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Top Landings - Nigel Page

Although top landings are no longer a specific requirement for Club Pilot rating many schools intend to keep teaching them as part of basic training. However, there is no guarantee, and some CP pilots may find they need either to teach themselves top landings or learn with the assistance of coaches. Such pilots may seem at a disadvantage, but on the plus side they should be able to acquire more experience and develop skills in other aspects of their flying before having to tackle top landings.

Get Help

An understanding of airflow over hills, turbulence and rotor is essential. Make sure you get help and advice from coaches or experienced pilots before attempting top landings. There are places where only local knowledge or experience will keep you out of trouble.

What Is A Top Landing?

For the purposes of this article let's say that a top landing is a landing in or near an area where the pilot expects to take off from and soar. Our assessment of conditions may well be more important than our skill at controlling our glider. If in doubt, fly away and land at the bottom.

Top Landing Hazards

Most bottom landing fields are fairly flat and reasonably free of obstructions. Top landing areas may have the following hazards.

- 1) Steep slope.
- 2) Poor ground surface - Lumpy - Slippery - Holes.
- 3) Obstructions - Walls - Trees - Bushes - Rocks - Other pilots on the ground - Spectators.
- 4) Strong wind from venturi effect.
- 5) Turbulence and rotor.

Fly Carefully - Maintain A Good Airspeed

As we may be flying through turbulent air we must always fly with a good airspeed, perhaps using just enough brake to feel the glider and have good control. We must control any pitching with the brakes. Landing into a strong wind our ground speed will be low, and a big flare with the brakes may lift us off again, possibly going backwards. In a light wind with a high ground speed we will need to flare fairly hard to slow ourselves down.

Landing into strong wind - Low ground speed - Minimum (if any) flare.

Landing into light wind - High ground speed - Flare to slow down.

Practices like “big ears” and “mushing” to slow down are not a good idea when top landing. Keep that good airspeed.

Overshooting

Unlike bottom landing, when top landing we have the possibility of overshooting the landing area and flying away. Again, if we have slowed in order to land, we must restore our airspeed by making sure we let the brakes off enough.

Avoid Steep Turns

Steep turns and large control inputs may make the glider swing and lose more height than we expect. Not a good thing near the ground.

Don't “Push” To Land Upwind Of Obstructions

If the wind is at all strong we should not land just upwind of obstructions. If we think we might not land well upwind of a wall or hedge we should do a small “S” turn or carefully use a little brake to let ourselves drift downwind of it. Landing on top of walls or fences, or being blown on to them backwards, is a common cause of accidents.

Can We Kill Our Glider?

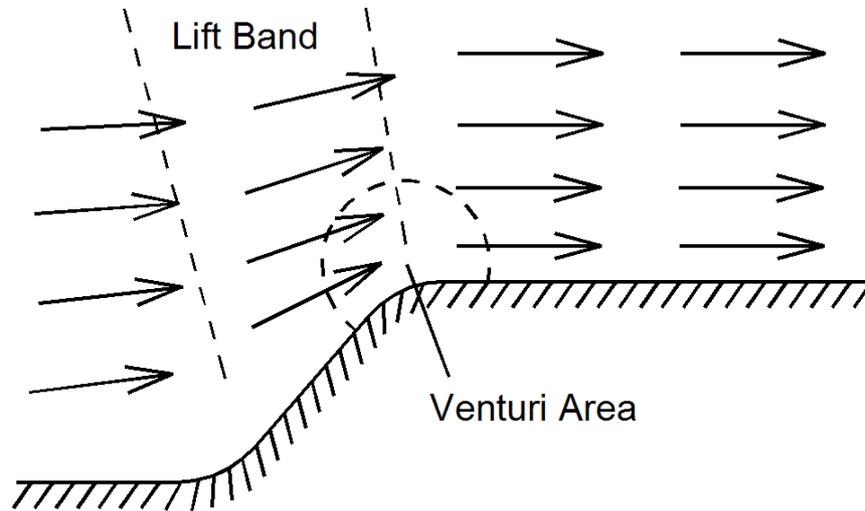
Once we are on the ground we may have to deflate our glider in a strong wind. Can we do this safely without being dragged? If not perhaps we should do some ground handling practice in a flat field first.

