects and no binding.

The pilot reported the weather at the accident airport, about the time of the accident to be, wind from 320ø at 10 knots, gusting to 12 knots. The pilot landed on runway 31.

Photographs taken at the accident site showed torsional twisting of the propeller, consistent with the engine producing power at the time of impact. The National Transportation Safety Board did not examine the engine.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA382	06/28/2017 1315	Regis# N2774D	Alamogordo, NM	Apt: Alamogordo-white Sands Rgnl ALM
Acft Mk/Mdl CESSNA 170-B		Acft SN 25316	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-AIA		Acft TT 6880	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: SASQUATCH AIR LLC.		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing-landing roll - Loss of control on ground

Narrative

The flight instructor in the tailwheel-equipped airplane reported that the pilot flying was receiving instruction for a tailwheel endorsement. He added that, during the 7th landing of the day, the pilot extended the downwind to allow for traffic that landed ahead of them. He further added that, during the wheel landing touchdown, as the tail was settling to the ground, a wind gust "turned the airplane's tail," which resulted in a ground loop on the runway.

The left wing, engine mounts, and windscreen sustained substantial damage.

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

An automated weather observation station, at the accident airport, recorded wind from 240° at 6 knots. The flight instructor reported that the landing was on runway 22.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA206	03/23/2017 1530 EDT	Regis# N3947R	Timberlake, NC	Apt: Person County TDF
Acft Mk/Mdl CESSNA 172-H		Acft SN 17255447	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-300-D		Acft TT 2600	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: S&C AVIATION OF NC, LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The solo student pilot reported that, during the landing flare, he "felt a big push from behind," which resulted in a propeller strike and substantial damage to the fuselage.

The student pilot reported that there were no preaccident mechanical failures or malfunctions 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, at the time of the accident, the wind was from 190ø at 3 knots. The airplane landed on runway 6.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The student pilot's failure to maintain pitch control during the landing flare with a tailwind, which resulted in a propeller strike.

Events

1. Landing - Loss of control on ground

Findings - Cause/Factor

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

Narrative

The solo student pilot reported that, during the landing flare he "felt a big push from behind", which resulted in a propeller strike and substantial damage to the fuselage.

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

A review of recorded data from the automated weather observation station located on the airport reported that, at the time of the accident, the wind was from 190ø at 3 knots. The airplane landed on runway 6.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA216	04/03/2017 1445 PDT	Regis# N7547G	Twisp, WA	Apt: Twisp Muni 2S0
Acft Mk/Mdl CESSNA 172-L		Acft SN 17259247	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-E2D		Acft TT 5524	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: LOUISE BIGHOUSE		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot reported that, about 50 ft above the runway, a wind gust from the south caused the airplane to drift. The pilot added that she attempted to go around but was unsuccessful. The right wing impacted the ground, and the airplane cartwheeled.

The airplane sustained substantial damage to both wings.

The pilot reported that there were no preimpact mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation. According to the pilot, the wind about the time of the accident was variable from 6ø to 8ø, gusting to between 10 and 12 knots. The airplane was landing on runway 28.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain crosswind correction during landing, which resulted in the airplane cartwheeling.

Events

1. Landing - Other weather encounter
2. Landing - Loss of control in flight
3. Landing - Collision with terr/obj (non-CFIT)

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. Environmental issues-Conditions/weather/phenomena-Wind-Variable wind-Effect on operation

Narrative

The pilot reported that, about 50 ft. above the runway, a gust of wind from the south caused the airplane to drift. The pilot added that, she attempted to go-around but was unsuccessful. The right wing impacted the ground and subsequently, the airplane cartwheeled.

The airplane sustained substantial damage to both wings.

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

According to the pilot, the wind about the time of the accident was variable from 6ø to 8ø, wind gusts 10 to 12 knots. The airplane was landing on runway 28.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA18CA005 10/08/2017 1415 CDT Regis# N9664Q Black River Fal, WI Apt: Black River Falls Area BCK
Acft Mk/Mdl CESSNA 172-M Acft SN 17265748 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: JEFFREY CASPER Opr dba: Aircraft Fire: NONE

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA573 09/22/2017 1000 PDT Regis# N520KS Chino, CA Apt: Chino CNO
Acft Mk/Mdl CESSNA 172-S Acft SN 172S9734 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: SHINWOOK LEE Opr dba: Aircraft Fire: NONE

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA470	07/30/2017 1330 PDT	Regis# N497TC	Carlsbad, CA	Apt: Mc Clellan-palomar CRQ
Acft Mk/Mdl CESSNA 172-S		Acft SN 172S9870	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360-L2A		Acft TT 5413	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PINNACLE AVIATION ACADEMY, INC.		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing - Abnormal runway contact
-

Narrative

The solo student pilot reported that, during landing, the airplane porpoised and the propeller struck the runway. He added that he initiated a go-around, landed, and taxied back to the ramp without further incident.

The airplane sustained substantial damage to the fuselage and firewall.

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

A review of recorded data from the automated weather observation station located on the airport reported that about 37 minutes before the accident the wind was from 250ø at 8 knots, gusting 16 knots. The same weather observation station reported that about 23 minutes after the accident the wind was from 250ø at 10 knots. The airplane was landing on runway 24.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA437	07/24/2017 1030	Regis# N6470E	Powell, WY	Apt: Powell Muni POY
Acft Mk/Mdl CESSNA 172-UNDESIGNAT		Acft SN 46570	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-300 SER			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: OSSIE ABRAMS		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The flight instructor reported that, during the landing flare about 20 ft above the runway, the student pilot "froze" at the flight controls. She added that she told the student pilot, "Add power - too high," but the student did not respond. The student pilot "hung on" to the flight controls, "forcing [the] instructor to push full power and physically [take the] airplane." Subsequently, the airplane landed hard, and the left wing impacted the runway.

The airplane sustained substantial damage to the left wing.

The flight instructor 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 student pilot's improper landing flare and subsequent failure to relinquish the flight controls, which resulted in a hard landing.

Events

1. Landing-flare/touchdown - Miscellaneous/other
2. Landing-flare/touchdown - Attempted remediation/recovery
3. Landing-flare/touchdown - Hard landing
4. Landing-flare/touchdown - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

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

Narrative

The flight instructor reported that, during the landing flare about 20 ft. above the runway, the student pilot "froze" at the flight controls. She added that, she told the student pilot, "Add power - too high", but the student did not respond. The student pilot "hung on" to the flight controls, "forcing [the] instructor to push full power and physically [take the] airplane." Subsequently, the airplane landed hard and the left wing impacted the runway.

The airplane sustained substantial damage to the left wing.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA15LA363	09/19/2015 1043 EDT	Regis# N3647S	Gettysburg, PA	Apt: N/a
Acft Mk/Mdl CESSNA 172E-E		Acft SN 17250847	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-300-D6		Acft TT 2181	Fatal 0 Ser Inj 2	Flt Conducted Under: FAR 091
Opr Name: TROSTLE WALTER M		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Maneuvering - Loss of engine power (total)

Narrative

On September 19, 2015, at 1043 eastern daylight time, a privately owned and operated Cessna 172E, N3647S, was substantially damaged during a forced landing to a soybean field after a total loss of engine power near Gettysburg, Pennsylvania. The private pilot and pilot-rated passenger received serious injuries. Visual meteorological conditions prevailed and no flight plan was filed for the local personal flight that departed from Waltz Field (34PA), Gettysburg, Pennsylvania about 1015. The airplane was being operated under the provisions of Title 14 Code of Federal Regulations Part 91.

The pilot-rated passenger stated that prior to departure, during the engine run-up, the engine ran "a little rough" when operated on one of the two magnetos. The pilot continued the run up until the engine operated smoothly on the left, right, and both magnetos. He recalled that the engine operated "remarkably smooth" for takeoff, climb and while performing various maneuvers. After descending from 3,000 feet to about 1,500 feet above mean sea level, the engine started to "shake, rumble, spit, and sputter and then just quit." The passenger further recalled that the pilot did not reduce engine power from its previous setting of around 2,400 rpm during the descent, nor did he apply carburetor heat. After the engine lost power, the pilot attempted to land in a nearby grass field, however the approach was too fast. He overflew the grass field, then touched down in an adjacent soybean field, the airplane bounced, veered left, and collided with the tree line at the edge of the field.

According to Federal Aviation Administration (FAA) records, the pilot held a private pilot certificate with ratings for airplane single-engine land and instrument airplane. His most recent FAA third-class medical certificate had expired, it was issued on December 29, 2010, at which time he reported a total of 2,096 hours of flight experience.

The four-seat, single-engine, high-wing airplane was manufactured in 1963, and was equipped with a Continental O-300D, 145-horsepower reciprocating engine. The maintenance logbooks were not recovered. FAA airworthiness records showed that the airplane had been modified to operate with automotive gasoline in accordance with a supplemental type certificate. According to a mechanic, an annual inspection of the airplane was completed in July 2013, after which the airplane had accrued about 1 hour of flight prior to the next annual inspection, which was completed by him on September 11, 2015. During the interval between the two inspections, automotive fuel remained in the fuel tanks. Maintenance documents provided by the mechanic revealed that the carburetor had been replaced, seals in the fuel selector valve and gascolator were replaced, the automotive fuel was drained and 15 gallons of 100 low-lead aviation fuel was added to the fuel tanks, just prior to the September 2015 annual inspection. Afterwards, the engine operated satisfactorily during ground tests. The accident flight was the first flight after the maintenance and inspection.

Examination of the airplane revealed that the left wing was partially separated from the fuselage, rotated about 45 degrees aft, and exhibited leading edge crush damage. The right wing remained attached, exhibited leading edge crush damage, and the right aileron was separated from the wing. The empennage was partially separated from the fuselage near the aft bulkhead of the cargo compartment. Flight control cable continuity was confirmed for pitch and yaw from the cockpit controls to the respective control surfaces, while the aileron control cables exhibited fractures in each wing consistent with tension overload.

The left fuel tank was breached, and about 2 gallons of fuel were drained from it during recovery operations. An unknown amount of fuel had leaked from the right wing after the accident. The gascolator and carburetor were full of a yellowish-amber fluid similar in color and odor as automotive fuel. The fuel inlet screen was unobstructed, and no water was present. Air pressure was applied to the gascolator outlet and fluid was observed flowing through the fractured fuel lines at the door pillars near the wing attach points. The carburetor needle valve and seat were clean with no debris found. When manually operated, fluid was observed exiting out of the carburetor accelerator pump. The carburetor main fuel nozzle was absent of debris. The fluid observed throughout the fuel system was yellowish-amber in color with an odor consistent with automotive fuel.

One of the propeller blades was bent aft at its tip. Neither blade exhibited a pattern of chordwise scratching or leading edge damage. The propeller was rotated by hand and thumb suction and compression was observed on all cylinders. Continuity of the crankshaft was confirmed to the rear accessory pad. The top spark plugs were removed and appeared grey to slightly black in color with normal wear when checked against the Champion Check-A-Plug chart. Both

magnetos produced spark on all towers when rotated by hand. The air inlet box was clean and free of obstructions. The throttle, mixture, and carburetor heat controls were securely attached to the engine and moved freely. The oil quantity dipstick indicated 6 quarts.

A weather observation recorded at Fountain Dale Heliport (RYT), Fountain Dale, Pennsylvania, at 1053 included: temperature 23 degrees C (73 F), dew point 18 degrees C (64 F), and an altimeter setting of 29.95 inches of mercury.

According to an FAA Special Airworthiness Information Bulletin, these weather conditions are conducive to serious carburetor icing at glide power settings. FAA Advisory Circular (AC) 91-33A, Use of Alternate Grades of Aviation for Grade 80/87, and Use of Automotive Gasoline, provided operational information regarding the use of automotive fuels in aircraft. According to the AC, "Long-term fuel storage of automotive gasoline in aircraft fuel tanks should be avoided. Although automotive gasolines have lower maximum existent gum specification requirements than aviation gasoline, either fuel can form undesirable gum deposits over long-term storage under particularly severe conditions, such as in barrels and at high temperature. Gum deposits thus formed could result in engine malfunctions." The AC further stated, "FAA Technical Center testing indicates that carburetor icing will occur in less time and at higher ambient temperatures with automotive gasoline than with aviation gasoline. Therefore, pilots using automotive gasoline should be familiar with the induction system icing prevention procedures of the FAA Advisory Circular AC 20-113 and be prepared to use these procedures at higher ambient temperatures and lower humidities than when using aviation gasolines."

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR15LA146	04/14/2015 1345 HST	Regis# N12842	Hilo, HI	Apt: Hilo Intl ITO
Acft Mk/Mdl CESSNA 172M		Acft SN 17262306	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-D2J		Acft TT 8251	Fatal 0 Ser Inj 3	Flt Conducted Under: FAR 091
Opr Name: HAWAII FLIGHT ACADEMY		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Loss of engine power (total)

Narrative

On April 14, 2015, about 1345 Hawaiian standard time, a Cessna 172M, N12842, experienced a loss of engine power during initial climb from Hilo International Airport (ITO), Hilo, Hawaii. The certified flight instructor, the student pilot undergoing instruction (PUI), and one passenger sustained serious injuries. The airplane was substantially damaged during the forced landing on the grassy area near the departure end of the runway. Hawaii Flight Academy was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The local instructional flight departed Hilo about 1245. Visual meteorological conditions prevailed, and no flight plan had been filed.

The operator reported that the FI was instructing the student pilot in preparation for his private pilot practical examination. The passenger was another student pilot who was observing the training flight.

The flight crew reported that they had drained water out of the fuel tanks prior to the flight. The flight departed and flew for about 1 hour before returning to ITO to practice touch-and-go landings. The flight instructor instructed the student to perform a no flap "slip to landing" and go-around. After the aggressive slip and landing, power was applied for the takeoff. The airplane became airborne and when about 75-100 feet above ground, the engine began to run irregular and subsequently lost power.

The FI took control of the airplane and executed a left turn away from buildings, which were located at the end of the runway. The airplane impacted onto the grass area northeast of the departure end of runway 03.

During an examination of the airplane, about 8 ounces of fluid was drained from the fuel sump strainer, and 5 ounces of the fluid appeared to be water. The carburetor was removed from the engine and an unmeasured amount of fluid was drained from the carburetor; about 90% of it appeared to be water. A water paste test was utilized, and the indication was positive for water.

The operator commented that examination of the inside of the fuel tanks revealed that the sump drain valves protruded up about 1/2 inch above the bottom of the tanks. The operator suggested that pilots drain the engine sump completely, rock both wings vigorously during preflight, and drain fuel from the engine and wing sumps again.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17CA216 06/28/2017 1718 EDT Regis# N2460A Emporia, VA Apt: EMV
Acft Mk/Mdl CESSNA 172R-R Acft SN 17280932 Acft Dmg: UNK Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: Opr dba: Aircraft Fire:

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA372 06/20/2017 1415 PDT Regis# N5424V El Cajon, CA Apt: Gillespie Field SEE
Acft Mk/Mdl CESSNA 172RG Acft SN 172RG0528 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A1A6 Acft TT 12652 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: CALIFORNIA FLIGHT ACADEMY Opr dba: Aircraft Fire: NONE
AW Cert: STN

Summary

The flight instructor reported that, during a stage check for the commercial pilot training course, the private pilot student completed the "G.U.M.P. [gas, undercarriage, mixture, propeller] check" on downwind in the traffic pattern. He added that, before the turn to the base leg, "everything was normal, and the gear was selected down by the student." He added that he observed three green landing gear extended indication lights illuminated. He further added that, after a normal landing touchdown, when the airplane slowed to 40 knots in the ground roll, the right main landing gear collapsed, and the airplane veered off the runway to the right. He reported that he did not visually check to see if the right main landing gear were extended.

