

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR18FA045	12/08/2017 1115 EST	Regis# N19LW	Geneva, FL	Apt: Orlando Sanford Intl SFB
Acft Mk/Mdl BEECH C90-UNDESIGNAT		Acft SN LJ-991	Acft Dmg: DESTROYED	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl PRATT & WHITNEY CANADA PT6-21A		Acft TT 10571	Fatal 3 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: L3 AIRLINE ACADEMY		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Approach-IFR initial approach - Loss of control in flight
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Narrative

On December 8, 2017, about 1115 eastern standard time, a Beech C90, N19LW, was destroyed when it impacted the waters of Lake Harney, near Geneva, Florida. The airplane was registered to Planemarketing LLC, Vero Beach, Florida, and operated by L3 Airline Academy as CONN900 as a 14 Code of Federal Regulations Part 91 instructional flight. The Flight Instructor and two commercial pilots receiving instruction were fatally injured. Instrument and visual meteorological conditions prevailed in the area, and an instrument flight rules flight plan was filed for the flight, which originated from Sanford, Florida, about 0753.

Review of preliminary information provided by the Federal Aviation Administration revealed that following an uneventful flight to Milledgeville, Georgia, the flight returned to the Orlando Sanford International Airport (SFB) and conducted a practice instrument approach to runway 09. After the flight completed the instrument approach, the active runway was changed to 27R and Air Traffic Control (ATC) controllers vectored the flight for a practice ILS Runway 27R instrument approach. About 2 minutes after the flight was given a vector to intercept the localizer and cleared for the approach, the controller issued a low altitude alert and advised the flight to climb to 1,600 feet. Following a second low altitude alert with instructions to immediately climb to 1,600 feet, the flight responded that "I am sir, I am." Shortly after, radar and radio communication with the accident airplane was lost.

A witness, who was located on a boat near the north end of Lake Harney reported hearing a low flying airplane approach his position at a low altitude. The witness stated that he could not see the airplane initially due to low clouds and light ground fog, however, he observed the airplane below the cloud ceiling at 250 to 300 feet above ground level, and then climb rapidly. The witness further stated that they were looking in the general direction of the engine noise when they observed the airplane dive vertically into the lake south of their position.

The wreckage was recovered from Lake Harney and transported to a secure location for further examination.

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Accident Rpt# GAA17CA393	07/06/2017 1600 EST	Regis# N8159J	Dixon, KY	Apt: N/a
Acft Mk/Mdl BELL 206-B		Acft SN 512	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl ROLLS-ROYC 250-C20		Acft TT 15775	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 137
Opr Name: FORMING AGROTORS INC		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPR

Summary

The helicopter pilot reported that he was maneuvering at low altitude during an agricultural application flight. While in a left turn, he did not see the power lines until they were very close. He increased the collective to climb, and he banked right to avoid impact. However, the tail rotor struck the power lines, and the helicopter lost tail rotor effectiveness. The pilot conducted an autorotation and landed the helicopter, but the tailboom impacted trees.

The helicopter sustained substantial damage to the tail rotor gear box, the tail rotor blades, and the vertical stabilizer.

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

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to see and avoid power lines while maneuvering at a low altitude. Contributing to the accident was the pilot's failure to adequately identify hazards to flight during agricultural application operation planning.

Events

1. Maneuvering-low-alt flying - Collision with terr/obj (non-CFIT)
2. Maneuvering-low-alt flying - Loss of tail rotor effectiveness
3. Autorotation - Off-field or emergency landing
4. Enroute - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Environmental issues-Physical environment-Object/animal/substance-Wire-Effect on equipment - C
2. Personnel issues-Psychological-Attention/monitoring-Monitoring environment-Pilot - C
3. Personnel issues-Task performance-Planning/preparation-Flight planning/navigation-Pilot - F
4. Personnel issues-Action/decision-Info processing/decision-Identification/recognition-Pilot - F

Narrative

The helicopter pilot reported that he was maneuvering at low altitude during an agricultural application flight.

While in a left turn he did not see the power line wires until they were very close. He increased the collective to climb and he banked right to avoid impact. However, the tail rotor struck the power line wires and the helicopter lost tail rotor effectiveness.

The pilot autorotated and the helicopter landed, but the tailboom impacted trees. The helicopter sustained substantial damage to the tail rotor gear box, the tail rotor blades and the vertical stabilizer.

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# GAA17CA574	07/21/2017 1720 EDT	Regis# N802TW	New York, NY	Apt: New York Skyports Inc 6N7
Acft Mk/Mdl CESSNA 208-A		Acft SN 20800300	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl P&W PT6A SER		Acft TT 1909	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 135
Opr Name: VOLO AVIATION INC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Miscellaneous/other

Narrative

The pilot of the float-equipped airplane reported that, during a water takeoff, about 50 knots, the airplane encountered boat wake, which caused the airplane to become airborne prematurely. He added that the airplane landed on a swell and became airborne again. During the second touchdown, the airplane struck another swell, and touched down hard. The pilot aborted the takeoff.

