

ACCIDENT

Aircraft Type and Registration:	Pegasus XL-Q, G-MWNC	
No & Type of Engines:	1 Rotax 462 HP piston engine	
Year of Manufacture:	1990	
Date & Time (UTC):	21 March 2009 at 1100 hrs	
Location:	Hingham, Norfolk	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - 2 (Minor)	Passengers - N/A
Nature of Damage:	Front wheel shattered, extensive damage to the airframe	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	39 years	
Commander's Flying Experience:	3,100 hours (of which 250 were on type) Last 90 days - 4 hours Last 28 days - 2 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional AAIB inquiries	

Synopsis

Shortly after landing, the nosewheel failed, causing the microlight to tuck under and roll on to its left wing. No pre-existing fault was determined in the wheel.

History of the flight

The purpose of the flight was to provide a student with dual circuit practice. Although the aircraft was based at a small grass airfield at Great Ellingham in Norfolk, it would have meant operating with a slight crosswind, so the instructor decided to conduct the exercise at Hingham, which is another grass airfield approximately four miles to the northwest. Here the wind was more aligned with the runway.

The aircraft joined the circuit and flew a normal approach but it 'ballooned' slightly just before landing, to the extent that the instructor had to intervene. The subsequent touchdown was described as "...not perfect but certainly not hard". The second circuit proceeded uneventfully up to the point of touchdown. This occurred at an airspeed some 5 kt faster than intended, but was reportedly otherwise smooth. The aircraft decelerated normally for approximately 10 m when there was a shudder and the nose dropped suddenly. The aircraft quickly tucked and then rolled onto its left wing, which suffered substantial damage. The student released his harness and then assisted the instructor to release his. Both occupants sustained minor injuries.

The investigation

It was subsequently found that the nosewheel had disintegrated. The wheel comprised two nylon mouldings that were bolted together. An examination of the runway resulted in a number of nylon wheel fragments being found that were scattered either side of the nosewheel track, extending for several metres after touchdown. The track then became more defined, possibly as a result of the wheel locking up and skidding, followed by an area of larger wheel fragments. Further on, the skid mark became a deep gouge, which then ceased close to additional marks where the wing, propeller and trike unit struck the ground.

The pilot was of the opinion that the wheel had failed as a result of a manufacturing fault. The wheel fragments were returned to the aircraft manufacturer, who reported that they could see no evidence of such a fault. This particular example had only recently been fitted to the aircraft and, in fact, failed on its third landing. They commented that the same wheel design had been around for more than 25 years and was used on at least two other older types of microlight aircraft but they were

not aware of a general problem of wheel failures. They additionally noted that their current production aircraft are fitted with aluminium alloy wheels.

The British Microlight Aircraft Association (BMAA) were similarly unaware of any widespread problem but, following the accident to G-MWNC, alerted their inspectors to the possibility of wheel failures and to the advisability of checking for cracks. The feedback so far has not revealed any defective wheels.

Both the BMAA and the manufacturer noted that this aircraft type is equipped with a nosewheel only braking system, which consists of a 'mud-scraper bar'. Application of foot pedal pressure causes a steel bar to contact the tyre, thus acting as a brake. This imposes a load on the wheel, with the possibility of this becoming excessive when the brake is applied in combination with a heavy landing or pitch-down of the trike unit. In this accident, the aircraft was conducting a 'touch and go'; hence the brake was not applied. In view of the fact the wheel was new (although the date of manufacture is not known), the possibility of a manufacturing defect cannot be excluded.