Aviation Investigation Final Report

Location:	Counselor, New Mexico	**Accident Number:**	WPR22FA148
Date & Time:	April 9, 2022, 12:00 Local	**Registration:**	N24345
Aircraft:	Taylorcraft BL-65	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airline transport pilot had just purchased the tailwheel-equipped, 65-horsepower airplane and was flying it from Wyoming to his home in Texas accompanied by a flight instructor. During one of their fuel stops on the first day of the trip, the instructor spoke with a local pilot and stated that the accident airplane had difficulty climbing above 8,000 ft during previous legs of the trip. The accident occurred on the second leg of the second day of the trip.

The accident flight originated from an airport at an elevation about 5,500 ft mean sea level (msl), with a density altitude over 7,000 ft, and proceeded over an area of high desert terrain. About 50 nautical miles from the departure airport, the airplane was seen maneuvering at low altitude toward a ridgeline, then away from the ridgeline and toward a nearby dirt road before it descended, impacted terrain, and nosed over. The witness further reported that, at the time of the accident, the winds were gusting from the southwest, over the ridgeline, and that the airplane's engine was running. The pilot was fatally injured. The instructor sustained serious injuries and stated that he had no recollection of the accident flight after departure.

A postaccident examination of the airframe and engine did not reveal any mechanical failures that would have precluded normal operation.

The accident site was located at an elevation of about 7,100 ft msl. The calculated density altitude at the accident site exceeded 9,000 ft. The operating manual for the engine make and model revealed that, at an altitude of 7,000 ft, the full throttle sea-level horsepower value is reduced to 78.9%. At 9,500 and 10,000 ft, the sea level horsepower is reduced further to 72.5% and 70.8%, respectively.

Given the instructor's statement the previous day regarding the airplane's performance above 8,000 ft, and the estimated density altitude conditions at the accident site, it is likely that the

airplane's performance was significantly degraded during the accident flight as a result of high-density altitude. It is possible that the pilots may have also been experiencing mechanical turbulence due to the mountainous terrain and gusting wind conditions described by the witness.

Probable Cause and Findings

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

A loss of control while maneuvering at a high-density altitude in gusty wind conditions.

Findings

Personnel issues	Decision making/judgment - Pilot
Personnel issues	Aircraft control - Pilot
Environmental issues	Rough terrain - Effect on equipment
Aircraft	(general) - Not attained/maintained
Environmental issues	High density altitude - Effect on equipment
Environmental issues	Gusts - Effect on equipment
Environmental issues	Rough terrain - Effect on equipment

Factual Information

History of Flight

Maneuvering-low-alt flying	Loss of control in flight (Defining event)

On April 9, 2022, about 1200 mountain daylight time, a Taylorcraft BL-65, N24345, was substantially damaged when it was involved in an accident near Counselor, New Mexico. The airline transport pilot was fatally injured, and the flight instructor sustained serious injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The airline transport pilot had just purchased the airplane. His spouse reported that, two days before the accident, the pilot and a flight instructor recommended by the previous owner completed an instructional flight in the airplane. They added that the previous owner recommended that the flight instructor to ferry the airplane with the new owner and further referred the new owner to an insurance broker to write a policy. The policy writer reported that she wrote the policy to include both the new owner and the instructor. The policy stated that both the new owner and the flight instructor had to meet specific requirements for whomever was flying the airplane. The policy writer was not aware that the new owner did not have a current medical when she wrote the insurance policy. The new owner cannot be pilot in command (PIC) according to the policy.

The family member further reported that a verbal agreement for the flight instructor to ferry the airplane back to Texas and provide instruction for $250 per day, plus expenses and an airline ticket back to Wyoming. They further reported that that the new owner stated to the family member that the flight instructor was aware of his role in transporting the aircraft back to Texas and providing instruction. The new owner stated to the family member that he hired the flight instructor because he did not have a current medical and could not be pilot in command.

The flight instructor reported that he could not recall any details that led to the accident after they departed Farmington, New Mexico. He added that he was hired to be a passenger and not to be pilot in command, nor did he have any input with the flight planning or flying responsibilities during the flight. He stated that he only instructed the new pilot before the cross-country trip and signed him off with a tail-wheel endorsement. He added that he was not aware that the new owner did not have a current medical and could not be pilot in command.

Witnesses reported that the pilot and instructor departed Afton Municipal Airport Field (AFO) Afton, Wyoming, on April 8 and completed four legs of the return trip to Texas. One of their fuel stops included Rangely Airport (AV0), Rangely, Colorado. At AV0, the accident instructor spoke with a local pilot and stated that the accident airplane had struggled to climb higher than 8,000 ft during their flights that day. The instructor asked the local pilot for advice regarding obstacles to avoid when flying through New Mexico, and the pilot provided the instructor with a suggested route of flight.

The following day, the pilot and instructor departed CEZ and flew to Farmington, New Mexico, where they refueled the airplane before departing on the accident flight.

