

ACCIDENT

Aircraft Type and Registration:	Pegasus Quik, G-CBYE	
No & Type of Engines:	1 Rotax 912ULS piston engine	
Year of Manufacture:	2003 (Serial no: 7933)	
Date & Time (UTC):	3 July 2015 at 1830 hrs	
Location:	Enstone Airfield, Oxfordshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - 1 (Fatal)	Passengers - 1 (Fatal)
Nature of Damage:	Extensive	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	62	
Commander's Flying Experience:	213 hours (of which 163 were on type) Last 90 days - 2 hours Last 28 days - 2 hours	
Information Source:	AAIB Field Investigation	

Synopsis

The aircraft made an approach towards the upwind end of a grass runway at Enstone Airfield. It touched down approximately 145 m before the end of the runway and, after rolling for approximately 80 m, the power was increased. The aircraft, which was overweight, remained on the ground and veered to the right passing through a fence and colliding with a vehicle trailer parked beside other equipment, close to the end of the runway. The pilot and his passenger both suffered fatal injuries.

The pilot had not flown with an instructor in a flex-wing microlight since gaining his licence in 2006 and his Microlight Rating had lapsed.

History of the flight

The pilot arrived at Enstone at approximately 1730 hrs accompanied by four relatives. The aircraft had already been moved from its hangar by three people, in order to gain access and work on a different microlight. The pilot made some pre-flight preparations and briefed one of his relatives who was to be a passenger for a first flight in a microlight. He was heard to ask the passenger for his weight and was told it was 113 kg.

There was little other flying activity at Enstone that evening and witness evidence suggested that visibility was good with no low cloud but with some large cumulus clouds south of the airfield. Shortly before the flight commenced, the pilot was heard to state that it was a bit blustery and he would let the wind drop before departing. The wind velocity

recorded by the Enstone Flying Club (Figure 1), at 1800 hrs showed a maximum gust of 15 kt from 112°.

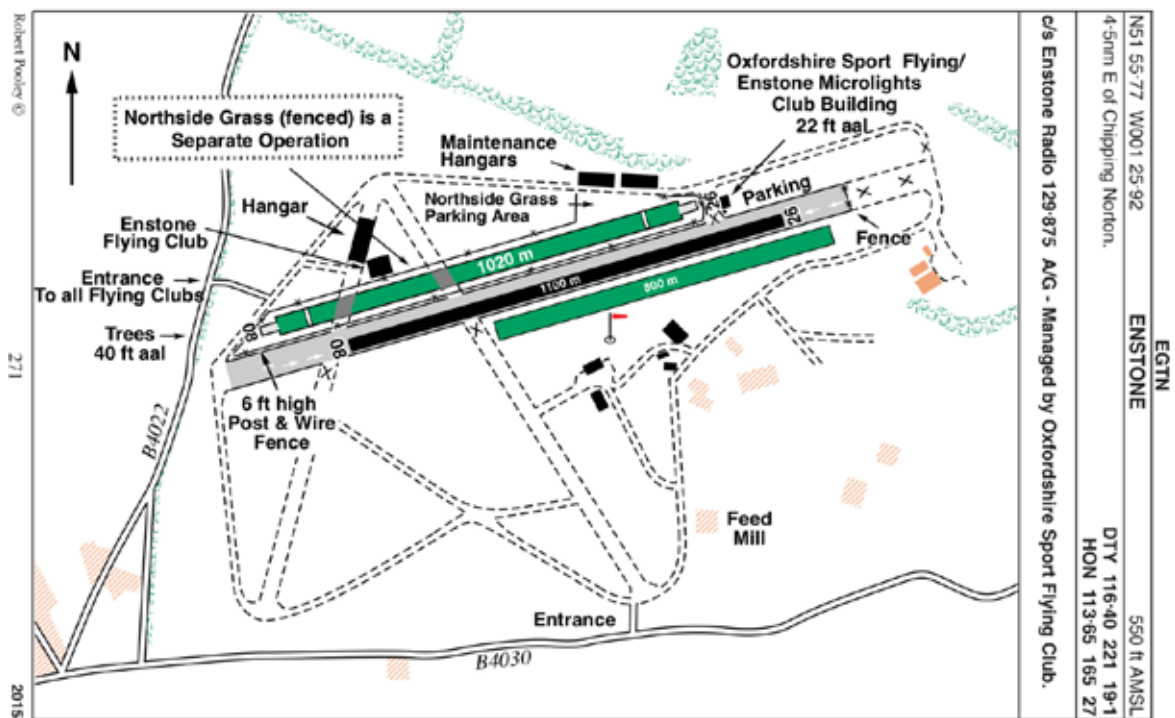


Figure 1

Diagram of Enstone Airfield as depicted in Pooleys Flight Guide. The area around the threshold of the Northside Grass Runway 26 has been altered since this diagram was published.

