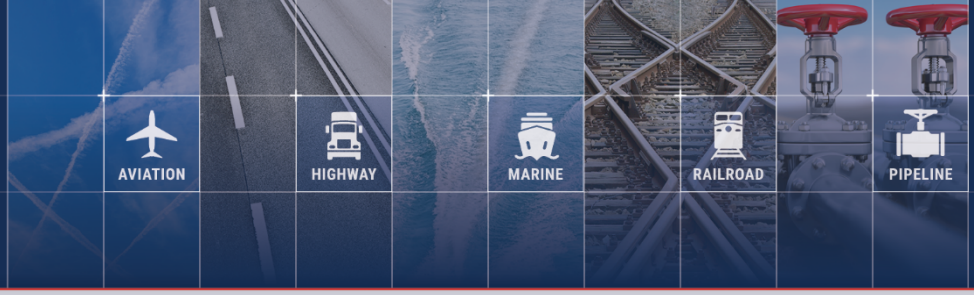

Aviation Investigation Final Report

Location:	Burlington, Wisconsin	**Accident Number:**	CEN20LA179
Date & Time:	May 15, 2020, 18:15 Local	**Registration:**	N1JA
Aircraft:	Cessna P210	**Aircraft Damage:**	Substantial
Defining Event:	Unknown or undetermined	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After the replacement of an alternator belt that had failed on the previous flight, the pilot departed the airport; however, elected to return. While maneuvering in the traffic pattern about three minutes before the accident, the pilot, via his cellular phone, attempted to call the mechanic who replaced the alternator belt. A review of flight track data and witness information revealed that the airplane remained in the traffic pattern after taking off and that during the final approach, the airplane was at a low altitude and low airspeed. Witnesses observed the airplane stall and impact trees and terrain short of the runway.

Witness accounts and impact signatures to the forward fuselage were indicative of a nose-low, low energy impact consistent with an aerodynamic stall.

Postaccident examination of the airplane revealed the replaced alternator belt was displaced from the engine driven pulley and the alternator and was found lying near the back and bottom of the engine. Although this condition would affect the airplane's electrical system, the displaced belt would not affect the engine power performance. No other mechanical malfunctions were noted with the airframe and engine that would have precluded normal operation.

Based on the autopsy findings and medical certification files, the pilot had several cardiovascular conditions that could result in sudden incapacitation; however, the operational findings did not suggest any sudden incapacitation or impairment. The pilot appeared to have made some good judgements about returning to the airport when he discovered an issue with his airplane. Thus, the pilot's medical conditions and use of medications detected on toxicology testing were unlikely to have been factors in this accident.

Given the available information, it is likely the pilot was returning to the airport after an alternator malfunction. During the final approach to the runway, the pilot did not maintain control of the airplane, at an already low altitude, and the airplane impacted trees and terrain on short final approach.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot did not maintain a safe altitude during the visual approach, and subsequently lost control which resulted an impact with trees and terrain.

Findings

Aircraft	Alternator-generator drive sys - Unknown/Not determined
Personnel issues	Aircraft control - Pilot
Aircraft	Altitude - Not attained/maintained
Aircraft	Descent/approach/glide path - Not attained/maintained

Factual Information

History of Flight

Maneuvering	Sys/Comp malf/fail (non-power)
Approach	Unknown or undetermined (Defining event)
Approach	Collision with terr/obj (non-CFIT)

On May 15, 2020, about 1815 central daylight time, a Cessna P210N airplane, N1JA, was substantially damage when it was involved in an accident near Burlington, Wisconsin. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to a mechanic, the pilot departed West Bend Municipal Airport (EBT), West Bend, Wisconsin, earlier that day to fly to Burlington Municipal Airport (BUU), Burlington, Wisconsin. The purpose of the trip was to review with maintenance personnel some configuration issues between the pilot's electronic tablet and the airplane's panel mounted avionics, in addition, receive instruction on recently installed GPS and automatic dependent surveillance-broadcast (ADS-B) equipment.

After completing the work with maintenance personnel, the pilot fueled the airplane in preparation for his flight back to EBT. Shortly after departure from BUU to EBT, the pilot returned to BUU due to a malfunction with the horizontal situation indicator. Examination of the airplane with a mechanic revealed that the airplane's alternator belt had failed. The mechanic replaced the alternator belt with a spare belt that was supplied by the pilot. While replacing the belt, the mechanic did not notice "anything amiss with the engine installation…" or any other engine issues. The mechanic verified the belt was tensioned satisfactorily; he then tightened and safety-wired the alternator bolts and installed the cowling.

After completing an engine run-up with no anomalies noted by the mechanic, the pilot again departed BUU. Shortly after departure from runway 29, the mechanic noticed the pilot did not retract the landing gear, and the airplane entered shallow right turn and did not climb normally. The pilot communicated over the radio that he was again returning to BUU. The mechanic observed the airplane on final approach at a low altitude and low airspeed. He stated that the airplane "clearly stalled", contacted trees, and disappeared from his view. After the accident, the mechanic noticed he missed a cellular telephone call from the pilot about 3 minutes before the accident.

