

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# CEN18LA059	12/20/2017 850 MST	Regis# N519MA	Longmont, CO	Apt: Vance Brand LMO
Acft Mk/Mdl AMERICAN CHAMPION AIRCRAFT		Acft SN 489-2004	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-B2B		Acft TT 1847	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: FLY ELITE AVIATION		Opr dba:		Aircraft Fire: NONE
				AW Cert: STA

Events

5. Landing - Sys/Comp malf/fail (non-power)

Narrative

On December 20, 2017, about 0850 mountain standard time, an American Champion Aircraft 7GCAA, N519MA, landed hard and departed the left side runway at Vance Brand Airport (LMO), Longmont, Colorado. The flight instructor and private pilot were not injured and the airplane sustained substantial damage during the runway excursion. The airplane was registered to CAG International Inc., and operated by Fly Elite Aviation, 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 about 0845.

The flight instructor reported that private pilot made a hard landing during an instructional flight. The flight instructor heard a "snapping" sound during the landing so he took over the flight controls. He increased the throttle to compensate for the bounced landing and then landed the airplane on the runway. The left landing gear collapsed upward and aft damaging the left wing strut. The airplane continued forward on its nose and left wing as it departed the left side of the runway near taxiway A2 (figure 1).

The responding Federal Aviation Administration (FAA) inspector reported that the left landing gear thru-bolt was fractured. The left wing was bent upward, and the bottom and left side of the fuselage was damaged.

A metallurgical examination of the landing gear thru-bolt fracture revealed a primary fatigue fracture that initiated at the shank surface and propagated through about 60% of the bolt diameter (figure 2). A second fatigue crack initiated on the shank surface about 180° from the primary crack and propagated through 20% to 30% of the bolt diameter. The fracture surface exhibited a narrow region of overstress fracture between the two fatigue crack regions.

On December 13, 1978, Bellanca Aircraft Corporation issued FAA approved service letter C-135 for the purposes of inspecting landing gear thru-bolts and U-bolts. The service letter applied to the accident airplane and was issued due to reports of cracked and failed thru-bolts and U-bolts which were used to attach the landing gear to the fuselage frame. The service letter stated that these problems were due to one or more of the following: (1) excessive loads during soft or rough runway operations; (2) improper torque; (3) corrosion. The service letter recommended the inspections be performed on or before the next 100-hour inspection and at 100-hour intervals thereafter, and at more frequent intervals if the aircraft is used in soft or rough runway operations.

The airplane owner stated that the Bellanca service letter C-135 had not been complied with, nor was it required under the FAA regulations. The owner provided documentation that on September 7, 2017, an airframe annual inspection and engine 100-hour inspection were completed at tachometer time 1,817.5 hours.

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Accident Rpt# ANC17FA026	05/27/2017 1122 AKD	Regis# N57AT	Salcha, AK	Apt: N/a
Acft Mk/Mdl ARCTIC AIRCRAFT CO INC S 1B2	Acft SN 1008	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320 B2B	Acft TT 3088	Fatal 2 Ser Inj 0	Flt Conducted Under: FAR 091	
Opr Name: BRICE CONSULTING LLC	Opr dba:		Aircraft Fire: NONE	

Events

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

Narrative

HISTORY OF FLIGHT

On May 27, 2017, about 1122 Alaska daylight time, an Arctic Aircraft Company S-1B2 airplane, N57AT, impacted terrain following a loss of control, about 35 miles east of Salcha, Alaska. The private pilot and the passenger sustained fatal injuries, and the airplane was substantially damaged. The airplane was registered to Brice Consulting LLC and operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight departed from an off-airport landing site near Fairbanks, Alaska, about 0925.

According to a family member of the pilot, the purpose of the flight was to search for an overdue boat that was piloted by a family member of the passenger with the intent of landing at a remote unimproved airstrip located near the boat's destination. The boat had left the previous evening for a recreational cabin located along the Salcha River.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on June 1, 2017, a witness reported that she observed the airplane circle the remote unimproved airstrip along the Salcha River. While the airplane was circling, its nose suddenly dropped, and the airplane descended in a near-vertical attitude. She stated that the engine continued to run, and the airplane did not make any unusual sounds, other than an increase in engine rpm, during the descent. The witness reported strong wind conditions prevailed at the time of the accident.

PERSONNEL INFORMATION

The pilot, age 81, held a private pilot certificate with an airplane single-engine land rating. His most recent third-class medical was issued on September 30, 2015, with the limitation that he must wear corrective lenses.

Personal flight records were located for the pilot; however, they were not complete. The aeronautical experience listed in this report was obtained from a review of the Federal Aviation Administration (FAA) records for the pilot on file in the Airman and Medical Records Center located in Oklahoma City. The pilot did not report flight experience on his most current application for a medical certificate dated, September 3, 2015. However, on his application for a prior medical certificate, dated August 7, 2013, he indicated that his total aeronautical experience was about 1,960 hours of which 60 hours were in the previous 6 months.

