



Aviation Investigation Final Report

Location:	West Milford, New Jersey	Accident Number:	ERA18FA138
Date & Time:	May 2, 2018, 14:10 Local	Registration:	N4153R
Aircraft:	Piper PA32	Aircraft Damage:	Destroyed
Defining Event:	Fire/smoke (non-impact)	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot told a friend that he was having problems with his airplane's engine and stated that he was going to taxi to the end of the runway and perform an engine run-up. If the engine run-up was successful, the pilot was going to conduct a short cross-country flight and return. During takeoff, the engine experienced a total loss of power; the airplane subsequently impacted a wooded area about 1,100 ft south of the departure runway.

Examination of the wreckage revealed that the airplane experienced an in-flight fire, with the heaviest concentration of thermal damage on the aft right side of the engine compartment. The fuel inlet line from the fuel pump to the fuel servo was loose. According to the manufacturer, the part number of the inlet line installed on the accident airplane was not approved for aircraft use; however, aside from the part number, the approved hose looked identical to the unapproved hose, and the error likely could not be detected during an annual inspection. The airplane's maintenance logbooks were destroyed during the accident and the pilot performed some of the maintenance of the airplane himself; therefore, when and by whom the unapproved hose was installed could not be determined. It is likely that the loose fuel line allowed fuel to spray onto the exhaust system, which resulted in the in-flight fire and the total loss of engine power.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An in-flight fire and total loss of engine power after takeoff due to a loose fuel line. Contributing to the accident was the installation of an unapproved fuel line by unknown personnel.

Findings

Aircraft	Hoses and tubes - Incorrect use/operation
Personnel issues	Unauthorized maint/repair - Not specified

Factual Information

History of Flight

Prior to flight	Aircraft maintenance event
Takeoff	Fire/smoke (non-impact) (Defining event)
Takeoff	Loss of engine power (total)
Emergency descent	Off-field or emergency landing
Emergency descent	Collision with terr/obj (non-CFIT)

On May 2, 2018, about 1410 eastern daylight time, a Piper PA-32-300, N4153R, was destroyed when it impacted terrain after takeoff from Greenwood Lake Airport (4N1), West Milford, New Jersey. The private pilot was fatally injured. The airplane was registered to IHAF Flying Mission LLC and was being operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Visual meteorological conditions prevailed, and no flight plan was filed for the flight, which was destined for Orange County Airport (MGJ), Montgomery, New York.

A flight instructor at 4N1, who was also a friend of the pilot, stated that he talked with the pilot just before the accident. The pilot told him that he was having problems with the airplane's engine and thought the problem was either the magnetos or the spark plugs. The pilot stated that he was going to taxi to the end of the runway and perform an engine run-up. If the engine run-up was successful, he was going to take a short flight to MGJ and return.

A witness located 1 mile north of the airport heard the airplane take off, heard the airplane's engine sputter, then heard a loss of power. He then heard the sound of a crash and called 911.

Pilot Information

Certificate:	Private	Age:	58, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Unknown
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	April 27, 2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	625 hours (Total, all aircraft)		

The pilot held a private pilot certificate with a rating for airplane single-engine land. He held a Federal Aviation Administration (FAA) third-class medical certificate, issued April 27, 2016. At the time of the medical examination, the pilot reported 625 total hours of flight experience. The

pilot's logbook was onboard the airplane and was consumed by fire.

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N4153R
Model/Series:	PA32 300	Aircraft Category:	Airplane
Year of Manufacture:	1968	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32-40468
Landing Gear Type:	Tricycle	Seats:	6
Date/Type of Last Inspection:	June 30, 2017 Annual	Certified Max Gross Wt.:	3400 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	TI0-540-K1A5
Registered Owner:		Rated Power:	310 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

The six-seat, low-wing, tricycle-gear-airplane was manufactured in 1968. It was powered by a Lycoming IO-540-K1A5, 300-horsepower engine equipped with a two-bladed Hartzell propeller. Family members stated that the maintenance logbooks were carried on the airplane in the luggage compartment. The luggage compartment was consumed by fire and all documents were destroyed. A local mechanic stated that he performed the most recent annual inspection on the airplane in late June 2017. He also stated that the pilot often performed maintenance on his own airplane.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KFWN, 421 ft msl	Distance from Accident Site:	13 Nautical Miles
Observation Time:	17:53 Local	Direction from Accident Site:	291°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots / 21 knots	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	220°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.02 inches Hg	Temperature/Dew Point:	30°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	West Milford, NJ (4N1)	Type of Flight Plan Filed:	None
Destination:	MONTGOMERY, NY (MGJ)	Type of Clearance:	None
Departure Time:	14:10 Local	Type of Airspace:	

