

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR16LA017	10/24/2015 1510 MST	Regis# N25100	Prescott, AZ	Apt: Ernest A Love Field Airport KPRC
Acft Mk/Mdl LUSCOMBE 8A-A		Acft SN 1024	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL C85-12F			Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: LAWLER, DAN C.		Opr dba:		Aircraft Fire: NONE
				AW Cert: LTSP

Events

1. Landing-landing roll - Runway excursion
-

Narrative

On October 24, 2015, about 1510 mountain standard time, a Luscombe 8A, N25100, experienced a loss of directional control during the landing roll, and ground looped at the Ernest A. Love Field Airport, Prescott, Arizona. The pilot, who owned the airplane, was operating the airplane under the provisions of 14 Code of Federal Regulations Part 91. The certified flight instructor and his passenger were not injured; the airplane sustained substantial damage. The personal cross-country flight departed from Gallup Municipal Airport, Gallup, New Mexico, about 1245 with a planned destination of Prescott. Visual meteorological conditions prevailed and a company flight plan had been filed.

In a written report, the pilot stated that as he entered the vicinity of the destination airport, he maneuvered the airplane for a straight-in approach to runway 21L. The approach was slightly higher than his normal glide slope, and the pilot configured the airplane into a left slip in an effort to lose altitude. After becoming established, he maintained a left crab angle to compensate for an approximate 7 kt left crosswind. He configured the airplane for a three-point landing and touched down on the centerline. The airplane continued the landing roll until decelerating to about 15 mph at which point it began to veer to the left. The pilot input full rudder control to try to counteract the veer, but despite his attempts, the airplane ground looped.

During the accident sequence, the airplane incurred substantial damage to the wing. The pilot opined that the loss of control was precipitated by a tail wheel malfunction. According to Federal Aviation Administration (FAA) records, the pilot purchased the airplane on the day of the accident; he reported having amassed about 200 hours of flight time in the same make and model.

The Luscombe 8A was equipped with a Scott 3-24B tailwheel (now Scott 2000), with a steerable six-inch rubber tire with full-swivel capability. The rudder control horns were connected via chains to the assembly, which uses spring pressure to hold a set of steering arms into machined flats on the wheel fork. As the wheel pivots to its travel limit, it comes into contact with a stop on the fork bracket, which releases the assembly, allowing the wheel to castor freely. According to the Scott 3-24B Handbook, "The tail wheel assemblies provide directional control throughout full rudder travel of the aircraft while the tailwheel is in contact with the ground. The assemblies will automatically full-swivel only well after the maximum point of air rudder control is reached in either direction. The tailwheel steering and release mechanism is so designed that 65-degrees of tailwheel turn (or travel) is provided either right or left from neutral steering position before the mechanism begins to release."

The airplane came to rest on the edge of the runway with the right landing gear collapsed and folded under the fuselage. The tailwheel steering chains remained affixed to their respective rudder horns as well as their respective steering arms mounted on the tailwheel body. However, the tailwheel had rotated over 180-degrees and was canted to the left leaving the chains crossed over one another. Additionally, the steering arms appeared bent upwards. A complete report with accompanying photographs are attached to the public docket for this accident.

An FAA certified airframe and powerplant mechanic examined the tailwheel. He stated the examination revealed that the tailwheel was turned around 180-degrees from its normal configuration. The right steering arm was bent upwards, and he observed that it was able to clear over the stop, allowing the steering head to continue to the reversed position, rather than unlock to caster freely. Under this condition, the tailwheel direction of movement would be opposite that commanded by the pilot, rather than free-castering as designed. He additionally noted that the leaf spring assembly was loose, allowing a possible shudder to develop. Following the examination, he repaired the assembly, and the steering arms were reconfigured to their correct straight position, enabling them to contact the stops and release the wheel to freely caster with the steering chains remaining on their respective side.

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Accident Rpt# WPR15LA179	05/29/2015 1542 MST	Regis# N44508	Glendale, AZ	Apt: Glendale Municipal Airport GEU
Acft Mk/Mdl BURR EXPRESS 2000 RG-NO S		Acft SN 0101RG	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl P & W CANADA PT6A-20		Acft TT 48	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BURR JOHN		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

Events

1. Landing-landing roll - Landing gear collapse
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Narrative

On May 29, 2015, about 1542 mountain standard time, a Burr Express 2000 RG, N44508, experienced a landing gear collapse during the landing roll at Glendale Municipal Airport (GEU) in Glendale, Arizona. The private pilot and one passenger were uninjured, and the airplane sustained substantial damage to the rudder and elevators. The airplane was registered to, and operated by, the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed and no flight plan was filed. The flight departed from GEU at about 1500.

The pilot reported that he landed the airplane onto the runway normally. He applied beta thrust to decelerate the airplane and started to brake lightly. Suddenly, the left main landing gear collapsed and the airplane swerved to the left. The airplane departed the runway surface and the left wing impacted a runway sign. It traversed along the dirt when the right landing gear collapsed and the tail impacted the ground before sliding to a rest.

During a postaccident examination by a Federal Aviation Administration Inspector it was revealed that the left main landing gear actuator heim rod failed where the threads meet the rod end. Given the location of the heim rod, the inspector was unable to view the fracture surface while the component was installed on the airplane. In addition, the inspector noted that the hydraulic line to the gear actuator was ripped.

The National Transportation Safety Board Investigator-in-charge attempted to obtain the heim rod for further examination, however, the pilot had already repaired the airplane and the part was no longer available.

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Accident Rpt# GAA17CA184	03/10/2017 1530 PST	Regis# N425AG	Santa Maria, CA	Apt: Santa Maria Pub/capt G Allan H SMX
Acft Mk/Mdl CSP LEASING LLC CAVALON-NO SERIES	Acft SN V00208	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl ROTAX 914	Acft TT 129	Fatal 0	Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: DANIEL C. COLLIE	Opr dba:	Aircraft Fire: NONE	AW Cert: SPE	

Events

1. Landing - Abnormal runway contact
-

Narrative

The student pilot reported that during a stop-and-go landing in crosswind conditions, the gyroplane bounced about 4 ft. He added that the wind lifted the gyroplane and he did not have "the speed or rudder control to counteract" the drift. The gyroplane impacted the ground on its right side.