AIRCRAFT INFORMATION

At the time of the accident, the 1978 model year airplane had a total time in service of 3,087.50 flight hours. A review of the maintenance records revealed that the most recent annual inspection of the airframe and engine was completed 27.10 flight hours before the accident on June 9, 2016.

The airplane was equipped with a 160-horsepower Lycoming O-320 B2B engine. At the time of the accident, the engine had accumulated 1,748.00 hours since overhaul.

METEOROLOGICAL INFORMATION

The closest official weather observation station to the accident site was Eielson Air Force Base, Fairbanks, Alaska, located about 35 miles east of the accident site. At 1058, Eielson was reporting, in part, wind calm; visibility 10 statute miles; clouds and ceiling 10,000 ft broken; temperature 52°F; dew point 27°F; and altimeter 30.04 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located in an area of black spruce trees and tundra-covered terrain at an elevation about 1,000 ft mean sea level. The on-scene examination revealed that the airplane impacted in a near-vertical attitude, and the nose of the airplane was on about a 110ø magnetic heading.

All of the airplane's major components were found at the main wreckage site. The cockpit area was extensively damaged. The engine, firewall, and instrument panel were displaced upward and aft. The mixture control was found in the full-forward position, and the carburetor heat was in the off position.

The airplane's right wing remained attached to the fuselage. About 2 feet of the outboard portion of the right wing exhibited extensive leading edge aft crushing. The airplane's left wing separated from the fuselage at its rear attach point but remained attached at its forward attach point.

The left and right flaps remained attached to their respective attach points. The inboard portion of the right flap was crushed against the side of the fuselage and bent about 20ø down. The left flap was relatively free of impact damage.

The horizontal and vertical stabilizer, elevators, and rudder remained attached to the empennage and were free of impact damage.

All the primary flight control surfaces were identified at the accident site, and flight control continuity was verified from the cockpit to the elevators and rudder. Aileron control continuity was established in the direct cables from the cockpit to the right aileron and from the cockpit through the point where the cable's turnbuckle was disassembled for recovery to the left aileron. In addition, aileron control continuity was established in the balance cable from the right and left ailerons to the point where the cable fractured with features consistent with tension overload.

The engine sustained impact damage to the front and underside. An examination of the engine did not reveal any anomalies, contamination, or evidence of malfunction in any of the engine accessories. Examination of the cylinders, pistons, valve train, crankshaft, and other internal components revealed no evidence of an anomaly or malfunction that would have precluded normal operation. Both magnetos were removed from the engine, and their couplings were rotated by hand. When each coupling was rotated, blue spark was observed at the distributor in rotational order.

The propeller remained attached to the engine crankshaft by 2 of the 6 attach bolts. One propeller blade exhibited substantial torsional "S" twisting and light chordwise scratching. The other propeller blade exhibited light chordwise scratching and aft bending about 3 inches from the tip.

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

MEDICAL AND PATHOLOGICAL INFORMATION

The Alaska State Medical Examiner, Anchorage, Alaska, conducted an autopsy of the pilot on May 30, 2017. The cause of death was attributed to multiple blunt force injuries.

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicology testing on specimens from the pilot. The testing was negative for carbon monoxide and alcohol. The testing revealed unspecified levels of verapamil in the blood and liver and its active metabolite, norverapamil, in the blood. Verapamil is a prescription calcium channel blocker used to treat high blood pressure, angina, and arrhythmias.

TESTS AND RESEARCH

At the time of the accident, the pilot was using a Garmin Aera series portable global positioning system (GPS) receiver capable of storing route-of-flight data. The unit was sent to the NTSB's Alaska Regional Headquarters and data for the accident flight, which included, in part, time, latitude, longitude, and GPS altitude were extracted. Groundspeed and course information were derived from the extracted parameters.

The GPS data logs for May 27, 2017, revealed that the flight departed the remote off-airport landing site about 0925:30. After departure, the airplane proceeded southeast along the Tanana River before it turned east and proceeded up the Salcha River. The last fully recorded GPS data point was at 1122:39 when the airplane was at 1,705 ft (GPS derived altitude), heading 132ø (true), and 47 knots ground speed.

A flight track map overlay and tabular data corresponding to the accident flight are available in the public docket for this accident.

ADDITIONAL INFORMATION

Estimated Weight and Balance

An estimate of the airplane's weight and balance at the time of the accident was calculated based on the following information.

The pilot's weight was taken from his most current FAA medical examination. The weight of the rear seat passenger was taken from his Alaska state driver's license.

In a telephone conversation with the NTSB IIC on July 26, 2017, the Alaska State Troopers who recovered two backpacks from the accident site estimated their total weight at 25 pounds, or about 12.5 pounds each.

During a conversation with the IIC, a family member of the pilot reported that fuel was not available at the remote landing site along the Salcha River. The fuel onboard at the time of the accident was estimated by calculating the amount of fuel required for the estimated 45-minute direct return flight from the accident site to the originating airstrip plus the required 30-minute reserve. Using an average fuel burn rate of 8 gallons per hour, the quantity of fuel in the airplane at the time of the accident was estimated to be 10 gallons.

