National Transportation Safety Board
Aviation Accident Factual Report

Location:	Shallotte, NC	**Accident Number:**	ATL05FA048
Date & Time:	02/01/2005, 1857 EST	**Registration:**	C-GVVS
Aircraft:	Cessna T210M	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

HISTORY OF FLIGHT

On February 1, 2005, at 1857 eastern standard time, a Cessna T210M, C-GVVS, a Canadian registered airplane to a private owner, operating as a 14 CFR Part 91 personal flight, collided with trees and power lines in the vicinity of Shallotte, North Carolina, during a forced landing. Visual meteorological conditions prevailed and no flight plan was filed. A post crash fire destroyed the airplane. The private pilot reported minor injuries. The pilot rated passenger was fatally injured. The flight originated from Atlantic City, New Jersey, on February 1, 2005, at 1625.

The pilot stated he was in cruise flight at 2,500 feet flight-following with air traffic control. "All of a sudden the engine started to sputter. I tried the throttle control back and forth a few times, then the engine just seemed to run at 700-800 rpm. The throttle adjustments didn't make any difference." The airplane started descending rapidly. He and the passenger observed a highway to their front with a car going in the same direction. He turned on his landing light and lowered the landing gear in preparation for a forced landing on the highway. As he was making a "May Day" call, he lost sight of the car and the highway. He made a steep turn to the left and observed the highway and continued the forced landing. The right wing of the airplane collided with a tree and the ground. When the airplane came to a stop, he noticed it was on fire. He was unable to get the passenger out of the airplane. He exited the airplane and was subsequently transported to a local area hospital.

PERSONNEL INFORMATION

Review of information on file with the Canadian Transportation Safety Board revealed the pilot holds a private pilot certificate for airplane single engine land, night rated, valid until November 1, 2007. The pilot holds a CAT 3 medical issued on October 7, 2002, valid for 5 years with the restriction, "glasses must be available." The pilot stated he had 350 total flight hours with 80 to 90 hours in the Cessna T210M.

Review of information on file with the Canadian Transportation Safety Board revealed the pilot

rated passenger held a private pilot certificate for airplane single engine land issued in March 2003. In addition the pilot held a night rating issued in May 2003. The pilot held a CAT 1 medical issued in June 2004, with no restrictions. The pilot indicated on his application for the medical certificate that he had 25 total flight hours.

AIRCRAFT INFORMATION

The airplane logbooks were located in the wreckage and were damaged by fire. The last recorded 100-hour and annual inspection was conducted on May 15, 2004. The entry states, "time since overhaul 934.9." The registered owner stated the engine and airframe had 2,900 total hours and the airplane had flown 100 hours since the last annual inspection. The actual total time was not determined. It could not be determined if Service Bulletin SB95-2 issued by Teledyne Continental Motors, Cessna Service Bulletin SEB95-15 and Advisory Circular 20-143 had been conducted.

METEOROLOGICAL INFORMATION

The Myrtle Beach International Airport, Myrtle Beach, North Carolina, located 28 miles to the south-southwest of the mishap site, 1850 surface weather observation was: wind 010 at 8 knots, visibility 10 miles, 12,000 scattered, temperature 43-degrees Fahrenheit, dew point temperature 30-degrees Fahrenheit, and altimeter 30.36.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located on the east side of North Carolina Highway 130 and adjacent to High Hill Drive SW in the vicinity of Shallotte, North Carolina. Examination of the crash site revealed the airplane collided with trees and a power line on a heading of 300-degrees magnetic. Pieces of the right wing were located in the tree and at the base of the tree 91 feet 6-inches from the initial point of impact. The right aileron and 5 feet of the wing structure was located 154 feet down the crash debris line in the middle of Highway 130. The airplane came to rest upright off the east side of Highway 130, 271 feet down the crash debris line on a heading 251-degrees. The left wing was located18 feet in front of the main wreckage. The crash debris line extended 299 feet from the initial point of impact.

The engine assembly was displaced to the left and the engine assembly remained in the engine cradle. The left front engine mount and left and right engine mount were intact. The right front engine mount separated from the engine. The upper and lower engine cowlings were crushed and received fire damage. The propeller assembly was fire damaged and remained attached to the propeller crankshaft flange. The propeller spinner was crushed. Two of the three propeller blades were loose in the propeller hub. All three-propeller blades were fire damaged and bent aft at mid span. Chord wise scarring was present on two of the propeller blades. The nose gear strut was extended and the nose wheel was separated.

