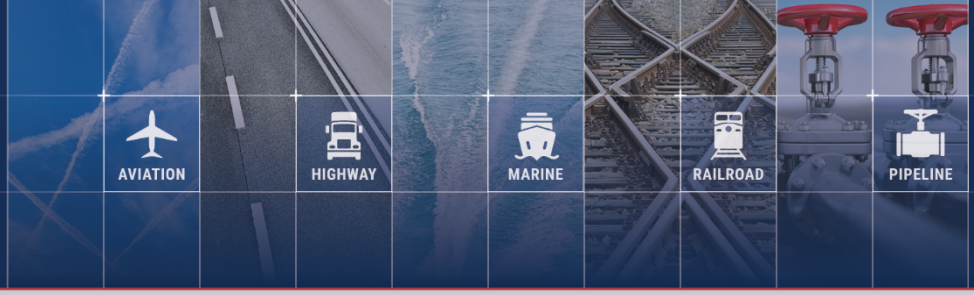

Aviation Investigation Final Report

Location:	Lake Wales, Florida	**Accident Number:**	ERA12LA261
Date & Time:	March 31, 2012, 18:10 Local	**Registration:**	N224AL
Aircraft:	Cessna 210-5	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	7 None
Flight Conducted Under:	Part 91: General aviation - Skydiving		

Analysis

The pilot said that he normally flew the airplane with the fuel selector positioned to the right main fuel tank during skydiving operations. However, on the day of the accident, maintenance was performed on the airplane, and three engine run-ups were performed using the left main fuel tank. The pilot ferried the airplane back to its home base uneventfully with the left main fuel tank selected. Before the accident flight, the pilot verified that there was adequate fuel in the right main fuel tank; however, he did not reposition the fuel selector to the right main fuel tank. During climb, about 800 feet above ground level, the airplane experienced a total loss of engine power. The pilot was unable to restart the engine and performed a forced landing. Subsequent examination revealed that the airplane's right main fuel tank had been compromised and was leaking fuel, whereas the left main fuel tank was intact and devoid of fuel. Additionally, data downloaded from the airplane's engine monitor revealed that the engine power loss was preceded by a loss of fuel flow. Postaccident examination did not reveal any preimpact mechanical malfunctions or failures that would have precluded normal operation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight preparation and fuel management, which resulted in a total loss of engine power due to fuel starvation.

Findings

Personnel issues	Preflight inspection - Pilot
Personnel issues	Fuel planning - Pilot
Aircraft	Fuel - Fluid management

Factual Information

History of Flight

Enroute-climb to cruise	Fuel starvation (Defining event)
Enroute-climb to cruise	Loss of engine power (total)
Emergency descent	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

On March 31, 2012, about 1810 eastern daylight time, a Cessna 210-5 (205), N224AL, operated by Chalet Suzanne Aviation Inc., was substantially damage during a forced landing to a field, following a total loss of engine power during climb from Chalet Suzanne Air Strip (X25), Lake Wales, Florida. The certificated commercial pilot and six passengers were not injured. The commercial skydive flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the planned local flight.

According to a Federal Aviation Administration (FAA) inspector, earlier during the day of the accident, maintenance was performed on the airplane at Bartow Municipal Airport (BOW), Bartow, Florida. Specifically, a gascolator seal and starter motor were replaced. During that time, the airplane's left main fuel tank was utilized for three maintenance engine run-ups.

The pilot stated that he flew the airplane uneventfully from BOW to X25, following the maintenance work, with the fuel selector positioned to the left main fuel tank. He shut down the engine at X25 and checked the right main fuel tank with a stick. The right main fuel tank had 2.5 inches of fuel, which equated to 9 or 10 gallons. The pilot further stated that he did not check the fuel quantity in the left main fuel tank as he usually flew with the fuel selector positioned to the right main fuel tank; however, he usually kept 9 or 10 gallons in the left main fuel tank as reserve.

The pilot did not reposition the fuel selector to the right main fuel tank prior to the accident flight. During climb from runway 18, about 800 feet mean sea level, the pilot noted that the cylinder head temperature for all cylinders was indicating red and the engine lost rpm. He activated the fuel boost pump and initiated a turn back toward the airport. The mixture lever and throttle lever were already full-forward, so the pilot did not move them. During the turn, he moved the fuel selector from the left main fuel tank position to the right main fuel tank position, but the engine did not respond. The rpm indicated below idle, with the exception of a momentary jump to 1,500 rpm, then back to idle. He subsequently performed a forced landing to a field.

Examination of the airplane by the FAA inspector revealed that during the landing, the right main landing gear and nosegear dug into soft ground, which caused them to collapse. The

airplane came to rest on its right side, which resulted in damage to the fuselage, propeller, right wing, and right horizontal stabilizer. The inspector observed fuel leaking from the right wing. When he examined the left main fuel tank, it was intact and he did not observe any fuel.

An engine data monitor was recovered from the cockpit and forwarded to the NTSB Vehicle Recorders Laboratory, Washington, DC, for data download. Review of the downloaded data revealed that at 1805, the engine fuel flow decreased to 0.0 gallons per hour, which was followed by a brief rise and then decrease of exhaust gas temperature and a decrease in cylinder head temperature.

Following the accident, an independent mechanic examined the maintenance work performed on the gascolator and did not observe any discrepancies or fuel leaks.

Pilot Information

Certificate:	Commercial	**Age:**	35,Male
Airplane Rating(s):	Single-engine land; Multi-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 2 With waivers/limitations	**Last FAA Medical Exam:**	November 7, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	November 18, 2011
Flight Time:	1100 hours (Total, all aircraft), 30 hours (Total, this make and model), 960 hours (Pilot In Command, all aircraft), 30 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:**	N224AL
Model/Series:	210-5	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2050342
Landing Gear Type:	Tricycle	**Seats:**	1
Date/Type of Last Inspection:	March 1, 2012 Annual	**Certified Max Gross Wt.:**	3300 lbs
Time Since Last Inspection:	119 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5763 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	IO-470
Registered Owner:	CHALET SUZANNE AVIATION INC	**Rated Power:**	230 Horsepower
Operator:	CHALET SUZANNE AVIATION INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BOW,125 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	18:15 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Few / 11000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.9 inches Hg	**Temperature/Dew Point:**	23°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lake Wales, FL (X25)	**Type of Flight Plan Filed:**	None
Destination:	Lake Wales, FL (X25)	**Type of Clearance:**	None
Departure Time:	18:10 Local	**Type of Airspace:**	

Airport Information

Airport:	Chalet Suzanne Air Strip X25	**Runway Surface Type:**	Grass/turf
Airport Elevation:	130 ft msl	**Runway Surface Condition:**	Soft
Runway Used:	18	**IFR Approach:**	None
Runway Length/Width:	2313 ft / 50 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	6 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	7 None	**Latitude, Longitude:**	27.952222,-81.60083(est)

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Ike Gray; FAA/FSDO; Orlando, FL John Kent; Continental Motors; Mobile, AL
Original Publish Date:	October 15, 2012
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=83260