A review of the air traffic control radar and ADS-B track data showed that after departure about 1808, the airplane entered a right traffic pattern to return to BUU (See Figure 1. Accident Flight). The last 20 seconds of flight track data showed that during the final approach, the ground speed fluctuated between 74 and 78 kts, and the airplane lost altitude. The data discontinued about ½ mile short of the runway and showed the airplane was about 875 ft mean sea level (msl) (airport elevation 780 ft msl), at a ground

speed of 78 kts.

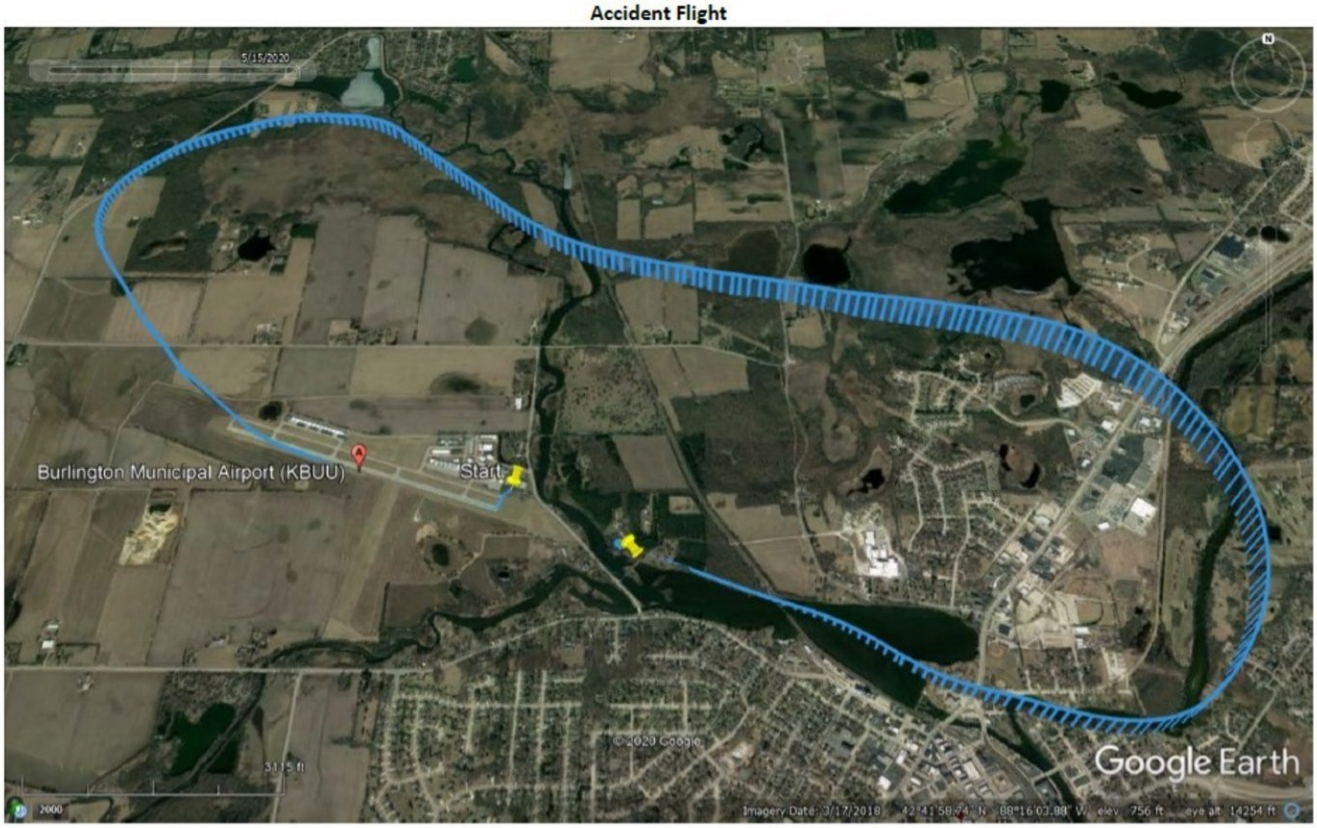

Figure 1. Accident flight.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	80,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	None None	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	15000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N1JA
Model/Series:	P210 N	**Aircraft Category:**	Airplane
Year of Manufacture:	1978	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000082
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	May 6, 2019 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	6102 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-P
Registered Owner:	Jadair International Inc	**Rated Power:**	310 Horsepower
Operator:	Jadair International Inc	**Operating Certificate(s) Held:**	None

The pilot was the sole owner of the airplane since manufacture in 1978.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BUU,780 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	18:15 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.94 inches Hg	**Temperature/Dew Point:**	23°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Burlington, WI (BUU)	**Type of Flight Plan Filed:**	None
Destination:	Burlington, WI (BUU)	**Type of Clearance:**	None
Departure Time:	18:12 Local	**Type of Airspace:**	Class G

The wind was reported as calm.

