Aviation Investigation Final Report

Location:	Indian Trail, North Carolina	**Accident Number:**	ERA13LA364
Date & Time:	August 16, 2013, 19:47 Local	**Registration:**	N6919B
Aircraft:	Piper PA-22-150	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After departure for the cross-country flight, the airplane climbed to and then cruised at an altitude of 7,500 feet; it then climbed to and cruised at an altitude of 9,500 feet. Near the end of the nearly 5-hour flight, about 3 nautical miles from the destination airport, the airplane experienced a total loss of engine power. The pilot cycled the fuel selector from the left wing tank to the right wing tank and back, but engine power was not restored. During the subsequent forced landing, the airplane touched down and struck a barbed wire fence, which resulted in substantial damage to the wing and elevator, and then it came to rest upright. Examination of the left wing, right wing, and fuselage fuel tanks revealed no fuel in any of the fuel tanks. No fuel odor was noted, and no evidence of fuel spillage was found at the scene. The airplane was refueled, and the continuity of the 44-gallon fuel system was confirmed. Using the airplane's battery and fuel system, the engine started immediately, accelerated smoothly, and ran continuously without interruption. According to the Owners Handbook, the fuel consumption rate at 75-percent power was 9 gallons per hour at sea level, and consumption rates increased with altitude even with the mixture properly leaned.

Probable Cause and Findings

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

The pilot's improper preflight planning, which resulted in a total loss of engine power due to fuel exhaustion.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Fuel planning - Pilot

Factual Information

History of Flight

Prior to flight	Preflight or dispatch event
Enroute-cruise	Fuel exhaustion
Enroute-cruise	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT)

On August 16, 2013, about 1947 eastern daylight time, a Piper PA-22-150, N6919B, was substantially damaged during a forced landing following a total loss of engine power two nautical miles west of Goose Creek Airport (28A), Indian Trail, North Carolina. The airline transport pilot was not injured. The airplane was owned and operated by an individual under the provisions of Title 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed and no flight plan was filed for the flight, which originated from Tupelo Regional Airport (TUP), Tupelo, Mississippi, at 1405 CDT.

The pilot stated he departed with 44 gallons of fuel on board. After departure, the airplane climbed to and then cruised at an altitude of 7,500 feet, before it was climbed to and then cruised at 9,500 feet. At the conclusion of the flight, while descending through 1,500 feet for landing at 28A, the engine experienced a total loss of power. The pilot cycled the fuel selector from the left wing tank to the right wing tank and back again. He did not attempt to restart the engine, but did engage the starter to change the propeller position. The pilot identified a field for the forced landing, where the airplane touched down and struck a barbed wire fence before it came to rest.

Examination of the airplane by a Federal Aviation Administration (FAA) aviation safety inspector revealed substantial damage to the elevator and right wing leading edge. The right fuel tank gauge indicated empty, while the left fuel tank gauge indicated below ¼-full.

The pilot held an airline transport certificate with ratings for airplane single-engine land, multi-engine land and instrument airplane. He reported 5,533 total hours of flight experience, of which 40 hours were in the accident airplane make and model. His most recent FAA first-class medical certificate was issued on June 24, 2013.

The airplane was manufactured in 1956 and was equipped with a Lycoming O-320 Series, 180-horsepower reciprocating engine. The airplane's most recent annual inspection was completed on February 14, 2013 at 5,048 total aircraft hours. The engine had accumulated 1,164 total hours of operation since its most recent overhaul.

On August 20, 2013, the FAA inspector serviced the airplane with fuel, and continuity of the airplane's 44.0 gallon fuel system was confirmed. Utilizing the airplane's battery and fuel system, the engine started immediately, accelerated smoothly, and ran continuously without interruption.

According to the Piper PA-22-150 Owners Handbook, at sea level, the fuel consumption rate at 75-percent power was 9 gallons per hour. The handbook further illustrated, "Fuel consumption during sea level cruising is given on the chart. The consumption is determined by the various flight conditions. At 75 [percent] of power at altitude, fuel consumption will be somewhat higher than at that power setting at sea level, even with the mixture properly leaned."

Pilot Information

Certificate:	Airline transport	**Age:**	47
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 1 With waivers/limitations	**Last FAA Medical Exam:**	June 24, 2013
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	January 19, 2013
Flight Time:	5533 hours (Total, all aircraft), 40 hours (Total, this make and model), 2715 hours (Pilot In Command, all aircraft), 2.5 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N6919B
Model/Series:	PA-22-150	**Aircraft Category:**	Airplane
Year of Manufacture:	1956	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-4194
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	February 14, 2013 Annual	**Certified Max Gross Wt.:**	2000 lbs
Time Since Last Inspection:	5058 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5048 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	0-320 SERIES
Registered Owner:	Darrell Hogue	**Rated Power:**	150 Horsepower
Operator:	Darrell Hogue	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	EQY,682 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	19:53 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Scattered / 4600 ft AGL	**Visibility**	
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	19°C / 15°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Tupelo, MS (TUP)	**Type of Flight Plan Filed:**	None
Destination:	Indian Trail, NC (28A)	**Type of Clearance:**	VFR flight following
Departure Time:	14:05 Local	**Type of Airspace:**	

Airport Information

Airport:	Goose Creek 28A	**Runway Surface Type:**	Grass/turf
Airport Elevation:	565 ft msl	**Runway Surface Condition:**	Vegetation
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	35.108612,-80.623054

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Kevin Willis; FAA/FSDO; Charlotte, NC
Original Publish Date:	August 7, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=87803