Aviation Investigation Final Report

Location:	Buckhannon, West Virginia	**Accident Number:**	ERA23LA128
Date & Time:	February 18, 2023, 17:32 Local	**Registration:**	N6597X
Aircraft:	Cessna 210	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The pilot was picking up the airplane for its owner after an annual inspection had been completed. During his preflight inspection he noted that both fuel tank fuel gauges indicated that they were ½ to ¾ full. While he was checking the fuel selector valve the “brittle plastic handle broke off” with the left fuel tank still selected. The pilot called the airplane owner to inform him of the situation and advised that he would add more fuel to the left fuel tank in order to make the anticipated 45-minute flight without switching fuel tanks. He subsequently had 4 gallons of fuel added to the fuel tanks and acquired a small crescent wrench that he planned to use in-lieu of the broken plastic fuel selector handle if necessary. He subsequently departed and climbed the airplane to a cruise altitude of about 6,500 feet. About 20 nautical miles from the destination, he noted that the left fuel tank quantity indication was “bouncing between ¼ and empty” and he decided to change to the right fuel tank for the remainder of the flight. He was subsequently unable to use the crescent wrench to change the fuel selector valve position after several attempts. About 2 nautical miles from the destination airport, while approaching the runway to land, the airplane’s engine lost power completely and the pilot performed a forced landing to a field. The airplane nosed over during the landing and the aft portion of the fuselage left, as well as the wing, were substantially damaged.

After the accident, recovery personnel reported that after lifting the airplane upright, they noted fuel staining around the fuel caps of both wing fuel tanks, that the right fuel tank was absent of fuel, and the left fuel tank only contained only a trace amount of fuel. They also operated the fuel selector valve with their own adjustable wrench (the broken fuel selector handle and the crescent wrench used by the pilot could not be located in the wreckage) and found that it operated normally. Based on this information, it is likely that the loss of engine power was due to fuel starvation after the pilot exhausted all usable fuel from the left fuel tank and was unable to select the right fuel tank; or that the pilot had inadvertently moved the fuel selector to an intermediate position in his attempts to use a crescent wrench to adjust the fuel selector valve.

Probable Cause and Findings

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

A total loss of engine power due to fuel starvation. Contributing was the pilot's decision to depart on the flight with an inoperative fuel selector valve.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Decision making/judgment - Pilot
Aircraft	Fuel selector/shutoff valve - Inoperative

Factual Information

History of Flight

Approach-VFR pattern base	Fuel starvation (Defining event)
Maneuvering	Off-field or emergency landing
Landing-landing roll	Nose over/nose down

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	37,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	January 20, 2023
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	June 9, 2022
Flight Time:	2043 hours (Total, all aircraft), 218 hours (Total, this make and model), 1336 hours (Pilot In Command, all aircraft), 113 hours (Last 90 days, all aircraft), 45 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N6597X
Model/Series:	210 A	**Aircraft Category:**	Airplane
Year of Manufacture:	1960	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	21057597
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	February 16, 2023 Annual	**Certified Max Gross Wt.:**	3000 lbs
Time Since Last Inspection:	1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3492.6 Hrs as of last inspection	**Engine Manufacturer:**	Teledyne Continental
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-470-E
Registered Owner:	On file	**Rated Power:**	260 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	W22,1635 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	17:15 Local	**Direction from Accident Site:**	252°
Lowest Cloud Condition:	Clear	**Visibility**	9 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	230°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.29 inches Hg	**Temperature/Dew Point:**	5°C / -7.2°C
Precipitation and Obscuration:			
Departure Point:	Butler, PA (BTP)	**Type of Flight Plan Filed:**	None
Destination:	Buckhannon, WV	**Type of Clearance:**	VFR flight following
Departure Time:	16:41 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	39.01698,-80.20788

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Jeffrey W. Burch; FAA/FSDO; Charleston, WV
Original Publish Date:	June 15, 2023
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=106747