The gyroplane sustained substantial damage to the empennage.

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

A review of recorded data from the automated weather observation station located on the airport revealed that about 39 minutes before the accident the wind was 300ø at 8 knots. The gyroplane landed on runway 30.

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Accident Rpt# WPR15FA081 01/09/2015 1313 PST Regis# N7ZL Van Nuys, CA Apt: Van Nuys Airport VNY
Acft Mk/Mdl GIBBS LANCAIR 320-NO SERIE Acft SN 137 Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING IO-320 SERIES Fatal 1 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: ALBERTO BEHAR Opr dba: Aircraft Fire: NONE
AW Cert: SPE

Summary

The commercial pilot was taking off for a personal, cross-country flight. Several witnesses reported that, shortly after takeoff, when the airplane was about 400 ft above the ground, they heard the engine "pop" at least twice, sputter, and then go silent, consistent with a loss of engine power. About this time, the pilot reported to the tower controller very quickly but not very clearly that "I have an engine failure I think." The tower controller subsequently issued the pilot the current altimeter setting and attempted to contact the pilot but did not receive any further radio transmissions. The airplane continued straight, turned right, and then spun to the ground. A postaccident examination of the airframe and engine did not reveal any anomalies that would have precluded normal operation. The airplane was last refueled before its previous flight in Flagstaff, Arizona, 4 days before the accident; the airplane was then flown from Flagstaff to the Van Nuys Airport, Van Nuys, California. Although a narrow stream of what smelled like gasoline and engine oil was found near the wreckage, there was no fuel remaining in the fuel tanks.

The airplane was equipped with an electronic flight instrument system (EFIS), which has a low fuel alert that is set by the pilot or a mechanic. When fuel decreases to the specified amount, an alert pops up front and center on the EFIS, and it will not disappear until the pilot acknowledges it. Given that the pilot mostly conducted his own maintenance, it is highly likely he was familiar with the EFIS and knew that the airplane was low on fuel and how much fuel remained but decided to take off anyway. As a result of his decision, the engine lost engine power shortly after takeoff due to fuel exhaustion at too low of an altitude for the pilot to recover from the stall and subsequent spin.

A friend of the pilot reported that the pilot texted him about 1249 when he arrived at the airport. He said that the pilot normally arrived about 1230. The pilot seemed to be in a rush that day because he was supposed to fly home the day before, and apparently he and his wife had argued about the issue. In addition, the pilot's friend noted that the pilot had recently become more conscious about where he bought fuel. Based on the directions the pilot received from the air traffic controller to stay below 2,000 ft if flying to Burbank, the friend believes it is likely the pilot was attempting to fly to Whiteman Airport about 5 nautical miles away that had cheaper fuel before continuing to his destination.

According to the air traffic control recordings, the pilot first contacted the ground and tower controllers about 1308, and he was cleared for takeoff at 1311. Just before takeoff, the pilot's work e-mail documented nine messages, three of which were sent by the pilot, the last of which was sent at 1311. In the emails, the pilot indicated confusion about an issue, which may have been a further distraction to him. The evidence indicates that the pilot was rushed and sending e-mails, which likely distracted him during the taxi and takeoff and decreased his vigilance about the airplane's fuel status.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's improper decision to take off despite low fuel alerts, which resulted in a total loss of engine power due to fuel exhaustion, his subsequent failure to maintain adequate airspeed and his exceedance of the airplane's critical angle of attack, which led to an aerodynamic stall and loss of control at too low of an altitude to recover. Contributing to the accident was the pilot's distraction due to his sending e-mails and being rushed during taxi and takeoff, which resulted in reduced vigilance about the airplane's fuel status.

Events

1. Initial climb - Fuel exhaustion
2. Initial climb - Fuel related
3. Initial climb - Off-field or emergency landing
4. Initial climb - Loss of control in flight
5. Initial climb - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - C
2. Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid level - C
3. Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid management - C
4. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Airspeed-Not attained/maintained - C
5. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of attack-Not attained/maintained - C

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6. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
7. Personnel issues-Psychological-Perception/orientation/illusion-Situational awareness-Pilot - F
8. Personnel issues-Action/decision-Info processing/decision-Identification/recognition-Pilot - F
9. Personnel issues-Psychological-Attention/monitoring-Task monitoring/vigilance-Pilot - F
10. Personnel issues-Psychological-Attention/monitoring-Monitoring equip/instruments-Pilot - F

Narrative

HISTORY OF FLIGHT

On January 9, 2015, about 1313 Pacific standard time, a Lancair 320, N7ZL, impacted terrain shortly after takeoff from Van Nuys Airport (VNY), Van Nuys, California. The commercial pilot (sole occupant) sustained fatal injuries, and the airplane sustained substantial damage. The airplane was registered to and was being operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions prevailed for the flight, and no flight plan was filed. The flight was destined for Scottsdale Airport (SDL), Scottsdale, Arizona.

The pilot contacted VNY ground control about 1308 and requested to taxi from the northwest side of the airport to runway 16R. Ground control cleared him to taxi to runway 16R via taxiways A and C. The pilot then contacted the control tower and requested to take off from runway 16R. The tower controller informed him to stand by for traffic. About 1311, the tower controller informed the pilot of traffic in the area and directed him to fly straight ahead to highway 101 and to stay below 2,000 ft if flying to Burbank; he then cleared the flight for takeoff.

About 1313, the pilot reported very quickly but not very clearly that "I have an engine failure I think, N7ZL." The tower controller issued the pilot the current altimeter setting and attempted to contact the pilot but did not receive any further radio transmissions. The airport's crash response team was immediately alerted.

Several witnesses reported that, shortly after takeoff, when the airplane was about 400 ft above the ground, they heard the engine "pop" at least twice, sputter, and then go silent. The airplane continued straight then turned right. Some witnesses mentioned that the airplane appeared to be very slow when the right wing and nose dropped. The airplane started to spin and impacted a nearby street in a nose-low attitude.

