

The Right Approach to

Don't get high on a visual illusion and sink to a bumpy landing.

Summertime is here, the weather's great and the surf's up. With a 10-knot headwind you're established on final approach in your light aircraft for Runway 23 at Raglan, for a weekend of fun at the beach. What could be better?

For the unwary or low-time pilot however, Raglan aerodrome can present some interesting challenges because of the runway length and some visual illusions, especially landing to the west on Runway 23.

Recently ZK-ZFR, an ATEC Zephyr, was on a short approach to land on Runway 23 at Raglan when it started to sink. The aircraft landed heavily and its landing gear collapsed. Fortunately, nobody was injured, but it was a bad ending to an otherwise uneventful flight.

Be Aware

Raglan airfield with an elevation of 14 feet, by the beach, has two grass Runways, 05 and 23, with no slope and 646 metres distance for landing and takeoff.

Flying instructor and A320 pilot, Bill Henwood, has seen some interesting landings, or rather arrivals, at Raglan.

"I think for any pilot approaching Runway 23 at Raglan, it can be a challenge with some unique features, especially for the low-hour infrequent-flying private pilot.

"On final for 23, the view of the hills at the western end may cause pilots to think they have less room than they have.

"The wind can also be fickle, and a wind from any direction other than straight down the runway tends to bend, and come from the harbour entrance at the western end, but then be straightened by the trees on the northern side of the threshold. A wind from the northwest will tend to show a 230 direction at windsock height, but will behave as a north westerly at treetop height, giving a change of direction and wind shear just as you are crossing the fence," Bill says.

Test Pilot Roger Shepherd says that he has observed some very slow and low approaches across the 23 threshold end boundary fence, and some interesting arrivals.

"My discussions with other pilots revealed that they had noted similar observations to mine," Roger says.

Roger offers some additional thoughts to those of Bill as to what he considers may be contributing factors to the formation of visual illusions that fool pilots into believing they are higher than normal on the approach, and the resulting low, slow approaches and heavy landings.

"The actual strip is not delineated by a mown area as is often the case at other airfields, which means it may not present similar visual cues that other strips normally do.

"The higher terrain of Bow Street at 75 feet, positioned approximately 800 metres from the boundary fence on the extended centre line, and two Norfolk pine trees approximately 520 metres from the boundary fence, may cause pilots to add a little more height to their approach, to subconsciously give themselves plenty of obstacle height over the terrain and treetops.



Raglan

"Sadly, at 640 metres in length, Raglan may represent a short strip to many pilots.

"With amateur-built aircraft, the stall speed may not have been accurately established and may be higher than what people believe and use."

A Typical Scenario

Roger offers the following scenario as a likely plausible explanation for the consequential heavy arrivals off the 23 approach over Bow Street and the pine trees.

"A pilot sets up for a normal landing approach, but from about mid-way down final approach the rising terrain of Bow Street starts to look a little imposing, and the two pine trees become apparent. An increment of power is added, and the subsequent subtle nose pitch up and airspeed decrease is not appreciated.

"Inside one mile on final, the pines begin to look quite high and a little more power and possibly another slight attitude change is made to miss the trees by a healthy margin.

"Crossing over the pines, the approach looks a bit higher than normal, and an impression may be gained that the aircraft will have insufficient distance to stop.

"After passing the trees a considerable power reduction is made to get down to what is considered a normal approach height. Watching aircraft at this point it would seem that the increasing sink rate is not being appreciated, and power is heard to be added with a significant nose up pitch.

"The boundary fence slips by underneath, the power is cut and the aircraft arrives."

Roger says that if we consider a typical day with at least 10 knots of wind, and a low-inertia aircraft, then the glide

angle after passing the pine trees can be quite steep and crucially short of the strip.

Tips for Safe Arrivals

"After passing Bow Street and the pines, any power reduction should only be very slight and the aircraft can be placed easily at around a third of the way into the strip with 430 metres left to go – ample for the type of aircraft that seem to feature in these observations," Roger suggests.

Bill offers some additional tips for safe arrivals.

"Know exactly the distance your aircraft requires to land in, not just the ground bit – the whole lot. Slamming the aircraft onto the ground just inside the threshold end boundary fence is pointless and potentially dangerous, if every time you do so you have more than 400 metres of runway left over.

"For amateur-built aircraft, know your actual stall speed at maximum landing weight in the landing configuration. The actual speed your aircraft stalls at could easily be around 30 per cent greater than what you see indicated on the airspeed indicator.

"Know what 1.3 times the stalling speed in the landing configuration (V_{so}) means, and work it out for your aircraft. Practise and become confident at flying stable approaches at $1.3 V_{so}$.

"Be aware of the trees on the right of the touchdown area of Runway 23, and the wind shear they create.

"Be aware of the undulations to the left of the nominal 23 centreline."

"Seek professional help if you are in doubt, or if you need to boost your skill levels and confidence before operating at Raglan," Roger adds. ■

