Aviation Investigation Final Report

Location:	Atwater, California	**Accident Number:**	WPR13LA106
Date & Time:	January 26, 2013, 18:00 Local	**Registration:**	N68757
Aircraft:	Cessna 152	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

Upon arrival at the airport for the solo local flight, the student pilot performed a preflight inspection, during which he noted that the airplane had 12 gallons of fuel; he stated that the flight was expected to be 1.3 hours long. During the flight, the student became lost while attempting to return to his home airport. The student contacted air traffic control for assistance and was provided position reports back to the airport but was still unable to identify the airport until he was within about 10 miles of it. About this time, which was 2 hours into the flight, the engine began to run roughly and, shortly after, it lost power. The student's attempts to restart the engine were unsuccessful, so he configured the airplane at the best glide speed and conducted an off-airport landing. During the landing roll, the airplane impacted a small rise in the ground and then came to rest inverted.

During recovery of the airplane, it was noted that the fuel tanks had not been compromised, and about 1 gallon of fuel was recovered from both of the fuel tanks. According to the *Pilot's Operating Handbook*, the airplane had a total usable fuel capacity of 24.5 gallons, 1.5 gallons of which were unusable; with full fuel, the airplane could have flown for about 3.4 hours. Based on the evidence, it is likely that the engine lost power due to fuel exhaustion because the airplane did not have sufficient fuel on board for the extended flight, which resulted from the student's inadequate flight planning.

Probable Cause and Findings

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

The student pilot's inadequate flight planning, which resulted in his getting lost and not being able to return to the airport before the fuel was exhausted and the engine lost power.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Flight planning/navigation - Student/instructed pilot

Factual Information

History of Flight

Approach	Loss of engine power (total) (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

On January 26, 2013, about 1800 Pacific standard time, a Cessna 152, N68757, experienced a loss of engine power while on approach for landing on runway 31 at Castle Airport (MER), Atwater, California. The pilot made a forced landing about 3 miles west of the airport in an open field; during the landing rollout, the airplane struck a culvert and nosed over, coming to rest inverted. The student pilot, the sole occupant, was not injured. Sierra Academy of Aeronautics operated the airplane under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. The airplane sustained substantial damage to the tail section and wings. Visual meteorological conditions prevailed for the local area flight, and no flight plan had been filed. The flight departed from MER about 1600.

The student pilot was interviewed by an inspector from the Federal Aviation Administration (FAA). The student pilot reported that he arrived at the airport at 1530 for a 1600 flight. In preparation for his flight, he checked the local weather, and calculated the airplane's weight and balance, which included full fuel. During the preflight inspection, he reported that the fuel tanks were not full; about 12 gallons of fuel were on board, and he needed a "bottle" of oil for the engine. The pilot reported that the flight was to be 1.3 hours long; no problems were encountered with the flight. About 10 minutes after starting toward MER, the pilot became lost and contacted NorCal approach (Northern California Terminal Radar Approach Control) for assistance. The student pilot reported that even though he was provided with position reports back to the airport, he was not able to identify the airport, until he was about 10 miles from the airport. At that point, the engine began to run rough; the student pilot added full power, and the engine ran normal for about 20 seconds and then stopped. The student pilot attempted to restart the engine; however, he was not able to. He trimmed the airplane for best glide speed, and flared before landing. During the landing rollout, the airplane impacted a small rise in the ground, and came to rest inverted.

The flight school was given permission to recover the airplane to their facility. An interview with the chief pilot revealed that upon his arrival at the accident site, he noted no smell of fuel present and that the fuel tanks had not been compromised. Once the airplane was righted, he was able to drain a total of 1 gallon of fuel; 1/2 gallon from each wings' fuel tank.

According to the flight school, all flights were grounded pending a safety meeting, in which they would reiterate that solo students should not depart for a flight with less than full fuel tanks, and solo students should not be dispatched with less than 3 hours of daylight remaining for a local flight.

According to the 1978 Cessna pilot's operating handbook, the airplane has a total fuel capacity of 26.0 gallons; 24.5 gallons is useable, with a maximum of 1.5 gallons of unusable fuel. With full fuel, the range of the airplane would have been approximately 3.4 hours.

Student pilot Information

Certificate:	Student	**Age:**	22,Male
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 2 Without waivers/limitations	**Last FAA Medical Exam:**	November 14, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 41 hours (Total, all aircraft), 41 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N68757
Model/Series:	152	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	15282360
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	January 17, 2013 100 hour	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	16 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	6592 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-235-L2C
Registered Owner:	KS AVIATION INC	**Rated Power:**	110 Horsepower
Operator:	KS AVIATION INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MER,191 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	17:45 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Broken / 3500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.98 inches Hg	**Temperature/Dew Point:**	13°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Atwater, CA (MER)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Atwater, CA (MER)	**Type of Clearance:**	VFR flight following
Departure Time:	16:00 Local	**Type of Airspace:**	

Airport Information

Airport:	Castle Airport MER	**Runway Surface Type:**	
Airport Elevation:	191 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:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	37.375,-120.567779(est)

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Larry A DeCosta; Federal Aviation Administration; Fresno, CA
Original Publish Date:	April 26, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=86102