A friend of the pilot provided the NTSB IIC with a list of items that were onboard the airplane at the time of the accident. Exemplar items were weighed, and those weights were used to compute the weight and balance.

The last documented weight and balance information located for the airplane was dated May 29, 2015. At that time, the basic empty weight of the airplane on wheels was 1,274.50 pounds with a center of gravity of 11.53 inches.

Basic Empty Weight- 1,274.50 pounds

Pilot- 184 pounds

Rear Seat Passenger - 170 pounds

24 pack water - 27 pounds

6 bottles wine - 17 pounds

Frying pan - 0.5 pounds

8 pack paper towels - 4 pounds

3 patio pillows - 3.5 pounds

2 backpacks - 25 pounds

Fuel (10 gallons) - 60 pounds

Oil (8 quarts) - 15 pounds

Using the values listed above, the gross weight of the airplane at the time of the accident was estimated to be 1,780.5 pounds, which was 130.5 pounds over the approved maximum takeoff gross weight for the airplane of 1,650 pounds. The estimated center of gravity at the time of the accident was 15.896 inches. The center of gravity range at 1,650 pounds (maximum gross weight) was 11.0 inches to 15.8 inches.

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Accident Rpt# CEN18LA070	01/06/2018 1100 CST	Regis# N9972A	Ponca City, OK	Apt: Ponca City Rgnl PNC
Acft Mk/Mdl CESSNA 170-A		Acft SN 19553	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl CONT MOTOR C145 SERIES			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: PRIVATE INDIVIDUAL		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Part(s) separation from AC

Narrative

On January 9, 2018, about 1100 central standard time, a Cessna 170A airplane, N9972A, departed the side of the runway at the Ponca City Regional Airport (KPNC), Ponca City, Oklahoma. The pilot and three passengers were not injured, and the airplane was substantially damaged. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight which operated without a flight plan.

According to information collected by the responding Federal Aviation Administration inspector, the airplane was attempting to depart runway 35 at KPNC. During the takeoff, the airplane began to drift, and the pilot attempted to keep the airplane tracking straight. The right landing gear separated from the airplane and the airplane veered off the runway. Substantial damage was sustained to the airplane's wing and fuselage.

The airplane was retained for further examination.

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Accident Rpt# ANC18LA013	12/02/2017 1330 CST	Regis# N9730F	Huntingdon, TN	Apt: Carroll County HZD
Acft Mk/Mdl CESSNA 172R-R		Acft SN 17280032	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO360 SER A&C			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 engine power (total)
-

Narrative

On December 2, 2017, about 1330 central standard time, a Cessna 172 airplane, N9730F, sustained substantial damage during a forced landing following a total loss of engine power shortly after takeoff from Carroll County Airport (KHZD), Huntingdon, Tennessee. The airplane was registered to a private individual and operated by the pilot as a visual flight rules flight under the provisions of 14 Code of Federal Regulations Part 91 when the accident occurred. The private pilot was not injured. Visual meteorological conditions prevailed, and no flight plan had been filed.

The pilot reported that after completing the preflight inspection and the before takeoff checklist, he departed runway 01 from KHZD. Shortly after takeoff, during the initial climb, about midfield of the departure runway the engine lost all power. Unable to land on the remaining runway, he executed a 90° left turn, and selected a grass field as an off-airport landing site. During the forced landing the nose gear collapsed, and the airplane sustained substantial damage to the fuselage.

The closest weather reporting facility was Carroll County Airport (KHZD), Huntingdon, Tennessee. At 1335, a METAR from KHZD was reporting, in part: wind calm; visibility, 10 statute miles; clouds and sky condition, clear; temperature, 64 °F; dew point 18° F; altimeter, 30.12 inches of mercury.

The airplane was equipped with a Lycoming IO-360 series engine; a detailed engine examination is pending.

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Accident Rpt# CEN17FA045 12/01/2016 1629 MST Regis# N123KK Fargo, ND Apt: Hector International KFAR
Acft Mk/Mdl CESSNA 340 Acft SN 340-0251 Acft Dmg: DESTROYED Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL TSIO-520-JB Fatal 1 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: WEATHER MODIFICATION INC Opr dba: Aircraft Fire: BOTH

Events

1. Approach - Fire/smoke (non-impact)

Narrative

HISTORY OF FLIGHT

On December 1, 2016, at 1629 central standard time, a Cessna 340, N123KK, impacted terrain about 10 miles south of Hector International Airport (FAR), Fargo, North Dakota, after the pilot reported an in-flight fire. The pilot was fatally injured, and the airplane was destroyed. The airplane was registered to and operated by Weather Modification, LLC, of Fargo, under the provisions of Title 14 Code of Federal Regulations Part 91 as an "other work use" flight. Visual meteorological conditions prevailed at the time of the accident, and an instrument flight rules (IFR) flight plan had been filed. The local flight originated from FAR about 1430.

Under contract with the National Oceanic and Atmospheric Administration (NOAA), the pilot had taken air samples at various altitudes over oil fields near Carrington, North Dakota, and was returning to FAR. According to radar data and voice communications transcripts, the pilot was being vectored towards, but overshot, the FAR runway 36 localizer. Shortly thereafter, when the airplane was at 1,700 feet mean sea level (msl), he reported an onboard fire. The airplane then lost altitude and radar contact was lost shortly thereafter.