Keep The Landing Area Clear

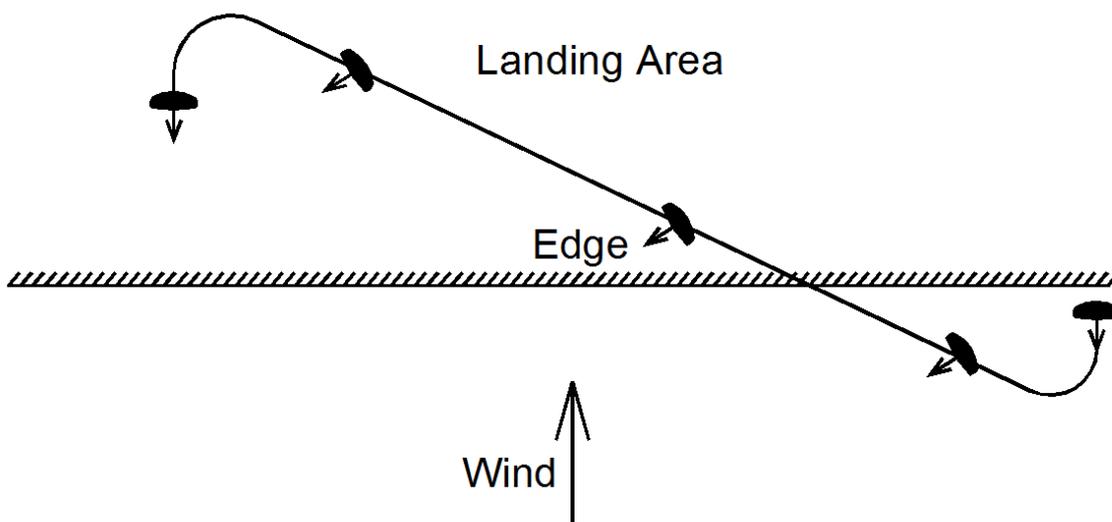
As with bottom landings, once down we must remain vigilant and move to

clear the landing area before packing up so other aircraft, particularly hang-gliders, can land easily.

Let's start our top landings with an easy one. In this case we have an edge with a plateau area behind it so there are no serious worries if we go too far downwind.



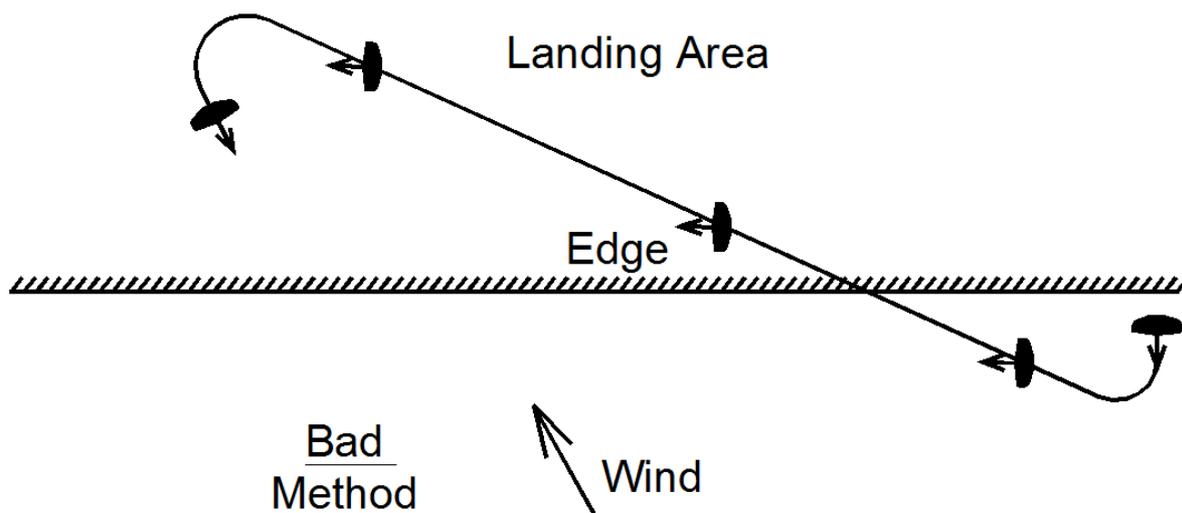
This may not really be a top landing by our earlier definition but we won't worry about that for our first attempts. Our landing area is flat with a nice rounded edge where we launched. We should make sure the wind is not too strong and all we have to do is to get some height in front of the hill, fly diagonally crosswind a bit to drift back and turn upwind to land.