PERSONNEL INFORMATION

The pilot, age 47, held an air transport pilot certificate for airplane multiengine land and helicopters issued on November 18, 2011, and a commercial pilot certificate for single-engine land. The pilot also held an instrument rating and a flight instructor certificate for airplane single- and multi-engine land, helicopter, and instrument. In addition, the pilot held an airframe and powerplant mechanic certificate issued on February 1, 2012. The pilot's first-class medical certificate was issued on December 4, 2014, with the limitation that he must have available glasses for near vision. During his most recent medical examination, the pilot reported 2,349 total flight hours, 150 hours of which were in the previous 6 months.

AIRCRAFT INFORMATION

The four-seat, low-wing, tricycle-gear airplane, serial number 137, was manufactured in October 1996. It was powered by a Lycoming IO-0320 BIA 160-horsepower engine and equipped with a Hartzell Propeller Inc., model AC-F24L-1BF controllable-pitch propeller. The maintenance logbooks were not located for examination. The tachometer and the Hobbs meter were electronic, and damage precluded determining the current readings.

The airplane's last known refueling occurred on January 5, 2015, at the Flagstaff Pulliam Airport (FLG) Flagstaff, Arizona, when 28.2 gallons of fuel was added. The airplane was fueled during the airplane's last known flight before the accident flight, during which the pilot took off from SDL and stopped at FLG for fuel before finishing the flight at VNY. The total amount of fuel on board the airplane at the time of the accident was not determined.

Electronic Flight Instrumentation System

The airplane was equipped with a GRT Avionics Horizon HX electronic flight instrument system (EFIS), which is a panel-mounted display that consolidates multiple instruments into a compact view to aid in pilot situational awareness. The Horizon HX EFIS has a flight data recording function that needs to be enabled, and a USB drive must be inserted into the EFIS for the data to record. The multifunctional display was shipped to the National Transportation Safety Board recorders laboratory for examination. The device powered on normally, and the data recording feature setting was determined to be inactive. Therefore,

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the device contained no pertinent information related to the accident. The Horizon HX EFIS has a low fuel alert, which is programmed by the pilot and/or mechanic to notify the pilot when the fuel reaches a specified level. This notification pops up front and center on any screen, and it does not leave the screen until the pilot acknowledges it.

METEOROLOGICAL INFORMATION

At 1251, the VNY weather reporting station reported wind from 090 at 5 knots, visibility 10 statute miles, clear skies, temperature 21 \emptyset C, dew point 04 \emptyset C, and an altimeter setting of 29.97.

AIRPORT INFORMATION

VNY is located 3 miles northwest of Van Nuys, California, at an elevation of 802 ft. The airport has two hard-surfaced runways, 16R and 34L magnetic, and 16L and 34R magnetic. Runway 16R/34L is 8,001 ft long and 150 ft wide.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest at one corner of two intersecting streets. Telephone and power lines crossed all four corners of the intersection, and diagonally crossed two corners of the intersection. None of the wires appeared to be damaged, and no striations were observed on the airplane. The airplane was oriented to the southeast. The first identified point of contact was an impact crater in the street asphalt. The engine cowling and white paint transfer marks, which were almost parallel to the final orientation of the wings and were the approximate length of the wings, were found adjacent to the impact crater. The main wreckage was about 34 ft east of the impact crater; the area between the impact crater and main wreckage was covered with a sticky, dark-colored fluid. The cockpit area was destroyed, and the seats were fully exposed; the seats belts were not latched. The throttle and mixture controls were full in.

Both wings remained attached to the fuselage; the right wing leading edge was split open the entire length, and the inboard two-thirds of the left-wing was split. The paint on both leading edges was chipped. The fuel caps for both wings and the header tank were in position and secure. Both wing tanks and the header tank on the fuselage had been breached; there was no fuel remaining in the fuel tanks, however, there was a narrow stream of what smelled like gasoline and engine oil in the gutter.

The tail section was fractured and separated circumferentially just forward of the vertical stabilizer and horizontal stabilizer. The rudder remained attached at all hinges, and the elevators remained attached at all hinges.

MEDICAL AND PATHOLOGICAL INFORMATION

The County of Los Angeles Department of Medical Examiner-Coroner, Los Angeles, California, conducted an autopsy on the pilot. The cause of death was reported as "multiple blunt traumatic injuries."

The Federal Aviation Administration's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot; 0.388 (ug/ml, ug/g) of doxylamine was detected in the pilot's blood. Doxylamine is a sedating antihistamine available in a number of over-the-counter cold and allergy products. It is also the active ingredient in a few over-the-counter sleep aids. The usual therapeutic window is considered between 0.050 and 0.150 ug/ml. However, doxylamine undergoes significant postmortem redistribution; postmortem levels in central blood may be three times higher than peripheral blood. Tolerance to the effects of doxylamine is less likely to develop than for some of the other sedating antihistamines; therefore, the use of this drug causes some degree of psychomotor slowing.

TESTS AND RESEARCH

Airframe Examination

The cabin area was heavily fragmented; however, the instrument panel remained relatively whole and was still connected to the firewall. Flight control continuity was established from the cabin flight controls to their respective flight control surfaces.

The fuel system was traced from the wing fuel tanks to the center forward cabin where it was fracture-separated and fragmented. The remaining parts of the fuel system were heavily fragmented. The fuel selector plate and two arms that appeared to be a part of the fuel selector were found loose within the cabin area. One fuel selector body was found; it contained one open end with what appeared to be a one-way check valve and one fractured rod end.

Engine Examination

There was no evidence of catastrophic malfunction or preimpact fire. The crankcase's nose section sustained heavy impact damage. Due to the damage to the crankcase, the crankshaft would not rotate by hand. Holes were drilled into the case; the inside of the case was examined with a borescope, and there was no evidence of internal mechanical malfunction.

The induction system sustained heavy crush damage. The fuel injection servo sustained heavy crush damage and was fragmented; however, the throttle and mixture controls were still secured to their respective control arms. The fuel pump was found displaced from its mounting pad; it was disassembled, and there was no evidence of flow obstruction or internal mechanical malfunction. The fuel flow divider remained secured at its mounting pad with the fuel lines secured at their respective fittings. The left magneto was rotated by hand, and it produced sparks at all four posts; the right magneto was an electronic ignition system and could not be tested. The ignition harness was destroyed; the spark plugs were removed, and they exhibited wear patterns consistent with normal operation.

