Aviation Investigation Final Report

Location:	San Carlos, California	**Accident Number:**	WPR22LA242
Date & Time:	June 28, 2022, 11:46 Local	**Registration:**	N2056V
Aircraft:	Cessna 120	**Aircraft Damage:**	Substantial
Defining Event:	Unknown or undetermined	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The accident pilot reported that, 2 days before the accident, the airplane was flown uneventfully by another pilot to the destination airport using the right fuel tank. The pilot who previously flew the airplane reported that he had refueled the airplane with 15 gallons of fuel before that flight, which lasted about 1 hour and 40 minutes; he used the right tank for that flight. He did not indicate that the tanks had been completely filled, noting that 15 gallons was all he needed for the flight. As he approached the destination, he switched to the left fuel tank and landed uneventfully.

According to the accident pilot, after conducting a preflight inspection on the day of the accident, he taxied the airplane out to the runway using the right fuel tank. He recalled that the right tank was full of fuel, which would be inconsistent with the right tank's fuel state if the previous flight had been flown using the right tank. Following an engine runup, he departed. As the airplane was about 400 ft above ground level, the engine rpm decayed to about 1,800 rpm. The pilot performed a 180° turn but was unable to make it to the runway and landed on an airport perimeter road. The airplane bounced, impacted the fence, and came to rest upright on the airport transient parking ramp. The pilot stated that, after the accident, he observed the right fuel line was "severed" with "pouring out fuel."

Postaccident examination of the airplane revealed that the right fuel line from the lower door frame structure had separated from the fuel fitting. Examination of the recovered airframe and engine revealed no evidence of any preexisting mechanical malfunction that would have precluded normal operation.

Although the investigation did not identify performance information for the O-200-A engine installed on the Cessna 120 specifically for fuel burn, given the fuel burn of the O-200-A, and estimated flight time, the previous flight would have used about 10 gallons of fuel. This would

place the fuel level in the fuel tank below 1/4 tank, which would prohibit takeoff according to the airplane owner's manual. Although the pilot may have inadvertently used the wrong fuel tank for takeoff, which could have unported the fuel tank and interrupted the subsequent fuel delivery to the engine, the investigation could not determine the position of the fuel selector valve at the time of the accident. The reason for the total 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:

The total loss of engine power for undetermined reasons.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Initial climb	Unknown or undetermined (Defining event)
Initial climb	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

On June 28, 2022, about 1146 Pacific daylight time, a Cessna 120, N2056V, was substantially damaged when it was involved in an accident near San Carlos, California. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The accident pilot reported that 2 days before the accident the airplane was flown, uneventfully, by another pilot from Anderson, California, to San Carlos Airport (SQL), San Carlos, using the right fuel tank. The pilot who previously flew the airplane reported that he had refueled the airplane with 15 gallons of fuel and flew it back to SQL using the right fuel tank; he estimated the duration of that flight as about 1 hour and 40 minutes. He did not indicate that the tanks had been completely filled, noting that 15 gallons was all he needed for the flight. As he approached SQL, he switched to the left fuel tank and landed uneventfully.

On the day of the accident, the accident pilot reported he had 14 gallons of fuel onboard. He taxied out to the runway using the right fuel tank, which he recalled was full of fuel. Following an engine runup, he departed runway 30. As the airplane was about 400 ft above ground level, the engine rpm decayed to about 1,800. The pilot performed a 180° turn to runway 12 but was unable to make it to the runway and landed on the airport perimeter road. The airplane bounced, impacted the fence, and came to rest upright on the airport transient parking ramp. The pilot stated that, after the accident, the right fuel line was “severed” with “pouring out fuel.” He reported that he attempted to turn the fuel selector off but instead turned it in the wrong direction before leaving the wreckage.

The accident airplane is equipped with two 12.5-gallon fuel tanks, both of which have float-type sight gauges. The fuel selector valve has three positions: LEFT, RIGHT, and OFF. The airplane owner’s manual states in part “…Set fuel tank selector to fullest tank. (Do not take off on less than 1/4 tank).”

Postaccident examination of the airplane by a Federal Aviation Administration inspector revealed that the fuselage was substantially damaged.

Examination of the recovered airframe and engine revealed no evidence of any preexisting mechanical malfunction that would have precluded normal operation. The position of the fuel selector valve at the time of the accident was unable to be determined.

The investigation did not identify any specific performance information for the O-200-A engine installed on the Cessna 120 specifically for fuel burn. However, the Fuel Flow Limits vs RPM chart from the O-200-A overhaul manual indicated that fuel burn rates vary between 4.5 and 9 gallons per hour (GPH) at 2,050 and 2,750 rpm respectfully. Fuel burn at 2,350 rpm would be about 6 gph.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	68,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	September 17, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 19, 2022
Flight Time:	26200 hours (Total, all aircraft), 800 hours (Total, this make and model), 20000 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N2056V
Model/Series:	120	**Aircraft Category:**	Airplane
Year of Manufacture:	1947	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	14269
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Annual	**Certified Max Gross Wt.:**	1450 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental Motors
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-200-A
Registered Owner:	On file	**Rated Power:**	100 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSQL,5 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	10:47 Local	**Direction from Accident Site:**	356°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.09 inches Hg	**Temperature/Dew Point:**	19°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Carlos, CA	**Type of Flight Plan Filed:**	None
Destination:	San Carlos, CA	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class D

Airport Information

Airport:	SAN CARLOS SQL	**Runway Surface Type:**	Asphalt
Airport Elevation:	5 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	12	**IFR Approach:**	None
Runway Length/Width:	2621 ft / 75 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	37.511861,-122.24953(est)

Administrative Information

Investigator In Charge (IIC):	Cawthra, Joshua
Additional Participating Persons:	Michael Schaadt; Federal Aviation Administration; San Jose, CA
Original Publish Date:	April 10, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=105433