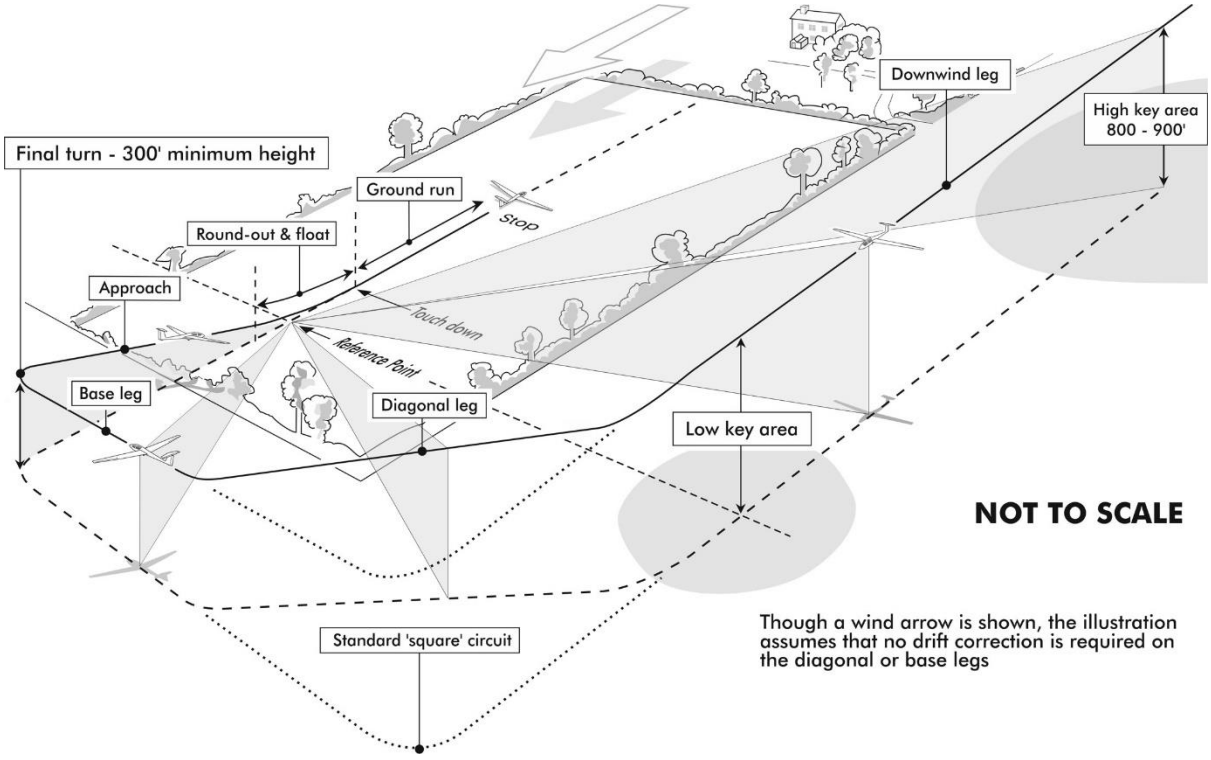
THE CIRCUIT

The purpose of the circuit is to arrive in the right place at a safe height and speed to make a final turn followed by a safe landing. At the airfield, a circuit has the secondary purpose of setting up an orderly flow of traffic.

Good lookout is important during almost every phase of flight and of crucial importance in the circuit where traffic density is likely to be high and everyone is heading for (and concentrating on) more or less the same place.

An ideal circuit looks a bit like this;



Circuit diagram from the BGA Instructor Manual

In the real world, every time we fly a circuit, we find ourselves making small corrections to ensure that we fly a path through the air that gets us to the planned final turn (see diagram above) at a safe speed and height (ie above 300 feet).

When your instructor teaches you how to fly a circuit, he or she will demonstrate a circuit and then teach you how to judge and respond to being too close or too far away; that exercise is known as a 'zig-zag' circuit. From there, you'll be taught in steps how to judge and fly the circuit including the correct speeds to fly. Here's an explanation of the terms used in the circuit diagram above.

The **downwind leg** (described as downwind because we usually land *into* the wind) allows us time to judge our progress and make any adjustments, while always retaining safe alternative approach paths. It begins in the **high key** area at 700' to 800'; sometimes higher for busy circuits/airfields. Where the downwind leg passes opposite the landing area is called the **low key area**. 'Key' is used here in the sense of impending critical decisions.

The turn onto the **diagonal leg** is made soon after passing the low key area, and before the view of the landing area is obscured by either the wing of the glider or the cockpit edge. This leg allows the pilot to keep the landing area clearly in view and ensures that at no stage in the circuit is the glider being flown directly away from it. However, though the tendency is to look only at the landing area, don't forget to continue looking in other directions as well; for example, outside the circuit and directly ahead. The diagonal leg:

- cuts across the corner and joins the downwind leg to the base leg
- ensures that the landing area remains continually in view
- reduces the risk of turning onto the base leg too late
- ensures that the angle down to (or up from) the landing area remains roughly constant throughout the later stages of the circuit.

