

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

Events

1. Maneuvering - Fuel exhaustion
-

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 ¾ 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# GAA17CA469 08/02/2017 1738 CDT Regis# N38HT San Angelo, TX Apt: San Angelo Rgnl/mathis Field SJT
Acft Mk/Mdl AIR TRACTOR INC AT 402B-B Acft SN 402B-1011 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR PUBU
Opr Name: USDA/ARS Opr dba: Aircraft Fire: NONE

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Accident Rpt# ANC17LA042	08/04/2017	1900 AKD	Regis# N6523T	Palmer, AK	Apt: N/a
Acft Mk/Mdl BEECH 19A-A			Acft SN MB-357	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING 0-320 SERIES				Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: INTERNET WIZARDRY LLC			Opr dba:		Aircraft Fire: NONE

Events

1. Landing-landing roll - Landing gear collapse
-

Narrative

On August 4, 2017 about 1900 Alaska daylight time, a Beech BE19 airplane, N6523T, sustained substantial damage while landing at a remote unimproved airstrip, about 25 miles southeast of Palmer, Alaska. The airplane was being operated by the pilot as a 14 Code of Federal Regulations Part 91 visual flight rules flight. The certificated private pilot and the sole passenger were not injured. Visual meteorological conditions existed and no flight plan had been filed.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on August 5, the pilot stated that he was landing at a remote unimproved airstrip. After touchdown, during the landing rollout he heard a "thump" and the airplane began to veer to the right. The right main gear collapsed and the airplane exited the airstrip sustaining substantial damage to the empennage and horizontal stabilizer.

A detailed examination of the main landing gear leg is pending.

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Accident Rpt# ERA16FA312A	09/07/2016 1048 EDT	Regis# N6027K	Carrollton, GA	Apt: West Georgia Regional CTJ
Acft Mk/Mdl BEECH F33-A		Acft SN CE-833	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL IO-520-BB		Acft TT 4549	Fatal 3 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: LINDSEY WILLIAM L		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Approach-VFR pattern final - Midair collision

Narrative

HISTORY OF FLIGHT

On September 7, 2016, at 1048 eastern daylight time, a Beech F33A, N6027K, and a Diamond Aircraft Industries DA20-C1, N85WP, collided in midair on the final approach leg of the traffic pattern to runway 35 at West Georgia Regional Airport (CTJ), Carrollton, Georgia. The Beech was substantially damaged, and the private pilot was fatally injured. The Diamond was destroyed, and the flight instructor and the student pilot were fatally injured. The Beech was registered to and operated by the private pilot. The Diamond was registered to and operated by Falcon Aviation Academy LLC. Both flights were conducted under the provisions of 14 Code of Federal Regulations (CFR) Part 91; the Beech pilot was conducting a personal flight, and the Diamond pilots were conducting an instructional flight. Visual meteorological conditions prevailed, and no flight plans were filed for either flight. The Beech departed from Fulton County Airport (FTY), Atlanta, Georgia, about 0915, and the Diamond departed from Newnan Coweta County Airport (CCO), Newnan, Georgia, about 1000.

According to personnel from Falcon Aviation Academy, the pilots of the Diamond were practicing traffic pattern operations and landings at CTJ. The Diamond entered the traffic pattern, followed a few minutes later by N263CF and then by N169PS, both Falcon Aviation Academy DA20s. The flight instructor and student pilot on board N263CF saw the Beech on the downwind leg of the traffic pattern. Moments later, the flight instructor and student pilot on board N169PS entered the traffic pattern from the east. They looked down and to the left, in the direction of the final approach path for runway 35, and saw two airplanes collide. The instructors and the students on board both trailing DA20s reported that they did not hear the Beech pilot broadcasting his intentions on the CTJ common traffic advisory frequency (CTAF) but they heard the accident Diamond making position calls in the traffic pattern before the collision, with the last call being made on the final approach.

Another flight instructor employed by Falcon Aviation Academy reported that he was familiar with the Beech pilot and his airplane. He had just completed a flight at CCO and heard the Beech pilot broadcasting traffic pattern calls for CTJ about the time of the accident; however, the Beech pilot was broadcasting over the CCO CTAF of 122.7 MHz. The flight instructor reported that the Beech pilot was not in the traffic pattern at CCO at the time of the transmissions.

Radar data provided by Federal Aviation Administration (FAA) air traffic control personnel indicated that the Beech pilot entered an extended left downwind for CTJ from the north, above and behind the accident Diamond, which was on the downwind leg of the traffic pattern. The ground speed of the Beech was about 50 knots greater than the ground speed of the Diamond. The last radar returns were on the downwind leg, about 2,000 ft above mean sea level, or about 850 ft above the ground. The locations of the last radar returns showed the airplanes approaching the base leg for runway 35.

The Diamond was not equipped with GPS data recording capability. A portable GPS receiver recovered from the Beech recorded the accident flight. The recording indicated that the Beech was established on the downwind leg for runway 35, about 2,500 ft GPS altitude and 150 knots groundspeed. The CTJ airport elevation was 1,164 ft. The Beech descended toward the base leg, turning base about 2,200 ft and 122 knots. The Beech turned onto final about 1,450 ft and 79 knots. The last recorded data point was at 1048:00, with the Beech at 1,201 ft and 76 knots, about 607 ft south of the runway 35 threshold.

PERSONNEL INFORMATION

The Beech Pilot

The pilot of the Beech, age 79, held an FAA private pilot certificate with airplane single-engine land and instrument airplane ratings. He held an FAA third-class medical certificate with a restriction to have glasses available for near vision. He reported 2,500 total hours of flying experience on his FAA third-class medical certificate application that was dated October 5, 2015. His personal pilot logbook was not located.

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According to the owner's representative (insurance adjuster), the Beech pilot reported that he completed a Beechcraft Pilot Proficiency Program on October 30, 2015, at Blairsville, Georgia. This was confirmed verbally and accepted as a current flight review by the insurance company.

The Diamond Flight Instructor

The flight instructor in the Diamond, age 24, held an FAA commercial pilot certificate with ratings for airplane multi-engine land, airplane single-engine land, and instrument airplane. She held an FAA flight instructor certificate with a rating for airplane single-engine, and she held an FAA first-class medical certificate with a restriction to wear glasses. She was seated in the right cockpit seat. She reported 600 total hours of flying experience on her FAA first-class medical certificate application that was dated March 16, 2016. A review of her pilot logbook revealed about 850 hours total time, including 721 hours in single-engine airplanes and 366 hours as a flight instructor.

The Diamond Student Pilot

The student pilot in the Diamond, age 20, held an FAA student pilot certificate. He held an FAA second-class medical certificate with no restrictions. He was seated in the left cockpit seat. He enrolled in the ab initio training program at Falcon Aviation Academy on August 4, 2016, and had logged about 22 hours of flight time.

AIRCRAFT INFORMATION

Beech

The off-white- and blue/gold-colored Beech F33A was a single-engine, low-wing airplane with a conventional tail. A review of the airplane's maintenance and airworthiness records revealed that an enhanced Whelen light-emitting diode (LED) wingtip position and anti-collision light system, model OR6502GE/OR6502RE, and a Whelen LED tail position and anti-collision light system, model OR5002V, were installed on the airplane per FAA Supplemental Type Certificate, dated November 10, 2014. The airplane was equipped with landing and taxi lights. The airplane was not equipped with a traffic advisory system (TAS), traffic alert and collision avoidance system (TCAS), or automatic dependent surveillance-broadcast (ADS-B) equipment or displays. The Beech's avionics suite included a King KX 155 VHF communication/navigation transceiver and a Garmin GNS 530 GPS/communication/navigation all-in-one unit.

According to information provided by the owner's representative, the Beech's most recent annual inspection was completed on or about July 13, 2016. At the time of the inspection, the airframe had accumulated about 4,549 total hours of operation.

Diamond

The white- and blue-colored Diamond DA20 was a single-engine, low-wing airplane with a T-tail configuration. It was equipped with wingtip-mounted anti-collision strobe lights and navigation position lights, and a landing and taxi light. The airplane was not equipped with a TAS, TCAS, ADS-B equipment or displays. The Diamond's avionics suite included an iCOM AC-A200 VHF air band transceiver and a Garmin GNS 430 GPS/communication/navigation all-in-one unit.

The Diamond's most recent annual inspection was completed on August 9, 2016. At the time of the inspection, the airframe had accumulated about 1,990 total hours of operation.

METEOROLOGICAL INFORMATION

The CTJ 1055 weather observation included wind calm, visibility 10 statute miles, scattered clouds at 8,500 ft, temperature 30°C, dew point 19°C, and an altimeter setting 30.30 inches of mercury.

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AIRPORT INFORMATION

CTJ was a public, non-towered, uncontrolled airport with a single runway, designated 17/35. The runway was 5,503 ft long and 100 ft wide. The published traffic pattern direction for runway 35 was to the left. Falcon Aviation Academy personnel reported that their pilots frequently used CTJ for training purposes.

The CTAF/UNICOM frequency for CTJ at the time of the accident was 122.975 MHz. CTAF communications were not recorded. The airport manager reported that the CTJ CTAF frequency was changed from 122.7 MHz to 122.975 MHz in 2011.

WRECKAGE AND IMPACT INFORMATION

General

The main wreckage of both airplanes came to rest in a grass field, about 408 ft south of the approach end of runway 35, on the extended centerline of the runway. The Diamond came to rest in an upright position. The Beech came to rest inverted and on top of the Diamond wreckage. The wreckage debris field was about 350 ft long and about 80 ft wide, oriented on a heading of 350°. All major structural components of both airplanes were accounted for within the wreckage debris field.

Beech

The wreckage of the Beech was generally intact; the wings and empennage remained attached to the fuselage. Flight control cable continuity was established from the cockpit controls to the flight control surfaces. The ailerons, elevator, and rudder remained attached in their respective positions on the wings, horizontal stabilizer, and rudder. Blue-colored paint transfer marks were found on the lower surface of the right wing, near wing station 108. Impact damage with paint transfer was found on the top of the fuselage around station 131.

The nose gear separated from the airplane during the impact sequence. White paint transfer markings were observed on the nose gear tire. The left and right main landing gear were found in the extended positions. White paint transfer markings were observed on the left, main gear tire. The wing flaps were extended 20°.

The master and avionics switches were found in the "on" positions. The strobe light switch was found in the "on" position. The taxi light switch was found in the "on" position, and the landing light was found in the "off" position; however, both switches had impact damage. The position of the navigation light switch could not be determined because of impact damage.

The engine remained attached to the firewall. External examination of the engine did not reveal physical evidence of a mechanical malfunction or anomaly. The propeller assembly separated from the engine at the crankshaft/propeller flange junction. The fracture surfaces exhibited features consistent with overload. The propeller blades remained attached to the hub and displayed chordwise scratches, blade twisting, leading edge gouging, and surface polishing.

A laminated card titled "LOCAL AREA FREQ" and dated April 27, 2009, was found in the Beech's cockpit. The card, which listed the frequencies for multiple airports in the area, listed the frequency for the CTAF at CTJ as 122.7 MHz.

Diamond

The Diamond came to rest upright, under the wreckage of the Beech. Flight control continuity was confirmed from the elevator and rudder to the cockpit controls. Aileron control continuity was confirmed from the right aileron to the cockpit controls. The left wing separated from the fuselage during the impact sequence. The left aileron control tubes had multiple fractures that exhibited overload signatures. The empennage separated from the fuselage about 14 inches forward of the vertical stabilizer root leading edge.

