

SERIOUS INCIDENT

Aircraft Type and Registration:	Piper PA-28-161, G-BJCA	
No & Type of Engines:	1 Lycoming O-320-D3G piston engine	
Year of Manufacture:	1979 (Serial no: 28-7916473)	
Date & Time (UTC):	10 July 2020 at 1320 hrs	
Location:	Shoreham Airport, West Sussex	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	None	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	62 years	
Commander's Flying Experience:	453 hours (of which 134 were on type) Last 90 days - 0 hours Last 28 days - 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Following an approach in crosswind conditions, the aircraft landed nosewheel first and at a faster than normal touchdown speed. Thereafter, the aircraft nose swung left and the aircraft departed the paved runway onto the adjacent grass. The pilot initiated a go-around and returned for a normal approach and landing.

History of the flight

The flight was described by the pilot as a "de-rusting flight" following the easing of public health restrictions, which had prevented him flying for four months. After two hours of general handling in the local area, the aircraft returned to Shoreham Airport with the intention to land on Runway 02. The wind was forecast to be from 330° at 11 kt and the reported wind at the time of the incident was from 300° at 11 kt. The pilot recalled some turbulence associated with thermals on approach.

The aircraft landed further along the runway than normal and to the left of the runway centreline. The nosewheel touched down before the main wheels in what the pilot described as a "poor landing". He reported poor controllability on the ground and after a ground run of six seconds the aircraft nose swung to the left.

The aircraft then departed the asphalt runway onto the adjacent grass surface which the pilot referred to as "recently mown and well maintained". He immediately applied full power

and the aircraft became airborne after three seconds. The subsequent approach and landing were uneventful. The aircraft did not sustain any damage.

The pilot stated that with hindsight, he should have “factored in the rust and gone around” off his first approach. He also commented that he could have delayed the ‘de-rusting’ flight to a day with more favourable wind conditions.

Aircraft performance

In the performance section of the POH, the landing distance graph specifies a touchdown airspeed of 39 kt for the declared landing weight. The pilot did not recall higher than normal speed during the approach. However, analysis of video footage indicates that the aircraft’s airspeed was in the region of 64 kt as it crossed the runway threshold.

Nosewheel landing

The FAA ‘*Airplane Flying Handbook*’ (Chapter 8)¹ states:

‘After touchdown, avoid the tendency to apply forward pressure on the yoke, as this may result in wheel barrowing and possible loss of control.’

And:

‘When a pilot permits the airplane weight to become concentrated about the nose wheel during the takeoff or landing roll, a condition known as wheel barrowing occurs. Wheel barrowing may cause loss of directional control during the landing roll because... the airplane tends to swerve or pivot on the nose wheel, particularly in crosswind conditions. One of the most common causes of wheel barrowing during the landing roll is a simultaneous touchdown of the main and nose wheel with excessive speed, followed by application of forward pressure on the elevator control. Usually, the situation can be corrected by smoothly applying back-elevator pressure.’

It adds:

‘In nose-wheel airplanes, a ground loop is almost always a result of wheel barrowing. A pilot must be aware that even though the nose-wheel type airplane is less prone than the tailwheel-type airplane, virtually every type of airplane, including large multi-engine airplanes, can be made to ground loop when sufficiently mishandled.’

Footnote

¹ https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/airplane_handbook/media/10_afh_ch8.pdf [accessed January 2021]

Conclusion

The landing exhibited the characteristics of 'wheel barrowing' as described in the FAA's *'Airplane Flying Handbook'*. It is likely that excess speed on final approach led to nosedown pitch inputs by the pilot and caused the nosewheel to touch down before the main wheels. The additional effect of the crosswind on a directionally unstable aircraft, without a correcting input, led to the runway excursion. The short time the aircraft spent on the grass before becoming airborne indicates that it remained close to flying speed during the rollout.