



National Transportation Safety Board Aviation Accident Final Report

Location:	Bainbridge, GA	Accident Number:	ATL06LA114
Date & Time:	08/02/2006, 0847 EDT	Registration:	N342MN
Aircraft:	Beech D45	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor

Flight Conducted Under: Part 91: General Aviation - Personal

Analysis

The pilot stated that he was on initial climb from runway 27, at 50 feet and 80 knots, when the engine started a "popping" noise and the engine had a partial loss of power. The pilot turned the boost pump on, the "popping" noise continued, and he made a right turn towards runway 14. The airspeed decreased to between 58 to 60 knots. The airplane stalled, collided with the ground, and a post crash fire ensued. The Beech Model D45 Flight Manual states the airplane will stall at 71 mph with a 0-degree angle of bank, and at 73 mph with a 20-degree angle of bank. The right main fuel tank was consumed by fire. Fuel samples were taken from the header tank and the left wing fuel tank. The samples were forwarded to a petroleum laboratory for further analysis. Examination of the fuel samples revealed the fuel would not have caused a loss of engine power or malfunction. Review of the engine logbook revealed the engine was overhauled on May 30, 2006, and the engine has been operated for 15 hours since it was reinstalled on the airplane. Examination of the engine revealed the fuel inlet (unmetered pressure) line was crossed with the fuel return (to fuel pump) line on the engine fuel pump. The fuel lines were repositioned and an engine run was initiated. The engine started and ran smoothly at 1,000 rpm. The rpm was increased to 2,200 rpm with no anomalies. The engine was not increased to full operating rpm due to damage to the airframe. The engine was shut down with the mixture control.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The improper maintenance installation of the fuel inlet line by other maintenance personnel resulting in a partial loss of engine power after takeoff due to fuel starvation.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. FLUID,FUEL - STARVATION
 2. (C) MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
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Occurrence #2: FORCED LANDING
Phase of Operation: MANEUVERING

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Findings

3. AIRSPEED - INADEQUATE - PILOT IN COMMAND
 4. STALL - INADVERTENT - PILOT IN COMMAND
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Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

5. TERRAIN CONDITION - GROUND

Factual Information

On August 2, 2006, at 0847 eastern daylight time, a Beech D45, N342MN, registered to a private owner, operating as a 14 CFR Part 91 personal flight, had a partial loss of engine power during initial climb, and collided with the ground during a forced landing. Visual meteorological conditions prevailed and no flight plan was filed. The airplane received substantial damage. The private pilot reported minor injuries. The flight originated from Decatur County Industrial Air Park, Bainbridge, Georgia, on August 2, 2006, at 0845.

The pilot stated he had just retracted the landing gear during initial climb from runway 27, at 50 feet and 80 knots when the engine started a "popping" noise and had a partial loss of power. The pilot stated he turned the boost pump on, the "popping" noise continued, and he made a right turn towards runway 14. The airspeed decreased to between 58 to 60 knots. The airplane stalled, and collided with the over run on runway 32. The airplane slid off the over run, down an embankment, ruptured the right main fuel tank, collided with a pine grove, and caught fire.

Examination of the airplane by NTSB after recovery showed that both wings had been removed from the airplane during the recovery process. A post crash fire damaged the upper and lower engine cowlings. The right wing root, right side of the fuselage and right side of the engine firewall received fire damage. The left main fuel line from the wing root to the firewall was intact and not damaged. The right fuel line to the header tank received fire damage. About 20 gallons of fuel was removed from the left main fuel tank and approximately one quart of fuel was recovered from the header tank. The fuel in the header tank was yellow in color and had an odor similar to paint thinner. Fuel samples were taken from the header tank and left wing fuel tank. The fuel samples were forwarded to a petroleum laboratory for further analysis. Examination of the fuel samples revealed the fuel would not have caused a loss of engine power or malfunction.

The upper cowling and lower access panels were removed. The engine driven fuel pump was removed and visually inspected. The fuel pump driver coupler was intact and the fuel pump rotated freely by hand. The lower ninety-degree angle fitting on the bottom of the fuel pump which supplies un-metered fuel to the mixture control unit was cross threaded, removed, replaced with a serviceable fitting, and the fuel pump was reinstalled on the engine. The upper spark plugs were removed, examined, and no anomalies were noted. The top of the pistons, cylinder heads, and valves were examined and no anomalies were noted. The propeller was removed and replaced with a slave propeller. The engine was rotated by hand and continuity was established to the top and bottom ignition leads on cylinders 2, 4, and 6. The top and bottom ignition leads on cylinders 1, 3, and 5 received fire damage and ignition continuity could not be established. The ignition harness was removed and replaced with a slave unit. Ignition continuity was established to all twelve cylinder leads. The left and right magneto timing was inspected. The left magneto was set at 22-degrees before top dead center. The right magneto was set at 23-degrees before top center and retimed to 22-degrees before top dead center.

