ACCIDENT

Aircraft Type and Registration:	Piper PA-28R-200-2 Cherokee Arrow II, G-BCGS
No & type of Engines:	1 Lycoming IO-360-C1C piston engine
Year of Manufacture:	1972
Date & Time (UTC):	19 August 2006 at 1515 hrs
Location:	Little Gransden Airfield, Cambridgeshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 2
Injuries:	Crew - None Passengers - None
Nature of Damage:	Damage to right main landing gear, right wing and right stabilator
Commander's Licence:	Private Pilot's Licence
Commander's Age:	54 years
Commander's Flying Experience:	455 hours (of which 202 were on type) Last 90 days - 7 hours Last 28 days - 2 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The aircraft was landing after a one hour flight from an airfield in Dorset. The pilot decided to approach at a faster speed than normal and land with an intermediate flap setting because of a turbulent crosswind. However, he was unaware that the grass runway was very wet following recent heavy showers of rain. The aircraft landed about one third of the way down the runway and ran off the end.

History of the flight

The aircraft was preparing to land at its normal base following an uneventful flight from Compton Abbas, Dorset. The aircraft joined the circuit and, from the windsock, the pilot estimated that the surface wind was from 200º at 10 kt, which favoured a landing on the grass Runway 28. However, he was unable to obtain other weather and airfield information because the airfield radio was unattended, which was not unusual when there was no flying training taking place. In particular, he was unaware that there had recently been heavy showers of rain at the airfield and that this had left the grass surface very wet. The pilot stated that he had obtained a Terminal Area Forecast (TAF) for Cambridge Aerodrome before the flight, which had predicted showers of rain, but on arrival overhead the airfield there was broken cloud and it did not appear that there had been any recent rain.

On final approach the pilot decided that he would land

with two stages of flap, rather than full flap, and maintain a slightly higher airspeed than normal to give him greater control in the turbulent crosswind. He reported that the airspeed and intermediate flap setting 'encouraged' the aircraft to float and that it touched down on the runway centre line about one third of the way down the runway at 85 mph, about 15 mph faster than normal. Application of the toe brakes had little or no effect and the aircraft skidded on the wet surface. The pilot then applied the parking brake in short bursts, with some success, but soon realised that he would not be able to stop the aircraft within the remaining runway distance. He decided not to initiate a go-around, because of the aircraft's low speed, and started a gentle turn to the left to avoid rough ground beyond the end of the runway. The aircraft ran over the runway end markings and continued its left turn through about 90º. In the process the starboard main landing gear collapsed and the aircraft came to rest about two metres beyond the end of the runway. None of the occupants were injured and they exited the aircraft normally after the pilot had shut it down.

The aircraft had a calculated landing weight of 2,548 lbs. For the prevailing conditions, the aircraft Flight Manual indicated that the unfactored Landing Distance Required (LDR), with a full flap configuration on a dry tarmac runway, was 411 metres. The CAA's General Aviation Safety Sense Leaflet (SSL) 7B, entitled *Aeroplane Performance*, advises increasing the LDR by a factor of 1.3 for a landing on a wet grass runway - giving an amended LDR of 534 metres. The Safety Sense leaflet also recommends that the Public Transport factor of 1.43 is applied to that figure, increasing the LDR still further to 764 metres, although it adds the proviso that the aircraft should be able to land in the distance required without the Public Transport factor added. The published Landing Distance Available on Runway 28 at Little Gransden Airfield is 570 metres.

The pilot concluded that the accident was the result of a high work load during the turbulent final approach and late recognition of the combination of the crosswind, the high approach speed, the wet surface and lack of braking action. However, having touched down about one third of the way down the runway, approximately 15 mph faster than normal and on wet grass there was little possibility of stopping on the runway remaining.

The CAA's General Aviation SSL 1C, entitled *Good Airmanship Guide*, states that:

> *A good landing is a result of a good approach. If your approach is bad, make an early decision and go-around. Don't try to scrape in. Plan to touch down at the right speed, close to the runway threshold, unless the field length allows otherwise…. Go-around if not solidly 'on' in the first third of the runway, or the first quarter if the runway is wet grass.*