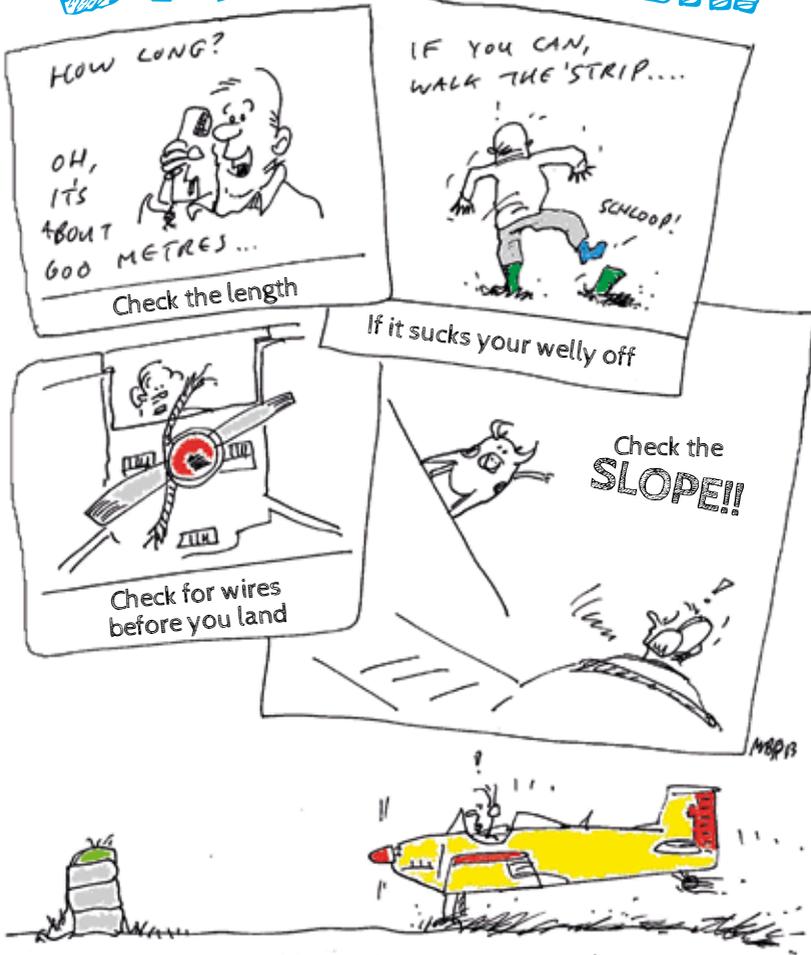


STRIPPING...



GASCI Safety Information Leaflet

STRIP OPERATIONS

Introduction



A high proportion of the accidents and incidents that occur to light aircraft in Ireland happen during the take-off or landing phase from short or unlicensed airstrips.

Most GA pilots learn in a controlled environment from licensed aerodromes. There are over 220 documented airfields in current use in Ireland. These vary widely and many are short narrow strips with surrounding obstacles. Operating from such airstrips involves increased risk and demands knowledge, flying procedures and techniques not necessarily covered in a basic PPL course. The aim of this information leaflet is to reduce risk to GA pilots operating to and from airstrips by highlighting some of the hazards associated with strip flying and by suggesting some measures GA pilots can take in order to minimise their exposure to this risk.



Planning strip flying

You should always get permission before using a private airstrip.

If at all possible, walk the strip yourself before you use it. The next best thing is to get a briefing from either the owner or a local operator who is familiar with the current conditions at the strip.

Some good guides have been written with information such as location, dimensions, orientation, surface type and contact details. However, it is worth checking that the information is still current.

Finding a grass airstrip from the air can be difficult; it is worth planning your approach carefully taking into account local features and sun position. Most moving map/GPS units have a 'pseudo OBS' function where one can input runway direction on a strip waypoint, effectively drawing an approach centre-line – this can be extremely useful in the air for situational awareness.



What to look for as you walk the strip?

