Aviation Investigation Final Report

Location:	Islesboro, Maine	**Accident Number:**	ERA09LA352
Date & Time:	June 15, 2009, 11:45 Local	**Registration:**	N33243
Aircraft:	Cessna U206F	**Aircraft Damage:**	Substantial
Defining Event:	Fuel contamination	**Injuries:**	1 Minor
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

During preflight, the pilot sumped the fuel tanks and noticed water in the samples. He continued to sump the tanks until the fuel samples were absent of water. The accident flight was the fourth flight of the day and the airplane accrued 50 minutes of flight time during the 3 previous flights. On the accident flight, engine start, taxi, and takeoff were "normal" until 200 to 300 feet above the ground when "the power started slowly coming off". The pilot rejected an open field to his left for landing due to lack of altitude/glide distance, and chose to land straight ahead in heavily wooded terrain, which resulted in substantial damage to the airplane. After recovery of the airplane, the engine started immediately using the airplane's battery power, and ran continuously utilizing the airplane's own fuel system. Fuel drained from the right header tank contained water and a mass that resembled a snail (land mollusk). The mass subsequently dissolved in the sample jar, but the remains were suspended in the water at the bottom of the jar. Fuel sample test results revealed that the fuel sample contained "plasticizers," which are present in many greases, and the bottom of the sample jar contained droplets of water, and a "black particulate" matter that contained both the plasticizers and methyl cellulose, which is a material commonly used in filters.

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 contamination.

Findings

Aircraft	(general) - Failure
Aircraft	Fuel - Fluid condition

Factual Information

History of Flight

Initial climb	Fuel contamination (Defining event)
Emergency descent	Off-field or emergency landing
Emergency descent	Controlled flight into terr/obj (CFIT)

HISTORY OF FLIGHT

On June 15, 2009, about 1145 eastern daylight time, a Cessna U206F, N33243, operated by Waters Aero-Marine, Inc, was substantially damaged following a loss of engine power and a forced landing, shortly after takeoff from Islesboro Airport (57B), Islesboro, Maine. The certificated commercial pilot sustained a minor injury. Visual meteorological conditions prevailed for the cargo flight that originated at 57B, and was destined for Knox County Regional Airport (RKD), Rockland, Maine. A company flight plan was filed for the cargo flight that was conducted under the provisions of 14 Code of Federal Regulations Part 135.

According to the pilot, the accident flight was the fourth flight of the day. During preflight, around 0600, the pilot sumped the fuel tanks and noticed water in the samples. He continued to sump the tanks until the fuel samples were absent of water. The airplane accrued 50 minutes of flight time during the 3 previous flights.

During the accident flight, engine start up prior to takeoff was “normal” and the airplane idled for 1 to 1.5 minutes while the Global Positioning System (GPS) receiver acquired its signal. The pilot lined up on runway 19, scanned the instruments, changed the waypoint in the GPS, added full power, and completed a “normal” takeoff. He said, “When I cleared the departure end of the runway, the power started to come back. There was a slight stumble to it, and then the power started slowly coming off. The throttle was full, and nothing happened, the power kept coming down.” The pilot estimated the airplane was 200 or 300 feet above ground level (agl) when the engine power decreased. He rejected an open field to his left for landing due to lack of altitude/glide distance, and chose to land straight ahead in heavily wooded terrain, which resulted in substantial damage to the airplane. The pilot egressed through the baggage door, and later re-entered the airplane and turned off the fuel, throttle, mixture, and battery. He then used his cell phone to contact his company base operations.

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed that the pilot held a commercial pilot certificate with ratings for airplane multiengine, airplane single-engine, and instrument airplane. He also held a flight instructor certificate for airplane single-engine, and a ground instructor certificate.

The pilot's most recent FAA second class medical certificate was issued on April 23, 2009.

The pilot reported his experience as 3,625 total flight hours, of which 350 hours were in make and model. He stated that he had worked for the company for 5 years. The pilot was a school teacher, and worked for the company during the summer months when school was out of session. The work averaged 3 days a week, about 8 to 10 hours each day.

AIRCRAFT INFORMATION

According to FAA and maintenance records, the airplane was manufactured in 1975, and had accrued 6,887 total aircraft hours. The most recent annual inspection was completed May 16, 2009, at 6,836 aircraft hours.

METEOROLOGICAL INFORMATION

At 1153, the weather reported at Knox County Regional Airport (RKD), Rockland, Maine, included an overcast ceiling at 1,600 feet and winds from 030 degrees at 6 knots. The visibility was 10 miles. The temperature was 19 degrees Celsius (C) and the dew point was 5 degrees C.

WRECKAGE AND IMPACT INFORMATION

Examination of the airplane by FAA inspectors on the day of the accident revealed substantial damage to the airframe. Fuel leaking from the airplane prevented a detailed examination that day. However, fuel drained from the right header tank contained water and a mass that resembled a snail (land mollusk). The mass subsequently dissolved in the sample jar, but the remains were suspended in the water at the bottom of the jar. The sample was retained for testing by the fuel wholesaler.

On June 17, 2009, a crew that consisted of 3 FAA-certificated mechanics disassembled the airplane and drained approximately 21 gallons of fuel from the left wing through airplane’s fuel system with no obstructions noted. The right wing was separated from the airplane except for "1 or 2 control cables.”

Contrary to instructions forwarded through the FAA to the operator, the recovery crew performed troubleshooting and testing on the airplane. According to a report submitted by the recovery crew, the engine started immediately using the airplane’s battery power, and ran continuously utilizing the airplane’s own fuel system. An oil leak was noted due to impact damage.

TESTS AND RESEARCH

The wreckage and the fuel harvested from the airplane were recovered to the operator’s

hangar for a detailed examination by the FAA on June 18, 2009. Examination revealed no water in the tanks but traces of water were noted around the refueling cap plates. One FAA inspector noted that one of the fuel drain sumps was accessed through the cargo pod mounted to the bottom of the airframe, which made access "difficult" for routine fuel sampling.

Fuel sample test results from an Exxon Mobil research laboratory revealed that the fuel sample contained "plasticizers," which are present in many greases, and that the bottom of the sample jar contained droplets of water, and a "black particulate" matter that contained both the plasticizers and methyl cellulose, which is a material commonly used in filters.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	56,Male
Airplane Rating(s):	Single-engine land; Multi-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	April 23, 2009
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	3620 hours (Total, all aircraft), 350 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N33243
Model/Series:	U206F	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	U20602688
Landing Gear Type:	Tricycle	**Seats:**	6
Date/Type of Last Inspection:	May 16, 2009 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	51 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	6887 Hrs at time of accident	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO 520 SERIES
Registered Owner:	WATERS AERO MARINE INC	**Rated Power:**	285 Horsepower
Operator:	WATERS AERO MARINE INC	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	059A

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	RCK,56 ft msl	**Distance from Accident Site:**	17 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	209°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 1600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	110°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	13°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Islesboro, ME (57B)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Rockland, ME (RKD)	**Type of Clearance:**	VFR
Departure Time:	11:44 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Islesboro Airport 57B	**Runway Surface Type:**	Asphalt
Airport Elevation:	92 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	19	**IFR Approach:**	None
Runway Length/Width:	2400 ft / 50 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	44.301387,-68.906387(est)

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Dave Knowles; FAA/FSDO; Portland, ME
Original Publish Date:	June 17, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=74061