

ACCIDENT

Aircraft Type and Registration:	Jodel DR1050-M1 Sicile Record, G-CIYB	
No & Type of Engines:	1 Continental Motors Corp O-200-A piston engine	
Year of Manufacture:	1965 (Serial no: 605)	
Date & Time (UTC):	8 June 2018 at 1045 hrs	
Location:	Private airstrip, Gilford, County Down	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damaged beyond economic repair	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	62 years	
Commander's Flying Experience:	546 hours (of which 424 were on type) Last 90 days - 4 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot lost control of the aircraft when it struck a hedge while approaching to land on a short runway at his private airstrip. The aircraft struck the ground and incurred extensive damage. Following this accident, the pilot intends to remove the hedge from the runway undershoot and hopes to increase the length of the airstrip.

History of the flight

The pilot approached Runway 36 at his private airstrip, having estimated the wind strength as 5 kt, from a variable direction. No turbulence was apparent during the approach but, as the aircraft neared the boundary hedge, it suddenly encountered sinking air and the pilot was unable to prevent the left main landing gear from striking the hedge. He lost control and the aircraft struck the ground and travelled along the runway for a few metres. When the aircraft came to rest it had rotated left through approximately 180°, the landing gear had collapsed, the left wing had detached and the right wing and forward fuselage were extensively damaged (Figure 1). The occupants used the normal access doors to vacate the aircraft without assistance.



Figure 1

The aircraft was pointing back towards the threshold of Runway 36 when it came to rest. The uphill slope of the runway is apparent in the background

Pilot's comments

The pilot stated that, prior to the accident, he had successfully operated from this 275 m grass strip for more than 20 years. Because the runway slopes down from the northern end of the airstrip¹ he always took off downhill and landed uphill, and that he avoided flying from there if there was any component of tailwind. By restricting his payload, he was confident that his ground roll did not exceed 150 m, during both takeoff and landing. However, he did not refer to the takeoff and landing data provided in the aircraft manual, because he believed the propeller fitted to his aircraft offered better performance than the propellers detailed in the manual.

Prior to operating from the airstrip, the pilot had measured the ground roll his aircraft required while taking off and landing at another airfield. He did not consider the distance required to clear a 50 ft obstacle after takeoff or before landing and he did not apply safety factors to the ground roll distances which he had estimated.

Performance calculations

The UK Aeronautical Information Circular (AIC) relating to '*Take-off, Climb and Landing Performance of Light Aeroplanes*'², states:

'Obstacles – it is essential to be aware of any obstacles likely to impede either the take-off or landing flight path and to ensure there is adequate performance available to clear them by a safe margin.'

Footnote

¹ Estimates made using Google Earth data indicates the airstrip slopes down approximately 2.6°, from the highest elevation of 64 m, close to the threshold of Runway 18, to 52 m, close to the threshold of Runway 36.

² The UK Aeronautical Information Circular titled '*Take-off, Climb and Landing Performance of Light Aeroplanes*', AIC 127/2006, is available at www.ais.org.uk (accessed September 2018).

And also:

'The pilot should always ensure that after applying all the relevant factors including the safety factor the landing distance required from a height of 50 ft (LDR) does not exceed landing distance available.'

The safety factors recommended in the AIC, and also by the Civil Aviation Authority (CAA)³ are 1.43 for landing calculations and 1.33 for takeoff calculations. Therefore, prior to landing, pilots are expected to ascertain the landing distance required from 50 ft, multiply this by 1.43 and ensure that the available landing distance is no less than the calculated figure.

The aircraft manual held by the pilot did not include performance data for the landing distance required from 50 ft but it did have tables for the distance required to clear a 50 ft obstacle during takeoff. At the reduced weight quoted by the pilot for his takeoffs, the manual indicated an unfactored takeoff distance required of 348 m (at 15°C), with 70% of this distance (244 m) relating to the ground roll. The AIC does not specify any reduction factor for downhill takeoffs (or for uphill landings), but multiplying the figures from the manual by the recommended safety factor suggests that a distance of 462 m should be allowed to clear a 50 ft obstacle, with the ground roll accounting for 324 m of this.

Light Aircraft Association (LAA) comment

This aircraft was operating on a Permit to Fly administered by the LAA and the propeller replacement had been appropriately authorised. The LAA notes that, aside from some individual cases, it treats each aircraft as individual, rather than as one of a type, and has no requirement for a 'certified' Pilot's Operating Handbook, containing performance data compiled by the manufacturer. However Permit to Fly aircraft must be operated in accordance with an Operating Limitations document, which forms part of each individual aircraft's Permit to Fly documentation.

Establishing aircraft performance figures is a lengthy process, which tends to require specialist knowledge, and no formal testing of this aircraft had taken place to establish new data after the propeller had been replaced, so the data in the aircraft manual held by the pilot was still applicable.

The LAA recommends that before pilots operate from an airstrip, they ensure they are conversant with the CAA's Safety Sense Leaflet 12 '*Strip Flying*'⁴. Currently, the LAA is reviewing the training support it offers its members in regard to flight training as well as technical matters, such as pilot maintenance and engineering management. It believes that its members have an increasing need for this support.

Footnote

³ The CAA Safety Sense Leaflet 7C '*Aeroplane Performance*' provides detailed guidance on takeoff and landing performance to pilots of light aircraft and is available at <http://www.caa.co.uk/safetysense> (accessed September 2018).

⁴ The CAA's Safety Sense Leaflet 12 '*Strip Flying*' is available at <http://www.caa.co.uk/safetysense> (accessed September 2018).

Safety action

The pilot intends to remove the hedge along the airstrip's southern boundary and will only operate a similar aircraft from here if he succeeds in lengthening the runway.