



National Transportation Safety Board Aviation Accident Final Report

Location:	WEST CHICAGO, IL	Accident Number:	CHI97LA076
Date & Time:	03/02/1997, 1400 CST	Registration:	N9420W
Aircraft:	Piper PA-28-235	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

During climbout after a touch-and-go, the airplane sustained a total loss of engine power. The airplane was landed in the grass on the airport property. No engine discrepancies were found during examination of the engine. The right main fuel tank was selected and contained approximately five quarts of fuel. The aircraft's owners manual listed the unusable fuel for all our fuel tanks on the airplane, at one pint each. The right main fuel tank gauge functioned normally following the accident, and no leaks were found in the right main fuel tank. The carburetor's fuel bowl was not compromised in the accident, and was nearly empty. The one fluid ounce of fluid removed from the carburetor fuel bowl, was one third water and two thirds gasoline.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: fuel starvation due to the pilot's improper fuel tank selection.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: CLIMB

Findings

1. (C) FUEL SYSTEM - STARVATION
2. (C) FUEL TANK SELECTOR POSITION - IMPROPER - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

On March 2, 1997, at 1400 central standard time (cst), a Piper PA-28-235, N9420W, sustained substantial damage during an off runway landing. The pilot was executing touch and go landings when he reported a loss of engine power shortly after taking off from runway 28, at the Dupage Airport, West Chicago, Illinois. After the pilot reported the loss of power, the control tower cleared the airplane to land on any available runway. The airplane landed on the airport property, south of the departure end of runway 28, in the grass. Both pilots on board the airplane sustained minor injuries in the accident. The 14 CFR Part 91 flight was not operating on a flight plan, and VFR conditions existed at the time of the accident.

An interview of the pilot was conducted by the investigator in charge (IIC) on the morning of March 3, 1997. The pilot reported that shortly after takeoff, at approximately 200 feet above the ground, the aircraft engine started to lose power, followed immediately by a total loss of engine power. The pilot reported that the electric boost pump was on, and that he was too busy flying the airplane to attempt to switch fuel tanks. When asked which fuel tank the fuel selector was on at the time of the accident, the pilot reported that he remembered it being selected to the right main fuel tank. The pilot reported that on the day of the accident, the airplane had been flown to Rockford, Illinois, then to Janesville, Wisconsin, then back to the Dupage Airport.

The airplane was using automobile gasoline, and the pilot reported that he used gas cans to fuel the airplane himself. The pilot reported on the day of the accident that he had drained some water out of the airplane's fuel tanks.

The airplane was inspected by the investigator in charge during the afternoon of March 3, 1997. The drain plug for the carburetor was removed, and approximately one fluid ounce of fluid was removed from the carburetor. The fluid appeared to be one third water, and two thirds automobile gas. The carburetor's fuel bowl capacity is greater than one fluid ounce. The carburetor's fuel bowl was not compromised in the accident. The finger strainer was removed, and found to be clean with no significant debris noted. The carburetor contained a metal float. The carburetor was found broken loose from the engine with all fuel lines still attached. Mud was found inside the accelerator pump of the carburetor.

When the fuel line which runs from the firewall fitting to the input side of the fuel pump was removed, only a trace of fuel was present. The gascolator on the bottom of the fuselage was drained, and no water contamination in the fuel was noted. The right main fuel tank was drained, and contained slightly less than 5 quarts of fluid, which appeared to be automobile gasoline.

Both wing tip tanks contained some fuel, the left tip tank was leaking fuel while the IIC was working on the airplane. The left main tank gauge showed approximately eight gallons of remaining fuel. Each of the four fuel tanks on the airplane was capable of supplying fuel to the engine area, when tested following the accident.

The IIC reviewed the Aircraft Owners Manual for the accident aircraft. The unusable fuel in the owners manual was listed at one pint for each fuel tank.

After the right main tank was checked for remaining fluids, it was filled with water to check for leaks. No leaks were found in the right main fuel tank when the water was allowed to remain in it for forty minutes. After testing the right main tank for leaks the electric boost pump was

used to drain the right main fuel tank, along with the tank's fuel drain. During the draining of the water the right main tank's fuel gauge was checked for accuracy. The fuel gauge registered full, when the tank was full of water. The gauge was slightly below the empty mark, when the water in the fuel tank stopped flowing during draining.

The spark plugs were removed from the engine, and inspected. All spark plugs were moderately sooted. The magneto with the impulse coupling was checked, and would create spark on all six spark plugs. Fuel was poured into the fuel line which was attached to the input side of the fuel pump. When the propeller was rotated by hand the mechanical fuel pump pumped gasoline. The air filter was opened and inspected. A large amount of mud was present in the air filter area. Compression was found on all of the engine's cylinders, when tested.

The airplane's left wing was crushed, the left main landing gear wheel was separated. The nose gear had collapsed. The propeller, engine mount, and firewall were all bent.

Pilot Information

Certificate:	Private	Age:	39, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	07/01/1996
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	626 hours (Total, all aircraft), 187 hours (Total, this make and model), 626 hours (Pilot In Command, all aircraft), 4 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N9420W
Model/Series:	PA-28-235 PA-28-235	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	28-11128
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	12/29/1996, Annual	Certified Max Gross Wt.:	2900 lbs
Time Since Last Inspection:	4 Hours	Engines:	1 Reciprocating
Airframe Total Time:	2206 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-540-B4B5
Registered Owner:	TODD MILLER	Rated Power:	235 hp
Operator:	TODD MILLER	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	DPA, 758 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1346 CST	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 2700 ft agl	Visibility	15 Miles
Lowest Ceiling:	Broken / 15000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	280°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	4°C / -2°C
Precipitation and Obscuration:			
Departure Point:	(DPA)	Type of Flight Plan Filed:	None
Destination:	(DPA)	Type of Clearance:	
Departure Time:	0000	Type of Airspace:	Class D

Airport Information

Airport:	DUPAGE (DPA)	Runway Surface Type:	Asphalt
Airport Elevation:	758 ft	Runway Surface Condition:	Dry
Runway Used:	28	IFR Approach:	None
Runway Length/Width:	4751 ft / 75 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	2 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	DAVID A BOLDENOW	Report Date:	08/25/1997
Additional Participating Persons:	DON BRIGHAM; WEST CHICAGO, IL		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.ntsbt.gov/pubdms/ .		

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