Photographs were taken as the aircraft taxied out from the Northside Grass parking area at 1802 hrs (Figure 2). In the photograph it was noted that the occupants were wearing helmets and that the pilot was not using the diagonal shoulder strap on his seat harness.

The airfield information unit, on the upper level of the nearby Oxfordshire Sportflying Club, was unmanned but there was an instructor in the clubhouse below. He was monitoring a radio tuned to the airfield frequency and heard no transmissions from the aircraft during its flight.

The relatives watched the aircraft taxi west, turn and take off from the asphalt Runway 08 before circuiting left.

When the pilot first took a passenger who had not flown in flex-wing aircraft before, he tended to fly a circuit and carry out a touch-and-go landing, followed by a short tour of the local area. The relatives therefore expected the pilot to either make a full-stop landing if the passenger did not wish to continue the flight, or fly a touch-and-go where the passenger was expected to wave to them to show that he was enjoying himself.

While the aircraft was airborne, from 1810 hrs to 1814 hrs, the wind direction varied between 112° and 225° with a velocity of 6 kt to 13.5 kt. The maximum crosswind, recorded in the 4 minute period, was 11 kt at 1810 hrs.



Figure 2

G-CBYE taxiing from the Northside Grass parking area towards the asphalt runway

Several people, some of whom were pilots, saw the latter part of the aircraft's circuit from the vicinity of the Enstone Flying Club. It turned onto final approach for the Northside Grass Runway 08 at a height which appeared to witnesses to indicate that it was going to land deep along the runway. The aircraft's speed and the sound of its engine seemed normal. Some observed that, at approximately 100 ft agl, the pilot appeared to work hard to control the aircraft. They thought he may have encountered rough air or "rotor effect" and associated this with the gusty wind which was veering southerly. The final part of the approach and landing was not visible from the Enstone Flying Club due to the lie of the land.

The three people working on the microlight outside the Northside Grass maintenance hangar had seen the aircraft take off. One of them was facing west and spotted it again during the latter stages of its approach and brought it to the others' attention. They watched it touch down in a position that was later measured to be approximately 145 m before the end of the grass runway (Figure 3).

One of these witnesses, who is a flex-wing pilot, stated that the engine was idling and the aircraft was travelling at approximately 40 mph along the ground but decelerating. He lost sight of the microlight, due to a parked bus, as it travelled from his right to left at an estimated ground speed of 20-30 mph. At this point the aircraft would have been approximately 65 m from the end of the runway. He then heard the application of what he thought was full power and this was also heard by the two people with him. None of them were able to estimate how long it was between hearing the application of engine power and when they heard a loud metallic bang. The aircraft's wing became visible to the left of the bus but it was evident that the aircraft had crashed.

The three relatives also witnessed the landing; one of them had seen the pilot take off and land on this section of the grass runway in the past. They did not think the landing was unusual but they were surprised that the passenger did not wave to them. One of them recalled hearing the engine idle, and saw the aircraft slowing before accelerating. This person recalled hearing the engine note increase but they were not looking at the aircraft when they heard the sound of the collision. Another of the relatives was able to see the aircraft's wing throughout the ground roll and, although they did not remember hearing engine sounds, they did hear a loud bang as the aircraft collided with the ground equipment. The relatives ran to the collision site which was slightly beyond the end of the runway, in the area between the Northside Grass and the asphalt runway.

The emergency services were called at 1815 hrs and paramedics arrived 15 minutes later, but both occupants had suffered fatal injuries.



Figure 3

Google Earth image of Enstone Airfield.

