Aviation Investigation Final Report

Location:	Albia, Iowa	**Accident Number:**	CEN11LA402
Date & Time:	June 18, 2011, 14:30 Local	**Registration:**	N900SR
Aircraft:	Cessna P210R	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation		

Analysis

The pilot stated that the airplane was fully fueled before takeoff. While en route, he requested a destination change due to deteriorating weather along his route of flight. During the descent, about 15,000 feet mean sea level, the engine lost power. The pilot's efforts to restore engine power were not successful, and he diverted to the nearest airport. The airplane descended below the clouds about 1,000 feet above ground level; however, the airplane was not in a position to land on the runway. The airplane ultimately lost too much airspeed and altitude as the pilot attempted to configure and align the airplane for a landing on the runway. He subsequently landed in a grass area about 100 feet southwest of the runway, nearly perpendicular to the runway orientation.

A postaccident examination did not reveal any anomalies consistent with a preimpact failure or malfunction. No useable fuel was observed in the airplane fuel tanks at the time of the examination. The fuel tank caps were securely installed, and no evidence of fuel staining or siphoning was observed on the airframe. The pilot noted that the fuel quantity indications before the loss of engine power were near empty and about 10 gallons for the right and left tanks, respectively. He added that the fuel gauges had never worked properly. The pilot stated that he did not visually check the amount of fuel on board during the preflight inspection. He commented that normal airplane endurance was about 5 1/2 hours and the accident flight was about 3 1/2 hours in duration. The airplane was not in compliance with a Federal Aviation Administration Airworthiness Directive requiring a placard denoting that the fuel level must be rechecked 2 minutes after fueling to ensure full fuel tank capacity. In addition, the airplane Pilot's Operating Handbook required a visual inspection of the fuel level as part of the preflight inspection.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight inspection, in which he did not detect that less fuel was on board the airplane than planned, which precipitated a loss of engine power due to fuel exhaustion during initial descent.

Findings

Personnel issues	Preflight inspection - Pilot
Aircraft	Fuel - Fluid level
Aircraft	(general) - Inoperative

Factual Information

History of Flight

Enroute-descent	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Landing	Landing gear collapse

On June 18, 2011, about 1430 central daylight time, a Cessna P210R, N900SR, was substantially damaged during a forced landing following a loss of engine power at Albia Municipal Airport (4C8), Albia, Iowa. The pilot sustained serious injuries. The airplane sustained substantial damage to the right wing and the fuselage. The aircraft was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a business flight. Visual meteorological conditions prevailed for the flight, which was operated on an instrument flight rules (IFR) flight plan. The flight originated from Grand Junction Regional Airport (GJT), Grand Junction, Colorado, at 1008 mountain daylight time. The intended destination was Iowa City Municipal Airport (IOW), Iowa City, Iowa.

The pilot stated that the airplane was fully fueled before departing from GJT. After takeoff, the airplane eventually climbed to Flight Level (FL) 250 (25,000 feet pressure altitude) in order to remain above the cloud layers. He had initially filed an IFR flight plan for St. Joseph, Missouri (STJ); however, he requested a destination change to IOW due to deteriorating weather along his route of flight. During the initial descent into IOW, about 15,000 feet mean sea level (msl), the engine began to "sputter and lose power." The pilot advised air traffic control of the situation and altered course for the nearest airport, which was 4C8.

The pilot's efforts to restore engine power were not successful. He circled about 1 mile south of the airport and ultimately descended below the clouds about 1,000 feet above ground level (agl). The airplane flight path was oriented approximately 45 degrees to the runway heading at that time. The pilot lowered the wing flaps and landing gear, and banked the airplane "hard right" in an attempt to reduce airspeed and line up with the runway. However, too much airspeed/altitude was lost and the pilot was unable to reach the runway. He executed a forced landing about 100 feet southwest of runway 31, on a bearing of approximately 220 degrees. The impact path was approximately perpendicular to the runway orientation. The airplane came to rest in an adjacent cornfield approximately 200 feet from the edge of the runway pavement and about 700 feet from the departure end of the runway.

A witness reported that the airplane approached the airport from the southeast and over flew the hangar area. The propeller was rotating; however, he could not hear the engine because he was operating a lawn mower and was wearing hearing protection. He responded to the accident site. The pilot had exited the airplane by the time he arrived. The pilot stated that the airplane acted like it had run out of gas; although, he had only been flying for about 3-1/2

hours.