A witness near the accident site reported that he saw the airplane maneuvering at low altitude toward a ridgeline to the southwest. Shortly after, the airplane made a left turn to the north away from the ridgeline toward a nearby dirt road that ran northwest to southeast, lined with powerlines. The witness then saw the airplane descend and impact terrain short of the road and power lines. Subsequently, the airplane nosed over and sustained substantial damage to the wings. The witness further reported that the winds were gusting from the southwest, over the ridgeline, and that the engine was running.

The airplane was located about 53 nautical miles (nm) southeast of FMN, about 5 nm south of Counselor, New Mexico, and about 68 nm northwest from their next intended destination of Double Eagle II Airport, Albuquerque, New Mexico. The airplane came to rest inverted on a dirt field surrounded by sage brush at an elevation of about 7,100 ft msl (Figure 1), on a heading of about 360° magnetic. The airplane sustained substantial damage to the wings, lift struts, and fuselage; all major components of the airplane were accounted for at the accident site.

Figure 1. Accident Site with view of airplane

Examination revealed no evidence of mechanical malfunctions or anomalies with the airplane or engine that would have precluded normal operation.

The Operator's Manual for a Lycoming Model O-145-B2 Aviation Engine depicts the full throttle horsepower at different altitudes (Table 1). At an altitude of 7,000 ft and at full throttle, of sea level horsepower is about 78.9%; at a density altitude of 9,500 ft, the sea level horsepower is about 72.5%.

Table 1. Lycoming Full Throttle HP at Altitude Chart (reference only)

FULL THROTTLE HP AT ALTITUDE

Altitude Ft.	% S.L. HP.	Altitude Ft.	% S.L. HP.	Altitude Ft.	% S.L. HP.
0	100	8,500	74.8	17,000	54.3
500	98.5	9,000	73.5	17,500	53.1
1,000	96.8	9,500	72.5	18,000	52.1
1,500	95.3	10,000	70.8	18,500	51.4
2,000	93.6	10,500	69.5	19,000	50.0
2,500	92.0	11,000	68.3	19,500	49.1
3,000	90.5	11,500	67.2	20,000	48.0
3,500	89.3	12,000	65.8	20,500	47.6
4,000	87.5	12,500	64.7	21,000	46.0
4,500	85.9	13,000	63.4	21,500	45.2
5,000	84.6	13,500	62.3	22,000	44.0
5,500	83.2	14,000	61.0	22,500	43.3
6,000	81.7	14,500	59.8	23,000	42.2
6,500	80.2	15,000	58.7	23,500	41.4
7,000	78.9	15,500	57.6	24,000	40.3
7,500	77.5	16,000	56.5	24,500	39.5
8,000	76.2	16,500	55.4	25,000	38.5

FMN has a listed elevation of 5,507 ft and had an Automated Surface Observation System which was augmented. Prior to departure, the ASOS reported the wind was 160° at 6 knots, visibility of 10 statute miles (sm), clear of clouds, a temperature of 19°C, a dewpoint temperature of -11°C, and an altimeter setting of 29.95 inches of mercury (Hg); its calculated density altitude was 7,226 ft. At the time of the accident, the ASOS reported the wind was 310° at 7 knots, visibility of 10 sm, clear of clouds, a temperature of 22°C, a dewpoint temperature of -11°C, and an altimeter setting of 29.90 Hg; its calculated density altitude was 7,726 ft.

The accident site was located at an elevation of about 7,100 ft. At the time of the accident, the reported weather in Counselor, New Mexico, included wind from 158° at 6 knots, a temperature of 20°C, and a dewpoint of -11°C. The calculated density altitude at the accident site was 9,897 ft.

The pilot's autopsy was performed by a medical investigator from the Office of the Medical Investigator, Albuquerque, New Mexico. According to the pilot's autopsy report and a supplemental report from the Office of the Medical Investigator, the pilot's cause of death was multiple blunt force injuries, and his manner of death was accidental.

The Federal Aviation Administration Forensic Sciences Laboratory performed toxicological tests on specimens recovered from the pilot. The pilot's postmortem toxicological testing did not detect any ethanol or drugs.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	19,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	December 15, 2021
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	78,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	November 13, 2009
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Taylorcraft	**Registration:**	N24345
Model/Series:	BL-65	**Aircraft Category:**	Airplane
Year of Manufacture:	1940	**Amateur Built:**	
Airworthiness Certificate:	None	**Serial Number:**	1681
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	July 1, 2021 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2810 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	C91A installed, not activated	**Engine Model/Series:**	O-145-B2
Registered Owner:	On file	**Rated Power:**	65 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:	KFMN,5502 ft msl	**Distance from Accident Site:**	52 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	315°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	19°C / -11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Afton, WY (KAFO)	**Type of Flight Plan Filed:**	None
Destination:	Kerrville, TX (KERV)	**Type of Clearance:**	None
Departure Time:	09:30 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	36.131543,-107.4453(est)

Administrative Information

Investigator In Charge (IIC):	Nepomuceno, Eleazar
Additional Participating Persons:	Vernon Rockett III; FAA; Albuquerque , NM Troy Helgeson; Lycoming Engines
Original Publish Date:	May 16, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=104917