# Aviation Investigation Final Report

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| **Location:** | Brunswick, Georgia | **Accident Number:** | ERA16LA121 |
| **Date & Time:** | March 1, 2016, 15:43 Local | **Registration:** | N1982F |
| **Aircraft:** | Piper PA46 | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Landing gear collapse | **Injuries:** | 3 None |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The private pilot reported that, after a normal landing on the main landing gear in gusty quartering headwind conditions, the nose gear touched down and he heard a "pop," then he "started losing control of the airplane." The nose continued to drop past the normal landing attitude while the pilot applied back pressure to the yoke and focused his attention on stopping the airplane and maintaining directional control. The pilot added that there were no preimpact mechanical malfunctions with the airplane.

Examination of the nose landing gear revealed that the actuator was extended 6.8 inches, consistent with the nose gear being down and locked. This area of the nose gear assembly displayed gouging and missing material consistent with ground impact. The nose landing gear assembly was attached on the left side; however, the bolt was bent and the right side mounting point was fractured and separated from its attachment point, displaying fracture features consistent with overstress failure, which was likely the result of a hard landing.

## Probable Cause and Findings

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

A hard landing, which resulted in the collapse of the nose gear assembly due to an overstress fracture and separation of the right side mounting point.

## Findings

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| **Personnel issues** | Aircraft control - Pilot |
| **Aircraft** | Landing flare - Not attained/maintained |

# Factual Information

## History of Flight

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| **Landing-landing roll** | Landing gear collapse (Defining event) |
| **Landing-flare/touchdown** | Hard landing |

On March 1, 2016, at 1543 eastern standard time, a Piper PA-46-350P, N1982F, was substantially damaged after a nose gear collapse during landing rollout at McKinnon St. Simons Island Airport (SSI), Brunswick, Georgia. The private pilot and two passengers were not injured. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed for the personal flight operated under the provisions of Title 14 *Code of Federal Regulations* Part 91. The flight departed from Florida Keys Marathon Airport (MTH), Marathon, Florida, about 1330.

The pilot stated that during the first approach to runway 16 at SSI, he performed a go-around due to some conflicting traffic in the airport traffic pattern. During the second approach, he configured the airplane the same as the first approach, with the manifold pressure at 16 inches, landing gear extended, and flaps extended 36° on final approach while trying to maintain an airspeed of 85 to 90 knots. The automated surface observation system was reporting the wind varying between 140° and 190° at 10 knots; however, the pilot observed the wind sock and a flag at that airport and estimated the wind speed as stronger, gusting up to 15 knots. As the airplane approached the runway, the wind gusts appeared stronger and he had difficulty keeping the airplane level. Just prior to touchdown, the pilot felt left-quartering wind gusts, and as the airplane touched down on the main landing gear, the landing appeared to be normal. Then, as the nose gear touched down, he heard a "pop" and then started "losing control of the nose." The nose continued to drop and he applied aft pressure on the control wheel and attempted to maintain directional control until the airplane came to a stop. He then instructed the passengers to evacuate and he performed the emergency procedures for shutdown, then egressed the airplane. The pilot added that there were no preimpact mechanical malfunctions with the airplane and that to the best of his knowledge, the main landing gear remained on the ground after touchdown.

Examination of the airplane by a Federal Aviation Administration (FAA) inspector revealed that it had incurred substantial damage during the landing. The area of the nose landing gear bay exhibited crush damage with, the firewall was deformed, the wing leading edges were dented, and the fuselage displayed areas of compression buckling of the top and sides just forward of the windscreen. The nose landing gear assembly was attached on the left side, however the attaching bolt was bent and the right side mounting point was broken and separated from its attachment point. The nose landing gear actuator extended 6.8 inches, which according to the airframe manufacturer, was consistent with extension to the down and locked position. This area of the nose gear assembly displayed gouging and missing material consistent with ground impact. One of the composite propeller blades had separated near the root, and the other two blades exhibited damage at the tips, as well as scraping along the leading edges.

Examination of runway 16 revealed scrape marks consistent with propeller strikes along the centerline, about 800 feet from the threshold. There were 15 scrapes in a row, each about 12 inches long, oriented perpendicular to the runway. The row was about 15 feet long. About 2,000 feet down the runway and 20

feet to the right of the centerline, similar propeller scrapes were observed followed by longitudinal scars about 20 feet long, consistent with the color of the cowling in the nose gear area. No marks were observed for the next 150 feet, where the longitudinal scrapes resumed at the runway's right edge and continued another 250 feet to where the airplane came to rest on the paved area along the right side of the runway.

According to FAA and maintenance records, the airplane was manufactured in 2012. The airplane's most recent 100 hour inspection was completed on October 14, 2015. At the time of the inspection, the airplane had accumulated 569 total hours of flight time.

The recorded wind at SSI, at 1553, was from 150° at 9 knots.

## Pilot Information

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| **Certificate:** | Private | **Age:** | 70,Male |
| **Airplane Rating(s):** | Single-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | 3-point |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 3 With waivers/limitations | **Last FAA Medical Exam:** | June 12, 2015 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | February 9, 2016 |
| **Flight Time:** | 4544 hours (Total, all aircraft), 255 hours (Total, this make and model), 4436 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Piper | **Registration:** | N1982F |
| **Model/Series:** | PA46 350P | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | 2012 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 4636556 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 6 |
| **Date/Type of Last Inspection:** | October 14, 2015 100 hour | **Certified Max Gross Wt.:** | 4299 lbs |
| **Time Since Last Inspection:** | 42 Hrs | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 568.8 Hrs as of last inspection | **Engine Manufacturer:** | LYCOMING |
| **ELT:** | C126 installed, not activated | **Engine Model/Series:** | TIO-540-AE2A |
| **Registered Owner:** | VALAQSUR LLC | **Rated Power:** | 350 Horsepower |
| **Operator:** | VALAQSUR LLC | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | SSI,24 ft msl | **Distance from Accident Site:** | 0 Nautical Miles |
| **Observation Time:** | 15:53 Local | **Direction from Accident Site:** | 16° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 9 knots / None | **Turbulence Type Forecast/Actual:** | None / None |
| **Wind Direction:** | 150° | **Turbulence Severity Forecast/Actual:** | N/A / N/A |
| **Altimeter Setting:** | 30.02 inches Hg | **Temperature/Dew Point:** | 19°C / 14°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | MARATHON, FL (MTH ) | **Type of Flight Plan Filed:** | IFR |
| **Destination:** | Brunswick, GA (SSI ) | **Type of Clearance:** | IFR |
| **Departure Time:** | 13:30 Local | **Type of Airspace:** | |

## Airport Information

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| **Airport:** | MCKINNON ST SIMONS ISLAND SSI | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 18 ft msl | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 16 | **IFR Approach:** | None |
| **Runway Length/Width:** | 3313 ft / 75 ft | **VFR Approach/Landing:** | Full stop;Traffic pattern |

## Wreckage and Impact Information

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| **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:** | 31.151666,-81.391113(est) |

## Administrative Information

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| **Investigator In Charge (IIC):** | Brazy, Douglass |
| **Additional Participating Persons:** | Steven L Davidson; FAA/FSDO ; Atlanta, GA<br>Robert Martellotti; Piper Aircraft Inc; Vero Beach , FL |
| **Original Publish Date:** | November 15, 2018 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | The NTSB did not travel to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=92798 |