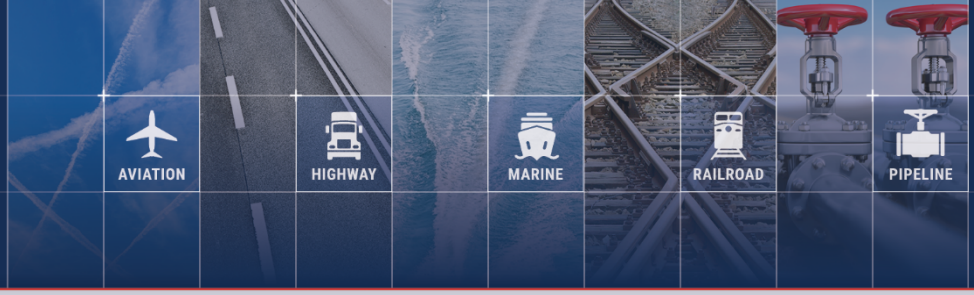

Aviation Investigation Final Report

Location:	Lamesa, Texas	**Accident Number:**	CEN22LA002
Date & Time:	October 2, 2021, 12:25 Local	**Registration:**	N6996Q
Aircraft:	Beech B23	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was on the first flight following an annual inspection in which the carburetor had been changed along with other maintenance. The pilot reported that, during the preflight inspection, both fuel tanks were full and everything was normal except for a non-working rotating beacon. She reported that the engine started normally, and the engine checks were normal except that the engine rpms were slightly lower than before the carburetor replacement.

The pilot performed one takeoff and landing without difficulty. On the ensuing takeoff, when the airplane reached the departure threshold, the engine power reduced to idle. The pilot made a forced landing in a field and the airplane sustained substantial damage to the right wing. The pilot reported that she did not use carburetor heat during the takeoff or landing because the temperature was above 75° F and the humidity was low; however, the temperature and dewpoint recorded at the accident airport were favorable for serious carburetor icing at glide power settings.

Postaccident examination revealed that the fuel selector valve was not in a detent and was positioned between the left and off positions. The pilot stated she did not move the fuel selector valve during or after the flight. Investigators were unable to determine when the fuel selector valve was moved to this position.

The postaccident examination also revealed that a cotter pin was not installed on the nut and bolt that secured the throttle cable to the carburetor throttle arm; however, the nut and bolt were still in their proper position and finger tight and did not prevent normal operation of the throttle.

The right fuel tank was found full of fuel and the left tank was empty after the accident. The fuel tanks were not compromised and no leaks were noted. The reason the left fuel tank was empty when the pilot had verified it was full before the flight could not be determined.

No other mechanical discrepancies were found that would have prevented normal operation.

Based on the available information, the loss of engine power could have been the result of improper fuel selector positioning, which reduced fuel flow and starved the engine for fuel, fuel starvation due to inadequate fuel supply from the left fuel tank, or the pilot's failure to use carburetor heat during the flight when conditions were conducive for serious carburetor icing.

The reason for the loss of engine power could not be determined due to the multiple possibilities discovered during postaccident examination.

Probable Cause and Findings

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

The loss of engine power for a reason that could not be determined.

Findings

Environmental issues	Conducive to carburetor icing - Effect on equipment
Aircraft	Fuel selector/shutoff valve - Incorrect use/operation
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Maneuvering	Loss of engine power (partial) (Defining event)

On October 2, 2021, about 1225 central daylight time, a Beech 23 airplane, N6996Q, was substantially damaged when it was involved in an accident near the Lamesa Municipal Airport (LUV), Lamesa, Texas. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that the airplane had just undergone an annual inspection that included replacement of the carburetor. She said that she returned to the maintenance facility several times because work that was requested had not been performed or noted discrepancies had not been repaired.

On the day of the accident, the pilot planned to perform three takeoffs and landings before departing the area to fly the airplane to her home airport. She performed a preflight inspection, noting the only discrepancy being a non-working rotating beacon. She verified that both fuel tanks were full. Engine start, taxi and run-up were normal except that she noted the idle rpm and full throttle rpm were both slightly lower than before the carburetor replacement.

The pilot took off from runway 34 and remained in the traffic pattern, which concluded in a touchdown before mid-field. She noted that she did not use carburetor heat during this landing approach as the temperature was above 75° F and the humidity was low. After touchdown she raised the flaps and applied engine power, performing a touch and go. When the airplane reached the departure end of the runway on the ensuing takeoff, the engine power suddenly reduced to idle. Due to the low altitude the pilot did not attempt to turn the airplane and landed in a field. The airplane sustained substantial damage to its right wing, engine mount, and forward fuselage,.

Postaccident examination revealed that the fuel selector valve was not in a detent and was positioned between the left and off positions. The long end of the fuel selector handle was designed to reside between two spring loaded gates to prevent inadvertent selection of the off position during normal operation. The design required that one of the gates be depressed to allow the handle to be rotated to the off position. The handle was found outside of the gated area.

The right-wing fuel tank was full of fuel and the left-wing fuel tank was empty.

A cotter pin was not installed on the nut and bolt that secured the throttle cable to the carburetor throttle arm; however, the nut and bolt were still in their proper position and finger tight, and did not prevent normal operation of the throttle.

No other mechanical discrepancies were found during the postaccident examination.

In the pilot's statement, she noted that the fuel selector handle was attached 180 degrees off. She noted that she, previous owners, and instructors were not aware of this and had always used the long end of the handle as an indicator of fuel selector position.

According to the Federal Aviation Administration inspector that responded to the accident, the fuel selector handle was properly installed, but the pilot believed that the long end of the fuel selector handle was the indicator that was to be used to determine the fuel selector position. The fuel selector handle had a white triangular arrow on the opposite end from the long end of the handle that was to be used to indicate the selected position. The remainder of the handle was red in color. On the accident airplane, the paint on the fuel selector handle was faded and worn and the white triangular portion was also worn making it difficult to discern the triangular pointer.

At the time of the accident, the recorded temperature and dewpoint at the accident airport were 22° C (72° F), and 13° C (55° F), respectively. These were in the range of susceptibility for serious icing at glide power settings.

Pilot Information

Certificate:	Private	**Age:**	23,Female
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	July 13, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	August 29, 2020
Flight Time:	107 hours (Total, all aircraft), 67 hours (Total, this make and model), 55 hours (Pilot In Command, all aircraft), 1 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N6996Q
Model/Series:	B23	**Aircraft Category:**	Airplane
Year of Manufacture:	1968	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	M-1103
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 9, 2021 Annual	**Certified Max Gross Wt.:**	2455 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3157 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-360-A2G
Registered Owner:	On file	**Rated Power:**	180 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:	KLUV,2430 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	12:35 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.19 inches Hg	**Temperature/Dew Point:**	22°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lamesa, TX (LUV)	**Type of Flight Plan Filed:**	None
Destination:	Lamesa, TX (LUV)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	LAMESA MUNI LUV	**Runway Surface Type:**	
Airport Elevation:	2998 ft msl	**Runway Surface Condition:**	Dry
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	32.756306,-101.92022

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Steven Miller; FAA - LBB FSDO; Lubbock, TX
Original Publish Date:	August 16, 2023
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=104040