Aviation Investigation Final Report

Location:	Spokane, Washington	**Accident Number:**	WPR15LA111
Date & Time:	February 22, 2015, 14:05 Local	**Registration:**	CGVZW
Aircraft:	Piper PA46 - 350P	**Aircraft Damage:**	Destroyed
Defining Event:	Fuel contamination	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was conducting a cross-country flight from Canada to California and had landed to clear customs into the United States and to refuel his airplane. The pilot then departed to continue the flight. During the initial climb after takeoff, the engine experienced a total loss of power, and the pilot attempted to make an off-airport forced landing. The right wing struck railroad tracks at the top of a hill, and the airplane continued down an embankment, where it came to rest adjacent to the bottom of a railroad bridge.

Postaccident interviews revealed that, when requesting fuel from the fixed-base operator (FBO), the pilot did not specify a grade of fuel to be used to service the airplane. The refueler mistakenly identified the airplane as requiring Jet A fuel, even though the fuel filler ports were placarded "AVGAS (aviation gasoline) ONLY." The fueler subsequently fueled the airplane with Jet A instead of aviation gasoline. Additionally, the fueling nozzle installed on the fuel truck at the time of the refueling was not the proper type of nozzle. Jet A and AvGas fueling nozzles are different designs in order to prevent fueling an airplane with the wrong type of fuel.

Following the fueling, the pilot returned to the FBO and signed a receipt, which indicated that the airplane had been serviced with Jet A. There were no witnesses to the pilot's preflight activities, and it is unknown if the pilot visually inspected or obtained a fuel sample before takeoff; however, had the pilot done this, it would have been apparent that the airplane had been improperly fueled.

Probable Cause and Findings

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

A total loss of engine power due to the refueler's incorrect refueling of the airplane. Contributing to the accident was the fixed-base operator's improper fueling nozzle, which facilitated the use of an incorrect fuel, and the pilot's inadequate preflight inspection.

Findings

Aircraft	Fuel - Incorrect service/maintenance
Personnel issues	Preflight inspection - Pilot

Factual Information

History of Flight

Takeoff	Fuel contamination (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On February 22, 2015, at 1405 Pacific standard time, a Piper Aircraft, Inc., PA-46-350P airplane, Canadian registration C-GVZW, was destroyed during a forced landing following a total loss of engine power after takeoff from Felts Field Airport (SFF), Spokane, Washington. The pilot, was fatally injured. Visual meteorological conditions prevailed for the instrument flight rules (IFR) flight, which was originating at the time of the accident. The flight was destined for the Stockton Metropolitan Airport (SCK), Stockton, California.

According to family members, the pilot was traveling to SCK from Canada to participate in recurrent flight training. He had called his wife prior to departure from SFF; he said that his flight to SFF was great, and that he was in good spirits. She could hear the engine in the background as she spoke to her husband, and nothing sounded abnormal.

Air traffic control voice communication information proved by the Federal Aviation Administration (FAA) indicated that the airplane was cleared for takeoff from runway 22R, and the pilot was instructed to turn to a heading of 190° after takeoff. When the controller observed on radar that the airplane had not turned to the 190° heading, he queried the pilot. The pilot responded that he was having engine trouble. The controller cleared the pilot to return to the airport and land on any runway. The pilot stated that he was not going to make it back to the runway, and asked if the controller had any suggestions for an alternate landing site. No further radio transmissions were received from the pilot.

One set of witnesses heard the airplane engine sputtering. They saw the left-wing drop, and the nose pitch up, the right wing dropped, and they lost sight of the airplane as it passed behind a building. The second set of witnesses reported that the right wing struck a railroad track at the top of a hill and subsequently traveled down an embankment. The airplane slid across a road and came to rest inverted adjacent to the bottom of a railroad bridge.

WITNESS INFORMATION

The fixed-base operator (FBO) employee who serviced the airplane with fuel stated that the pilot contacted him on the day of the accident and requested to have his airplane fueled. The pilot did not specify what type of fuel was required, but only that he had cleared customs; he also told the fueler where his airplane was located. The fueler stated that the pilot was not present when he arrived to fuel the airplane. He stated that the majority of the Piper Malibu airplanes that he had serviced required Jet A fuel, so he fueled the accident airplane with Jet A. Once the fueling was complete, he returned to the FBO, and waited for the pilot to return to pay for the fuel. Both the written receipt and credit card receipt

provided to the pilot specified that the airplane had been serviced with Jet A. The pilot paid for the fuel and left.