We never actually point downwind at all and in this case we never actually

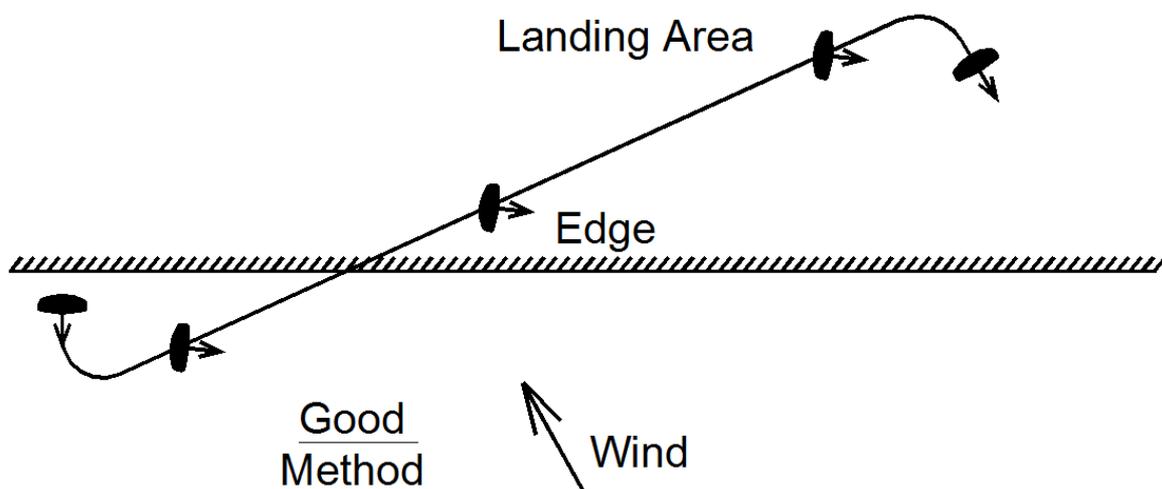
point fully crosswind either. If the wind is really strong we may not have to turn much at all. However strong winds may badly disturb the air flow in our landing area, particularly if there is wave about. It is crucial to talk to experienced pilots or coaches for our early attempts.

If the wind is not square on to the hill we need to be more careful about the direction of our approach.



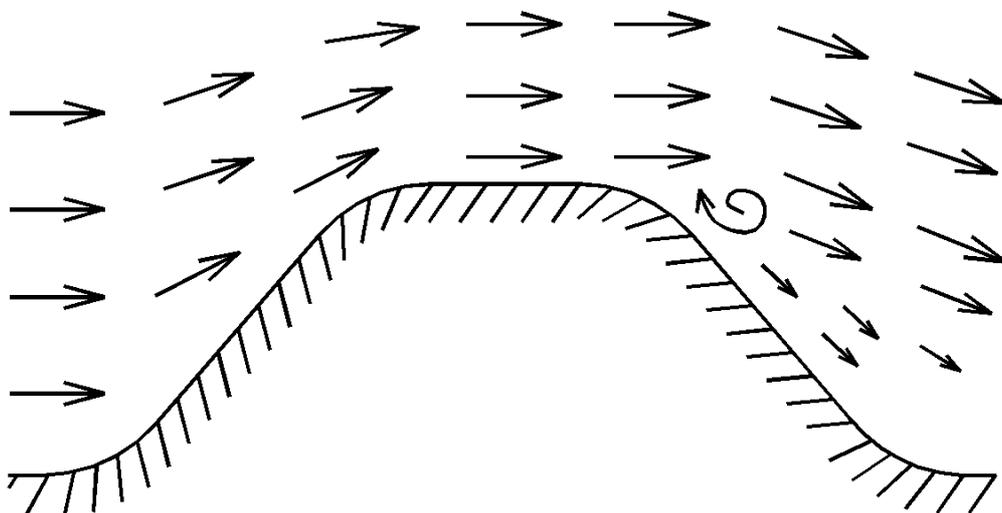
In this drawing on the pilot will be flying almost downwind with a high ground speed followed by a “hook turn” of nearly 180 degrees. This requires a lot of skill with not much room for error.

