

INCIDENT

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|----------------------------------------|---------------------------------------------------------------------------------------------|-------------------|
| Aircraft Type and Registration: | Piper PA-34-200 Seneca, G-AZOT | |
| No & Type of Engines: | 2 Lycoming IO-360-C1E6 piston engines | |
| Year of Manufacture: | 1971 | |
| Date & Time (UTC): | 15 April 2011 at 1111 hrs | |
| Location: | Glenswinton, near Castle Douglas, Dumfries and Galloway | |
| Type of Flight: | Private | |
| Persons on Board: | Crew - 1 | Passengers - 1 |
| Injuries: | Crew - None | Passengers - None |
| Nature of Damage: | Damage to left wingtip, rear spar, propeller, engine and left landing gear | |
| Commander's Licence: | Airline Transport Pilot's Licence | |
| Commander's Age: | 44 years | |
| Commander's Flying Experience: | 2,060 hours (of which 71 were on type) Last 90 days - 36 hours Last 28 days - 6 hours | |
| Information Source: | Aircraft Accident Report Form submitted by the pilot | |

Synopsis

The aircraft was landing on Runway 03 at Glenswinton, which is 380 m long and has a compacted gravel surface. When the brakes were applied the aircraft drifted to the left of the centreline and, towards the end of the runway and at low speed, it struck a tree. The aircraft's braking performance was probably degraded due to the poor condition of the right brake unit and the compacted gravel runway surface may have been a less effective surface for braking than a conventional paved surface.

History of the flight

The pilot was landing on Runway 03 at Glenswinton. He retracted the flaps and applied the brakes after touchdown, which was on the runway centreline. The right brake felt

light, causing the pilot to suspect that it had failed. He then applied increased pressure to the left brake pedal, applied full right rudder and pumped the right brake. The right brake seemed to become more effective as the aircraft slowed but the pilot was unable to prevent the aircraft from drifting to the left of the centreline and departing the left side of the runway. When the aircraft was approximately 70 m from the end of the runway and travelling at slow speed, its left wingtip struck a tree and the left propeller contacted the ground.

Subsequent inspection revealed evidence of corrosion and only partial friction surface contact on the right brake disc.

Airfield information

Glenswinton is a private airstrip near Castle Douglas. The runway is 380 m long, with a compacted gravel surface and has a 5% upslope in the 03 direction.

Aircraft performance

The pilot estimated the landing distance required to be 366 m using the Normal performance chart, taking into account the temperature, landing weight and using zero wind (the wind at the time was light and variable) and a 2% upslope (the maximum on the chart). The short field performance chart was not available to him, although he was using a short field technique. The lack of any obstacles on the approach path allowed him to touch down close to the threshold which he felt acted in his favour.

Discussion

The pilot's estimate for the landing distance required of 366 m, based on the Normal performance chart, was only marginally less than the runway length of

380 m. He considered that the use of the short field landing technique, in combination with the favourable 5% upslope, would significantly reduce the landing distance required. However, the aircraft's braking performance was probably degraded due to the poor condition of the right brake and the compacted gravel runway surface may have been a less effective surface for braking than a conventional paved surface. Aircraft performance charts are produced using data from the flight testing of aircraft that are typically new and are being operated in ideal conditions.

The CAA recommend in, Safety Sense Leaflet 7 'Aircraft Performance', that the Public Transport factor of 1.43 is applied to the landing distance required for all flights. Also noted in the 'General Points' in the leaflet is:

'Any benefit arising from an upslope on landing or a downslope on take-off will be minor and should be regarded as a bonus.'