



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Kingman, Arizona	<b>Accident Number:</b>	WPR19LA063
<b>Date &amp; Time:</b>	January 13, 2019, 10:45 Local	<b>Registration:</b>	N9227D
<b>Aircraft:</b>	Piper PA22	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel exhaustion	<b>Injuries:</b>	1 Fatal, 1 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The student pilot was conducting a cross-country flight with one passenger onboard. According to the passenger's sister, at 1001, her sister sent her a text, which stated that she and the pilot had taken off and were heading to an airport about 50 miles to the south to obtain fuel. The investigation was unable to determine whether the pilot obtained fuel at this airport. At 1038, while at the second airport, the passenger telephoned a relative and stated that they would take off shortly for the destination airport. Although the actual departure time from the second airport could not be determined, the sister stated that she expected the airplane to arrive at the destination airport about 1130. By 1215, the sister called the local Sheriff's Office and search and rescue to locate the airplane because it was overdue. First responders found the airplane, which had impacted trees and came to rest inverted in a ravine in a park about 10 miles south of the second airport. The pilot was seriously injured, and the passenger was fatally injured. The pilot reported to the first responders that the airplane experienced an electrical failure and he tried to turn around, however the engine lost power.

Almost all the airplane components remained attached to the wreckage. The propeller damage signatures were consistent with a complete lack of engine power at impact. Examination of the airframe, engine, and propeller revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation.

First responders did not note the presence of any fuel on scene. The airplane was equipped with two separate fuel tanks, one in each wing. Each tank had a dedicated filler neck with a removable cap. Neither fuel cap was found at the accident site or in the recovered wreckage. There was no evidence of the caps being installed at impact.

The wreckage evidence was consistent with a loss of engine power due to fuel exhaustion. The absence of the fuel caps likely resulted in the fuel being siphoned overboard during flight. Aside from the absence of fuel caps and fuel, no evidence was found of any other preimpact mechanical malfunctions or

failures that would have precluded normal operation. It is likely that, when the pilot stopped at the second airport to obtain fuel, he did not put the fuel caps back on the airplane; whether he actually obtained fuel or not could not be determined because it was likely all siphoned out during the flight.

The pilot was hospitalized for several days, and a review the pilot’s postaccident hospital records revealed that he had diabetes and used an insulin pump, which was corroborated by a review of his previous medical records. However, insufficient evidence was found to determine whether the pilot was impaired due to diabetic complications at the time of the accident. Thus, whether the pilot's diabetes or some other medical factor contributed to the accident could not be determined. Several attempts were made to obtain a statement from the pilot however he refused to provide any information to the investigation.

Probable Cause and Findings

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

The student pilot's failure to secure the fuel caps, which led to the fuel being siphoned overboard, fuel exhaustion, and the total loss of engine power.

Findings	
Aircraft	Fuel - Fluid level
Personnel issues	Forgotten action/omission - Student/instructed pilot
Personnel issues	Use of equip/system - Student/instructed pilot

# Factual Information

## History of Flight

Prior to flight	Aircraft servicing event
Enroute	Fuel exhaustion (Defining event)
Unknown	Off-field or emergency landing

On January 13, 2019, about 1100 mountain standard time, a Piper PA22-160 airplane, N9227D, was substantially damaged when it was involved in an accident near Hualapai, Arizona. The pilot sustained serious injuries, and the passenger was fatally injured. The airplane was being operated as a Title 14 *Code of Federal Regulations* (CFR) Part 91 personal flight.

On the morning of the accident, the airplane departed Pearce Ferry Airport (L25), Meadview, Arizona, and at 1001, the passenger sent her sister a text stating that they were airborne. The sister reported that, at 1038, the passenger telephoned a relative while on the ground at Kingman Airport (IGM), Kingman, Arizona and told him that they either got fuel or attempted to get fuel and planned to depart IGM and fly to Glendale Municipal Airport (GEU) Glendale, Arizona, about 132 miles southeast of IGM. The actual time that the flight departed IGM could not be determined, but the sister expected the airplane to arrive at GEU about 1130. About 1215, the sister called the Mohave County Sheriff’s Office and search and rescue to report the airplane was overdue.

According to a first responders' report, the pilot had crawled from the wreckage location to the road, and then flagged down a passerby, who in turn called 911. The pilot reported to the first responders that the airplane experienced an electrical failure and that he tried to turn around, however the engine lost power. The airplane subsequently impacted the bottom of a ravine about 10 miles south-southeast of IGM.

Several attempts were made to obtain a statement from the pilot however he refused to provide any information to the investigation.

## Pilot Information

<b>Certificate:</b>	Student	<b>Age:</b>	43, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<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 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	January 8, 2014
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	2 hours (Total, all aircraft)		

## Passenger Information

<b>Certificate:</b>		<b>Age:</b>	
<b>Airplane Rating(s):</b>		<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>		<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>		<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>		<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>			

Federal Aviation Administration (FAA) records indicated that the pilot was issued a combined medical and student pilot certificate in January 2014. FAA regulations prohibit student pilots from carrying passengers. The pilot provided no training or flight experience information to investigators.

The pilot reported no medical conditions or use of medications on his third-class medical certificate application. However, a review of his medical records noted that he had diabetes and used fast-acting insulin and an insulin pump. A family member of the passenger corroborated these findings.

