



Aviation Investigation Final Report

Location:	Wakefield, Virginia	Accident Number:	ERA19TA235
Date & Time:	July 25, 2019, 11:40 Local	Registration:	N47028
Aircraft:	Cessna 152	Aircraft Damage:	Substantial
Defining Event:	Fuel contamination	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the preflight inspection, the pilot sampled the fuel from the right main fuel tank seven times until no water was present in the sample. He also checked the airplane's left main fuel tank, fuel strainer, and a belly sump and there was no water in those samples. He flew uneventfully to a nearby airport where he intended to perform practice touch and go landings. During the takeoff phase of the first practice touch-and-go landing, the airplane was flying about 25 ft above ground level when the engine sputtered. The pilot landed the airplane on the remaining portion of the runway near the departure end, then because there was insufficient runway to stop, he turned the airplane left. The airplane impacted a perimeter fence before coming to rest upright. The fuselage and right wing were substantially damaged.

Examination of the airplane revealed water in fuel samples recovered from the carburetor, the belly sump, and the firewall sump, which indicates that water was still present in the fuel system following the pilot's preflight inspection. The examination also revealed a gray putty substance around the right wing fuel cap gasket, which did not appear to be an approved repair. Additionally, before the day of the accident, the airplane sat outside in rain. Given this information, it is likely that rainwater leaked into the fuel system through he improperly sealing right wing tank fuel cap.

Probable Cause and Findings

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

The pilot's inadequate preflight inspection, which failed to detect and remove all water from fuel, and

maintenance personnel's unapproved repair of the right wing fuel cap, which resulted in fuel contamination and a subsequent partial loss of engine power during takeoff.

Findings

Personnel issues	Preflight inspection - Pilot
Aircraft	Fuel - Fluid condition
Personnel issues	Repair - Maintenance personnel
Aircraft	Fuel storage - Incorrect service/maintenance

Factual Information

History of Flight

Takeoff	Fuel contamination (Defining event)
Takeoff	Loss of engine power (partial)
Takeoff-rejected takeoff	Runway excursion
Takeoff-rejected takeoff	Collision with terr/obj (non-CFIT)

On July 25, 2019, about 1140 eastern daylight time, a Cessna 152, N47028, was substantially damaged during a rejected takeoff at Wakefield Municipal Airport (AKQ), Wakefield, Virginia. The solo private pilot was not injured. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local flight.

The pilot stated that prior to his first flight of the day from Norfolk International Airport (ORF), Norfolk, Virginia, he performed a preflight inspection of the airplane that included a check of each fuel tank, which were full. No water was detected in the left main fuel tank, but during sump testing of the right main fuel tank, he had to get seven samples from the tank before the sample was clear and no water was present. He also checked the fuel strainer and a belly drain, and there was no water in the sample from either.

The pilot flew from ORF to AKQ uneventfully with the intention to perform touch-and-go landings on runway 20, a 4,337-ft-long asphalt runway. During the takeoff phase of the first touch-and-go landing, about 25 feet above ground level, the engine sputtered. The pilot landed the airplane on the remaining portion of the runway, near the departure end. Realizing there was insufficient runway to stop, he turned the airplane left and it impacted a perimeter fence before coming to rest upright. The pilot added that there were no preimpact mechanical malfunctions with the airplane.

Examination of the airplane by a Federal Aviation Administration inspector revealed that the right wing and right horizontal stabilizer were damaged. During the examination, the inspector recovered fuel with water in it from three sources: the carburetor, the belly sump, and the firewall sump. The inspector also noted what appeared to be a gray putty substance around the right wing fuel cap gasket, which did not appear to be an approved repair. The inspector added that prior to the day of the accident, the airplane sat outside in rain.

Pilot Information

Certificate:	Private	Age:	65, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	December 6, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	March 28, 2019
Flight Time:	235 hours (Total, all aircraft), 5 hours (Total, this make and model), 134 hours (Pilot In Command, all aircraft), 2 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N47028
Model/Series:	152	Aircraft Category:	Airplane
Year of Manufacture:	1979	Amateur Built:	
Airworthiness Certificate:	Utility	Serial Number:	15283159
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	February 11, 2019 Annual	Certified Max Gross Wt.:	1669 lbs
Time Since Last Inspection:	68 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	8685 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-235 SERIES
Registered Owner:	Bishop's LTD	Rated Power:	115 Horsepower
Operator:	Norfolk Flying Club	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	AKQ,111 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	11:54 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	None / None
Wind Direction:		Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.12 inches Hg	Temperature/Dew Point:	28°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wakefield, VA (AKQ)	Type of Flight Plan Filed:	None
Destination:	Wakefield, VA (AKQ)	Type of Clearance:	None
Departure Time:	11:40 Local	Type of Airspace:	

Airport Information

Airport:	Wakefield Municipal Airport AKQ	Runway Surface Type:	Asphalt
Airport Elevation:	111 ft msl	Runway Surface Condition:	Dry
Runway Used:	20	IFR Approach:	None
Runway Length/Width:	4337 ft / 75 ft	VFR Approach/Landing:	Touch and go;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	36.981109,-77.003051

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Amber White; FAA/FSDO; Richmond, VA
Original Publish Date:	January 28, 2021
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=99934

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).