Blue paint transfer marks were observed on the leading edge of the Diamond's right wing. The marks were about 8 inches long and 12 inches from the wing root. The Diamond's landing, taxi, strobe, and position light switches were impact-damaged, and their preimpact positions could not be determined.

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Lightweight pieces of the Diamond were found on a northerly path, beginning 340 ft south of the main wreckage. One of the most southerly pieces of wreckage debris was the right half of the Diamond's elevator. Closer examination revealed black transfer markings on the upper surface of the elevator that were consistent in color and tread pattern with the right main landing gear tire of the Beech. Examination of the Diamond's horizontal stabilizer revealed similar transfer markings on its upper surface. The other small pieces of debris located south of the main wreckage were identified as sections of the Diamond's canopy and wing root/fuselage skin.

MEDICAL AND PATHOLOGICAL INFORMATION

The Beech Pilot

The Georgia Bureau of Investigation Division of Forensic Sciences performed an autopsy of the Beech pilot and the cause of death was blunt trauma of the head and chest, and the manner of death was accident.

The FAA's Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing and identified doxazosin and losartan in the pilot's blood, and doxazosin, dextromethorphan, and its metabolite dextrorphan in urine. Doxazosin and losartan are blood pressure medications also named Cardura and Cozaar, respectively. The pilot reported the use of doxazosin and losartan to the FAA during his most recent FAA third-class physical. Dextromethorphan is an over-the-counter cough suppressant available in a number of products.

The Diamond Flight Instructor

The Georgia Bureau of Investigation Division of Forensic Sciences performed an autopsy of the Diamond flight instructor and the cause of death was blunt head trauma, and the manner of death was accident.

The FAA's Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing of the flight instructor. The specimens tested negative for carbon monoxide, ethanol, and a wide range of drugs, including major drugs of abuse.

The Diamond Student Pilot

The Georgia Bureau of Investigation Division of Forensic Sciences performed an autopsy of the Diamond student pilot and the cause of death was blunt trauma of the head and torso, and the manner of death was accident.

The FAA's Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing of the student pilot. The specimens tested negative for carbon monoxide, ethanol, and a wide range of drugs, including major drugs of abuse.

TESTS AND RESEARCH

The King KX 155 VHF transceiver and the Garmin GNS 530 all-in-one unit from the Beech were sent to the NTSB Vehicle Recorders Laboratory to determine the frequencies in use at the time of the accident. The examination revealed that the KX 155 communication frequencies were set to 118.17 MHz (active) and 126.22 MHz (standby). The GNS 530 communication frequencies were set to 122.7 MHz (active) and 124.050 MHz (standby). The waypoint communications information page for CTJ was accessed during the examination even though the installed GNS 530 aviation database expired as of November 12, 2015. The CTAF/UNICOM on the displayed page showed the correct frequency of 122.975 MHz.

ADDITIONAL INFORMATION

FAA Rules, Regulations, and Guidance to Pilots

Title 14 CFR 91.113 addresses aircraft right-of-way rules and states, in part, the following:

(b) General. When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(f) Overtaking. Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(g) Landing. Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport to landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

The FAA's Aeronautical Information Manual (AIM), dated December 10, 2015, paragraph 5-5-8, includes pilot procedures for see-and-avoid while in flight and states, "When meteorological conditions permit, regardless of type of flight plan or whether or not under control of a radar facility, the pilot is responsible to see and avoid other traffic, terrain, or obstacles."

The AIM, paragraph 4-1-9, also describes operations to/from airports without an operating control tower and the use of a CTAF and states, in part, the following:

a. Airport Operations Without Operating Control Tower

1. There is no substitute for alertness while in the vicinity of an airport. It is essential that pilots be alert and look for other traffic and exchange traffic information when approaching or departing an airport without an operating control tower. To achieve the greatest degree of safety, it is essential that all radio-equipped aircraft transmit/receive on a common frequency identified for the purpose of airport advisories.

b. Communicating on a Common Frequency

The key to communicating at an airport without an operating control tower is selection of the correct common frequency. A CTAF is a frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower.

The AIM describes the recommended communication procedures regarding departure aircraft on the CTAF and states, "Pilots of inbound traffic should monitor and communicate as appropriate on the designated CTAF from 10 miles to landing. Pilots of departing aircraft should monitor/communicate on the appropriate frequency from start-up, during taxi, and until 10 miles from the airport unless the CFRs or local procedures require otherwise."

The Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-24A), section 13, addresses scanning procedures for visually acquiring traffic:

The pilot can contribute to collision avoidance by being alert and scanning for other aircraft. This is particularly important in the vicinity of an airport.

The See-and-Avoid Concept

The FAA issued AC 90-48D, "Pilots' Role in Collision Avoidance," in April, 2016 to alert all pilots ".to the potential hazards of midair collisions and near midair collisions (NMAC), and to emphasize those basic problem areas related to the human causal factors where improvements in pilot education, operating practices, procedures, and improved scanning techniques are needed to reduce midair conflicts."

AC 90-48D stated that each person operating an aircraft, regardless of whether the operation was conducted under IFR or VFR, shall maintain a vigilant lookout for other aircraft at all times. Regarding visual scanning, the AC specifically stated that "Pilots should remain constantly alert to all traffic movement within their field of vision, as well as periodically scanning the entire visual field outside of their aircraft to ensure detection of conflicting traffic.". AC 90-48D also described several specific methods that pilots could use to visually acquire other traffic.

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Accident Rpt# ERA16LA167	04/20/2016 1130 EDT	Regis# N202CH	Myerstown, PA	Apt: Deck Airport 9D4
Acft Mk/Mdl BELL 47D1		Acft SN 301	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl FRANKLIN 6V-335A		Acft TT 12280	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: INTERREX ADVENTURES INC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

3. Autorotation - Loss of engine power (partial)

Narrative

On April 20, 2016, about 1130 eastern daylight time, a Bell 47D1, N202CH, was substantially damaged during practice autorotation landings at Deck Airport (9D4), Myerstown, Pennsylvania. The flight instructor and airline transport pilot were not injured. The helicopter was registered to and operated by a private company. Visual meteorological conditions prevailed and no flight plan was filed for the local flight conducted as a 14 Code of Federal Regulations Part 91 instructional flight.

The flight instructor, who was seated in the right seat, was performing a flight review for the pilot. She stated that she was demonstrating an autorotation that would terminate with power. The instructor entered the maneuver about 1,500 feet above ground level (agl) by reducing throttle to idle and lowering the collective to the full down position. The carburetor heat was off. She stabilized the approach at 45 miles per hour (mph), but noted the engine's idle speed was about 100 rpm higher than normal. The instructor said she was not satisfied with the needle split between the engine and rotor rpm, so she advanced the throttle to the full open position. When she did this, there was no response from the engine. The instructor entered a flare about 50 ft agl and the helicopter impacted the ground with little to no forward speed, bounced and rolled over to the left.

The pilot stated he was receiving a flight review and was monitoring the instructor's demonstration of an autorotation that would terminate with power. They entered the maneuver about 1,200 ft agl and all appeared normal. The pilot was scanning the engine rpm, rotor rpm, and "ball" throughout the demonstration. When the helicopter reached an altitude of 50 ft agl, he noticed the rotor and engine speed needles were still split so he reached over and confirmed that the throttle was indeed full open.

A postaccident examination of the helicopter and engine revealed the throttle linkage moved freely from the idle to the full-open position. The engine remained attached to the airframe but had sustained impact damage to several engine mounts and could not be rotated. The ring gear cover at the magneto mount was also broken/cracked. All of the spark plugs were removed and examined, with the exception of the No. 6 cylinder top plug, which was broken off in the cylinder. The spark plugs were bench-tested and each produced a spark. No other mechanical anomalies were noted that would have precluded normal operation of the engine.

The flight instructor held an airline transport pilot certificate for airplane single and multi-engine land. She also held a flight instructor certificate for single and multi-engine airplane, rotorcraft helicopter, and instrument airplane and helicopter. The instructor reported a total flight time of 2,024 hours, of which, 590 hours were in helicopters and 31 hours were in the accident helicopter. Her last Federal Aviation Administration (FAA) first-class medical was issued on March 13, 2015.

The pilot held an airline transport pilot certificate for airplane single and multi-engine land, rotorcraft-helicopter, and instrument helicopter. His last FAA second-class medical was issued on May 4, 2015. At that time, he reported a total flight time of 14,710 hours.

Weather at Muir Army Airfield (KMUI), about 12 miles east of the accident site, at 1208, was wind 200 degrees at 6 knots, visibility 7 miles, clear skies, temperature 64 degrees F, 25 degrees F, and a barometric pressure setting of 30.26 inches of mercury. A review of the carburetor icing probability chart from FAA Special Airworthiness Information Bulletin (SAIB): CE-09-35 Carburetor Icing Prevention, June 30, 2009, revealed the temperature and dew point reported at the time of the accident were not conducive for the formation of carburetor icing.

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Accident Rpt# ANC17CA044	06/26/2017	1200 AKD	Regis# N5955X	St. Michael, AK	Apt: N/a
Acft Mk/Mdl BRANTLY B2			Acft SN 96	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
				Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CORBIN J. FORD			Opr dba:		Aircraft Fire: NONE

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Accident Rpt# ERA17CA087	01/12/2017 1450 CST	Regis# N1387D	Hayden, AL	Apt: N/a
Acft Mk/Mdl CESSNA 170-A		Acft SN 19963	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR C145 SERIES			Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: FISHER JACK C		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

2. Approach - Collision during takeoff/land

Narrative

The airplane was on the final approach leg of the traffic pattern to the turf runway. The private pilot recalled that the airplane was at an altitude of 800 ft above ground level and aligned with the runway, but he had no further recollection of the flight. A witness observed the airplane flying "low and slow" about 20 feet above the ground when the nose pitched upward, the airplane "stalled," and the left wing struck the ground. The owner of the airport stated that the trees at the approach end of the runway were damaged, and broken branches were found scattered at the base of the trees immediately after the accident. The fuselage and wings sustained substantial damage consistent with collision with trees and terrain. The pilot stated there were no preaccident mechanical malfunctions or failures with the airplane during the flight that would have precluded normal operation.

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Accident Rpt# GAA17CA489 08/11/2017 1320 CDT Regis# N4189V Axtell, KS Apt: N/a
Acft Mk/Mdl CESSNA 170-UNDESIGNAT Acft SN 18522 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: NICHOLAS BUESSING Opr dba: Aircraft Fire: NONE

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Accident Rpt# GAA17CA380	07/02/2017 1330 MST	Regis# N4482L	Tucson, AZ	Apt: Ryan Field RYN
Acft Mk/Mdl CESSNA 172-G		Acft SN 17254577	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-300 SER		Acft TT 3609	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BARGAR, MARK W.		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing - Loss of control on ground
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Narrative

The pilot reported that, during the landing roll, the airplane pitched up and yawed to the right because of a "dust devil". He added that he applied full power, but was unable to maintain level flight, and the right wing then the left wing struck the runway. The airplane touched down, collapsing the nose landing gear, and the airplane slid about 60 to 70 ft.

The airplane sustained substantial damage to the left wing.

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 40 minutes before the accident the wind was from 300° at 9 knots, gusting 16 knots. The same automated weather observation station reported that about 15 minutes after the accident the wind was from 220° at 9 knots. The airplane landed on runway 24R.