According to 14 *CFR* 67.313(a), diabetes is disqualifying for a third-class medical certificate if it requires treatment with insulin or other blood-glucose-lowering medication and that a person may not act as pilot-in-command while that person knows or has any reason to know of a disqualifying medical condition or is taking a disqualifying medication.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N9227D
<b>Model/Series:</b>	PA22 160	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1958	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	22-6287
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>		<b>Certified Max Gross Wt.:</b>	2000 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>		<b>Engine Model/Series:</b>	O-320 SERIES
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

On October 30, 2018, the passenger purchased the airplane. An FAA "deregistration" letter dated December 31, 2018, that was addressed to the passenger stated that the registration was suspended because it had not been renewed following the October 2018 transfer/sale to her.

Each fuel tank had a total capacity of 18 gallons and was equipped with a dedicated filler port with a removable cap. Each cap installed into its respective filler neck by aligning the two cap tabs with the two slots in the filler neck, and then pushing down and rotating the cap to lock it in place.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Unknown	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	3448 ft msl	<b>Distance from Accident Site:</b>	10 Nautical Miles
<b>Observation Time:</b>	10:51 Local	<b>Direction from Accident Site:</b>	342°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	4 knots /	<b>Turbulence Type Forecast/Actual:</b>	Unknown / Unknown
<b>Wind Direction:</b>	10°	<b>Turbulence Severity Forecast/Actual:</b>	Unknown / Unknown
<b>Altimeter Setting:</b>	30.13 inches Hg	<b>Temperature/Dew Point:</b>	7°C / -1°C
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Kingman, AZ (IGM )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Glendale, AZ (GEU )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Unknown

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Fatal	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal, 1 Serious	<b>Latitude, Longitude:</b>	35.101943,-113.886108(est)

The airplane came to rest inverted at the bottom of a ravine in Hualapai Mountain Park, Hualapai, Arizona. The accident site was about 9.8 nautical miles from IGM on a true bearing of 165°. The site elevation was about 6,500 ft mean sea level.

Almost all of airplane components remained attached to the wreckage. The right wing and empennage were severely crushed and deformed. The fuselage and left wing were moderately crushed or deformed. The engine remained attached to the airframe, and the propeller remained attached to the engine. No fuel was recovered from the airplane.

Flight control continuity was confirmed for the ailerons, flaps, elevator, elevator trim, and rudder. However, proper routing could not be confirmed due to impact and recovery damage. The flaps were found in the fully retracted position.

The instrument panel was partially deformed, but all avionics and instruments remained mounted in the panel. The cockpit throttle control was set to idle, and the mixture was set to full rich; both were immobilized by impact damage. The primer knob was in and locked. The carburetor heat knob was set to off. The magneto switch was set to both. The fuel selector valve assembly was found in its normal location in the left lower forward cabin wall. The handle was found positioned near the detent for the left tank. The valve was removed and tested for blockage; no blockage was noted in either the left or right tank detent. Some impedance was noted when the selector was positioned to the as-found setting, and an examination of the valve port revealed that the port was about 40% occluded at this setting. The valve handle was difficult to move. The fuel lines were found securely attached to the valve. No fuel was noted in the fuel selector or adjacent lines, and no evidence of any fuel leaks was found.

Neither fuel tank cap was found. When a donor fuel cap was installed on the two filler necks, it rotated smoothly and locked into place.

The engine remained attached to the airframe by the engine mount and had been pushed aft, deforming the firewall. The engine sustained impact damage at the forward bottom area, which separated the airbox and carburetor bowl from the carburetor.

All the spark plugs displayed normal operating signatures. The crankshaft rotated easily by hand. The complete valve train operated in proper sequence, no mechanical malfunctions were observed, and "thumb" compressions were obtained in proper sequence on all cylinders. Clean, uncontaminated oil was observed at all four rocker box areas, and mechanical continuity was established throughout the rotating group, valve train, and accessory section during hand rotation of the crankshaft.

Both magneto drives were intact and undamaged. During hand rotation, both magnetos produced sparks at their spark plug leads. Borescope inspection of the combustion chambers and valves revealed that they were mechanically undamaged with no evidence of foreign object ingestion or detonation. The combustion signatures observed at the spark plugs, combustion chambers, and exhaust system components displayed coloration consistent with normal operation with no oil residue was observed. The exhaust system and mufflers were found unobstructed.

The propeller remained mounted to the crankshaft. The spinner remained attached to the propeller backing plate and was crushed aft, with no circumferential scoring. The backing plate/engine mounting flange was fractured. One propeller blade was straight, with no chordwise scraping or leading-edge damage. The other propeller blade was bent slightly aft, displayed no obvious leading-edge damage, and showed a series of spanwise scrapes.

Examination revealed no evidence of preimpact mechanical malfunctions or failures with the airplane or engine that would have precluded normal operation.

## **Medical and Pathological Information**

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A review of the pilot's hospital records revealed that his initial postaccident laboratory testing detected blood glucose levels that were greater than twice the normal maximum and that he used an insulin pump. The hospital records indicated that a blood test was negative for ethanol; this result was published about 2.5 hours after the accident and did not indicate the time that the sample was collected. A urine drug screen was negative for all other screened drugs.



## Administrative Information

<b>Investigator In Charge (IIC):</b>	Huhn, Michael
<b>Additional Participating Persons:</b>	Thomas M Dickerson; FAA FSDO; Scottsdale, AZ Mark Platt; Lycoming; Williamsport, PA Kate Whitaker; Piper Aircraft; Vero Beach, FL
<b>Original Publish Date:</b>	February 2, 2021
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 2</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=98834">https://data.nts.gov/Docket?ProjectID=98834</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](#).