Aviation Investigation Final Report

Location:	RED LODGE, Montana	**Accident Number:**	SEA00LA076
Date & Time:	April 21, 2000, 10:50 Local	**Registration:**	N3579V
Aircraft:	Cessna 140	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that shortly after takeoff, the airplane attained an altitude of about five feet and began to drift to the right due to a gust of wind from the left. The pilot corrected with rudder control, however, the airplane continued to drift and would not accelerate or climb as expected. The pilot opted to reduce power and land next to the runway. During the landing roll, the left main landing gear collapsed. The pilot had calculated the density altitude at about 6,267 feet. He also utilized the aircraft's performance data to calculate the takeoff distance and climb rate. The data however, was based upon the installation of a standard propeller. The aircraft was equipped with a cruise pitch propeller. The pilot reported that he felt that the reason why the aircraft would not accelerate and climb as expected, was due to the cruise pitch propeller.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A high density altitude and inadequate preflight planning/preparation. Not attaining a proper climb rate, not maintaining a proper runway alignment, and gusting wind conditions were factors.

Findings

Occurrence #1: MISCELLANEOUS/OTHER
Phase of Operation: TAKEOFF

Findings
1. (C) WEATHER CONDITION - HIGH DENSITY ALTITUDE
2. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
3. (F) WEATHER CONDITION - GUSTS
4. (F) PROPER ALIGNMENT - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: GEAR COLLAPSED
Phase of Operation: TAKEOFF - ABORTED

Findings
5. (F) PROPER CLIMB RATE - NOT ATTAINED - PILOT IN COMMAND

Factual Information

On April 21, 2000, at 1050 mountain daylight time, a Cessna 140, N3579V, registered to and operated by the pilot as a 14 CFR Part 91 personal flight, collapsed the left main landing gear during takeoff from the Red Lodge airport, Red Lodge, Montana. Visual meteorological conditions prevailed at the time and no flight plan was filed. The airplane was substantially damaged and the airline transport pilot, the sole occupant, was not injured.

During a telephone interview and subsequent written statement, the pilot reported that he had just fueled the airplane and was taking off on runway 16 for the next leg of his cross country flight to Casper, Wyoming. The wind was a quartering headwind from the left at about five to 10 knots, with gusts to 15 knots. The pilot stated that during the takeoff ground roll, the tail came up and the airplane lifted off at about 50 mph. The airplane attained an altitude of about five feet when it began to drift to the right due to a gust of wind from the left. The pilot corrected with rudder control, however, the airplane continued to drift to the right and would not accelerate or climb as expected. The pilot reported that the airplane would not clear the fence to the right of the runway, and he opted to reduce power and land to the right side of the runway. During the landing roll, while turning to avoid a collision with a fence, the left main landing gear collapsed.

The pilot reported no mechanical failures or malfunctions, and that the engine was producing full power.

At the time of the accident, Red Lodge was not reporting the weather. The surface observations for Billings, Montana, located approximately 45 nautical miles northeast, was reporting at 0956, a temperature of 57 degrees, with an altimeter setting of 30.03" Hg. Density altitude calculated for the field elevation at Red Lodge of 5,763 feet, under the conditions reported from Billings, was approximately 6,864 feet.

The pilot reported that he calculated a density altitude of 6,267 feet utilizing the altimeter setting from Billings of 30.04" Hg, and a temperature of approximately 50 degrees. The pilot then calculated via the Cessna 140 performance data, which is based upon a gross weight of 1,450 pounds and a standard Sensenich 74FK-49 propeller, at 6,000 feet, a takeoff distance of 1,343 feet, and a normal climb rate of 365 fpm. (see attached performance information)

The aircraft, however, was equipped with a McCauley CM 7150 cruise pitch propeller. The pilot stated that he felt that the reason why the aircraft would not accelerate and climb as expected, was due to the cruise pitch propeller.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	58,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:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	January 18, 2000
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	2942 hours (Total, all aircraft), 28 hours (Total, this make and model), 2169 hours (Pilot In Command, all aircraft), 111 hours (Last 90 days, all aircraft), 49 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N3579V
Model/Series:	140 140	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	14748
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	March 27, 2000 Annual	**Certified Max Gross Wt.:**	1450 lbs
Time Since Last Inspection:	28 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5045 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	C90-12F
Registered Owner:	BILL J. HARRIS	**Rated Power:**	90 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / 15 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	10°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:	CASPER , WY (CPR)	**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	RED LODGE RED	**Runway Surface Type:**	Asphalt
Airport Elevation:	5763 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	16	**IFR Approach:**	None
Runway Length/Width:	4000 ft / 75 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	45.190891,-109.240203(est)

Administrative Information

Investigator In Charge (IIC):	Eckrote, Debra
Additional Participating Persons:	LEO WADEKAMPER; HELENA , MT
Original Publish Date:	May 9, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49038