Aviation Investigation Final Report

Location:	Laurel, Montana	**Accident Number:**	SEA07LA210
Date & Time:	July 17, 2007, 14:45 Local	**Registration:**	N7927R
Aircraft:	Beech E-33C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The nose gear collapsed during the landing roll after an uneventful touchdown. An inspection of the gear system revealed that the nose gear retract brace (drag-link) had failed. The fracture surface of the brace was determined to have failed in a twisting overload. No preexisting damage or indication of fatigue was found. The reason for the twisting overload failure could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The overload failure of the nose gear retract brace (drag link) during the landing roll.

Findings

Occurrence #1: NOSE GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Findings
1. (C) LANDING GEAR,GEAR LOCKING MECHANISM - OVERLOAD

Factual Information

On July 17, 2007, approximately 1445 mountain daylight time, a Beech E-33C, N7927R, experienced a collapse of the nose gear during the landing roll at Laurel Municipal Airport, Laurel, Montana. The Certified Flight Instructor and his student where not injured, but the airplane, which is owned by Rocky Mountain College, sustained substantial damage. The local 14 CFR Part 91 instructional flight, which departed the same airport about 20 minutes earlier, was being operated in visual meteorological conditions. No flight plan had been filed, and there was no report of an ELT activation.

According to the instructor and the student, the touchdown was uneventful, but during the landing roll the nose gear collapsed. A post-accident inspection of the gear system revealed that the nose gear retract brace (drag-link) had failed. The fracture surface of the brace was analyzed by the NTSB Materials Laboratory, and it was determined that it had failed in a manner consistent with a twisting overload. No preexisting damage or indication of fatigue was found. The reason for the twisting overload failure could not be determined.

The failure of the brace resulted in structural damage to the area around the nose gear wheel well.

Flight instructor Information

Certificate:	Airline transport; Flight instructor	**Age:**	55,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Glider; Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Glider; Helicopter; Instrument airplane; Instrument helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	July 1, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 1, 2007
Flight Time:	13300 hours (Total, all aircraft), 513 hours (Total, this make and model), 11320 hours (Pilot In Command, all aircraft), 146 hours (Last 90 days, all aircraft), 54 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Private	**Age:**	21,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	January 1, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 1, 2006
Flight Time:	210 hours (Total, all aircraft), 21 hours (Total, this make and model), 140 hours (Pilot In Command, all aircraft), 17 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N7927R
Model/Series:	E-33C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	CJ-20
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 1, 2007 100 hour	**Certified Max Gross Wt.:**	3300 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	5677 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-520-BA
Registered Owner:	Rocky Mountain College	**Rated Power:**	285 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	6S8,3500 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	14:45 Local	**Direction from Accident Site:**	4°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	35°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Laurel, MT (6S8)	**Type of Flight Plan Filed:**	Company VFR
Destination:	(6S8)	**Type of Clearance:**	None
Departure Time:	13:30 Local	**Type of Airspace:**	

Airport Information

Airport:	Laurel Municipal Airport 6S8	**Runway Surface Type:**	Asphalt
Airport Elevation:	3517 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	04	**IFR Approach:**	None
Runway Length/Width:	5200 ft / 75 ft	**VFR Approach/Landing:**	Full stop

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:**	45.7,-108.761947

Administrative Information

Investigator In Charge (IIC):	Anderson, Orrin
Additional Participating Persons:	Robert Speicher; Federal Aviation Administration; Helena, MT
Original Publish Date:	July 30, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=66279