The private pilot reported that, "on downwind we followed the G.U.M.P. checklist and verified that the landing gear were down. My instructor checked the right [main landing gear] and I checked the left [main landing gear]." He added that, on base, he "checked the landing lights with green [lights]." He further added that, after a normal touchdown, the right main landing gear collapsed, and the airplane veered off the runway to the right. The right elevator sustained substantial damage.

The Federal Aviation Administration Aviation Safety Inspector performed a functional test of the airplane's landing gear system 1 day after the accident. The inspector observed the landing gear retracting, extending, and locking down into place "several times." He added that, during two gear extension cycles, he "simulated an air load on the right main landing gear by pulling back on it as it extended; the gear extended and locked down properly without discrepancies." According to a commercial pilot witness, while he was driving a car along an airport perimeter road, he had a "head-on-view of the aircraft landing." He added that he observed a "red and white C172RG" airplane on final approach that "appeared to not have the gear down." He added that he stopped his car and continued to watch the airplane, and as it passed off to his right, he observed the "front wheel" down and both main landing gear "hanging." He subsequently observed the airplane touch down on the left main landing gear first and then skid off the runway to the right.

It is likely that the landing gear selector was moved to the "down" position on short final approach, which did not allow sufficient time for the right main landing gear to fully extend and lock into place.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to extend the landing gear with sufficient time to allow the landing gear to fully extend and the flight instructor's failure to visually check to see if the right main landing gear were extended.

Events

1. Landing - Landing gear not configured
2. Landing-landing roll - Abnormal runway contact
3. Landing-landing roll - Runway excursion

Findings - Cause/Factor

1. Personnel issues-Action/decision-Action-Delayed action-Student/instructed pilot - C
2. Personnel issues-Action/decision-Info processing/decision-Identification/recognition-Student/instructed pilot - C
3. Aircraft-Aircraft systems-Landing gear system-Gear extension and retract sys-Incorrect use/operation - C
4. Personnel issues-Action/decision-Action-Forgotten action/omission-Instructor/check pilot - C
5. Personnel issues-Psychological-Attention/monitoring-Monitoring equip/instruments-Instructor/check pilot - C

Narrative

The flight instructor reported that, during a stage check for the commercial pilot training course, the private pilot student completed the "G.U.M.P. [gas, undercarriage, mixture, propeller] check" on downwind in the traffic pattern. He added that, before the turn to the base leg, "everything was normal, and the gear was selected down by the student." He added that he observed three green landing gear extended indication lights illuminated. He further added that, after a normal landing touchdown, when the airplane slowed to 40 knots in the ground roll, the right main landing gear collapsed, and the airplane veered off the runway to the right. He reported that he did not visually check the right main landing gear to see if it was extended.

The private pilot reported that, "on downwind we followed the G.U.M.P.S checklist and verified the landing gear was down. My instructor checked the right [main landing gear] and I checked the left [main landing gear]." He added that, on base he "checked the landing lights with green [lights]." He further added that after a normal landing touchdown, the right main landing gear collapsed, and the airplane veered off the runway to the right.

The right elevator sustained substantial damage.

The Federal Aviation Administration Aviation Safety Inspector assigned to the accident performed a functional test of the accident airplane's landing gear system one day after the accident. The inspector observed the landing gear retracting, extending, and locking down into place "several times." He added that during two gear extension cycles, he "simulated an air load on the right main landing gear by pulling back on it as it extended; the gear extended and locked down properly without discrepancies."

According to a commercial pilot witness, while he was driving a car along an airport perimeter road, he had a "head-on-view of the aircraft landing." He added that, he observed a "red and white C172RG" airplane on final approach that "appeared to not have the gear down." He added that, he stopped his car and continued to watch the airplane, and as it passed off to his right, he observed the "front wheel" down and both main landing gear were "hanging." He subsequently observed the airplane touch down on the left main landing gear first, and then skid off the runway to the right.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA248	04/28/2017 1300 PDT	Regis# N796SP	Jean, NV	Apt: Jean 0L7
Acft Mk/Mdl CESSNA 172S-S		Acft SN 172S8720	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360		Acft TT 7148	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: SANTA MONICA FLYERS		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

2. Landing - Runway excursion

Narrative

The pilot reported that he elected to make an emergency landing due to his passenger not being responsive. He added that added that during the landing he "shot over and ended up in the grass at the end of the runway".

The airplane sustained substantial damage to the empennage.

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

An automated weather observation station located about 16 miles north east the accident airport reported that, about the time of the accident, the wind was from 340ø at 20 knots, wind gusts at 32 knots. The pilot reported that the landing was on runway 20.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17CA245	07/04/2017 903 EDT	Regis# N9961N	Nashua, NH	Apt: Boire Field ASH
Acft Mk/Mdl CESSNA 180-J		Acft SN 18052616	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-470		Acft TT 1700	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ERIK POTTS		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the airplane reported that the en route portion of the cross-country flight was uneventful and that conditions were "good." Following a normal approach and landing, he lost directional control of the airplane. The airplane ground looped and came to rest at the right edge of the runway in grass. During the accident sequence, the left main landing gear separated from the fuselage, and the left wing and propeller contacted the ground. A Federal Aviation Administration inspector examined the wreckage and reported that the airplane sustained substantial damage to the fuselage and left wing. The pilot reported that there were no preimpact mechanical malfunctions or anomalies 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.

Events

1. Landing-landing roll - Loss of control on ground
2. Landing-landing roll - Runway excursion

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 airplane reported that the en route portion of the cross-country flight was uneventful and conditions were "good." Following a normal approach and landing, he lost directional control of the airplane. The airplane ground-looped and came to rest at the right edge of the runway, in the grass. The left main landing gear separated from the fuselage and the left wing and propeller contacted the ground during the accident sequence.

A Federal Aviation Administration inspector examined the wreckage and reported that the airplane sustained substantial damage to the fuselage and left wing. The pilot reported there were no preimpact mechanical malfunctions or anomalies that would have precluded normal operation of the airplane.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA559	09/26/2017 245 PDT	Regis# N9346G	San Diego, CA	Apt: Brown Field Muni SDM
Acft Mk/Mdl CESSNA 182-P		Acft SN 18260886	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PHILIP LOJAS		Opr dba:		Aircraft Fire: NONE

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN18FA009	10/12/2017 2015	Regis# N8338S	Las Cruces, NM		
Acft Mk/Mdl CESSNA 182H-H		Acft SN 18256438	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim	Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-470-R			Fatal 2	Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: AERO NEWTON INC		Opr dba:		Aircraft Fire: GRD	
				AW Cert: STN	

Events

1. Unknown - Unknown or undetermined

Narrative

On October 12, 2017, about 2015 mountain daylight time, a Cessna 182H airplane, N8338S, impacted terrain near Las Cruces, New Mexico. The flight instructor and student rated pilot were both fatally injured and the airplane was substantially damaged. The airplane was registered to and operated by Aero Newton Inc. under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Night visual meteorological conditions prevailed for the flight.

Initial reports from local agencies indicated that the night instructional flight was returning to land at the Las Cruces International Airport, (KLRU) Las Cruces, New Mexico, when it collided with terrain under unknown circumstances. A post-impact fire ensued.

The initial impact point consisted of damage to low bushes and outer portions of the left wingtip. The wreckage path followed a general 217° heading. The airplane continued along the wreckage path, coming to rest about 275 ft from the damaged bushes. A post impact fire consumed a majority of the cockpit and fuselage. All major airplane components were located at the accident site. The airplane wreckage was documented on site, and then removed to a secure facility for further examination.

A preliminary review of radar data captured the airplane flying from the Truth or Consequences Airport (KTCS), Truth or Consequences, New Mexico and along Highway I-25 towards Las Cruces. The airplane maneuvered northeast of the KLRU airport, made several turns before it descended towards the terrain.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA364	06/25/2017 1315 PDT	Regis# N4819R	Ukiah, CA	Apt: Ukiah Muni UKI
Acft Mk/Mdl CESSNA 305-A		Acft SN 22280	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL O-470-11B		Acft TT 6109	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: SHAFFER, CARL E.		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that, during the three-point touchdown, the airplane "immediately veered left," and he applied full right rudder. He added that he subsequently "applied power," but as he did so, the right main landing gear collapsed as the airplane ground looped counter-clockwise on the runway.

The right wing sustained substantial damage.

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

An automated weather observation station at the accident airport reported that, about the time of the accident, the wind was from 090° at 5 knots. The pilot reported that the landing was on runway 15.

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 in crosswind conditions.

Events

1. Landing-flare/touchdown - Other weather encounter
2. Landing-flare/touchdown - Loss of control on ground
3. Landing-landing roll - Attempted remediation/recovery
4. Landing-landing roll - Abnormal runway contact

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

Narrative

The pilot of the tailwheel equipped airplane reported that, during the three-point touchdown the airplane "immediately veered left" and he applied full right rudder. He added that he subsequently "applied power," but as he did so, the right main landing gear collapsed as the airplane ground looped counter-clockwise on the runway.

The right wing sustained substantial damage.

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

An automated weather observation station, at the accident airport about the time of the accident, reported the wind from 090° at 5 knots. The pilot reported that the landing was on runway 15.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16LA213	06/10/2016 1610 EDT	Regis# N8943Z	Apopka, FL	Apt: Orlando Apopka Airport X04
Acft Mk/Mdl CESSNA 310-G		Acft SN 310G-0043	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO-470-D			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: SOFI LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The airline transport pilot reported that the accident flight was the airplane's first flight following completion of an annual inspection. He added that there were no issues with the brakes while taxiing to fuel the airplane or to depart. After performing two touch-and-go landings and a go-around, the pilot approached the runway intending to conduct a full-stop landing. He stated that the airplane touched down at the normal point/location and that he then retracted the flaps during the landing roll but waited to apply brakes until the airplane approached the end of the runway. Upon applying the brakes, the left brake did not work, but the right brake did, which resulted in the airplane drifting right. The pilot realized that the airplane was going to exit the right side of the runway, so he secured the engines and attempted to maintain control while applying right braking in an effort to slow the airplane. The airplane travelled off the right side of the runway and impacted upsloping terrain.

Initial postaccident operational testing of the brakes revealed no discrepancies with the left brake. No brake system leaks were noted, and the fluid levels in both brake master cylinders were at correct levels. However, during subsequent operational testing of the left brake master cylinder, the left brake worked satisfactorily once but failed during subsequent testing.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The intermittent failure of the left brake master cylinder, which resulted in asymmetric braking and the subsequent loss of directional control during the landing roll.

Events

1. Landing-landing roll - Miscellaneous/other
2. Landing-landing roll - Abrupt maneuver
3. Landing-landing roll - Loss of control on ground
4. Landing-landing roll - Runway excursion
5. Landing-landing roll - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Aircraft-Aircraft systems-Landing gear system-Master cylinder/brake valve-Damaged/degraded - C
2. Aircraft-Aircraft systems-Landing gear system-Master cylinder/brake valve-Failure - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Attain/maintain not possible - C

Narrative

On June 10, 2016, about 1610 eastern daylight time, a Cessna 310G, N8943Z, collided with a berm while landing at Orlando Apopka Airport (X04), Apopka, Florida. The airline transport pilot was not injured, and the airplane was substantially damaged. The airplane was registered to SOFI, LLC, and was operated by a private individual under the provisions of 14 Code of Federal Regulations as a Part 91 local, post maintenance test flight. Visual meteorological conditions prevailed and no flight plan was filed for the flight that departed from X04 at 1515.

The accident flight was the airplane's first flight after an annual inspection. Prior to that flight, it had not been operated in the previous 2 years.

The pilot stated that after release from the inspection, he performed a preflight inspection and noticed several discrepancies, none of which were related to the aircraft's brake system. After the airplane was removed from the hangar, he started the engines and taxied to a place where he fueled the airplane, and during the taxi, he did not indicate any issues with the aircraft's brakes. Following fueling he taxied to runway 33, a 3,987-foot-long asphalt runway where he initiated takeoff and remained in the traffic pattern performing two touch-and-go landings to the same runway.

After the second touch-and-go landing, he remained in the traffic pattern and intended to perform a full-stop landing; however, he had to initiate a go-around because another airplane was on the runway. He returned and reported the touchdown was normal and in the normal/typical location. After touchdown he retracted the flaps and allowed the airplane to slow aerodynamically to the end of the runway. As the airplane approached the end of the runway, the pilot applied the normal brakes; however, the left brake did not function. The airplane started drifting to the right, and as the airplane slowed to a slow taxi speed, the right deviation became more pronounced and he pumped the left brake and applied pressure but it seemed the left brake pedal went to the floor with no pressure or effect. When it became evidence that the airplane would depart the runway he secured the engines, and attempted to maintain control while applying the right brake in an effort to slow the airplane. The airplane went off the right side of the runway at the end and contacted upsloping terrain which

caused spar damage to the left horizontal stabilizer.

Operational testing of the pilot's side brakes by a Federal Aviation Administration (FAA) operations inspector following recovery revealed no discrepancies; however, operational testing of the brakes on the copilot's side revealed a discrepancy with the right brake. No brake system leaks were noted and the fluid levels in both brake master cylinders were at the correct level. The airplane was retained for further examination.

Further examination of each brake master cylinder was performed by an FAA airworthiness inspector. Following removal from the airplane, the left brake worked once but on the second actuation, the actuating rod slowly leaked internally to the bottom. The right brake worked perfectly when removed. Both cylinders had an acceptable fluid level after removal. Disassembly of the brake master cylinders revealed all o-rings were in a reasonable condition with no visible cuts or tears. The left brake had a dark crusty compound and a small washer in the reservoir, while the right brake had the same compound including the washer, but was not as contaminated as the left. It was not possible to determine part numbers or serial numbers of either brake master cylinder as the data plates were damaged by hydraulic fluid.

According to the facility that performed the inspection, they utilized a generic twin-engine checklist to perform the inspection. The owner/general manager of the facility where the inspection was performed stated there were no discrepancies related to the brakes during the engine run-ups prior to the inspection.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17LA329	09/13/2017 723 EDT	Regis# N836GW	Nantucket, MA	Apt: Nantucket Memorial ACK
Acft Mk/Mdl CESSNA 402-B		Acft SN 402B1242	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
		Acft TT 4928	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: F/V THERESA MADELINE INC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Flight control sys malffail
-

Narrative

On September 13, 2017, about 0723 eastern daylight time, a Cessna 402B, N836GW, was substantially damaged during a rejected takeoff at the Nantucket Memorial Airport (ACK), Nantucket, Massachusetts. The commercial pilot sustained minor injuries. The airplane was being operated under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed at the time and no flight plan was filed for the flight that was originating at the time of the accident, and was destined for Barnstable Municipal Airport-Boardman/Polando Field Airport, Hyannis, Massachusetts.

The pilot stated that he had completed his routine "takeoff flow" confirmed by the airplane before takeoff checklist, and was then cleared to takeoff. The airplane accelerated to between 90 and 95 knots, and he began to rotate. The airplane achieved a positive rate of climb and the pilot retracted the landing gear; however, after becoming airborne he was fighting with the controls to keep the airplane from a nose-down attitude. The pilot used manual trim and verified the autopilot was not engaged; however, the nose-down tendency continued. He rejected the takeoff and executed an emergency landing on the remaining portion of the runway.