The Enstone Flying Club buildings were erected after this image was taken and the area around the threshold of Northside Grass Runway 26 has also changed. The white arrow shows the estimated distance from the easterly cross runway to the end of the Northside Grass Runway 08 at the time of the accident (approximately 550 m), and the red arrow indicates the landing distance available from the observed touchdown point (approximately 145 m)

Aircraft information

The Pegasus Quik is a two-seat, flex-wing (weight-shift control) microlight aircraft, comprising a trike unit and wing connected by an upright monopole. The trike incorporates a tricycle undercarriage and G-CBYE was powered by a 100 hp Rotax 912ULS engine fitted with a three-bladed Arplast propeller.

The Quik wing is controlled via a control A-frame, which consists of a horizontal control bar braced by fore and aft flying wires and two uprights attached to the wing keel tube. It has a tandem seating configuration and the rear passenger seat is equipped with a four-point harness, consisting of a lap strap and two shoulder straps. The front seat is equipped with a three-point harness, consisting of a lap strap and a separate single diagonal shoulder strap. The harnesses do not incorporate an inertia reel.

The nosewheel is steerable by means of a foot-operated steering bar that incorporates pedal-operated throttle and brake controls. To steer the aircraft right, the left foot is pushed forward on the steering bar. The foot-operated brake is operated by depressing the left foot-pedal, which controls two cable-operated drum brake units in the rear wheels. A parking brake locks the brake pedal by means of a hand lever and detent. The primary throttle is operated by depressing the right foot pedal (forward for full power and rearward for power off) and is complemented by a friction damped hand throttle (forward power on and rearward off) on the left side of the seat frame. The hand throttle should not be used for engine control on the ground or during takeoff or landing.

G-CBYE was manufactured in 2003 and had accumulated 422 flying hours. The engine had logged 444 hours. The aircraft's last maintenance was an annual inspection which was completed in March 2015. It was being flown under the conditions of a valid Permit to Fly from the CAA.

Accident site and initial wreckage examination

After touchdown the aircraft passed through a wire fence at the eastern end of the runway and collided with a vehicle trailer that was parked beside other equipment (Figure 4) before coming to rest. The aircraft remained upright with the nose embedded under the trailer but the wing showed little sign of obvious external damage. Ground marks showed that the trailer and a large grass roller adjacent to it had been displaced sideways when the aircraft struck the trailer.



Figure 4

General view of the accident site

The engine was intact and approximately 38.5 litres of fuel remained in the fuel tank. The fuel shut-off was found open and the hand-operated throttle lever was in the idle position. All three propeller blades had sustained tip damage and one blade had detached at the root.

A canvas type bag, with a Pegasus logo, lying adjacent to and slightly forward of the aircraft, contained a protective trike cover and tooling used to rig the wing. It was concluded that the bag was onboard G-CBYE at the time of the accident and had been ejected from the trike when it struck the trailer.

The touchdown point could not be identified but tyre marks in the grass leading to the accident site were consistent with the aircraft veering to the right as it approached the end of the runway.

Pilot's experience

The pilot gained a National Private Pilot's Licence (NPPL) in June 2006, after completing a course of flying training on flex-wing microlights at Enstone. He had purchased G-CBYE in November 2005 and his log book records that this was the only aircraft he flew after that, except for one trial flight in a Piper PA-28 in April 2013. That instructional flight was his only recorded flight with an instructor after 2006. The CAA publishes a series of Safety Sense leaflets for the general aviation community. Safety Sense leaflet No 1 (*Good Airmanship*)¹ advises pilots to have refresher training with an instructor at least once a year to allow them to revise their basic knowledge and skills.

The Microlight (Land) Rating in the pilot's licence became invalid on 9 July 2007 and was not revalidated or renewed thereafter. Until 2008, Microlight (Land) Ratings were valid for 13 months and a licence could be revalidated by an authorised person who was satisfied that the pilot had completed a requisite amount of flying in the previous period. Since 2008, such ratings are valid for 24 months. Article 69(1) of the UK Air Navigation Order 2009 (ANO) states that a holder of an NPPL is not entitled to exercise the privileges of a rating unless a certificate of revalidation has been issued and is valid.

