



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	LaSalle, Colorado	Accident Number:	CEN21LA414
Date & Time:	September 10, 2021 11:00 Local	Registration:	N2099J
Aircraft:	Cessna 172S	Aircraft Damage:	Substantial
Defining Event	Fuel-related <u>Unknown or undetermined</u>	Injuries:	2 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor and student pilot were conducting a simulated off-field emergency landing as part of a pre-solo cross-country progress check. The flight instructor told the student pilot to break off the maneuver and apply engine power, but the airplane's engine did not respond when power was added. The flight instructor took control of the airplane and attempted to restart the engine with no success. He then declared an emergency and performed a 180° power-off turn to a field. During the touchdown, the airplane contacted a raised embankment, nosed over, and came to rest inverted. The airplane sustained substantial damage to both wings and the fuselage.

A postaccident examination of the airframe and engine showed no preaccident failures or malfunctions that would have precluded normal operation. As a result, the cause of the total loss of engine power could not be determined.

~~At the time of the accident, meteorological conditions were conducive to the formation of carburetor icing during glide and cruise power. Based upon the available information, it is likely that carburetor icing formed during the extended simulated emergency descent and resulted in the loss of engine power.~~

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 the formation of carburetor icing~~for undetermined reasons.

Findings

Not determined

(general) - Unknown/Not determined

Factual Information

History of Flight

~~Approach-VFR go-around~~ ~~Loss of engine power (total)~~
~~Enroute-descent~~ ~~Fuel related (Defining event)~~
~~Emergency descent~~ ~~Off-field or emergency landing~~
~~Landing-landing roll~~ ~~Nose over/nose down~~
~~Approach-VFR go-around~~ ~~Loss of engine power (total)~~
~~Emergency descent~~ ~~Off-field or emergency landing~~
~~Landing-landing roll~~ ~~Nose over/nose down~~
~~Unknown~~ ~~Unknown or undetermined (Defining event)~~

On September 10, 2021, about 1100 central daylight time , a Cessna 172S airplane, N2099J, was substantially damaged when it was involved in an accident near LaSalle, Colorado. The flight instructor and the student pilot sustained minor injuries. The airplane was operated under the provisions of Title 14 *Code of Federal Regulations* Part 91 as an instructional flight.

The flight was intended as pre-solo cross-country progress check. The flight originated from Rocky Mountain Metropolitan Airport (BJC), Broomfield, Colorado. After 40 minutes of flight, the flight instructor told the student pilot to perform a touch-and-go landing at Greeley-Weld County Airport (GXY), Greeley Colorado, and then navigate back to BJC. After the touch-and-go landing at GXY, the flight instructor initiated a simulated high-oil-pressure and high-temperature scenario as the airplane was in cruise flight at 7,500 ft mean sea level. The student pilot responded by initiating a return to GXY. During the return flight to GXY, the flight instructor reduced the engine power to 2,000 rpm and informed the student pilot that he had a simulated engine fire. The student pilot responded by reducing the engine power to idle and began a descent. Once the flight instructor announced that the simulated engine fire was out, the student pilot established a glide and chose a location for a simulated off-field emergency landing.

When the airplane was at an altitude of about 1,000 ft above ground level, the flight instructor determined that the student pilot would safely reach the intended landing location. The flight instructor then instructed the student pilot to apply power, commence a go-around, and fly back to BJC. When the student pilot applied power, the engine did not respond. The flight instructor took control of the airplane and attempted to restart the engine with no success. The flight instructor then declared an emergency and performed a 180° power-off turn to a different landing location than the student pilot had selected earlier. During the landing, the airplane contacted a raised embankment, nosed over, and came to rest inverted. The airplane sustained substantial damage to both wings and the fuselage.

A postaccident examination of the airframe showed no preaccident failures or malfunctions that would have precluded normal operation. Postaccident examination of the engine showed continuity throughout. Both magnetos produced spark. The fuel lines, fuel distribution manifold, airbox, and fuel pumps were intact. Fuel was observed in the manifold and lines. The spark plugs showed normal signatures. Throttle and mixture cables to the cockpit were connected. The propeller remained attached to the engine at the flange. The spinner was crushed and broken in the aft direction. Both propeller blades were straight and showed little rotational damage.