ADDITIONAL INFORMATION

Pilot's Friend Statement

A friend of the pilot reported that the pilot would often text him when he arrived at the airport about 1230. On the day of the accident, he received a text from the pilot about 1249. He said that he seemed like he was in a hurry that day because he was supposed to have returned to SDL the day before. He later found out that the pilot and his wife had argued about it.

The friend stated that the pilot conducted most of his own maintenance. He also mentioned that the pilot had recently become conscious about where he purchased fuel. Based on the VNY tower controller's direction for the pilot to stay below 2,000 ft if flying Burbank after takeoff, he believes the pilot was flying to Whiteman Airport (WHP), which is 5 nautical miles away from VNY and is notorious for having cheaper fuel than VNY. In order to fly from VNY to WHP, one must contact Burbank air traffic control.

E-mail Traffic

Between the time the pilot arrived at the airport and the time of the takeoff (between 1249 and 1311), the pilot's work e-mail documented nine messages, three of which were sent by the pilot. In the messages sent just prior to takeoff, the pilot mentioned that he was very confused about the discussion.

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Accident Rpt# WPR16FA001	10/02/2015 1112 PDT	Regis# N69BD	Deer Park, WA	Apt: Deer Park Airport DEW
Acft Mk/Mdl JOHNSON COOT-A		Acft SN KK-6	Acft Dmg: DESTROYED	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl FRANKLIN 6A-350		Acft TT 49	Fatal 1 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: BELL GEORGE P		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

Summary

The private pilot departed in the experimental amateur-built airplane for the local flight during daytime visual meteorological conditions. A pilot reported that he had spoken to the accident pilot before the accident and that he had told him that he had been having problems priming the carburetor because the accident airplane's fuel tanks were below the engine. The accident pilot further told him that he had installed an electric boost pump to prime the carburetor and hoped that the engine-driven fuel pump would maintain engine operation. The accident pilot added that, during engine ground runs with the electric boost pump on, the engine was running too "rich" and "rough" and that he planned to turn the electric boost pump off to see if it would work. The pilot assumed that the accident pilot intended to do this on the ground, but it was unclear.

One witness, who was a rated pilot, reported that, after takeoff and while the airplane was upwind, he heard the engine "sputtering." The airplane then turned left and remained within the airport traffic pattern. Another witness, who was in an airplane in the airport traffic pattern, reported that he observed the accident airplane "enter a spin" and descend toward the ground "on the base leg near final." No distress calls were heard on the airport's common traffic advisory frequency.

Wreckage and impact signatures were consistent with an upright spin impact with terrain. Postaccident examination of the airplane and engine revealed that the upper spark plugs exhibited signatures consistent with a rich fuel/air mixture. No additional evidence of any preexisting anomalies that would have precluded normal operation were observed. Based on the available evidence, it could not be determined if the pilot had the electric fuel boost pump turned on during takeoff or at any time during the flight.

Review of the pilot's personal logbooks revealed that, over the past 38 years, he had only accumulated 71 hours of flight time, 5.3 hours of which were in the 90 days before the accident. In addition, no record of any flight time in the accident make/model airplane was found. Given the evidence, it is likely that the engine was running roughly and that this diverted the pilot's attention and led to his failure to maintain adequate airspeed and to exceed the airplane's critical angle of attack, which resulted in an aerodynamic stall and subsequent spin while maneuvering from the base leg to final. Given the known preexisting engine problems, the pilot should not have conducted the flight in the airplane in which he had little experience flying.

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's failure to maintain sufficient airspeed and his exceedance of the airplane's critical angle of attack, which resulted in an aerodynamic stall and subsequent spin. Contributing to the accident was the pilot's diverted attention due to the rough running engine, which resulted from a rich fuel/air mixture, and the pilot's decision to conduct the flight in the airplane in which he had little experience flying despite knowing the airplane had preexisting engine problems.

Events

1. Approach-VFR pattern base - Loss of control in flight
2. Approach-VFR pattern base - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

1. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
2. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Airspeed-Not attained/maintained - C
3. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of attack-Not attained/maintained - C
4. Aircraft-Aircraft power plant-Engine fuel and control-(general)-Not specified - F
5. Personnel issues-Psychological-Attention/monitoring-Attention-Pilot - F
6. Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - F
7. Personnel issues-Experience/knowledge-Experience/qualifications-Total experience w/ equipment-Pilot - F

Narrative

HISTORY OF FLIGHT

On October 2, 2015, about 1112 Pacific daylight time, an experimental amateur-built Coot A experimental amateur-built airplane, N69BD, was destroyed when it impacted terrain about 1 mile north of Deer Park Airport (DEW), Deer Park, Washington. The private pilot was fatally injured. The amphibious airplane was

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registered to and operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions were reported near the accident site about the time of the accident, and no flight plan was filed. The local flight originated from DEW about 1110.

Another pilot reported that he had spoken to the accident pilot before the accident and that his crew had helped the pilot get the accident airplane out of the hangar. He noted that the accident pilot told him that he had been having fuel system problems and that there had been an airworthiness directive (AD) for the carburetor installed on the Franklin engine. The accident pilot said that he had purchased a fuel pump that had been installed on a Bell 47 helicopter with a Franklin engine and had a mechanic help him install it on the accident airplane. The accident pilot also stated that the challenge was that the accident airplane's fuel tanks were below the engine and that he had been having problems with carburetor priming, so he had installed an electric boost pump to prime the carburetor and hoped that the engine-driven fuel pump would maintain engine operation. The accident pilot added that, during engine ground runs with the electric boost pump on, the engine ran too "rich" and "rough." Therefore, the accident pilot planned to turn the electric boost pump off to see if it would work. The other pilot assumed that the accident pilot intended to do this on the ground, but it was unclear.

One witness, who was a rated pilot located adjacent to the accident site, reported that the airplane departed from runway 16 and that, while the airplane was on upwind, he heard the engine "sputtering." The airplane turned left and remained in the airport traffic pattern. Another witness, who was in an airplane in the airport traffic pattern, reported that he observed the accident airplane "enter a spin" and descend toward the ground "on the base leg near final." No distress calls were heard on the airport's common traffic advisory frequency.