Schedule 7, Part C, Section 3 to the ANO lays out certain requirements to revalidate a rating on the basis of the pilot's experience during the period of validity of the current rating. During this (24 month) period the pilot must have logged at least 12 hours flight time (including 8 hours as pilot in command) and have undertaken at least one hour of training with an instructor on aeroplanes of the same class. However, to renew a rating when a certificate of revalidation has expired for more than 5 years, the pilot must pass an NPPL General Skill Test and an oral knowledge exam with an authorised examiner.

The pilot of G-CBYE was a member of the Enstone Microlights Club but he had limited interaction with the club or its members. The club's annual membership renewal form asked for the '*Date of last Certificate of Experience or Flight Test*'. This terminology was

Footnote

¹ CAASafetySenseleaflet1 can be downloaded in pdf format at: <http://www.caa.co.uk/docs/33/20130121SSL01.pdf>

out-dated but was essentially asking for licence validity details; on the most recent form the pilot had filled-in '9 April 2014'. This date did not accord with any entry in his licence or his logbook, although the aircraft's Permit to Fly had been valid until 8 April 2014 (and subsequently renewed).

The pilot had logged almost 6 hours total flight time in the 12 months before the accident and a little less than 9 hours in the last 24 months. The instructor who had trained the pilot ceased instructing at Enstone soon after the pilot obtained his licence but remains a qualified CAA examiner. He stated that he had observed the pilot flying his aircraft at Enstone on a blustery day during the summer of 2014. He commented that he was surprised to see a flex-wing flying in those conditions but thought that the pilot coped with the conditions and he was "quite impressed" after watching the aircraft land on the asphalt Runway 08.

Medical and pathological information

The pilot had made an appropriate Medical Declaration which was current and had been countersigned by his General Practitioner on 7 December 2011.

The post-mortem reports stated that the pilot and passenger both died after suffering multiple injuries. Neither of them were wearing their helmets when the witnesses reached the aircraft, but both helmets were found at the accident site and the photograph taken before departure shows them both wearing helmets. Their head injuries were consistent with helmets being worn and neck injuries were indicative of high deceleration forces while supporting a helmet and headset.

The examination of the pilot and associated toxicology tests found no sign of disease that might have caused incapacity or have been a contributory factor. The pilot's clothed weight was recorded as 83.8 kg and the passenger's weight was 118.1 kg

Aircraft

The hand and foot throttles were checked and no anomalies were noted. The brakes and steering were checked and confirmed operational. The tyres were in good condition and inflated.

The four flying wires between the A-frame and the wing were intact. The left front wire from the A-frame had been severed in the accident and the right rear wire had failed due to overload. The right A-frame upright and wing keel tube were broken and the base bar was deformed. The fractures were commensurate with ductile overload caused by loads imparted during the accident. There was no evidence of any rigging anomalies.

The rear seat four-point harness lap strap was found undone and the right hand shoulder strap had been cut by the emergency services to release the occupant. The front seat lap strap was found undone and the condition of the diagonal shoulder strap was consistent with it not being worn at the time of the accident.

Powerplant examination

The engine had not sustained any visible damage apart from the propeller and the right carburettor, which had separated from the attachment flange. The propeller damage was consistent with it rotating when the accident occurred but the power setting could not be established. The aircraft was also equipped with a FlyDAT engine instrument which records peak engine parameters, at six minute intervals whilst the engine is running and at shutdown. The maximum engine speed recorded during the final period was 5,210 rpm and exhaust gas temperatures, oil temperature, oil pressure and cylinder head temperature were all within normal ranges.

The carburettor was reattached and a test run of the engine using a test propeller demonstrated that engine response was normal, indicating that the engine was capable of producing full power prior to the accident.

Weight calculations

The operator's manual for the Pegasus Quik states that the aircraft's maximum all-up weight (MAUW) and its maximum takeoff weight are both 409 kg. The maximum weight limit for each seat is 110 kg and the maximum cockpit weight is 200 kg. The manual requires there to be a placard in the cockpit that displays the trade-off between the fuel load and the cockpit load. The placard in G-CBYE indicated an empty weight of 205 kg.

The manual instructs pilots to carry out calculations before each flight to ensure the MAUW is not exceeded. The post-mortem report gave the pilot's clothed weight as 83.8 kg and the passenger's clothed weight as 118.1 kg. The bag, containing the rigging tooling and canvas cover, was later weighed at 4.2 kg and the helmets and headsets had a total weight of 3.4 kg. 38.5 litres of fuel, weighing 27.8 kg (assuming a specific gravity of 0.72 kg/litre), was later removed from the 49 litre fuel tank thus, at the time of the accident, the aircraft weighed approximately 442.3 kg. This would have placed the aircraft around 33 kg or 8% above the MAUW.