Airport Information

Airport:	Burlington Municipal Airport BUU	**Runway Surface Type:**	Asphalt
Airport Elevation:	780 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	29	**IFR Approach:**	None
Runway Length/Width:	4300 ft / 75 ft	**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	42.688331,-88.291114(est)

The airplane came to rest upright in wooded terrain about ¼ mile short of runway 29. Multiple tree impacts and broken tree limbs were noted in the descent flight path, consistent with the damage noted on the leading edges of both wings and horizontal stabilizers.

The left wing was partially separated near the wing root and outboard of the flap control surface. The leading edge was bent, crushed, and distorted. The inboard section of the right wing was partially attached, and the outboard section, to include the aileron, was separated. The leading edge was destroyed. The flap jackscrew was found partially extended about 1.5 inches, which corresponded to a flap setting of about 20°. The empennage remained attached and displayed several dents and damage consistent with tree impacts. The landing gear were extended, and the landing gear struts were bent and distorted.


Figure 3. Accident Airplane (Photo courtesy of City of Burlington Police Department)

Flight control continuity was established from the cockpit to the flight control surfaces, except for the right aileron due to the impact separation. The aileron cable displayed broomstraw-type features consistent with an overload failure.

The pilot's seat (left front) frame was broken and separated near the seat rails. The separated lower seat frames were partially attached to the seat rails and the locking pins were engaged. The cabin floor was bent upward and distorted.

The cockpit engine throttle lever was near the idle position and bent down. The mixture and propeller controls were near the full forward positions. The fuel selector was in the right tank position. The

landing gear selector was down, and the manual gear extension lever was partially extended and bent upward. The alternator circuit breaker was tripped.

The engine mount remained partially attached to the firewall, and the engine was bent down. The engine remained secured to the engine mounts. The alternator wires were separated at the alternator, due to the forward and downward engine displacement. Damage consistent with the impact was noted on the lower and right side of the engine. All three propeller blades remained attached to the propeller hub. The propeller blades were twisted and bent aft.

Mechanical continuity was noted throughout the engine when the propeller was rotated by hand. The magnetos produced spark at each ignition lead when the propeller was rotated. Thumb compression was noted on all cylinders. The turbocharger compressor impeller and turbine were undamaged and free to rotate.

The replaced alternator belt was displaced from the engine driven pulley and the alternator and was found lying near the back and bottom of the engine. Although this condition would affect the airplane's electrical system, the displaced belt would not affect the engine power performance.

The airplane's 24-volt battery was tested by a maintenance facility under the supervision of a FAA inspector. The initial voltage test was 23.76 volts, direct current. A battery tester showed the battery had a 21% capacity at the time of the test.

Medical and Pathological Information

According to the FAA medical certification files and FAA medical case review, the pilot's last FAA medical certification examination was on August 16, 2019. At the time of the accident, the pilot had failed to provide supporting medical records concerning a hospital admission for viral pericarditis, so FAA had just withdrawn his second-class medical certificate, which therefore expired on August 31, 2019.

Toxicology testing performed by the FAA Forensic Sciences Laboratory detected fentanyl, midazolam, etomidate, lidocaine, and torsemide in the pilot's cardiac blood; these medications were also detected in his liver tissue. These five medications are commonly used for resuscitation and surgery (the pilot survived for several hours after the accident). The laboratory also detected warfarin, hydroxybupropion, and the non-sedating anti-inflammatory medication naproxen in the pilot's cardiac blood and liver tissue.

Warfarin is a medication used to treat or prevent blood clots (thromboemboli) or prevent their complications in conditions such as atrial fibrillation or cardiac valve replacement. The medication is given to reduce the risk of sudden death, heart attacks, and strokes. Warfarin increases a person's chance of major bleeding especially with a fall or accident; a person taking warfarin receives frequent

laboratory testing to make sure the concentration balances the risks of bleeding and clotting. Warfarin is not an impairing medication, but the medication and conditions for which it is prescribed would require an observation period by the FAA.

Hydoxybupropion is the active metabolite of bupropion which is prescribed as an antidepressant or for smoking cessation. The treatment of depression would require FAA review before flying. Buproprion is not one of the four drugs that FAA will permit use for depression. The use of buproprion for smoking cessation would require FAA approval unless the pilot was off the medication for 30 days. According to the FAA, bupropion carries the warning that the medication may impair mental or physical ability required to perform hazardous tasks.

Administrative Information

Investigator In Charge (IIC):	Sauer, Aaron
Additional Participating Persons:	Joseph Saunders; FAA; Milwaukee, WI
Original Publish Date:	March 18, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=101280