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Accident Rpt# GAA17CA205	03/24/2017 1030 EDT	Regis# N13499	Baltimore, MD	Apt: Martin State Airport MTN
Acft Mk/Mdl CESSNA 172-M		Acft SN 17262796	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A4M		Acft TT 3928	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: MIDDLE RIVER AVIATION LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Taxi - Ground collision
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Narrative

The solo student pilot reported that, as she taxied into the run-up area, the right wing impacted a parked airplane. The airplane continued and then impacted two other airplanes in the run-up area.

The airplane sustained substantial damage to both wings.

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

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Accident Rpt# GAA17CA337	06/11/2017 1150 EDT	Regis# N33FM	Ravenna, OH	Apt: Portage County POV
Acft Mk/Mdl CESSNA 172-S		Acft SN 172S11196	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360-L2A		Acft TT 250	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: GEORGE S. REPCHICK		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

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

Narrative

The flight instructor reported that, during an instructional flight, while on short final, he told the student pilot to "pitch down" to maintain airspeed. He added that the student did not respond and he again instructed the student to "pitch down now" while simultaneously pressing forward on the yoke. He further added that as he pushed forward on the yoke, the student "pulled [back] with equal force on the yoke." Subsequently, the flight instructor pushed forward on the yoke "with greater force" than the previous attempt and stated, "my plane" to the student, but "continued to wrestle the controls with the student" as the airplane entered an aerodynamic stall and impacted the runway threshold hard. After the airplane impacted the runway threshold, the nose gear collapsed and the airplane veered off the runway to the right.

The student pilot reported that this was his first flight ever with this flight instructor, but he had accumulated about 82 hours of dual instruction previously. He added that, during the second landing of the day, while on final approach "the instructor had me pull the power and told me nose down." He further added that he "felt we were getting low and I told the instructor I wanted to increase power but the instructor told me to "nose down." The student pilot reported that the instructor again stated multiple times to "nose down," but he "did not believe there was enough room to continue nose down." Subsequently, the student pilot reported that the flight instructor took the flight controls and nosed the airplane down, but the airplane impacted the runway threshold hard and veered off the runway.

The fuselage and firewall sustained substantial damage.

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

During postaccident correspondence with the National Transportation Safety Board investigator-in-charge, the flight instructor reported that he could not recall during preflight that he and the student pilot discussed the positive transfer of the flight controls.

The Federal Aviation Administration Advisory Circular 61-115, Positive Exchange of Flight Controls Program, dated March 10th, 1995, stated in part:

During flight training, there must always be a clear understanding between students and flight instructors of who has control of the aircraft. Prior to flight, a briefing should be conducted that includes the procedure for the exchange of flight controls. A positive three-step process in the exchange of flight controls between pilots is a proven procedure and one that is strongly recommended.

When an instructor is teaching a maneuver to a student, the instructor will normally demonstrate the maneuver first, then have the student follow along on the controls during a demonstration and, finally, the student will perform the maneuver with the instructor following along on the controls. When the flight instructor wishes the student to take control of the aircraft, he/she says to the student, "You have the flight controls." The student acknowledges immediately by saying, "I have the flight controls." The flight instructor again says, "You have the flight controls." During this procedure, a visual check is recommended to see that the other person actually has the flight controls. When returning the controls to the instructor, the student should follow the same procedure the instructor used when giving control to the student. The student should stay on the controls and keep flying the aircraft until the instructor says, "I have the flight controls." There should never be any doubt as to who is flying the aircraft.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA119	01/06/2017 1500 PST	Regis# N8148T	Lakeport, CA	Apt: Lampson Field 102
Acft Mk/Mdl CESSNA 175-B		Acft SN 17556848	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A1A		Acft TT 4141	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BASTIAN BARRY L		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

2. Prior to flight - Ground collision

Narrative

The pilot reported that he attempted to start the airplane but "the starter did not engage the flywheel." He affirmed that he turned off the master switch and exited the airplane. He reported that he was alone when he pulled the propeller through and the airplane started. The unoccupied airplane rolled across the tarmac and collided with the empennage of a parked airplane. Substantial damage was sustained to the left wing spar.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA367	06/24/2017 1715 PDT	Regis# N524BF	San Martin, CA	Apt: San Martin E16
Acft Mk/Mdl CESSNA 182-A		Acft SN 34331	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR O-470 SERIES			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: SAN JOSE SKYDIVING CENTER		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Enroute-descent - Fuel starvation
-

Narrative

The pilot reported that he departed for a parachute jump flight with 12 gallons of fuel. He added that after the parachute jumpers exited the airplane about 10,500 ft. mean sea level (MSL), he initiated a left spiraling descent back to the airport. He further added that he "heard and felt the engine start [to] quiet down as if it was shutting down". He then began to make right descending turns and verified that the fuel selector was in the "both" position. He added that the cylinder head temperature was decreasing, so he switched back to left descending turns and the "fuel starvation due to banking happened two more times".

The pilot reported that he entered left downwind about 4,000 ft. MSL, pushed the throttle and mixture controls full forward, and determined that the "engine wasn't producing much power". He added that during short final he realized the airplane was too low, so he landed the airplane on a highway "on-ramp". During the forced landing, the airplane impacted a guard rail and a post.

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

The pilot reported that he "suspected engine power loss due to fuel exhaustion".

During a postaccident examination, the Federal Aviation Administration (FAA) inspector drained about 12 gallons of fuel from both wing tanks and the gascolator.

In the Description section of the Cessna 182A Owner's Manual, it states that there are 1.5 gallons of unusable fuel per fuel tank (3 gallons) and that there are an additional 3.5 gallons of unusable fuel per fuel tank (10 gallons) when not in level flight.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA133	01/22/2017 1525 CST	Regis# N3828D	Sebring, OH	Apt: Tri-city 3G6
Acft Mk/Mdl CESSNA 182-A		Acft SN 34528	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL O-470-L		Acft TT 4720	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: WARNER THOMAS E		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

2. Landing-flare/touchdown - Landing gear collapse

Narrative

The pilot in the tri-cycle gear equipped airplane reported that he landed about 4 ft short of the asphalt runway. The nose landing gear struck the 6-inch high asphalt perimeter and separated from the airplane. The pilot aborted the landing and the airplane bounced and the pilot was able to establish a climb. He completed one traffic pattern and an approach. During the second landing, the pilot elected to land on the turf safety area parallel to the runway. When the airplane's main landing gear touched down on the turf surface, the airplane nosed over. The airplane sustained substantial damage to the firewall, fuselage, left wing and the empennage.

Per the National Transportation Safety Board Pilot Aircraft Accident Report, the pilot reported that the accident could have been prevented by being more diligent in observing the touchdown point on the runway.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17CA213	06/26/2017 720 EDT	Regis# N207GM	Vinalhaven, ME	Apt: Vinalhaven ME55
Acft Mk/Mdl CESSNA 207-UNDESIGNAT		Acft SN 20700217	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
		Acft TT 12458	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 135
Opr Name: WATERS AERO MARINE INC		Opr dba:		Aircraft Fire: NONE

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

Events

1. Landing-landing roll - Miscellaneous/other

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# GAA17CA464 07/02/2017 1319 EDT Regis# N41LJ Hollywood, FL
Acft Mk/Mdl CESSNA 421C-C Acft SN 421C1252 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: WELLS FARGO BANK NORTHWEST NA Opr dba: Aircraft Fire: NONE
TRUSTEE

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA303	08/04/2017 900 CDT	Regis# N3047J	Marshall, MO	Apt: Marshall Memorial Muni MHL
Acft Mk/Mdl CESSNA A188B		Acft SN 18803596T	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
		Acft TT 7845	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 137
Opr Name: LLOYD R DARTER		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPR

Events

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

Narrative

On August 4, 2017, about 0900 central daylight time, a Cessna A188B airplane, N3047J, was substantially damaged when it impacted the terrain after takeoff from runway 18 (5,006 feet by 75 feet, concrete) at the Marshall Memorial Municipal Airport (MHL), Marshall, Missouri. The pilot was not injured. The airplane was registered to and operated by private individuals as a 14 Code of Federal Regulations Part 137 flight. Day visual meteorological conditions prevailed. The flight was not operated on a flight plan. The local aerial application flight originated from MHL shortly before the accident.

The pilot stated that he loaded the airplane was 120 gallons for the aerial application flight. The pretakeoff run-up was normal. After takeoff, he reduced engine power for climb. When he did so, the engine "surged." He responded by increasing the throttle "a little," but the engine "surged" again and he recalled thinking that the engine was losing power. The airplane "steadily sank" and he subsequently applied full power. He ultimately landed in a bean field and encountered a chain link fence before coming to rest.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16FA312B	09/07/2016 1048 EDT	Regis# N85WP	Carrollton, GA	Apt: West Georgia Regional CTJ
Acft Mk/Mdl DIAMOND AIRCRAFT IND INC DA20-C1	Acft SN C0316	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending	
Eng Mk/Mdl CONTINENTAL IO-240-B	Acft TT 1990	Fatal 3 Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: FALCON AVIATION ACADEMY LLC	Opr dba:	Aircraft Fire: NONE		AW Cert: STN

Events

1. Approach-VFR pattern final - Midair collision

Narrative

HISTORY OF FLIGHT

On September 7, 2016, at 1048 eastern daylight time, a Beech F33A, N6027K, and a Diamond Aircraft Industries DA20-C1, N85WP, collided in midair on the final approach leg of the traffic pattern to runway 35 at West Georgia Regional Airport (CTJ), Carrollton, Georgia. The Beech was substantially damaged, and the private pilot was fatally injured. The Diamond was destroyed, and the flight instructor and the student pilot were fatally injured. The Beech was registered to and operated by the private pilot. The Diamond was registered to and operated by Falcon Aviation Academy LLC. Both flights were conducted under the provisions of 14 Code of Federal Regulations (CFR) Part 91; the Beech pilot was conducting a personal flight, and the Diamond pilots were conducting an instructional flight. Visual meteorological conditions prevailed, and no flight plans were filed for either flight. The Beech departed from Fulton County Airport (FTY), Atlanta, Georgia, about 0915, and the Diamond departed from Newnan Coweta County Airport (CCO), Newnan, Georgia, about 1000.

According to personnel from Falcon Aviation Academy, the pilots of the Diamond were practicing traffic pattern operations and landings at CTJ. The Diamond entered the traffic pattern, followed a few minutes later by N263CF and then by N169PS, both Falcon Aviation Academy DA20s. The flight instructor and student pilot on board N263CF saw the Beech on the downwind leg of the traffic pattern. Moments later, the flight instructor and student pilot on board N169PS entered the traffic pattern from the east. They looked down and to the left, in the direction of the final approach path for runway 35, and saw two airplanes collide. The instructors and the students on board both trailing DA20s reported that they did not hear the Beech pilot broadcasting his intentions on the CTJ common traffic advisory frequency (CTAF) but they heard the accident Diamond making position calls in the traffic pattern before the collision, with the last call being made on the final approach.

Another flight instructor employed by Falcon Aviation Academy reported that he was familiar with the Beech pilot and his airplane. He had just completed a flight at CCO and heard the Beech pilot broadcasting traffic pattern calls for CTJ about the time of the accident; however, the Beech pilot was broadcasting over the CCO CTAF of 122.7 MHz. The flight instructor reported that the Beech pilot was not in the traffic pattern at CCO at the time of the transmissions.