The aircraft last flew on 18 June 2015 and the passenger on that occasion saw the fuel tank replenished afterwards to $\frac{3}{4}$ full. This would have been its fuel load for the accident flight. In 2013 the pilot had drawn out a table showing his own weight as 82 kg and indicating that a 96 kg passenger could be flown with a $\frac{3}{4}$ full tank of fuel (weighing 35 kg) and a 113 kg passenger with a $\frac{1}{4}$ full tank (weighing 12 kg). This table, which made no mention of helmets or other equipment, was found in the pilot's car.

Passenger briefing

In a Pegasus Quik, the two occupants sit close together in tandem, with the passenger's legs positioned on either side of the pilot who sits in front. The hand throttle, on the left side of the cockpit, is within reach of the passenger should his arms be placed on the cockpit coaming. In order to make a small adjustment to his seating position, a passenger is likely to place his hands on the coaming to help ease his weight.

The relatives recalled that the pilot briefed the passenger to keep his feet off the steering bar during the flight. It is not known if he briefed the passenger about the hand throttle or other controls. The passenger was strapped in using the four-point harness fitted for the rear seat occupant.

Enstone Airfield

Enstone is an unlicensed airfield with split ownership of the land. The Oxfordshire Sportflying Club leases the asphalt runway and the southern grass runway and has planning permission for flying activities during certain hours of operation. The Club follows the guidance provided in CAA publication CAP 793 '*Safe Operating Practices at Unlicensed Aerodromes*', and flying training is undertaken using both these runways, which are available without charge to Club members and to Enstone Microlight Club members. An arrangement is also in place for use of these runways by the Enstone Flying Club and landings and takeoffs are recorded.

The area on which the Northside Grass runway is situated is owned and operated by a separate organisation which has been granted '*Lawful Use*' of the land for flying activities but without planning permission. Pilots are not required to record landings or takeoffs on this runway and available aeronautical information states, '*all movements at pilot's own risk*'. There is a fence between the Northside Grass runway and the asphalt runway with access points for aircraft to taxi between the two.

Figures 1 and 3 illustrate that the three runways are staggered and the Northside Grass runway is positioned furthest west. Any lateral markers or cues a pilot uses to help judge his position along one of these runways, may not be appropriate during takeoff or landing on one of the other runways. For example, when landing from the west on Northside Grass Runway 08, a pilot will pass abeam the first of the maintenance hangars closer to the end of that runway than he would have been to the end of the asphalt Runway 08, if he had been landing on that instead.

The Northside Grass runway is shown by Pooleys Flight Guide to be 1,020 m long, and the two cross runways are depicted as disused (Figure 1). The pilot of G-CBYE had previously flown from the asphalt runway and the Northside Grass runway. He had been observed using the section of the Northside Grass runway which is approximately 550 m long and lies east of the cross runways.

CAA Safety Sense leaflet 1 recommends that touchdowns are made near a runway's threshold. It suggests that a go-around should be initiated if the aircraft has not landed in the first third of a runway.

Runway end markings and obstacles

CAP 793 states that paint or markers can be used to indicate the end of a runway and that:

'Anything that, because of its height or position, could be a hazard to an aircraft landing or taking off should be conspicuously marked if it cannot be practicably removed or minimised.'

Additionally it states:

'To prepare for the event of an aircraft overrunning the end of a runway, overrun areas may be provided, either directly beyond the runway or slightly to either side if the ground in these areas would reduce the hazard arising from an overrun.'

There were no markings at the end of the Northside Grass Runway 08 and there were a number of vehicles and other obstructions in the overrun and immediately adjacent to it. These were not marked or mentioned in available aeronautical information. A CAA Inspector visited the site after the accident and stated that it is an unlicensed airfield with no requirement for an overrun area (runway strip end) beyond the notified landing distance available. He noted that while it may not be sensible to place obstacles in this area, there are no regulations to prevent this. It is the same at licensed airfields where obstacles can exist beyond the runway strip end, provided they do not infringe the prescribed vertical surfaces for aircraft takeoff or approach/climb requirements.