Postaccident examination of the airplane by a Federal Aviation Administration inspector revealed that with the elevator in a neutral position, the elevator trim tab was extended approximately 24ø tab trailing edge up (airplane nose-down), and the elevator trim indicator in the cockpit depicted a nose-up trim condition. Further examination of the airplane revealed the elevator trim tab push-pull rod was separated from the actuator, but remained connected at the elevator trim tab. A drilled bolt was recovered from inside the horizontal stabilizer; however, the associated washer, castellated nut, and cotter pin were not located. The elevator trim tab actuator, elevator trim tab push-pull rod, and drilled bolt were retained for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN15LA404	09/05/2015 2336 UTC	Regis# N4707S	Midland, TX	Apt: Midland Intl MAF
Acft Mk/Mdl CESSNA TR182-NO SERIES		Acft SN R18201393	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-540-L3C5D		Acft TT 2142	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: FOREST G. DAWSON		Opr dba:		Aircraft Fire: NONE

Events

1. Initial climb - Loss of engine power (partial)
-

Narrative

On September 5, 2015, about 1836 central daylight time, a Cessna TR182 airplane, N4707S, impacted terrain following a forced landing to a field near Midland, Texas. The pilot was seriously injured at the time of the accident, but succumbed to his injuries 24 days later. The three passengers were not injured. The airplane was substantially damaged. The airplane was registered to E & B Aero LLC and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal cross-country flight. Visual meteorological conditions prevailed at the time of the accident and no flight plan had been filed. The flight originated from Midland International Air & Space Port (MAF), Midland, Texas, and was en route to El Paso International Airport (ELP), El Paso, Texas.

The airplane departed from runway 16R at MAF, and proceeded south. The airport elevation was 2,872 ft mean sea level (msl). GPS data showed the airplane climbed to an altitude of 2,910 ft, where it leveled off. This occurred about one minute after takeoff and the airplane's recorded groundspeed was 58 kts. The airplane remained around this altitude for about 32 seconds before descending to the ground. The airplane's groundspeed while level was about 60 kts. During the descent to the ground, the airplane's airspeed decreased to about 50 kts.

The passengers on board the airplane said that right after takeoff the pilot experienced difficulties with the airplane. It was not developing power and it would not climb. The pilot elected to put the airplane down in a field rather than bring the airplane back around to land at MAF. The passengers said he did a good job controlling the airplane. During the forced landing in the field, the airplane struck a rock. The sudden stop resulted in the pilot sustaining a broken back. The passengers were able to get out of the airplane on their own.

In a postaccident interview with the FAA, the pilot told the inspector that the wastegate might not have opened. It was a problem the pilot experienced during a previous flight, during which he described that engine was running, but the manifold pressure "overboosted." Three days before the accident he had a repair station replace the manifold pressure gauge and bypass valve. The pilot stated that during the accident flight the airplane was configured with 10 degrees of flaps for takeoff and the mixture was full rich. During the takeoff, the engine was at full power and the airspeed increased to between 80 and 100 kts. As the airplane crossed the departure end of the runway, he realized that the manifold pressure was up and the rpms were low. He decided to continue the flight rather than land straight ahead. When he found that the airplane could not maintain altitude, he executed a wheels up forced landing in a field.

The airplane was located in grass field two miles south of the airport. An examination of the airplane at the scene showed substantial damage to the engine mounts and firewall. The airplane's lower cowling and nose gear doors were crushed upward. The fuselage, aft of the rear cabin at the baggage compartment, was bent downward. The main landing gear were crushed upward into their wheel wells. The propeller showed torsional bending, chordwise scratches and leading-edge nicks. One of the two propeller blades was bent and twisted aft under the nose cowling, and exhibited laterally running scrapes and material missing at the blade tip. Flight control continuity was confirmed. A portable GPS unit and an engine monitoring device were retained and sent to the NTSB Vehicle Recorders Laboratory for examination and data readout.

A review of the airplane's maintenance records showed it underwent an annual inspection on February 19, 2015. The airframe time at the inspection was 2,142.2 hours. Further review of the records showed that between July 29 and August 19, 2015, the turbocharger wastegate was checked, and it was found the pressure relief valve was not opening correctly to limit the manifold pressure. The valve was replaced and it functioned properly during a ground run of the engine. Also during the records review, it was discovered that a service bulletin, Lycoming Service Bulletin SB-643, had not been complied with.

The airplane was examined in Lancaster, Texas, on October 29-30, 2015. Examination of the engine showed continuity throughout. The single-drive dual magneto was tested for proper ignition timing. The left magneto was at 18-degrees before top center (BTC). The right magneto was at 16-degrees BTC. Proper ignition timing is 23-degrees BTC.

The turbocharger waste gate actuating cable was frayed and kinked at both ends. When the throttle was advanced, the cable binded. The actuator arm on the

National Transportation Safety Board - Aircraft Accident/Incident Database

bypass valve was corroded and the bolt and nut used to fasten the actuator cable to the arm was seized and corroded.

The engine and airplane fuselage was secured to a trailer and using the on-board battery and engine starter, the engine was started and run to 1,400 rpm when the number 5 top spark plug shorted due to lead fouling. The spark plug was replaced and the engine operated to full power (2,400 rpm). The power was then reduced to 1,800 rpm and an ignition test was performed. Both magnetos dropped about 300 rpm. The operating limitation is a drop no lower than 150 rpm on each magneto. The turbocharger operated normally during the test run and manifold pressure achieved 31.5 inches of mercury at full power.

Following the engine run, the magneto was removed and disassembled for inspection. The points were excessively worn. The magneto was reassembled and tested and operated from 0 to 3,000 rpm with no defects.

The engine monitoring device was examined on November 20, 2015. The device was a panel mounted gauge that allowed the pilot to monitor and record up to 24 parameters related to engine operations. The data extracted included 15 sessions from May 23 to the accident flight. Data extracted from the accident flight revealed:

The engine monitor began recording at engine start. A plot of the data for the accident flight showed that about 420 seconds, EGT, manifold pressure (MAP) and engine rpm began to climb. RPM increased from 1,250 to about 1,750, MAP rose from 18 inches to 20 inches, and EGTs rose from about 1,200 to 1,300 degrees F.

About 540 seconds, these parameters increased again with EGT exceeding 1,400-degrees F, MAP rising to 31 inches, and RPM to 2,500. This would have occurred about the time the airplane took off.

At 700 seconds, engine RPM decreased to zero and EGT decreased to about 1,000 degrees F. MAP was about 30 inches. All recorded data ended 20 seconds later.

The pilot died on September 29, 2015. The El Paso County, Texas, Medical Examiner cited the cause of death as complications of multiple blunt injuries.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA413	06/15/2017 1100 PDT	Regis# N2537F	Van Nuys, CA	Apt: Van Nuys VNY
Acft Mk/Mdl CHAMPION 7ECA-NO SERIES		Acft SN 159	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-200 SERIES			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: DARREN MOHLE		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that, during the landing roll, the airplane drifted to the right and he corrected with rudder but then the airplane "started to pull" to the left. He added that his "rudder input failed to stop the plane from continuing to the left," the airplane ground looped to the left, and the right wingtip hit the ground.

The airplane sustained substantial damage to the right wing.

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 failure to maintain directional control during the landing roll.

Events

1. Landing-landing roll - Loss of control on ground

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 drifted to the right and he corrected with rudder, but then the airplane "started to pull" to the left. He added that his "rudder input failed to stop the plane from continuing to the left", the airplane ground looped to the left, and the right wing tip hit the ground.

The airplane sustained substantial damage to the right wing.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA253	05/01/2017 1657 EDT	Regis# N68VY	Lakewood, NJ	Apt: Lakewood N12
Acft Mk/Mdl CIRRUS SR20		Acft SN 2346	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-390-C3B6		Acft TT 61	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: NASSAU FLYERS, INC.		Opr dba: NASSAU FLYERS		Aircraft Fire: GRD
				AW Cert: STN

Events

1. Landing - Hard landing
-

Narrative

The student pilot reported that, during crosswind landing conditions, the airplane landed hard and subsequently bounced. He added that, he initiated a go-around, then the flight instructor took the flight controls.

The flight instructor reported that, after the bounce, the airplane "began to roll to the left in a manner similar to that of an uncoordinated stall". He added that, he attempted to regain control of the airplane, but was unsuccessful. The airplane rolled right and the right wing impacted the ground.

The airplane sustained substantial damage to both wings.

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

A review of recorded data from the automated weather observation station, located about 7 miles north of the airport, reported that about 1 minute before the accident the wind was from 150ø at 11 knots. The airplane landed on runway 24.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA429	07/23/2017 735 EDT	Regis# N831SR	Edgartown, MA	Apt: Katama Airpark 1B2
Acft Mk/Mdl CIRRUS DESIGN CORP SR22-NO SERIES	Acft SN 22-2444	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO-550-N	Acft TT 2653	Fatal 0	Ser Inj 0	Flt Conducted Under: FAR 135
Opr Name: CORNERSTONE AVIATION	Opr dba: SKYLINE FLIGHT	Aircraft Fire: NONE	AW Cert: STN	

Summary

The pilot reported that, during the takeoff roll, multiple geese flew across the runway. One goose struck the propeller, and another struck the windshield. Subsequently, the airplane yawed to the right into tall grass, and the airplane then spun 180° and came to rest with the landing gear sheared off. The airplane sustained substantial damage to the fuselage and empennage.

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 airplane's collision with geese during the takeoff roll.

Events

1. Takeoff - Birdstrike

Findings - Cause/Factor

1. Environmental issues-Physical environment-Object/animal/substance-Animal(s)/bird(s)-Ability to respond/compensate - C

Narrative

The pilot reported that, during the takeoff roll, multiple geese flew across the runway. One goose struck the propeller and another struck the windshield. Subsequently, the airplane yawed to the right, into tall grass and the airplane spun 180°, coming to rest with the landing gear sheared off.

The airplane sustained substantial damage to the fuselage and empennage.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA18CA011 10/12/2017 1400 EDT Regis# N323WG Cedartown, GA Apt: Polk County Airport- Cornelius 4A4
Acft Mk/Mdl DEHAVILLAND DHC 1-UNDESIGNAT Acft SN C1-0395 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: DURASHOK LLC Opr dba: Aircraft Fire: GRD

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA18LA007	10/06/2017 1415 EDT	Regis# N3538H	Centre Hall, PA	Apt: Penn's Cave N74
Acft Mk/Mdl ERCOUPE 415-C		Acft SN 4163	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR A&C75 SERIES		Acft TT 1713	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JUGEAU JEAN-LOUIS		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Initial climb - Loss of engine power (partial)

Narrative

On October 6, 2017, about 1415 eastern daylight time, an Ercoupe 415-C, N3538H, experienced a partial loss of engine power after takeoff and was substantially damaged during the subsequent forced landing near Penns Cave Airport (N74), Centre Hall, Pennsylvania. The private pilot was not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the personal flight which was conducted under the provisions of 14 Code of Federal Regulations Part 91.

The pilot reported that the airplane had climbed to 200 ft above ground level after takeoff from N74 when it experienced an "appreciable" loss of engine power, the flight controls became "sluggish," and the airplane would no longer climb. He noted the engine was operating about 2,000 rpm, which was 275 rpm below the nominal full-power setting of 2,275 rpm at takeoff.

The pilot elected to perform a forced landing to a field directly off the departure end of the runway. During the landing roll, the airplane struck fences which resulted in substantial damage to both wings.

The pilot held a private pilot certificate with a rating for airplane single engine land. His most recent Federal Aviation Administration (FAA) third-class medical certificate was issued December 30, 2015. The pilot reported 276 total hours of flight experience, 121 hours of which were in the Ercoupe.

According to FAA records, the airplane was manufactured in 1946. Its most recent annual inspection was completed November 12, 2016 at 1,712.8 total aircraft hours.

At 1253, the weather recorded at University Park Airport (UNV), State College, Pennsylvania, 11 miles west of N74 included an overcast ceiling at 2,400 ft and wind from 190ø at 5 knots. The temperature was 20øC, and the dew point was 17øC. The altimeter setting was 30.12 inches of mercury.

The wreckage was examined at the accident site, and all major components were accounted for at the scene. Both wings were substantially damaged. The left, right, and fuselage fuel tanks were intact and contained fuel. Flight control, engine control, and fuel system continuity were confirmed.

The engine was rotated by hand at the propeller and compression was confirmed on all cylinders but the No. 2 cylinder using the thumb method. Removal of the No. 2 cylinder valve cover revealed the No. 2 exhaust valve in the open (compressed) position without rocker-arm contact. The valve remained in the open position through several rotations of the crankshaft.

The airplane was retained for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ANC16LA072	09/26/2016	1420 AKD	Regis# N6324V	Anchorage, AK	Apt: Lake Hood LHD
Acft Mk/Mdl HELIO H-250			Acft SN 2538	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-540 SERIES			Acft TT 3099	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CHRISTOPHER R. BRANHAM			Opr dba:		Aircraft Fire: NONE
					AW Cert: STN

Summary

The commercial pilot reported that, after an uneventful touchdown on the dry, gravel-surface runway, he felt a medium vibration as he applied the brakes. As the airplane continued the landing roll, both main landing gear (MLG) legs sheared off. The propeller impacted the runway, and the airplane came to rest on the bottom of the fuselage, which sustained substantial damage.

A postaccident examination of the airplane revealed that both MLG legs failed due to fatigue cracking. The fatigue cracks were extended by intermittent overstress until the legs separated. The overstress extensions likely occurred during the accident landing or immediately before it because there was no corrosion of the crack surfaces.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The fatigue fracture failure of both main landing gear (MLG) legs during the landing roll, which resulted in the collapse and separation of both MLG legs.

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Events

1. Landing-landing roll - Part(s) separation from AC

Findings - Cause/Factor

1. Aircraft-Aircraft systems-Landing gear system-Main landing gear-Failure - C
2. Aircraft-Aircraft systems-Landing gear system-Main landing gear-Fatigue/wear/corrosion - C

Narrative

On September 26, 2016, about 1420 Alaska daylight time, a tailwheel-equipped Helio Courier H-250 airplane, N6324V, sustained substantial damage during the landing roll at the Lake Hood Seaplane Base, Anchorage, Alaska. The certificated commercial pilot sustained no injury. The airplane was registered to, and operated by, a private individual as a visual flight rules (VFR) flight under the provisions of 14 Code of Federal Regulations (CFR) Part 91. Visual meteorological conditions prevailed at the time of the accident, and a VFR flight plan had been filed. The flight originated from a private airstrip near Igiugig, Alaska, about 1200.

The pilot reported in a written statement on September 29 that after an uneventful touchdown on the dry and gravel surface of runway 32, a medium vibration was felt as the pilot applied the brakes. As the airplane continued the landing roll, both main landing gear legs sheared off. The propeller impacted the runway, and the airplane came to rest on the bottom of the fuselage without further incident.

The airplane sustained substantial damage to the fuselage. A postaccident inspection revealed that the main landing gear legs on both sides sheared off below a support bracket located at the intersection of the tubular steel structure of the fuselage attachment points. The main landing gear legs (left side, part number 250-040-451-0 and right side, part number 250-040-451-1) are constructed of 1/8-inch steel, which is molded and welded to form a 2-inch-square steel tube. The main landing gear legs are covered by a contoured fairing assembly. The pilot reported that the main landing gear legs were manufactured in 1966. He reported that the main landing gear legs had about 3,500 hours total time, about 15,000 cycles, and 15 hours since the last inspection.