Radar data provided by Federal Aviation Administration (FAA) air traffic control personnel indicated that the Beech pilot entered an extended left downwind for CTJ from the north, above and behind the accident Diamond, which was on the downwind leg of the traffic pattern. The ground speed of the Beech was about 50 knots greater than the ground speed of the Diamond. The last radar returns were on the downwind leg, about 2,000 ft above mean sea level, or about 850 ft above the ground. The locations of the last radar returns showed the airplanes approaching the base leg for runway 35.

The Diamond was not equipped with GPS data recording capability. A portable GPS receiver recovered from the Beech recorded the accident flight. The recording indicated that the Beech was established on the downwind leg for runway 35, about 2,500 ft GPS altitude and 150 knots groundspeed. The CTJ airport elevation was 1,164 ft. The Beech descended toward the base leg, turning base about 2,200 ft and 122 knots. The Beech turned onto final about 1,450 ft and 79 knots. The last recorded data point was at 1048:00, with the Beech at 1,201 ft and 76 knots, about 607 ft south of the runway 35 threshold.

PERSONNEL INFORMATION

The Beech Pilot

The pilot of the Beech, age 79, held an FAA private pilot certificate with airplane single-engine land and instrument airplane ratings. He held an FAA third-class medical certificate with a restriction to have glasses available for near vision. He reported 2,500 total hours of flying experience on his FAA third-class medical certificate application that was dated October 5, 2015. His personal pilot logbook was not located.

National Transportation Safety Board - Aircraft Accident/Incident Database

According to the owner's representative (insurance adjuster), the Beech pilot reported that he completed a Beechcraft Pilot Proficiency Program on October 30, 2015, at Blairsville, Georgia. This was confirmed verbally and accepted as a current flight review by the insurance company.

The Diamond Flight Instructor

The flight instructor in the Diamond, age 24, held an FAA commercial pilot certificate with ratings for airplane multi-engine land, airplane single-engine land, and instrument airplane. She held an FAA flight instructor certificate with a rating for airplane single-engine, and she held an FAA first-class medical certificate with a restriction to wear glasses. She was seated in the right cockpit seat. She reported 600 total hours of flying experience on her FAA first-class medical certificate application that was dated March 16, 2016. A review of her pilot logbook revealed about 850 hours total time, including 721 hours in single-engine airplanes and 366 hours as a flight instructor.

The Diamond Student Pilot

The student pilot in the Diamond, age 20, held an FAA student pilot certificate. He held an FAA second-class medical certificate with no restrictions. He was seated in the left cockpit seat. He enrolled in the ab initio training program at Falcon Aviation Academy on August 4, 2016, and had logged about 22 hours of flight time.

AIRCRAFT INFORMATION

Beech

The off-white- and blue/gold-colored Beech F33A was a single-engine, low-wing airplane with a conventional tail. A review of the airplane's maintenance and airworthiness records revealed that an enhanced Whelen light-emitting diode (LED) wingtip position and anti-collision light system, model OR6502GE/OR6502RE, and a Whelen LED tail position and anti-collision light system, model OR5002V, were installed on the airplane per FAA Supplemental Type Certificate, dated November 10, 2014. The airplane was equipped with landing and taxi lights. The airplane was not equipped with a traffic advisory system (TAS), traffic alert and collision avoidance system (TCAS), or automatic dependent surveillance-broadcast (ADS-B) equipment or displays. The Beech's avionics suite included a King KX 155 VHF communication/navigation transceiver and a Garmin GNS 530 GPS/communication/navigation all-in-one unit.

According to information provided by the owner's representative, the Beech's most recent annual inspection was completed on or about July 13, 2016. At the time of the inspection, the airframe had accumulated about 4,549 total hours of operation.

Diamond

The white- and blue-colored Diamond DA20 was a single-engine, low-wing airplane with a T-tail configuration. It was equipped with wingtip-mounted anti-collision strobe lights and navigation position lights, and a landing and taxi light. The airplane was not equipped with a TAS, TCAS, ADS-B equipment or displays. The Diamond's avionics suite included an iCOM AC-A200 VHF air band transceiver and a Garmin GNS 430 GPS/communication/navigation all-in-one unit.

The Diamond's most recent annual inspection was completed on August 9, 2016. At the time of the inspection, the airframe had accumulated about 1,990 total hours of operation.

METEOROLOGICAL INFORMATION

The CTJ 1055 weather observation included wind calm, visibility 10 statute miles, scattered clouds at 8,500 ft, temperature 30°C, dew point 19°C, and an altimeter setting 30.30 inches of mercury.

National Transportation Safety Board - Aircraft Accident/Incident Database

AIRPORT INFORMATION

CTJ was a public, non-towered, uncontrolled airport with a single runway, designated 17/35. The runway was 5,503 ft long and 100 ft wide. The published traffic pattern direction for runway 35 was to the left. Falcon Aviation Academy personnel reported that their pilots frequently used CTJ for training purposes.

The CTAF/UNICOM frequency for CTJ at the time of the accident was 122.975 MHz. CTAF communications were not recorded. The airport manager reported that the CTJ CTAF frequency was changed from 122.7 MHz to 122.975 MHz in 2011.

WRECKAGE AND IMPACT INFORMATION

General

The main wreckage of both airplanes came to rest in a grass field, about 408 ft south of the approach end of runway 35, on the extended centerline of the runway. The Diamond came to rest in an upright position. The Beech came to rest inverted and on top of the Diamond wreckage. The wreckage debris field was about 350 ft long and about 80 ft wide, oriented on a heading of 350°. All major structural components of both airplanes were accounted for within the wreckage debris field.

Beech

The wreckage of the Beech was generally intact; the wings and empennage remained attached to the fuselage. Flight control cable continuity was established from the cockpit controls to the flight control surfaces. The ailerons, elevator, and rudder remained attached in their respective positions on the wings, horizontal stabilizer, and rudder. Blue-colored paint transfer marks were found on the lower surface of the right wing, near wing station 108. Impact damage with paint transfer was found on the top of the fuselage around station 131.

The nose gear separated from the airplane during the impact sequence. White paint transfer markings were observed on the nose gear tire. The left and right main landing gear were found in the extended positions. White paint transfer markings were observed on the left, main gear tire. The wing flaps were extended 20°.

The master and avionics switches were found in the "on" positions. The strobe light switch was found in the "on" position. The taxi light switch was found in the "on" position, and the landing light was found in the "off" position; however, both switches had impact damage. The position of the navigation light switch could not be determined because of impact damage.

The engine remained attached to the firewall. External examination of the engine did not reveal physical evidence of a mechanical malfunction or anomaly. The propeller assembly separated from the engine at the crankshaft/propeller flange junction. The fracture surfaces exhibited features consistent with overload. The propeller blades remained attached to the hub and displayed chordwise scratches, blade twisting, leading edge gouging, and surface polishing.

A laminated card titled "LOCAL AREA FREQ" and dated April 27, 2009, was found in the Beech's cockpit. The card, which listed the frequencies for multiple airports in the area, listed the frequency for the CTAF at CTJ as 122.7 MHz.

Diamond

The Diamond came to rest upright, under the wreckage of the Beech. Flight control continuity was confirmed from the elevator and rudder to the cockpit controls. Aileron control continuity was confirmed from the right aileron to the cockpit controls. The left wing separated from the fuselage during the impact sequence. The left aileron control tubes had multiple fractures that exhibited overload signatures. The empennage separated from the fuselage about 14 inches forward of the vertical stabilizer root leading edge.

Blue paint transfer marks were observed on the leading edge of the Diamond's right wing. The marks were about 8 inches long and 12 inches from the wing root. The Diamond's landing, taxi, strobe, and position light switches were impact-damaged, and their preimpact positions could not be determined.

National Transportation Safety Board - Aircraft Accident/Incident Database

Lightweight pieces of the Diamond were found on a northerly path, beginning 340 ft south of the main wreckage. One of the most southerly pieces of wreckage debris was the right half of the Diamond's elevator. Closer examination revealed black transfer markings on the upper surface of the elevator that were consistent in color and tread pattern with the right main landing gear tire of the Beech. Examination of the Diamond's horizontal stabilizer revealed similar transfer markings on its upper surface. The other small pieces of debris located south of the main wreckage were identified as sections of the Diamond's canopy and wing root/fuselage skin.

MEDICAL AND PATHOLOGICAL INFORMATION

The Beech Pilot

The Georgia Bureau of Investigation Division of Forensic Sciences performed an autopsy of the Beech pilot and the cause of death was blunt trauma of the head and chest, and the manner of death was accident.

The FAA's Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing and identified doxazosin and losartan in the pilot's blood, and doxazosin, dextromethorphan, and its metabolite dextrorphan in urine. Doxazosin and losartan are blood pressure medications also named Cardura and Cozaar, respectively. The pilot reported the use of doxazosin and losartan to the FAA during his most recent FAA third-class physical. Dextromethorphan is an over-the-counter cough suppressant available in a number of products.

The Diamond Flight Instructor

The Georgia Bureau of Investigation Division of Forensic Sciences performed an autopsy of the Diamond flight instructor and the cause of death was blunt head trauma, and the manner of death was accident.

The FAA's Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing of the flight instructor. The specimens tested negative for carbon monoxide, ethanol, and a wide range of drugs, including major drugs of abuse.

The Diamond Student Pilot

The Georgia Bureau of Investigation Division of Forensic Sciences performed an autopsy of the Diamond student pilot and the cause of death was blunt trauma of the head and torso, and the manner of death was accident.

The FAA's Bioaeronautical Research Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing of the student pilot. The specimens tested negative for carbon monoxide, ethanol, and a wide range of drugs, including major drugs of abuse.

TESTS AND RESEARCH

The King KX 155 VHF transceiver and the Garmin GNS 530 all-in-one unit from the Beech were sent to the NTSB Vehicle Recorders Laboratory to determine the frequencies in use at the time of the accident. The examination revealed that the KX 155 communication frequencies were set to 118.17 MHz (active) and 126.22 MHz (standby). The GNS 530 communication frequencies were set to 122.7 MHz (active) and 124.050 MHz (standby). The waypoint communications information page for CTJ was accessed during the examination even though the installed GNS 530 aviation database expired as of November 12, 2015. The CTAF/UNICOM on the displayed page showed the correct frequency of 122.975 MHz.

ADDITIONAL INFORMATION

FAA Rules, Regulations, and Guidance to Pilots

Title 14 CFR 91.113 addresses aircraft right-of-way rules and states, in part, the following:

(b) General. When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(f) Overtaking. Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(g) Landing. Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport to landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

The FAA's Aeronautical Information Manual (AIM), dated December 10, 2015, paragraph 5-5-8, includes pilot procedures for see-and-avoid while in flight and states, "When meteorological conditions permit, regardless of type of flight plan or whether or not under control of a radar facility, the pilot is responsible to see and avoid other traffic, terrain, or obstacles."

The AIM, paragraph 4-1-9, also describes operations to/from airports without an operating control tower and the use of a CTAF and states, in part, the following:

a. Airport Operations Without Operating Control Tower

1. There is no substitute for alertness while in the vicinity of an airport. It is essential that pilots be alert and look for other traffic and exchange traffic information when approaching or departing an airport without an operating control tower. To achieve the greatest degree of safety, it is essential that all radio-equipped aircraft transmit/receive on a common frequency identified for the purpose of airport advisories.

b. Communicating on a Common Frequency

The key to communicating at an airport without an operating control tower is selection of the correct common frequency. A CTAF is a frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower.

The AIM describes the recommended communication procedures regarding departure aircraft on the CTAF and states, "Pilots of inbound traffic should monitor and communicate as appropriate on the designated CTAF from 10 miles to landing. Pilots of departing aircraft should monitor/communicate on the appropriate frequency from start-up, during taxi, and until 10 miles from the airport unless the CFRs or local procedures require otherwise."

The Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-24A), section 13, addresses scanning procedures for visually acquiring traffic:

The pilot can contribute to collision avoidance by being alert and scanning for other aircraft. This is particularly important in the vicinity of an airport.

The See-and-Avoid Concept

The FAA issued AC 90-48D, "Pilots' Role in Collision Avoidance," in April, 2016 to alert all pilots ".to the potential hazards of midair collisions and near midair collisions (NMAC), and to emphasize those basic problem areas related to the human causal factors where improvements in pilot education, operating practices, procedures, and improved scanning techniques are needed to reduce midair conflicts."

AC 90-48D stated that each person operating an aircraft, regardless of whether the operation was conducted under IFR or VFR, shall maintain a vigilant lookout for other aircraft at all times. Regarding visual scanning, the AC specifically stated that "Pilots should remain constantly alert to all traffic movement within their field of vision, as well as periodically scanning the entire visual field outside of their aircraft to ensure detection of conflicting traffic.". AC 90-48D also described several specific methods that pilots could use to visually acquire other traffic.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA16CA493	02/25/2017 1232 MST	Regis# N75EP	Weiser, ID	Apt: Weiser Municipal KS87
Acft Mk/Mdl GRUMMAN ACFT ENG COR-SCHWEIZER	Acft SN 1394	Acft Dmg: DESTROYED	Fatal 0	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 E3D		Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: PANIERE ERIC W	Opr dba:		Aircraft Fire: GRD	
			AW Cert: STN	

Events

1. Landing-aborted after touchdown - Collision during takeoff/land
-

Narrative

The student pilot in the tricycle gear-equipped airplane reported that he was flying a solo cross-country flight and landed on the 60-foot wide asphalt runway. He recalled that there were 4-foot high snow berm that paralleled the edges of the runway. When he touched down, he applied the brakes and the airplane yawed to the left. In fear of striking the snow berm, he initiated a go around and rotated about 65 kts. The airplane climbed about two feet above the runway but the left main landing gear wheel struck the snow berm on the left side of the runway. The left tire and brake assembly separated from the airplane, and the airplane came to rest in the snow-covered safety area left of the runway. The airplane sustained substantial damage to the left wing ribs and aileron.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA101	02/02/2017 1955 CST	Regis# N9149V	Ellendale, MN	Apt: N/a
Acft Mk/Mdl MOONEY M20C		Acft SN 690026	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O&VO-360 SER		Acft TT 3081	Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: BASS DANIEL J		Opr dba:		Aircraft Fire: NONE

Events

1. Enroute - Miscellaneous/other

Narrative

On February 2, 2017, about 1955 central standard time, N9149V, a Mooney M20C, collided with a field in Ellendale, Minnesota, after the pilot became incapacitated during the flight. The pilot was seriously injured and the airplane was substantially damaged. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a business flight. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed. The flight originated from the Duluth International Airport (DLH), Duluth, Minnesota, at 1808, with an intended destination of the Winona Municipal Airport (ONA), Winona, Minnesota.

Earlier on the day of the accident the pilot flew the airplane from ONA to Thunder Bay (CYQT), Ontario (CYQT). The weather was cold so he had the airplane heater on for the entire trip. The pilot stated he had a slight headache during the last 10 to 15 minutes of the 2 hour 30-minute flight. After landing, while in the fixed base operator, the headache remained and he felt "butterflies" in his stomach which he likened to a feeling of anxiety. The pilot attributed his headache to not having any caffeine in the morning and having possibly picked up an illness from a family member and he attributed the anxiety to his concern about following proper customs procedures.

The pilot stated the headache continued during the morning until he drank coffee which seemed to help. The pilot had the airplane preheated and departed CYQT about 1600 for the 1 hour 20-minute flight to DLH. The pilot reported he did not have a headache during the flight, but the headache returned after he landed at DLH. The pilot expedited his time on the ground at DLH because he was concerned about getting the engine started in the cold weather. He stated he started the airplane and sat in it while he filed his flight plan and "took my time getting the cockpit organized for the flight." The pilot received his IFR clearance to fly as filed to ONA at 6,000 ft above mean sea level (msl) and to expect a clearance to 9,000 ft msl, 10 minutes after takeoff. The pilot read back the clearance and requested to taxi.

The pilot still had a headache and experienced another episode of "butterflies" while taxiing to the runway. He stated the symptoms were more intense than they were in the morning. He stated the symptoms subsided by time he reached the runway, and he felt "good" but became "hyper focused." He performed an engine runup and performed the takeoff checklist 3 or 4 times and repeatedly checked the avionics and instruments, which was not his normal routine. The airport tower controller asked him if he was ready to takeoff, which he stated "snapped" him out of repeating the takeoff checklist. Air traffic control (ATC) recordings show the pilot was in the airplane with it running for at least 12 minutes prior to taking off.

The pilot stated he remembers being cleared to a heading of 240ø and setting the autopilot heading bug prior to taking off. While climbing out, he experienced another case of the "butterflies". He stated he began the turn and activated the autopilot during the turn. The last thing he remembers is being cleared to 6,000 ft msl on a heading of 240ø. ATC transcripts recordings show the pilot communicated with ATC for the first four minutes of the flight. About three minutes after takeoff, the DLH tower controller instructed the pilot to contact departure control. The pilot acknowledged the instruction and attempted to check in with departure control while still on the tower control frequency. The controller informed the pilot that he was still on the tower frequency. At 1812:18, the pilot once again attempted to contact departure control without having changed the frequency. This was the last communication from the pilot.

Both the DLH controller and controllers in the Minneapolis Air Route Traffic Center made numerous attempts to contact the pilot, including having other pilots attempt to make radio contact. Radar data showed the airplane flew a ground track of 190 to 200 degrees at altitudes that exceeded 12,000 ft msl. The last radar contact was at 1952:47 at an altitude of 2,300 ft msl about 1 mile north-northeast of the accident site, which was about 80 miles west of ONA.

The pilot remained unresponsive until after the airplane impacted a field in a relatively level attitude. The pilot recalled waking up and thinking that he fell asleep for a few minutes. He stated he keyed the microphone to let air traffic control know that he was alright and noticed that the windscreen was "clear." He reached his hand out the hole in the windscreen which is when he realized that he was no longer flying. He stated he was very confused and had loud ringing in his ears at this point. The pilot freed his legs from the wreckage and he exited the airplane. He stated he was very weak and had difficulty with his balance and ability to walk. The pilot eventually made his way to a house about 500 ft from the accident site. It is unknown how long the pilot was unconscious after the impact.

However, the last radar contact was at 1955 and the 911 call from the house was placed at 2107.

A postaccident examination of the airplane revealed that both the left and right fuel tanks were empty. The cabin heat control was full out (on) and the cabin vent control was full in (off). The exhaust muffler contained several cracks, one of which contained soot/exhaust deposits on the fractured surfaces. The inside of the exhaust shroud contained sooting as did the scat tubing leading from the muffler. The pilot reported he had the heater "full-on" during all three of the flights on the day of the accident and he did not have a CO detector in the airplane.

A review of maintenance records showed a new exhaust system was installed on the airplane on January 25, 2007, at a tachometer time of 2,343 hours. The last annual inspection was conducted February 2, 2016, at a tachometer time of 2998.0 hours. The tachometer time at the time of the accident was 3,081 hours.

The pilot provided his postaccident medical records for the National Transportation Safety Board (NTSB). The NTSB Chief Medical Officer reviewed the records and reported the pilot was treated for injuries sustained during the accident and for frostbite. At 0018, on the morning following the accident, the pilot's blood was drawn for tests which included carbon monoxide (CO) levels. At that time, the CO level was 13.8%.

Carbon monoxide is an odorless, tasteless, colorless, nonirritating gas formed by hydrocarbon combustion. CO binds to hemoglobin with much greater affinity than oxygen, forming carboxyhemoglobin; elevated levels result in impaired oxygen transport and utilization. Nonsmokers may normally have up to 3% carboxyhemoglobin in their blood; heavy smokers may have levels of 10 to 15%. The pilot was a nonsmoker.

The degree of carboxyhemoglobinemia is primarily related to the relative amounts of CO and oxygen in the environment and the duration of exposure. Once exposure to the CO decreases or ends, oxygen molecules batter the receptor and slowly knock the CO off so it can be exhaled. This process is more efficient when there are more oxygen molecules in the blood. The half-life (the time it takes to get rid of « the CO) of CO with a patient breathing ambient air at sea level (21% oxygen) is about 4 - 5 hours; once the person is breathing high flow oxygen, the half-life of CO drops to about 90 minutes. Given the half-life of 4 - 5 hours while breathing ambient air, the pilot's CO level at the time of the accident was at least 28% and most likely significantly higher because oxygen was administered in varying amounts during the first few hours of his postaccident medical care.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA316	08/11/2017 1000 EDT	Regis# N249KC	Adrian, MI		
Acft Mk/Mdl NAVION NAVION G		Acft SN NAV-4-2499	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim	Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL MOTORS IO-470H			Fatal 0	Ser Inj 2	Flt Conducted Under: FAR 091
Opr Name:		Opr dba:		Aircraft Fire: NONE	
				AW Cert: STN	

Events

1. Maneuvering - Loss of engine power (total)
-

Narrative

On August 11, 2017, about 1000 eastern daylight time, a Navion G airplane, N249KC, impacted trees after a loss of engine power near Adrian, Michigan. The flight instructor and private pilot were seriously injured and the airplane sustained substantial damage. The airplane was registered to Kalea Co. LLC and operated by Sky Walker Flying under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed at the time of the accident and no flight plan had been filed. The local flight departed Lenawee County Airport (ADG), Adrian, Michigan, at an unknown time.

The responding Federal Aviation Administration (FAA) inspector reported that the airplane was found wedged between two trees and the engine had separated from the firewall (figure 1).

According to the flight instructor, the airplane's engine experienced a total loss of power about 1,000 ft above ground level.

The airplane has been retained for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN17LA317	08/14/2017	1017 CDT	Regis# N2591A	Beckville, TX	Apt: N/a
Acft Mk/Mdl PIPER PA 22-135-150			Acft SN 22-876	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-290-D2				Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name:			Opr dba:		Aircraft Fire: NONE
					AW Cert: STN

Events

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

Narrative

On August 14, 2017, about 1017 central daylight time, a Piper PA22-135 airplane, N2591A, was substantially damaged during a forced landing following a partial loss of engine power near Beckville, Texas. The pilot sustained minor injuries. The airplane was registered to and operated by private individuals as a 14 Code of Federal Regulations Part 91 flight. Day visual meteorological conditions prevailed. The flight was not operated on a flight plan. The pipeline surveillance flight originated from Cypress River Airport (24F), Jefferson, Texas, about 0800. The intended destination was the Gladewater Municipal Airport (07F), Gladewater, Texas.

The pilot reported fueling the airplane at 24F before departing on his planned pipeline surveillance route. About 2 hours into the flight, en route to 07F, the engine partially lost power. His efforts to restore full power were unsuccessful. Unable to maintain flight, the pilot executed a forced landing to a pasture.