PERSONNEL INFORMATION

The pilot, age 79, held a private pilot certificate with an airplane single-engine land rating. The pilot was issued a third-class airman medical certificate on May 7, 2015, with the limitation that he "must wear corrective lenses, not valid for any class after."

Review of the pilot's personal logbook found within the wreckage revealed that he had accumulated a total flight time of 71 hours between 1977 and July 2015. In the 90 days before the accident, the pilot had logged 5.3 hours of flight time. The pilot's most recent flight review was completed on June 22, 2015.

AIRCRAFT INFORMATION

The two-seat, midwing, retractable gear, amphibious, experimental amateur-built airplane, serial number KK-6, was completed in 2000. It was powered by a 200-horsepower Franklin 6A-350-C2 engine, serial number T492. The airplane was equipped with a Hartzell HC-C2YF-1BLF adjustable-pitch propeller. Review of Federal Aviation Administration (FAA) registration information revealed that the owner purchased the airplane on April 10, 2011.

A review of the airframe, engine, and propeller logbooks revealed that the most recent conditional inspection was completed on July 1, 2015, at a Hobbs/airframe total time of 48.9 hours and a propeller time since major overhaul of 302.6 hours. The conditional inspection logbook entry for the engine stated, in part, ".AD's complied with; 2003-05-01 Fuel Pump, see complete compliance listing in logs." On April 16, 2008, a conditional inspection was completed at a Hobbs time of 48.2 hours. Conditional inspections were also completed on April 24, 2010; April 10, 2011; and May 11, 2012, all at a Hobbs time of 48.9 hours. The observed Hobbs time at the accident site was 48.9 hours.

A review of AD 2003-05-01 revealed that compliance with the AD was required before further flight, unless already completed. The AD stated, in part, the following:

To prevent reduction or loss of engine power or external fuel leaks, do the following:

- (a) Before further flight, remove diaphragm type AC4886 fuel pump, AC P/N [part number] 5656774, PZL P/N 26.11.1710. Type AC4886 pumps might have a metal tag with 4886 attached to a bolt on the upper cover. PZL-Rzeszow has issued Service Bulletin No. PZL-F/71/2002, dated August 2002 on this subject.
- (b) After receipt of this AD, do not install diaphragm type AC4886 fuel pump, AC P/N 5656774, PZL P/N 26.11.1710.

METEOROLOGICAL INFORMATION

At 1053, an automated weather observation station, located about 1 mile south of the accident site, reported wind variable at 3 knots, visibility 10 statute miles, clear sky, temperature 17ø C, dew point 4ø C, and an altimeter setting of 30.01 inches of Mercury.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed that the airplane impacted a wooded area about 1 mile north of the airport. The airplane came to rest upright on a magnetic heading of about 225° adjacent to numerous 20-ft-tall trees. All major structural components of the airplane were located at the accident site. Numerous instruments and plexiglass pieces were located within about 50 ft of the main wreckage. Four trees located about 5 to 6 ft northeast of the main wreckage were topped. All other trees adjacent to the main wreckage appeared undamaged.

The fuselage came to rest upright and exhibited buckling and crushing from the forward portion of the airplane to just aft of the engine pylon. The engine pylon remained attached to the fuselage; however, it was displaced forward and to the left. The tailboom remained intact. The vertical stabilizer remained attached to the tailboom. The rudder remained partially attached to the vertical stabilizer. The skin of the rudder was torn open about midheight. The left horizontal stabilizer remained attached to the tailboom and was bent and buckled throughout. The left elevator remained attached via the outboard mount. The inboard portion of the left elevator was torn open. The trim tab remained attached via its mounts. The left brace tube was separated from the horizontal stabilizer. The area of separation was consistent with the impact damage. The right horizontal stabilizer was buckled and bent upward about 10° from the root. The right elevator remained attached via its mounts. The right brace tube remained attached to the horizontal stabilizer and tailboom.

The right wing remained attached to the fuselage via both the forward and aft mounts. The wing was twisted and came to rest in a leading-edge-low attitude. The bottom of the wing exhibited buckling, the fabric covering the wing was torn, and the internal wood ribs and spar were fractured. The inboard portion of the right wing was partially wrapped around the base of a tree that was about 7 to 8 inches in diameter. The right aileron remained attached via its mounts. The landing gear appeared to remain in the retracted position.

The left wing was separated from the inboard portion of the carry-through spar. The wing remained attached to the outboard portion of the carry-through spar and aft wing mounts. The entire wing structure was buckled throughout with multiple tears in the fabric. The wing was bent upward about midspan. The left aileron was separated from its mounts. The outboard wing tip was displaced and located wedged within a tree immediately forward of the left wing. The landing gear appeared to be in the retracted position.

Control continuity was established from the cockpit controls throughout the fuselage to all primary flight control surfaces. Throttle, mixture, and propeller control continuity was established from the cockpit controls to the engine mount pylon; however, impact damage at the engine pylon had resulted in the separation of the control cables.

The wreckage was recovered to a secure hangar for further examination.

Examination of the airframe revealed that the single fuel tank was impact damaged and breeched. No evidence of fuel was observed within the recovered portion of the fuel tank. The fuel tank pickup tube remained intact, and the screen was free of debris. Continuity of the fuel lines from the fuel tank to the engine was established. Compressed air was applied to the fuel lines, and no blockages were noted in the outlet lines to the engine. The airframe electric fuel boost pump was found separated from the fuel lines and exhibited impact damage. The fuel shutoff valve was observed in the "on" position. All of the fuel primer lines were intact. The airframe fuel filter (gascolator) was impact damaged, and the bowl was separated.

Examination of the engine revealed that it remained partially attached to the engine pylon. The engine was removed and slung from a forklift. The carburetor, vacuum pump, and alternator were separated from their mounts. The Nos. 2, 4, and 6 cylinders side intake manifold exhibited impact damage. The exhaust was intact and exhibited impact damage to the No. 2 cylinder exhaust stack.

