Aviation Investigation Final Report

Location:	Reno, Nevada	**Accident Number:**	LAX03LA159
Date & Time:	May 21, 2003, 19:00 Local	**Registration:**	N68567
Aircraft:	Bellanca 7GCBC	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The certified flight instructor made a hard landing following a loss of engine power during takeoff initial climb. After adding 10 gallons of fuel to the airplane, the flight instructor and the student taxied to the hold short line and completed an uneventful run-up for runway 26. The airplane rotated at 60 miles per hour (mph) indicated airspeed (IAS), and the instructor told the student to pitch for the best rate of climb speed. Approximately 500 feet above ground level, as the student was turning crosswind, the engine "coughed." The flight instructor told the student to apply full throttle and mixture; the tachometer was then reading 2,100 rpm. The engine "coughed" again and the rpm decreased to 1,500 rpm. Then, the engine completely lost power. The flight instructor decided to try to return to the runway. The airplane was in a right turn at 500 feet agl. As the airplane approached runway 8, the airspeed was 61 mph IAS. The airplane touched down on the runway, still in the turn. The left main landing gear sheared off and the airplane slid to a stop in the gravel on the south side of the runway. Post accident examination of the engine revealed that the mixture control arm could not reach the "FULL RICH" position. This anomaly could not be explained by impact damage. Considering the elevation of the airport and the likely 7,600-foot density altitude, investigators were uncertain about the relationship between the mixture control travel limit and the loss of engine power. No other discrepancies were noted with the engine.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a loss of engine power for undetermined reasons.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
2. TERRAIN CONDITION - RUNWAY
3. PROPER ALIGNMENT - NOT ATTAINED - PILOT IN COMMAND(CFI)

Occurrence #4: GEAR COLLAPSED
Phase of Operation: EMERGENCY LANDING

Factual Information

On May 21, 2003, about 1900 Pacific daylight time, a Bellanca 7GCBC, N68567, landed hard following a loss of engine power during takeoff from the Reno/Stead Airport, Reno, Nevada. The pilot was operating the airplane under the provisions of 14 CFR Part 91 on a local instructional flight. The certified flight instructor (CFI) pilot and the private pilot undergoing instruction (PUI) were not injured; the airplane sustained substantial damage. Visual meteorological conditions prevailed, and a flight plan had not been filed.

In a written statement, the CFI reported that after adding 10 gallons of fuel to the airplane, the CFI and PUI taxied to the hold short line and completed an uneventful run-up for runway 26. The airplane rotated at 60 miles per hour (mph) indicated airspeed (IAS), and the CFI told the PUI to pitch for the best rate of climb speed (Vy). Approximately 500 feet above ground level (agl), as the PUI was turning crosswind, the engine "coughed." The CFI instructed the PUI to apply full throttle and mixture; the tachometer read 2,100 rpm. The engine "coughed" again and the rpm decreased to 1,500 rpm. Then, the engine completely lost power.

The CFI made a radio call advising that they had an engine failure and were intending to return to the runway. Although he knew the difficulties associated with turning back to the runway after an engine failure, the CFI stated that other landing spots were unavailable due to buildings, vehicles, and/or other obstructions. The airplane was in a right turn at 500 feet agl. As the airplane approached runway 8, the airspeed was 61 mph IAS.

The airplane touched down on the runway, still in the turn. The left main landing gear sheared off, and the CFI instructed the PUI to pull the mixture control to the "OFF" position. The airplane slid, and came to rest in the gravel on the south side of the runway.

Post accident examination of the engine revealed that the mixture control arm could not reach the "FULL RICH" position. However, there were no marks on the carburetor. No other discrepancies were noted with the engine.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	36,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 7, 2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 16, 2002
Flight Time:	847 hours (Total, all aircraft), 274 hours (Total, this make and model), 808 hours (Pilot In Command, all aircraft), 130 hours (Last 90 days, all aircraft), 59 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Student	**Age:**	31,Male
Airplane Rating(s):	None	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	February 11, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Bellanca	**Registration:**	N68567
Model/Series:	7GCBC	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Aerobatic; Normal	**Serial Number:**	395-72
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Annual	**Certified Max Gross Wt.:**	1850 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-320
Registered Owner:	D. Spillane	**Rated Power:**	160 Horsepower
Operator:	T. Brill	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	RNO,4412 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	18:56 Local	**Direction from Accident Site:**	140°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots / 20 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	28°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Reno, NV (4SD)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	19:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Reno/Stead 4SD	**Runway Surface Type:**	Asphalt
Airport Elevation:	5046 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	26	**IFR Approach:**	None
Runway Length/Width:	7608 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	39.667778,-119.882499

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	Clarence Bohartz; Federal Aviation Administration; Reno, NV
Original Publish Date:	June 8, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57052