A detailed examination of the airplane is planned after recovery from the accident site.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA17LA267	08/05/2017 2242 EDT	Regis# N56884	Pittstown, NJ	Apt: Sky Manor N40
Acft Mk/Mdl PIPER PA 28-140-140		Acft SN 28-7425057	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320			Fatal 0 Ser Inj 2	Flt Conducted Under: FAR 091
Opr Name: DALRYMPLE KYLE		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

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

Narrative

On August 5, 2017, about 2242 eastern daylight time, a Piper PA-28-140, N56884 was substantially damaged during a collision with trees and terrain, while on approach to Sky Manor (N40), Pittstown, New Jersey. The student pilot and one passenger were seriously injured, while the other passenger received minor injuries. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Night visual meteorological conditions prevailed and no flight plan was filed for the flight that departed Blairstown Airport (1N7), Blairstown, New Jersey, about 2215.

The student pilot and front seat passenger had been in an intensive care unit and unable to initially provide a statement. According to preliminary information from a Federal Aviation Administration inspector, the three occupants were related, but neither of the passengers held a pilot certificate. According to the rear seat passenger, family members, and the student pilot's flight instructor, the student pilot had planned to ferry his airplane to N40 the following week with his flight instructor to have avionics installed. However, the three occupants had been at a family picnic during the day of the accident and the student pilot decided to ferry the airplane with them that night, instead of the following week with his instructor. Another family member drove to N40 to provide ground transportation back to the student pilot's home once the airplane had landed.

The rear seat passenger further stated that the airplane was in a circling descent near N40 when the student pilot noted red obstruction lights related to utility wires and indicated that something was not correct. The airplane then collided with trees and impacted the ground. The three occupants were able to egress before a postcrash fire consumed a portion of the cockpit.

The recorded weather at an airport located about 12 miles east of the accident site, at 2253, included calm wind, clear sky and visibility 10 miles.

The wreckage was retained for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA157	02/25/2017 1232 MST	Regis# N4404T	Weiser, ID	Apt: Weiser Municipal KS87
Acft Mk/Mdl PIPER PA 28-140-140		Acft SN 28-7225165	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 E3D			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: THOMPSON AVIATION SERVICES LLC	Opr dba:			Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing-aborted after touchdown - Collision during takeoff/land

Narrative

The student pilot in the tricycle gear-equipped airplane reported that he was flying a solo cross-country flight and landed on the 60-foot wide asphalt runway. He recalled that there were 4-foot high snow berm that paralleled the edges of the runway. When he touched down, he applied the brakes and the airplane yawed to the left. In fear of striking the snow berm, he initiated a go around and rotated about 65 kts. The airplane climbed about two feet above the runway but the left main landing gear wheel struck the snow berm on the left side of the runway. The left tire and brake assembly separated from the airplane, and the airplane came to rest in the snow-covered safety area left of the runway. The airplane sustained substantial damage to the left wing ribs and aileron.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR15LA217	07/19/2015 1320 PDT	Regis# N8740E	Las Vegas, NV	Apt: Henderson Exec KHND
Acft Mk/Mdl PIPER PA 28-181		Acft SN 28-7690195	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O&VO-360 SER		Acft TT 4040	Fatal 0 Ser Inj 4	Flt Conducted Under: FAR 091
Opr Name: STUCKEY JODY L		Opr dba:		Aircraft Fire: GRD
				AW Cert: STN

Events

1. Initial climb - Aerodynamic stall/spin
2. Initial climb - Loss of engine power (partial)

Narrative

HISTORY OF FLIGHT

On July 19, 2015, about 1320 Pacific daylight time, a Piper PA-28-181, N8740E, collided with terrain minutes after departing Henderson Executive Airport, Las Vegas, Nevada. The private pilot and three passengers were seriously injured, and the airplane was destroyed by a postaccident fire. The airplane was registered to the private pilot, and operated as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions prevailed for the flight, and a flight plan had not been filed. The flight originated from Las Vegas about 1330, and was destined for San Diego, California.

The pilot reported that the takeoff seemed normal, but once airborne the airplane's climb was "sluggish" and the engine's rpm's at 200-300 rpm lower than normal. He was able to maintain straight and level flight about 300 feet above ground level (agl). When the pilot made a left-hand turn in an attempt to return to the airport, the airplane immediately began to lose altitude. The pilot selected a landing site, and executed a forced landing into an open area associated with a construction site. During the landing sequence into uneven terrain, the landing gear was torn off, and the airplane caught fire. As soon as the airplane came to rest, the front passenger door was opened and the occupants evacuated the airplane. The airplane was consumed by the postaccident fire.

The tower controller at Henderson Airport reported that the airplane appeared to not be climbing normally after takeoff, and he cleared the pilot to make any maneuvers necessary to return to the airport if he desired. A witness reported that he observed the airplane takeoff and struggle to gain altitude; it then made a left turn followed by a steep bank turn and crashed. The airplane crashed into an open construction site and the occupants egressed the airplane before it was completely engulfed in fire.

The airplane's official weight and balance record was contained in the airplanes maintenance records. Using information from a PA-28-181 Pilot's Operating Handbook, the following was used to estimate expected airplane performance. The pilot reported having 30 gallons (180 lbs) of fuel onboard at the time of takeoff, and the estimated combined weight of all the occupants was 770 lbs. The empty weight of the airplane was 1502.5 lbs. and the listed maximum gross weight is 2,550 lbs. The calculated weight of the airplane at takeoff was 2,452.5 lbs. The airport elevation is 2,492 ft mean sea level (msl), the temperature was 33 C, and the pressure altitude was 30.10 inHg. The calculated density altitude for those conditions was 5,014 ft. Utilizing the climb performance chart for a PA-28-181 for these conditions resulted in an expected rate-of-climb of 520 feet per minute.

AIRCRAFT INFORMATION

A review of the airplane's maintenance records revealed that the most recent annual inspection was performed on February 25, 2015, at a total airframe time of 4,040 hours. The mechanic who performed the annual inspection stipulated in the airframe logbook that the carburetor heat control bracket required repair, and that the number 2 navigation radio head required a placard indicating the radio was inoperative. Once those repairs had been made by an A&P mechanic then the entry stated, "this aircraft will be airworthy & ok for return to service." The A&P mechanic who performed the annual inspection stated to the NTSB investigator-in-charge (IIC) that he did perform the engine static rpm check as part of the annual inspection, during which he noticed that the rpm was 10% to 20% below normal. He attributed that reduction in rpm to the loose carburetor heat door which could allow the carb heat to be in an unknown position. Maintenance records obtained from First Flight Corp, San Diego, CA, documented that the carburetor heat bracket was repaired on March 5, 2015.

The engine, a Lycoming O-360-A4A, capable of producing 180-hp, was overhauled on October 6, 1986, and had accumulated 1,461 hours since the overhaul. The airplane and engine had accumulated a total of approximately 150.4 hours over the 10 years preceding the accident.

On July 23, 2015, the engine was examined by a technical representative of Lycoming under the oversight of a Federal Aviation Administration (FAA) inspector. During the examination, the top spark plugs were removed, examined, and photographed. The crankshaft was rotated by hand utilizing the propeller. The

crankshaft was free and easy to rotate in both directions. "Thumb" compression was observed in proper order on all four cylinders. The complete valve train was observed to operate in proper order. Clean, uncontaminated oil was observed at all four rocker box areas. Investigators noted that each of the intake valve rockers exhibited limited movement estimated to be about 50% less than normal. The intake valves of opposing cylinders share a common cam lobe. To facilitate further internal examination, holes were drilled through the top of the engine case material in-line with the rotational plane of each connecting rod. A lighted borescope was inserted to visualize each of the cam lobes at the respective cylinder position. Visual examination confirmed signatures of excessive wear on the intake cam lobes. Mechanical continuity was established throughout the rotating group, valve train and accessory section during hand rotation of the crankshaft. The bottom spark plugs were not removed. The combustion chamber of each cylinder was examined through the spark plug holes utilizing a lighted borescope. The combustion chambers remained mechanically undamaged, and there was no evidence of foreign object ingestion or detonation. The valves were intact and undamaged. There was no evidence of valve to piston face contact observed.

The left and right magnetos remained securely clamped at their respective mounting pads and had been thermally damaged due to the effects of the post impact ground fire. The ignition harness was secure at each magneto. The magnetos were removed for examination. The magnetos sustained varying degrees of thermal damage that rendered the unit inoperative and therefore, could not be functionally tested. Magneto to engine timing could not be ascertained.

There was no oil residue observed in the exhaust system gas path. There was significant ductile bending of the exhaust system components. The exhaust system was found free of obstructions.

A subsequent teardown examination of the engine was conducted September 01, 2015, under the oversight of the NTSB investigator-in-charge. The engine was completely disassembled. The cylinder(s) combustion chambers and barrels remained mechanically undamaged, and there was no evidence of foreign object ingestion or detonation. The valves were intact and undamaged. There was no evidence of valve to piston face contact observed. The pistons were intact. The ring assemblies at each piston were intact and free to rotate within their respective ring land. Mechanical continuity of the rotating group and internal mechanisms were established visually during the disassembly and examination of the engine. The accessory gears including the crankshaft gear, bolt and dowel were intact and remained undamaged by any pre-impact malfunction. There was no evidence of lubrication deprivation found. The crankshaft and attached connecting rods remained free of heat distress. The valve tappet faces exhibited significant spalling damage.

ADDITIONAL INFORMATION

Lycoming Engines Mandatory Service Bulletin SB301B, dated February 18, 1977 provides guidance for maintenance procedures and service limitations for valves. In particular Paragraph 1,(b) states "Rotate the engine by hand and check to determine that all cylinders have normal lift and that rockers arms operate normally" a 400 hour inspection interval. The logbooks did not contain any record of a camshaft lobe inspection, camshaft replacement or compliance with this SB.

According to Lycoming Engines Service Instruction SI1009AW "Recommended Time Between Overhaul Periods" the subject engine should be overhauled at 2,000 hour intervals or before the twelfth year, whichever occurs first.

Lycoming Engines Mandatory Service Bulletin SB480E provides guidance when inspecting oil system screens and filters for contamination during inspection cycles.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR17LA183	08/11/2017 1755	Regis# N33732	West Jordan, UT	Apt: U42
Acft Mk/Mdl PIPER PA 28R-200-200		Acft SN 28R-7535183	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING I0360 SER			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name:		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Initial climb - Loss of lift

Narrative

On August 11, 2017, about 1755 mountain daylight time, a Piper PA28-200R, N33732, was substantially damaged following a forced landing near West Jordan, Utah. The private pilot and one passenger received minor injuries, while two passengers were not injured. Visual meteorological conditions prevailed for the planned cross-country flight, which was being operated in accordance with 14 Code of Federal Regulations Part 91, and a visual flight rules (VFR) flight plan was filed and activated. The flight departed the South Valley Regional Airport (U42), West Jordan, Utah, about 1745, with the destination reported as Casper/Natroma County International Airport (CPR), Casper, Wyoming.

In a telephone interview with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the passenger, who was seated in the right-front cockpit seat, reported that shortly after takeoff and about 1 mile southwest of the airport, the airplane encountered a wind gust, the airplane lost lift, and the pilot commented that "they might be in trouble." The passenger stated that the pilot made a right-hand turn back toward the airport, but when he realized he could not make the airport he elected to land in an open field, during which the airplane's left wing spar was substantially damaged.

In a telephone interview the day following the accident, the pilot confirmed what the passenger had reported to the IIC was an accurate account of the accident sequence. When asked by the IIC if his preflight planning had included a weight and balance calculation and a density altitude calculation, the pilot reported that he had completed both prior to departing. Additionally, the pilot opined that he thought the airplane was a few hundred pounds under its gross takeoff weight. The pilot concluded that he did not detect any anomalies with the engine during the takeoff or during the accident sequence.