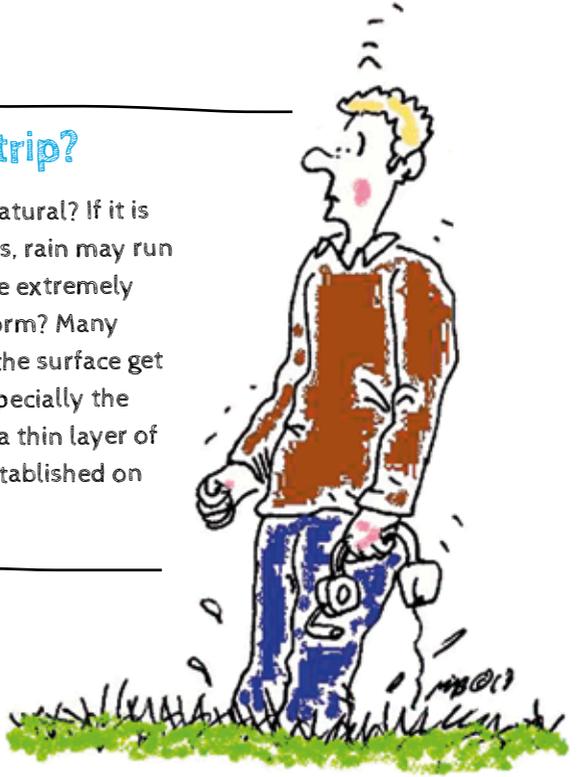
Examine the surface carefully. Think ‘pushing a wheelbarrow’ or ‘riding a bicycle’ as you walk the strip. Do your heels ‘dig in’?

Look at the approaches, undershoot & overshoot areas and the strip surroundings. Look especially for obstacles such as wires and poles which can be difficult to see from the air, especially if looking into sun or if there is a little rain on a windscreen. Are the strip edges well-defined? Will you be able to identify the edges easily from the air under all conditions? Measure the strip length accurately - use Google earth or count paces, remembering to calibrate your own ‘step’ against a known distance. Be realistic about useable lengths, for example, one is unlikely to touch down at the beginning of a strip if a boundary hedge is adjacent.

Check parking and taxi areas, make sure the surface is good enough and that your aircraft will have sufficient clearance from solid objects. Is there fuel available? In Ireland you should always plan to land with at least 45 min-worth of fuel aboard, the possibility of not ‘getting in’ at a strip is higher than it is at a large tarmac airfield, keep this in mind and don’t get short of fuel. If aircraft are to be refuelled from containers you **MUST** use a proper filter, metal containers can easily cause contamination. Bring tie-downs and control locks if you plan to park. Is the area secure? You may want to lock the aircraft, also beware, large animals and parked aircraft do not mix well.

How soft is your strip?