~~At the time of the accident meteorological conditions were conducive for carburetor icing at glide and cruise power.~~

Occupant Information

Certificate:	Flight instructor, Commercial Occupant #1; Student Occupant #2	Age:	41, Male Occupant #1; 23, Male Occupant #2
Airplane Rating(s):	Multi-engine land, Single- engine land Occupant #1; None Occupant #2	Seat Occupied:	Right Occupant #1; Left Occupant #2
Other Aircraft Rating(s):	None Occupant #1; None Occupant #2	Restraint Used:	4-point Occupant #1; 4-point Occupant #2
Instrument Rating(s):	Airplane Occupant #1; None Occupant #2	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine, Airplane single-engine Occupant #1; None Occupant #2	Toxicology Performed:	[SAFTIToxicologyP erformed]
Medical Certification:	Class 1 Without waivers/limitations Occupant #1; Class 1 Without waivers/limitations Occupant #2	Last FAA Medical Exam:	September 3, 2021 Occupant #1; May 5, 2021 Occupant #2
Occupational Pilot:	Yes Occupant #1; No Occupant #2	Last Flight Review or Equivalent:	May 6, 2021 Occupant #1
Flight Time:	(Estimated) 938 hours (Total, all aircraft), 893 hours (Total, this make and model) Occupant #1; (Estimated) 66 hours (Total, all aircraft), 66 hours (Total, this make and model) Occupant #2		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N2099J
Model/Series:	172S	Aircraft Category:	Airplane
Year of Manufacture:	2004	Amateur Built:	[SAFTIAmateurBuilt]
Airworthiness Certificate:	Normal	Serial Number:	172S9586
Landing Gear Type:	Tricycle;	Seats:	4
Date/Type of Last Inspection:	May 14, 2021 Annual	Certified Max Gross Wt.:	[SAFTICertifiedMaxGrossWt]
Time Since Last Inspection:	[SAFTITimeSinceLastInspectionHrs]	Engines:	1 Reciprocating
Airframe Total Time:	8429 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed	Engine Model/Series:	IO-360-L2A
Registered Owner:	FIRST FLIGHT AVIATION SERVICES LLC	Rated Power:	[SAFTIEngineRatedPower]
Operator:	Mcair	Operating Certificate(s) Held:	Pilot school (141)
Operator Does Business As:	[SAFTIOperatorDoesBusinessAs]	Operator Designator Code:	[SAFTIOperatorDesignatorCode]

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KGXY, 4697 ft msl	Distance from Accident Site:	6 Nautical Miles
Observation Time:	10:56:00 Local	Direction from Accident Site:	29°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	[SAFTIVisualRange FT]
Wind Speed/Gusts:	4 knots,none	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	[SAFTIWindDirectionDeg]	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.15 inches Hg	Temperature/Dew Point:	28°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Broomfield, CO (BJC)	Type of Flight Plan Filed:	Company VFR
Destination:	Broomfield, CO (BJC)	Type of Clearance:	None
Departure Time:	10:00 Local	Type of Airspace:	Class E

Airport Information

Airport:	[SAFTIAirportNameAirportID]	Runway Surface Type:	[SAFTIRunwaySurfaceType]	
Airport Elevation:	ft msl	Runway Surface Condition:	Dry; Vegetation	
Runway Used:	[SAFTIRunwayID]	IFR Approach:	None	
Runway Length/Width:	[SAFTIRunwayLengthFTRunwayWidthFT]	VFR Approach/Landing:	Forced landing	

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial	
Passenger Injuries:	1 Minor	Aircraft Fire:	None	
Ground Injuries:	[SAFTIInjuryGroundTotal]	Aircraft Explosion:	None	
Total Injuries:	2 Minor	Latitude, Longitude:	40.353333°, estimated	-104.69194°

[SAFTISafetyMessage]

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander		
Additional Participating Persons:	Harold Robertson; FAA FSDO; Denver, CO		
Original Publish Date:	August 23, 2023	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=103843		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available.