At 1755, the U42 automated weather reporting facility indicated wind 120ø at 6 knots, visibility 10 miles, sky clear, temperature 32ø C, dew point 12ø C, and an altimeter setting of 30.03 inches of mercury.

The airplane was recovered for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# ERA16LA061	12/04/2015 1245 EST	Regis# N88F	Millville, NJ	Apt: Millville Muni MIV
Acft Mk/Mdl PIPER PA-24-250		Acft SN 24-1961	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-540 SERIES		Acft TT 3455	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ROGER BUCK		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

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

Narrative

On December 4, 2015, about 1245 eastern standard time, a Piper PA-24-250, N88F, was substantially damaged during a forced landing following a total loss of engine power near Millville, New Jersey. The private pilot/owner incurred minor injuries and the flight instructor was not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local flight, which originated from Millville Municipal Airport (MIV), Millville, New Jersey, about 1245, and was destined for South Jersey Regional Airport (VAY), Mount Holly, New Jersey. The instructional flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

According to the pilots, they had flown the airplane earlier in the day with no anomalies noted. Then, after a brief break, the private pilot/owner of the airplane completed a preflight inspection and engine run up with no anomalies noted. Then, they departed runway 32. After takeoff, about 150 feet above ground level, the private pilot/owner retracted the landing gear, and then the engine experienced a total loss of power. The private pilot/owner lowered the nose and noted that the airplane was "too low and fast to try a restart." He elected to land the airplane straight ahead between two taxiways on the airport. The airplane impacted a grassy area and sustained substantial damage to the left wing and fuselage.

A postaccident examination of the airplane by a Federal Aviation Administration (FAA) inspector revealed that the left and right fuel tanks contained an undetermined amount of fuel, and no debris was noted in the fuel. All three propeller blades remained attached to the propeller hub, exhibited chordwise scratching, and were bent in the aft direction.

An examination of the engine revealed that there were no obvious oil or fuel leaks. In addition, the FAA inspector reported that the carburetor contained approximately two tablespoons of fuel. The auxiliary fuel pump was placed in the "ON" position and fuel was noted flowing from the carburetor drain plug. Throttle control cable continuity was confirmed to the engine. Both the left and right magnetos produced spark on all leads when rotated manually. The ignition leads were normal in appearance. All spark plugs appeared to be in "normal" condition with no fouling or damage. Suction and compression was observed on all cylinders when the engine crankshaft was rotated manually. The fuel system appeared normal and there were no contaminants in the tanks.

According to FAA records and maintenance logbooks, the airplane was manufactured in 1960, and registered to the private pilot/owner on November, 9, 2015. It was powered by a Lycoming O-540 series, 250-hp engine. The most recent annual inspection was completed on November 30, 2015, at a tachometer reading of 152.7 hours, and a total time of 3455.47 flight hours. The tachometer indicated 154.3 hours at the time of accident.

According to the 1254 weather observation at the airport, the temperature and dew point were 50 degrees F and 32 degrees F, respectively. According to the carburetor icing probability chart in FAA Special Airworthiness Information Bulletin CE-09-35 (Carburetor Icing Prevention), dated June 30, 2009, the temperature/dew point at the time of the accident was conducive to the formation of serious icing at glide power.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA331	06/11/2017 1630 PDT	Regis# N8578L	Hood River, OR	Apt: Ken Jernstedt Airfield 4S2
Acft Mk/Mdl PIPER PA25-260		Acft SN 25-5004	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-540-G1A5		Acft TT 13230	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: HOOD RIVER SOARING		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

2. Enroute-descent - Fuel exhaustion

Narrative

The glider tow pilot reported that, during preflight the fuel indicator read "2/3 full" and he had a "brief discussion" with the previous pilot who had just completed numerous glider tow flights, without refueling. He added that a fuel "dipstick" was not available, and a visual check of the fuel quantity was not complete during preflight. He further added that on the 10th glider tow flight, which was about 2 hours of flight time, he noted a "low fuel indication in flight just prior to glider release." Subsequently, the glider released and during the return to the airport, about 2 nautical miles from the runway, about 1,900 above ground, the engine lost power.

The pilot reported that due to the quartering headwind aloft he did not believe he could make the runway, so he attempted to land on an open pasture, but struck trees and impacted terrain about "50 yards short of [the] pasture."

The fuselage, elevator, 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.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA487	08/14/2017 744 MST	Regis# N915PA	Chandler, AZ	Apt: Chandler Muni CHD
Acft Mk/Mdl PIPER PA28-181		Acft SN 2843304	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: TRANSPAC AVIATION ACADEMY		Opr dba:		Aircraft Fire: NONE

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Accident Rpt# ERA17LA266	07/12/2017 1146 EDT	Regis# N55612	Pembroke Pines, FL	Apt: N/a
Acft Mk/Mdl PIPER PA28R-200		Acft SN 28R-7335259	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360-C1C		Acft TT 6073	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: WAYMAN AVIATION		Opr dba: AMERICAN FLIGHT TRAINING, LLC.		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Maneuvering - Loss of engine power (total)
-

Narrative

On July 12, 2017, about 1146 eastern daylight time, a Piper PA-28R-200, N55612, was substantially damaged during a forced landing on a levy near Pembroke Pines, Florida. The flight instructor and pilot-rated student were not injured. The airplane was being operated under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed at the time and no flight plan was filed for the local flight that originated about 1112 from North Perry Airport (HWO), Hollywood, Florida.

The flight instructor stated that about 30 minutes into the flight while performing a pre-maneuver checklist, the fuel selector was switched from the right to left tank position. Shortly afterwards the engine began to run rough accompanied by a loss of engine power. The fuel selector was then changed back to the original position which restored engine power. The flight instructor elected to return to HWO, and about 2 minutes after switching to the right tank, the engine lost power again, and could not be restored. He maneuvered the airplane for a forced landing on a nearby levy.

According to the Federal Aviation Administration inspector who examined the accident site, two distinct marks were noted on the sloped portion off the right side of the levy. Farther along the direction of travel, a continuous mark from the left main landing gear was noted on the sloped portion off the left side of the levy. The airplane came to rest on the top of the levy with the right main landing gear collapsed, and no damage to the propeller. Although there was fuel leakage from the right fuel tank due to puncture, an adequate supply of uncontaminated fuel remained in each fuel tank. The engine was started at the site and operated to full power for a short duration with the fuel selector positioned to the left and right position. Safety concerns prevented prolonged engine runs while at the accident site. The fuel selector was retained for further examination.

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Accident Rpt# WPR16FA042	12/22/2015 1127 PST	Regis# N323PA	Castro Valley, CA	Apt: Metropolitan Oakland Intl OAK
Acft Mk/Mdl PIPER PA32R-301T		Acft SN 3257227	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING TIO-540-AH1A		Acft TT 1480	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: SACCO JOHN J		Opr dba:		Aircraft Fire: GRD
				AW Cert: STN

Events

1. Approach-IFR missed approach - Loss of control in flight

Narrative

HISTORY OF FLIGHT

On December 22, 2015, about 1127 Pacific standard time, a Piper PA-32R-301T, N323PA, was destroyed when it impacted terrain near Castro Valley, California, while conducting an instrument approach to Metropolitan Oakland International Airport (OAK), Oakland, California. The private pilot was fatally injured. Instrument meteorological conditions (IMC) were present in the area, and an instrument flight rules (IFR) flight plan was filed for the flight, which departed Lincoln Municipal Airport (LHM), Lincoln, California, about 1050. The airplane was owned and operated by the pilot, and the personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

Air traffic control radar and voice communication information from the Federal Aviation Administration (FAA) revealed that the pilot contacted the Northern California Terminal Radar Approach Control facility shortly after takeoff from LHM and requested an IFR clearance to OAK. The pilot was subsequently issued a discrete transponder code and an IFR clearance. About 1122, as the airplane neared the destination, it was established on a heading of 160° at an altitude about 4,000 ft mean sea level (msl). The controller cleared the pilot for the instrument landing system (ILS) approach to runway 28R, instructing him to turn right to a heading of 260° to intercept the localizer course and to descend and maintain an altitude of 3,400 ft msl until established on the approach. The controller told the pilot that the airplane was 1 mile north of the GROVE fix along the approach. According to radar data, at that point, the airplane was 1 mile north of NAGVY, a fix along the approach that was about 3 miles outside of GROVE (see figure 1).

Figure 1 - Approach Overview

The pilot acknowledged the clearance and began descending but did not initiate the right turn. About 30 seconds later, the controller contacted the pilot and provided a heading of 300° to cross and intercept the localizer. The pilot acknowledged, and the airplane began turning right (about 1123; see figure 2). During the turn, the airplane crossed the localizer course, then tracked toward the airport on the south side of the localizer course. About 1124, the controller asked the pilot if he had obtained visual contact with the airport, and the pilot replied, "I'm still in the weather." About 1125, the controller asked the pilot if the airplane was established on the localizer, to which the pilot replied, "I'm re-establishing." When the controller subsequently asked the pilot if he was receiving the glideslope indication, the pilot stated that he was receiving the glideslope but was "off glideslope" and "too high." At this time, the airplane's altitude was 2,600 ft msl; the minimum altitude for that segment of the approach was 3,400 ft msl.

The controller issued a low altitude alert, cancelled the approach clearance, and instructed the pilot to turn right to a heading of 300° and to climb and maintain an altitude of 4,000 ft msl. The pilot acknowledged; however, the airplane began a left turn to the south and did not climb. The controller subsequently instructed the pilot to turn north to a heading of 360° and asked the pilot to verify that the airplane was climbing and turning north. The pilot replied, "360 and climbing." The airplane made a right turn to the north and climbed to 3,700 ft before it began descending. Shortly after, during a partially-blocked transmission, the pilot stated, "I'm losing it." No further transmissions were received from the airplane, and radar contact was subsequently lost.

Figure 2 - Airplane's Flight Path (Localizer Course Depicted in Red)

PERSONNEL INFORMATION

The pilot held a private pilot certificate with ratings for airplane single-engine land and instrument airplane. He held an FAA third-class medical certificate, which was issued in August 2015 with a limitation requiring the use of corrective lenses. Review of the pilot's logbook indicated that he had accumulated about 1,262 total hours of flight experience, of which about 960 hours were in the accident airplane make and model. The pilot had accumulated about 43 total hours of actual instrument flight experience, 3.5 hours of which were in the 6 months before the accident, and about 82 hours of simulated instrument experience. His most recent flight review and instrument proficiency check were conducted on November 21, 2015.

AIRPLANE INFORMATION

The airplane was manufactured in 2001 and registered to the pilot in July 2007. It was equipped with a Lycoming TIO-540-AH1A, 300-horsepower, turbocharged, reciprocating engine, which drove a Hartzell HK732B constant-speed propeller. Review of maintenance logs indicated that the airplane's most recent annual inspection was completed on November 17, 2015, at a total airframe and engine time of 1,479.8 hours. The airplane was equipped with Garmin 430 and 530 panel-mounted GPS units, an electrically-driven standby attitude indicator, and a two-axis autopilot system, which interfaced with the airplane's horizontal situation indicator (HSI).

METEOROLOGICAL INFORMATION

The 1126 automated weather observation at Livermore Municipal Airport (LVK), Livermore, California, located about 8 miles east of the accident site, included wind from 260° at 15 knots, 10 miles visibility, broken cloud layers at 1,300 and 3,200 ft, temperature 15°C, dew point 12°C, and an altimeter setting of 29.82 inches of mercury.