In a written statement on October 14, the pilot reported that he could not determine when the main landing gear was inspected as they were changed in 2013 for ski-wheel use and he was unsure if a dye penetrant process was performed or not. He reported that the main landing gear legs installed on the accident airplane came off another airplane that had about 3,500 hours total time.

The main landing gear legs were secured and transported to the NTSB Materials Laboratory in Washington, D.C., for further examination.

In the recommendation section of the National Transportation Safety Board (NTSB) Accident/Incident Reporting Form 6120.1, the pilot reported that the main landing gear legs may previously have experienced hard landings, along with previous cracks, and that these cracks are difficult to detect during inspection. He further reported that it is advisable to have the main landing gear checked by specialists at annual inspections, especially if the main landing gear is being converted from ski-wheels to wheels, or vice versa.

National Transportation Safety Board - Aircraft Accident/Incident Database

METEOROLOGICAL INFORMATION

The closest weather reporting facility was the Lake Hood Seaplane Base. At 1353, an Aviation Routine Weather Report (METAR) was reporting in part: wind from 310 degrees at 5 knots; visibility 10 statute miles; sky condition, overcast 5,500 feet; temperature 46 degrees F; dew point 36 degrees F; altimeter 29.89 inHg.

TESTS AND RESEARCH

An examination by the NTSB Materials Laboratory revealed that both main landing gear legs were fractured through the square tube section between 29 and 30 inches above the axle centerlines. Several fatigue regions were present in the vertically oriented, aft walls of both main landing gear legs particularly near the upper and lower corners. All fatigue regions initiated at multiple sites on the outer (aft) surfaces of the tube structure and propagated inward (forward) through the wall of the main landing gear legs.

The NTSB Materials Laboratory examination report is in the public docket for this accident.

ADDITIONAL INFORMATION

Previous Main Landing Gear Leg Failure

ANC05LA097 identified a fracture failure of the right side main landing gear leg (part number 250-040-451-1, with about 7,006 hours in service) with a Helio H-250 during the landing roll.

Landing Gear Inspection and Maintenance

The Federal Aviation Administration has published Advisory Circular 43.13-1B Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair (2001). This document discusses inspection and maintenance of landing gear and states in part:

The entire structure of the landing gear should be closely examined for cracks, nicks, cuts, corrosion damage, or any other condition that can cause stress concentrations and eventual failure. Small nicks or cuts can be filed and burnished to a smooth contour, eliminating the point of stress concentration. If a crack is found in a landing gear member, the part must be replaced.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA427 07/21/2017 1220 CDT Regis# N342BA Deatsville, AL Apt: Wetumpka Muni 08A
Acft Mk/Mdl LET L23-SUPER BLAN Acft SN 998418 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Acft TT 1008 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: CIVIL AIR PATROL Opr dba: Aircraft Fire: NONE
AW Cert: STU

Summary

The Chief of Safety for the operator reported that the student pilot was on a solo flight in a glider and on the return leg to the airport when he noticed that he "seemed to be sinking quickly." While talking with his instructor over the radio and scanning for an open field, he decided to land on a street in a nearby neighborhood. While on approach, the glider struck tree tops and then a power line. Subsequently, the glider rolled to the right and the right wing struck the ground. The glider came to rest on the right side of the fuselage and the student pilot exited the glider.

The glider sustained substantial damage to both wings and fuselage.

The Chief of Safety reported that there were no preaccident mechanical failures or malfunctions with the glider that would have precluded normal operation.

The automated weather observation system about 8 nautical miles from the accident site reported, about the time of the accident, wind calm, temperature 91°F, dew point 75°F, and altimeter setting 30.04 inches of mercury.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The student pilot's failure to maintain clearance from trees and power lines while landing.

Events

1. Enroute-descent - Loss of lift
2. Emergency descent - Off-field or emergency landing
3. Emergency descent - 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. Environmental issues-Conditions/weather/phenomena-Temp/humidity/pressure-Thermal lifting-Effect on operation
3. Environmental issues-Physical environment-Object/animal/substance-Tree(s)-Effect on operation
4. Environmental issues-Physical environment-Object/animal/substance-Wire-Effect on operation

Narrative

The Chief of Safety for the operator reported that, the student pilot was on a solo flight, and on the return leg to the airport, the student pilot noticed that he "seemed to be sinking quickly." While talking with his instructor over the radio and scanning for an open field, he decided to land on a street in a nearby neighborhood. While on approach, the glider struck tree tops and then a powerline. Subsequently, the glider rolled to the right and the right wing struck the ground. The glider came to rest on the right side of the fuselage and the student pilot exited the glider.

The glider sustained substantial damage to both wings and fuselage.

The Chief of Safety reported that there were no preaccident mechanical failures or malfunctions with the glider that would have precluded normal operation.

The automated weather observation system about 8 nautical miles from the accident site reported, about the time of the accident, wind calm, temperature 91°F, dew point 75°F, and barometric 30.04" Hg.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17CA244	07/14/2017 1030 EDT	Regis# N57GX	Venice, FL	Apt: Venice Muni VNC
Acft Mk/Mdl MOONEY M20R		Acft SN 29-0357	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR IO-550 SERIES		Acft TT 987	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: WILLIAM M POWELL INC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the single-engine airplane reported that, during landing to the southeast, a wind gust contacted the airplane's tail from the left side, which caused the airplane to veer left. The airplane departed the runway, crossed a taxiway, and impacted a ditch.

The pilot reported there were no preimpact mechanical malfunctions or anomalies with the airplane that would have precluded normal operation. Examination of the wreckage by a Federal Aviation Administration inspector revealed that the nose landing gear collapsed and that the propeller was bent aft. The engine firewall was wrinkled below the left engine mount. The recorded weather at the airport, about the time of the accident, included wind from 080ø at 10 knots.

Cause Narrative

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

Events

1. Landing-landing roll - Loss of control on ground
2. Landing-landing roll - 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. 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 of the single-engine airplane reported that during landing to the southeast, a gust of wind contacted the airplane's tail from the left side, causing the airplane to veer to the left. The airplane departed the runway, crossed a taxiway, and impacted a ditch. The pilot reported there were no preimpact mechanical malfunctions or anomalies that would have precluded normal operation of the airplane. Examination of the wreckage by a Federal Aviation Administration inspector revealed the nose gear collapsed and the propeller was bent aft. The engine firewall was wrinkled below the left engine mount. The recorded weather at the airport, about the time of the accident, included wind from 080ø at 10 knots.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA15LA349	09/10/2015 1448 EDT	Regis# N370MM	Atlantic City, AO	Apt: N/a
Acft Mk/Mdl MOONEY AIRPLANE CO INC M20TN-NO	Acft SN 31-0071	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR TSIO-550-G	Acft TT 477	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: MOIR MICHAEL	Opr dba:		Aircraft Fire: NONE	
			AW Cert: STN	

Summary

The commercial pilot departed Michigan on a personal cross-country flight in the autopilot-equipped airplane destined for New Jersey. Air traffic control records indicated that after the airplane departed, about 1200, a controller instructed the pilot to climb to 25,000 ft mean sea level (msl). At 1216, the pilot read back the assigned altitude and continued toward the destination. About 23 minutes later, the controller attempted to contact the pilot; however, the pilot did not respond. Controllers' repeated attempts to contact the pilot throughout the remainder of the flight were unsuccessful as the airplane continued flying a straight course toward the destination.

According to radar data, about 2 hours 22 minutes after the pilot's last transmission and while about 5 miles northwest of the destination, the airplane began descending out of 25,000 ft msl while on a southeast heading until it impacted the Atlantic Ocean about 8 minutes later. Given that the pilot refueled the airplane several days before the flight and filed a flight plan that indicated that the airplane's fuel onboard would allow for 6 hours of flight, it is likely that both fuel tanks had 51 gallons of fuel onboard. Fuel consumption calculations indicate that the airplane would consume up to 22.6 gallons of fuel per hour at cruise flight at 25,000 ft. Therefore, it is likely that the amount of fuel consumed on the day of the flight, given initial takeoff and climb consumption in addition to the 2 hours 22 minute cruise flight, would have been equivalent to the fuel available in one tank. Without pilot action to switch fuel tanks, the engine became starved of fuel and the airplane began its descent to the ocean.

An examination of the airframe and engine revealed no preimpact anomalies that would have precluded normal operation.

During an examination of the oxygen system on the airplane, a fitting, which connected an oxygen line to a regulator on the tank, was found loose and could be moved in both directions by hand without resistance. The oxygen system was serviced with oxygen 5 flight hours before the accident and had a capacity of at least 11 hours of oxygen for pilot-only operations; however, it is likely that the loose oxygen line allowed oxygen to escape and drained the oxygen canister more quickly than the pilot expected. Therefore, although the pilot was found wearing an oxygen mask, given the high altitude the airplane was at for the duration of the flight, the pilot's failure to respond to controller contact, and evidence indicating that he would have had reduced availability of supplemental oxygen, it is likely that the pilot became incapacitated due to hypoxia. The airplane's continued flight at 25,000 ft msl and its descent profile were consistent with the airplane operating under autopilot control and then descending to water impact due to fuel starvation.

The servicing of the oxygen system was performed at the time of an annual inspection, which should have included an inspection of the oxygen system for leaks.

Toxicology testing of specimens from the pilot detected 26 mg/dL ethanol in the blood; given that no ethanol was detected elsewhere, the low level of ethanol detected in pilot's blood was likely due to postmortem production not from ingestion; therefore, ethanol likely did not contribute to the accident.

Diphenhydramine, an impairing medication that causes sedation, altered mood, and impaired cognitive and psychomotor performance, was detected in the liver and cavity blood. Because diphenhydramine undergoes postmortem distribution, levels may have been significantly lower than the detected postmortem levels; therefore, it could not be determined whether the pilot's use of diphenhydramine contributed to the accident.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: A loose oxygen line, which was not detected by maintenance personnel during a recent annual inspection, that allowed oxygen to escape and drain the oxygen canister more quickly than the pilot expected. This reduced the pilot's availability of supplemental oxygen and led to his experiencing hypoxia and the airplane subsequently flying on autopilot until it eventually lost power due to fuel starvation.

Events

1. Prior to flight - Aircraft maintenance event
2. Enroute-cruise - Miscellaneous/other
3. Enroute-cruise - Loss of control in flight
4. Uncontrolled descent - Collision with terr/obj (non-CFIT)

National Transportation Safety Board - Aircraft Accident/Incident Database

Findings - Cause/Factor

1. Aircraft-Aircraft systems-Oxygen system-(general)-Malfunction - C
2. Personnel issues-Physical-Impairment/incapacitation-Hypoxia/anoxia-Pilot - C
3. Aircraft-Aircraft systems-Oxygen system-(general)-Inadequate inspection - C
4. Personnel issues-Task performance-Maintenance-Scheduled/routine maintenance-Maintenance personnel - C
5. Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid level - C

Narrative

HISTORY OF FLIGHT

On September 10, 2015, about 1448 eastern daylight time, a Mooney M20TN airplane, N370MM, impacted the Atlantic Ocean off the coast of Atlantic City, New Jersey. The commercial pilot was fatally injured, and the airplane sustained substantial damage. The airplane was owned by the pilot and the flight was being conducted as a 14 Code of Federal Regulations Part 91 personal flight. Day visual meteorological conditions existed near the accident site about the time of the accident, and an instrument flight rules flight plan had been filed. The flight originated from Gaylord Regional Airport (GLR), Gaylord, Michigan, about 1200 and was destined for Atlantic City International Airport (ACY), Atlantic City, New Jersey.

According to the pilot's logbook and a fuel receipt, he flew the accident airplane for 1 hour on September 7, 2015, and then fueled the airplane with 11.4 gallons of 100LL aviation fuel. There were no other fuel transactions or flights between that time and the day of the accident. The pilot reported in his flight plan that there was sufficient fuel onboard the airplane for 6 hours of flight.

According to Federal Aviation Administration (FAA) Minneapolis Air Route Traffic Control Center (ARTCC) records, the airplane departed GLR about 1200, and at 1214:04, the pilot checked in and informed the controller that he was climbing from 17,600 to 21,000 ft mean sea level (msl). The controller then instructed the pilot to climb to 25,000 ft msl, and the pilot read back the assigned altitude and continued toward the destination.

About 23 minutes later, while the autopilot-equipped airplane was in cruise flight, the ARTCC controller attempted to contact the pilot with a frequency change; however, the pilot did not respond. The controllers' repeated attempts to contact the pilot throughout the remainder of the flight were unsuccessful as the airplane continued flying a straight course toward ACY at 25,000 ft msl. According to radar data, at 1438 and while about 5 miles northwest of ACY, the airplane began descending from 25,000 ft msl and continued to descend at an average descent rate of about 1,600 ft per minute on a southeast heading until it impacted the Atlantic Ocean about 8 minutes later. As the airplane was descending, two F-16 airplanes departed ACY to relay search and rescue information, and the pilots subsequently found debris.

PERSONNEL INFORMATION

According to the pilot's logbook, he held a commercial pilot certificate with airplane single-engine land, multiengine land, and instrument airplane ratings. His most recent FAA third-class medical certificate was issued on October 26, 2013, with no limitations. He recorded 4,900 hours of total flight experience, 2.5 hours of which were in the 90 days before the accident.

AIRPLANE INFORMATION

According to FAA records, the airplane was manufactured in 2007 and registered to the pilot in December 2007. The most recent annual inspection was performed on June 12, 2015, at which time it had accumulated 472.2 total hours of time in service.

According to the Pilot's Operating Handbook (POH), the airplane was equipped with extended range tanks where fuel was "carried in two integrally sealed sections of the forward, inboard area of the wing." The total usable fuel capacity was 102 gallons, 51 gallons per side. The pilot could set the fuel selector valve to the "left" tank, "right" tank, or "off" position via a recessed three-position handle aft of the console on the floor.

The airplane was also equipped with a four-place oxygen system that provided supplementary oxygen necessary for continuous flight at high altitude. Four oxygen outlets were provided in the overhead panel between the pilot and copilot seats. Oxygen would flow from the outlets only when a mask hose was connected. The pilot's mask was a permanent rebreathing-type mask with a vinyl plastic hose and a built-in microphone for radio communication while using oxygen. The oxygen cylinder filler valve was located under a spring-loaded door aft of the baggage door. When in service, the 77.1 cubic-ft tank could supply at least 11 hours of oxygen for a pilot-only operation depending on flight altitude. The airplane was equipped with an oxygen system quantity indicator in the pilot's

National Transportation Safety Board - Aircraft Accident/Incident Database

arm rest. According to a receipt from the most recent annual inspection, the oxygen bottle was serviced at that time. Further, according to stickers placed on the oxygen regulator and the tank, they were both overhauled in May 2013.

Review of the Mooney 100 Hour-Annual Inspection Guide revealed that it included an inspection of the "oxygen system for leaks, proper ON/OFF valve operation & filler for safety of operation."

METEOROLOGICAL INFORMATION

At 1454, the weather reported at ACY indicated variable wind at 4 knots, 10 miles visibility, few clouds at 700 and 3,400 ft above ground level, temperature 24°C, dew point 22°C, and an altimeter setting of 29.75 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The airplane was located by the United States Coast Guard off the coast of Atlantic City, New Jersey, in about 45-ft-deep water. On September 12, 2015, the airplane was recovered and moved to a salvage facility to facilitate further examination.

