



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Wittmann, AZ	<b>Accident Number:</b>	WPR11LA067
<b>Date &amp; Time:</b>	12/01/2010, 1045 MST	<b>Registration:</b>	N4122F
<b>Aircraft:</b>	PIPER PA 28-181	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel starvation	<b>Injuries:</b>	1 Minor
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Instructional		

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## Analysis

The student pilot was making a solo cross-country flight involving four flight legs. Before beginning the final return leg, he completed multiple full stop landings and touch-and-go landings that he had not included in his preflight planning. During the final leg, the engine began to lose power. The student pilot switched the fuel selector valve to the left tank, but then switched it back to the right tank after a short period of time. The engine subsequently lost all power, and the student pilot made a forced landing in rough terrain. Postaccident examination revealed that the right fuel tank was not breached and was empty of fuel. The left fuel tank was breached, and the soil beneath the tank was wet with fuel. After the wreckage was recovered, a fuel delivery system was rigged, and the engine was started and continued to run as the fuel selector was positioned to both the right and left fuel tank positions. According to the pilot operating handbook for the airplane, if the pilot allows a tank to run dry and the engine loses power, it may take up to 10 seconds for fuel to reach the engine after the other tank is selected. It is likely that, after running the right tank dry, the pilot did not leave the selector in the left tank position for long enough to allow fuel to reach the engine.

## 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 a total loss of engine power due to fuel starvation.

## Findings

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<b>Aircraft</b>	Fuel - Fluid management (Cause) Fuel - Fluid level (Cause)
<b>Personnel issues</b>	Use of equip/system - Pilot (Cause)

## Factual Information

### HISTORY OF FLIGHT

On December 1, 2010, about 1045 mountain standard time (MST), a Piper PA 28-181, N4122F, experienced a loss of engine power, and the pilot made a forced landing near Wittmann, Arizona. TransPac Aviation Academy was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The student pilot sustained minor injuries; the airplane sustained substantial damage to the fuselage and right wing. The solo cross-country instructional flight departed Deer Valley Airport (DVT), Phoenix, Arizona, about 0700, with a planned route of flight to Wickenburg, Arizona (E25), to Gila Bend, Arizona, back to E25, and then back to DVT. Visual meteorological conditions prevailed, and no flight plan had been filed.

The student pilot reported that during the solo cross-country flight, specifically the last leg from E25 to DVT, the engine started to run rough and he was unable to maintain altitude. He made a forced landing in the desert near Wittmann.

A Federal Aviation Administration (FAA) accident coordinator responded to the scene, and documented the accident site. During the recovery it was noted that the right fuel tank was not breached, but contained no fuel. The left fuel tank's drain had been damaged during the crash sequence. No fuel was found in the tank; however, the ground below the damaged fuel drain smelled of fuel, and was wet for several inches down in the dirt, covering an area of at least a 12" diameter.

The student pilot was interviewed by the (FAA) accident coordinator. The student pilot related that he had intended to only complete one full stop landing with a taxi back for takeoff. However, during the second time at E25 on his return, the student pilot made two additional full stop taxi backs and two touch-and-goes. The student pilot stated that he felt the engine vibrate during the final approach to E25. The FAA coordinator asked him why he did not land at E25 and call for maintenance. The student pilot said he "didn't feel it was that bad." The student pilot also stated that he needed to return to DVT. The student pilot attempted to return to DVT. However, while en route, the engine lost partial power. The student pilot said he switched to the left tank, but only for a short period of time. He then switched it back to the right tank. Prior to landing, the engine completely quit, and the airplane landed in a desert wash. The airplane sustained damage to the left wing, both main landing gear, and the nose gear.

On December 8, 2010, investigators conducted an exam of the wreckage at Air Transport, Inc., Phoenix. During the examination, the airframe and engine were secured, and a temporary fuel delivery system was configured. The engine was started using both the left and right fuel selection positions.

No abnormalities were noted that would have precluded normal operations.

The Piper PA28-181 Pilot Operating Handbook addressed a loss of engine power. It states if the engine quits due to fuel exhaustion, it will take up to 10 seconds for fuel to reach the engine with the fuel pump on.

## History of Flight

Enroute-cruise	Fuel starvation (Defining event) Loss of engine power (total)
Enroute-descent	Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT)

## Student Pilot Information

Certificate:	Student	Age:	21, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without Waivers/Limitations	Last Medical Exam:	09/15/2010
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	61 hours (Total, all aircraft), 61 hours (Total, this make and model), 7 hours (Pilot In Command, all aircraft), 61 hours (Last 90 days, all aircraft), 33 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PIPER	Registration:	N4122F
Model/Series:	PA 28-181	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	2843118
Landing Gear Type:		Seats:	4
Date/Type of Last Inspection:	11/28/2010, Continuous Airworthiness	Certified Max Gross Wt.:	2550 lbs
Time Since Last Inspection:	24 Hours	Engines:	1 Reciprocating
Airframe Total Time:	8558 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-360-A4M
Registered Owner:	BIRD ACQUISITION LLC	Rated Power:	180 hp
Operator:	TransPac Aviation Academy	Air Carrier Operating Certificate:	None

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	LUF, 1085 ft msl	Observation Time:	1056 MST
Distance from Accident Site:	16 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	162°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	14° C / -8° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	1 knots, Variable	Visibility (RVR):	
Altimeter Setting:	30.19 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wickenburg, AZ (E25)	Type of Flight Plan Filed:	None
Destination:	Phoenix, AZ (DVT)	Type of Clearance:	None
Departure Time:	1030 MST	Type of Airspace:	

## Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor		

## Administrative Information

Investigator In Charge (IIC):	Patrick H Jones	Adopted Date:	08/15/2012
Additional Participating Persons:	Steve L Meisner; Federal Aviation Administration; Scottsdale, AZ Charles Little; Piper Aircraft, Inc.; Chino Hills, CA Chris Glassmeyer; TransPac Aviation Academy; Phoenix, AZ Travis Trexler; TransPac Aviation Academy; Phoenix, AZ		
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Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=77916">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=77916</a>		

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