PERSONNEL INFORMATION

The 55-year-old pilot held a commercial pilot certificate with airplane single- and multi-engine land ratings, and a Beech 300 type rating. He also held a flight instructor certificate with airplane single-engine, multi-engine, and instrument ratings. In addition, he held a mechanic's certificate with airframe and powerplant ratings. His most recent first-class airman medical certificate, dated May 5, 2016, contained the restriction: "Must possess glasses for near and intermediate vision."

Weather Modification, LLC, personnel made available the pilot's logbooks. The most recent logbook (logbook 4) contained flight time entries from February 20, 2002, to November 16, 2016. According to this logbook, the pilot had accumulated the following flight hours:

Total time, 7,897.6
Multiengine, 6,920.0
Turbine, 1,998.8
Actual instruments, 1,637.7
Simulated (hood) instruments, 108.3
Flight simulator, 79.0

The pilot's last flight review was conducted on March 1, 2016, in the airplane.

AIRCRAFT INFORMATION

The airplane, serial number 340-0251, was manufactured in 1973 by the Cessna Aircraft Company, Wichita Kansas. It was powered by two Continental TSIO-520-JB engines (serial numbers 275386-R, left; 183304R, right), driving two Hartzell 3-blade, all-metal, constant speed propellers (model number 3AF32C87-N; serial number 767923, left; 786086, right). Both engines had a 1,400-hour time-between-overhaul limitation.

The last annual inspection of the airplane occurred on July 27, 2016, at a total time of 7,012.6 hours. The last 100-hour inspections of both engines and

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propellers were also on July 27, 2016. At that time, the left and right engines had accrued 6,676.4 hours and 7,134.6 hours total time, respectively. The left engine had been overhauled on March 25, 2014, and the right engine had been overhauled on September 25, 2012.

The airplane was last certified for flight in instrument meteorological conditions on August 2, 2016.

The airplane was equipped with a Stewart Warner combustion heater, sometimes referred to as a Janitrol heater, that was used to provide cabin heat. The heater was mounted in the right front section of the nose baggage compartment.

The airplane carried a NOAA air sampling system manufactured by High Precision Devices, which was stored in two plastic boxes. One box was filled with glass jars for holding air samples. The remains of this box were found melted to the top forward fuselage. The second box contained the compressor package, which consisted of a rechargeable battery pack, two compressors, circuit boards wiring, and air tubing. The boxes were strapped to the seat tracks behind the copilot's seat.

NOAA representatives reported that the system had been in use for 12 years at 14 different locations. They said that there had never been any reports of fire with the air sampling system. They pointed out that the system does not operate all the time, only when the pilot pushes a button on the remote control attached to the glare shield. A typical mission would be for the airplane to climb to 25,000 feet and the pilot would then activate the system. The system would operate for 2 to 2.5 minutes taking air samples, and then shut off automatically when the sample collection was complete. The pilot would descend to the next sampling altitude and repeat the process.

METEOROLOGICAL INFORMATION

Weather recorded at FAR at 1646, about 16 minutes after the accident, indicated that the wind was from 340° at 12 knots, visibility was 9 miles, the ceiling was 1,500 feet overcast, the temperature and dew point were 0°C. and -2°C., respectively, and the altimeter setting was 29.99 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The accident site was in an open field about 10 miles south of FAR at an estimated elevation of 900 feet msl. It was bordered by trees and a ravine to the east. The location of the accident site was 46°43.727' north latitude, and 96°49.686' west longitude. All components of the airplane were identified at the accident site except for the nose baggage compartment doors, which were found about 2 miles south of the main wreckage.

The wreckage path at the accident site was on a magnetic heading of 197° degrees. Ground scars and impact damage were consistent with the airplane striking the ground at high velocity with a low angle of impact and in a left-wing-slightly-low and nose-up attitude. The first evidence of ground contact was multiple propeller slash marks consistent with the left propeller contacting the ground, which was followed by ground scars consistent with the fuselage contacting the ground. Continuing along the wreckage path, there were multiple slash marks consistent with the right propeller contacting the ground. Both upper engine cowlings, the propellers, and the upper nose skin separated from the airplane. Ground scars were consistent with the airplane becoming airborne for a short distance before sliding down an embankment and impacting trees in a wooded area along a creek bed to the east. The right wing, from the engine nacelle outboard, and the empennage separated as the airplane travelled forward. No soot or molten metal was observed on the separated empennage. The fuselage came to rest inverted about 550 feet from the initial point of impact.

The primary flight control cables were connected to their associated flight control surfaces and cockpit controls. All the cables exhibited either tension overload separations or had been cut by first responders. The mid-fuselage aileron bellcrank and the flap motor were consumed by fire. The flap sprockets were engaged in the right flap chain, and the chain was in a non-standard position. The left flap chain had separated from the flap drive motor. Both fuel selector handles were consumed by fire. The left fuel selector valve was in an undetermined position. The right fuel selector valve was in the "OFF" position. No smoke streaking or heat damage was noted at the heater connection in the nose baggage compartment.

