



# Aviation Investigation Final Report

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<b>Location:</b>	Grants, New Mexico	<b>Accident Number:</b>	CEN16LA375
<b>Date &amp; Time:</b>	September 19, 2016, 17:00 Local	<b>Registration:</b>	N4477F
<b>Aircraft:</b>	Piper PA 32R-300	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Fuel starvation	<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

After a preflight inspection and engine run up that revealed no anomalies, the private pilot and two passengers were departing on a cross-country flight. The pilot stated that the airplane became airborne approximately 5,000 ft down the 7,172-ft-long runway at 80 knots. Approximately 100 feet above ground level, he heard a "gurgle" and the engine experienced a loss of power. The pilot verified that the fuel pump was on and the throttle was in its full-forward position. The pilot then located a forced landing site and during the landing, the airplane impacted a tree. The occupants egressed, and the airplane was subsequently consumed by postcrash fire. The accident airport was located at an elevation about 6,500 ft mean sea level (msl). Given the atmospheric conditions at the time of the accident, the density altitude exceeded 9,000 ft msl, which would have significantly increased the airplane's takeoff distance and reduced its climb capability. The pilot's experience operating in high density altitude environments could not be determined. Review of photos from the accident site revealed that the fuel selector handle appeared to be located between the left fuel tank and off positions; however, the fuel selector was not examined and its position could not be verified, therefore, the reason for the reported loss of engine power could not be determined.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power for reasons that could not be determined based on the available information.

## Findings

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<b>Aircraft</b>	Fuel - Incorrect use/operation
<b>Personnel issues</b>	Incorrect action selection - Pilot
<b>Environmental issues</b>	Tree(s) - Contributed to outcome

## Factual Information

### History of Flight

<b>Takeoff</b>	Fuel starvation (Defining event)
<b>Takeoff</b>	Loss of engine power (total)
<b>Emergency descent</b>	Off-field or emergency landing
<b>Landing</b>	Collision during takeoff/land

On September 19, 2016, about 1700 mountain daylight time, a Piper PA 32R-300 airplane, N4477F, impacted a tree and terrain during a forced landing near Grants, New Mexico. A ground fire subsequently occurred. The pilot and two passengers were uninjured. The airplane was destroyed during the impact and ground fire. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Day visual meteorological conditions prevailed for the flight, which did not operate on a flight plan. The flight was originating from the Grants-Milan Municipal Airport (GNT), near Grants, New Mexico, at the time of the accident and was destined for the Cedar City Regional Airport, near Cedar City, Utah.

According to the pilot's accident report, the pilot performed a pre-flight inspection. He taxied to the run-up area for runway 31 and conducted the before takeoff checklist. He taxied the airplane to the beginning of the runway and set the throttle to full power. The roll-out and acceleration was considered to be normal. The airplane lifted off approximately 5,000 feet down the runway at 80 knots. Approximately 100 feet above ground level and about two 2 seconds after lift-off, he heard a "gurgle" and the airplane lost engine power. The pilot verified that the fuel pump was on and the throttle was in its full position. He turned the airplane about 20 degrees to the left and determined the airplane would not be able to return to the airport at its altitude at the time. The pilot located a landing site and he landed the airplane in between two trees. During the landing roll, the airplane turned to the left and headed for a tree. He was unable to correct the heading with applied right rudder. The airplane impacted a tree and the airplane caught on fire. The pilot and passengers exited airplane and ran away from fire.

N4477F was a 1976 model Piper PA-32R-301 airplane with serial number 32R-7680449. The airplane was a low-wing, all-metal, single-engine, six-place monoplane. It had a retractable tricycle landing gear configuration, and was powered by a fuel injected, six-cylinder, Lycoming IO-540 engine with serial number L-15137-48A, which drove a Hartzell variable-pitch propeller.