We can do much better.

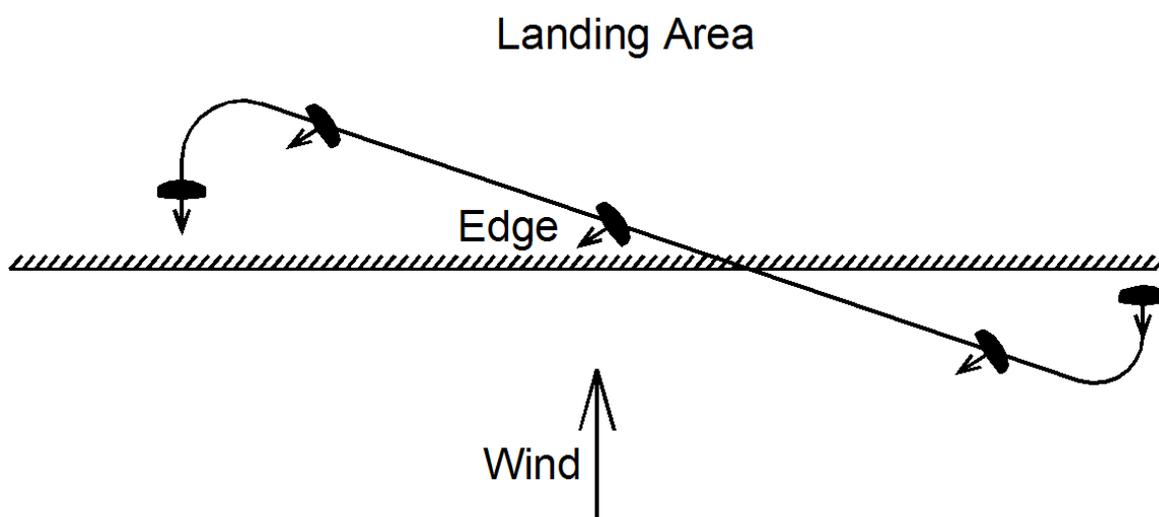


The pilot now has a much lower ground speed and gentler final turn. Much easier and safer. Always try to top land in the “slow beat” direction.

We now have a method for landing on a narrower flat topped ridge as long as we are careful not to go too far downwind.



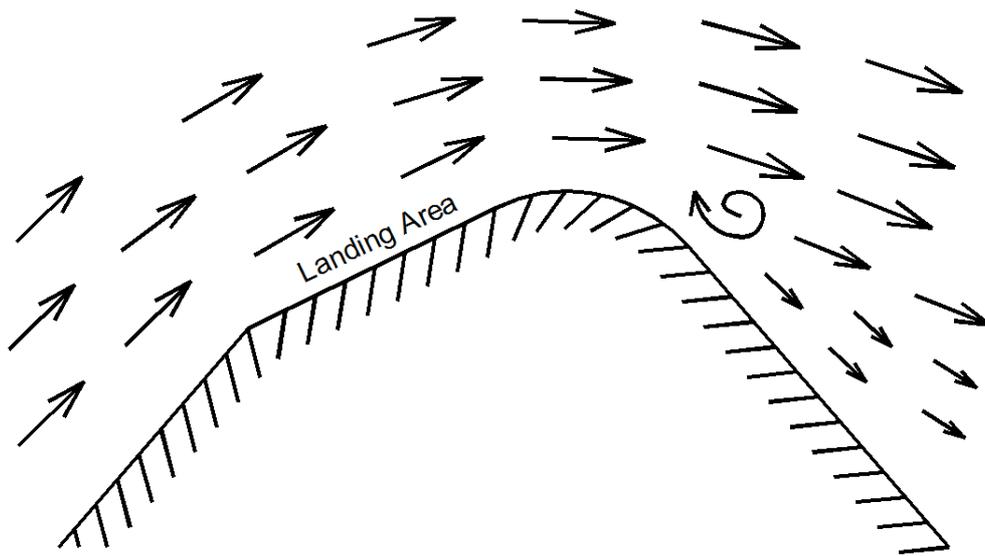
We can also practice landing nearer the edge and using less of the available flat area.