CAP 793 suggests a minimum runway length of 250 m for microlight operations and recommends that obstructions at the runway ends (hedges etc) are no more than 2 m high.

Aircraft operation

The operator's manual for the Pegasus Quik instructs pilots to make an early decision to go-around if the speed and/or altitude are too high on an approach. The manual states that the maximum crosswind limit that an experienced pilot must consider for takeoff and landing is 10 kt.

Performance data in the manual indicates that, at MAUW, a distance of 292 m is required to takeoff and reach an altitude of 15 m while 225 m is required to land from this height. The aircraft designer estimated that the takeoff and landing rolls for an aircraft weighing 442 kg would increase by 17%. Data from flight tests of a comparable (but not identical) aircraft, ballasted to 450 kg indicates a ground roll of approximately 150 m is needed from touchdown, on short dry grass with no headwind. The designer also considered the ground distance needed by a Pegasus Quik weighing 450 kg to takeoff and clear a 2 m high obstacle. From a speed of 30 mph it would require a minimum of 117 m with a 10 kt headwind.

The reason for the 110 kg seat limit but a total cockpit limit of 200 kg is that the structure has been tested in accordance with airworthiness requirements up to 220 kg but for this model it has been limited to 200 kg to facilitate flight with a reasonable fuel load. The designer considered the effect of a heavy passenger on the aircraft's Centre of Gravity and stated that he did not believe this would have caused any control problem.

A flex-wing instructor, who had not flown with the pilot of G-CBYE, stated that he had occasionally seen student pilots in the process of attempting to apply maximum braking, using their left foot, pushing forward on the left side of the steering bar. This causes the aircraft to turn right and moves the other side of the steering bar back towards the student's right foot. This, in turn, causes the pilot's right foot to depress the foot throttle and results in an involuntary application of power.

Analysis

The pilot made an approach to land on the eastern section of the Northside Grass Runway 08. For reasons that are undetermined, he landed deep in this section, possibly with insufficient distance available to prevent the overweight aircraft from overrunning the end of the runway. During the ground roll the aircraft slowed before power was applied, either deliberately or inadvertently, for an unknown length of time and the aircraft was seen to accelerate. There was insufficient distance remaining for the aircraft to takeoff and the application of power meant that an overrun was inevitable. The aircraft deviated to the right of the grass runway and collided with a fence and trailer parked close to the end of the runway.

Aircraft examination

The damage to the wing and trike was consistent with the aircraft passing through the fence and impacting the trailer in the compound near the runway. The speed at which the accident occurred could not be established but the propeller damage was consistent with it turning and a test of the engine after the accident demonstrated that it was capable of producing power. Testing of the steering and brakes showed both systems were operational.

There was no evidence of any pre-existing anomalies with the aircraft prior to the accident.

Pilot's skills

The pilot did not have a current Microlight Rating and had not flown a microlight with an instructor for nine years. Because his rating had not been valid for more than five years, he would have had to pass an NPPL General Skill Test and an oral exam to renew it. It was possible that the pilot did not appreciate how the rating system worked and had apparently mis-understood a question about this on his flying club renewal form.

Although he was in recent flying practice, the pilot had logged only nine flying hours in the preceding two years. By not flying with an instructor regularly, he had not had the opportunity to revise his basic knowledge and skills, as advised by the CAA.

Aircraft weight

The pilot had fuelled the aircraft with a $\frac{3}{4}$ -full tank after his previous flight and his passenger told him he weighed 113 kg. Using that information and without allowing for the weight of ancillary items, such as headsets and tools, earlier calculations made by the pilot showed that the aircraft would exceed its MAUW by 26 kg. Information available after the accident showed that the aircraft's weight exceeded the MAUW by at least 33 kg when the collision occurred.

Data provided by the aircraft designer indicated that the distance available from the point of touchdown may have been insufficient to bring the overweight aircraft to a complete halt. However, even if the aircraft had not been over-loaded, there was insufficient distance remaining to take off again from the point at which power was re-applied. The extra weight is considered to have been a contributory factor to the accident.