The fuselage was severely impact damaged. The inboard 2-ft-long section of the left wing remained attached to the fuselage. The outboard section of the left wing was impact separated and not recovered. The empennage was impact separated from the fuselage. The vertical stabilizer and rudder remained attached to the empennage. The bottom 1-ft-long section of the rudder exhibited impact damage. The left horizontal stabilizer and elevator remained attached to the empennage at all attachment points. The left and right elevator counterweights were impact separated and not recovered. The right horizontal stabilizer and elevator remained attached to the empennage but was impact damaged in the positive direction. The right wing was impact separated from the fuselage and not recovered. Control cable continuity was confirmed from the rudder and elevator to the cockpit through control tube fractures and separations. In addition, control continuity was established from the yoke to both wing roots through control tube fractures and separations.

Both front seats remained attached to the fuselage. Two oxygen lines were secured to the top portion of the cabin. An oxygen pulse oximeter was located in the cabin area of the wreckage, and the pilot was found wearing an oxygen mask. A Hobbs meter was located in the aft section of the fuselage and indicated 477.2 hours of flight time.

The engine was impact separated from the airframe. The rocker box covers were removed, and engine continuity was confirmed from the propeller through the aft section of the engine. All three propeller blades were bent; two of the blades were bent in the same direction, and the third blade was bent in the opposite direction. The fuel line from the fuel manifold valve to the fuel metering unit was removed, and a drop of fluid was noted coming out of the line. The fluid had an odor similar to 100 LL aviation fuel. There were no preimpact anomalies noted with the engine that would have precluded normal operation.

An oxygen tank was located aft of the aft bulkhead. An elbow fitting that was connected to the oxygen regulator assembly, which connected an oxygen line to the tank, was found loose. The fitting could be moved in both directions by hand without resistance.

Three Garmin G1000 SD cards were removed from the wreckage and sent to the NTSB Recorders Laboratory for data download. The G1000 SD cards contained firmware versions and navigation databases that did not record data. No accident data were recovered from the SD cards.

MEDICAL AND PATHOLOGICAL INFORMATION

The Office of the State Medical Examiner for the State of New Jersey performed an autopsy on the pilot. The autopsy report indicated that the pilot died due to "multiple blunt injuries."

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing of fluid and tissue specimens from the pilot. The specimens tested negative for carbon monoxide, and 26 mg/dL ethanol was detected in the blood. No ethanol was detected in muscle and brain tissue specimens. Diphenhydramine was detected in the liver, and 0.071 ug/ml diphenhydramine was detected in the blood. In addition, chlorthalidone was detected in the liver and blood.

Ethanol can be produced in tissues by postmortem microbial activity, which can result in considerable variations in levels in different tissues. Ingested alcohol

is generally distributed throughout the body and levels in different postmortem tissues are usually similar.

Diphenhydramine is a sedating antihistamine used to treat allergy symptoms and as a sleep aid and 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)."

Diphenhydramine may also result in altered mood and impaired cognitive and psychomotor performance.. In fact, in a driving simulator study, a single dose of diphenhydramine impaired driving ability more than a blood alcohol concentration of 0.100%. The therapeutic range for diphenhydramine is 0.0250 to 0.1120 ug/ml. Diphenhydramine undergoes postmortem redistribution, which can result in central postmortem levels being about two to three times higher than peripheral levels. Chlorthalidone is a diuretic prescription blood pressure medication that may decrease the recurrence of kidney stones and is not considered impairing.

ADDITIONAL INFORMATION

Performance Calculations

According to the POH, the fuel consumption for the flight using best-power performance data at 25,000 ft pressure altitude, depending on the selected manifold pressure and outside air temperature, would have been between 12.0 and 22.6 gallons of fuel per hour.

Pilot's Handbook of Aeronautical Knowledge - Hypoxia

According to the Pilot's Handbook of Aeronautical Knowledge, Chapter 17, "Aeromedical Factors,"

Hypoxia means 'reduced oxygen' or 'not enough oxygen.'. Hypoxia can be caused by several factors, including an insufficient supply of oxygen, inadequate transportation of oxygen, or the inability of the body tissues to use oxygen.High-altitude flying can place a pilot in danger of becoming hypoxic. Oxygen starvation causes the brain and other vital organs to become impaired.the symptoms of hypoxia vary with the individual..As altitude increases above 10,000 feet, the symptoms of hypoxia increase in severity, and the time of useful consciousness rapidly decreases.

According to the time of useful consciousness chart in the handbook, a pilot has 3 to 5 minutes of useful consciousness at 25,000 ft msl.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR18LA006	10/09/2017 1616 MST	Regis# N8NW	Buckeye, AZ	Apt: N/a
Acft Mk/Mdl NANCHANG CHINA CJ 6-UNDESIGNAT	Acft SN 4332016	Acft Dmg: SUBSTANTIAL	Fatal 0	Rpt Status: Prelim Prob Caus: Pending
		Ser Inj 1	Flt Conducted Under: FAR 091	
Opr Name: YANNONE ANTHONY W	Opr dba:		Aircraft Fire: NONE	
			AW Cert: SPE	

Events

1. Enroute-descent - Loss of engine power (partial)
-

Narrative

On October 9, 2017, about 1616 mountain standard time, an experimental Nanchang China CJ-6, N8NW, sustained substantial damage during a forced landing after a reported loss of engine power near Buckeye, Arizona. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. The private pilot sustained serious injuries and the passenger sustained minor injuries. Visual meteorological conditions prevailed and no flight plan was filed for the cross-country flight. The flight departed North Las Vegas Airport, Las Vegas, Nevada, about 1500, Pacific daylight time, with a planned destination of Phoenix Goodyear Airport, Goodyear, Arizona.

According to the pilot, after he started his descent, the engine lost power. Unable to make an airport, he decided to land on a clearing at a nearby construction site. During the landing, the airplane's left wing struck an obstacle which caused the airplane to veer out of control.

The airplane was recovered to a secure storage facility for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA456	07/29/2017 1533 EDT	Regis# N817V	Mocksville, NC	Apt: Bahnson 43NC
Acft Mk/Mdl PDPS PZL-BIELSKO SZD 55-1		Acft SN 551192035	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
		Acft TT 1272	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CLAY SHOLAR		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

Events

1. Landing - Abnormal runway contact
-

Narrative

The glider pilot reported that, during landing in gusting wind conditions, the glider bounced, so the pilot added "more spoiler" to help the glider settle back onto the ground. He added that a gust of wind "rotated" the glider to the left and the glider bounced again, about 3-4 ft into the air. After the second bounce, the glider landed hard "with the nose yawed to the left".

The glider sustained substantial damage to the fuselage.

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

A review of recorded data from the automated weather observation station located 16 nautical miles east from the accident airport reported that, about 40 minutes before the accident, the wind was from 30ø at 17 knots, gusting 20 knots. The pilot reported that the wind was from 360ø at 15 knots, gusting to 20 knots. The glider landed on runway 1.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA18CA001	10/03/2017 1053 PDT	Regis# N48694	Yakima, WA	Apt: Yakima Air Terminal/mcallister YKM
Acft Mk/Mdl PIPER J3C		Acft SN 10377	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PINGREY RICHARD H TRUSTEE		Opr dba:		Aircraft Fire: NONE

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA563	09/28/2017 1100 EDT	Regis# N4734Z	Orangeburg, SC	Apt: Orangeburg Muni OGB
Acft Mk/Mdl PIPER PA 22-108		Acft SN 22-8282	Acft Dmg: DESTROYED	Rpt Status: Prelim Prob Caus: Pending
		Acft TT 3321	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: WILLIAM K. BEDFORD		Opr dba:		Aircraft Fire: GRD

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR14LA368	09/06/2014 1226 MST	Regis# N5966P	Mesa, AZ	Apt: Falcon Fld FFZ
Acft Mk/Mdl PIPER PA 24-250		Acft SN 24-1059	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING 0-540 SERIES			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CHRISTOPHERSON JACK T TRUSTEE	Opr dba:			Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing-landing roll - Landing gear collapse

Narrative

HISTORY OF FLIGHT

On September 6, 2014, at 1226 mountain standard time, a Piper PA24-250, N5966P, had the right main landing gear collapse during the landing roll at Falcon Field Airport, Mesa, Arizona. The airline transport pilot and one passenger were uninjured; the airplane sustained substantial damage to the right wing. The owner/pilot was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The cross-country flight departed Nephi, Utah, about 0930 with a planned destination of Mesa. Visual meteorological conditions prevailed, and no flight plan had been filed.

The pilot reported that on approach to land the right main landing gear would not extend and indicate a locked gear down position. After a low fly by, the pilot attempted to manually extend the gear but was unable to get a safe gear indication.

The pilot made a normal landing and during the roll out the right main landing gear collapsed.

The pilot stated that the airplane and engine had no mechanical failures or malfunctions during the flight.

PERSONNEL INFORMATION

AIRCRAFT INFORMATION

METEOROLOGICAL CONDITIONS

AIRPORT INFORMATION

TESTS AND RESEARCH

A Federal Aviation Administration inspector examined the wreckage. He discovered that the rigging of the two landing gear cables was slightly off. The bracket that connected the landing gear transmission to the airframe was broken off; when examined with a magnifying glass, the break did not appear to have occurred recently. With the airplane on jacks and the landing gear cables disconnected, the gear successfully locked down, and the gear could be manually returned to the up position with no restrictions. He determined that the airplane had a gear up landing in 2001.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR18LA003B	10/07/2017 1030 MST	Regis# N15664	Tucson, AZ	Apt: Ryan Field RYN
Acft Mk/Mdl PIPER PA 28-180-180		Acft SN 28-7305113	Acft Dmg: MINOR	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING O&VO-360 SER			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: STITES KELLY S		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

Events

1. Approach-VFR pattern base - Midair collision

Narrative

On October 7, 2017, about 1030 mountain standard time, an experimental amateur built Borom Long EZ, N966EZ, and a Piper PA-28-180, N15664, collided midair about 1 mile northwest of the Ryan Field Airport (RYN) Tucson, Arizona. The private pilot, sole occupant of the Long EZ, and the private pilot and passenger of the Piper, were not injured. The Long EZ sustained substantial damage to the left rudder and the Piper sustained minor damage to the landing gear assembly. Both airplanes were registered to private individuals and operated by the pilots as 14 Code of Federal Regulations Part 91 personal flights. Visual meteorological conditions prevailed, and no flight plan was filed for either flight. The Long EZ departed RYN about 0950 and the Piper departed from Chandler Municipal Airport, Chandler, Arizona, about 0935.

The pilot of the Long EZ reported that he was on downwind when he observed another airplane on left base, slightly above him, off to his right side, and closing rapidly. Shortly thereafter, the airplanes collided.

According to the pilot of the Piper, he began his turn for a left base for runway 6L when he noticed an airplane coming from the east, on downwind. The pilot of the Piper stated that he attempted to avoid the other airplane, however, his airplane's landing gear struck the Long EZ.

Both pilots declared an emergency and landed at RYN without further incident.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA010 10/02/2016 1520 CDT Regis# N5196L Clarendon, TX Apt: N/a
Acft Mk/Mdl PIPER PA 28-180-180 Acft SN 28-4486 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360 SER Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: COYOTE FLIGHT Opr dba: Aircraft Fire: NONE

Summary

The student pilot was conducting a cross-country personal flight. The student pilot reported that, while in cruise flight, the single-engine airplane lost power. He then performed a forced landing to a field, during which the wings and firewall were damaged.

Examination of the engine revealed damage consistent with lubrication distress. Further, a cylinder piston pin was found broken, and metal was found in the oil pickup screen and in the oil filter, which had recently been changed. It is likely that the degraded piston pin was the source of the metal in the oil, which clogged the oil inlet screen and reduced the amount of oil available to the engine and resulted in the loss of engine power. A nonmechanic had performed preventative maintenance and changed the oil and oil filter shortly before the accident. He reported that he noticed the metal in the filter but did not consider it to be an indication of a problem.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The failure of a cylinder piston pin, which resulted in an obstructed oil inlet screen, reduced the amount of oil available to the engine, and led to the subsequent loss of engine power. Contributing to the accident was the failure of the nonmechanic, who had recently changed the oil and oil filter, to recognize that metal in the filter was indicative of a problem.

Events

1. Enroute - Loss of engine power (total)

Findings - Cause/Factor

1. Aircraft-Aircraft power plant-Engine (reciprocating)-Recip engine power section-Failure - C
2. Aircraft-Fluids/misc hardware-Fluids-Oil-Fluid level - C
3. Personnel issues-Task performance-Maintenance-Scheduled/routine maintenance-Other/unknown - F

Narrative

On October 2, 2016, about 1520 central daylight time, a Piper PA-28-180 airplane, N5196L, was damaged during a forced landing near Clarendon, Texas. The student rated pilot sustained minor injuries and the airplane was substantially damaged. The airplane was to Tohijoco LLC and operated by Coyote Flight under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight which operated under visual flight rules flight following. The cross-country flight departed the Rick Husband Amarillo International Airport (AMA), Amarillo, Texas, at 1405 and was en route to the Childress Municipal Airport (CDS), Childress, Texas.

The pilot reported to the responding FAA inspector that while in cruise flight the engine lost power and he performed a forced landing to a field. During the landing, the airplane's wings and firewall were damaged.

The airplane was transported to the operator's facility for an examination. The engine was examined under the auspices of an Federal Aviation Administration inspector. The examination noted damage to the engine was consistent with lubrication distress. Further examination of the engine found the metal oil screen pickup fouled with metal. The source of the metal was from a broken piston pin.

During the examination, it was discovered that the engine's oil and oil filter had recently been changed. The oil filter, which had been removed, was examined and metal was found in the filter. A non-mechanic rated person performed preventative maintenance, changed the oil and oil filter prior to the accident. During the oil change, he noticed the metal, but did not consider this to be an indication of a problem.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17LA332B 09/23/2017 1715 EDT Regis# N1881H Clearwater, FL Apt: Clearwater Air Park CLW
Acft Mk/Mdl PIPER PA 28R-201-201 Acft SN 28R-7737015 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO 360 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: TAMPA BAY AVIATION Opr dba: Aircraft Fire: NONE

Events

1. Landing-flare/touchdown - Collision during takeoff/land

Narrative

On September 23, 2017, about 1715 eastern daylight time, a single-engine Piper PA-28R-201 airplane, N1881H, and a Robinson R22 helicopter, N44TB, were substantially damaged when they collided in mid-air over the runway at the Clearwater Air Park (CLW), Clearwater, Florida. The private rated pilot, the sole occupant onboard N1881H, received minor injuries, and the flight instructor and a pilot-rated student onboard N44TB were not injured. Both aircraft were owned and operated by Tampa Bay Aviation. Visual meteorological conditions prevailed at the time of the accident. Both flights were operated under 14 Code of Federal Regulations Part 91 as personal flights, and no flight plans had been filed. Both aircraft were operating in the traffic pattern at the time of the accident.

