

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-180 Cherokee, G-AWET	
No & Type of Engines:	1 Lycoming O-360-A4A piston engine	
Category:	1.3	
Year of Manufacture:	1968	
Date & Time (UTC):	10 October 2005 at 1030 hrs	
Location:	Cromer (Northrepps) Airstrip, Norfolk	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 2
Injuries:	Crew - 1 (Minor)	Passengers - 2 (Serious)
Nature of Damage:	Serious damage - including propeller, engine, wings, landing gear, fuselage and tail	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	64 years	
Commander's Flying Experience:	725 hours (of which 619 were on type) Last 90 days - 8 hours Last 28 days - 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

History of the flight

Having departed from another airfield 30 minutes beforehand, the aircraft joined the downwind leg of the left hand circuit for a landing on Runway 36. The pilot checked the windsock and considered that the light tail wind component would be offset by the runway's 1.8% uphill gradient. He reported that the final approach proceeded as normal but at a very late stage he realised that the aircraft would land too far along the runway. As the aircraft touched down the pilot retracted the flaps and applied full power in order to convert the landing into a 'touch and go'. The aircraft became airborne again but then appeared to sink. The pilot heard a loud bang and the aircraft came to rest in a field beyond the end

of the runway. He made the aircraft safe and helped his passengers to exit through the cabin door. Both passengers were seriously injured and the pilot received minor injuries. The aircraft itself was severely damaged but there was no fire. All three emergency services attended the scene.

In a straightforward and candid report the pilot stated that the accident was a result of his misjudgement, together with a possible increase in the tailwind during the latter stages of the final approach to an airfield where he had landed about ten times before. He confirmed that the engine had produced full power during the touch and go

but could not recall what speed the aircraft had achieved after it became airborne again, although he was not aware of hearing the stall warning. Nor could he remember how far along the runway the aircraft had touched down. The ground marks and wreckage trail indicated that in the process of the touch and go the aircraft had struck a low bank just beyond the threshold of Runway 18. It had then flown approximately 125 m across a field, struck another low bank which had removed all the landing gear, and, finally came to rest about 50 m into the second field beyond the runway.

Cromer (Northrepps) Airfield is unlicensed and has a single grass runway which is 493 m long. The pilot estimated the surface wind to be 135°/5 kt, which equated to a tail wind of 3.5 kt. The temperature was 13°C, the QNH pressure setting was 1017 hPa and the grass was damp. For a reported landing weight of 968 kg, the aircraft flight manual gives a landing distance required (LDR) of 504 m. This figure includes all the relevant safety factors for field length, the tail wind and a dry, grass surface. No factor is given for a damp grass surface. Of note, the CAA's General Aviation Safety Sense Leaflet Number 7c, entitled *Aeroplane Performance*, advises that wet grass on a firm subsoil increases the LDR by 35%.

Many light aeroplanes are in performance group E and certificated with unfactored data, based on the performance achieved by the manufacturer using a new aeroplane and engine, or engines, flown by a highly experienced pilot in ideal conditions. It is strongly recommended in the General Aviation Safety Sense Leaflet Number 7c that the safety factors which must be applied to Public Transport flights are also used for private flights, to take account of:

- Lack of practice
- Incorrect speeds/techniques
- Aeroplane and engine wear and tear
- Less than favourable conditions

From the information given in the AFM, the factored LDR for the landing on Runway 36, downwind into the runway upslope, was 27 m greater than would have been required for a landing in the opposite direction, assuming the same wind conditions. Therefore, if the aircraft had made an approach to land on Runway 18 instead, the aircraft's ground speed would have been some seven knots slower during the final approach and the LDR would have been less than the length of the runway.