Aviation Investigation Final Report

Location:	Marble Hill, Missouri	**Accident Number:**	CHI02FA215
Date & Time:	July 25, 2002, 12:59 Local	**Registration:**	N8563Y
Aircraft:	Piper PA-30	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane, owned and piloted by a private pilot, was destroyed during an off airport landing attempt. The pilot reported a loss of engine power while en route. Witnesses reported hearing engine noise when the airplane began to circle over a 40-acre grass field. The engine noise ceased about midpoint through the turn. Ground scarring and wreckage distribution was consistent with a nose down low-speed impact. Nonvolatile memory aboard the airplane showed that the left engine was colder than the right engine and that the pilot may have attempted to start the failed engine. Solid contamination of the fuel system was noted.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The solid fuel system contamination resulting in a loss of engine power. The inadequate emergency procedures, and the airspeed not maintained by the pilot were additional causes.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: CRUISE

Findings
1. 1 ENGINE
2. (C) FUEL SYSTEM - CONTAMINATION

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

Findings
3. (C) EMERGENCY PROCEDURE - INADEQUATE - PILOT IN COMMAND

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
4. STALL - INADVERTENT - PILOT IN COMMAND
5. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
6. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On July 25, 2002, at 1259 central daylight time, a Piper PA-30, N8563Y, owned and piloted by a private pilot, was destroyed when it impacted a 40 acre grass field near Marble Hill, Missouri. The pilot reported a loss of engine power and that he was landing in a field. Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 personal flight was not operating on a flight plan. The pilot was fatally injured. The flight departed from the Whiteside County Airport, Rock Falls, Illinois, en route to Newport, Arkansas.

The pilot departed from Appleton, Wisconsin, where he purchased 18 gallons of 100 Low Lead (LL) aviation fuel at 0838. He made a stop and subsequently departed from Whiteside County Airport where he purchased 43.3 gallons of 100 LL fuel at 1039.

The following is a transcription of recorded conversations with St. Louis Automated Flight Service Station (STL AFSS) and the accident airplane:

At 1251:17, N8563Y transmitted, "mayday mayday eight five six three yankee anybody hear me."

At 1251:23, STL AFSS transmitted, "eight five six three yankee saint louis radio read *(you) loud and clear."

At 1251:26, N8563Y transmitted, " *(yeah) six three yankees gonna have to put it down in a field somewhere *(now) I just lost my other engine."

At 1251:31, STL AFSS transmitted, "rodger uh are you near...do you know your position."

At 1251:35, N8563Y transmitted, "five six three yankee."

At 1251:50, N8563Y transmitted, "that's affirmative we're goin' into a field down here somewhere i don't---."

The * indicated that the portion of the re-recording is not entirely clear, but this represent the best interpretation possible under the circumstances.

There were no further radio transmissions by N8563Y were recorded.

A witness stated that he was outside his home when he heard the engine of the airplane sputter like it was out of fuel. It then became silent and just gliding. Then it sputtered again

and became silent. The airplane was flying low over the trees toward an open field, made a turn towards the left and then "went to an angle." He could see the top of the airplane.

A second witness said that he first noticed the airplane because it was low. The airplane sounded all right as it came in from the east. The airplane began a circle over his hayfield which he described as "it came in smooth" and it "was gradually descending." The airplane "fluttered and backfired" about 1/2 way through the circle while heading towards the south. After it backfired, the engine noise went silent. The landing gear was not extended. He said that it was 100 degrees outside and humid.

PERSONNEL INFORMATION

The pilot, age 59, held a private pilot certificate with a single engine land and instrument rating and a multiengine land rating for visual flight rules only. He was issued a third class airman medical certificate on June 22, 2000 with the following limitation: "holder must wear corrective lenses."