At 1655, the recorded weather at GNT was: Wind calm; visibility 10 statute miles; sky condition clear; temperature 30 degrees C; dew point -13; altimeter 30.28 inches of mercury. The local temperature and dew point were not in the range conducive to carburetor icing.

GNT was a public, non-towered airport, which was owned by the City of Grants, New Mexico. It was located about three miles northwest of Grants, New Mexico. The airport had a surveyed elevation of 6,536.9 feet above mean sea level. The airport's runway 13/31 was 7,172 feet by 40 feet with an asphalt surface.

A Federal Aviation Administration Air Safety Inspector examined the wreckage. The Inspector, in part, indicated that the airplane was badly damaged by fire. However, the fuel selector handle was not in the "full on" position for selecting a fuel tank. An image of the fuel selector valve showed it was found selecting a position by the left tank position and the off position.

The Piper service manual, in part, stated:

#### 8-18. FUEL SELECTOR VALVE OPERATION.

When the fuel selector handle is not in a positive selector detent position, more than one fuel port will be open at the same time. It should be ascertained that the fuel selector is positioned in a detent, which can be easily felt when moving the handle through its various positions.

Piper Service Bulletin (SB) 772, in part, stated:

**PURPOSE:** It has been determined that certain Cameron I-H65-3 Fuel Selector Valves (Piper Part Number 69735-0SV) may exhibit excessive freeplay between the valve shaft and arm.

If this condition exists and is left uncorrected, the indicated selector valve position may not correspond with the actual position of the selector valve, resulting in partial or restricted fuel flow through the valve ports, and possible loss of power.

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#### INSTRUCTIONS:

During Each Preflight:

1. Move the Fuel Selector Control into each of its three positions -Off, Left, and Right - to insure that a positive detent is present at each of the three positions.
2. If positive detent is not exhibited at any of the three positions, the Fuel Selector Valve must be replaced before further flight.

The installed version of the fuel selector valve could not be determined due to the fire damage it sustained.

The Pilot's Operating Handbook (POH) current at the time of the accident, in part, stated:

#### ENGINE POWER LOSS DURING TAKEOFF

If sufficient runway remains for a normal landing, leave gear down and land straight ahead.

If area ahead is rough, or if it is necessary to clear obstructions:

Gear selector switch.....UP

Emergency gear lever (on aircraft equipped with backup gear extender).locked in OVERRIDE ENGAGED position

If sufficient altitude has been gained to attempt a restart:  
Maintain safe airspeed.

Fuel selector..... switch to tank containing fuel  
Electric fuel pump.....ON  
Mixture..... RICH  
Alternate air..... OPEN  
Emergency gear lever..... as required  
If power is not regained, proceed with power off landing.

The POH did not amplify or caution the pilot of the importance of ensuring the fuel selector is in a positive detent on a fuel tank selection position to the extent that the maintenance manual and SB explained it.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	42, Male
<b>Airplane Rating(s):</b>	Single-engine sea	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	October 7, 2013
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	September 16, 2015
<b>Flight Time:</b>	592 hours (Total, all aircraft), 218.8 hours (Total, this make and model), 489 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 4.5 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N4477F
<b>Model/Series:</b>	PA 32R-300	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1976	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	32R-7680449
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	December 15, 2015 Annual	<b>Certified Max Gross Wt.:</b>	3600 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5101 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-540-KIG50
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	300 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KGNT,6520 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	16:55 Local	<b>Direction from Accident Site:</b>	117°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.28 inches Hg	<b>Temperature/Dew Point:</b>	30°C / -13°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	GRANTS, NM (GNT )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	CEDAR CITY, UT (CDC )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	17:00 Local	<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	2 None	<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	35.167221,-107.901947(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Malinowski, Edward
<b>Additional Participating Persons:</b>	Vernon Rockett; Federal Aviation Administration; Albuquerque, NM
<b>Original Publish Date:</b>	June 20, 2017
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=94034">https://data.ntsb.gov/Docket?ProjectID=94034</a>

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](#).