The cabin area was consumed by fire from the firewall extending behind the baggage

compartment door. The left and right fuel header tanks were fire damaged. The seat frames and seat rails were consumed in the fire. The seat belts and shoulder harnesses were reported to be in use and were consumed in the fire. The left and right cabin doors separated from their door hinges. The right cabin door handle was in the locked position and the latch pin was extended. The left cabin door handle was not located and the latch pin was extended.

The throttle, propeller, and mixture cables were located in the cockpit area. The propeller cable moved freely in the sleeve and the propeller cable remained attached to the propeller governor. The throttle cable remained attached to a melted portion of the throttle control arm, and the control arm was separated from the spindle. The mixture cable was connected to the mixture control arm. The throttle, propeller, and mixture cable were removed and forwarded to the NTSB Materials laboratory for further examination. Examination of the rear portions of the control cables revealed the post crash fire had consumed all the non-metal parts leaving behind the barrels, sleeves, cores, and casings. The identification of the cables from the accident airplane were confirmed by the NTSB Laboratory by comparing the remaining metal components with the metal components from the exemplar cables provided by the aircraft manufacturer. The examination revealed the remaining portions of the control cables submitted for further examination were intact prior to impact and that a cutting tool used to remove the cables at the accident site had performed the only separation of the cables. Examination of the cables showed no evidence of significant wear or any other condition that would have affected the functionality of the cables before the post crash fire.

Flight control cable continuity was confirmed for the rudder and elevator from the firewall aft to all flight control surfaces. Aileron cable continuity was confirmed from the firewall to the turnbuckle and then from the turnbuckle to the ailerons. The left and right main landing gear were extended.

The right wing spar received fire damage and remained attached to the carry through spar. The carry through spar was resting on the forward cabin area. The inboard 7 feet of the right wing was consumed by fire. A 2 feet 6 inch piece of the center wing section was fire damaged and was located on top of the separated right cabin door. The right aileron and 5 feet of the right wing structure was located 111 feet to the left and rear of the main wreckage. The right main fuel tank was consumed by fire. The protruding type fuel cap was in place. The right aileron cable was separated at the aileron. The right flap was in the retracted position.

The tail cone was fire damaged from the mid-dorsal fin extending forward. The vertical fin and left and right horizontal stabilizers remained attached to the tail cone. The right horizontal stabilizer was bent upward. The right elevator remained attached to the horizontal stabilizer by the inboard and center hinge. The outboard hinge separated from the horizontal stabilizer. The right elevator balance weight was attached. The elevator trim tab actuator measured 1.5 inches which equates to a neutral trim tab setting. The leading edge of the left horizontal stabilizer was damaged 56 inches outboard of the tail cone. The left elevator and elevator balance weight were intact. The vertical stabilizer and rudder were intact. The rudder was crushed forward and the rudder balance weight was intact.

The left inboard wing spar remained attached to the carry through spar and was resting on the left main landing gear. The left flap actuator jackscrew was exposed 4 ½ inches, which equates to flaps in the retracted position. The separated left wing was bent downward at the flap aileron junction. The entire wing received fire damage. The upper wing skin was consumed by fire in the vicinity of the left main fuel tank. The left main protruding fuel cap was in place. The aileron and flap remained attached to the wing. The flap was in the retracted position. One aileron cable remained intact with the airframe. The remaining aileron cable separated at the-wing fuselage junction.

The engine assembly and accessories were fire damaged. The left and right exhaust tubes, and muffler were damaged and remained attached to the engine assembly. The left and right induction manifolds were intact. The intake air box was crushed forward of the air filter. The area in the vicinity of the alternate air door was consumed by fire.

The waste gate valve was intact and the waste gate controller separated from the turbine side of the controller. The compressor side of the turbo charger intake duct was damaged. The waste gate plate was in the open position. The throttle body remained attached to the engine and the throttle plate was in the open position. The turbo charger was removed and the compressor turbine rotated freely when turned by hand. The fuel pump was intact and removed from the engine. The fuel pump coupler was intact and the drive gear rotated the fuel pump freely by hand. The fuel pump was placed in a solvent tank. The drive gear was turned with a power drill and pumping action was confirmed.

