

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-181 Cherokee Archer, G-LACD	
No & Type of Engines:	1 Lycoming O-360-A4M piston engine	
Category:	1.3	
Year of Manufacture:	1998	
Date & Time (UTC):	19 October 2005 at 0922 hrs	
Location:	Barton Aerodrome, Manchester	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Port wing leading edge and wing tip damage	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	37 years	
Commander's Flying Experience:	431 hours (of which 99 were on type) Last 90 days - 81 hours Last 28 days - 46 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

History of the flight

The aircraft was being flown on a training detail during which the student pilot was to practise glide approaches. Runway 09 Left was in use, with a reported surface wind from 170° at 7 kt. The runway had a grass surface and was 518 m in length. There had been recent rain and the instructor reported that the grass was wet. G-LACD was initially behind another aircraft in the circuit, but the pilot of the leading aircraft called that he would extend his downwind leg to enable the crew of G-LACD to fly their glide approach.

Whilst on finals for the glide approach, which was intended to be to a 'full stop' landing, the student pilot

deployed full flap but commented to the effect that the aircraft was too high. The instructor suggested that the student used sideslip to increase the descent rate, a technique which the student had practised previously. Although the student did this, the aircraft was still higher than normal when it crossed the runway threshold, and appeared to personnel in the visual control room to be faster than was normal. The student pilot was allowed to continue with the landing and initiated a flare, but the aircraft had still not touched down by the time it was about half way down the runway. At this point, the instructor considered ordering the student pilot to 'go around' but thought that the aircraft may not be able

to clear trees and buildings in the climb out path. His thoughts were influenced by the knowledge that this particular aircraft tended to experience a slight lag in engine response when selecting full power from idle, a situation he thought was caused by an over-rich mixture setting. The instructor therefore considered that the best course of action was to allow the student to continue the landing and then to brake hard.

After touchdown, both the instructor and his student commenced hard braking. It was apparent that the aircraft was heading for the hedge at the airfield boundary, so the instructor turned the aircraft to the right. As he did so, the instructor felt that the wheels had locked up. The aircraft struck the boundary hedge with the left wing, causing it to yaw to the left and come to rest with the aircraft nose in the hedge. The aircraft suffered damage to its left wing leading edge and tip, which occurred when it struck the hedge. The aerodrome fire service was immediately alerted and attended the scene. The two occupants were uninjured and able to vacate the aircraft normally.

Aircraft performance

Performance calculations based on the reported configuration, weight and zero headwind component show that the aircraft's actual ground roll on a paved, dry runway, with a 'full stall' touchdown and maximum braking would have been 256 m. A grass runway increases this distance by a factor of some 20%, and wet grass by a factor of 30% or, for short grass, by as much as 60%. Therefore the actual landing roll would have been between about 330 to 410 m, depending upon the grass length.

Discussion

The accident resulted from an un-stabilised approach which appears to have been outside of normal parameters and the lack of timely intervention by the instructor to initiate a go-around. The aircraft was evidently high from a relatively early stage of the approach. The aircraft ahead of G-LACD called that he would extend his down wind leg to enable the crew to fly their glide circuit. Understandably, the instructor would therefore have wished to be fairly expeditious in his approach in order not to further delay the aircraft giving way, and this may have contributed to the aircraft's excess height on finals. It is not clear why the instructor did not order the go-around at an earlier stage. He would have been expected to have a good appreciation of the aircraft's landing performance and the fact that the landing ground roll would be increased significantly by the wet grass. Additionally, there was clearly no headwind component, and possibly even a slight tailwind component. The runway grass would have been kept short, and so it is likely that the aircraft would have required the majority of the available length to stop, even if it had landed on the threshold in a 'full stall' condition.

The decision as to when to take control from a student, or to order an alternative course of action is not an easy one for an instructor. On many occasions, a student will gain the most value from being left to recognise and correct his own errors. However, as this accident shows, an instructor cannot afford to allow safety margins to be compromised for training value. Airmanship and airborne decision making are skills that the student pilot also needs to learn, and being allowed to continue with a poor approach to the extent that safety is compromised will do nothing to develop or enhance them.