



National Transportation Safety Board Aviation Accident Final Report

Location:	Greer, SC	Accident Number:	ERA10LA056
Date & Time:	11/09/2009, 1009 EST	Registration:	N337MT
Aircraft:	HAWKER BEECHCRAFT CORPORATION B200	Aircraft Damage:	Substantial
Defining Event:	Fuel exhaustion	Injuries:	3 Serious
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot flew the airplane to a maintenance facility and turned it in for a phase inspection. The next morning, he arrived at the airport and planned a local flight to evaluate some avionics issues. He performed a preflight inspection and then went inside the maintenance facility to wait for two avionic technicians to arrive. In the meantime, two employees of the maintenance facility test ran the engines on the accident airplane for about 30 to 35 minutes in preparation for the phase inspection. The pilot reported that he was unaware that the engine run had been performed when he returned to the airplane for the local flight. He referred to the flight management system (FMS) fuel totalizer, and not the aircraft fuel gauges, when he returned to the airplane for the flight. He believed that the mechanics who ran the engines did not power up the FMS, which would have activated the fuel totalizer, thus creating a discrepancy between the totalizer and the airplane fuel gauges. The mechanics who performed the engine run reported that each tank contained 200 pounds of fuel at the conclusion of the engine run. The B200 Pilot's Operating Handbook directed pilots not take off if the fuel quantity gauges indicate in the yellow arc or indicate less than 265 pounds of fuel in each main tank system. While on final approach, about 23 minutes into the flight, the right engine lost power, followed by the left. The pilot attempted to glide to the runway with the landing gear and flaps retracted, however the airplane crashed short of the runway. Only residual fuel was found in the main and auxiliary fuel tanks during the inspection of the wreckage. The tanks were not breached and there was no evidence of fuel leakage at the accident site.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power due to fuel exhaustion as a result of the pilot's failure to visually verify that sufficient fuel was onboard prior to flight.

Findings

Aircraft	Fuel - Inadequate inspection (Cause)
Personnel issues	Preflight inspection - Pilot (Cause)

Factual Information

HISTORY OF FLIGHT

On November 9, 2009, at 1009 eastern standard time (EST), a Hawker Beechcraft B200, N337MT, was substantially damaged following a loss of engine power and impact with terrain on final approach to Greenville Spartanburg International Airport (GSP), Greer, South Carolina. The airplane was registered to MDTR Holdings LLC, Virginia Beach, Virginia. The airline transport-rated pilot and two passengers were seriously injured. Day, visual meteorological conditions prevailed at the time, and no flight plan was filed for the personal flight conducted in accordance with 14 Code of Federal Regulations Part 91. The flight originated at GSP at 0938.

An inspector with the Federal Aviation Administration (FAA) reported that the accident pilot flew the airplane to Stevens Aviation on the afternoon of November 8 and turned the airplane in for a phase inspection. He returned to the airplane the next morning to evaluate some avionics issues and flew a local flight to do the same.

Air traffic control records provided by the Greer Air Traffic Control Tower (ATCT) revealed that the pilot requested taxi clearance at 0938, and the flight was cleared for takeoff at 0943. At 1007, while on final approach to runway 4, the approach controller informed the pilot of N337MT that he was overtaking a Beech Baron, and the pilot responded that he needed to keep his speed up and that he was low on fuel. At 1009, ATC reported that the airplane had crashed.

After recovering from his injuries, the pilot was interviewed by the NTSB investigator-in-charge (IIC). The pilot reported that on the day of the accident, he arrived about 0800 and performed his preflight, accomplishing the preflight and before engine starting checklists. When he performed his preflight, there were 740 pounds of fuel on board, enough for 1 hour and 10 minutes flying time. He was going to fly the airplane to evaluate some avionics, however the avionics technicians who were to fly with him had not arrived, so he went inside the repair facility to wait. He reported that, in the meantime, and unbeknownst to him, a 45-minute ground engine run was performed on the accident airplane. After the avionics technicians arrived, they proceeded to the airplane and flew in the local area to evaluate the avionics. While on approach for landing, the right engine quit, and then the left engine quit. He thought he could make the runway, but there was a 15-knot headwind. He established best glide configuration with gear and flaps up. He saw the approach lights, and turned to avoid them. The airplane impacted the ground and came to a stop.