AIRCRAFT INFORMATION

The 1967 airplane, serial number (S/N) 30-1679, was powered by two Lycoming fuel injected IO-320-B1A engines rated at 160 horsepower at 2,700 rpm The airplane was last inspected during an annual inspection dated July 27, 2001, at a tachometer time of 3,487.8 hours and a total time in service (TTIS) of 3,487.8 hours. The left engine, serial number L-3601-55A, received its last inspection during a annual inspection dated July 27, 2001, at a tachometer 3,487.8 and a TTIS of 3,487.8 hours. The right engine, serial number L-3566-55A, received its last inspection during an annual inspection dated July 27, 2001, at a tachometer time of 3,662.6 and a TTIS of 3,662.6 hours.

The airplane was equipped with a Vision Microsystems Inc., VM1000 graphic engine monitoring system which was sent to the manufacturer in order to download the units nonvolatile memory.

WRECKAGE AND IMPACT INFORMATION

The airplane was upright and oriented on a tail to nose heading of about 200 degrees on a 40 acre grass field. The wings and their control surfaces, empennage, and engines were attached to the fuselage. Both propellers and pieces from the nose of the airplane were located about 60 feet to the southeast of the airplane. The propellers were about 1-1 1/2 feet under ground. A wreckage diagram is included in the public docket of this accident.

Flight control continuity to the control surfaces to their respective control surfaces was confirmed. The rudder trim jack screw was 11 threads which equated to about half nose left trim travel and the elevator jack screw extension was about 5/8 inches which equated to about 3-4 degrees nose up trim. The flaps and landing gear were retracted.

The left engine throttle was in the idle position. The left engine mixture control was in the full rich position. The left propeller control was in the "decrease" position. The right engine throttle control was in the forward position. The right engine mixture control was retarded about one inch behind the left engine mixture control. The right propeller control was in the forward position. Both cowl flaps were closed. Both left engine magneto switches were in the off position. The right engine magneto switches were on for the right magneto and off for the left magneto. The master switch was in the on position.

The right main fuel tank, left main, and left auxiliary fuel tank contained a liquid consistent with 100 LL which was about 2-3 inches below the filler neck. The right auxiliary fuel tank was empty. The left fuel selector was in the left main position and the right fuel selector was in the right auxiliary position.

On-site examination of the engines revealed that the left engine driven fuel pump contained about a 1/4 cup of fuel and the right engine driven fuel pump contained less than a 1/2 teaspoon of fuel.

Both fuel selector were disassembled and examined and noted to contain a brown colored contaminant which was also found on the fuel servo screens for both engines.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was performed at the Mineral Area Regional Medical Center, Farmington, Missouri.

The Federal Aviation Administration’s Final Toxicology Fatal Accident Report of the pilot reported the following:

0.231 (ug/mL, ug/g) norpropoxyphene detected in blood
0.743 (ug/mL, ug/g) norpropoxyphene detected in urine
ranitidine present in blood
ranitidine present in urine
77.23 (ug/ml, ug/g) salicylate detected in urine
14.23 (ug/ml, ug/g) acetaminophen detected in urine

TESTS AND RESEARCH

Airworthiness Directive (AD) 83-10-01 applicable to Piper models PA-24-400 (S/Ns 26-2 through 26-148); PA-30 (S/Ns 30-2 through 30-2000); and PA-39 (S/Ns 39-1 through 39-155) was issued to prevent retention of water contamination and deterioration of the fuel system, accomplish the following:

(A) Within the next 50 hours time-in-service after the effective date of this AD and at intervals

not exceeding 50 hours time-in-service thereafter, clean and inspect the fuel selector valve strainer filter on all airplanes listed in the applicability statement for water accumulation, contamination, and corrosion of the fuel strainer filter components...

(B) Within the next 100 hours time-in-service after the effective date of this AD, replace the existing fuel selector strainer filter housing on the Model PA-30 (S/Ns 30-2 through 30-1744) airplanes with Piper P/N 757187 conical-shaped stainless steel strainer housing in accordance with Piper Service Letter No. 589, dated August 18, 1971. NOTE: This may have been previously accomplished per Piper Service Spares Letter No. SP-289 or Service Letter No. 589.

