Aviation Investigation Final Report

Location:	White Plains, New York	**Accident Number:**	ERA13LA060
Date & Time:	November 17, 2012, 00:05 Local	**Registration:**	N8519M
Aircraft:	Beech 35B33	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation		

Analysis

On final approach for landing, the pilot observed that the airplane was high, and he performed a slip in order to lose altitude. During the maneuver, the engine lost power, and the pilot performed a forced landing to a parking lot. Postaccident examination revealed the fuel selector switch was in the off position; however, the pilot said that, after the accident, he turned the fuel selector from an unknown position to OFF and that he could not recall the prior position. The examination also found that the right wing fuel tank contained about 14 gallons of fuel, and the left tank was empty. Although the left wing tank was ruptured during impact, no evidence of fuel leakage or odor was found at the site. The airplane was equipped with a non-standard engine and propeller and did not have a Supplemental Type Certificate for the installation. Further, the pilot did not have fuel consumption information for the current engine-propeller installation; thus, the pilot likely misjudged the fuel consumption for the flight. It is likely that the fuel selector was positioned to the left tank, which had become very low on fuel. The slip maneuver aggravated the low fuel condition of the left wing fuel tank, and the airplane was starved of fuel, which resulted in the loss of engine power. Additionally, the pilot's failure to utilize the auxiliary fuel pump per the pilot operating handbook during air start most likely prevented the engine from restarting. Postaccident examination revealed no anomalies that would have precluded the normal operation of the airplane or engine components.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper fuel management and his excessive slip maneuver, which led to fuel starvation and a total loss of engine power, and his failure to activate the electric boost pump during the attempted engine restart.

Findings

Aircraft	Yaw control - Incorrect use/operation
Aircraft	Fuel pump - Not used/operated
Personnel issues	Incorrect action performance - Pilot
Aircraft	Fuel - Fluid management

Factual Information

History of Flight

Approach-IFR final approach	Fuel starvation (Defining event)
Approach-IFR final approach	Loss of engine power (total)
Emergency descent	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

On November 17, 2012, about 0005 eastern standard time, a Beechcraft B33, N8519M, was substantially damaged during a forced landing following a total loss of engine power while on approach to Westchester County Airport (HPN), White Plains, New York. The private pilot incurred minor injuries. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed for the flight that departed Rock Airport (9G1), Tarentum, Pennsylvania at about 2150. The business flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

The pilot conducted a flight from HPN to 9G1 prior to the accident flight, after which he did not refuel the airplane. The pilot stated that he departed 9G1 for HPN with approximately 47 gallons of fuel.

As the airplane was on final approach to runway 34 at HPN, at an altitude of 1,000-1,500 feet mean sea level, the pilot noticed that he was above the glide path for a normal landing and "performed a brief slip to lose altitude quicker" During the slip, the pilot decreased propeller pitch, and the engine made an unusual "roaring" sound. The pilot declared an emergency on the airport's common traffic advisory frequency, switched the fuel selector from the left fuel tank to the right fuel tank, and performed the emergency checklist for an engine failure by memory before attempting to restart the engine. The pilot maneuvered the airplane towards a lighted parking lot and executed a forced landing about one-half of a nautical mile short of runway 34. After egress from the airplane, the pilot stated that he returned back inside the cockpit to turn the fuel selector off. During postaccident interviews, the pilot could not remember from what position he turned the fuel selector to the off position. The pilot did not report any preflight mechanical anomalies that would have precluded normal operation of the airplane.

Examination of the airplane revealed damage to the firewall, left wing root and wing spar. Flight control cable continuity was established from the cockpit controls to all the control surfaces. Although the left fuel tank was ruptured during impact with a tree, no fuel pooling, leakage, or odor were present at the accident site. Examination of the cockpit indicators, controls, and switches revealed the fuel selector switch was in the off position, the throttle was in the full power position, the fuel mixture control lever was in the full rich position, and the propeller control lever was in the full out position. The auxiliary fuel boost pump switch was in

the off position.

The 2256 recorded weather at HPN included wind from 360 degrees at 8 knots, visibility 10 statute miles, clear skies, temperature 3 degrees C, dew point 5 degrees C, and an altimeter setting of 30.41 inches of mercury.

The low-wing, retractable-gear airplane was powered by a Continental IO-520-BB, 285-horsepower engine, which was equipped with a 3-bladed McCauley propeller. Review of maintenance records revealed that an annual inspection was completed on June 6, 2012, at a total time of 11,298.5 hours. At the time of the accident, the engine total time was 2865.3 hours, with 809.8 hours since last major overhaul.

Examination of the fuel system was performed by Federal Aviation Administration (FAA) inspectors. The main fuel screen was removed, and residual fuel was found in the screen. The fuel line from the firewall to the engine-driven fuel pump was removed, and no residual fuel was found in the line. The engine-driven fuel pump was removed, and the drive coupler was inspected and found intact. The fuel control unit, fuel flow transducer, fuel manifold valve, and all associated fuel lines were removed and exhibited no residual fuel. Approximately 14 gallons of fuel was drained from the right wing.

Data extracted from the airplane's fuel totalizer by the NTSB vehicle recorder laboratory indicated that the airplane consumed 54.2 gallons of fuel during the accident flight and the flight prior, and had 19.8 gallons of total fuel remaining on board at the time of the accident, three gallons of which was unusable.

According to FAA records, the engine-propeller combination installed on the accident airplane was not authorized in the type certificate data sheet for a Beechcraft B-33, and the airplane did not have a Supplemental Type Certificate or Flight Manual Supplement for the installation. The pilots operating handbook (POH) for the accident airplane did not include any information, including fuel consumption, for this engine and propeller combination. According to the POH, the maximum duration for a slip maneuver is 20 seconds for an airplane with unbaffled main fuel cells, with which the accident airplane was equipped. The POH also stated that, during an air start procedure, the auxiliary fuel pump must be turned to the on position until power is regained.

Pilot Information

Certificate:	Private	**Age:**	43,Male
Airplane Rating(s):	Single-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:**	July 21, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 16, 2012
Flight Time:	807 hours (Total, all aircraft), 170 hours (Total, this make and model), 771 hours (Pilot In Command, all aircraft), 21 hours (Last 90 days, all aircraft), 16 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N8519M
Model/Series:	35B33 NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	CD-628
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 6, 2012 Annual	**Certified Max Gross Wt.:**	3010 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	11298 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-520
Registered Owner:	On file	**Rated Power:**	285 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	KHPN,439 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	22:56 Local	**Direction from Accident Site:**	160°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.4 inches Hg	**Temperature/Dew Point:**	3°C / 5°C
Precipitation and Obscuration:			
Departure Point:	Tarentum, PA (9G1)	**Type of Flight Plan Filed:**	IFR
Destination:	White Plains, NY (HPN)	**Type of Clearance:**	IFR
Departure Time:	21:50 Local	**Type of Airspace:**	

Airport Information

Airport:	Westchester County Airport HPN	**Runway Surface Type:**	
Airport Elevation:	439 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	ILS;Practice;Visual
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	41.049999,-73.689445(est)

Administrative Information

Investigator In Charge (IIC):	Murray, Patrick
Additional Participating Persons:	John Wilkins; FAA/FSDO; Farmingdale, NY Marc Cabibbo; FAA/FSDO; Farmingdale, NY
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Investigation Class:	Class
Note:	
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