The top spark plugs were removed and examined. The upper Nos. 1, 2, 4, 5, and 6 spark plugs exhibited black deposits within the electrode area. The upper No. 3 spark plug was slightly oil soaked, and black within the electrode area.

The propeller was rotated by hand. Thumb compression was obtained on the Nos. 1, 3, 4, 5, and 6 cylinders. The No. 2 cylinder exhibited impact damage to the cylinder head, which would not allow thumb compression to be obtained. Rotational continuity was established throughout the engine and valve train.

The left and right magnetos were removed. The drive shafts were rotated by hand, and spark was produced on all six posts.

The carburetor exhibited impact damage and was split into two pieces. The internal floats were intact. The throttle plate moved freely when the throttle lever was actuated by hand. The mixture arm moved partially by hand; however, it exhibited impact damage.

The propeller remained attached to the crankshaft. Propeller blade A appeared straight and exhibited leading edge chordwise scratches from the blade tip inboard about 10 inches on the aft side of the propeller blade. The opposing blade, blade B, appeared straight and exhibited chordwise scratches to the outboard 3 inches of the forward and aft sides of the propeller blade.

The engine-driven fuel pump, airframe electrical fuel boost pump, bottom half of the carburetor, and all of the associated fuel lines were retained for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

The Spokane County Medical Examiner conducted an autopsy on the pilot. The medical examiner determined that the cause of death was "blunt.injuries."

The FAA's Civil Aerospace Medical Institute (CAMI) performed toxicology tests on specimens from the pilot. According to CAMI's report, the results were negative for carbon monoxide and volatiles and positive for salicylate in the urine. Testing for cyanide was not performed.

TESTS AND RESEARCH

The CJ Aviation 6005-2A engine-driven fuel pump and airframe electrical fuel boost pump were examined by the National Transportation Safety Board investigator-in-charge. An electric drill was attached to the engine-driven fuel pump, and the inlet fuel line was submerged in 100 low lead fuel. When the drill motor was turned on, fuel was observed flowing out of the outlet fuel port of the fuel pump. The inlet hose of the electrical fuel boost pump was then submerged in fuel. When electrical power was applied to the boost pump, fuel was observed expelling out of the outlet port of the fuel pump. No anomalies were observed with either fuel pump.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR16LA187	09/18/2016 1500 PDT	Regis# N57TJ	Renton, WA	Apt: Renton Municipal Airport RNT
Acft Mk/Mdl JURCAN SEAWIND 3000		Acft SN 52	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING AEIO540-L1B5		Acft TT 132	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: JURCAN ANTHONY		Opr dba:		Aircraft Fire: NONE

Events

1. Landing - Landing gear not configured
-

Narrative

On September 18, 2016, about 1500 Pacific daylight time, a Jurcan Seawind 3000 airplane, N57TJ, impacted a runway sign after landing with a landing gear malfunction at the Renton Municipal Airport (RNT), Renton, Washington. The pilot and one passenger were not injured, and the airplane sustained substantial damage to the left wing. The airplane was registered to, and operated by, the pilot as a personal flight under 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident, and no flight plan was filed. The airplane departed from Lampson Field Airport (102) Lakeport, California at 1040 and was originally destined for Lake Sammamish, Issaquah, Washington.

The pilot reported that after arriving at Lake Sammamish, they observed that the right main landing gear indicator light was off and the hydraulic pressure read zero. The pilot attempted to retract the right landing gear several times, but to no avail. He elected to fly to a nearby airport, where the control tower confirmed that the right main landing gear was extended, while the left main and nose landing gears remained retracted. The pilot attempted to use the back-up manual hydraulic pump as well as abrupt maneuvers to lower the remaining landing gears, however, to no avail. The pilot elected to land onto the runway with the abnormal landing gear configuration. The airplane touched down onto the runway right landing gear first. The pilot held the left wing off the runway as long as possible, but when the wing touched the runway, the airplane veered off the runway surface. It slid along the grass and impacted an airport sign and light, before spinning 180 degrees and coming to a rest.

Postaccident examination of the airplane revealed a hydraulic leak that originated at a cracked flare in a hydraulic line fitting. This fitting was located on the bulkhead between the cabin and nose compartment that leads directly into the nose gear actuator.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA108	12/31/2016 1700 MST	Regis# N5897R	Casa Grande, AZ	Apt: Casa Grande Muni CGZ
Acft Mk/Mdl LARSON ROGER H RV-7-A		Acft SN 73692	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-360-A1A		Acft TT 53	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: ROGER H. LARSON		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

Summary

The pilot reported that, during his second flight, following the installation of a new autopilot, he noticed on short final that the mixture was set too lean. He added that, "with a gloved hand," he pushed the mixture in to a richer setting and accidentally turned on the autopilot, which was located directly above the mixture control. The autopilot was set to navigation mode, heading mode, and altitude mode from a previous flight. The pilot reported that he was "fighting the auto pilot" and that the airplane aerodynamically stalled, which resulted in a hard landing.

The airplane sustained substantial damage to the firewall.

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

Cause Narrative

THE NATIONAL TRANSPORTATION SAFETY BOARD DETERMINED THAT THE CAUSE OF THIS OCCURRENCE WAS: The pilot's inadvertent application of the autopilot during short final, which resulted in an aerodynamic stall and hard landing.

Events

1. Approach - Miscellaneous/other
2. Approach - Attempted remediation/recovery
3. Approach - Aerodynamic stall/spin
4. Landing - Hard landing

Findings - Cause/Factor

1. Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Angle of attack-Capability exceeded - C
2. Aircraft-Aircraft systems-Auto flight system-Autopilot system-Unintentional use/operation - C
3. Personnel issues-Task performance-Use of equip/info-Use of equip/system-Pilot - C
4. Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C

Narrative

The pilot reported that during his second flight, following the installation of a new autopilot, he noticed on short final that the mixture was set too lean. He further reported that "with a gloved hand" he pushed the mixture in to a richer setting; and accidentally turned on the autopilot, which was located directly above the mixture control. The autopilot was set to navigation mode, heading mode, and altitude mode from a previous flight. The pilot reported that he was "fighting the auto pilot" and the airplane aerodynamically stalled, resulting in a hard landing.