The combustion heater was found on the ground next to the cabin area. The heater was intact, impact-damaged, sooted, and showed no signs of explosion. All flight instruments and switches were either damaged or consumed by the post-impact fire. The main circuit breaker bus bars did not exhibit evidence of hot spots. The engine fuel and oil pressure lines did not exhibit evidence of pre-impact fire.

MEDICAL AND PATHOLOGICAL INFORMATION

The University of North Dakota's School of Medicine and Health Sciences, Department of Pathology, Forensic and Autopsy Service, Grand Forks, North Dakota, performed an autopsy on the pilot. According to their report, death was attributed to "multiple injuries." Their toxicological analysis of blood obtained at autopsy was negative for ethanol, drugs, and cyanide. A small amount of carbon monoxide (6% saturation) was detected in blood.

The Federal Aviation Administration's (FAA) Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, also performed a toxicological analysis. According to their report, no carbon monoxide, cyanide, ethanol, or drugs were detected in heart blood. No tests were conducted for the presence of halon or halotron.

TESTS AND RESEARCH

The wreckage was transported to a Weather Modification hangar in FAR, where it was laid out and re-examined.

On December 13, 2017, the compressor package from the airplane's NOAA air sampling system was examined at the National Transportation Safety Board's (NTSB) Materials Laboratory in Washington, DC. The examination determined that all smoke and heat damage had originated externally. There was no evidence to indicate the air sampling system was the cause of the inflight fire.

The Stewart Warner (Janitrol) combustion heater was also examined by NTSB's Materials Laboratory. The body of the heater exhibited thermal discoloration and soot staining, consistent with exposure to a fire environment. There was no evidence of fuel leaks in the combustion heater body or the air blower assembly. One fuel fitting on the combustion heater body was found to be loose.

Plexiglas windshield pieces and the nose baggage compartment doors were also examined. One piece of Plexiglas exhibited soot streak stains on the outside of the windshield that did not extend into the fracture surface, indicative of the smoke source being upstream of the windshield and occurring prior to the windshield breakup. The other Plexiglas pieces had no significant accumulation of soot or thermal damage and had about the same amount of particulate buildup, consistent with no prolonged exposure to a smoke-filled cockpit condition.

The nose baggage compartment doors did not exhibit any soot deposits, thermal damage, or deformation consistent with a "high energy explosion." The latches on one of the doors were not deformed.

ADDITIONAL INFORMATION

According to Weather Modification, LLC, the airplane was equipped with two hand-held fire extinguishers mounted in the cabin: one was halon, the other was halotron. Both extinguishers held about 5.4 pounds of agent. One had been discharged, the other showed signs consistent with exploding. It is not known which extinguisher had been discharged and which one had exploded. According to Textron Aviation, the Cessna 340 has a pressurized volume of 250 cubic feet plus or minus 50 cubic feet.

According to FAA's Bioaeronautical Sciences Research Laboratory, "Halon does not displace oxygen in its use like [carbon dioxide] does. Low concentrations of halon (less than 8% concentration by volume) are required for any given fire. The result is plenty of air for pilots and passengers to breathe, even during a fire incident . . . very high concentrations . . . could affect the pilot."

According to FAA's William J. Hughes Technical Center's Fire Safety Group, "The inhalation of halon 1211 and/or halotron may have affected [the pilot], depending on how much of each agent was released prior to the crash. All halons and halon replacements are cardiotoxic (have the potential to induce a heart attack) at high concentrations. Halon 1211 and many halon replacements also have narcotic effects at even higher concentrations. The cardiotoxic concentration threshold is lower than the incapacitation concentration threshold. A total release of 5.4 pounds of agent significantly exceeds the recommended agent weight for [the] stated volume of 250 cubic feet plus or minus 50 feet."

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Accident Rpt# CEN18CA021 10/23/2017 1730 Regis# N5129C Eagle, CO
Acft Mk/Mdl CESSNA T210N-N Acft SN 21063707 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: EWING GLEN Opr dba: Aircraft Fire: NONE

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Accident Rpt# CEN17LA322	07/04/2017 1900 EST	Regis# N17XK	Hamilton, OH	Apt: Butler County Regional Airport KHAO
Acft Mk/Mdl CLASSIC AIRCRAFT CORP WACO		Acft SN F5C-048	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
		Acft TT 583	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ADVENTURE AIRTOURS LLC		Opr dba:		Aircraft Fire: NONE

Events

1. Landing-landing roll - Landing gear collapse
2. Landing-landing roll - Landing gear collapse

Narrative

On July 4, 2017, about 1900 eastern daylight time, a Waco YMF airplane, N17XK, experienced a gear collapse after landing at the Butler County Regional Airport-Hogan Field, Hamilton, Ohio. The pilot and two passengers were not injured, and the airplane was substantially damage. The airplane was registered to and operated by Adventure Airtours, LLC, under the provisions of 14 Code of Federal Regulations Part 91 as a local sightseeing flight. Visual meteorological conditions prevailed at the time.

