Aviation Investigation Final Report

Location:	Perry, Florida	**Accident Number:**	ERA12LA571
Date & Time:	September 21, 2012, 12:45 Local	**Registration:**	N26GW
Aircraft:	Beagle B206 SERIES 2	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	6 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to the pilot, before the flight, he performed a preflight inspection on the twin-engine airplane, during which he checked the fuel quantity onboard the airplane by looking at the fuel computer, which displayed 65 gallons. He then added 20 gallons of fuel to the left wing fuel tank and 25 gallons to the right wing fuel tank. He then entered the added amount of fuel into the fuel computer for a total of 110 gallons, which was consistent with the fuel gauges, which display fuel in pounds and which indicated that 275 pounds of fuel was in the left tank and 350 pounds of fuel was in the right tank. This amount should have been sufficient for the flight.

After departure, the pilot turned toward his destination and climbed the airplane to about 3,000 feet above sea level. Later, the right engine began to surge, and "after going through the checklist" the pilot elected to do a precautionary landing. The pilot asked air traffic control for the closest airfield; however, the pilot, after seeing nothing but trees, decided to land on a road with the landing gear in the up position. During the landing, the left wingtip struck a tree.

Examination of the wreckage revealed that both propellers were in the feathered position, the wing flaps were up, the landing gear was up, and the wing structure and both firewalls were substantially damaged. Further examination revealed that the left wing fuel tank contained about 22 gallons of fuel, and the right wing fuel tank was almost devoid of fuel. Thus, it is likely that the pilot did not monitor the fuel balance and allowed an imbalance between the two fuel tanks to occur, which resulted in the right engine being starved of fuel. This could have been remedied at any time during the cruise portion of the flight if the pilot had opened the cross-feed valve for the right engine, which would have allowed the right engine to feed fuel from the left tank and would have allowed him to balance the fuel load.

Examination of the cockpit switches revealed that the airplane had not been properly configured by the pilot for one-engine-inoperative flight per the guidance contained in the operating manual. If this had been done, the the airplane could have continued to fly at altitude, allowing the pilot to reach a diversionary airport and execute a one-engine-inoperative landing.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's improper in-flight fuel management, which resulted in fuel starvation and the right engine's complete loss of power. Contributing to the accident was the pilot's improper configuration of the airplane following the loss of engine power.

Findings

Personnel issues	Use of equip/system - Pilot
Aircraft	Fuel - Fluid management
Aircraft	Fuel selector/shutoff valve - Incorrect use/operation
Personnel issues	Identification/recognition - Pilot
Personnel issues	Incorrect action selection - Pilot
Personnel issues	Use of policy/procedure - Pilot

Factual Information

History of Flight

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

On September 21, 2012 about 1245 eastern daylight time, a twin engine, Beagle B206 Series 2, N26GW, was substantially damaged during an emergency landing after a loss of power in the right engine in Perry, Florida. Visual meteorological conditions prevailed and no flight plan was filed for the Title 14 Code of Federal Regulations Part 91 personal flight. The certificated commercial pilot and his five passengers were not injured. The flight destined for Tallahassee Regional Airport (TLH), Tallahassee, Florida, originated from Placid Lakes Airport (09FA), Lake Placid, Florida about 1140.

According to the pilot, at approximately 0830 he performed a preflight inspection on the airplane for the flight to TLH. During the preflight he checked the fuel quantity onboard the airplane by looking at the fuel computer installed in the airplane. It displayed 65 gallons. He then added 20 gallons of fuel to the left wing fuel tank and 25 gallons to the right wing fuel tank. He then entered the added amount of fuel to the existing fuel that was displayed on the fuel computer for a total of 110 gallons which was consistent with the fuel gauges which display fuel in pounds and which indicated that 275 pounds of fuel was in the left tank and 350 pounds of fuel was in the right tank.

After departure from 09FA, the pilot turned towards TLH and climbed the airplane to approximately 3,000 feet above sea level. About 1240 while over the Gulf of Mexico, the right engine began to surge and "after going through the checklist" the pilot elected to do a "precautionary landing" as he was offshore. After turning east towards shore, the pilot asked Jacksonville Air Route Traffic Control Center for the closest airfield. However, the pilot after seeing nothing but trees decided to land on a road with the landing gear in the up position. During the landing the left wingtip struck a tree.