Federal Aviation Administration (FAA) inspectors responded to the accident site and conducted a postaccident examination. The airplane came to rest upright on a northwest bearing with the right wing tip contacting the ground. The right main landing gear had collapsed. The nose landing gear separated from the airframe and was located at the site. The right wing exhibited damage near the wingtip and at the root common to the fuselage. The fuel tanks appeared intact and uncompromised. No fuel was observed in the right fuel tank when examined through the filler port. (The fuel tank filler ports are located at the outboard end of the tanks near the wingtips.) A trace amount of fuel was obtained from the left fuel tank via the inboard quick drain valve. Visual examination of the engine did not reveal any anomalies. The fuel caps were securely installed. No staining consistent with fuel tank or fuel cap leakage was observed on the wings or fuselage at the time of the examination. No anomalies consistent with a preimpact failure or malfunction were observed.

According to fixed base operator (FBO) records, the accident airplane was fueled with 42.2 gallons of 100 low lead aviation fuel prior to departure from GJT. Line service personnel informed FAA inspectors that the airplane was fully fueled (topped off) at that time.

The pilot noted that the right fuel gauge indicated near empty and the left fuel gauge indicated about 10 gallons. He added that the fuel gauges never worked properly and that was not an unusual indication for that point during the flight. The fuel flow unit noted at least 40 gallons remained on-board at the time of the accident. Normal airplane endurance was about 5-1/2 hours and the accident flight was approximately 3-1/2 hours in duration at the time of the loss of engine power. The pilot stated that about 30 minutes before the accident he heard a loud bang come from the engine compartment; however, nothing changed in the instrument indications to indicate a problem.

The pilot informed FAA inspectors that he did not visually check the amount of fuel on-board during the preflight inspection. He noted that the fuel burn was about 20 gallons per hour during the accident flight, and that the fuel quantity indicators noted near one-half tanks about 30 minutes before the loss of engine power.

The accident airplane was equipped with long range fuel tanks having a total capacity of 120 gallons (115 useable). The long range fuel system was configured with two integral, interconnected fuel tanks in each wing. The FAA issued an airworthiness directive (AD) related to the fuel system on Cessna 210 airplanes effective July 1994. The AD was applicable to the accident airplane. The stated purpose of the AD was to "prevent loss of engine power caused by inadvertent fuel loss or inadequate fuel servicing." The AD required a revision to the airplane flight manual and a one-time calibration of the fuel quantity gauges. In addition, the AD required installation of raised filler caps or a placard requiring that the fuel level be rechecked 2 minutes after fueling to insure full fuel tank capacity. The airplane maintenance records denoted compliance with the AD. However, the wing filler ports were not configured with a raised filler cap, nor were the specified placards installed. The flight manual did include the

required revision. That revision stated that the fuel level must be visually verified and the wing surface must be inspected for a lack of fuel staining at each fuel cap during the preflight inspection whenever more than 75 gallons are needed for range and reserve.

Pilot Information

Certificate:	Private	**Age:**	45,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	January 1, 2010
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 6, 2011
Flight Time:	725 hours (Total, all aircraft), 160 hours (Total, this make and model), 700 hours (Pilot In Command, all aircraft), 60 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N900SR
Model/Series:	P210R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000839
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 1, 2010 Annual	**Certified Max Gross Wt.:**	4100 lbs
Time Since Last Inspection:	16.5 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1604.4 Hrs at time of accident	**Engine Manufacturer:**	Continental Motors
ELT:	Installed	**Engine Model/Series:**	TSIO-520-CE
Registered Owner:	Drake Aviation LLC	**Rated Power:**	325 Horsepower
Operator:	Drake Aviation LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	OTM,845 ft msl	**Distance from Accident Site:**	16 Nautical Miles
Observation Time:	14:26 Local	**Direction from Accident Site:**	62°
Lowest Cloud Condition:	Scattered / 1600 ft AGL	**Visibility**	6 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.78 inches Hg	**Temperature/Dew Point:**	24°C / 21°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:	Grand Junction, CO (GJT)	**Type of Flight Plan Filed:**	IFR
Destination:	Iowa City, IA (IOW)	**Type of Clearance:**	IFR
Departure Time:	10:08 Local	**Type of Airspace:**	

Airport Information

Airport:	Albia Municipal 4C8	**Runway Surface Type:**	Asphalt
Airport Elevation:	964 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	13	**IFR Approach:**	None
Runway Length/Width:	3398 ft / 60 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	40.996387,-92.765556(est)

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	Tony Will; FAA – Des Moines Flight Standards; Ankeny, IA
Original Publish Date:	June 14, 2012
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=80822