Aviation Investigation Final Report

Location:	Newton, Kansas	**Accident Number:**	GAA15CA178
Date & Time:	July 4, 2015, 11:15 Local	**Registration:**	N7985P
Aircraft:	Piper PA 24-250	**Aircraft Damage:**	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

During a local instructional flight, the flight instructor reported that while on final approach at their destination airport, the landing gear did not illuminate down and locked. He reported that he tried to cycle the gear with the electric landing gear handle, but the down and locked green light would not illuminate. When the power was reduced to idle, the flight instructor reported that the audible gear unsafe horn sounded as well. The flight instructor performed a go-around, and the pilot receiving instruction reported that he began the manual gear extension checklist according to the "SureCheck" checklist.

During the manual gear extension procedure, both pilots reported that a "spring tension" prevented the emergency gear handle from extending to the full forward position. Subsequently, the flight instructor reported that he reset the motor release arm and attempted to extend the landing gear again with the electric gear handle, but the landing gear electric motor circuit breaker popped and the motor release arm jammed.

After receiving confirmation from ground personnel that the landing gear was only partially extended, the flight instructor performed an emergency landing. During touchdown, the landing gear collapsed and the airplane skidded to a stop on the runway. The fuselage was substantially damaged in the accident.

During a postaccident examination, a Federal Aviation Administration aviation safety inspector found that the right main landing gear down-lock micro switch was operating intermittently within the electrical actuating system. According to the inspector, an intermittent micro switch on this landing gear can result in gear unsafe warnings and continuous electrical motor operation. Additionally, the SureCheck checklist used did not include instructions provided in the Pilot's Operating Handbook stating, "Do not re-engage landing gear operating motor in flight." The SureCheck checklist does contain a warning stating "this product is not a substitute for any operation manual which coincides with each specific aircraft."

The flight instructor reported that he had two hours of flight time in this make and model airplane, and the pilot receiving instruction reported that he had no previous experience in this make and model airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the right main landing gear down-lock micro switch, which resulted in a landing gear collapse during landing, and the pilot/owner's unfamiliarity with the emergency landing gear extension procedure. Contributing to the accident was the flight instructor's lack of experience in this make and model airplane and unfamiliarity with the emergency landing gear extension procedure.

Findings

Aircraft	Gear extension and retract sys - Failure
Personnel issues	Use of equip/system - Pilot
Personnel issues	Total experience w/ equipment - Instructor/check pilot

Factual Information

History of Flight

Approach-VFR pattern final	Sys/Comp malf/fail (non-power) (Defining event)
Landing	Off-field or emergency landing
Landing	Landing gear collapse
Landing	Abnormal runway contact

Flight instructor Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	59
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	October 13, 2014
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 25, 2015
Flight Time:	(Estimated) 4800 hours (Total, all aircraft), 2 hours (Total, this make and model), 4150 hours (Pilot In Command, all aircraft), 9 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	57
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 16, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 10, 2010
Flight Time:	(Estimated) 170 hours (Total, all aircraft), 0 hours (Total, this make and model), 100 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N7985P
Model/Series:	PA 24-250 250	**Aircraft Category:**	Airplane
Year of Manufacture:	1962	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-3223
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 30, 2014 Annual	**Certified Max Gross Wt.:**	2900 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4443 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-540 SERIES
Registered Owner:	On file	**Rated Power:**	250 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:	KEWK,1533 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:55 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Few / 2700 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	26°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	AUGUSTA, KS (3AU)	**Type of Flight Plan Filed:**	None
Destination:	Newton, KS (EWK)	**Type of Clearance:**	None
Departure Time:	10:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	NEWTON-CITY-COUNTY EWK	**Runway Surface Type:**	Asphalt
Airport Elevation:	1533 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	17	**IFR Approach:**	None
Runway Length/Width:	7003 ft / 100 ft	**VFR Approach/Landing:**	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	38.055831,-97.27639(est)

Administrative Information

Investigator In Charge (IIC):	Gerhardt, Adam
Additional Participating Persons:	Daniel R Osborn; Wichita FSDO (FAA); Witchita, KS
Original Publish Date:	September 11, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=91552