The airplane sustained substantial damage to the empennage.

The director of operations for the company reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

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Accident Rpt# CEN16LA197	05/23/2016 2156 CDT	Regis# N804ST	Texarkana, AR	Apt: N/a
Acft Mk/Mdl CESSNA 501		Acft SN 501-0146	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl WILLIAMS INTERNATINAL COMPANY		Acft TT 7425	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: EAGLE II AERO LLC		Opr dba:		Aircraft Fire: NONE

Events

2. Enroute - Pressure/environ sys malf/fail
3. Enroute - Pressure/environ sys malf/fail

Narrative

HISTORY OF FLIGHT

On May 23, 2016, about 2156 central daylight time, a Cessna 501, N804ST, lost cabin pressurization during cruise at flight level (FL) 430 and entered an uncontrolled descent near Texarkana, Arkansas. The pilot regained consciousness and control of the airplane. The pilot landed the airplane without further incident at Texarkana Regional Airport-Webb Field (TXK), Texarkana, Arkansas. The airplane sustained substantial damage to both wings due to the excessive aerodynamic loads on the wings during the descent/recovery. The airline transport pilot and two passengers sustained minor injuries and one passenger was uninjured. The airplane was registered to and operated by Eagle II Aero LLC under 14 Code of Federal Regulations Part 91 as an executive/corporate flight that was operating on an instrument flight rules (IFR) flight plan. Night meteorological conditions prevailed at the time of the accident. The flight last departed from Perryville Municipal Airport, Perryville, Missouri (K02), about 2056, and was destined to San Antonio International Airport (SAT), San Antonio, Texas.

The airplane was flown by a single-pilot for the accident flight. According to air traffic control (ATC) radio communications, N804ST made initial contact with Memphis Center at 2056, after departing K02, to report climbing through 9,200 feet with an IFR flight plan on file. N804ST responded to all ATC transmissions while climbing to and leveling off at flight level 430, which was an altitude that was above reported cloud tops at FL 390. At 2154, Fort Worth Center called N804ST, but there was no response from N804ST. At 2155, Fort Worth Center attempted to contact N804ST three times and issued the Fort Smith altimeter. Fort Worth Center contacted Memphis Center and advised that N804ST had an "issue" and was descending. At 2156, Memphis Center instructed American Airlines flight 93 (AAL93) to attempt to contact N804ST on guard frequency. Fort Worth Center asked N804ST to IDENT; N804ST reported an explosive decompression. Fort Worth Center advised Memphis Center that they were now communicating with N804ST. At 2157, AAL93 advised Memphis Center that they were unable to contact N804ST on guard frequency. N804ST reported that the airplane was under control and would level off shortly. Fort Worth Center asked whether N804ST would like to fly to TKX or Fort Smith Regional Airport (FSM), Fort Smith, Arkansas. At 2148, the pilot of N804ST asked for a few minutes to "figure this out" and then advised he would like to land at TKX. Memphis Center advised that N804ST was located 12 o'clock and 35 miles from TKX. The pilot performed a visual approach and landing to runway 13 (5,200 by 100 feet, asphalt) at TKX, where the flight landed without further incident.

The pilot reported in a written statement that within 20 seconds, the airplane lost all cabin pressurization, and the cabin altitude climbed from 8,000 feet and 8.5 psi differential (psid) to ambient altitude and 0 psid. All the occupants lost consciousness. The pilot regained consciousness and control of the airplane at 7,000 feet.

According to the Federal Aviation Administration (FAA) coordinator for the accident, the pilot stated that he was not wearing an airplane supplemental oxygen system crew mask during the flight.

PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate with the following type ratings: CE-500, CE-525, CE-650, MJ-300, BE-400, G-1159, DC-3, N-P51N, N-T28, T-33. On November 15, 2014, the pilot completed single-pilot exemption training including differences training for CE-500, CE-550, and CE-560 training. The pilot's last flight review was dated May 11, 2016, using a Beechcraft BE400. The pilot reported a total flight time of 15,000 hours, of which 5,000 hours were in the make and mode of the accident airplane.

AIRCRAFT INFORMATION

The airplane's type certificate, held by Textron Aviation Inc., shows that the Cessna 501 was certified under Part 23 with two Pratt & Whitney Aircraft of Canada, Ltd. JT15D-1A or JT15D-1B turbofan engines and had a maximum operating altitude of 41,000 feet.

