Aviation Investigation Final Report

Location:	Dalton, Georgia	**Accident Number:**	ATL07LA014
Date & Time:	November 6, 2006, 12:35 Local	**Registration:**	N750LC
Aircraft:	Carlson Lancair Propjet	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Review of communications between the pilot, and the Atlanta Air Route Traffic Control Center (ARTCC) personnel, revealed that the pilot contacted ARTCC at 1156 and reported that he was at flight level 21,000 feet. At 1222, the pilot contacted ARTCC and reported that he "just lost his engine." ARTCC advised the pilot that there was an airport beneath him, cleared him for a left turn, and a descent to eleven thousand feet. At 1230, ARTCC contacted the pilot and advised him that DNN was at twelve o clock and 5 miles. Shortly thereafter the pilot contacted ARTCC and reported that he had the airport in sight but knew he would not make it there. Witnesses reported that the airplane was attempting to land on Georgia highway 52 (GA-52) when it made a "hard right bank", and the right wing collided with the ground. Examination of the airframe, flight control system components, engine, propeller, and system components revealed no evidence of preimpact mechanical malfunction. According to the Lancair builder, if fuel valve #2 is in the left or right wing tank position for an extended period of time, fuel starvation could occur leaving the opposite wing still completely full of fuel. The data downloaded from the Chelton EFIS revealed that during the last 15 minutes of the flight the center fuel tank quantity was depleted. The engine shutdown and the pilot attempted to restart the engine. As the center fuel tank was being depleted the left fuel tank quantity increased. The fuel was then transferred back from the left wing fuel tank to the center fuel tank. The data revealed that the pilot attempted again to restart the engine but was unsuccessful.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain airspeed during a forced landing, resulting in an inadvertent stall. Contributing to the accident was the pilot's mismanagement of the fuel supply, which resulted in loss of engine due to fuel starvation.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: CRUISE - NORMAL

Findings
1. (C) FUEL MANAGEMENT - IMPROPER - PILOT IN COMMAND
2. FLUID,FUEL - STARVATION

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
4. STALL - INADVERTENT

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On November 6, 2006, at 1235 eastern standard time, an experimental Lancair Propjet, N750LC, registered to a private owner and operated by a private pilot, operating as a 14 Code of Federal Regulation Part 91 personal flight, lost engine power and collided with the ground while attempting a forced landing near Dalton, Georgia. The airplane was substantially damaged. Visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed. The private pilot was fatally injured. The flight originated from the De Kalb Taylor Municipal Airport, De Kalb, Illinois, on November 6, 2006, at 0932.

Review of communications between the pilot, and the Atlanta Air Route Traffic Control Center (ARTCC) personnel, revealed that the pilot contacted ARTCC at 1156 and reported that he was at flight level 21,000 feet. At 1222, the pilot contacted ARTCC and reported that he "just lost his engine." ARTCC advised the pilot that there was an airport beneath him, cleared him for a left turn, and a descent to eleven thousand feet. ARTCC advised the pilot that DNN was about 6 to 7 miles to his south. At 1230, ARTCC contacted the pilot again and advised him that that DNN was at twelve o clock and 5 miles. Shortly thereafter the pilot contacted ARTCC and reported that he had the airport in sight but knew he would not make it there.

Witnesses reported that the airplane was attempting to land on Georgia highway 52 (GA-52) when it made a "hard right bank." Shortly thereafter, the right wing collided with the ground. The Whitfield County Fire Department reported that when they arrived at the accident scene, traffic was immediately stopped due to wreckage debris and an undetermined amount of fuel on the highway.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site by the FAA inspector revealed that the wreckage was located on GA-52 in the westbound median 5 miles from the Dalton Municipal Airport. The accident site also revealed that the crash debris line was 114 feet in length on a 180-degree magnetic heading. The composite airframe was fragmented throughout the debris field. An undetermined amount of jet fuel was spilled on GA-52. The wreckage was removed from the accident site and was taken to a storage facility for further examination. All flight control surfaces were located at the wreckage site, and flight control continuity was confirmed. Examination of the airframe and flight control system components revealed no evidence of preimpact mechanical malfunction. The engine was removed and sent to Diemech Turbine Solution Incorporated for examination, under the oversight of an FAA inspector. Examination of the engine, propeller, and system components revealed no evidence of preimpact mechanical malfunction.