The pilot stated that he referred to the flight management system (FMS) fuel totalizer on the ground and in flight, and assumed that the mechanics that performed the ground run did not turn the FMS on during the engine ground run. He stated that if the FMS was not turned on during the engine run, the FMS fuel totalizer would not reflect any fuel burned during the engine run. He did not refer to the airplane fuel gauges after he returned to the airplane for the flight; he only utilized the FMS totalizer.

The two mechanics who performed the engine run prior to the accident flight reported that they checked the fuel on board at the conclusion of the engine run. The auxiliary fuel tanks

were empty, and the main tanks each indicated approximately 200 pounds of fuel. They reported that the engines were operated for 30 to 35 minutes with the majority of the run at low power settings. High power settings were used for less than 5 minutes.

The Chief Inspector for Stevens Aviation reported that, prior to the accident flight, the technicians performed the ground run, moved the airplane to a hangar, and prepared to connect the airplane to a tow bar to pull it into the hangar. He was aware that the airplane had some avionics issues. He recalled that two avionics technicians went out to the airplane, and the next thing he heard was that there had been a crash. He was not told that the airplane was going to fly and does not know how that decision was made. He reported that Stevens Aviation uses a procedure to install an external placard, or "red tag," on the outside of the airplane before maintenance begins, but no repairs had been started on airplane. The red tag is generally installed after the engine run and the airplane has been moved into the hangar and placed on jacks.

PERSONNEL INFORMATION

The pilot was a certificated airline transport pilot, flight instructor, aircraft dispatcher, ground instructor, and flight engineer. He held a first-class medical certificate that was issued on October 15, 2009. He reported a total of 15,751 flight hours. His most recent flight review was in the FlightSafety International B200 simulator on May 23, 2009.

AIRCRAFT INFORMATION

The airplane was a Hawker Beechcraft Corporation B200, serial number BB-1628, equipped with two Pratt and Whitney Canada PT6A-42 engines. The airplane had a maximum gross weight of 12,500 pounds. The last documented inspection prior to the day of the accident was on April 23, 2009 at 2,990.1 hours total time. The airplane had a total time of 3,060 hours at the time of the accident.

The FMS screen was mounted on the center instrument panel of the accident airplane; the airplane fuel gauges were mounted on the left cockpit wall, above the circuit breaker panel.

The B200 Pilot's Operating Handbook (POH) addresses takeoff with a low fuel condition. In Chapter 2 (Limitations - Fuel Management), the following statement is published, "Fuel gages in the yellow arc - Do not take off if the fuel quantity gages indicate in yellow arc or indicate less than 265 pounds of fuel in each main tank system."

METEOROLOGICAL INFORMATION

The 0953 weather observation for GSP included the following: sky clear, surface winds from 020 degrees at 4 knots, 10 statute miles visibility, temperature 14 degrees Celsius, dew point 7 degrees Celsius, and an altimeter setting of 30.39 inches of mercury.

FLIGHT RECORDERS

The Fairchild cockpit voice recorder (CVR) and Goodrich terrain awareness and warning system (TAWS) computer were forwarded to the NTSB Vehicle Recorders Laboratory for examination. The TAWS unit did not record any useful flight data and was returned to the

owner's representative.

The following is a CVR summary of selected events that occurred during the accident flight, along with timing of those events. All times are in EST.

09:44:54 Start of recording.

09:45:47 Pilot alerts approach he would like to proceed toward "Foothills," followed by the WODOR transition to the GPS approach to runway 4.

09:47:52 Continuing discussion between pilot and passenger regarding possible navigation system indication issue.

09:55:05 N337MT is cleared for the GPS runway 4 approach and is handed over to tower.

09:56:12 Pilot and passenger continue to discuss lack of vertical guidance.

