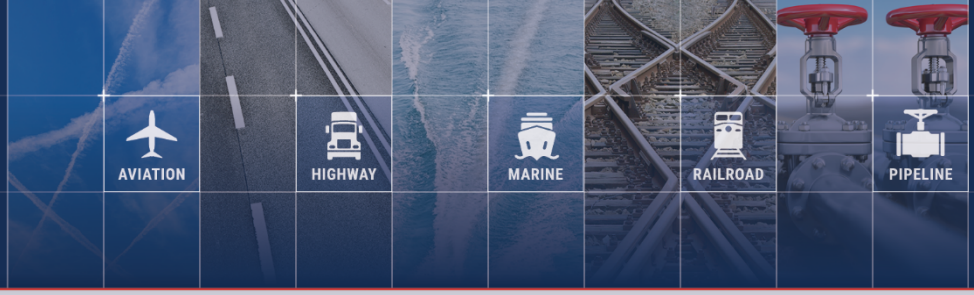

Aviation Investigation Factual Report

Location:	LaGrange, Georgia	**Accident Number:**	ATL04LA157
Date & Time:	July 16, 2004, 10:33 Local	**Registration:**	N134BH
Aircraft:	Beech A45	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor, 1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Factual Information

On July 16, 2004, at 1033 eastern daylight time, a Beech A45, N134BH, registered to private owners and operated by the commercial pilot, collided with trees during an emergency landing following a loss of engine power near LaGrange, Georgia. The personal flight was operated under the provisions of Title 14 CFR Part 91 with no flight plan filed. Visual meteorological conditions prevailed. The commercial pilot reported no injuries, the private pilot-rated passenger received minor injuries, and the airplane sustained substantial damage. The flight departed Warren County Memorial Airport, McMinnville, Tennessee, about 0820 central daylight time on July 16, 2004.

The pilot stated that, while in cruise flight at 7,500 feet approximately 20 miles north of LaGrange, Georgia, the engine began to vibrate severely. The pilot obtained nearest airport information from air traffic controllers and his global positioning system (GPS). As the flight continued toward the LaGrange-Callaway Airport, LaGrange, Georgia, the vibration continued and the pilot could not maintain altitude. The pilot searched for a landing area and saw only a lake and areas of pine trees, and engine oil was visible on the right side of the canopy. The pilot stated that, as he aligned the airplane for an emergency landing, the engine vibration stopped, and engine oil covered the canopy completely and obstructed his view. The pilot stated that at this point the engine was running smoothly, but the propeller was no longer attached, and he shut down the engine. The pilot executed a landing into an area of small pine trees, exited the airplane with the passenger, and called the local 911 operator from his cell phone.

Examination of the airplane revealed damage to the wings, fuselage, and empennage. During the post-accident examination of the airplane, the engine was disassembled for further examination. A crack was observed on top of the left crankcase half at the fourth bolt hole from the rear; the crack extended downward and forward above the No. 2 cylinder. Both crankcase halves were damaged at the forward end, and the Nos. 4 and 5 main bearing supports were damaged with fretting on the surfaces. The Nos. 4 and 5 main bearings were damaged. The oil transfer collar was broken, with one piece attached to the left crankcase half and other pieces found in the oil sump.

The crankshaft was fractured forward of the alternator drive gear, and the forward section including the No. 5 main journal was not located. The crankshaft counterweights were intact with the plates and snap rings in place. The crankshaft was shipped to the National Transportation Safety Board, Office of Research and Engineering, Materials Laboratory Division, Washington, D.C., for examination. Examination of the fracture surface at the crankshaft separation revealed features consistent with fatigue fracture under torsional loading. Crack arrest lines were visible consistent with fatigue crack propagation from aft to forward. Blue tinting was visible near the middle of the No. 4 main journal, and the journal

appeared shinier than the others.

Several ladder cracks were observed on the No. 4 main journal surface adjacent to the blue-tinted region. A large crack in the No. 4 main journal surface was oriented at an approximate 45-degree angle to the longitudinal axis of the crankshaft, and it continued forward through the alternator drive gear and to the exposed fatigue fracture at the crankshaft separation. The large crack intersected the No. 4 main journal oil passage hole. A secondary crack in the No. 4 main journal surface was oriented approximately parallel to the longitudinal axis of the crankshaft. The large crack in the No. 4 main journal surface was opened and examined under a Scanning Electron Microscope. Crack arrest lines and marks were observed emanating from an area at the journal surface; the fracture surface within the origin area displayed an appearance consistent with an overstress fracture. Hardness testing of the material revealed no evidence of anomaly.

Examination of the maintenance logs revealed the airplane's Continental IO-520-B2 engine received a field major overhaul on October 10, 1974. The engine received a top overhaul on July 1, 2002, at an hour meter reading of 1000.0. The engine received an annual inspection September 3, 2003, at 1035.7 hours since major overhaul and 35.7 hours since top overhaul. The hour meter reading on the airplane at the accident site was 1053.7. According to Teledyne Continental Service Information Letter SIL98-9A, the recommended time between overhaul (TBO) periods for the IO-520-B series engine is 1700 operating hours or 12 years, whichever occurs first.

The wreckage, except for the crankshaft, was released to a claims manager from LAD (Aviation) USA, Orlando, Florida, on September 10, 2004. The crankshaft was released to the same claims manager on November 17, 2004.

Pilot Information

Certificate:	Commercial	**Age:**	70,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
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 Without waivers/limitations	**Last FAA Medical Exam:**	May 3, 2004
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 2, 2004
Flight Time:	5638 hours (Total, all aircraft), 601 hours (Total, this make and model), 5638 hours (Pilot In Command, all aircraft), 72 hours (Last 90 days, all aircraft), 32 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N134BH
Model/Series:	A45	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Aerobatic	**Serial Number:**	G-792
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	September 3, 2003 Annual	**Certified Max Gross Wt.:**	2900 lbs
Time Since Last Inspection:	18 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4553.7 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	IO-520-B2
Registered Owner:	Joe L Howard / Barry L Howard	**Rated Power:**	285 Horsepower
Operator:	Joe Lane Howard	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KLGC,693 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	10:40 Local	**Direction from Accident Site:**	150°
Lowest Cloud Condition:	Few / 5000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.97 inches Hg	**Temperature/Dew Point:**	26°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	McMinnville, TN (KRNC)	**Type of Flight Plan Filed:**	None
Destination:	New Smyrna Bch, FL (KEVB)	**Type of Clearance:**	VFR;VFR flight following
Departure Time:	08:20 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	LaGrange-Callaway KLGC	**Runway Surface Type:**	
Airport Elevation:	693 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor, 1 None	**Latitude, Longitude:**	33.111667,-85.133888

Administrative Information

Investigator In Charge (IIC):	Gagne, Catherine
Additional Participating Persons:	Peter K Acevedo; FAA - Atlanta FSDO - 11; College Park, GA Albert P Butler; Teledyne Continental Motors; Mobile, AL
Report Date:	December 5, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59659