



Aviation Investigation Final Report

Location:	West Creek, New Jersey	Accident Number:	ERA17LA205
Date & Time:	June 12, 2017, 22:55 Local	Registration:	N206TF
Aircraft:	Cessna P206	Aircraft Damage:	Substantial
Defining Event:	Fuel related	Injuries:	1 Minor
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

The commercial pilot was on the second leg of a postmaintenance flight. The first flight leg, which was about 1-hour long, was uneventful, and the pilot reported that the fuel selector was positioned to the right tank during this flight leg. He landed the airplane but did not purchase fuel before departing for the return leg. The pilot reported that, during the return leg, the fuel selector was positioned to the left tank. While on final approach to the airport, the pilot added power to go around. He turned onto the crosswind and then downwind legs of the airport traffic pattern, and while on the downwind leg, the engine lost all power. The pilot switched the fuel selector to the right tank, but engine power was not restored. Realizing that the airplane would be unable to reach the runway, the pilot conducted a forced landing in trees, and the airplane came to rest inverted.

During postaccident examination, more than the unusable amount of fuel was drained from the left fuel tank, which was breached in two locations; only about 6 ounces of fuel were drained from the unbreached right fuel tank. No fuel was found in the engine-driven fuel pump or the flow divider, which is indicative of fuel starvation. Examination of the fuel supply system revealed no evidence of preimpact mechanical failures or malfunctions that would have precluded normal operation. The engine was started and operated briefly using the fuel that had been drained from the airplane with no discrepancies noted.

Although the pilot stated that he conducted the entire second flight leg with the fuel selector positioned to the left tank and then switched to the right tank after the engine lost power, the fuel selector was found positioned to the left tank, which had more than the unusable amount of fuel. Therefore, it is likely that the pilot was approaching the airport with the fuel selector positioned to the right tank, which ran out of fuel, and that he then switched to the left tank too late to restore engine power. Given this and the lack of fuel in the engine-driven fuel pump and flow divider, it is likely that the pilot mismanaged the fuel, which resulted in the loss of all engine power.

Probable Cause and Findings

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

The pilot's improper fuel management, which resulted in fuel starvation and the subsequent total loss of engine power.

Findings

Personnel issues	Use of equip/system - Pilot
Aircraft	Fuel - Fluid management
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Approach-VFR pattern downwind	Fuel related (Defining event)
Approach-VFR pattern downwind	Loss of engine power (total)
Approach-VFR pattern downwind	Attempted remediation/recovery
Emergency descent	Off-field or emergency landing
Emergency descent	Collision with terr/obj (non-CFIT)
Landing-flare/touchdown	Nose over/nose down

On June 12, 2017, about 2255 eastern daylight time, a Cessna P206A, N206TF, was substantially damaged during a forced landing while on approach to Eagles Nest Airport (31E), West Creek, New Jersey. The commercial pilot sustained minor injuries. The airplane was being operated under the provisions of 14 *Code of Federal Regulations* Part 91 as a post-maintenance flight. Visual meteorological conditions prevailed at the time and a visual flight rules flight plan was filed but not activated for the flight that originated about 1 hour earlier from Danbury Municipal Airport (DXR), Danbury, Connecticut.

Two days earlier, 4 repaired cylinders were installed on the airplane's engine that required break-in. In preparation of the flight to break-in the cylinders, the pilot personally spoke with the mechanic and was given the procedures, which included operation of the engine at full rich, and to monitor the cylinder head temperature (CHT). He was also informed to check the fuselage belly for fresh oil. The pilot reported he personally filled both fuel tanks, bringing the total usable capacity in each tank to 31.5 gallons. He then flew the airplane on an uneventful 1 hour flight from 31E to DXR. The entire flight was performed with the fuel selector on the right tank, the mixture control in the full rich position, and the engine operating at 24 inches manifold pressure and 2,400 rpm. No engine discrepancies were noted during the flight, and no fuel was purchased while at DXR.