The left and right magnetos were intact and received fire damaged. Both magnetos were removed from the engine and no spark was obtained at the ignition towers when turned by a power drill. Both magnetos were disassembled. The drive gears were fire damaged. The ignition harness received fire damage on all ignition leads. The fuel manifold was intact. The fuel manifold was disassembled and was free of contaminants. The fuel injector nozzles were removed and were not obstructed. The top sparkplugs were removed from all cylinders. The No. 1, 3, 2, 4, and 6 spark plugs were "normal wear" when compared to the Champion Aviation Check-A-Plug Chart. The No. 5 sparkplug was oil soaked. The lower sparkplugs were removed from all cylinders. The No. 1, 3, 5, 2, 4, and 6 sparkplugs were "normal wear" when compared to the Champion Aviation Check-A-Plug Chart.

Compression and suction was obtained on all cylinders when the crankshaft was turned by hand and continuity was confirmed to the gear and valve drive train. All cylinders were intact and not damaged except for the cooling fins on cylinder No. 6. All piston crowns were intact, dark in color, with tan carbon deposits. The oil cooler was intact and received fire damage. The oil pump and scavenge pump received fire damage and was removed from the engine. The oil pump and scavenge pump drive gears rotated freely when rotated by hand. Both pumps were disassembled and no scoring was noted on the internal sidewalls. The oil filter was removed and the oil filter element was free of contaminants. The oil sump was removed and the oil pick up tube and screen were free of debris.

The starter, starter adapter, and alternator were fire damaged and intact. The vacuum pump

was fire damaged. The vacuum pump drive coupling was melted and could not be rotated by hand. The vacuum pump vanes were intact.

MEDICAL AND PATHOLOGICAL INFORMATION

Toxicology specimens from the pilot were not obtained.

The North Carolina State Medical Examiner conducted a postmortem examination of the pilot rated passenger on February 2, 2005. The reported cause of death was thermal injuries.

TEST AND RESEARCH

Teledyne Continental Motors (TCM) Service Bulletin SB95-2, Inspection and Maintenance of Engine Controls, Cables and Linkage states, "TCM has received reports and examined damaged components of fuel systems. These components consist of linkage and levers used on the throttle and fuel control, fuel pumps, carburetors and related assemblies. Our examination revealed that this damage is caused by lack of lubrication and/or improper installation or maintenance of these components."

The Service Bulletin states in a warning, "FAILURE TO COMPLY WITH THE INSTRUCTIONS SET FORTH IN THIS SERVICE BULLETIN CAN RESULT IN FUEL SYSTEM LINKAGE AND/OR RELATED COMPONENT DAMAGE AND SUBSEQUENT LOSS OF ENGINE POWER."

The inspection procedure in the Service Bulletin states the following:

"1. Inspect the operation of each engine related control, including the throttle, mixture, propeller, carburetor heat and alternate air controls as applicable. Make certain that each control has full limit of travel and that no binding or excessive play caused by worn parts or improper installation is evident.

2. Inspect all engine control cables for proper routing and security as specified in the applicable airframe manufacturer's instructions. Inspect cables for signs of damage or wear that can be caused by chafing and heat distress."

ADDITIONAL INFORMATION

The throttle cable, propeller cable, mixture cable, throttle body, and aircraft wreckage were released to Atlanta Air Recovery, Griffin, Georgia, on July 20, 2005.T

Pilot Information

Certificate:	Private	**Age:**	36, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	10/07/2002
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	350 hours (Total, all aircraft), 90 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	C-GVVS
Model/Series:	T210M	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	21062217
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	05/01/2004, Annual	**Certified Max Gross Wt.:**	3800 lbs
Time Since Last Inspection:	100 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	2900 Hours at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-CCR
Registered Owner:	Jean Villeneuve	**Rated Power:**	310 hp
Operator:	Jean Villeneuve	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Night/Dark
Observation Facility, Elevation:	MYR, 25 ft msl	**Distance from Accident Site:**	28 Nautical Miles
Observation Time:	1850 EST	**Direction from Accident Site:**	240°
Lowest Cloud Condition:	Scattered / 12000 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	10°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.36 inches Hg	**Temperature/Dew Point:**	6°C / -1°C
Precipitation and Obscuration:			
Departure Point:	Atlantic City, NJ (ACY)	**Type of Flight Plan Filed:**	None
Destination:	Hollywood, FL (HWO)	**Type of Clearance:**	None
Departure Time:	1625 EDT	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Minor	**Latitude, Longitude:**	33.982778, -78.347222

Administrative Information

Investigator In Charge (IIC):	Carrol A Smith
Additional Participating Persons:	Richard M Litka; Greensboro FSDO-05; Greensboro, NC Emile J Lohman; Cessna Aircraft Company; Wichita, KS Andrew Swick; Teledyne Continental Motors, Inc.; Mobile, AL
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.