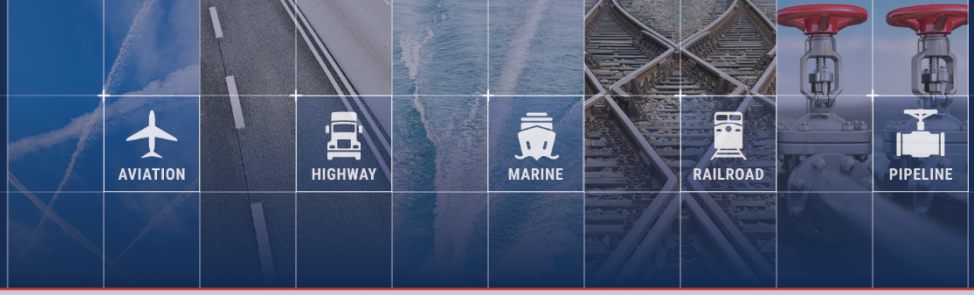

Aviation Investigation Final Report

Location:	Columbia, Mississippi	**Accident Number:**	ERA12LA048
Date & Time:	October 23, 2011, 12:00 Local	**Registration:**	N89MH
Aircraft:	Beech C23	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot flew the airplane earlier that day on a local flight with no reported discrepancies. He then secured the airplane and took a short break before departing again on another local flight. During the initial takeoff climb, when flying about 200 feet above ground level, the engine lost partial power and started “running very rough.” He aborted the takeoff, landed on the remaining portion of the runway, but traveled off the end colliding with an airport light, which breached the right main fuel tank. A postcrash fire damaged the aft fuselage, aft portion of cabin, and interior of the airplane. Postaccident examination of the engine and engine accessories revealed no evidence of preimpact failure or malfunction. About the time of the accident, the temperature and dew point were favorable for serious carburetor ice at glide power settings. However, the engine was operating at a high power setting for takeoff, indicating that carburetor ice was likely not the reason for the loss of engine power.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The partial loss of engine power for undetermined reasons during takeoff.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Initial climb	Loss of engine power (partial) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Runway excursion
Landing-landing roll	Ground collision
Other	Fire/smoke (post-impact)

On October 23, 2011, about 1200 central daylight time, a Beech C23, N89MH, registered to and operated by Columbia Aircraft, Inc., sustained substantial damage during a forced landing shortly after takeoff from Columbia-Marion County Airport (0R0), Columbia, Mississippi. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 Code of Federal Regulations (CFR) Part 91, local personal flight from 0R0. The certificated commercial pilot, the sole occupant was not injured. The flight was originating at the time of the accident.

The pilot stated that earlier that day he departed from 0R0 and flew south about 15 miles then returned to 0R0 where he performed 3 uneventful touch-and-go landings. After the last touch-and-go landing he remained in the traffic pattern and performed a full stop landing then taxied to the ramp where he secured the airplane. He went inside a building for a brief break, then returned to the airplane and started the engine for another local flight.

The pilot further stated that he taxied to the approach end of the runway, and performed an engine run-up as part of the before takeoff check. He applied takeoff power noting that the engine was producing full rpm, and rotated for takeoff at about 60 miles-per-hour (mph), then accelerated to 80 mph. When the flight was no more than approximately 200 feet above ground level, the engine lost partial power and started “running very rough” but continued to operate. With runway remaining he aborted the takeoff and reduced power to idle. He landed on the runway but was unable to stop the airplane before traveling off the end of the runway. While traveling in grass past the departure end of the runway, the right wing of the airplane collided with an approach aid light breaching the right main fuel tank. The airplane veered to the right, traveled down an embankment, turned 180 degrees and came to rest upright with the engine running at idle power setting. He secured the engine and exited the airplane. A postcrash fire damaged the aft fuselage, aft portion of cabin, and interior of the airplane.