The 1154 automated weather observation at Hayward Executive Airport (HWD), Hayward, California, located about 7 miles west of the accident site, included wind from 270° at 11 knots, 9 miles visibility, broken ceiling at 3,900 ft, overcast ceiling at 5,000 ft, temperature 14°C, dew point 12°C, and an altimeter setting of 29.85 inches of mercury.

A weather computer model balloon sounding for the accident site about 1100 showed clouds likely from the surface through 6,000 ft msl, with drizzle and light rain. Weather satellite information about the time of the accident showed clouds over the area of the accident site moving northwest to southeast. Weather radar animation for the area of the accident site at the time of the accident showed light precipitation.

The area forecast, issued at 0345 and valid through the time of the accident, included overcast ceilings at 1,000 ft above ground level (agl) and visibilities of 3 to 5 miles in light rain and mist.

AIRMET advisories issued between 0645 and 0730, valid for the time of the accident, warned of moderate turbulence below 18,000 ft msl, IMC due to precipitation and mist, and mountain obscuration. Instrument conditions were forecast to improve between 1000 and 1300; however, the mountain obscuration conditions were forecast to continue beyond 1300.

WRECKAGE AND IMPACT INFORMATION

The accident site was located on a heavily-wooded hillside about 12 nautical miles southeast of OAK at an elevation about 1,400 ft. The initial impact point was identified by several fallen trees and large branches. From the initial impact point, the wreckage path extended downhill about 300 ft on a magnetic heading about 330°. The cockpit and cabin area was largely consumed by a post-crash fire.

The wreckage was recovered to a secure facility for examination due to its heavy fragmentation and the difficult terrain at the accident site. All major components of the airplane were accounted for during reconstruction of the wreckage, and there was no evidence of an inflight breakup.

The cabin and cockpit area, including all flight instruments and the autopilot, were destroyed by impact and fire. The left and right aileron control cables remained attached to the control chain. Both stabilator cables remained attached to the lower stabilator t-bar assembly. The left and right rudder control cables remained attached to the rudder control arm assemblies.

The left and right wings were separated from the fuselage at their respective roots and displayed varying degrees of impact and fire damage. Neither left nor

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right wing aileron bellcrank stops exhibited indications of flutter, and all control cable separations exhibited signatures of overstress. The fuel selector was in the left tank position, and the filter was free of contaminants. The fuel system was breached in multiple locations. The landing gear down-locks displayed no damage, consistent with the landing gear having been in a retracted position at the time of impact. Measurement of the wing flap actuator threads corresponded to a flaps-retracted position.

The empennage displayed significant impact damage and was separated into several sections. The right side horizontal stabilizer exhibited thermal damage. Both stabilator cables remained attached to the stabilator arm assembly, and the left and right rudder cables remained attached to the rudder bellcrank assembly.

The propeller was separated from the engine at the crankshaft flange. All three propeller blades remained attached at the hub and exhibited varying degrees of torsional twisting and s-bending. The propeller governor remained attached at its mounting pad with the pitch control rod securely attached to the control wheel. The governor was removed for examination; the drive was intact and free to rotate, and the gasket screen was free of contamination.

The engine was separated from its mounts and displayed significant impact damage to the Nos. 1, 3, and 5 cylinders. The No. 1 cylinder rocker assemblies were absent. The No. 3 cylinder head was impact separated, leaving only the barrel in place. The No. 5 cylinder was completely separated from the engine; the piston remained in place. Due to impact damage, the crankshaft could not be rotated by hand. The spark plugs were removed (except for those from the No. 3 cylinder, which were not located), and all displayed normal wear. The Nos. 2, 4, and 6 cylinder rocker covers were removed, and the rocker boxes displayed no anomalies. The Nos. 2, 4, and 6 cylinder combustion chambers were examined with a borescope and exhibited no anomalies.

Holes were drilled through the engine case to facilitate internal examination of the connecting rods, crankshaft, and camshaft, which revealed no evidence of any preimpact mechanical malfunctions or anomalies.

All accessories were separated from the engine. The accessory case was removed, and the accessory gears, including the crankshaft gear, bolt, and dowel, were intact and undamaged. The left and right magnetos were destroyed. The primary vacuum pump was separated from the engine, and its drive and rotor/vanes were not located. The standby vacuum pump was disassembled for examination and its internal components displayed damage consistent with impact.

The turbocharger system components were displaced from their mountings and exhibited impact damage. There was no evidence of foreign object ingestion. The wastegate remained intact and undamaged. The turbocharger housing exhibited signatures of rotation at the time of impact.

The fuel injection servo was impact separated. The throttle plate and shaft with attached control arm were separated from the servo. The throttle and mixture controls were found securely attached. The fuel inlet screen was free of contamination. The servo was disassembled and no anomalies were noted. The fuel flow divider remained secured to its mounting bracket, but all fuel lines were damaged or separated on impact. The flow divider was disassembled and no anomalies were noted.

The fuel pump was separated from the engine, though a portion of its mounting flange remained attached to the engine. The fuel pump was disassembled, and the rotor and vane assembly remained intact and free to rotate. The diaphragm was torn, and it was retained for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

The Alameda County Sheriff's Office Coroner's Bureau, Oakland, California, performed an autopsy on the pilot. The cause of death was listed as blunt force trauma. The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing; tests were negative for ethanol and all tested-for drugs. Carbon monoxide testing could not be performed with the samples available.

ADDITIONAL INFORMATION

Fuel Pump Diaphragm

The fuel pump diaphragm was examined at the NTSB Materials Laboratory. Scanning electron microscope imagery of the tear in the diaphragm revealed signatures consistent with tensile overstress as a result of impact forces.

Spatial Disorientation

The FAA Civil Aeromedical Institute's publication, "Introduction to Aviation Physiology," defines spatial disorientation as a loss of proper bearings or a state of mental confusion as to position, location, or movement relative to the position of the earth. Factors contributing to spatial disorientation include changes in acceleration, flight in IMC, frequent transfer between visual meteorological conditions (VMC) and IMC, and unperceived changes in aircraft attitude. The publication states that pilots flying in IMC are more susceptible than usual to the stresses of flight, such as fatigue and anxiety, and any event that produces an emotional upset is likely to disrupt the pilot's mental processes, making them more vulnerable to illusions and false sensations.

The FAA's Airplane Flying Handbook (FAA-H-8083-3A) describes some hazards associated with flying when the ground or horizon are obscured. The handbook states, in part: "The vestibular sense (motion sensing by the inner ear) in particular tends to confuse the pilot. Because of inertia, the sensory areas of the inner ear cannot detect slight changes in the attitude of the airplane, nor can they accurately sense attitude changes that occur at a uniform rate over a period of time. On the other hand, false sensations are often generated; leading the pilot to believe the attitude of the airplane has changed when in fact, it has not. These false sensations result in the pilot experiencing spatial disorientation."

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Accident Rpt# GAA17CA137	02/05/2017 1330 EST	Regis# N7518G	Fallston, MD	Apt: Fallston W42
Acft Mk/Mdl ROBINSON HELICOPTER R22-BETA	Acft SN 4005	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-J2A	Acft TT 3343	Fatal 0	Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: MIDDLE RIVER AVIATION LLC	Opr dba:		Aircraft Fire: NONE	AW Cert: STN

Events

2. Maneuvering-hover - Abrupt maneuver

Narrative

The flight instructor in the skid landing gear equipped helicopter reported that he was providing hovering instruction during the student's first helicopter lesson. The student was manipulating all flight controls, with the instructor's "guided assistance". The helicopter began drifting aft and the instructor told the student to "ease up on the controls". The helicopter entered an immediate spin to the left and the student "froze up on the flight controls". The instructor's counter-control inputs to acquire control of the helicopter were ineffective and the instructor rolled off the throttle. The helicopter descended, the left skid and empennage struck the ground hard and sustained substantial damage.

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

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Accident Rpt# GAA17CA491	08/14/2017 1316 CDT	Regis# N97UP	Westby, WI	Apt: N/a
Acft Mk/Mdl ROBINSON HELICOPTER		Acft SN 0237	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 137
Opr Name: MF HELICOPTERS LLC.		Opr dba:		Aircraft Fire: NONE

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Accident Rpt# ANC17LA040	08/03/2017 1032 AKD	Regis# N4138M	Solomon, AK	Apt: N/a
Acft Mk/Mdl ROBINSON HELICOPTER COMPANY	Acft SN 12159	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim	Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-540 SERIES	Acft TT 2054	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 135	
Opr Name: BERING AIR, INC.	Opr dba: BERING AIR, INC.	Aircraft Fire: NONE	AW Cert: STN	

Events

1. Maneuvering-low-alt flying - Low altitude operation/event
-

Narrative

On August 3, 2017, about 1032 Alaska daylight time, a Robinson R-44 Clipper II helicopter, N4138M, impacted water and sank while dropping mineral claim markers about 1 mile south of Solomon, Alaska. The commercial pilot and passenger sustained no injury, and the helicopter sustained substantial damage. The helicopter was registered to, and operated by, Bering Air, Inc., Nome, Alaska, as a visual flight rules flight under the provisions of 14 Code of Federal Regulations (CFR) Part 135 on-demand charter flight. Visual meteorological conditions prevailed at the time of the accident, and company flight following procedures were in effect. The flight originated from the Nome Airport, Nome, about 0845.

The pilot reported that the purpose of the flight was to place mineral claim markers, which involved maneuvering the helicopter over a Global Positioning System (GPS) point where the passenger can drop the marker from the rear left seat of the helicopter. Some of the mineral claim corners are in water, and the placement of those markers must be offset to the nearest land mass. The pilot departed from the Nome Airport and arrived at the passenger's private residence about 4 miles east of Nome. The helicopter was shutdown, the pilot briefed the flight to the passenger, 23 markers were loaded onboard the helicopter, and the helicopter departed.

With about half the markers left to drop, the helicopter was operating over a lagoon between the mainland and a sand barrier, at about 10 to 15 feet above the water. The pilot reported that he was lower than he should have been and lost situational awareness when he was working with the GPS unit. He inadvertently allowed the helicopter to descend into the water "in a more level or slight nose low attitude" and the helicopter was not maneuvering at the time. He further reported that he must have pushed forward on the cyclic as he leaned forward to manipulate the GPS unit. After the helicopter impacted water, the helicopter rolled, and came to rest on its right side in about 4 feet of water. The pilot and passenger egressed without further incident and waded to the shore with the helicopter occupant survival bag and satellite phone. The pilot contacted the operator with the satellite phone and a second company helicopter was dispatched to pick up the pilot and passenger about 1200.

The helicopter sustained substantial damage to the main rotor system, the fuselage, the tail boom, and the tail rotor system.

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

At the time of the accident, the helicopter was not equipped with a Federal Aviation Administration (FAA) approved radio altimeter or a FAA approved device that incorporates a radio altimeter as required by 14 CFR Part 135.160 Radio Altimeters for Rotorcraft Operations. The operator was operating with a Letter of Deviation Authority approved by the FAA.

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Accident Rpt# GAA17CA459 07/27/2017 1100 EDT Regis# N4886X Mcrae, GA Apt: Telfair-wheeler MQW
Acft Mk/Mdl ROCKWELL INTERNATIONAL S Acft SN 2087R Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Acft TT 8875 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 137
Opr Name: LANE W. WIMBERLY Opr dba: MIDDLE GEORGIA AVIATION, INC. Aircraft Fire: NONE