The airplane sustained substantial damage to the firewall.

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

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR17LA080	03/22/2017 1130	Regis# N268CR	Bozeman, MT	Apt: Bozeman Yellowstone Intl BZN
Acft Mk/Mdl MAXCY CHRISTOPHER L STOL KING-NO	Acft SN 4	Acft Dmg: SUBSTANTIAL	Fatal 0	Rpt Status: Prelim Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320-A2B		Ser Inj 0	Fit Conducted Under: FAR 091	
Opr Name: MAXCY CHRISTOPHER L	Opr dba:		Aircraft Fire: NONE	
			AW Cert: SPE	

Events

1. Landing-landing roll - Landing gear collapse
-

Narrative

On March 22, 2017, about 1130 mountain daylight time, an experimental, amateur-built, Maxcy Stol King airplane, N268CR, sustained substantial damage during the landing roll at the Bozeman Yellowstone International Airport (BZN), Bozeman, MT, following a landing gear collapse. The airplane was registered and operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91. The private pilot, the sole person aboard the airplane, was not injured. Visual meteorological conditions prevailed and no flight plan was filed for the personal, local flight which originated about 1040.

The pilot reported that just after touchdown, the airplane veered left and the right main landing gear collapsed, resulting in the right wing striking the runway.

Postaccident examination of the airplane revealed that the right wing was bent upwards and was substantially damaged. The wreckage was transported to a secure location for further examination.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR16LA088 03/10/2016 1533 MST Regis# N44AZ Prescott, AZ Apt: Ernest A. Love Field PRC
Acft Mk/Mdl THOMAS D. PARKES LANCAIR ES Acft SN ES-089-FB Acft Dmg: SUBSTANTIAL Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl MAZDA/ATKINS 20B Acft TT 245 Fatal 0 Ser Inj 0 Flt Conducted Under: FAR 091
Opr Name: THOMAS D. PARKES Opr dba: Aircraft Fire: NONE
AW Cert: SPE

Events

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

Narrative

On March 10, 2016, about 1533 mountain standard time, a Thomas Parkes Lancair ES, N44AZ, was substantially damaged following a forced landing due to a reported partial loss of engine power at Ernest A. Love Field (PRC), Prescott, Arizona. The airline transport pilot, the sole occupant and owner of the airplane, was not injured. Visual meteorological conditions prevailed for the proposed local flight, which was being operated in accordance with 14 Code of Federal Regulations Part 91, and a flight plan was not filed. The flight was originating at the time of the accident.

In a report submitted to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the pilot reported that as he advanced the throttle for takeoff he checked the initial engine acceleration, which appeared to be normal and smooth; manifold pressure (MAP) was set at 31 inches, with normal turbocharger spool-up noted as the secondary injectors cut in during acceleration. The pilot opined that this was a normal turbo-normalized installation with a manual waste-gate spring loaded to 5 psi. The turbo relief valve was set for a maximum MAP of 3.2 psi to provide sea-level power at PRC's elevation of 5,000 ft.

The pilot reported that he lifted off about 75 to 80 knots (kts) with the engine running smoothly, but acceleration seemed to taper off as the airplane approached 100 feet above ground level. The pilot stated that the MAP was still reading 31 inches, but he needed to reduce his pitch attitude slightly to maintain 80 kts. The pilot further stated that previous experience had led him to expect a vigorous rate of climb with a manual reduction in propeller rpm, but at this point he realized that the engine had a power issue, at which time he pushed the throttle full forward. The pilot reported that he had sufficient runway to land the airplane, but without sufficient runway to stop before contacting a berm at runway's end. Additionally, he realized that there was a self-serve fueling station in his path, which prompted him to make a slight left turn in order to line up for a precautionary landing on taxiway Charlie. However, as the taxiway began slowly rising in the windscreen, he quickly altered the turn, lowered the flaps, and landed on the edge of taxiway Bravo adjacent to the ramp, missing all aircraft that were tied down in that area. The airplane quickly ran out of ramp area and impacted the rough terrain approaching taxiway Foxtrot. The pilot stated that the airplane bounced a few times before the nose gear collapsed and skidded across runway 12, coming to rest upright in the grass just beyond the runway. According to the pilot, the nose landing gear, propeller, cowling, and firewall were damaged as a result of impact with a newly installed Precision Approach Path Indicator's four vertical pipes, control boxes, and lights.

A Federal Aviation Administration (FAA) aviation safety inspector's postaccident examination of the airplane revealed a compromised engine mount and damage to the firewall. On April 26, 2016, the NTSB IIC met with the pilot/owner at his hangar at PRC to discuss the accident, as well as to perform a cursory inspection of the engine. During the inspection, the IIC observed that the engine's crankshaft rotated freely, with no binding noted. No indications of a catastrophic engine event was observed. The pilot stated that he did not feel that there was a problem with the engine itself, however, that the issue centered around the turbocharger (serial number CCN00246, OEM part number LW-12689, part number 406610-9020).

An external examination of the turbocharger revealed hard scraping on the hot side, two blades were observed chipped, two additional blades were cracked, and the impeller was tight. The pilot reported that he initially purchased the engine in 1999 from Atkins Rotary, located in Eatonville, Washington, and that there were no historical records available for the engine. The pilot subsequently installed the turbocharger to the engine, with its first flight being in 2003. The NTSB IIC had the turbocharger removed from the engine, retained custody of the component, and on May 5, 2016, shipped the component to the facilities of Hartzell Engine Technologies, Piqua, Ohio, where a detailed examination and analysis would be performed.

On May 20, 2016, under the supervision of a FAA aviation safety inspector assigned to the FAA's Cincinnati Flight Standards District Office, Cincinnati, Ohio, a Hartzell Engine Technologies technician performed an examination of the subject turbocharger. The technician's findings revealed that the turbine wheel and blades had indications of being overtemped (EGTs greater than approximately 1,650 degrees F) and possible overspeed. The technician revealed that the reddish-white discoloration of the turbine wheel suggested excessive exhaust gas temperature, and that the discoloration of the turbine end shaft journal was consistent with excessive temperature. The technician reported that a combination of high exhaust temperature and wheel speed caused the blade material to creep (high temperature plastic deformation), and wheel diameter to increase until the blade tips rubbed against the turbine housing. The technician also

reported that blade tip rub and creep eventually caused blade tip failures, which resulted in a rotating imbalance that damaged the compressor-bearing bore, compressor wheel rub, and introduced debris/particles into the oil bearings. The technician concluded that a combination of imbalance and wheel rub likely resulted in the turbocharger rotation to slow or stop, and thus the resultant loss of boost and engine power. (Refer to the Hartzell Engine Technologies Turbocharger Examination Findings report, which is appended to the docket for this accident.)