According to the flight instructor, the purpose of the flight was a flight review of the pilot-rated student. He indicated that he had never previously flown with the student pilot, but during the flight, both were wearing headsets. The student pilot proceeded to the hover practice area and executed multiple practice maneuvers. All radio calls were made during every turn while in the airport traffic pattern. The instructor performed all radio calls at each leg of the airport traffic pattern during the first approach; while the pilot-rated student made the radio calls at each leg of the airport traffic pattern during the second takeoff, and approach to the runway. In addition, prior to every turn, they scanned in all directions for traffic. While on a final approach, the instructor noticed a fixed-wing airplane on the base leg of the airport traffic pattern for runway 16, and he announced on the common traffic advisory frequency that they were using runway 34. They heard the pilot of the fixed-wing airplane say something that was not legible and then observed the airplane veer away, flying to the west. The instructor then allowed the student to continue the approach to runway 34, which terminated with a hover, touchdown, and then liftoff. The flight returned to the crosswind leg of the airport traffic pattern where then turned onto base leg of the airport traffic pattern for runway 34. When the flight was 1 mile from the runway, the student pilot turned onto final approach to the airport traffic pattern for runway 34 and executed a steep approach. The instructor told the student to extend the flight path to the segmented circle. The helicopter came to a hover over runway 34 about 15 ft., when he heard a loud sound, and felt the helicopter being pushed forward. The helicopter then began to spin, and impacted the ground hard and came to rest upright.

According to the pilot of the airplane, he stated that between his first and second transmission he heard some heavy buzzing sound like a helicopter rotor with the words "34" barely distinguishable. The pilot did a scan for air traffic and declared being on downwind with "Clearwater traffic." The pilot quickly turned to base and decreased the engine power to descend. He stated that he did a quick scan of the airport environment, focusing on the taxiway to runway 34 and the line of trees ahead of it as well as to the back of the runway and saw nothing unusual. He was confident his calls on the radio were heard. The pilot proceeded to land; about 2 seconds prior to the impact he saw the helicopter hovering "immobile," probably 10 ft. above the runway. He recalled the tail was pointed towards the airplane and absolutely stationary. The pilot tried to avoid the helicopter, then heard a loud sound followed by the airplane inverting and sliding on its canopy. After the airplane came to a stop the pilot exited the airplane.

A review of a surveillance video showed the helicopter at a stationary hover over the threshold. Shortly after, the airplane is shown climbing out before colliding with the rear of the helicopter.

According to a pilot that was approaching CLW and was about 2 miles west of CLW, he heard the radio call from the helicopter when it was on a 1-mile final at 500 ft. As he flew over CLW he saw the accident outcome. He indicated that he was monitoring the CLW CTAF, and did not hear the pilot of the airplane announce his intentions. About 5 minutes after the accident, he called his company and diverted to a nearby airport.

Examination by a Federal Aviation Administration inspector revealed that both the helicopter and airplane sustained substantial damage. Examination of the radio communication system in the airplane and helicopter did not reveal any anomalies.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16LA022	10/23/2015 1530 EDT	Regis# N43249	Bluemont, VA	Apt: N/a
Acft Mk/Mdl PIPER PA-32-260		Acft SN 32-7400042	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-540 SERIES		Acft TT 4610	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BEC INDUSTRIES LTD		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Enroute-climb to cruise - Loss of engine power (total)

Narrative

HISTORY OF FLIGHT

On October 23, 2015, about 1530 eastern daylight time, a Piper PA-32-260, N43249, was substantially damaged during a forced landing to a field near Bluemont, Virginia. The commercial pilot and passenger were not injured. Day visual meteorological conditions prevailed and no flight plan was filed for the personal flight, which was conducted under the provisions of 14 Code of Federal Regulations Part 91. The flight originated from Upperville Airport (2VG2), Upperville, Virginia, about 1520, and was destined for Monmouth Executive Airport (BLM), Farmingdale, New Jersey.

According to the pilot, after departure, while climbing through 4,500 feet mean sea level (msl), the engine power decreased, the engine "vibrated violently," and he noted that the oil pressure dropped to zero. He contacted air traffic control and attempted to return to the departure airport; however, he realized the airplane would not make the airport. Therefore, he elected to perform a forced landing to a nearby field.

According to the passenger, the pilot performed a preflight inspection of the airplane and added a quart of oil to the engine prior to departure. During the climb, the "engine sound became very loud with obvious serious knocking." Soon after, the engine seized and the pilot elected to land the airplane in a field. During the landing, the airplane slid across the field, struck two fences, and then came to rest upright. After the pilot and passenger egressed the airplane, the pilot checked the oil level and the passenger reported that it was "full."

PERSONNEL INFORMATION

According to the pilot, he held a commercial pilot certificate with a rating for airplane single-engine land and instrument airplane. He reported 3,195 total hours of flight experience, 2,500 hours of which were in the accident airplane make and model. His most recent Federal Aviation Administration (FAA) second-class medical certificate was issued on October 26, 2013.

AIRPLANE INFORMATION

According to the FAA, the airplane was manufactured in 1974 and was registered to a corporation in 1991. According to the maintenance records, the most recent annual inspection was performed on June 2, 2015, at which time the airplane had a total time of 4,610 hours and a tachometer time of 2,414.2 hours. At that time, the oil and oil filter were changed, and the oil filter was inspected for contaminants, with none noted. Then two other oil changes were noted in the engine logbook, which corresponded to 2,462 hours and 2,512.5 hours. There was no indication in the engine logbook that the oil filters were examined for contaminants at the time they were changed. The oil filter installed on the airplane at the time of the accident indicated it was installed on September 9, 2015, at a tachometer time of 100 hours, and there was no corresponding entry in the engine logbook.

The tachometer in the airplane at the accident location indicated 117.5 hours; however, no maintenance log entry was found that corresponded to a tachometer replacement.

The airplane was equipped with a Lycoming O-540-E4B5, 260-hp engine. The most recent engine overhaul occurred in 1998. At the most recent annual inspection, the engine had accumulated 2,285.8 hours of time since major overhaul, it was calculated that at the most recent oil change in the engine logbook, the engine had accumulated 2,384.1 hours. Since there was no maintenance log entry that corresponded with the tachometer replacement, the engine had at least an estimated total time of 2,501.6 hours at the time of the accident.

WRECKAGE AND IMPACT INFORMATION

An examination of the airplane revealed that the right wing was impact separated and the left wing was removed by recovery personnel. The engine remained attached to the airplane and the propeller remained attached to the engine. One propeller blade was bent aft in an approximate 45-degree angle and the other blade was bent aft in an approximate 5 degree angle.

The engine cowling was removed and no damage was noted on the exterior of the engine crankcase. The carburetor drain nut was removed and about 12 ounces of fluid similar in color to 100LL aviation fuel was drained out of the carburetor. No debris was noted in the fluid. About 9 quarts of oil was noted in the engine, which had a capacity for 12 quarts. Crankshaft continuity was confirmed by rotating the propeller by hand without resistance, and crankshaft continuity was confirmed to the rear accessory section of the engine. The top spark plugs were removed and thumb compression was confirmed on all cylinders except cylinder No. 5.

The bottom of the crankcase was fractured near the No. 5 connecting rod. The oil pump was removed from the engine and rotated freely by hand. It was disassembled with no anomalies noted. The engine oil sump was removed from the engine and there were multiple pieces and particles of metal in the oil sump. The oil filter was removed from the engine, disassembled, and metallic debris was noted in the filter. The oil suction screen was examined and metallic debris was noted in the screen.

All cylinders except cylinder No. 5 were removed, and corrosion was noted on the Nos. 2, 3, and 4 cylinder walls. The No. 5 connecting rod was separated from the crankshaft and corrosion was noted on the connecting rod surface that interfaced with the crankshaft bearing. Cylinder No. 5 was unable to be removed due the connecting rod damage. In addition, corrosion was noted on the No. 6 connecting rod.

The No. 3 piston exhibited scoring on one side of the piston and the piston pin cap was deformed into an oval shape. The No. 3 cylinder was sent to the NTSB Materials Laboratory for further examination.

No. 3 Cylinder Assembly Examination

The piston exhibited a wear scar around the piston pin hole. The lines within the wear scar on the piston were consistent with reciprocating rubbing along the axis of the cylinder. The piston pin did not exhibit deformation, but it did exhibit superficial circumferential wear scars, consistent with rotation inside the piston crown. The inside walls of the cylinder exhibited deposits that were consistent with rust. Furthermore, the inner cylinder had a circular wear scar, which was consistent with the shape of the piston pin plug. There was a lack of corrosion in the circular wear region, which suggested that the corrosion of the cylinder was present before the wear or rubbing between the piston assembly and the cylinder occurred.

ADDITIONAL INFORMATION

According to the Lycoming Service Instruction on the required time between overhaul, it stated that the time between overhaul (TBO) takes "into account service experience, variations in operating conditions, and frequency of operation. Continuous service assumes that the aircraft will not be out of service for more than 30 consecutive days." The investigation was unable to conclusively determine if the engine was out of service for any period greater than 30 days.

"Engine deterioration in the form of corrosion (rust) and the drying out and hardening of composition materials such as gaskets, seals, flexible hoses and fuel pump diaphragms can occur if an engine is out of service for an extended period of time. Due to the loss of protective oil film after an extended period of inactivity, abnormal wear on soft metal bearing surfaces can occur during engine start. Therefore, all engines that do not accumulate the hourly period of TBO specified in this publication are recommended to be overhauled every twelfth year."

The TBO listed for an O-540-E4B5 engine was 2,000 hours.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17CA208	06/16/2017 1330 EDT	Regis# N4317Y	Cedar Key, FL	Apt: George T Lewis CDK
Acft Mk/Mdl PIPER PA23-160		Acft SN 23-2041	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-B3B		Acft TT 3291	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: THOMAS MALLORY		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot reported that the takeoff, climb, and en route portions of the cross-country flight were uneventful. He checked the wind sock before landing, and it was "flaccid," indicating calm wind. He slowed the airplane to 80 mph on final approach and landed near the approach end of the runway, which was 2,355 ft long. He estimated that the airplane should have rolled to a stop; however, it continued down the runway despite heavy braking. The airplane departed the end of the runway, traveled across a small road and down an embankment, and came to rest in water at the edge of the airport boundary. A Federal Aviation Administration inspector examined the wreckage and reported that the airplane sustained substantial damage to the forward fuselage and submersion in salt water. There were tire skid marks on the runway leading to the wreckage. A weather buoy, located about 1 mile east of the airport, recorded wind from the west about the time of the accident, which would have resulted in a tailwind of up to 8 knots. The pilot reported there were no preimpact mechanical malfunctions or anomalies 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 stop the airplane within the available runway after conducting the approach and landing with a tailwind.

Events

1. Landing-landing roll - Landing area overshoot
2. Landing-landing roll - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Surface speed/braking-Capability exceeded - C
2. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
3. Environmental issues-Conditions/weather/phenomena-Wind-Tailwind-Contributed to outcome - C
4. Aircraft-Aircraft oper/perf/capability-Aircraft capability-Landing distance-Capability exceeded - C
5. Environmental issues-Physical environment-Object/animal/substance-Water/moisture-Contributed to outcome

Narrative

The pilot reported that the takeoff, climb, and en route portions of the cross-country flight were uneventful. He checked the wind sock prior to landing and it was "flaccid," indicating calm wind. He slowed the airplane to 80 mph on final approach and landed near the approach end of runway 5, which was 2,355 feet-long. He estimated that the airplane should have rolled to a stop; however, it continued down the runway despite heavy braking. The airplane departed the end of the runway, traveled across a small road, and down an embankment, coming to rest in the water at the edge of the airport boundary.

A Federal Aviation Administration inspector examined the wreckage and reported that the airplane sustained substantial damage to the forward fuselage and submersion in salt water. There were tire skid marks on the runway leading to the wreckage. A weather buoy, located about 1 mile east of the airport, recorded wind out of the west about the time of the accident, which would have resulted in a tail wind of up to 8 knots. The pilot reported there were no preimpact mechanical malfunctions or anomalies that would have precluded normal operation of the airplane.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA438	07/19/2017 1645 EDT	Regis# N55EM	New Market, VA	Apt: New Market 8W2
Acft Mk/Mdl PIPER PA28-151		Acft SN 28-7415328	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 SERIES		Acft TT 15010	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: MICHAEL ZAPATA		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the airplane reported that, during the landing roll, two deer ran onto the runway and that one impacted the airplane's left side. The airplane sustained substantial damage to the left wing and fuselage. The pilot reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation. The Federal Aviation Administration Chart Supplement airport page for the destination airport, in part, stated: "Deer and birds on and [in the vicinity of the runway]."

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The airplane's collision with a deer during the landing roll.

Events

1. Landing - Miscellaneous/other
2. Landing - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Environmental issues-Physical environment-Object/animal/substance-Animal(s)/bird(s)-Ability to respond/compensate - C

Narrative

The pilot of the airplane reported that, during the landing roll, two deer ran onto the runway and one impacted the left side of the airplane.

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

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

The Federal Aviation Administration Chart Supplement airport page for the destination airport in part states: "Deer and birds on and [in the vicinity of the runway]".

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA425	07/18/2017 900 EDT	Regis# N786BG	Bowling Green, OH	Apt: Wood County 1G0
Acft Mk/Mdl PIPER PA28R-201		Acft SN 2844126	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360-C1C6		Acft TT 4761	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BOWLING GREEN FLIGHT CENTER LLC	Opr dba:			Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the retractable-gear airplane reported that, during a simulated engine-out landing with a flight instructor, they forgot to extend the landing gear. Subsequently, the airplane landed with the gear retracted. The airplane sustained substantial damage to the fuselage. 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 and flight instructor's failure to extend the landing gear.

Events

1. Landing - Landing gear not configured

Findings - Cause/Factor

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

Narrative

The pilot of the retractable gear airplane reported that, during a simulated engine out landing with a flight instructor, they forgot to extend the landing gear. Subsequently, the airplane landed with the gear retracted.

The airplane sustained substantial damage to the fuselage.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA422	07/15/2017 1600 CDT	Regis# N31841	Marion, IA	Apt: Marion C17
Acft Mk/Mdl PIPER PA32-300		Acft SN 32-7840149	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-540-K1G5		Acft TT 3255	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ON THE BEAM LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot reported that, after a normal touchdown, the airplane's nose dropped, and he added power. Subsequently, the airplane bounced, exited the runway to the right, and came to rest nose down.

The airplane sustained substantial damage to the firewall and engine mounts.

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 failure to maintain directional control during the landing roll.

Events

1. Landing - Abnormal runway contact
2. Landing - Attempted remediation/recovery
3. Landing - Loss of control on ground
4. Landing - Runway excursion
5. Landing - Landing gear collapse
6. Landing - 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 reported that, after a normal touchdown, the nose of the airplane dropped, and he added power. Subsequently, the airplane bounced, exited the runway to the right, and came to rest nose down.

The airplane sustained substantial damage to the firewall and engine mounts.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16FA169	04/25/2016 1300 EDT	Regis# N43576	Boone, NC	Apt: Boone Inc Airport NC14
Acft Mk/Mdl PIPER PA32-300		Acft SN 32-7440135	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-540K1A5		Acft TT 7832	Fatal 1 Ser Inj 2	Flt Conducted Under: FAR 091
Opr Name: WORSLEY JOHN F II		Opr dba:		Aircraft Fire: GRD
				AW Cert: STN

Events

1. Initial climb - Collision during takeoff/land
2. Initial climb - Loss of control in flight

Narrative

HISTORY OF FLIGHT

On April 25, 2016, about 1300 eastern daylight time, a Piper PA-32-300, N43576, was destroyed after a collision with trees and terrain while conducting a go-around at Boone Inc. Airport (NC14), Boone, North Carolina. The private pilot and pilot-rated passenger were seriously injured. The rear seat passenger was fatally injured. The airplane was privately owned, and the personal flight was operated under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time, and no flight plan was filed for the local flight, which originated from NC14 about 1255.