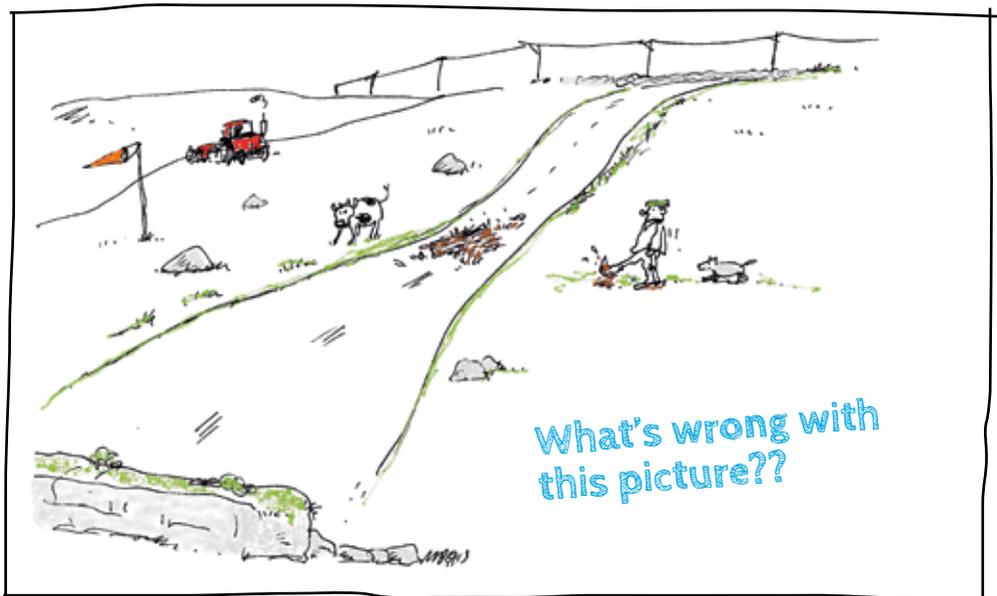
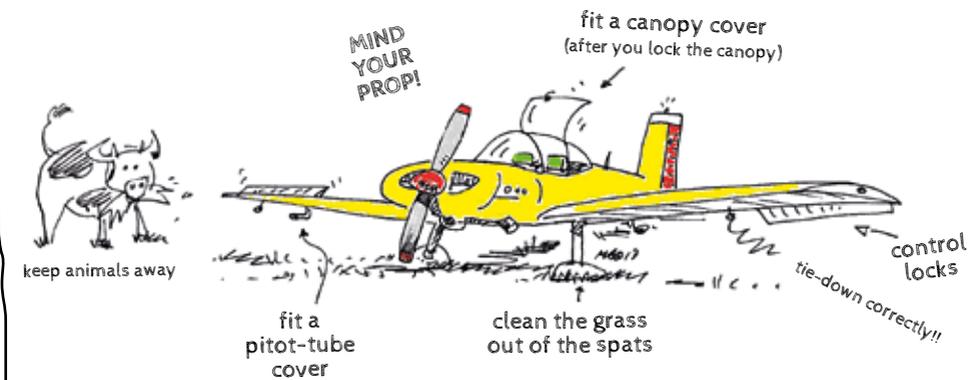
Is the surface man-made or natural? If it is man-made, examine the edges, rain may run off and cause the ground to be extremely soft there. Is the surface uniform? Many strips have 'soft spots'. Does the surface get slippery when wet? This is especially the case with gravel strips where a thin layer of grass/organic material has established on top. Does the strip slope?



Bogged down?

Strip edges can be extremely wet! Also watch out if taxiing off tarmac on to grass - if not sufficiently drained, the edge adjacent to the hard surface soaks up all the water from the hard surface and can be unusable following rainy periods.

Secure your aircraft at the strip





Aircraft operational issues

The primary operational issue in strip flying is take-off and landing performance. Most manufacturers publish this information for hard runways. If operating from a surface that is going to have an increased (or decreased) resistance to movement we need to add sensible allowances. Again, think 'pushing a wheelbarrow' or 'riding a bike' on the surface in question. This is not an exact science; however, in addition to normal factors such as weight, pressure altitude, slope and wind, the surface condition should be carefully considered when calculating take-off and landing distances. It is not unrealistic if operating from long wet grass with soft soil to expect take-off roll to be in the order of 60% or more than that for a tarmac runway. Use the correct technique for your aircraft.

- Beware freshly cut grass especially if wet, it can clog up spats. Anything that causes extra drag or reduced thrust on take-off should be minimised. A clean propeller will work better than one covered in dead bugs.
- Early morning operations with a lot of dew present can cause carburettor or intake icing, use carb heat and confirm full power is available at the beginning of the take-off roll. Dew can also cause surfaces to be extremely slippery.
- Know the strip altitude; putting this on the altimeter will give you airfield QNH.



Take off notes

Even a small amount of headwind is highly desirable. What may seem like an insignificant light breeze at ground level can be very different at 30 feet and make the difference between comfortable obstacle clearance and a close shave. If there is a considerable crosswind think about how it will affect you during the take-off roll. For example, if wind is a direct cross-wind from the left (hence aircraft tends to 'weathercock' to the left into wind) and you normally need right rudder to keep straight in nil wind, it could be that right brake might be necessary to keep straight during the take-off. Better put the wind on the right in this case so the wind and aircraft 'natural' turning effects cancel each other out.

