



# Aviation Investigation Final Report

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<b>Location:</b>	Watertown, New York	<b>Accident Number:</b>	ERA17LA033
<b>Date &amp; Time:</b>	October 31, 2016, 16:20 Local	<b>Registration:</b>	N4657S
<b>Aircraft:</b>	Cessna TR182	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Landing gear collapse	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

Before landing at the conclusion of the personal flight, the commercial pilot extended the airplane's retractable landing gear and observed a green light indicating the landing gear were down. During landing, the right main landing gear collapsed, followed by the left main landing gear, and the airplane veered off the runway, which resulted in substantial damage to the fuselage, elevator, and right horizontal stabilizer. Postaccident examination of the airplane revealed that the landing gear circuit breaker was tripped and that the landing gear warning horn was not functional. Further examination of the landing gear system revealed intermittent sticking of the landing gear solenoid, which resulted in the power pack continuing to run for longer than necessary, which would subsequently trip the landing gear circuit breaker. Replacement of the solenoid corrected the issue. The examination did not reveal any other anomalies of the landing gear system. Given the pilot's report of observing a positive indication that the landing gear extended, as well as the anomalies of the landing gear system that were discovered during the postaccident examination, the method and sequence of the landing gear collapse could not be determined.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

A collapse of the main landing gear for reasons that could not be determined based on the available evidence.

## Findings

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**Not determined**

(general) - Unknown/Not determined

## Factual Information

### History of Flight

Landing	Landing gear collapse (Defining event)
Landing	Runway excursion

On October 31, 2016, about 1620 eastern daylight time, a Cessna TR182, N4657S, was substantially damaged when the main landing gear collapsed while landing at Watertown International Airport (ART), Watertown, New York. The commercial pilot was not injured. No flight plan was filed for the personal flight that originated at Massena International Airport (MSS), Massena, New York. Visual meteorological conditions prevailed for the personal flight conducted under 14 *Code of Federal Regulations* Part 91.

The pilot reported that, before landing, he observed a green light indicating that the landing gear were down. During landing, the right main landing gear collapsed, followed by the left main landing gear. The airplane veered off the left side of runway 28, resulting in substantial damage to the fuselage, elevator, and right horizontal stabilizer.

A review of the maintenance records revealed that both down lock switches on the main landing gear were replaced approximately 29 hours, about 5 months, before the accident. The aircraft was placed on jacks and the landing gear were tested, all checks were normal.

During a postaccident examination, the airplane was placed on jacks to facilitate inspection of the landing gear system. The landing gear was cycled normally several times, the emergency extension was also checked, and all operations were satisfactory. The landing gear warning horn was found to be inoperative due to a failure of the cabin speaker.

The circuit breaker for the electrically-driven hydraulic power pack was found popped after the accident. Further investigation revealed the landing gear solenoid would intermittently stick closed and the power pack motor would continue to run without shutting off, tripping the circuit breaker. Replacement of the solenoid corrected the problem.

The airplane was equipped with a Lycoming O-540 series, 235-horsepower engine. The airplane had been operated for about 61 hours since its most recent annual inspection, which was performed on November 17, 2015.

The pilot reported 2,490 hours of total flight experience, of which 63 hours were in the accident airplane make and model.

The weather conditions at ART reported at 1556, included wind variable at 5 knots; visibility 10 statute miles; sky condition, broken at 3,500 ft; temperature, 6° C; dew point, -2° C; and a barometric altimeter setting of 30.26 inHg.

## Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor; Private	<b>Age:</b>	71, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 None	<b>Last FAA Medical Exam:</b>	May 28, 2015
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	June 15, 2015
<b>Flight Time:</b>	2490.1 hours (Total, all aircraft), 63.2 hours (Total, this make and model), 2188 hours (Pilot In Command, all aircraft), 27.1 hours (Last 90 days, all aircraft), 16.1 hours (Last 30 days, all aircraft), 4.6 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N4657S
<b>Model/Series:</b>	TR182 NO SERIES	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1980	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	R18201369
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	November 17, 2015 Annual	<b>Certified Max Gross Wt.:</b>	3100 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1892.8 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-540
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	235 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KART,333 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	15:56 Local	<b>Direction from Accident Site:</b>	273°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 3500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	3 knots /	<b>Turbulence Type Forecast/Actual:</b>	/ None
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/ N/A
<b>Altimeter Setting:</b>	30.26 inches Hg	<b>Temperature/Dew Point:</b>	6°C / -2°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	MASSENA, NY (MSS )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Watertown, NY (ART )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	15:15 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	WATERTOWN INTL ART	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	327 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	28	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	5999 ft / 150 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	43.991943,-76.020553(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hill, Millicent
<b>Additional Participating Persons:</b>	Todd Moses; FAA/FSDO; Albany, NY
<b>Original Publish Date:</b>	April 20, 2020
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=94327">https://data.ntsb.gov/Docket?ProjectID=94327</a>

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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](#).