Aviation Investigation Final Report

Location:	Belleville, Illinois	**Accident Number:**	CHI07LA056
Date & Time:	December 28, 2006, 16:12 Local	**Registration:**	N9284P
Aircraft:	Piper PA-24-260B	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that after takeoff he selected landing gear-up, but the corresponding position light did not illuminate. He checked the landing gear motor circuit breaker and found it tripped. The pilot was unable to get the landing gear to fully extend or retract during subsequent attempts. The destination airport control tower verified that the landing gear was not fully extended during a fly-by after the pilot had attempted an emergency landing gear extension. The pilot decided to retract the landing gear as much as possible and perform a wheels-up landing in a grass area adjacent to a runway. The airplane sustained substantial damage to a fuselage bulkhead during landing. Inspection of the airplane showed that the right main landing gear was partially extended with its wheel and lower strut assembly rotated in the wheelwell. The bolt that attached the upper and lower portions of the torque link assembly was sheared in half. The lower torque link was jammed against the wheelwell structure, which restricted the movement of the entire landing gear assembly. The bolt fracture features were consistent with shear overstress, as a result of torsion during the action of the torque link assembly. The bolt fracture face did not contain any evidence of fatigue cracking. The separated bolt sections were seized within the upper and lower torque links, as a result of surface corrosion.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the torque link bolt which resulted in the right main landing gear strut scissors separating and becoming jammed in the wheel well. Contributing to the accident was the seized torque link bolt due to surface corrosion.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: DESCENT

Findings
1. (F) MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - CORRODED
2. (F) MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - SEIZED
3. (C) MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - SHEARED
4. (C) LANDING GEAR,MAIN GEAR STRUT SCISSORS - SEPARATION
5. (C) LANDING GEAR,MAIN GEAR STRUT - JAMMED

Occurrence #2: WHEELS UP LANDING
Phase of Operation: LANDING

Findings
6. TERRAIN CONDITION - GRASS

Factual Information

On December 28, 2006, at 1612 central standard time, a Piper PA-24-260B (Comanche), piloted by a commercial pilot, was substantially damaged while landing at Scott AFB/MidAmerica Airport (BLV), Belleville, Illinois. Visual meteorological conditions prevailed at the time of the accident. The personal flight was operating under the provisions of 14 Code of Federal Regulations (CFR) Part 91 without a flight plan. The pilot and his two passengers were not injured. The flight originated from Piatt County Airport (2K0), Monticello, Illinois, at 1507.

The pilot reported that after takeoff he selected landing gear-up, but the corresponding position light did not illuminate. He checked the landing gear motor circuit breaker and found it tripped. He selected landing gear-down and reset the circuit breaker. The landing gear did not fully extend, as indicated by the position of the emergency extension handle and the position lights. The pilot again attempted to retract the landing gear, but it only retracted about 90-percent before the landing gear motor circuit breaker tripped. The pilot decided to continue to BLV where he planned to perform an emergency landing gear extension prior to landing.

As the airplane neared BLV, the pilot attempted to lower the landing gear without success using the normal extension procedure. He then proceeded with the emergency landing gear extension procedure. The pilot was unable to get the landing gear to fully extend or retract during subsequent attempts. The control tower verified that the landing gear was not fully extended during a fly-by. The pilot decided to retract the landing gear as much as possible and perform a wheels-up landing in the grass area adjacent to runway 14. The airplane sustained substantial damage to a fuselage bulkhead during landing.

Inspection of the airplane showed that the left main and nose landing gear were completely retracted into their respective wheelwells. The right main landing gear was partially extended with its wheel and lower strut assembly rotated in the wheelwell. The AN174-13 bolt (p/n 402-313) that attached the upper and lower portions of the torque link assembly (p/n 20735-03) was sheared in half. The lower torque link was jammed against the wheelwell structure, which restricted the movement of the entire landing gear assembly.

The torque link assembly and bolt were sent to the National Transportation Safety Board's Materials Laboratory in Washington, D.C., for further examination. The bolt fracture features were consistent with shear overstress, as a result of torsion during the action of the torque link assembly. The bolt fracture face did not contain any evidence of fatigue cracking. The separated bolt sections were seized within the upper and lower torque links, as a result of surface corrosion.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	39,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land; Multi-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Balloon; Glider; Gyroplane	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Glider; Gyroplane; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	January 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 1, 2005
Flight Time:	2128 hours (Total, all aircraft), 543 hours (Total, this make and model), 1856 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N9284P
Model/Series:	PA-24-260B	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-4784
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 1, 2006 Annual	**Certified Max Gross Wt.:**	3100 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	5228 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-540-C4D5D
Registered Owner:	On file	**Rated Power:**	260 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BLV,459 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:55 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Scattered / 25000 ft AGL	**Visibility**	7 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	8°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Monticello, IL (2K0)	**Type of Flight Plan Filed:**	None
Destination:	Belleville, IL (BLV)	**Type of Clearance:**	VFR flight following
Departure Time:	15:07 Local	**Type of Airspace:**	

Airport Information

Airport:	Scott AFB/Mid America Airport BLV	**Runway Surface Type:**	Grass/turf
Airport Elevation:	459 ft msl	**Runway Surface Condition:**	Dry
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing;Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	38.552776,-89.836112

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Norman Loftsgard; Federal Aviation Administration - St. Louis FSDO; St. Ann, MO
Original Publish Date:	February 28, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65208