



# Aviation Investigation Final Report

<b>Location:</b>	Rialto, California	<b>Accident Number:</b>	WPR11LA063
<b>Date &amp; Time:</b>	November 27, 2010, 10:30 Local	<b>Registration:</b>	N5101X
<b>Aircraft:</b>	Champion 7KCAB	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Landing gear collapse	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The certified flight instructor stated that he and the pilot receiving instruction were practicing landings in the tailwheel-equipped airplane. He said that during a wheel landing, with the pilot receiving instruction manipulating the flight controls, the airplane's left main landing gear collapsed, and the airplane skidded to the left and contacted a taxiway sign. The instructor reported that the wind was calm at the time of the accident. Postaccident metallurgical examination revealed that the left landing gear fractured at its inboard end due to fatigue cracking and corrosion damage.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Fatigue cracking of the left main landing gear leg, which resulted in a gear collapse during landing.

## Findings

<b>Aircraft</b>	Main landing gear - Failure
<b>Aircraft</b>	Main landing gear - Fatigue/wear/corrosion

## Factual Information

### History of Flight

<b>Landing-landing roll</b>	Sys/Comp malf/fail (non-power)
<b>Landing</b>	Landing gear collapse (Defining event)

On November 27, 2010, at 1030 Pacific standard time, an American Champion 7KCAB tailwheel equipped airplane, N5101X, sustained substantial damage to the fuselage and left wing assembly following a main gear collapse during landing at the Rialto Municipal Airport, Rialto, California. The certified flight instructor (CFI) and private pilot receiving tail wheel instruction were not injured. The airplane was operated by Foothill Flying Club as a visual flight rules (VFR) instructional flight under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91. Visual meteorological conditions prevailed at the time of the accident. No flight plan was filed for the instructional flight that originated from Upland, California, at 0930.

In a written report to the National Transportation Safety Board (NTSB) investigator-in-charge, the CFI stated that during the wheel landing, with the private pilot manipulating the flight controls, the airplane's left main landing gear collapsed. He stated that the airplane skidded to the left, and contacted a taxiway sign before it came to rest. The instructor reported that the wind was calm during the timeframe of the accident.

The fractured landing gear leg was shipped to the NTSB Materials Laboratory in Washington, D.C. for further examination.

An NTSB senior metallurgist reported that examination of the left landing gear leg revealed that it fractured at the inboard end, approximately where the spring passes through the fillet plate and seal. The inboard fracture face had a dark crescent-shaped fracture on the aft edge. The smooth dark appearance, the presence of a crack arrest mark, and the presence of ratchet marks of this crescent-shaped region is consistent with the features of fatigue cracking from multiple origins. The remainder of the fracture face exhibited a coarse, grainy appearance, clear chevron markings originating adjacent to the fatigue crack, and a shear lip. All features were found consistent with overstress fracture. The paint on the underside of the spring had been worn away in the same region as the fracture, where the support wedges contact the surface of the spring. Corrosion damage is also present on the worn surfaces.

## Flight instructor Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	69, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Rear
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	February 12, 2010
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	August 9, 2010
<b>Flight Time:</b>	3516 hours (Total, all aircraft), 30 hours (Total, this make and model), 3049 hours (Pilot In Command, all aircraft), 83 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	27, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	October 29, 2009
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	August 16, 2010
<b>Flight Time:</b>	94 hours (Total, all aircraft), 3 hours (Total, this make and model), 32 hours (Pilot In Command, all aircraft), 22 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Champion	<b>Registration:</b>	N5101X
<b>Model/Series:</b>	7KCAB	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Aerobatic; Normal	<b>Serial Number:</b>	164
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	April 23, 2010 Annual	<b>Certified Max Gross Wt.:</b>	1650 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1722 Hrs as of last inspection	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-320 SERIES
<b>Registered Owner:</b>	FINDLEY, JOHN	<b>Rated Power:</b>	150 Horsepower
<b>Operator:</b>	Foothill Flying Club	<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>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	14°C / -10°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Cable Airport, CA (KCCB)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Rialto, CA (L67)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:30 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Rialto Municipal L67	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	1455 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	24	<b>IFR Approach:</b>	Unknown
<b>Runway Length/Width:</b>	4500 ft / 100 ft	<b>VFR Approach/Landing:</b>	Unknown

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<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>	2 None	<b>Latitude, Longitude:</b>	34.129165,-117.40139(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hogenson, Dennis
<b>Additional Participating Persons:</b>	Richard R Baudoux; FAA FSDO; Riverside, CA
<b>Original Publish Date:</b>	March 8, 2012
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=77883">https://data.ntsb.gov/Docket?ProjectID=77883</a>

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).