Weather conditions

The pilot apparently assessed the prevailing wind to be marginal because he was heard to say that he was waiting for the wind to drop. During the flight, the aircraft's crosswind limit of 10 kt may have been slightly exceeded as the wind direction varied and gusted up to 13.5 kt. An examiner had previously observed the pilot flying in blustery conditions and he had seemed to cope well. On this occasion, witnesses thought that the pilot was working hard to control the aircraft in turbulent conditions when making his final approach.

The approach

A circuit normally involves a takeoff and landing using the same runway, unless the weather or traffic dictate otherwise. On this evening, the pilot took off from the asphalt runway and landed on the parallel Northside Grass runway, which is partially offset to the west of the asphalt runway. He was familiar with both and had previously used the eastern section of the grass runway. This is approximately 550 m long and sufficient for Pegasus Quik operations but, as CAA Safety Sense leaflet 1 suggests, it is prudent to use the entire available runway length. It was apparent from the witness evidence that, before the pilot encountered the apparent turbulence, he was already aiming to land on the eastern section of the grass runway.

It may be that after negotiating turbulence, the aircraft was higher or further along the grass runway than the pilot had planned. If he was more used to landing on the asphalt runway, he may have been using lateral markers appropriate to that runway and as a result may not have appreciated how close he was to the end of the grass runway. It is also possible that he was distracted by his passenger or by some other factor during the approach. For whatever reason, safety margins were eroded by touching down deep, approximately 145 m before the end of the runway. This is more than $\frac{2}{3}$ of the way along the 550 m eastern section of the grass runway. The Safety Sense leaflet 1 advocates that a go-around is initiated if an aircraft has not landed in the first $\frac{1}{3}$ of a runway and the operator's manual advocates an early decision is made to go-around if the aircraft is too high.

The ground roll

After landing, the aircraft was seen to slow down before accelerating and the engine note was heard to increase. The pilot's original intention was believed to have been to touch-and-go, provided the passenger was content. It is possible that the pilot was unaware of how close he was to the end of the runway and applied power to take off again before appreciating that there was insufficient runway remaining. Alternatively, he may have been attempting a full-stop landing but realised the aircraft was not slowing down sufficiently and made a last minute decision to attempt a touch-and-go. However, having slowed to approximately 30 mph and with no more than 65 m of the runway remaining, there was insufficient distance left to take off.

Another possibility is that the throttle was advanced unintentionally during a full-stop landing. There is anecdotal evidence of student pilots unintentionally moving the steering bar when depressing the footbrake. This turns the aircraft right and may lead to the foot

throttle being depressed inadvertently through contact with the pilot's right foot. This pilot was experienced although he had logged only nine hours flying in the preceding two years.

It is also feasible that power was applied inadvertently if the passenger moved the hand throttle. He may have reached out along the sides of the cockpit coaming to lift his body a little and adjust his seating position while on the ground. This could have caused his left hand to accidentally push the hand throttle forwards and increase engine power. It would have taken the pilot a few moments to comprehend what had happened and to react.

The collision

There were numerous obstructions beyond and close to the end of the runway. Although it is not sensible for there to be obstructions in this area, there are no regulations concerning this and the pilot would have been aware of the runway surroundings when planning his flight.

The aircraft departed the runway to the right and continued past the end of the prepared grass area. The right turn may have been due to an unintentional movement of the steering bar or it may have been because the pilot realised at the last moment that the clearest path was in the direction of the asphalt runway. He may have started turning this way under braking, but was unable to turn the aircraft sufficiently to avoid colliding with the obstructions.

Conclusion

The aircraft landed deep and the late application of power made a runway overrun inevitable. The fact that the aircraft was overweight contributed to the accident.

AAIB Comment

The pilot had not flown a microlight with an instructor since gaining his licence and his rating had lapsed.

The CAA publishes Safety Sense leaflets and leaflet 1e 'Good Airmanship' provides advice to general aviation pilots and states:

'4 REFRESHER TRAINING

Revise your basic knowledge and skills by having a regular flight, at least every year, with an instructor which includes:...

- *take-offs and landings, including normal, cross-wind, flapless and short;...'*

The leaflet also provides advice on weight and balance, aircraft performance, destination (including awareness of obstacles), turbulence and landing amongst others. In the summary it states:

'..Keep in current flying practice...

Don't over-load the aircraft.

Make sure the runway is long enough in the conditions....'