ENGINE AND FUEL SYSTEM EXAMINATION

The NTSB, FAA, engine manufacturer, Lancair, and builder of the airplane examined the airplane and engine. During the examination of the fuel system it was noted that the left, right wing tanks, and rear auxiliary tanks feed the center tank. The wing tanks are gravity fed. The wing tanks build pressure through naca scoops located in each wing tip. The rear auxiliary (aux) tank pumps fuel to the center tank via an electric fuel pump with a built in check valve to stop reverse fuel flow if the pump is not running. According to the airplane builder, all fuel had to go through the center tank before going to the engine. This aux pump only runs during fuel transfer. The aux tank is on a pressure switch. When pressure from the transfer pump goes to zero, a light on the panel comes on to indicate that the aux tank is empty. The aux tank is completely independent from the Lancair fuel system, and all fuel dumps into the top of the center fuel tank. From there fuel is picked up at the bottom of the center tank to supply the engine. There are two electric fuel pumps providing fuel to the engine. If both electric fuel pumps fail, the engine driven fuel pump provides sufficient fuel pressure. Each of the main electric fuel pumps have a built in bypass to always allow full fuel flow to the motor incase of failure.

Examination of the fuel valves revealed that the airplane was equipped with two fuel valves. The #1 valve can be either on or off. The valve is located between the center fuel tank and the engine. This is designed to shut the fuel off in the case of an emergency. This valve was installed so that if the #2 valve is in the off position, there is still 20 gallons of fuel in the belly tank that would not be shut off. The #2 valve position is either left, right, both or off. If this selector is in the left position, fuel is supplied to the center from the left wing tank. If the selector is in the right position, fuel is supplied to the center tank from the right wing tank. If the fuel selector is in the both position fuel is drawn from the left and right wing tank to supply the center tank.

Examination of the fuel gauges revealed that the fuel quantities for the left and right tanks are displayed on a Chelton screen as part of the totalizer function. Fuel levels for the left, right and center tanks are displayed on the engine air data unit (EAU). The builder stated that if the fuel level gets below 5 gallons on either wing tank, an aural and visible warning sign appears on the Chelton screen. The " check totalizer" aural sign can be muted. During the fuel transfer from the aux tank to the center tank, the warning "check totalizer" appears again. This warning appears because the volume of the fuel being used by the motor is greater than the decrease of the volume of fuel in the wing tanks. This occurs due to the aux fuel going directly into the center tank and not through the wings.

TEST AND RESEARCH

The airplane was equipped with a Chelton Electronic Flight Information System (EFIS). The EFIS display screens contains all engine functions. If at any time indications are not at the normal operating limits, warnings would be displayed, i.e. fuel flow, fuel quantity, fuel pressure,

ITT, torque, N1, N2, oil temperature, oil pressure, and voltage. The Chelton EFIS system was sent to the National Transportation Safety Board's Vehicle Recorder Division for examination. The data downloaded from the Chelton EFIS revealed that during the last 15 minutes of the flight the center fuel tank quantity was depleted. The engine shutdown and the pilot attempted to restart the engine. As the center fuel tank was being depleted the left fuel tank quantity increased. The fuel was then transferred back from the left wing fuel tank to the center fuel tank. The data revealed that the pilot attempted again to restart the engine but was unsuccessful.

MEDICAL AND PATHOLOGICAL INFORMATION

The Georgia Bureau of Investigation, Division of Forensic Sciences, performed an autopsy on the pilot on November 7, 2006. The reported cause of death was massive blunt force trauma.

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed forensic toxicology on the specimens from the pilot. The toxicology report stated no ethanol was detected in the liver or the muscle, and no drugs were detected in the liver.

Pilot Information

Certificate:	Private	**Age:**	52,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 3 Without waivers/limitations	**Last FAA Medical Exam:**	December 1, 2005
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	1500 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Carlson	**Registration:**	N750LC
Model/Series:	Lancair Propjet	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	LIV-526
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	November 1, 2006 Condition	**Certified Max Gross Wt.:**	2700 lbs
Time Since Last Inspection:	50 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	50 Hrs as of last inspection	**Engine Manufacturer:**	Walter
ELT:	Installed, not activated	**Engine Model/Series:**	601D
Registered Owner:	Charles W. Laing	**Rated Power:**	750 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KDNN,710 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	12:35 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Scattered / 4000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 4600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots / 14 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.23 inches Hg	**Temperature/Dew Point:**	16°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DE KALB, IL (DKB)	**Type of Flight Plan Filed:**	IFR
Destination:	BROOKSVILLE, FL (BKV)	**Type of Clearance:**	IFR
Departure Time:	09:32 Local	**Type of Airspace:**	

Airport Information

Airport:	DALTON MUNI DNN	**Runway Surface Type:**	
Airport Elevation:	710 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	Visual
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	34.726112,-84.868614

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	Richard C Curtis; Atlanta FSDO-11; College Park, GA Larry Carlson; Aircraft Builder; Sycamore, IL John Cook; Diemech Turbines; Deland, FL Christain Skoppe; Diemech Engines; Deland, FL Vasyl Levchenko; Diemech Engines; Deland, FL Bob Wolsterholme; Lancair International; Redman, OR
Original Publish Date:	March 31, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=64847