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The accident airplane was modified from its type design by supplemental type certificates (STCs), held by Sierra Industries Ltd., which increased the maximum operating altitude to 43,000 feet. The two STCs were:

SA732NW was for the installation of the Eagle SP performance system, including recontoured wing leading edge, wing tip extension, increased gross weight, increased fuel capacity, and other minor refinements.

ST09559AC was for the installation of Williams International Company, L.L.C. FJ44-2A engines in Cessna 501/500 aircraft or Williams International Company, L.L.C. FJ44-3A engines in Cessna Model 550/S550 aircraft. This STC increased the maximum operating altitude to 43,000 feet.

The Model 500 Maintenance Manual (Rev 39), Floor Panels - Inspection/Check called for the inspection of the air conditioning system in section D. Inspect Air Conditioning System: (1) Inspect all duct work and tubing for security of installation, evidence of damage or leakage, and (3) Inspect flapper check valves at air mixer assembly for ease of operation or evidence of binding.

The most recent maintenance inspection of the airplane was a Phase 5 inspection. A copy of the maintenance checklist used for the inspection, Model 500 Maintenance Manual (Rev 37) had the following entries: "Date:" - no entry made, "Registration Number: N804ST", "Serial Number: 501-0146", and "Total Time: 7424.8".

A Sierra Industries Ltd. Maintenance Transaction Report, dated April 15, 2016, stated, "Completed phase inspections in accordance with Cessna 500 maintenance manual chapter 5," at 7,424.8 aircraft hours, 6,411 landings, and no. 1 engine and no. 2 engine total hours were 846.8 hours and 539 cycles.

The Hobbs meter following the accident indicated 0411.3 hours.

The airplane oxygen system supplies breathing oxygen to the crew at all times and to the passengers when required. The pilot can manually drop the passenger masks by selecting manual drop on the oxygen control valve, or the passenger masks will automatically drop at 14,800 ±200 feet cabin altitude. The pilot can select crew only which will shutoff flow to the passengers.

WRECKAGE AND IMPACT INFORMATION

Post-accident examination of the airplane by the FAA coordinator revealed that the cockpit supplemental oxygen supply gauge indicated about 17 "psi x100," which was in the gauge's green arc of 16-18 psi x100.

The cockpit supplemental oxygen system switch was in the "Normal" position (which would have provided oxygen to the cabin masks). The cabin oxygen masks were not deployed. The pilot stated to the FAA coordinator that the switch was in the "Crew" position, and he did not know how or why it was in the "Normal" position. The pilot later told the FAA coordinator that he changed the oxygen switch position after the accident.

The examination revealed that the aft pressure bulkhead check valve flapper had half of its non-metallic flapper fractured into several pieces, which were resting on the fuselage floor. The second half of the check valve flapper was intact in valve body. The air conditioning system's primary pressurization duct leading to the cabin was separated from its connection with the water separator. The duct's metal worm-gear retaining clamp was resting around the duct and away from its attachment point to the separator. The clamp's retaining screw was in place. The clamp was not fractured. The clamp, the check valve, and the flapper pieces were sent to the National Transportation Safety Board Material Laboratory for examination.

TESTS AND RESEARCH

Materials Laboratory Examination of Check Valve and Hose Clamp

The examination labeled the check valve flapper half pieces recovered from the fuselage floor as flapper 1, and the flapper that was intact in the valve body as flapper 2. Both flappers were fabricated from glass-filled polybutylene terephthalate (PBT). Based on the presence of an injection gate and ejection pin marks, the flappers were fabricated by injection molding. Based on unique artifacts molded into the surfaces of the flappers, both flappers were molded from the same mold cavity. Both flappers had the following number molded onto the downstream side surface, DSP 904-0012-3, and did not exhibit any other identifying

marks such as a date code or mold cavity number.

Flapper 1 exhibited radially-oriented cracks originating within its approximate center; two of the primary cracks were nearly bilaterally symmetric in shape consistent with possible flow patterns and knitting in the part from the mold filling process. In all instances, the cracks initiated on the downstream side and propagated through the thickness towards the upstream side-driven primarily by bending stresses on the flapper.

One fragment from flapper 1 was selected for deeper examination, which showed the presence of networks of fine cracks (also known as surface checks, surface crazing, or craze cracks). A fine network of cracks was present adjacent to the main fracture surface. The primary fracture surface of the polymeric resin phase was smooth and glassy with hackle marks indicative of through-thickness crack propagation from the downstream side to the upstream side. The fracture surface exhibited yellow discoloration in areas along its length indicating that portions were pre-existing. Scanning electron microscope examination also revealed a fine network of secondary cracks along the second primary fracture.