The 1353 recorded weather at Sussex Airport (FVN), Sussex, New Jersey, located 13 miles northwest of the accident site, included wind from 220° at 10 knots gusting to 21 knots, 10 statute miles visibility, clear sky, temperature 30°C, dew point 6°C, and an altimeter setting of 30.02 inches of mercury.

Airport Information

Airport:	Greenwood Lake 4N1	Runway Surface Type:	Asphalt
Airport Elevation:	789 ft msl	Runway Surface Condition:	Dry
Runway Used:	24	IFR Approach:	None
Runway Length/Width:	3471 ft / 60 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	In-flight
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	41.121387, -74.35083(est)

The wreckage was located in a wooded area about 1,100 ft south of the departure end of runway 24 and was consumed by a fire. Tree branches were observed broken descending about a 12° angle and extending about 50 ft on a magnetic heading of 110° to the main wreckage. The main wreckage came to rest upright. The instrument panel was consumed by fire. Both wings separated from the fuselage and were located about 30 ft behind the fuselage. The wings exhibited minor fire damage. Fuel was found in both wing tanks and was consistent in color and odor with 100LL aviation fuel. All major components of the airplane were accounted for at the scene. Control cable continuity was confirmed from the cockpit to the flight controls through breaks consistent with overload separations.

The engine remained attached to the airframe. The accessories on the right rear of the engine were consumed by fire. The upper right corner of the firewall exhibited a burn area free of soot. The fire sleeving of the oil lines, engine baffling, and oil cooler all exhibited thermal damage. The upper engine cowl was intact but exhibited heavy thermal damage on the aft right side. The lower cowl was heavily sooted and the fiberglass resin was charred and missing in areas. The thermal damage was consistent with an in-flight fire. (For further information, see the Materials Laboratory Fire Factual Report in the NTSB public docket for this accident.)

The propeller blades were both bent aft at mid-blade. Thumb compression was established on all cylinders and a lighted boroscope was used to examine all pistons and valves with no anomalies noted.

During the engine examination, the inlet fuel line from the fuel pump to the fuel servo was found loose. The line could be moved over 1/8 inch inside the B-nut. Parker Aerospace, the manufacturer of the hose, stated that, based on the hose's part number, it was not approved for airplane use and was intended for industrial use only. The hose looked identical to an approved one, but with a different part number.

The fuel servo and the hose that was installed on the airplane were sent to Avstar Fuel Systems, Inc., for operational testing and examination. The test revealed that the servo met all the requirements for flow. The B-nut was loosened during the flow test to simulate the loose line and fuel sprayed from the B-nut immediately after loosening the nut. The B-nut was not loosened to the same amount found during the postaccident examination since fuel was spraying immediately after torque was removed.

The fuel pump was sent to CJ Aviation for operational testing and examination. The fuel pump was installed on a test bench and flow tested. The test did not reveal any anomalies.

Medical and Pathological Information

The Office of the Chief State Medical Examiner, Newark, New Jersey, performed an autopsy of the pilot. The report listed the cause of death as blunt trauma.

Toxicology testing was performed at the FAA Forensic Sciences Laboratory on specimens from the pilot. Acetaminophen, pseudoephedrine, and naproxen were detected in urine; pseudoephedrine was also detected in blood.

Pseudoephedrine is a decongestant commonly marketed with the name Sudafed. Products containing this drug are only available "behind the counter" but do not require a prescription. Acetaminophen is an analgesic and fever reducer available over-the-counter and commonly marketed with the name Tylenol.

Naproxen is an anti-inflammatory drug available over the counter and commonly marketed with the names Naprosyn and Aleve. These drugs are not considered impairing in usual doses.

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	Watson Joseph; FAA; Teterboro, NJ John Butler; Lycoming; Dallas, TX Jon Hirsch; Piper; Wichita, KS
Original Publish Date:	July 8, 2019
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97155

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).