Prior to departing DXR for the return flight to 31E, the pilot stated that he performed a "quick preflight inspection", and although the airplane was equipped with a dipstick to check the fuel quantity, he did not use it during his preflight inspection. The airplane departed with the fuel selector on the left tank position, the mixture control in the full rich position, and climbed at full power to 7,500 ft mean sea level (msl). The pilot maintained 24 inches manifold pressure and 2,400 rpm (same engine settings as the first leg), and flew to 31E while periodically scanning the engine gauges. While on final approach to runway 14, he realized the "sight picture" was not correct, and performed a go-around. He climbed to between 1,000 and 1,200 ft msl, then turned onto the crosswind and downwind legs of the airport traffic pattern. While on the downwind leg of the airport traffic pattern between 1,200 and 1,500 ft msl, before midfield, with the auxiliary fuel pump on, the engine sputtered and quit, and the propeller stopped. The pilot attempted to restart the engine which consisted of moving the fuel selector to the right tank position, verifying the mixture control was full rich, and advancing the throttle, but the engine did not

restart. He turned onto the base leg of the airport traffic pattern, and flew towards the runway while maintaining best glide speed of 80 knots; however, the airplane impacted trees then the ground about 1/4 nautical mile before the runway, and came to rest inverted. The fuel selector was not moved before exiting the airplane.

Postaccident examination of the airplane by a Federal Aviation Administration (FAA) inspector revealed the fuel selector was positioned to the left fuel tank. About 2.5 gallons of fuel were drained from it which was breached in 2 locations, while about 6 ounces of fuel were drained from the un-breached right fuel tank. The ground beneath the left wing smelled of fuel, while the ground beneath the right fuel tank did not smell of fuel, and no fuel blight to vegetation was noted beneath the right fuel tank. No fuel stains were noted aft of either fuel cap. One propeller blade was slightly bent.

Examination of the airplane by the same FAA inspector following recovery revealed fuel was present at the inlet and outlet of the auxiliary fuel pump, but no fuel was present at the inlet or outlet of the engine-driven fuel pump, or at the flow divider/manifold valve. With battery power applied, and a fuel supply provided, the auxiliary fuel pump provided fuel to the inlet and outlet of the engine-driven fuel pump. This was repeated with the fuel selector positioned to the left and right tank positions. There were no reported issues with the aircraft's fuel system. The propeller was rotated by hand and with a spark plug removed from each cylinder, suction and compression was noted in each cylinder. Also during hand rotation, the magnetos produced spark at all spark plugs. A temporary fuel supply was plumbed into the aircraft's fuel system, and the engine was started and operated for about 12 seconds. Safety concerns prevented a prolonged run or operation at a high power setting. No discrepancies were noted during the engine run.

Pilot Information

Certificate:	Commercial	Age:	36, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	September 30, 2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 9, 2017
Flight Time:	1050 hours (Total, all aircraft), 20 hours (Total, this make and model), 930 hours (Pilot In Command, all aircraft), 89 hours (Last 90 days, all aircraft), 61 hours (Last 30 days, all aircraft), 8 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N206TF
Model/Series:	P206 A	Aircraft Category:	Airplane
Year of Manufacture:	1966	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	P206-0289
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	March 8, 2017 100 hour	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:	34 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	11950.8 Hrs as of last inspection	Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	IO-520-A
Registered Owner:	On file	Rated Power:	285 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Not reported
Observation Facility, Elevation:	MJX,86 ft msl	Distance from Accident Site:	16 Nautical Miles
Observation Time:	22:56 Local	Direction from Accident Site:	2°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	240°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	29.98 inches Hg	Temperature/Dew Point:	24°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Danbury, CT (DXR)	Type of Flight Plan Filed:	VFR
Destination:	West Creek, NJ (31E)	Type of Clearance:	None
Departure Time:	22:00 Local	Type of Airspace:	

Airport Information

Airport:	Eagles Nest Airport 31E	Runway Surface Type:	
Airport Elevation:	39 ft msl	Runway Surface Condition:	Unknown
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing;Traffic pattern

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:	39.667778,-74.309165(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Daryl K Fortner; FAA/FSDO; Philadelphia, PA
Original Publish Date:	November 6, 2019
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=95359

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).