



# Aviation Investigation Final Report

<b>Location:</b>	Broomfield, Colorado	<b>Accident Number:</b>	CEN18LA180
<b>Date &amp; Time:</b>	May 16, 2018, 15:20 Local	<b>Registration:</b>	N4EJ
<b>Aircraft:</b>	Roger G White Glasair	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Sys/Comp malf/fail (non-power)	<b>Injuries:</b>	1 Minor
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The airline transport pilot reported that, during the landing roll, the experimental, amateur-built airplane started drifting to the left and he applied right rudder to correct. He subsequently attempted to apply right brake pressure to further correct for the drift as the airplane was traveling about 50 knots. At that time, the right brake pedal "went to the floor," and there was "zero" right brake available. The airplane departed the left side of the runway, crossed the grass, and came to rest on the parallel taxiway.

A postrecovery examination revealed that the plastic right brake line was broken near the upper end of the landing gear strut. The airplane was equipped with a free-castering nosewheel and did not have any nosewheel steering capability. Directional control during ground operations was maintained with differential braking. As a result, maintaining directional control after the brake failure was not possible.

## Probable Cause and Findings

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

The failure of the right brake line, which resulted in a loss of directional control and runway excursion.

## Findings

<b>Aircraft</b>	Landing gear brakes system - Failure
<b>Aircraft</b>	Brake - Inoperative
<b>Aircraft</b>	Directional control - Attain/maintain not possible

# Factual Information

## History of Flight

Landing-landing roll	Sys/Comp malf/fail (non-power) (Defining event)
Landing-landing roll	Loss of control on ground
Landing-landing roll	Runway excursion

On May 16, 2018, about 1520 mountain daylight time, an experimental, amateur-built Roger G White Glasair airplane, N4EJ, was substantially damaged during a runway excursion after landing on runway 12L (9,000 ft by 100 ft, asphalt) at the Rocky Mountain Metropolitan Airport (BJC), Broomfield, Colorado. The pilot sustained minor injuries. The airplane was registered to a private individual and operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Day visual meteorological conditions prevailed. The flight was not operated on a flight plan. The flight originated from the Vance Brand Airport (LMO), Longmont, Colorado about 1500 and was destined for BJC.

The pilot reported that he was relocating the airplane from LMO to BJC for modification of the fuel injection system after a recent sale. He noted that his preflight inspection and run-up did not reveal any anomalies. He specifically checked the brakes and detected no problems. The takeoff, cruise, and landing approach were conducted without incident. However, during the landing rollout, the airplane started drifting to the left and he applied right rudder to correct. He subsequently attempted to apply right brake pressure to further correct for the drift as the airplane was traveling about 50 knots. At that time, the right brake pedal "went to the floor;" there was "zero" right brake available. The airplane departed the left side of the runway, crossed the grass, and came to rest on the parallel taxiway.

A postrecovery examination conducted by a Federal Aviation Administration inspector revealed that the right brake line was broken near the upper end of the landing gear strut. The brake line consisted of a flexible plastic line at that location. The brake master cylinder was intact. No anomalies were observed related to the brake master cylinder or the caliper assemblies.

The airplane was equipped with a free casting nose wheel and did not have any nose wheel steering capability. Directional control during ground operations was maintained with differential braking.

## Pilot Information

<b>Certificate:</b>	Airline transport; Flight instructor	<b>Age:</b>	81,Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Glider	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Glider; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	January 16, 2017
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	November 18, 2016
<b>Flight Time:</b>	14800 hours (Total, all aircraft), 250 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Roger G White	<b>Registration:</b>	N4EJ
<b>Model/Series:</b>	Glasair FT	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1990	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	265
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	November 8, 2017 Condition	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>	0 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1589.3 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-360-A3A
<b>Registered Owner:</b>		<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	BJC,5673 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	15:45 Local	<b>Direction from Accident Site:</b>	90°
<b>Lowest Cloud Condition:</b>	Scattered / 8000 ft AGL	<b>Visibility</b>	50 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	120°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.01 inches Hg	<b>Temperature/Dew Point:</b>	27°C / -4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Longmont, CO (LMO )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Broomfield, CO (BJC )	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	15:00 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	Rocky Mountain Muni BJC	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	5673 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	12L	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	9000 ft / 100 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Minor	<b>Latitude, Longitude:</b>	39.908889,-105.117225(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Sorensen, Timothy
<b>Additional Participating Persons:</b>	John Childers; FAA Flight Standards; Denver, CO
<b>Original Publish Date:</b>	March 18, 2019
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=97274">https://data.nts.gov/Docket?ProjectID=97274</a>

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