Aviation Investigation Final Report

Location:	Grass Valley, California	**Accident Number:**	WPR19LA003
Date & Time:	October 8, 2018, 11:00 Local	**Registration:**	N2250S
Aircraft:	Piper PA28	**Aircraft Damage:**	Substantial
Defining Event:	Fuel related	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The accident flight was the student pilot's first solo cross-country flight; the intended route of flight included stops at five airports along the route. Prior to departure, the pilot confirmed the left fuel tank was full, and the right fuel tank contained about 17 gallons. The airplane was not refueled during the cross-country flight. The pilot stated she flew with the left fuel tank selected until the final leg of the trip. She report that, after departure from the last airport, she switched to the right fuel tank. When the airplane was about 5 miles from Grass Valley Airport (GOO), at an altitude of about 5,000 ft above ground level (agl), the engine started to sputter. The pilot attempted, unsuccessfully, to restart the engine and she contacted the air traffic control tower at GOO to report an engine failure. She was cleared to land; however, the airplane was at an altitude of 3,200 feet agl and continuing to lose altitude. When she realized the airplane would not make it to the airport, she performed a forced landing to an open field. During the landing, the nose landing gear collapsed, and the right wing was damaged.

After the accident, 17 gallons of fuel were removed from the right-wing fuel tank and the left-wing fuel tank was empty. Because the amount of fuel in the right fuel tank after the accident was the same as before takeoff and the pilot stated she flew most of the flight with the left fuel tank selected, it is likely that, despite her report of switching to the right fuel tank, the left tank remained selected, and its fuel supply was exhausted. Other than the absence of fuel, no anomalies were noted with the engine that would have precluded normal operation.

Probable Cause and Findings

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

A loss of engine power due to fuel starvation and the pilot's mismanagement of the available fuel.

Findings

Personnel issues	Use of equip/system - Student/instructed pilot
Aircraft	Fuel - Fluid management

Factual Information

History of Flight

Enroute	Fuel related (Defining event)
Enroute-cruise	Loss of engine power (partial)
Emergency descent	Loss of engine power (partial)
Emergency descent	Collision with terr/obj (non-CFIT)

On October 8, 2018, at 1100 Pacific daylight time, a Piper PA-28-161, N2250S, was substantially damaged when it was involved in an accident near Grass Valley, California. The student pilot was not injured. The airplane was operated as an instructional flight under the provisions of Title 14 *Code of Federal Regulations* Part 91.

According to the pilot, she had completed three previous solo flights and this flight was her first cross-country flight. She planned the intended route from Auburn Municipal Airport (AUN) with intermediate landings at Lincoln Regional Airport (LHM), Colusa County Airport (O08), Willows/Glenn County Airport (WLW), Haigh Field Airport (037), Red Bluff Municipal Airport (RBL), and back to AUN.

The pilot reported that before she departed AUN she confirmed the left fuel tank was full, and the right fuel tank was "to the tabs" (approximately 17 gallons). The airplane was not refueled during the cross-country flight. The pilot stated she flew with the left fuel tank selected for most of the flight; once she departed RBL, she switched to the right fuel tank (near Orville, California).

When the airplane was about 5 miles from the Grass Valley Airport (GOO), at an altitude of about 5,000 ft above ground level (agl), the engine started to sputter. The pilot attempted, unsuccessfully, to restart the engine and she contacted the air traffic control tower at GOO to report an engine failure. She was cleared to land at GOO; however, the airplane was at an altitude of 3,200 feet agl and continuing to lose altitude. When she realized the airplane would not make it to the airport, she performed a forced landing to an open field. During the landing, the nose landing gear collapsed, and the right wing was damaged.

Interviews with recovery personnel revealed that 17 gallons of fuel were removed from the right-wing fuel tank and the left-wing fuel tank was empty.

Examination of the airplane by a Federal Aviation Administration inspector revealed no preimpact mechanical anomalies.

Pilot Information

Certificate:	Student	**Age:**	21,Female
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	September 26, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	August 21, 2018
Flight Time:	(Estimated) 43 hours (Total, all aircraft), 43 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N2250S
Model/Series:	PA28 161	**Aircraft Category:**	Airplane
Year of Manufacture:	1979	**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	28-7916292
Landing Gear Type:	Tricycle	**Seats:**	
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	2326 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	O-320 SERIES
Registered Owner:		**Rated Power:**	
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	GOO,31576 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	11:00 Local	**Direction from Accident Site:**	98°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	26.7 inches Hg	**Temperature/Dew Point:**	19°C / -5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Red Bluff, CA (RBL)	**Type of Flight Plan Filed:**	Unknown
Destination:	Grass Valley, CA (GOO)	**Type of Clearance:**	VFR
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	Nevada County GOO	**Runway Surface Type:**	
Airport Elevation:	3157 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	39.23722,-121.111114(est)

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye		
Additional Participating Persons:	Craig Miller; Fedeal Aviation Administration; Sacramento, CA		
Original Publish Date:	June 1, 2022	**Investigation Class:**	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98421		