(C) Within the next 50 hours time-in-service after the effective date of this AD, fabricate and install a permanent placard as described below having letters with 1/8 inch minimum height on the inside of the hinged access door or adjacent location clearly visible to the pilot during his preflight check.

(2) On Model PA-30 and PA-39 airplanes, the placard must read as follows:

"THE FUEL SYSTEM SHALL BE DRAINED DAILY PRIOR TO FIRST FLIGHT AND AFTER REFUELING TO AVOID THE ACCUMULATION OF WATER OR SEDIMENT USING THE FOLLOWING PROCEDURE:

a. Pull up on the knob located in the center of the selector valves to open the strainer quick drain for a few seconds with the fuel tank selector on the main tank, then change the tank selector to each auxiliary tank and repeat the process. Allow enough fuel to flow to clear the lines as well as the strainer. Positive fuel flow shut-off can be observed through the clear plastic tube which carries the fuel overboard.
b. Ensure that the drain valve positively closes.
c. If it is not possible to observe fuel draining through the clear plastic tube because of a loss in its transparency, replace with a new tube.

The Advanced Pilot's Flight Manual (Kershner) states under Emergency Procedures:

"The nonpilot may feel that a loss of an engine on a multiengine airplane is either a terrifying disaster or nothing to be concerned about. Experienced pilots know that the multiengine airplane, if properly flown with an engine out, has a strong safety factor. They also know that at certain times the airplane must be flown precisely, and in some cases it is safer to chop the other engine(s) than try to continue. New pilots have been killed by the loss of an engine on takeoff or approach when they believed they could go around. Ironically enough, they might have survived had the engine quit at the same place in a single-engine airplane. They would have landed straight ahead in the single-engine airplane but instead attempted the impossible because of overconfidence or ignorance of the single-engine performance of their twin."

The VM1000 nonvolatile memory download indicated that the left engine exhaust gas temperatures ranged from 78-90 degrees Fahrenheit (F) and the right engine EGT parameters

ranged from 458-588 degree F. The left engine cylinder head temperatures (CHTs) ranged from 84-94 degrees and the right CHTs ranged from 298-380 degrees F. The left engine hours were 3,517.7 hours and the right engine hours were 3,491.3 hours. The system on time or power on time of the VM1000 was 3 minutes and 28 seconds.

Disassembly of the left fuel servo did not reveal the brown colored contaminant beyond the filer screen. The right fuel servo was bench tested and noted to have met in-service specifications.

ADDITIONAL INFORMATION

The FAA, The New Piper, Inc. and Textron Lycoming were parties to the investigation.

The wreckage was released and all retained components were released to the registered owner's insurance representative.

Pilot Information

Certificate:	Private	**Age:**	59,Male
Airplane Rating(s):	Single-engine land; Multi-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:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 22, 2000
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 27, 2001
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N8563Y
Model/Series:	PA-30	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	30-1679
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	July 27, 2001 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:		**Engines:**	2
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	IO-320-B1A
Registered Owner:	Anthony B Junkin	**Rated Power:**	160 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	FAM,947 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	12:55 Local	**Direction from Accident Site:**	310°
Lowest Cloud Condition:	Few / 100 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 10000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	0 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	31°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Rock Falls, IL (SQI)	**Type of Flight Plan Filed:**	None
Destination:	Newport, AR	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	37.436111,-90.016944

Administrative Information

Investigator In Charge (IIC):	GALLO, MITCHELL
Additional Participating Persons:	Tom Russell; Federal Aviation Administration; St. Ann, MO David Moore; Textron Lycoming; Ardsley, PA George Hollingsworth; The New Piper, Inc.; Reston, VA
Original Publish Date:	February 5, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=55300