



Aviation Investigation Final Report

Location:	ELKO, Nevada	Accident Number:	LAX94LA276
Date & Time:	July 5, 1994, 12:03 Local	Registration:	N310BD
Aircraft:	CESSNA 310J	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

THE AIRCRAFT LANDED NORMALLY AND THE RIGHT MAIN LANDING GEAR COLLAPSED DURING THE ROLLOUT. EXAMINATION OF THE RIGHT MAIN LANDING GEAR REVEALED THAT THE BOLT THAT ATTACHES THE RIGHT HAND BELLCRANK TO THE LANDING GEAR STRUT WAS SHEARED IN TWO PLACES. THE BOLT SHEARED ON EITHER SIDE OF THE BELLCRANK AT THE POINT BETWEEN THE BELLCRANK AND THE STRUT CASTING. A SOLID PIN JOINS THE BELLCRANK TO THE SIDE BRACE LOCK LINK. THE LOCK LINK FITS BETWEEN THE TWO EARS OF THE BELLCRANK.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the collapse of the landing gear due to a gear strut bolt shearing in two.

Findings

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

Findings

1. (C) LANDING GEAR, MAIN GEAR STRUT - COLLAPSED
2. (C) MISCELLANEOUS, DOWEL/PIN - SHEARED

Factual Information

On July 5, 1994, at 1203 hours Pacific daylight time, a Cessna 310J, N310BD, lost control and veered off runway 23 after the right main landing gear collapsed at the Elko Municipal Airport, Elko, Nevada. The airplane was being operated by Copper State Air Service, Inc., Mesa, Arizona, as an on-demand air cargo flight under 14 CFR Part 135. The airplane sustained substantial damage. The certificated airline transport pilot was not injured. The flight originated in Lovelock, Nevada. Visual meteorological conditions prevailed at the time and a company VFR flight plan was filed.

The automated weather observation station at the Elko Municipal Airport was reporting the winds from 250 degrees at 25 knots gusting to 31 knots about 10 minutes before the accident.

Examination of the right main landing gear by an inspector from the Federal Aviation Administration (FAA) revealed that the bolt that attaches the right hand bellcrank to the landing gear strut was sheared in two places. The bolt sheared on either side of the bellcrank at the point between the bellcrank and the strut casting. A solid pin joins the bellcrank to the side brace lock link. The lock link fits between the two ears of the bellcrank. The pin appeared to be intact and looked as if it hadn't been removed for several years, or at least since that portion of the airplane was last painted.

Pilot Information

Certificate:	Airline transport; Commercial	Age:	32, 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 19, 1994
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	2315 hours (Total, all aircraft), 433 hours (Total, this make and model), 1589 hours (Pilot In Command, all aircraft), 229 hours (Last 90 days, all aircraft), 87 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	Registration:	N310BD
Model/Series:	310J 310J	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	310J013
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	September 30, 1993 Annual	Certified Max Gross Wt.:	5100 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	3854 Hrs	Engine Manufacturer:	CONTINENTAL
ELT:	Installed, not activated	Engine Model/Series:	IO-470U
Registered Owner:	W. TODD SCHAFER	Rated Power:	260 Horsepower
Operator:	COPPER STATE AIR SERVICE, INC.	Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	EHSA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	EKO ,5135 ft msl	Distance from Accident Site:	
Observation Time:	11:54 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 9500 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	25 knots / 31 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	220°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	27°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	LOVELOCK , NV (LOL)	Type of Flight Plan Filed:	Company VFR
Destination:	(EKO)	Type of Clearance:	None
Departure Time:	11:20 Local	Type of Airspace:	Class G

Airport Information

Airport:	ELKO MUNICIPAL EKO	Runway Surface Type:	Asphalt
Airport Elevation:	5135 ft msl	Runway Surface Condition:	Dry
Runway Used:	23	IFR Approach:	None
Runway Length/Width:	7211 ft / 150 ft	VFR Approach/Landing:	Full stop

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:	40.950683,-115.78955(est)

Administrative Information

Investigator In Charge (IIC):	Wilcox, Thomas
Additional Participating Persons:	DON NEWPORT; RENO , NV
Original Publish Date:	April 5, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=28791

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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](#).