According to a witness at the approach end of runway 31, his attention was drawn to the airplane because it was "very fast" as it approached the airport for landing. The airplane disappeared from his view and shortly after, he saw a plume of smoke on the adjacent golf course. Another witness, who was in a house on a hill on the right side of the departure end of runway 31, stated that the airplane was climbing out and the left wing was low when it collided with a pine tree. She said that the airplane seemed as if it was attempting to gain altitude but collided with another pine tree before impacting the golf course. Witnesses on the golf course reported that they watched the airplane climb and stated that it was "bobbling" up and down before hitting the top of a stand of pine trees. The airplane nosed down and impacted the golf course; a postimpact fire ensued. The witnesses on the golf course saw two occupants exit the airplane and assisted them before the local authorities arrived. Neither the pilot or the surviving passenger could recall the events of the accident flight.

PERSONNEL INFORMATION

The pilot, age 68, held a private pilot certificate with a rating for airplane single-engine land, and a Federal Aviation Administration (FAA) third-class medical certificate issued July 2, 2015, with a limitation for corrective lenses. On the pilot's application for that medical certificate, he reported 604 total hours of flight experience. The pilot could not recall his flight experience and his logbook was not recovered; therefore, his total flight experience at the time of the accident and his experience in the accident airplane make and model could not be determined.

The pilot-rated passenger, age 44, held a commercial pilot certificate with ratings for single-engine land and instrument airplane. He also held a private pilot certificate with ratings for multi-engine land, and an FAA second-class medical certificate with no noted limitations. On the pilot-rated passenger's most recent application for a FAA medical certificate, he reported a total flight experience of 2,600 hours. The pilot-rated passenger succumbed to his injuries 34 days after the accident, and his logbook was not recovered; therefore, his total flight experience at the time of the accident could not be determined.

AIRCRAFT INFORMATION

The single-engine airplane was manufactured in 1974 and was powered by a Lycoming IO-540-K1A5 engine equipped with a Hartzell HC-C2YK-1, controllable-pitch propeller. A review of maintenance logbook records showed an annual inspection was completed on June 16, 2015, at a recorded airframe total time of 7,718.5 hours and an engine total time of 4,073 hours. Further review of the airplane records revealed that the engine was overhauled on August 27, 1992. The last maintenance was performed on January 31, 2016, at which time the engine had accumulated about 2,255 hours since overhaul.

The airplane was owned by the pilot and based at NC14.

METEOROLOGICAL INFORMATION

At 1255, the recorded weather at Watauga County Hospital Heliport (TNB), Boone, North Carolina, about 1 mile north of the accident site, included wind from 330° at 4 knots, 10 statute miles visibility, scattered clouds at 6,000 ft above ground level, temperature 21°C, dew point 6°C, and an altimeter setting of 30.11

inches of mercury.

AIRPORT INFORMATION

The airport's runway was oriented on 130/310 and measured 2,700 ft in length and 40 ft in width. The runway surface was asphalt and there were 25 ft trees about 150 ft from the runway 31 departure end.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed that the airplane initially impacted a stand of 75-ft-tall pine trees. Parts of the left wing and freshly cut branches were observed throughout the stand of pine trees. A wreckage path extended from the trees, continued on a magnetic heading about 310 and extended about 126 ft to the main wreckage, which came to rest on a golf course. The main wreckage consisted of the fuselage, the rudder and vertical stabilizer, and the left and right stabilizers. The outboard section of the left wing was fragmented along the wreckage path. The right wing was located with the main fuselage and it was consumed by fire. A post-impact fire consumed the cockpit, cabin, and baggage area. The instrument panel and avionics were destroyed by fire. No useful information was obtained from the instrumentation or avionics equipment. The engine control levers were not attached to the quadrant and were impact and fire damaged.

Both control yokes were impact separated, broken and fire damaged. The T-bar with aileron sprocket and chain were examined. The aileron and stabilator cables were attached. The rudder pedals were pushed forward against the forward bulkhead. The firewall was severely impact damaged. The engine mount was attached to the firewall, and the engine was attached to the mount. The nose landing gear was attached to the mount. The nose gear steering rods were bent and impact separated from the steering horn.

The flap control handle and bracket were attached to the fuselage floor and exhibited a flaps-retracted position. The flap operating torque tube was attached to its location in the fuselage and was also in the retracted position. The fuel selector valve was located and the selector valve arm was positioned in the right tip tank detent position. The fuel selector displayed impact and fire damage and the internal fuel filter was melted. All switches and circuit breakers were impact and fire damaged.

Examination of the empennage revealed that the vertical fin with left and right stabilator sections was attached by the floor pan of the fuselage and impact and fire damaged. The rudder was attached to the vertical stabilizer at its hinge points. The rudder sector control cables were attached. Movement was noted going forward to the cabin area. The rudder trim position could not be determined. The stabilator control cables and trim control cables were attached and traced forward to the cabin area. Control cable continuity was traced forward to the flight control "T"-bar assembly. All cables exhibited postimpact fire damage.

The left wing was separated from the fuselage. Both fuel tanks were breached and destroyed. All lower wing skins were destroyed by ground fire. The flap was attached at the inboard end. The outboard section was impact and fire damaged. The aileron was destroyed. The aileron control sector was bent and twisted. Both aileron cables were attached. Cable continuity was traced to the control chains in the forward cabin area. The left main landing gear assembly was attached to the main wing spar and fire damaged. The stall warning vane was destroyed.

The right main landing gear was destroyed by postimpact fire. The right flap and aileron were destroyed by impact and fire. The primary and balance cables were attached. Control cable continuity was traced through all cable breaks from tension overload to the forward cabin area. Both cables were found attached to the aileron control chain.

The engine remained attached to the firewall by the upper engine mount tubes. The upper mount tubes were impact damaged and the lower tubes were separated.

The engine was removed, suspended from a lift, and partially disassembled to facilitate the examination. The propeller was removed and the engine was rotated using a tool inserted in the vacuum pump drive pad. Continuity of the crankshaft to the rear gears and to the valve train was confirmed. Compression and suction were confirmed at all six cylinders. The interiors of the cylinders were examined using a lighted borescope and no anomalies were noted.

The fuel injector servo was impact separated from the engine and was fire and impact damaged. The fuel inlet screen was removed; it was fire damaged and a small amount of debris was observed inside. The fuel regulator section was disassembled and the rubber diaphragms were fire damaged.

The flow divider remained attached to the engine. The unit was partially disassembled and no debris was observed in the interior. The engine-driven fuel pump remained attached to the engine and was fire damaged. Both magnetos remained attached to the engine and were heavily fire damaged. The upper spark plugs exhibited light gray coloration and undamaged electrodes. The lower spark plugs were a combination of Champion REM38E and REM40E. The lower spark plugs exhibited undamaged electrodes. The Nos. 3, 5 and 6 spark plug electrodes exhibited gray coloration.

The Nos. 1, 2 and 4 electrodes were oil contaminated. The ignition harness was destroyed by fire. The starter and alternator remained attached to the engine and were impact damaged. The vacuum pump remained attached to the engine and was fire damaged. The drive coupling was partially melted and the pump could not be rotated by hand. The pump was partially disassembled and the carbon rotor and vanes were intact.

Oil was observed in the engine. The oil dipstick indicated about 9 quarts. The engine oil filter media was charred. No debris was observed between the folds of the filter media. The oil coolers remained attached to the engine cooling baffles. The left oil cooler was fire and impact damaged. The right oil cooler was undamaged. The oil cooler hoses were destroyed by fire.

ADDITIONAL INFORMATION

The FAA Airplane Flying Handbook, Chapter 8, "Approaches and Landings," states, "To land within a short-field or a confined area, the pilot must have precise, positive control of the rate of descent and airspeed to produce an approach that clears any obstacles, result in little or no floating during the round out, and permit the airplane to be stopped in the shortest possible distance."

The handbook defines a stabilized approach as one that "permits the airplane to reach the desired touchdown point at an airspeed that results in minimum floating just before touchdown; in essence, a semi-stalled condition. To accomplish this, it is essential that both the descent angle and the airspeed be accurately controlled."

The handbook further describes the characteristics of a stabilized short field landing approach, stating:

[Short-field landing] procedures generally involve the use of full flaps and the final approach started from an altitude of at least 500 feet higher than the touchdown area.

An excessive amount of airspeed could result in touchdown too far down the runway threshold or an after-landing roll that exceeds the available landing area.

The handbook further states that go-arounds, or rejected landings, should be performed whenever landing conditions are not satisfactory. It also states,

The go-around maneuver is not inherently dangerous in itself. It becomes dangerous only when delayed unduly or executed improperly. Delay in initiating the go-around normally stems from two sources:

1. Landing expectancy or set - the anticipatory belief that conditions are not as threatening as they are and that the approach is surely terminated with a safe landing,
2. Pride - the mistaken belief that the act of going around is an admission of failure - failure to execute the approach properly. The improper execution of the go-around maneuver stems from a lack of familiarity with the three cardinal principles of the procedure: power, attitude, and configuration.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA453	07/29/2017 1415 CDT	Regis# N132VA	Mccook, NE	Apt: N/a
Acft Mk/Mdl PIPER PA36-285		Acft SN 36-7660013	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-720-AIR		Acft TT 6662	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 137
Opr Name: RED WILLOW AVIATION		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPR

Events

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

Narrative

The pilot reported that, while maneuvering at low altitude during agricultural spraying, he noticed "some shuddering (stalling)" on multiple downwind low passes. He added that, on the 4th attempt to spray on a downwind line, he experienced "severe shuddering and loss of altitude," so he applied full power and dumped the entirety of the aerial application product. He further added that, after dumping the load, the airplane was about 10-15 ft. above ground and still would not climb. The pilot reported that, he continued to "pull back on the stick," entered a right turn to avoid obstacles ahead, and the airplane "continued to [aerodynamically] stall until impact."

The fuselage and both wings sustained substantial damage.

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

An automated weather observation station, about the time of the accident, 18 nautical miles south from the accident site, reported wind from 140° at 12 knots. The pilot reported that the wind had "picked up to 20-25mph" and the flight path was "nearly directly downwind at the time of impact."

The pilot reported that the airplane was not equipped with a stall warning device.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17LA332A	09/23/2017 1715 EDT	Regis# N404TB	Clearwater, FL	Apt: Clearwater Air Park CLW		
Acft Mk/Mdl ROBINSON HELICOPTER R22-BETA	Acft SN 3747	Acft Dmg: SUBSTANTIAL	Fatal 0	Ser Inj 0	Rpt Status: Prelim	Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-J2A					Flt Conducted Under: FAR 091	
Opr Name: TAMPA BAY AVIATION	Opr dba:				Aircraft Fire: NONE	

Events

1. Takeoff - Collision during takeoff/land
-

Narrative

On September 23, 2017, about 1715 eastern daylight time, a Piper PA-28R-201 airplane, N1881H, and a Robinson R22 helicopter, N44TB, were substantially damaged when they collided in mid-air over the runway at Clearwater Air Park (CLW), Clearwater, Florida. The private pilot aboard the airplane received minor injuries, and the flight instructor and a pilot-rated student aboard the helicopter were not injured. Both aircraft were owned and operated by Tampa Bay Aviation. Visual meteorological conditions prevailed at the time of the accident. Both flights were operated under 14 Code of Federal Regulations Part 91 as personal flights, and no flight plans had been filed.

According to the flight instructor, the purpose of the flight was a flight review of the pilot-rated student. He indicated that he had never previously flown with the student pilot, but during the flight, both were wearing headsets. The student pilot proceeded to the hover practice area and executed multiple practice maneuvers. All radio calls were made during every turn while in the airport traffic pattern. The instructor performed all radio calls at each leg of the airport traffic pattern during the first approach; while the pilot-rated student made the radio calls at each leg of the airport traffic pattern during the second takeoff, and approach to the runway. In addition, prior to every turn, they scanned in all directions for traffic. While on a final approach, the instructor noticed a fixed-wing airplane on the base leg of the airport traffic pattern for runway 16, and he announced on the common traffic advisory frequency that they were using runway 34. They heard the pilot of the airplane say something unintelligible and then observed the airplane veer away, flying to the west. The instructor then allowed the student to continue the approach to runway 34, which terminated with a hover, touchdown, and then liftoff.

The helicopter returned to the crosswind leg of the airport traffic pattern where then turned onto base leg of the airport traffic pattern for runway 34. When the helicopter was 1 mile from the runway, the student pilot turned onto final approach to runway 34 and executed a steep approach. The flight instructor told the student to extend the flight path to the segmented circle. The helicopter came to a hover over runway 34, about 15 ft above the ground, when he heard a loud sound and felt the helicopter being pushed forward. The helicopter then began to spin, impacted the ground hard, and came to rest upright.

According to the pilot of the airplane, he was operating on the CLW common traffic advisory frequency (CTAF), and stated that between his first and second radio transmission he heard a heavy buzzing sound like a helicopter rotor with the words "34" barely distinguishable. The pilot scanned for air traffic and declared being on downwind via his radio. The pilot quickly turned to the base leg of the traffic pattern and decreased the engine power to descend. About that time he quickly scanned of the airport environment, focusing on the taxiway to runway 34, the line of trees ahead of, as well as to the back of the runway, and saw nothing unusual. He was confident his calls on the radio were heard. The pilot proceeded to land; about 2 seconds prior to the impact he saw the helicopter hovering "immobile," about 10 ft. above the runway. He recalled the tail was pointed towards the airplane and absolutely stationary. The pilot tried to avoid the helicopter, then heard a loud sound followed by the airplane inverting and sliding on its canopy. After the airplane came to a stop the pilot exited the airplane.

A review of a surveillance video showed the helicopter at a stationary hover over the runway 34 threshold. Shortly after, the airplane began climbing before colliding with the rear of the helicopter.

According to another pilot/witness that was approaching CLW, while about 2 miles west of the airport, he heard the radio call from the helicopter when it was on a 1-mile final at 500 ft. As he flew over CLW, he saw the accident outcome. He indicated that he was monitoring the CLW CTAF, and did not hear the pilot of the airplane announce his intentions.

A Federal Aviation Administration inspector examined the aircraft at the accident site and found that both the helicopter and airplane sustained substantial damage. Examination of the radio communication system in the airplane and helicopter did not reveal any anomalies.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA368 06/22/2017 1300 PDT Regis# N21TH Bishop, CA Apt: N/a
Acft Mk/Mdl SCHEMPP-HIRTH DISCUS 2B-NO SERIES Acft SN 91 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: BAY AREA SOARING ASSOCIATES INC. Opr dba: Aircraft Fire: NONE
AW Cert: SPE

Summary

The pilot of the glider reported that, while circling over rising mountainous terrain in search of thermals, he approached a "ridge right in front of me [him]." He added that, at that moment, "the [flight] controls went soft [and] I [he] could see that I [he] was [aerodynamically] stalled and plummeting toward the terrain and trees below." He further added that he "pointed the [glider's] nose down at a steep angle" to gain airspeed, but the glider impacted trees and steep terrain. The fuselage and both wings sustained substantial damage. The pilot reported that there were no preaccident mechanical malfunctions or failures with the glider that would have precluded normal operation.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's exceedance of the glider's critical angle of attack while maneuvering over rising mountainous terrain, which resulted in an aerodynamic stall.