There were no witnesses to the pilot's preflight activities, and it is unknown if the pilot visually inspected or sumped the fuel before departing. Following the accident, an FAA inspector obtained the fueling log from the FBO; the log indicated that the accident airplane had been fueled with 52 gallons of Jet A.

PERSONNEL INFORMATION

The pilot held a Transport Canada single-engine and multiengine land certificate with night ratings. He held a third-class medical with the limitation that glasses must be worn. The pilot had received training in the accident make/model airplane, and was endorsed for proficiency in its operation in March 2012.

AIRCRAFT INFORMATION

The airplane was powered by a Lycoming TIO-540-AE2A 350-horsepower, turbocharged, reciprocating engine. According to the journey record (aircraft logbook), the last annual inspection was performed on July 23, 2014, at an airframe total time of 2,324.0 hours. The last maintenance performed included an oil and filter change on January 15, 2015, at a total airframe time of 2,388.9 hours. There were no recorded flights between January 15, and February 22, 2015.

WRECKAGE AND IMPACT INFORMATION

The airplane crashed in a commercial area near a railroad yard.

The majority of the airplane came to rest at the accident site, with additional wreckage strewn throughout the debris path. Both wings had separated from the airplane fuselage; however, they remained near the main wreckage. The fuel tanks had been ruptured during the accident sequence; however, a strong smell of Jet A fuel was present at the accident site. As a result of the ruptured fuel tanks, a fuel sample was not obtained.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed by the Spokane County Office of the Medical Examiner. The cause of death was determined to be blunt impact to the head, and the manner of death was an accident.

The FAA Bioaeronautical Research Laboratory, Oklahoma City, Oklahoma, performed toxicology testing on specimens from the pilot. The results were negative for volatiles. The pilot initially survived the accident; as a result, there was positive test results for drugs that were administered to the pilot while he was in the hospital, including ephedrine detected in urine, but not detected in blood, and etomidate, lidocaine, pseudoephedrine, and salicylate detected in blood.

TEST AND RESEARCH

The airplane was equipped with its original fuel equipment, and was appropriately marked with an "AVGAS (aviation gasoline) ONLY" placard at each wings fuel port, which indicated that the airplane

operated on aviation gasoline. Both fuel ports were checked by an FAA inspector, and identified as having the appropriately-sized fuel collar for AVGAS.

There were no other malfunctions that would have precluded normal operation of the airplane. Inspection of the fuel truck after the accident revealed that the fuel hose nozzle was the round type, typically used to service helicopters with smaller fuel filler ports. When the FAA returned the next day to inspect the truck, the smaller rounder fuel nozzle that had been on the fuel truck the night before had been replaced with a flat duck-bill fuel nozzle. When the owner of the FBO was questioned about the switch, he stated that it was for safety reasons, and that he was making sure the appropriate nozzle was attached.

ADDITIONAL INFORMATION

According to the airplane's pilot operating handbook, while performing the preflight checklist, one of the items called out is for the pilot to do a visual check of the fuel supply for both wings, and assure that the fuel cap is secured.

Located at the airport is an FBO that performs turbine conversions on the accident make and model airplane.

Pilot Information

Certificate:	Foreign	**Age:**	61,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	August 3, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 667.9 hours (Total, all aircraft), 63 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	CGVZW
Model/Series:	PA46 - 350P	**Aircraft Category:**	Airplane
Year of Manufacture:	2000	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4636281
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:	January 15, 2015 Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2388.9 Hrs as of last inspection	**Engine Manufacturer:**	Continental Motors Inc.
ELT:	Installed	**Engine Model/Series:**	TIO-540-AE2A
Registered Owner:	On file	**Rated Power:**	350 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSFF,1968 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	63°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.4 inches Hg	**Temperature/Dew Point:**	6°C / -14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Spokane, WA (SFF)	**Type of Flight Plan Filed:**	IFR
Destination:	STOCKTON, CA (SCK)	**Type of Clearance:**	IFR
Departure Time:	14:05 Local	**Type of Airspace:**	Air traffic control

Airport Information

Airport:	FELTS FIELD SFF	**Runway Surface Type:**	Concrete
Airport Elevation:	1957 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	22R	**IFR Approach:**	None
Runway Length/Width:	4499 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

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:**	47.657775,-117.394447(est)

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Christopher Cowgill; Federal Aviation Administration; Spokane, WA Michael McClure; Piper Aircraft, Inc.; Vero Beach, FL Gerrit Vermeer; Transportation Safety Board of Canada; Edmonton
Original Publish Date:	September 6, 2017
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=90760