Please note that the diagonal leg is flexible; it can be adjusted to put the final turn in a sensible position at a sensible height.

The **base leg** is positioned close enough to the landing area to avoid a long **approach**, and far enough away to allow time to judge progress and make adjustments to the approach. The base leg is usually at right angles to the landing direction, but not necessarily. Confirming the wind strength and direction and any corrections required is easier if the base leg is at right angles to the approach.

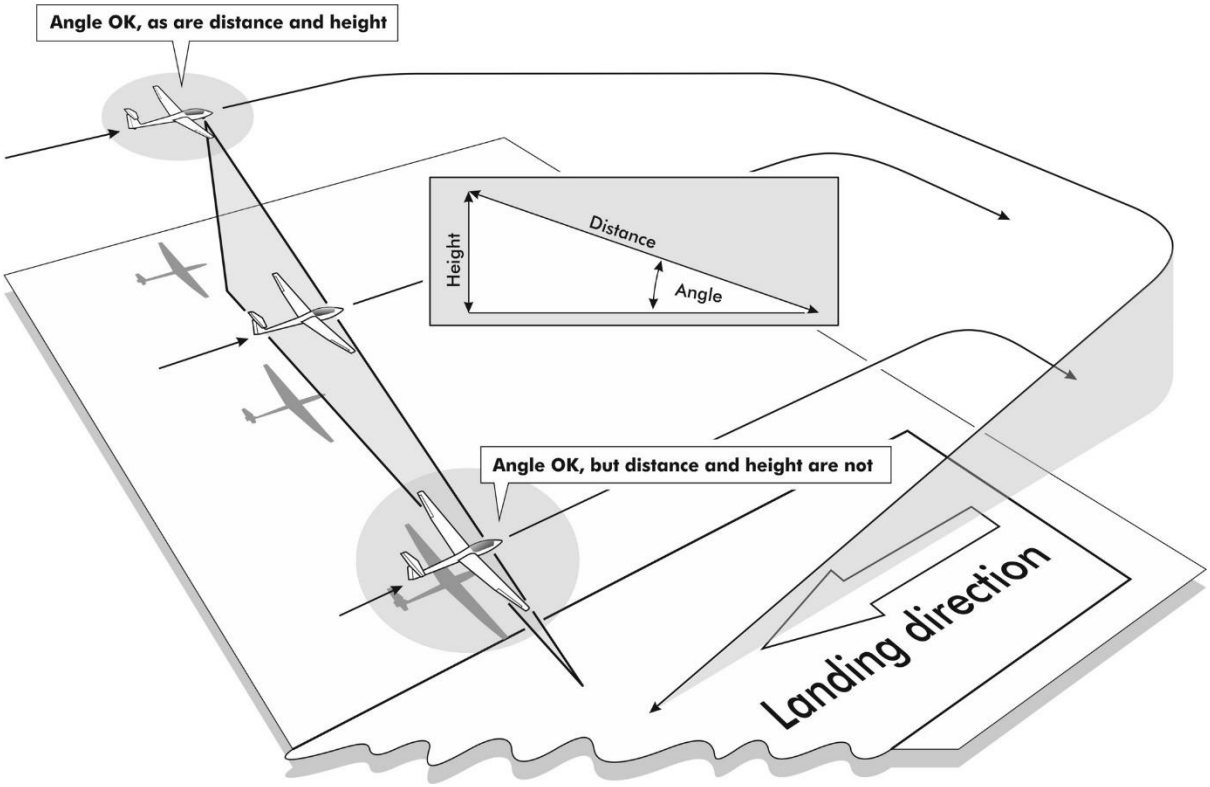
If there is any likelihood of 'running out of height' in the circuit, for example if we fly through heavily sinking air or misjudge our circuit, the latter stages of the circuit are adjusted so that a safe final turn can be made for an approach to an alternative landing area. Your instructor will make sure you know how to deal with any situation that can occur in the circuit, including 'running out of height'.

Judging Height

The altimeter doesn't actually indicate height above ground. It indicates changes in pressure (expressed in feet) in relation to a baseline set by the pilot on the altimeter subscale. As glider pilots need to be trained to land in fields where the pilot will not know the exact height of the ground underneath, they need to be able to judge height in the circuit. The other issue is that altimeters are not particularly accurate at heights below around 700 feet.

Ground structures such as trees, houses, pylons, cars, etc, look bigger as we get lower, and below 500 feet or so, judging height by their apparent size works well. The angle down to our chosen landing area combined with our distance from it also helps in estimating height, and, more than any other clue, helps us assess how far we can glide from that position. Notice from the illustration below that we have to use a combination of angle and distance from the landing area to be able to judge our height.

Please note that it is possible to see a steep angle across to the landing area yet be dangerously low simply by being far too close. It's worth noting that if any two of the three criteria of height, distance and angle are correct, the third one has to be as well. During the circuit, regularly judge the angles to the landing area (and any alternatives) in relation to your distance from them.



Judging height diagram from the BGA Instructor Manual