Events

1. Maneuvering - Loss of lift
2. Maneuvering - Aerodynamic stall/spin
3. Maneuvering - Loss of control in flight
4. Maneuvering - 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-Angle of attack-Capability exceeded - C
3. Environmental issues-Physical environment-Terrain-Mountainous/hilly terrain-Contributed to outcome

Narrative

The pilot of the glider reported that, while circling over rising mountainous terrain in search of thermals, he approached a "ridge right in front of me [him]." He added that, at that moment, "the [flight] controls went soft [and] I [he] could see that I [he] was [aerodynamically] stalled and plummeting toward the terrain and trees below." He further added that, he "pointed the [glider's] nose down at a steep angle" to gain airspeed, but the glider impacted trees and steep terrain.

The fuselage and both wings sustained substantial damage.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17LA048	11/17/2016 1430 CST	Regis# N65968	Moscow, TN	Apt: Hawks Nest 4TN3
Acft Mk/Mdl SCHWEIZER SGS126-E		Acft SN 608	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
		Acft TT 2709	Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: WILKINSON EPHRIAM B		Opr dba:		Aircraft Fire: NONE

Events

1. Approach-VFR pattern base - Aerodynamic stall/spin
-

Narrative

On November 17, 2016, about 1430 central standard time, a Schweizer SGS 1-26E glider, N65968, was substantially damaged when it impact trees and terrain while maneuvering in the airport traffic pattern at Hawks Nest Airport (4TN3), Moscow, Tennessee. The airline transport pilot sustained serious injuries. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight, which was operated under the provisions of Title 14 Code of Federal Regulations Part 91.

After an aerial tow to 3,000 feet above ground level (agl) the glider disconnected from the tow plane and the pilot flew for approximately 20 minutes between an altitude of 2,500 and 3,000 feet agl. A tow plane pilot, who witnessed the accident from the ground, observed the glider flight for approximately 20 minutes. He observed the glider enter a normal left downwind approach to runway 18. He further stated that he observed the glider execute a 360-degree right turn while on the base leg at about 300 feet agl. He reported that after the 360-degree turn, the glider made another 180-degree right turn which appeared to "develop into a slow spin" from about 100 feet agl; the glider descended into the trees. The pilot stated he could not recall the left base turn and had no recollection of the accident, but offered the possibility of wind shear as a cause. In addition, he indicated that he possibly made the turn to lose altitude. He further stated there were no mechanical irregularities or anomalies with the glider.

Post-accident examination by a Federal Aviation Administration (FAA) inspector revealed the glider was upright and level on flat ground with both left and right wing leading edges pushed up against trees in an area approximately one quarter of a mile northeast of runway 18. Both wings were partially detached from the fuselage and 4 feet of the left outboard wing was crumpled. The right wing was crumpled and nearly severed mid-span. The empennage and rudder remained attached to the airframe and the cockpit sustained minor damage.

The pilot held an airline transport pilot certificate with a rating for airplane single-engine land, multi engine land, and glider. His most recent FAA first-class medical certificate was issued on September 6, 2016. At the time of the accident, he reported a total flight experience of 8,500 hours total time with 17.4 hours in a glider and 1.6 hours in this make and model.

The single-seat, mid-wing, glider, serial number 608, was manufactured in 1974. Its most recent annual inspection was completed on December 15, 2015. At that time, the airframe had accumulated approximately 2,709 total hours of operation. The glider's flight manual detailed that its stalling speed in level flight was 28 mph. At a 20-degree bank, it was 29 mph, and at 30 and 45 degrees, it was 30 and 33.4 mph respectively.

The William L. Whitehurst Field Airport (M08) Bolivar, Tennessee was located about 17 miles south of the accident site. The recorded weather at MJX, at 1425, was wind from 170 degrees at 7 knots, gusting to 14 knots, and a clear sky. The temperature was 27 degrees C; dew point 06 degrees C, and the altimeter setting was 29.97 inches Hg. An hour before the accident through an hour after, the winds remained steady from 170 degrees at 7 knots with gusts up to 15 knots.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA433	07/22/2017 1600 CDT	Regis# N83K	Bode, IA	Apt: N/a
Acft Mk/Mdl STINSON SR9-E		Acft SN 5405	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl WRIGHT R-760E-2		Acft TT 3702	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JEROME R. KOHLHAAS		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Summary

The pilot of the tailwheel-equipped airplane reported that he performed a precautionary landing in a bean field due to a rough-running engine. The pilot then had an airframe & powerplant mechanic look at the airplane and perform multiple engine run-ups. The rough-running engine was determined to be caused by carburetor ice.

The pilot then loaded his two passengers into the airplane and attempted to take off from the bean field. He added that, as the airplane began to gain altitude, it approached the end of the open bean field. Subsequently, the landing gear contacted corn stalks in an adjacent field, descended into the corn field, and came to rest inverted.

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

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 decision to take off from an unimproved bean field with insufficient length for the airplane to clear adjacent corn stalks.

Events

1. Takeoff - Dragged wing/rotor/float/other
2. Takeoff - Loss of control in flight
3. Takeoff - Collision with terr/obj (non-CFIT)
4. Takeoff - Nose over/nose down

Findings - Cause/Factor

1. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - C
2. Environmental issues-Physical environment-Runway/land/takeoff/taxi surface-(general)-Decision related to condition - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Altitude-Not attained/maintained - C
4. Environmental issues-Physical environment-Runway/land/takeoff/taxi surface-(general)-Effect on operation

Narrative

The pilot of the tailwheel-equipped airplane reported that, he performed a precautionary landing in a bean field due to a rough running engine. The pilot then had an Airframe & Powerplant mechanic look at the airplane and perform multiple engine runups. The rough running engine was determined to be caused by carburetor ice.

The pilot then loaded his two passengers into the airplane and attempted to takeoff from the bean field. He added that, as the airplane began to gain altitude, the airplane approached the end of the open bean field. Subsequently, the landing gear encountered corn stalks in an adjacent field, descended into the corn field and came to rest inverted.

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

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16LA251	07/11/2016 1250 EDT	Regis# N867TG	Zellwood, FL	Apt: Tangerine FL97
Acft Mk/Mdl TUMBLING GOOSE LLC 12S		Acft SN 353	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl BARRETT PERFORMANCE ENGINE		Acft TT 7	Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: TUMBLING GOOSE LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

Events

1. Landing - Loss of engine power (total)

Narrative

On July 11, 2016, about 1250 eastern daylight time, an experimental exhibition Tumbling Goose LLC, 12S, N867TG, was substantially damaged during a forced landing following a loss of engine power while approaching Tangerine Airport (FL97), Zellwood, Florida. The pilot incurred serious injuries. Visual meteorological conditions prevailed and no flight plan was filed for the personal, local flight. The airplane was operated under the provisions of 14 Code of Federal Regulations Part 91.

According to the pilot, this was his second flight in the newly manufactured experimental exhibition airplane. His first flight was earlier that morning, and he flew for approximately 30 minutes over the airport to get familiar with the new airplane. The flight was uneventful and he made two practice approaches before landing and debriefing with the airplane builders on the handling characteristics of the airplane.

Several hours later, the pilot departed again to perform aerobatics in the airplane with a sufficient amount of fuel for the planned flight. About 1 hour into the flight, while flying at 4,000 feet above ground level (agl), the pilot reduced the engine power in order to descend towards the airport for landing. At 2,000 feet agl, the pilot advanced the throttle with no response from the engine. He looked at the engine monitor and discerned that the engine had lost total power, though the propeller continued to rotate. The pilot turned the fuel boost pump on and noticed positive fuel pressure, and he moved the mixture and throttle controls with no effect on the engine. The pilot then toggled the spring loaded fuel primer switch, the engine restarted, and appeared to go to full power. Once the pilot released the fuel primer switch, the engine again ceased producing power.

The airplane was now over the airport, so the pilot set up for a landing on the grass runway. The pilot noticed he was still high and flying "very fast" for landing, so he performed a go-around maneuver by using the primer switch to start the engine and fly around the traffic pattern to set up for another landing. On the next landing approach, the pilot slowed the airplane, and once over the runway, he attempted to flare for landing. The airplane continued to fly about 10 feet agl for the length of the runway. The pilot tried to perform another go-around by toggling the fuel primer switch again. The engine restarted, but lost total power shortly after and did not restart. At the time, the airplane was about 200 feet agl. The pilot then attempted to perform a forced landing to a clearing. The airplane was "too low and slow," and impacted trees and terrain prior to the clearing.

According to the Federal Aviation Administration (FAA) the single seat, bi-wing, fixed landing gear, experimental airplane, serial number 353, was manufactured in 2016. It was powered by a Barrett Performance, Vedenev M14P, 430 horsepower engine, equipped with a 3-blade MT propeller. The airplane's most recent 100-hour inspection was completed on March 16, 2016, and it had accumulated 7 hours of total hours of flight time since that date. The airplane was equipped with an engine primer system for starting purposes, which injected an unregulated fuel supply directly from the fuel boost pump into the supercharger, which bypassed the fuel/air servo controller.

Examination of the wreckage by the Federal Aviation Administration inspector revealed that it came to rest upright with the nose and engine buried in the ground. Both wings were substantially damaged, and the tail section fractured just behind the pilot's seat. The fuselage was crushed by the impact with the tree.

The engine controls all appeared to be intact from the cockpit to the engine. The fuel system was clear of blockages up to the fuel servo. Operation of the fuel servo could not be confirmed due to impact damage. The induction system was free of blockages. The original ignition system had been replaced after the engine's most recent overhaul with an experimental electronic system, and the original carburetor was replaced with an experimental fuel injection system, also after the last overhaul.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ANC16LA035	06/25/2016	1800 AKD	Regis# N9063K	Big Lake, AK	Apt: N/a
Acft Mk/Mdl UNIVERSAL STINSON 108			Acft SN 108-2063	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O 470R				Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: RUSTY KLINE			Opr dba:		Aircraft Fire: NONE
					AW Cert: STN

Summary

The private pilot stated that, about 35 minutes into the personal, local flight and while circling a friend's cabin about 550 ft above ground level, the engine began to "sputter," followed by a total loss of engine power. He subsequently made a forced landing in an area of densely populated trees, during which the airplane sustained substantial damage to the wings and fuselage.

A postaccident examination of the airframe and engine revealed no mechanical malfunctions or anomalies that would have precluded normal operation. Although the wing fuel tanks had been modified and no Federal Aviation Administration major repair and alteration form nor entry in the airplane's maintenance records were found regarding the modification, no evidence was found indicating that the modification led to the loss of engine power. The reason for the loss of engine power could not be determined.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: A total loss of engine power during cruise flight for reasons that could not be determined because postaccident examination of the airframe and engine revealed no mechanical malfunctions or failures that would have precluded normal operation.

Events

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

Findings - Cause/Factor

1. Not determined-Not determined-(general)-(general)-Unknown/Not determined - C
2. Environmental issues-Physical environment-Object/animal/substance-Tree(s)-Contributed to outcome

Narrative

On June 25, 2016, about 1800 Alaska daylight time, a Stinson 108 airplane, N9063K, sustained substantial damage during a forced landing, following a loss of engine power near Big Lake, AK. The airplane was registered to and operated by the pilot, as a visual flight rules (VFR) flight under the provisions of 14 Code of Federal Regulations (CFR) Part 91 when the accident occurred. Of the three people on board, the certificated private pilot and one passenger sustained minor injuries and one passenger was uninjured. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight departed Merrill Field Airport (PAMR), Anchorage, Alaska, at about 1725.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on June 25, the pilot stated that the purpose of the flight was to take two family members, who were visiting from out of town, on a sightseeing flight. About 35 minutes into the flight, while circling a friend's cabin at about 550 feet above ground level, the engine began to "sputter" followed by a total loss of engine power. He made a forced landing in an area of densely populated spruce and birch trees. During the forced landing, the airplane sustained substantial damage to wings and fuselage.

On October 12, 2016, the NTSB IIC, along with a Federal Aviation Administration (FAA) safety inspector from the Anchorage Flight Standards District Office examined the airframe and engine at the facilities of Alaska Claims Services, Inc., Wasilla, Alaska.

The propeller remained attached to the engine crankshaft. Both propeller blades exhibited aft bending with minimal torsional "S" twisting.

Examination of the Continental O-470R engine revealed no anomalies, contamination, or evidence of malfunction in any of the engine accessories. The cylinders, pistons, valve train, crankshaft, and other internal components were all without evidence of anomaly or malfunction. The engine was rotated by the propeller. When the engine was rotated, blue spark was observed on the top ignition leads.

Examination of the airplane's wing fuel tanks revealed that the tanks had been modified. An additional section had been welded on to the factory fuel tank with lightening holes drilled in the factory end. Each tank was placarded near the filler cap on the exterior of the wing "FUEL 80/87 MINIMUM GRADE 20 GALLONS." The fuel selector inside the cockpit was placarded "18 GAL." No FAA form 337 (major repair and alteration) or logbook entry was located in the airplane's maintenance records for the modification of the fuel system.

The examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

The closest weather reporting facility was Wasilla Airport, Wasilla, AK, about 19 miles east of the accident site. At 1756, a weather observation from Wasilla Airport was reporting, in part: wind from 080 degrees at 4 knots; visibility, 10 statute miles; clouds and sky condition, few clouds at 4,600 feet, scattered clouds at 5,500 feet, broken clouds at 7,500 feet; temperature, 66øF; dew point 48 øF; altimeter, 29.89 inHG.

After repeated attempts, the pilot did not submit an NTSB Pilot/Operator Accident Report form (NTSB Form 6120.1) as required.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17CA251	07/19/2017 1845 EDT	Regis# N9270W	Pemberton Twp, NJ	Apt: Ag Air Strip - Rake Pond Farms PVT
Acft Mk/Mdl WEATHERLY 620-UNDESIGNAT		Acft SN 1505	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl PRATT & WHITNEY R-985 SERIES		Acft TT 6698	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 137
Opr Name: JERSEY DEVIL DUSTERS LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPR

Summary

According to the pilot, during takeoff, when the agricultural application airplane was about 15 ft above ground level, he noticed a decrease in engine performance, verified that the engine controls were full forward, and turned the fuel boost pump on. He dropped the hopper load; however, the airplane's performance continued to decrease. The pilot chose to land the airplane straight ahead, and the airplane impacted trees before coming to rest inverted in a bog.

Postaccident examination of the airplane revealed substantial damage to the fuselage and wings. Further, after the airplane was removed from the bog, the Federal Aviation Administration inspector who responded to the accident found feathers associated with a Canada goose near the engine and damaged propeller. According to the pilot, there were no preimpact 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: An in-flight collision with a bird during takeoff, which resulted in a partial loss of engine power and subsequent collision with trees and terrain.

Events

1. Takeoff - Birdstrike
2. Takeoff - Loss of engine power (partial)
3. Landing - Collision during takeoff/land

Findings - Cause/Factor

1. Environmental issues-Physical environment-Object/animal/substance-Animal(s)/bird(s)-Ability to respond/compensate - C

Narrative

According to the pilot, during takeoff, when the aerial application airplane was about 15 feet above ground level, he noticed a decrease in engine performance, verified that the engine controls were full forward and turned the fuel boost pump ON. He dropped the hopper load, however the airplane performance continued to decrease. The pilot elected to land the airplane straight-ahead and the airplane impacted trees prior to coming to rest inverted in a bog. Postaccident examination of the airplane revealed substantial damage to the fuselage and wings. Furthermore, after the airplane was removed from the bog, the Federal Aviation Administration inspector who responded to the accident found feathers associated with a Canadian goose in the vicinity of the engine and damaged propeller. According to the pilot there were no preimpact mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.