09:56:27 Pilot decides to go around for another approach for further troubleshooting.

09:57:17 Pilot intends to go to MULDE and return for another approach.

09:57:31 N337MT is cleared direct MULDE and 4,000 feet.

10:05:45 Passenger asks how much fuel is in the auxiliary tanks, pilot replies he is going to "go in for a landing."

10:06:07 Approach control requests speed reduction for traffic ahead, pilot responds saying they need to keep the speed up.

10:06:16 Approach wants N337MT to go around, pilot responds he is unable due to low fuel.

10:06:42 Sound similar to engine sputtering.

10:06:52 Pilot asks the passenger to put the right engine in feather.

10:06:59 N337MT is cleared to visual approach to runway 4.

10:07:45 N337MT is cleared to land runway 4.

10:08:05 Sound similar to engine sputtering.

10:08:14 Sound of landing gear warning horn until end of recording.

10:08:34 Five hundred foot automated TAWS callout.

10:08:42 Tower asks N337MT to confirm three green.

10:08:46 Sink rate TAWS warning.

10:08:47 Passenger asks about lowering gear and pilot responds negative.

10:08:59 Sound similar to stall warning.

10:09:00 Sound of impact.

10:09:02 Sound of impact.

10:09:03 Sound of impact.

10:13:28 Sounds of emergency responders removing occupants.

10:15:30 End of recording.

WRECKAGE AND IMPACT INFORMATION

Following the accident, the FAA inspector responded to the accident site and examined the wreckage. Her inspection revealed that there was no fuel in the main or auxiliary fuel tanks. The tanks were not breached and there was no evidence of fuel leaks. The wings were removed during the recovery of the wreckage and only residual fuel was observed.

Maintenance-installed seat covers were found on the two pilot seats. The shoulder harnesses were found under the seat covers and there was no evidence of their use during the accident flight.

The wreckage was recovered to a storage facility in Griffin, Georgia, where an examination was performed by the NTSB IIC. The examination of the wreckage revealed no evidence of preexisting mechanical anomalies.

History of Flight

Approach-IFR final approach	Fuel exhaustion (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Flight Engineer	Age:	66, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last Medical Exam:	10/15/2009
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	05/23/2009
Flight Time:	15717 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	HAWKER BEECHCRAFT CORPORATION	Registration:	N337MT
Model/Series:	B200	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	BB-1628
Landing Gear Type:	Retractable - Tricycle	Seats:	11
Date/Type of Last Inspection:	04/23/2009, Unknown	Certified Max Gross Wt.:	12500 lbs
Time Since Last Inspection:	70 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	3060 Hours	Engine Manufacturer:	Pratt and Whitney Canada
ELT:	Installed, not activated	Engine Model/Series:	PT6A-42
Registered Owner:	MDTR HOLDINGS LLC	Rated Power:	850 hp
Operator:	MDTR HOLDINGS LLC	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	GSP, 964 ft msl	Observation Time:	0953 EST
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	14° C / 7° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	4 knots, 20°	Visibility (RVR):	
Altimeter Setting:	30.39 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Greer, SC (GSP)	Type of Flight Plan Filed:	None
Destination:	Greer, SC (GSP)	Type of Clearance:	IFR
Departure Time:	0943 EST	Type of Airspace:	

Airport Information

Airport:	Greenville Spartanburg Int. (GSP)	Runway Surface Type:	Asphalt; Concrete
Airport Elevation:	964 ft	Runway Surface Condition:	Dry
Runway Used:	04	IFR Approach:	Visual
Runway Length/Width:	11000 ft / 150 ft	VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	2 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Serious	Latitude, Longitude:	34.879444, -82.230278 (est)

Administrative Information

Investigator In Charge (IIC):	Ralph E Hicks	Adopted Date:	12/20/2010
Additional Participating Persons:	Marjorie V Jake; FAA/FSDO; West Columbia, SC Brian Weber; Hawker Beechcraft Corporation; Wichita, KS		
Publish Date:	12/20/2010		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=75030		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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.