This will help us when we come to land where there is no flat area, but we will have to be more careful of potential turbulence or rotor from the edge itself.

Remember to keep those hands high to maintain a good airspeed.

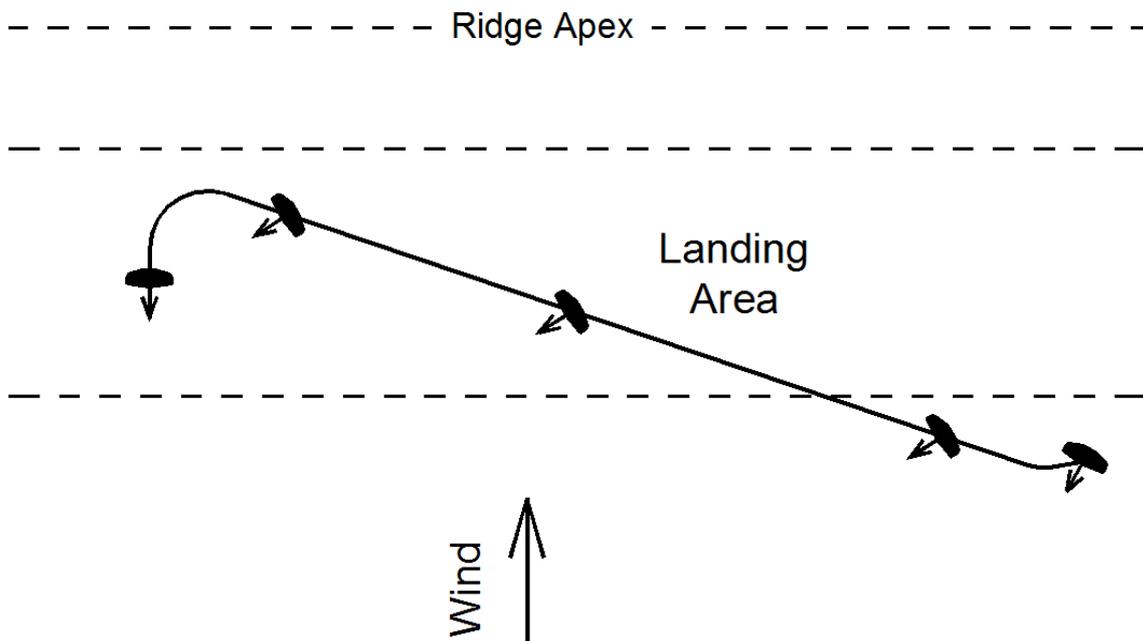
Now let's look at a sloping landing area with downwind hazards.



On this hill we have a limited landing area which is sloping, in lift, and from which other pilots may be launching. The whole landing and ridge top (apex) area may be subject to increased wind strength due to venturi. With the downwind side of the hill being steep being blown backwards will be very dangerous indeed.

