Aviation Investigation Final Report

Location:	Reading, Pennsylvania	**Accident Number:**	NYC02LA158
Date & Time:	August 8, 2002, 19:23 Local	**Registration:**	N21PL
Aircraft:	Cessna R182	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

While entering the traffic pattern, the pilot attempted to lower the landing gear, but was unable to do so. He reset the popped landing gear motor circuit breaker, and attempted a manual gear extension. He performed a tower fly-by, and was advised that the nose landing gear was down, but the main landing gear were up. The pilot then made an approach to the runway, shut down the engine prior to touch-down, and landed "nose high." The nose landing gear remained extended until the airplane slid to a stop. Post-flight examination of the airplane revealed that a hydraulic fluid line had separated from its landing gear motor fitting. The line exhibited no evidence of mechanical damage. The diameter of the separated end was slightly larger than the fitting. The line was installed when the airplane was manufactured. The airplane had accumulated 2,100 hours of operation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Separation of a hydraulic line from its landing gear motor fitting.

Findings

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

Findings
1. (C) HYDRAULIC SYSTEM,LINE - SEPARATION

2. HYDRAULIC SYSTEM,MOTOR - INOPERATIVE
3. LANDING GEAR,MAIN GEAR - MALFUNCTION

Occurrence #2: NOSE GEAR COLLAPSED
Phase of Operation: LANDING

Factual Information

On August 8, 2002, at 1923 eastern daylight time, a Cessna R182, N21PL, was substantially damaged during landing at Reading Regional/Carl A. Spaatz Field (RDG), Reading, Pennsylvania. The certificated private pilot was not injured. Visual meteorological conditions prevailed at the time. No flight plan had been filed for the flight, from Reading to Saratoga County Airport (5B2), Saratoga Springs, New York. The personal flight was conducted under 14 CFR Part 91.

According to the pilot, after departing Reading, he climbed the airplane to 5,500 feet, and arranged for flight following. About 20 minutes into the flight, the pilot noted that the airplane's airspeed was 120 knots when it should have been 150 knots. The pilot checked that all gauges were "in the green." He then contacted air traffic control, and requested a return to Reading.

The pilot was advised to descend to 3,000 feet, and handed off to Reading Approach Control. He was subsequently advised to enter a right downwind to runway 36.

Upon entering the traffic pattern, the pilot attempted to lower the landing gear, but was unable to do so. He contacted the tower controller, and requested to hold southwest of the airport to attempt a manual gear extension. The pilot felt he could not extend the landing gear, despite resetting the gear motor circuit breaker. He asked the tower controller for a fly-by, to observe the landing gear.

When the fly-by occurred, the tower controller advised the pilot that the nose landing gear was down, but the main landing gear were up. The pilot then made an approach to runway 36, shut down the engine before ground contact, and landed "nose high." The nose landing gear remained extended as the airplane slid to a stop at the intersection of runway 31.

Post-flight examination of the airplane revealed that a hydraulic fluid line had separated from the landing gear motor. According to the pertinent Safety Board Materials Laboratory Factual Report, the line separated at one end, where it had pulled out of the end fitting. The braided nylon exterior was unraveled over the approximate portion of line that had been inserted into the end fitting. The line revealed no evidence of mechanical damage. The diameter of the separated end of the line averaged 0.488 inch, while the diameter of the fitting at the intact end of the line averaged 0.482 inch.

The hydraulic line was installed on the airplane during the airplane's manufacture. The airplane had accumulated 2,100 hours of operation.

Pilot Information

Certificate:	Private	**Age:**	53,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 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	July 18, 2002
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	May 31, 2002
Flight Time:	625 hours (Total, all aircraft), 100 hours (Total, this make and model), 25 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N21PL
Model/Series:	R182	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	R18201983
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	April 1, 2002 Annual	**Certified Max Gross Wt.:**	3100 lbs
Time Since Last Inspection:	30 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2100 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-540
Registered Owner:	Bronco Partners, Ltd.	**Rated Power:**	235 Horsepower
Operator:	John Dolbin	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	RDG,344 ft msl	**Distance from Accident Site:**	
Observation Time:	18:54 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	20°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.11 inches Hg	**Temperature/Dew Point:**	26°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Reading, PA (RDG)	**Type of Flight Plan Filed:**	None
Destination:	Saratoga Spring, NY (5B2)	**Type of Clearance:**	None
Departure Time:	18:15 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	Reading Regional/Carl A Spaatz RDG	**Runway Surface Type:**	Asphalt
Airport Elevation:	344 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	36	**IFR Approach:**	None
Runway Length/Width:	6350 ft / 150 ft	**VFR Approach/Landing:**	Full stop;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:**	40.378612,-75.965553

Administrative Information

Investigator In Charge (IIC):	Cox, Paul
Additional Participating Persons:	
Original Publish Date:	August 26, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=55432