Pilot Information

Certificate:	Commercial	**Age:**	56
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
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:**	February 16, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	August 10, 2011
Flight Time:	2560 hours (Total, all aircraft), 1020 hours (Total, this make and model), 2000 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

According to Federal Aviation Administration (FAA) and pilot records, the pilot held a commercial pilot certificate with ratings for airplane single-engine land, airplane multi-engine land, and instrument airplane. His most recent FAA third-class medical certificate was issued on February 16, 2011. He reported that he had accrued approximately 2,560 hours of total flight experience, 1,020 hours of which was in the accident airplane make and model.

Aircraft and Owner/Operator Information

Aircraft Make:	Beagle	**Registration:**	N26GW
Model/Series:	B206 SERIES 2	**Aircraft Category:**	Airplane
Year of Manufacture:	1969	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	B206-070
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	March 23, 2012 Annual	**Certified Max Gross Wt.:**	7500 lbs
Time Since Last Inspection:	10 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	3190 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	GTSIO-520C
Registered Owner:	On file	**Rated Power:**	340 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The accident aircraft was a low wing, twin engine airplane of conventional metal construction. It was equipped with retractable landing gear, and multiple position wing flaps. It was powered by two 340

horsepower, Continental GTSIO-520-C engines, each equipped with a Hartzell, 3-blade, fully feathering, constant speed propeller.

According to the United Kingdom Civil Aviation Authority, the airplane design had been certificated in their Performance Group C, indicating that the airplane had positive en-route performance with one engine inoperative.

According to FAA and airplane maintenance records, the airplane was manufactured in 1969. The airplane's most recent annual inspection was completed on March 23, 2012. At the time of accident, the airplane had accrued approximately 3,190 total hours of operation.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	40J,44 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	27°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lake Placid, FL (09FA)	**Type of Flight Plan Filed:**	None
Destination:	Tallahassee, FL (TLH)	**Type of Clearance:**	VFR flight following
Departure Time:	11:40 Local	**Type of Airspace:**	Class G

The recorded weather at Perry-Foley Airport (40J), Perry, Florida, located approximately 16 nautical miles north of the accident site, at 1253, included: winds variable at 3 knots, 10 miles visibility, clear, temperature 27 degrees C, dew point 21 degrees C, and an altimeter setting of 30.03 inches of mercury.

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	5 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	6 None	**Latitude, Longitude:**	29.809722,-83.545555

Examination of the wreckage revealed that both propellers were in the feathered position, the wing flaps were up, and the landing gear was up. The wing structure, engine firewalls, engine nacelles, elevator, and landing gear doors, were substantially damaged.

Further examination revealed that the left wing fuel tank contained approximately 22 gallons of fuel. However the right wing fuel tank was almost devoid of fuel. No fuel could be drained from its aft drain, and only about 4 ounces of fuel was able to be drained out of its forward drain.

Examination of the cabin revealed that the wing flaps switch was in the up position, the landing gear switch was in the up position, the magneto switches were off, the boost pump switches were off, the engine vents switches were in the open position, the left engine and right engine mixture controls were in the full rich position, the left engine fuel selector was in the left tank position, and the right engine fuel selector was in the right tank position.

Tests and Research

Review of the Operating Handbook for the airplane revealed that the fuel system consisted of left and right fuel tanks each supplying its associated engine through a "booster pump" (boost pump), "cross-feed cock" (cross-feed valve), and a filter. Each tank had a capacity of 117 gallons, 114 of which was usable. When required, either tank could feed the opposite engine by operation of the cross-feed cocks, but both tanks could not feed one engine simultaneously.

The operating handbook provided guidance regarding unequal fuel feeding stating that: "Should unequal feeding occur as shown by the readings on the fuel contents gauges, the fuel cock on the low side should be selected to feed from the high side until balanced is restored."

The operating handbook also contained an emergency procedures section which provided guidance regarding engine failure, fuel pump failure, and landing with one engine inoperative.

Comparison of the required positions of the cockpit controls in the emergency procedures section to the as found position of the cockpit controls in the airplane revealed that the mixture control for he inoperative engine was not in the required position, the engine cooling flap for the inoperative engine was not in the required position, the fuel selector was not in the required position, and the wing flaps were not in the required position.

Review of performance information contained in the Operating Handbook indicated that if the airplane had been configured per the guidance in the emergency procedures section, the airplane would have been able to remain at altitude.

Administrative Information

Investigator In Charge (IIC):	Gunther, Todd
Additional Participating Persons:	Michael P Jones; FAA / FSDO; Tampa, FL Andrew Blackie; AAIB; United Kingdom
Original Publish Date:	September 30, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=85110

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