During the investigation, the pilot revealed that the airplane was equipped with an EGT gauge that would alert him when the temperature exceeded 1,600 degrees F. However, during the accident sequence he did not observe an overtemperature warning light, nor did he know when the temperature probe was last calibrated. Additionally, the pilot reported that since the accident occurred, he had sent the engine to a repair facility, which to date has not been able to determine what precipitated the overtemperature condition.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# GAA17CA127	01/28/2017 1645 CST	Regis# N60JV	Mccook, NE	Apt: Mc Cook Ben Nelson Rgnl MCK
Acft Mk/Mdl VAUGHAN GERALD R SIDE WINDER	Acft SN V1004	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual	Prob Caus: Pending
Eng Mk/Mdl LYCOMING O-320	Acft TT 398	Fatal 0	Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: LARRY MAYER	Opr dba:	Aircraft Fire: NONE	AW Cert: SPE	

Summary

The pilot reported that, during the landing roll in gusting wind conditions, the airplane veered to the left. He applied right rudder and brake, but the airplane struck a runway sign on the left side of the runway and exited the runway.

The airplane sustained substantial damage to the fuselage.

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

A review of recorded data from the automated weather observation station located on the airport revealed that, about 8 minutes after the accident, the wind was 320ø true at 19 knots, gusting to 25 knots, and peak wind was 300ø true at 27 knots. The airplane landed on runway 30.

Cause Narrative

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

Events

1. Landing-landing roll - Loss of control on ground
2. Landing-landing roll - Attempted remediation/recovery
3. Landing-landing roll - Collision with terr/obj (non-CFIT)

Findings - Cause/Factor

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

Narrative

The pilot reported that during the landing roll in gusting wind conditions, the airplane veered to the left. He further reported that he applied right rudder and brake, but the airplane struck a runway sign on the left side of the runway and exited the runway.

The airplane sustained substantial damage to the fuselage.

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

A review of recorded data from the automated weather observation station located on the airport revealed that about 8 minutes after the accident the wind was 320ø true at 19 knots, wind gust 25 knots, peak wind was 300ø true at 27 knots. The airplane landed on runway 30.

National Transportation Safety Board - Aircraft Accident/Incident Database

Accident Rpt# WPR16LA164	08/12/2016 1000 PDT	Regis# N619LD	Ocean Shores, WA	Apt: N/a
Acft Mk/Mdl ZENITH CH601		Acft SN 66980	Acft Dmg: SUBSTANTIAL	Rpt Status: Factual Prob Caus: Pending
Eng Mk/Mdl CONTINENTAL O-200		Acft TT 11	Fatal 0 Ser Inj 0	Flt Conducted Under: FAR 091
Opr Name: LONNY GUNTHER		Opr dba:		Aircraft Fire: NONE
				AW Cert: SPE

Events

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

Narrative

On August 12, 2016, about 1000 Pacific daylight time, a Zenith CH601, N619LD, sustained substantial damage when it impacted the ground near Ocean Shores, Washington. The private pilot, the sole occupant, sustained minor injuries. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed, and no flight plan had been filed. The local flight originated from Bowerman Airport (HQM), Hoquiam, Washington at 0900.

The pilot reported that he was in cruise flight when the voltmeter's indications became erratic. Shortly thereafter, the airplane experienced a complete loss of electrical power, followed by a loss of engine power. He immediately executed an emergency landing, and established the best glide speed at 70 mph. Prior to impact, the bottom of the fuselage contacted surrounding vegetation, the right wing dipped, and the airplane impacted the terrain.

The airplane was equipped with an Odyssey Extreme Series PC-680 battery which required a 14.4 charging voltage. In a phone conversation with the National Transportation Safety Board investigator-in-charge, the pilot stated that had checked the battery's state of charge after the flight, and the battery indicated 11 volts. He added that the electrical system on the airplane requires 12-13 volts for operation.

A Federal Aviation Administration (FAA) Inspector examined the airplane's logbook, and the majority of the wreckage. The airplane logbook showed the last condition inspection occurred on September 20, 2015; an Experimental Airworthiness certificate for the purpose of Amateur Built was issued on May 20, 2016. The airplane was in Phase 1 operation test flight, and it was restricted to a 25-mile radius of HQM.

The engine, most of the flight instruments, the tachometer, interior components, and damaged canopy pieces were removed by the owner following the accident, and were not present for the examination.

The nose gear was bent to the right. The fuselage exhibited compression wrinkles in the top skin between the empennage and the cabin. The right wing was removed, and showed some outboard leading edge damage. The right elevator was significantly damaged. The skin below the horizontal stabilizer was wrinkled. The left aileron and wingtip sustained damage. The main landing gear was partially folded under the fuselage.

The battery showed a 10-volt charge. The airplane was equipped with two Facet 12 volt electronic fuel pumps. Both pumps were connected in series; therefore, fuel to the engine had to pass through both pumps. There were no other mechanical or auxiliary pumps installed. The wire and connectors that remained in the fuselage were automotive type. All circuit breakers were observed in, and no overheated wiring or arcing was found.

The airplane was powered by a Continental O-200-A engine, serial number 72 JACH-A-48, and was installed on the airplane with about 250 hours since major overhaul. Initially, the engine was equipped with an external oil filter and an adapter on the oil cooler pad, but the pilot removed the filter assembly and installed the cooler pad cover on the engine case. The oil screen did not contain any metal particles.

The carburetor was separated from the engine, and it appeared largely intact. Neither the carburetor bowl nor the accelerator pump contained fuel. The complete statement from the FAA inspector detailing the examination is appended to the accident in the public docket.