Aviation Investigation Final Report

Location:	Stockton, California	**Accident Number:**	LAX07LA119
Date & Time:	April 1, 2007, 11:00 Local	**Registration:**	N3424Q
Aircraft:	Cessna 320E	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

While exiting the runway after landing, the right main landing gear collapsed, and the right wing struck the runway. The pilot reported that this was the first flight after an annual inspection in which the landing gear had been rigged. In addition, he had the failed components sent to a metallurgical laboratory. The owner submitted these findings to the Safety Board. The inspection report indicated that the right main landing gear had been rigged so that the gear tension terminated prematurely. This prevented the downlock link from reaching its full over center, locked position. This caused the side loads on the landing gear to be transmitted through other landing gear linkage components, instead of through the downlock link. The other components were not designed to carry those loads, and consequently failed in overload, resulting in the collapse of the landing gear while taxiing off the runway.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The landing gear collapsed during taxi as a result of incorrect rigging of the landing gear by other maintenance personnel that prevented the landing gear downlock from functioning as designed.

Findings

Occurrence #1: GEAR COLLAPSED
Phase of Operation: TAXI - FROM LANDING

Findings
1. (C) LANDING GEAR,GEAR LOCKING MECHANISM - IMPROPERLY SERVICED
2. (C) MAINTENANCE,ADJUSTMENT - IMPROPER - OTHER MAINTENANCE PERSONNEL

Factual Information

On April 1, 2007, at 1100 Pacific daylight time, a Cessna 320E, N3424Q, collapsed the right main landing gear while exiting runway 29L at Stockton Metropolitan Airport (SCK), Stockton, California. The pilot/owner operated the airplane under the provisions of 14 CFR Part 91 as a personal flight. The airplane sustained substantial damage. The pilot, the sole occupant, was not injured. Visual meteorological conditions prevailed for the local area flight that departed SCK about 1000. No flight plan had been filed.

According to the pilot, this was the first flight after an annual inspection. He had flown to Calaveras County-Maury Rasmussen Field Airport (CPU), San Andreas California, refueled, and then flew back to SCK. The pilot noted no mechanical problems with the airplane during the flight until he reached SCK. He stated that the landing and landing rollout were normal. While slowing down to exit the high speed taxiway, he engaged the left rudder to turn to the left, and the right main landing gear collapsed. The right wing struck the runway, and right propeller and right horizontal stabilizer were also damaged. The pilot reported that he exited onto the taxiway at 20 miles per hour (mph). He further reported that during the annual inspection the landing gear had been rerigged.

Reported winds at the time of the accident were variable at 3 knots.

TEST AND RESEARCH

According to a Federal Aviation Administration (FAA) inspector, the right main landing gear bellcrank (part number 0841225-10) strut attachment bolt (AN4-25A) sheared. This placed an increased load on the remaining main strut attachment clevis ears, which caused the ears to fail and the down lock link assembly to collapse. The FAA inspector stated that his inspection was not able to ascertain whether or not the landing gear had been rigged improperly.

The pilot had the landing gear independently inspected. According to the inspection report, the right side main landing gear fork bolt was deformed in an outward direction at the fork-to-bolt junction. The right main landing gear down indicator switch had been rigged to a point where it made contact at the "earliest possible moment during landing gear extension." The right main landing gear fork bolt had been adjusted to what appeared to be its full outboard limit. The right main landing gear outboard push pull tube rod ends had been adjusted to their shortest possible length. The right landing gear lock link end fitting and the right main landing gear bellcrank were sent to a metallurgical laboratory that reported that the components had failed in overload.

The aircraft logbook entry indicated that the annual inspection had been completed and returned to service in an airworthy condition on April 1, 2007. The entry stated in part that the

landing gear had been rigged in accordance with Cessna's service manual.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	55,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):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	July 1, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 1, 2006
Flight Time:	4046 hours (Total, all aircraft), 23 hours (Total, this make and model), 2959 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N3424Q
Model/Series:	320E	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	0024
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	April 1, 2007 Annual	**Certified Max Gross Wt.:**	5300 lbs
Time Since Last Inspection:	0.9 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	4128.4 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-B
Registered Owner:	Pechan Family Trust	**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:	SCK,33 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	10:55 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	21°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Andreas, CA (CPU)	**Type of Flight Plan Filed:**	None
Destination:	Stockton, CA (SCK)	**Type of Clearance:**	VFR
Departure Time:	10:45 Local	**Type of Airspace:**	

Airport Information

Airport:	STOCKTON METROPOLITAN SCK	**Runway Surface Type:**	Asphalt
Airport Elevation:		**Runway Surface Condition:**	Dry
Runway Used:	29L	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Traffic pattern

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:**	37.883335,-121.241668

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Timothy L Jarrard; Federal Aviation Administration; Oakland, CA
Original Publish Date:	June 30, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65532