Postaccident inspection of the engine by a Federal Aviation Administration (FAA) airworthiness inspector revealed crankshaft, camshaft, and valve train continuity. Suction and compression was noted in each cylinder during hand rotation of the crankshaft. All engine controls from the cockpit remained attached at their respective attach points, but with the mixture control full rich in the cockpit, the lever at the carburetor was between approximately 1/8 and 1/16 inch from the full rich position. The carburetor heat control checked satisfactory,

and no obstructions were noted of the right wing fuel supply system from the tank to the carburetor. The left wing fuel vent was free of obstructions, and during hand rotation of the crankshaft, the left magneto (which contains an impulse coupling) was noted to spark at all ignition leads. The right magneto did not produce spark at the ignition leads during hand rotation of the engine.

Further inspection of the engine following recovery of the airplane was performed by an independent airframe and powerplant mechanic with inspection authorization. The inspection determined that the left magneto was timed 28 degrees before top dead center (BTDC) and the right magneto was timed 26 degrees BTDC (specification is 25 to 27 degrees BTDC).Very weak spark was noted from the right magneto during hand rotation of the propeller; the right magneto was retained for further examination. A copy of the statement from the mechanic is included in the NTSB public docket for this case.

Examination and bench testing of the right magneto was performed at a FAA certified repair station with National Transportation Safety Board (NTSB) oversight. The magneto was placed on a test bench as received with a slave ignition harness and was noted to produce spark consistently at all towers from 150 to 4,704 magneto rpm. The internal timing of the magneto was set to specification. Disassembly inspection of the magneto revealed carbon dust on the coil tab (normal), and the carbon brush was worn (normal). The distributor gear electrode appeared normal; no carbon tracking was noted on the distributor block or bearing support bar. The point gap measured 0.010 inch (specification is 0.008 to 0.010 inch); the points were not pitted. No wear was noted on the cam lobe, and the coil primary and secondary resistance values measured 0.6 and 16,000 Ohms, respectively (specification is 0.50 to 1.2 and 13,000 to 20,500 Ohms). The condenser checked 0.361 microfarads (MFD); specification is 0.35 MFD plus or minus 10 percent.

Review of the maintenance records revealed the engine was overhauled in July 2001, and installed on September 26, 2001. The engine had accumulated about 431 hours since overhaul at the time of the accident.

The right magneto and drive gear were returned as requested by the insurance adjuster; the NTSB Evidence Control Form was not received.

A weather observation report taken at Hattiesburg Bobby L Chain Municipal Airport (HBG), Hattiesburg, Mississippi, on the day of the accident at 1153, or approximately 7 minutes before the accident, indicates in part that the temperature and dew point were 70 degrees and 45 degrees Fahrenheit, respectively. The HBG airport is located about 29 nautical miles and 093 degrees from the accident airport.

Review of FAA Special Airworthiness Information Bulletin (SAIB) CE-09-35 on the subject of carburetor ice prevention indicates that the temperature and dew point about the time of the accident were favorable for serious carburetor ice at glide power settings. The SAIB also indicates that roughness in engine operation occurs with carburetor icing.

Pilot Information

Certificate:	Commercial	**Age:**	64,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:**	March 17, 2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 1, 2010
Flight Time:	29500 hours (Total, all aircraft), 80 hours (Total, this make and model), 30 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N89MH
Model/Series:	C23	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	M-1985
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 13, 2011 Annual	**Certified Max Gross Wt.:**	2450 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3912 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-A4K
Registered Owner:	COLUMBIA AIRCRAFT, INC.	**Rated Power:**	180 Horsepower
Operator:	COLUMBIA AIRCRAFT, INC.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HBG,151 ft msl	**Distance from Accident Site:**	29 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	93°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.1 inches Hg	**Temperature/Dew Point:**	21°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Columbia, MS (0R0)	**Type of Flight Plan Filed:**	None
Destination:	Columbia, MS (0R0)	**Type of Clearance:**	None
Departure Time:	12:00 Local	**Type of Airspace:**	

Airport Information

Airport:	Columbia-Marion County Airport 0R0	**Runway Surface Type:**	Asphalt
Airport Elevation:	265 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	05	**IFR Approach:**	None
Runway Length/Width:	4460 ft / 70 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	31.296943,-89.812774(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Robert F Mahaffey; FAA/FSDO; Jackson, MS
Original Publish Date:	August 15, 2012
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=82157