The pilot reported that he just completed a local flight and was landing on runway 11. After a routine touchdown and roll out, he applied the brakes to initiate a right turn onto a taxiway. The pilot added that the right brake "grabbed immediately", causing the airplane to turn clockwise to the left. The pilot also added that the tailwheel was down and in the locked position. The left wing struck the ground and the left landing gear collapsed; the airplane came to a stop on the runway.

An inspection of the airplane by the responding Federal Aviation Administration inspector noted damage to the left main landing gear and substantial damage to the left wing spar.

The airplane was recovered and transported to the manufacturer's facility for repair. During disassembly of the landing gear and braking system, the manufacturer did not find any evidence of a failure in the braking system.

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Accident Rpt# GAA18CA101	01/12/2018 1400 PST	Regis# N127DT	Winnimucka, NV	Apt: Winnemucca Muni WMC
Acft Mk/Mdl CUB CRAFTERS INC CC18-180-NO		Acft SN CC18-0051	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name:		Opr dba:		Aircraft Fire: NONE

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Accident Rpt# GAA18CA099	01/11/2018 1305 MST	Regis# N5923C	Spanish Fort, UT	Apt: Spanish Fork Arpt Springville- SPK
Acft Mk/Mdl CUBCRAFTERS INC CC11-160-NO SERIES	Acft SN CC11-00285	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim	Prob Caus: Pending
		Fatal 0	Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ROCKET AVIATION LLC	Opr dba:			Aircraft Fire: NONE

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Accident Rpt# CEN18CA058	12/18/2017 745 CST	Regis# N141JT	Georgetown, TX	Apt: Georgetown Municipal KGTU
Acft Mk/Mdl PIAGGIO P.180		Acft SN 1141	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: DANIEL P. KENNY		Opr dba:		Aircraft Fire: NONE

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Accident Rpt# GAA18CA108 01/13/2018 1545 PST Regis# N35226 Astoria, OR Apt: Karpens OR23
Acft Mk/Mdl PIPER J3L-65 Acft SN 6221 Acft Dmg: SUBSTANTIAL Rpt Status: Prelim Prob Caus: Pending
Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: CAMPBELL JAMES T Opr dba: Aircraft Fire: NONE

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Accident Rpt# ANC18LA016	12/19/2017 1500 EST	Regis# N40285	Knoxville, TN	Apt: Knoxville Downtown Island DKX
Acft Mk/Mdl PIPER PA 23-250-250		Acft SN 27-7305100	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING TI0-540 SER			Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: LAKELIZARD AVIATION TRAINING CO LLC	Opr dba:			Aircraft Fire: NONE AW Cert: STN

Events

1. Approach - Loss of engine power (total)

Narrative

On December 19, 2017, about 1500 eastern standard time, a Piper PA-23-250 multi-engine retractable gear airplane, N40285, sustained substantial damage during an impact with trees while attempting to return to Knoxville Downtown Island Airport (KDKX), Knoxville, Tennessee following a complete loss of engine power on the left engine during an attempted go-around. The airplane was registered to Lakelizard Aviation Training Company, LLC and operated as an instructional flight under the provisions of 14 Code of Federal Regulations Part 91 and visual flight rules when the accident occurred. The certified multi-engine flight instructor (MEI), and certified flight instructor (CFI) observing from the back sustained minor injuries, the multi-engine rated pilot receiving instruction sustained serious injuries. Visual meteorological conditions prevailed, and no flight plan had been filed.

According to the MEI providing instruction, the purpose of the flight was to practice maneuvers for the student's upcoming commercial multi-engine check ride. After completing a series of maneuvers, they returned to execute the Localizer approach to runway 26 at KDKX. He stated that he simulated an engine failure outside the final approach fix by retarding the left engine's manifold pressure to 12 inches. After completing the approach to the missed approach point, they circled for landing on runway 26, but were too high on the approach. In an effort to correct for the high approach, the student retarded the right engine to idle, selected full flaps, and began a rapid descent. The runway threshold was crossed about 500 ft above ground level (AGL) and the MEI called for a go-around. The student applied full power to the right engine, and attempted to fly the pattern with a simulated engine failure. Shortly after initiating the go-around while making the left crosswind turn the student said he had lost the left engine. The MEI stated that he observed that the left prop was stationary and said, "I have the controls". He checked to ensure the throttles, props and mixtures were full forward and attempted to retract the flaps, but was unable due to the one hydraulic pump being operated by the left engine, and elected not to use the hand pump. He stated, that in his judgement the best option was to attempt to restart the left engine. Unable to reach the controls to restart the engine from the left seat he asked the student to restart the engine, while he concentrated on flying the airplane. He stated that lowering the nose to increase airspeed to Vyse with gear and flaps deployed and the left propeller unfeathered would have resulted in a rapid loss of altitude, so he elected to hold the airspeed at Vmc (80 mph) while banking slightly into the right engine and avoiding terrain. Unable to restart the left engine, he attempted to maneuver the airplane for a landing on runway 8 at KDKX but was unable to complete the required 180° turn and flew through the extended centerline and towards rising terrain. Approaching a residential area, the MEI maneuvered the airplane to avoid a house and impacted trees. The trees stopped the forward movement of the airplane and it fell to the ground, coming to rest on top of an automobile. After the accident, the MEI returned to the airplane to shut off the fuel and electrics when he noticed the left fuel selector was in between the on and off position.