Are you sure there are no obstacles on the strip? If you have not walked the strip immediately before departure, it can be worthwhile taxiing along the strip to ensure no foreign objects are present. Always mentally brief the take-off and refresh yourself on what you are going to do if things go wrong. What is the over-run area like? Pick a decision point. If you are not airborne by there, abort take-off, it is much better to do this early in a controlled manner rather than late in a panic. Don't get distracted; do take-off vital actions methodically, forgetting flap, for instance, can be disastrous if you need it to clear an obstacle. Consider using a 'soft field' technique if appropriate (ie maximise lift early to minimise ground roll if the wheels are 'digging in').



Landing notes

Land into wind! Look for a windsock or smoke. Use GPS groundspeed on approach to assess the wind. Groundspeed should be LESS than IAS if there is a head-wind. Fly the correct approach and touchdown speeds. (Normal approach speed $1.3 V_s$, Normal touchdown speed $1.15 V_s$). Remember stall speed decreases with reduced aircraft weight. Published stall speeds are usually for aircraft at max all-up weight. A touchdown speed of only 10% above normal will increase ground roll by over 20%. A 40% increase in touchdown speed will double the landing distance required! Land in the correct place; if you misjudge the touchdown point or float in ground effect go around. Beware wet or slippery surfaces; these not only result in poor retardation but also poor directional control. After touchdown keep the aircraft straight using rudder and into-wind aileron. If you fly a nose-wheel aircraft keep the stick/yoke back during the ground-roll. This will not only protect the nose-leg but may also be necessary to counter the tendency for the nose-wheel to 'dig in' on soft ground and cause an uncontrollable turn or worse. As a last resort if things are looking like an over-run and it is too late to go around, consider switching off the engine. Idle thrust can be considerable, a stopped engine may result in a safe halt before the end, or less damage if an over-run is inevitable.



In General

It is important to be in current flying practice for strip operations. It is especially useful to practice slow flying with accurate speed control, as well as stalling, so you are completely familiar with your aircraft's characteristics at short-field approach and touchdown speeds. Practice short-field approaches and landings at a 'normal' airfield or fly with an experienced instructor before you operate from a short strip. Remember different aircraft have vastly different capabilities. Many strips are not suitable for non-specialist aircraft, even in skilled hands. Be realistic and don't put yourself under too much pressure, make sensible decisions early. If you are concerned about performance, do something about it; don't just hope for the best. Weather is a factor in many strip mishaps. If there is a risk of low cloud or poor visibility on departure then use local geographical features to assess the actual conditions. If the wind is strong on landing expect localised gusts and wind-shear close to the ground.

Finally, think about operating an aircraft where there may not be anyone else around. Do a careful walk-around just before getting into the aircraft, make sure all panels are done up and that the ground power unit/ tie downs/external control locks / tow-bar are all removed (never, ever, leave a tow-bar connected to an aircraft). Let someone know you are going flying and when to expect you back. Think about engine fire on start-up, be ready for a sharp exit from the cockpit and if possible know where the nearest fire extinguisher is.

Good judgment comes from experience; much of that comes from bad judgment. Please report incidents so everyone can learn.

Further recommended reading

‘Wire Stikes – the Hazard to Aviation’

GA Safety leaflet IGA 6 on the IAA website

‘Risk from Obstacles at Aerodromes’

GA Safety Leaflet AED 1 on the IAA website

‘Strip Flying’ Safety information leaflet no 12 CAA website

AUIU accident reports www.aaiu.ie

GASCI website www.gasci.ie



Cessna 208B Landing at Coonagh a 416m long x 9m wide airstrip near Limerick. Photo by Gerry Doyle.



www.gasci.ie



www.iaa.ie

Cartoons by Mick Bevan