National Transportation Safety Board
Aviation Accident Final Report

Location:	St. Augustine, FL	**Accident Number:**	ERA10LA127
Date & Time:	02/01/2010, 1331 EST	**Registration:**	N3995J
Aircraft:	CESSNA 150G	**Aircraft Damage:**	Substantial
Defining Event:	Fuel related	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot refueled the airplane and departed. While cruising at altitudes varying between 6,500 feet and 2,500 feet above ground level, he noticed that the right fuel gauge was fluctuating around the empty indication and the left fuel gauge was giving intermittent indications. The pilot elected to land at an airport that was en route to his destination. As the airplane approached the airport, the engine experienced a total loss of power due to fuel exhaustion. The pilot made a forced landing to a highway about 600 yards short of the airport and, after maneuvering to avoid traffic, the airplane struck road signs and came to rest in a ditch. The pilot stated that he always based fuel consumption on time, altitude and temperature, and monitored it with a stopwatch. Subsequent fuel consumption calculations indicated that at the rpm setting provided by the pilot, the airplane should have had well in excess of 30 minutes of fuel onboard when the engine ceased operating, about 2.5 hours after takeoff. Postaccident examination of the airplane revealed fuel stains under the right under-wing area, flap, and fuselage. The stained was a result of fuel leakage due to a failure of the right wing fuel tank sending unit gasket.

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 caused by the failure of the right wing fuel tank sending unit gasket, which resulted in a forced landing.

Findings

Aircraft	Fuel storage - Damaged/degraded (Cause)
	Misc hardware - Not specified (Cause)

Factual Information

On February 1, 2010, at 1331 eastern standard time, a Cessna 150G, N3995J, was substantially damaged during a forced landing in St. Augustine, Florida. The certificated commercial pilot was not injured. Visual meteorological conditions prevailed. No flight plan had been filed for the flight, between Georgetown County Airport (GGE), Georgetown, South Carolina, and Flagler County Airport (XFL), Palm Coast, Florida. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

According to a Federal Aviation Administration inspector, the airplane "ran out of fuel" and forced landed about 600 yards from St. Augustine Airport (SGJ), St. Augustine, Florida, and by the time he arrived at the scene, it had already been moved.

The inspector further noted that he interviewed the pilot, who stated that while he was on approach for the airport, the engine “stopped,” and he landed on a highway. He avoided vehicles on the road, but the airplane hit a few traffic signs and came to rest in a ditch.

According to the pilot, he departed GGE at 1115, en route to XFL, 260 nautical miles away, and climbed the airplane to 6,500 feet. Skies were clear, winds were from 250 to 270 degrees at 10 to 12 knots, and the outside air temperature was 19 degrees F. The pilot leaned the engine to 2,525 rpm a for a fuel burn of 7.5 gallons per hour. Working with Jacksonville Center, the pilot descended the airplane to 4,500 feet, 15 miles south of St. Simon's Island (SSI) Airport, Brunswick, Georgia to avoid clouds.

Subsequently, while checking his stopwatch and gauges, the pilot noted, "R. gauge bouncing off of E; left gauge intermittent – decided to land and fuel at SGJ." The pilot began his descent 10 nm from the airport, but the engine lost power 4.4 nm out. He then "pulled electric fuel pump/attempt restart/declared emergency/stated [he] would take Highway 1 if unable to make field." The pilot subsequently force landed on the highway, and maneuvered to avoid traffic.

The pilot further stated that during 43 years in aviation, and 21 years of ownership of the accident airplane, he always based fuel consumption on time, altitude and temperature, and monitored it with a stop watch.

The pilot also noted that upon postflight inspection, he discovered that the right wing fuel tank sending unit gasket had failed, and observed "blue fuel stains on under-wing, flap, fuselage, causing the loss of about 9.2 gallons of fuel."

A review of flight tracking data found on a commercial internet site was consistent with the airplane having landed at GGE sometime after 1007, and a fuel receipt, time-stamped at 1019, indicated the purchase of 20.1 gallons of fuel. Radar tracking reappeared about 90 nautical miles southwest of GGE at 1152, at 4,500 feet, and indicated that the airplane maintained that approximate altitude until 1211. The airplane then climbed to about 6,500 feet until 1220, when it began a descent to, and remained in the vicinity of 4,500 feet until 1249. The airplane subsequently descended to about 2,600 feet, and varied its altitude between 2,900 feet and 2,400 feet until 1321. It then averaged about 2,100 feet until 1328, when it began a final descent. Recorded groundspeed during the level flight portions at 4,500-foot altitude ranged between 99 and 111 knots, but was most consistently in the vicinity of 105 knots. Time-distance calculations indicated a takeoff time of about 1100.

The airplane's original Lycoming O-200 engine had been replaced by a Lycoming O-320-E2D

engine, which was also installed on Cessna 172I through Cessna 172M models.

A review of performance data indicated a Cessna 172I-M maximum rate of climb, at 1,700 pounds gross weight(the pilot reported that the maximum gross weight of the accident airplane was 1,760 pounds), of about 1,000 feet per minute, and a fuel burn from sea level to 5,000 feet of 1.9 gallons. Cessna 172I-M performance charts, at 2,500 feet and 2,525 rpm, at lean mixture, indicated a fuel consumption of 8.0 gallons per hour, and at 4,500 feet and 2,525 rpm, a fuel consumption of 7.5 gallons per hour. The pilot reported that when he refueled at GGE, to full tanks, the airplane had 26 gallons of fuel onboard.

History of Flight

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

Pilot Information

Certificate:	Commercial	**Age:**	71, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	Seatbelt
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With Waivers/Limitations	**Last Medical Exam:**	05/19/2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	09/14/2009
Flight Time:	4289 hours (Total, all aircraft), 2700 hours (Total, this make and model), 4200 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	**Registration:**	N3995J
Model/Series:	150G	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	15065295
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	03/23/2009, Annual	**Certified Max Gross Wt.:**	1760 lbs
Time Since Last Inspection:	19 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	5442 Hours	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	0-200 SERIES
Registered Owner:	DAWN AVN LTD	**Rated Power:**	100 hp
Operator:	On file	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	SGJ, 10 ft msl	**Observation Time:**	1358 EST
Distance from Accident Site:		**Condition of Light:**	Day
Direction from Accident Site:		**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Few / 2500 ft agl	**Temperature/Dew Point:**	21°C / 3°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	15 knots/ 25 knots, 270°	**Visibility (RVR):**	
Altimeter Setting:	29.79 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Georgetown, SC (GGE)	**Type of Flight Plan Filed:**	None
Destination:	St. Augustine, FL (SGJ)	**Type of Clearance:**	VFR Flight Following
Departure Time:	1115 EST	**Type of Airspace:**	

Airport Information

Airport:	St. Augustine (SGJ)	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	N/A	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None		

Administrative Information

Investigator In Charge (IIC):	Paul R Cox	**Adopted Date:**	04/07/2011
Additional Participating Persons:	Joseph W Gramzinski; FAA/FSDO; Orlando, FL		
Publish Date:	04/07/2011		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=75325		