



Nick Simmons makes an into-wind final approach

Accuracy wind speed penetration check

Andy Webster discusses the wind speed penetration check, important in both classic and paragliding accuracy.

Where possible, it is generally a good idea to carry out a wind speed penetration check to assess the wind speed close to the landing site. This involves flying 'alongside' the target (in relation to the wind direction) to get a feel for the wind speed. The penetration check can involve using various amounts of brake and will ultimately determine how far downwind of the target to fly for the into-wind final approach.

If you find that you are barely penetrating with little brake applied then the wind is strong and you should not go too far downwind of the target. If you find that you are driving forward with a lot of brake applied, the wind is light and you can go a good distance downwind of the target.

The position of the penetration check is important. It should allow an easy manoeuvre on to the final approach - a badly thought out penetration check could put you in a poor position to get on to your final approach. The blue flight path (Fig. 1) shows a penetration check being performed to one side of the target, allowing an easy set of turns onto the into-wind final approach. The blue flight path shows a pilot flying to a point that is level with the target, but you do not necessarily need to fly this far forward in lighter winds or if height is at a premium. The red flight path shows a penetration check being performed above the target. This position does not leave an easy route onto the final approach and will involve a difficult-to-judge final turn. The red flight path also breaks one of the golden rules in accuracy, of not turning your back on the target and thus losing sight of it.

Wind gradients should also be considered when carrying out a penetration check, as the wind speed at height can be different to that at ground level. In

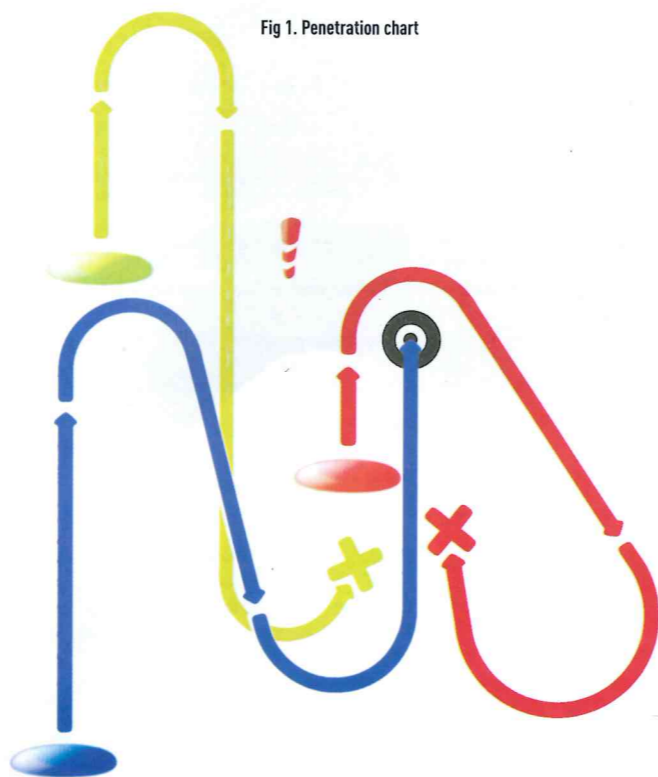


Fig 1. Penetration chart

certain atmospheric conditions the wind speed can be a lot greater at height than it is at ground level. Conversely, in valley winds the wind speed can be low at height and strong at ground level. In these situations an understanding of the local air conditions is important. Carrying out a penetration check closer to the ground will help, but there is a limit to how low you can complete this and still get onto the into-wind final approach.

If you are confident that the wind speed is low, there is little point carrying out a penetration check as you know that you will have lots of glide. Also if you start a penetration check alongside the target in a low wind, the glide you have will take you too far in front of the target as shown by the green flight path in Fig. 1 and you may have difficulties getting back for an into-wind final approach.

A penetration check is a good means of losing altitude if you arrive at the target with lots of height and want to avoid a long, tiring final approach; conversely a penetration check should not be carried out if you have insufficient height to do so. When you have insufficient height you have no option but to miss out the penetration check and fly the shortest route to the into-wind final approach. Without a penetration check you can still make a

judgement of the wind speed based on your ground speed and the target wind direction indicators. Windssocks and streamers can give an indication of wind speed; at the start of any accuracy competition you should familiarise yourself on how these wind direction indicators react with wind speed.

The wind speed penetration check is also referred to as the 'first cone' in relation to the final approach 'cone of possibility'. The cone of possibility is marked in the vertical plane by the steepest and the shallowest possible glide angles that will get a pilot onto the target. There are similar horizontal boundaries forming a cone shape (Fig. 2), and if a pilot can fly into the cone of possibility he or she will have a good chance of landing on the target. The first cone or wind speed penetration check is basically a dummy run for the final approach in the cone of possibility.

In summary, it is a good idea to carry out a penetration check when you have sufficient height to do so, but be aware of any wind gradient effects. A penetration check in light winds is not necessary and will most likely put you in poor position for the final approach. Position your glider for the penetration check so that you have an easy route to fly to get onto the final approach.

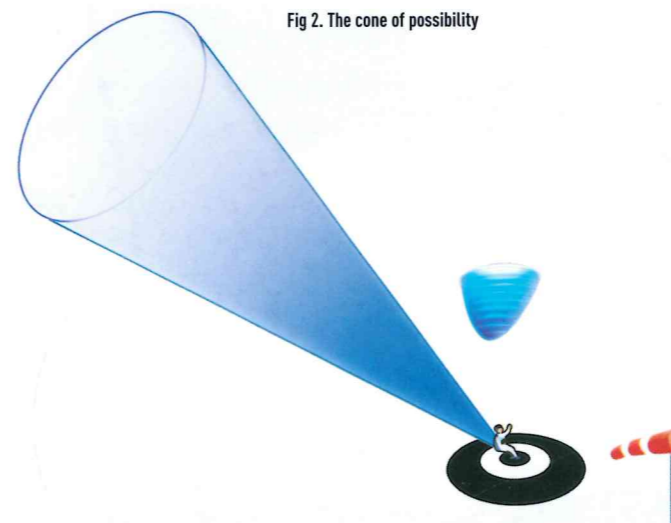


Fig 2. The cone of possibility



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