According to the multi-engine rated pilot receiving instruction after the engine failure the MEI stated, "I got the controls" and attempted to restart the engine while flying away from KDKX. He stated that he became very concerned as the airspeed degraded to Vmc, and called the MEI's attention to the airspeed multiple times, and each time he reacted by lowering the nose of the airplane. He said that at some point he told the MEI the flaps were down, and the MEI moved the flap selector to the up position. In addition, he remembered the back-seat observer stating that the landing gear was down at which point the MEI selected the landing gear to the up position.

According to the CFI observing from the back seat, they were on a downwind leg to runway 26 at KDKX with a simulated engine failure. While turning base to final they realized the airplane was too high to land and attempted a two-engine go-around. Shortly thereafter, prior to the crosswind leg, the left engine lost all power. He stated that the airplane was maneuvered in an effort to avoid terrain and return for right traffic runway 8 at KDKX, but while attempting to turn right base to final the airplane continued to the left. He said the airspeed was too slow, right on the edge of 80 mph, and they lowered the nose in an effort to avoid a stall and a Vmc roll. While attempting to enter a left base for runway 8 at KDX they were too low and on the edge of a stall when he heard them hollering "Were going to stall lower the nose" and he braced for impact.

The U.S. Department of Transportation, FAA Flight Training Handbook AC 61-21A, Engine Failure on Takeoff, states in part: "When the decision is made to continue flight, the single-engine best-rate of climb speed should be attained and maintained. Even if altitude cannot be maintained, it is best to continue to hold that speed because it would result in the slowest rate of descent and provide for the most time for executing the emergency landing."

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The Aztec E Pilot's operating Manual, Emergency Procedures, Engine Failure During Takeoff, states in part:

"If no landing can be made directly after the failure, the following steps should be followed:

- a. Apply full power to good engine.
- b. Feather dead engine.
- c. Retract landing gear and flaps, if extended (using hand pump if left engine is out). If enough

altitude has been reached for reaching the airport with the gear extended, leave the landing gear in the down position.

- d. Maintain a best rate of climb airspeed."

The closest weather reporting facility was Knoxville Downtown Island Airport (KDKX), Knoxville, Tennessee. At 1553, an METAR from KDKX was reporting, in part: wind from 240 at 7 knots; visibility, 10 statute miles; clouds and sky condition, broken clouds at 7,000 ft, broken clouds at 12,000 ft, overcast clouds at 25,000 ft; temperature, 59 °F; dew point 48° F; altimeter, 30.08 inches of mercury.

A detailed wreckage examination is pending.

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Accident Rpt# GAA18CA102	01/13/2018 1209 PST	Regis# N7085R	Corona, CA	Apt: Corona Muni AJO
Acft Mk/Mdl PIPER PA 28-140-140		Acft SN 28-21788	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: DUBOIS AVIATION INC		Opr dba:		Aircraft Fire: NONE

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Accident Rpt# CEN18FA054	12/17/2017 1830 CST	Regis# N6433J	Reeds Spring, MO	Apt: N/a
Acft Mk/Mdl PIPER PA 28-180-180		Acft SN 28-4851	Acft Dmg: DESTROYED	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360 SER			Fatal 2 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CURTIS KEITH M		Opr dba:		Aircraft Fire: NONE

Events

1. Enroute - Loss of control in flight

Narrative

On December 17, 2017, about 1830 central standard time, a Piper PA-28-180 airplane, N6433J, impacted terrain near Reeds Spring, Missouri. The pilot and passenger were fatally injured, and the airplane was destroyed. The airplane was registered to and operated by a private individual, as a 14 Code of Federal Regulations Part 91 personal flight. Instrument meteorological conditions existed near the accident site about the time of the accident, and no flight plan had been filed. The cross-country flight departed the Gardner Municipal Airport (K34), Gardner, Kansas, about 1700, and was en route to the M Graham Clark Downtown Airport (KPLK), Branson, Missouri.

Several witnesses reporting hearing the airplane overhead or circling before the engine went quiet, followed by a crash. First responders were notified and responded to the accident site. Both the witnesses and first responders reported the weather was foggy with poor visibility, about the time of the accident.

The airplane wreckage was located in an open field in a rural neighborhood, about 1.5 miles north of the Branson West Municipal Airport - Emerson Field (KFWB) and about 11 miles northwest of KPLK.

The on-site examination of the wreckage and ground scars revealed the airplane impacted terrain in a near vertical, nose down attitude. The airplane came to rest near the initial impact point, with the engine and nose of the airplane buried in a small crater. Several fragments of the airplane were scattered away from the impact point. Both wings were accordion crushed along the entire wing span; the main cabin was severely crushed, and the empennage also had heavy impact damage. The engine also had heavy impact damage with the crankshaft broken just aft of the No. 1 main journal, which had separated from the engine. The fixed pitch two-bladed propeller remained attached to the crankshaft flange.

