

AVIATION OCCURRENCE REPORT

NOSEWHEEL FAILURE ON LANDING

**RÉGIONAIR INC.
DHC-6-200 (TWIN OTTER) C-FJCL
TÊTE-À-LA-BALEINE, QUEBEC
12 DECEMBER 1994**

REPORT NUMBER A94Q0225

The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

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Summary

The Régionair Inc. Twin Otter was on a visual flight from Chevery, Quebec, to Tête-à-la-Baleine, Quebec. On landing, with the co-pilot flying, the aircraft touched down on the runway and bounced. After the second touchdown, the nosewheel failed and the aircraft veered to the left and came to rest off the runway. The crew and passengers were not injured.

Ce rapport est également disponible en français.

Factual Information

The active runway is oriented 360 degrees magnetic. Its length is 1,320 feet, and its usable width, 65 feet. The even runway surface of hard-packed sandy soil was frozen. There were no holes or irregularities on the runway surface.

Local meteorological conditions were favourable for the flight. The winds in the area surrounding the airport were reported to be from about 300 degrees magnetic and blowing in strong gusts.

The aircraft touched down at about 60 knots with flaps down at 37.5 degrees. After initial contact with the runway, the aircraft bounced about 160 feet.

Examination of the nosewheel indicated no anomalies in its installation. Visual examination of the nosewheel parts indicates that the piston failed in the threaded section where it attaches to the fork.

Examination by the TSB Engineering Branch Laboratory revealed that the nosewheel piston was manufactured in accordance with the manufacturer's specifications. No initiating fatigue was observed. It was established that the piston fracture was due entirely to overloading from the right side, which forced the nosewheel to bend to the left on landing.

Analysis

Meteorological conditions indicate that the wind was gusting from the left side of the runway. On landing, the aircraft touched down hard, undoubtedly with some crab, and bounced a considerable distance before touching down a second time, causing the nosewheel to fail.

The nosewheel failed in overload as a result of lateral forces originating from the right side, and the crew was unable to maintain directional control of the aircraft.

The following laboratory report was completed:
LP 07/95 - Nose Landing-Gear Fork Analysis.

Findings

1. There were strong gusts of wind at the time of the occurrence.
2. The wind was blowing across the runway at a 60-degree angle.
3. The aircraft bounced on initial contact with the frozen surface of the short runway.
4. The nosewheel piston failed in overload from right to left.

Causes and Contributing Factors

On landing, the nosewheel failed in overload as a result of forces applied to the fork from the right side. Strong cross-winds were a contributing factor in this accident.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Zita Brunet and Hugh MacNeil, authorized the release of this report on 05 July 1995.