Aviation Investigation Final Report

Location:	Yorktown, New York	**Accident Number:**	ERA12LA295
Date & Time:	April 20, 2012, 16:26 Local	**Registration:**	N821SM
Aircraft:	RAYTHEON AIRCRAFT COMPANY A36	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was in cruise flight at 7,000 feet when the engine lost power. The pilot requested vectors to the nearest airport but determined the airplane would not reach the requested landing site. He selected a forced landing site on a corporate complex and completed the forced landing, which resulted in substantial damage to the airplane. During the descent, he stated that he performed remedial actions in accordance with the checklist and switched the fuel selector from the right tank position to the left tank. Later, the pilot stated that he did not consult a checklist, but performed emergency action items "from memory." He added that the engine would surge during the descent but would not produce sufficient power to maintain altitude. A witness stated that he saw the airplane at low altitude near the campus and described the engine sound as surging between idle and "extremely high rpm." He said that the engine sounded as though it was "starving for fuel." Examination of the airplane revealed no preimpact mechanical anomalies. The fuel selector was found in a position between the left tank and right tank detents. A detailed examination revealed continuity of the fuel system, unobstructed fuel lines and filters, and an operational fuel selector. The engine was removed from the airplane and placed in a test cell, where it started immediately, accelerated smoothly, and ran continuously without interruption. The engine run revealed no anomalies that would have prevented normal operation and the production of rated power.

A warning in the airplane manufacturer's Pilot's Operating Handbook stated:

"POSITION [Fuel] SELECTOR IN DETENTS ONLY – NO FUEL FLOW TO ENGINE BETWEEN DETENTS"

It is likely that the pilot moved the fuel selector during cruise flight but did not ensure that it was seated correctly in the detent. Shortly thereafter, the engine lost power. Because the pilot did not perform the requisite emergency procedures, he did not recognize that the fuel selector was not seated properly.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper placement of the fuel selector, which resulted in fuel starvation and a total loss of engine power. Contributing to the accident was the pilot's failure to perform the published emergency procedure by the checklist.

Findings

Aircraft	Fuel selector/shutoff valve - Incorrect use/operation
Personnel issues	Use of equip/system - Pilot
Personnel issues	Use of checklist - Pilot

Factual Information

History of Flight

Enroute-cruise	Fuel starvation (Defining event)
Enroute-cruise	Loss of engine power (partial)
Emergency descent	Off-field or emergency landing
Landing-flare/touchdown	Collision with terr/obj (non-CFIT)

On April 20, 2012, at 1626 eastern daylight time, a Hawker-Beechcraft Corporation A36, N821SM, was substantially damaged during a forced landing following a loss of engine power during cruise flight in Yorktown, New York. The certificated private pilot and passenger sustained minor injuries. The flight departed Teterboro Airport (TEB), Teterboro, New Jersey about 1600, and was destined for Norwood Memorial Airport (OWD), Norwood, Massachusetts. Visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed for the personal flight, which was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

In a written statement, the pilot stated that the airplane was in cruise flight at 7,000 feet when the engine lost power. He requested vectors to the nearest airport, but determined the airplane would not reach the requested landing site. He selected a forced landing site on the IBM corporate campus in Yorktown, and completed the forced landing, which resulted in substantial damage to the airplane. During the descent, he stated that he performed remedial actions in accordance with the checklist, and switched the fuel selector from the right tank position to the left tank. He added that the engine would surge during the descent but would not produce sufficient power to maintain altitude. In an interview with a Federal Aviation Administration (FAA) inspector, the pilot stated that he did not consult a checklist during the descent, but performed the emergency action items "by memory."

In a telephone interview, a witness stated that he saw the airplane at low altitude near the IBM corporate campus and it appeared to be "in distress." He described the engine sound as surging between idle and "extremely high rpm." He said that the engine sounded as though it was "starving for fuel."

According to FAA records, the airplane was manufactured in 1996. The most recent annual inspection was completed July 1, 2011, at 1,460.4 total aircraft hours. At the time of the accident, the airplane had accrued 1,503 total aircraft hours.

The pilot held a private pilot certificate with ratings for airplane single engine land and instrument airplane. He reported 383.5 total hours of flight experience, of which 165.5 hours were in the accident airplane make and model. His most recent FAA third-class medical certificate was issued November 9, 2011.

Examination of the airplane at the scene by FAA inspectors revealed no pre-impact mechanical anomalies. The fuel selector was found in a position between the left tank and right tank detents . A detailed examination by the inspectors at a recovery facility revealed continuity of the fuel system, unobstructed fuel lines and filters, and an operational fuel selector.

The engine was removed from the airplane, and placed in a test cell on May 2, 2012. Prior to the test run, a borescope examination of the engine's cylinders revealed "normal" deposits and wear, and no anomalies. The engine started immediately, accelerated smoothly, and ran continuously without interruption. The engine run revealed no anomalies that would have prevented normal operation and the production of rated power.

A warning in the airplane manufacturer's Pilot's Operating Handbook stated:

"POSITION [Fuel] SELECTOR IN DETENTS ONLY – NO FUEL FLOW TO ENGINE BETWEEN DETENTS"

Pilot Information

Certificate:	Private	**Age:**	38,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 3 Without waivers/limitations	**Last FAA Medical Exam:**	November 9, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	383 hours (Total, all aircraft), 165 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	RAYTHEON AIRCRAFT COMPANY	**Registration:**	N821SM
Model/Series:	A36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:		**Serial Number:**	E-3031
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	July 1, 2011 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	43 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1503 Hrs at time of accident	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	IO-550 SERIES
Registered Owner:	EHRENZELLER MARK	**Rated Power:**	300 Horsepower
Operator:	EHRENZELLER MARK	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HPN,439 ft msl	**Distance from Accident Site:**	9 Nautical Miles
Observation Time:	15:56 Local	**Direction from Accident Site:**	152°
Lowest Cloud Condition:	Few / 2900 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 4000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	19°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Teterboro, NJ (TEB)	**Type of Flight Plan Filed:**	IFR
Destination:	Norwood, MA (OWD)	**Type of Clearance:**	IFR
Departure Time:	16:00 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	41.207778,-73.801391(est)

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Louis Misiano; FAA FSDO; Farmingdale, NY Jason Lukasik; Continental Engines; Mobile, AL
Original Publish Date:	May 9, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=83448