Recovery personnel removed the fuel gascolator at the accident site. The fuel screen was removed and was free of contaminants. The mixture control fuel inlet screen was removed and inspected. The fuel inlet screen was free of contaminants and reinstalled. The fuel manifold assembly was disassembled, visually inspected, and found free of contamination. The fuel manifold valve was reassembled and reinstalled. The fuel nozzles were removed, inspected,

free of obstructions, and reinstalled. The fuel manifold lines were removed, inspected, free of contaminants, and reinstalled.

The fuel pressure gauge line, oil pressure gauge line, and manifold pressure lines were disconnected at the firewall and capped off. All electrical wiring for the starter and alternator received fire damage. The inlet air filter and housing were removed to allow unrestricted airflow through the intake manifold. The fuel lines on the left side of the airplane were intact and undamaged. A portable fuel tank was plumbed into the left main fuel inlet line for the engine test run. The forward cockpit boost pump switch was removed and the positive leads lines were disconnected and jumped to a 24 volt battery source to run the boost pump for priming the engine during the engine start sequence.

The airplane fuselage was placed on a large trailer, strapped down, and moved outside of the building for an engine run. A hand held Tru tachometer was used to estimate the engine rpm during the engine test runs. Starting fluid was sprayed into the induction inlet and the engine was started. The engine ran normal below 1,000 rpm. When the throttle was advanced above 1,000 rpm the engine would cut out and backfire as stated by the accident pilot. The engine was shutdown using the mixture control, and the airplane was moved back inside the building. The engine driven fuel pump was removed from the engine, tested, and no anomalies were noted.

The engine driven fuel pump was reinstalled on the engine assembly and the routing of the fuel lines to the mixture control unit was checked using the Procedures and specifications for adjustment of Teledyne Continental Motors continuous flow fuel injection systems of SID97-3C, Figure 7, on page 37. Examination of the fuel pump revealed the fuel inlet (unmetered pressure) line was crossed with the fuel return (to fuel pump) line on the engine fuel pump. The fuel lines were repositioned per SID97-3C. The airplane was taken back outside and an engine run was initiated. The engine started and ran smoothly at 1,000 rpm. The rpm was increased to 2,200 rpm with no anomalies. The engine was not increased to full operating rpm due to damage to the airframe. The engine was shut down with the mixture control.

Review of the engine logbook revealed River City Aircraft Engines, San Antonio, Texas, overhauled the engine on May 30, 2006. The Hobbs time at the time of the engine overhaul was 2046.8 hours, and the engine tachometer time was not entered. The total time on the engine prior to its removal was not listed. The engine has been operated for 15 hours since it was reinstalled on the airplane.

Review of Beech Model D45 Flight Manual states in paragraph III. Performance that with a 0-degree angle of bank that the airplane will stall at 71 mph with the gear and flaps in the retracted position. The airplane will stall at 73 mph with a 20-degree angle of bank, and at 81 mph with a 40-degree angle of bank.

Pilot Information

Certificate:	Private	Age:	76, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
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:	07/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	814 hours (Total, all aircraft), 12 hours (Total, this make and model), 784 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N342MN
Model/Series:	D45	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Utility	Serial Number:	BG-180
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	05/01/2006, Annual	Certified Max Gross Wt.:	2950 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	8519 Hours at time of accident	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	IO-520-BA
Registered Owner:	Leon F. Jauert	Rated Power:	300 hp
Operator:	Leon F. Jauert	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KBGE, 141 ft msl	Distance from Accident Site:	
Observation Time:	0839 EDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.14 inches Hg	Temperature/Dew Point:	29° C / 22° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bainbridge, GA (KBGE)	Type of Flight Plan Filed:	None
Destination:	(KBGE)	Type of Clearance:	None
Departure Time:	0845 EDT	Type of Airspace:	

Airport Information

Airport:	Decatur Co Industrial Air Park (BGE)	Runway Surface Type:	Asphalt
Airport Elevation:	141 ft	Runway Surface Condition:	Dry
Runway Used:	27	IFR Approach:	None
Runway Length/Width:	5002 ft / 150 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	84.637222, -30.971389

Administrative Information

Investigator In Charge (IIC):	Carrol A Smith	Report Date:	01/31/2007
Additional Participating Persons:	Martha Farmer; College Park FSDO-11; College Park, GA Jason Lukasik; Teledyne Continental; Mobile, AL		
Publish Date:			
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.nts.gov/pubdms/ .		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).