A preliminary review of radar data revealed, a visual flight rules (VFR) flight track correlated with time and location of accident airplane. A review of the flight track indicates that the airplane approached the Branson area from the north/northwest, making several turns, including circles, before the track disappeared from radar, near the accident site.

At 1835, the automated weather observation facility located at KFWB recorded: a calm wind, 0.5-mile visibility, 400 ft overcast ceiling, a temperature of 46 degrees F, dew point 46 degrees F, and an altimeter setting of 30.08 inches of mercury.

After the initial on-site documentation of the wreckage, the airplane was recovered for further examination.

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Accident Rpt# CEN18LA075	01/13/2018 1215 CST	Regis# N4345K	Tishomingo, OK		
Acft Mk/Mdl PIPER PA 28-236-236		Acft SN 28-8411012	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim	Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-540			Fatal 0	Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: PILOT		Opr dba:		Aircraft Fire: NONE	
				AW Cert: STN	

Events

1. Approach - Loss of engine power (total)
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Narrative

On January 13, 2018, about 1215 central standard time, a Piper PA 28-236 airplane, N4345K, impacted terrain during a forced landing following an inflight loss of engine power near Tishomingo, Oklahoma. The pilot was seriously injured. The airplane sustained substantial fuselage damage. The airplane was registered to Piper-Dakota LLC and operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Day visual meteorological conditions prevailed in the area about the time of the accident, and the flight was operated not operated on a flight plan. The flight originated about 0940 from the Memorial Field Airport, near Hot Springs, Arkansas, and was destined for the Ardmore Municipal Airport, near Ardmore, Oklahoma.

At 1155, the recorded weather at the Ardmore Municipal Airport, near Ardmore, Oklahoma, was: Wind 340ø at 3 kts; visibility 10 statute miles; sky condition clear; temperature 1ø C; dew point -11ø C; altimeter 30.65 inches of mercury.

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Accident Rpt# CEN18LA052	12/24/2017 1740 MST	Regis# N550D	Riverton, WY	Apt: Riverton Regional RIW
Acft Mk/Mdl PIPER PA 28R-200-200		Acft SN 28R-35783	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-360-C1C			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: CODY FORBUSH		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Loss of control on ground
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Narrative

On December 24, 2017, about 1740 mountain standard time, a Piper PA-28R-200 airplane, N550D, was substantially damaged during a runway excursion on takeoff from runway 28 (8,204 feet by 150 feet, asphalt) at the Riverton Regional Airport (RIW), Riverton, Wyoming. The pilot and four passengers were not injured. The airplane was registered to Oracle Aviation, LLC and operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions prevailed, and the flight was not operated on a flight plan. The flight was originating at the time of the accident. The intended destination was the Stanford Field Airport (U12), St Anthony, Idaho.

The pilot stated that he initially departed from Millard Airport (MLE), with planned fuel stops at Gordon Municipal Airport (GRN) and RIW. After refueling at RIW, the pilot recognized that the landing light was not working. He noted that it was working during the previous flight into RIW. The pilot recalled having good visibility with the runway lights, but he did not have good depth perception. As the airplane approached the intersection with the crossing runway during the takeoff roll, he thought that they were approaching the end of the runway. He rotated the airplane in an attempt to lift off, but the airplane had not gained enough airspeed to become airborne at that point. He decided to reject the takeoff and, as he reduced engine power, he lost directional control and the airplane departed the left side of the runway.

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Accident Rpt# CEN18LA069	01/08/2018 1345 CST	Regis# N797JR	Albany, TX	Apt: N/a
Acft Mk/Mdl ROBINSON HELICOPTER COMPANY R44	Acft SN 11030	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim	Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-540	Acft TT 2058	Fatal 0	Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JACEY SHACK	Opr dba:		Aircraft Fire: NONE	AW Cert: STN

Events

1. Maneuvering-hover - Unknown or undetermined
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Narrative

On January 8, 2018, at 1345 central standard time, a Robinson R44 helicopter, N797JR, collided with trees and the terrain during an autorotation following a loss of tailrotor effectiveness while in a hover in Albany, Texas. The commercial pilot was not injured. The helicopter was substantially damaged. The helicopter was registered to S2 Helicopter Services and was operated by an individual as a 14 Code of Federal Regulations Part 91 personal flight. Day visual meteorological conditions prevailed. The flight was not operated on a flight plan. The local flight originated from a ranch in Albany, Texas, at 1310.

The pilot stated he was using the helicopter to roundup cattle when the accident occurred. He reported he just applied power to stabilize in a hover about 50 ft above the ground, when he heard a single loud bang and "felt it in the pedals." The helicopter then began to spin to the right, and the pilot applied full left pedal which had no effect. The pilot stated after about 2 spins, he entered an autorotation to remove torque from the rotor system. The helicopter contacted trees as it descended to the ground. The helicopter came to rest upright with the tail boom separated.