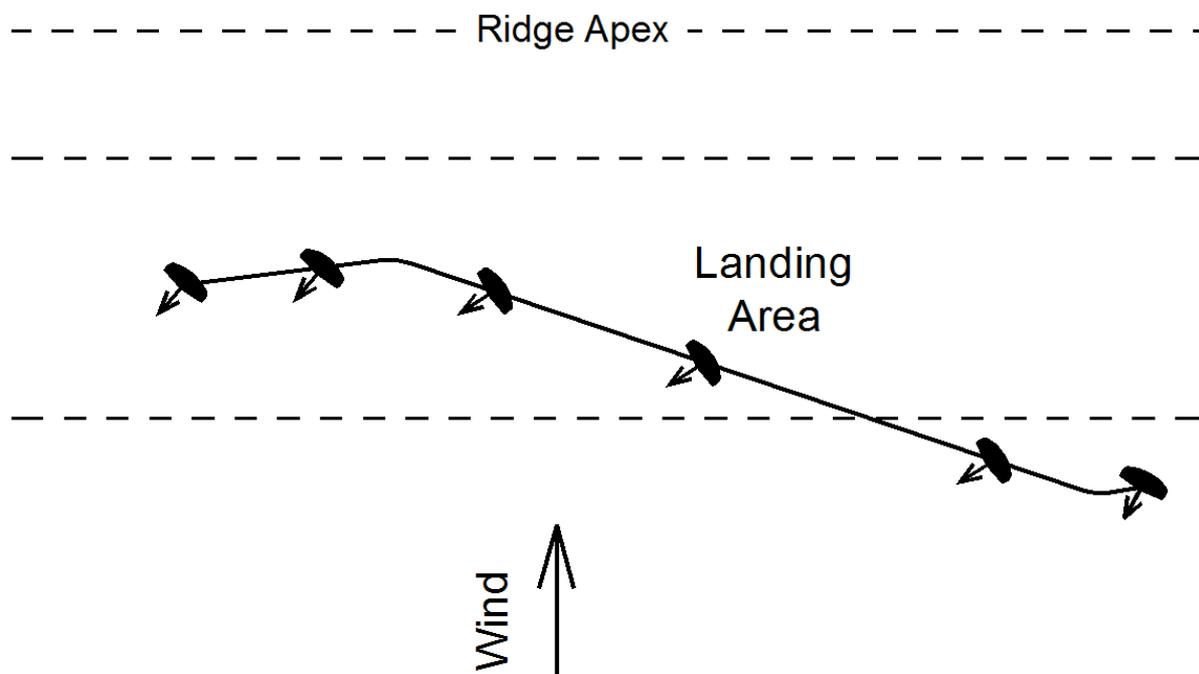
The question is not so much how to make a landing as whether it is safe to attempt one.

Our approach for a top landing will be similar to that for the flat-topped hill, but we probably want to keep in front of the ridge apex.



If it is too lifty and we cannot get down we will have to fly away, lose some height and try again.

We may also have difficulty getting down because of the slope of the landing area. In this case we will have to do a crosswind slope landing as we might on the face of a hill.



This may need a bit of practice to get right so we must be prepared to fly away if it looks wrong. Again, if the wind direction is not square to the hill, we must make sure we land in the “slow beat” direction.

If it is very sinky, perhaps between two lift cycles, we may find ourselves “dumped” on the hill which can be very unpleasant and a common cause of accidents. Be ready, but if there is significant sink about it is probably safer to fly away from the hill and bottom land.

Top landings are not so difficult, but we need to be more careful assessing conditions than for bottom landings. Let's recap our assessment looking at particular issues of strong and light winds.

Strong Wind

How strong do we think the wind is? Are pilots having difficulty penetrating whilst launching or landing?

Is there a large enough clear area to land safely? Obstructions downwind of

our intended landing area may be a greater hazard than those upwind of it.

Will we be able to deflate our wing OK?

We may be able to test the wind by making a pass in front of the landing area, although this may not be appreciated by pilots on the ground.

If in doubt, don't attempt a landing. Either keep flying or bottom land.

Light Wind - Watch For Crowding

If the wind is light we may wish to land because the lift is decreasing, perhaps because a thermal cycle is ending. On a busy hill this can lead to all sorts of problems. Other pilots will be trying to top land for the same reason. Quite possibly pilots on the ground, having waited for the wind to drop a bit, will not realise it is becoming difficult to soar and be trying to launch. We need to be extra careful to avoid conflicts with other pilots. If we are heading for a crowded area we must turn away and bottom land if necessary.

Do not fly into an area which is becoming crowded.

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