The hinge fragments for flapper 1 exhibited cracks that progressed radially outward from the inside surface to the outside surface. The fracture surfaces on two of the hinge cracks exhibited yellow discoloring, consistent with progressive crack development with time (slow crack growth).

Flapper 2 exhibited a primary crack on the downstream side. A portion of one of the flapper hinges was also missing. Stereo-zoom microscopic evaluation indicated that a portion of one of the hinges fractured due to the development of a crack that initiated at the inner surface and propagated to the external surface. One of the fractures exhibited yellow discoloring, consistent with progressive crack development with time (slow crack growth).

The inside surface length of the hose clamp is about 11.1 inch and corresponds to an approximately 3.5 inch diameter. The hose clamp design is consistent with a worm gear style with a safety collared screw and perforated band manufactured by C. McGunnigle Co. Inc. Kenilworth, NJ, under the Breeze Aero Seal r trademark. The clamp is consistent with an SAE J1508 Type F size 48 (2 9/16 to 3 1/2 diameter size range).

ADDITIONAL INFORMATION

Part 91 Regulations on the Use of Supplemental Oxygen

Part 91.211 Supplemental oxygen.

(a) General. No person may operate a civil aircraft of U.S. registry -

(b) Pressurized cabin aircraft.

(1) No person may operate a civil aircraft of U.S. registry with a pressurized cabin -

(i) At flight altitudes above FL 250 unless at least a 10-minute supply of supplemental oxygen, in addition to any oxygen required to satisfy paragraph (a) of this section, is available for each occupant of the aircraft for use in the event that a descent is necessitated by loss of cabin pressurization; and

(ii) At flight altitudes above FL 350 unless one pilot at the controls of the airplane is wearing and using an oxygen mask that is secured and sealed and that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude of the airplane exceeds 14,000 feet mean sea level, except that the one pilot need not wear and use an oxygen mask while at or below FL 410 if there are two pilots at the controls and each pilot has a quick-donning type of oxygen mask that can be placed on the face with one hand from the ready position within 5 seconds, supplying oxygen and properly secured and sealed.

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Accident Rpt# ERA18LA031	11/25/2017 1315 EST	Regis# N863RB	Clearwater, FL	Apt: St Pete-clearwater Intl PIE
Acft Mk/Mdl PIPER PA46-500TP		Acft SN 4697213	Acft Dmg: SUBSTANTIAL	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl PRATT & WHITNEY PT6A-42A			Fatal 0 Ser Inj 1	Flt Conducted Under: FAR 091
Opr Name: BELLEAIRE LLC		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Takeoff - Loss of engine power (partial)

Narrative

On November 25, 2017, about 1315 eastern standard time, a Piper PA-46-500TP, N863RB, was substantially damaged when it experienced a loss of engine power during the initial climb from St. Pete/Clearwater International Airport (PIE), Clearwater, Florida. The airline transport pilot sustained serious injuries. The airplane was registered to and operated by a corporation as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions prevailed at the time of the accident, and an instrument flight rules flight plan was filed for the flight that was destined for Pensacola International Airport (PNS), Pensacola, Florida.

According to the pilot, he performed a preflight inspection of the airplane and engine runup with no anomalies noted. The takeoff roll and lift off from runway 36 were "normal;" however, when he initiated a landing gear retraction, the engine torque decreased to 300-400 lbs, but the 2,000 rpm did not change. Next, the torque surged back to full power, and continued to surge. The pilot attempted to return to the runway instead of landing in the water; however, the left wing of the airplane struck the ground and it came to rest near runway 18.

Initial examination of the airplane by a Federal Aviation Administration inspector revealed that the left wing was impact separated. The right wing remained attached to the fuselage. The fuselage was partially separated at the cabin section of the airframe. The engine remained attached to the airframe and the propeller remained attached to the engine.

The airplane was retained for further examination.

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Accident Rpt# GAA18CA036	11/05/2017 1145 MST	Regis# N893CA	Las Vegas, NM	Apt: Las Vegas Muni LVS
Acft Mk/Mdl SOCATA TBM 850		Acft SN 393	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl P&W PT6A-66D		Acft TT 2304	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: STEVEN D. ALVIS		Opr dba:		Aircraft Fire: NONE
				AW Cert: STN

Events

1. Landing-flare/touchdown - Windshear or thunderstorm
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Narrative

The pilot of the turbine powered airplane reported that, while landing in a gusting crosswind, it was "obvious" the wind had changed directions. He performed a go-around, but "the wind slammed [the airplane] to the ground extremely hard". Subsequently, the airplane veered to the right off the runway and then back to the left before coming to rest.

The airplane sustained substantial damage to the fuselage.

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

The automated weather observation system located at the accident airport reported, about the time of the accident, that the wind was from 270ø at 19 knots, gusting to 25 knots. The pilot landed on runway 20.