# Aviation Investigation Final Report

| | | | |
|---|---|---|---|
| **Location:** | Bismarck, North Dakota | **Accident Number:** | CEN23LA103 |
| **Date & Time:** | February 6, 2023, 15:45 Local | **Registration:** | N425Z |
| **Aircraft:** | Cessna 425 | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Loss of control on ground | **Injuries:** | 2 Minor, 1 None |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The pilot taxied to the ramp after an uneventful flight. After moving the throttles toward the ground idle position while in front of the marshaller, the airplane turned left, and the pilot observed that the right brake was inoperative. He attempted to stop the airplane by placing both propeller levers to the feather position and subsequently moved both throttles toward the reverse (beta) position. The airplane continued forward and struck a hangar, which resulted in substantial damaged to the left wing.

Postaccident examination of the braking system revealed the brake master cylinders were nearly empty of brake fluid, with no leaks observed. The pilot, who was also a mechanic, recorded completion of a phase inspection about nine months before the accident. The inspection included servicing the brake master cylinders, but the pilot reported he did not check the fluid levels of the master cylinders.

## Probable Cause and Findings

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

A loss of braking due to inadequate servicing of brake fluid by the pilot/mechanic, which resulted in a loss of airplane control on the ground.

## Findings

| | |
|---|---|
| **Aircraft** | Landing gear brakes system - Incorrect service/maintenance |
| **Aircraft** | (general) - Fluid level |
| **Personnel issues** | Scheduled/routine maintenance - Maintenance personnel |
| **Personnel issues** | Incorrect action selection - Pilot |
| **Environmental issues** | Residence/building - Effect on equipment |

## Factual Information

### History of Flight

| | |
|---|---|
| **Taxi** | Sys/Comp malf/fail (non-power) |
| **Taxi** | Loss of control on ground (Defining event) |
| **Taxi** | Collision with terr/obj (non-CFIT) |

On February 6, 2023, about 1545 central standard time, a Cessna 425, N425Z, was substantially damaged when it was involved in an accident at Bismarck Municipal Airport (BIS), Bismarck, North Dakota. The pilot was not injured and the two passengers sustained minor injuries. The airplane was operated as a Title 14 Code of *Federal Regulations* Part 91 personal flight.

The pilot reported an uneventful flight and landing at BIS. After taxiing to the ramp, the pilot proceeded to stop the airplane in front of a marshaller. After moving the throttles toward the ground idle position, the pilot observed the airplane turn left and reported that the right brake was inoperative.

The pilot reported moving both propeller levers to the feather position and subsequently moved both throttles toward the reverse (beta) position. The airplane continued forward and struck a hangar, which substantially damaged the left wing.

Postaccident examination of the braking system revealed the brake master cylinders were nearly empty of brake fluid, with no leaks observed. A review of maintenance logs revealed that the pilot, who was also a mechanic, recorded completion of the Phase 3 inspection of the Cessna 425 maintenance manual on May 21, 2022. The Phase 3 inspection includes servicing the brake master cylinders.

The pilot/mechanic reported that during this inspection he checked the brake pads and checked for leaks around the brakes and the master cylinders. He depressed the brake pedals to find there was resistance; however, he reported that he did not check the fluid levels of the master cylinders during the inspection.

## Pilot Information

| | | | |
|---|---|---|---|
| **Certificate:** | Airline transport | **Age:** | 63,Male |
| **Airplane Rating(s):** | Single-engine land; Single-engine sea; Multi-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):** | Airplane multi-engine; Airplane single-engine; Instrument airplane | **Toxicology Performed:** | |
| **Medical Certification:** | Class 2 With waivers/limitations | **Last FAA Medical Exam:** | August 31, 2021 |
| **Occupational Pilot:** | Yes | **Last Flight Review or Equivalent:** | June 10, 2022 |
| **Flight Time:** | 6740 hours (Total, all aircraft), 272 hours (Total, this make and model), 6357 hours (Pilot In Command, all aircraft), 56 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft) | | |

## Aircraft and Owner/Operator Information

| | | | |
|---|---|---|---|
| **Aircraft Make:** | Cessna | **Registration:** | N425Z |
| **Model/Series:** | 425 | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | 1983 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 425-0186 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 8 |
| **Date/Type of Last Inspection:** | May 25, 2022 Continuous airworthiness | **Certified Max Gross Wt.:** | 8600 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 2 Turbo prop |
| **Airframe Total Time:** | 2728 Hrs as of last inspection | **Engine Manufacturer:** | Pratt & Whitney |
| **ELT:** | Installed, not activated | **Engine Model/Series:** | PT6-112 |
| **Registered Owner:** | PEGASUS ROYALTY GROUP LLC | **Rated Power:** | 450 Horsepower |
| **Operator:** | PEGASUS ROYALTY GROUP LLC | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

| | | | |
|---|---|---|---|
| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | KBIS,1651 ft msl | **Distance from Accident Site:** | 1 Nautical Miles |
| **Observation Time:** | 15:52 Local | **Direction from Accident Site:** | 318° |
| **Lowest Cloud Condition:** | | **Visibility** | 10 miles |
| **Lowest Ceiling:** | Overcast / 8000 ft AGL | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 18 knots / 30 knots | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 310° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29.67 inches Hg | **Temperature/Dew Point:** | 3°C / -2°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Chandler, AZ (CHD) | **Type of Flight Plan Filed:** | IFR |
| **Destination:** | Bismark, ND (BIS) | **Type of Clearance:** | None |
| **Departure Time:** | 10:51 Local | **Type of Airspace:** | Class D |

## Airport Information

| | | | |
|---|---|---|---|
| **Airport:** | Bismarck Municipal Airport KBIS | **Runway Surface Type:** | Concrete |
| **Airport Elevation:** | 1661 ft msl | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 31 | **IFR Approach:** | None |
| **Runway Length/Width:** | 8794 ft / 150 ft | **VFR Approach/Landing:** | None |

## Wreckage and Impact Information

| | | | |
|---|---|---|---|
| **Crew Injuries:** | 1 None | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | 2 Minor | **Aircraft Fire:** | None |
| **Ground Injuries:** | | **Aircraft Explosion:** | None |
| **Total Injuries:** | 2 Minor, 1 None | **Latitude, Longitude:** | 46.772734,-100.74573(est) |

## Administrative Information

| | |
|---|---|
| **Investigator In Charge (IIC):** | Folkerts, Michael |
| **Additional Participating Persons:** | Michael Linden; FAA, Flight Standards District Office; Fargo, ND |
| **Original Publish Date:** | May 2, 2024 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class 3 |
| **Note:** | The NTSB did not travel to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=106701 |