

## CHAPTER 9

### FLYING IN STRONG WINDS

#### 1. LANDING.

Landing in gusty, high wind conditions can impose difficulties on pilots. This needs to be addressed if acceptable safety margins are to be maintained. The frequency of high wind situations experienced at Worcester has necessitated the development of a specialised landing technique, adherence to which will hopefully reduce the number of unfortunate arrivals to a minimum.

High winds are regularly experienced from the north-west during the Autumn and Winter months. Less frequent but equally strong summer south-easterlies can also fall under the category of wind, which requires a special landing technique. This chapter deals primarily with landing on runway 33, though the same technique may be equally applied when landing on runway 15.

Landing on runway 33 during high winds encompasses all the usual conditions a pilot can experience on any landing, but with certain of these phenomena being more pronounced. These encompass:

1. Wind gradient.
2. Gusts.
3. Turbulence. (rollers, “invisible hands”)
4. Rotor.
5. Side gusts.

Pilots have reported that the turbulence factor is particularly pronounced at the threshold of, and about 100m into, runway 33 and that it appears to diminish, though not disappear, towards a deep-field point in line with the clubhouse.

Pilots should be vigilant with regard to certain fundamental details when joining the circuit for a landing in high winds. These are:

1. Adequate height must be allowed

(more than the usual 1000' agl is suggested)

2. Pre-landing checks and radio calls should be completed in good time as the downwind leg is completed much more quickly due to additive component of the high wind speed.
3. The position of the downwind leg should not facilitate an excessively long (or short) base leg.
4. The turn onto the base leg should be initiated while still opposite the runway in order to avoid a long final approach.

On base it must be ensured that the final approach is not too long. If the downwind leg has been extended too far, flying the base leg is an opportunity to head directly from the base turn towards the threshold. The glider must be brought to the selected speed for the final approach during this base leg, at latest. The selection of minimum approach speed should be done according to one of the following formulae:

Stall speed + ½ stall speed + ½ wind speed.  
or  
Minimum sink speed + 10kph + ½ wind speed.

The MAIN FEATURE of the high wind landing technique is the DEPLOYMENT OF FULL AIRBRAKE for the final approach. The positive features of a FULL airbrake approach include the following:

1. Greater glider stability.
2. Quicker descent through the wind gradient.
3. Less like to fall prey to a gust upset.
4. Less likely to balloon
5. More likely, once down, to remain on the ground.

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But special care must be taken with the following points:

1. Allow adequate (extra) circuit height during high winds.
2. Monitor and maintain the correct airspeed.
3. Time the moment of airbrake deployment and subsequent descent, to avoid a too-short approach.
4. Expect that the "picture" of the ground will be "different" from a "normal" approach.
5. Don't fixate on the ground when you should be rounding out.
6. Look FAR down the runway as usual, when rounding out.
7. Be aware that the full process between deploying the air brakes and touch down on the terrain happens quickly (because of a higher descent rate).
8. Use a reference point on the runway on which to centre (direct, or aim) the approach.
9. Touch down FULLY STALLED
10. Continue to control the glider during, and after, the ground run.
11. Keep the air brakes fully deployed even when you have stopped rolling.

The full airbrake approach means that this reference point will be visually lost to the pilot below the nose before the actual descent with airbrake is commenced – deploying the airbrakes while the reference point is still visible (as is usually done with a half – two thirds airbrake approach) will result in a short approach.

The bogeymen to be fiercely avoided on approach are:

1. Premature loss of airspeed.
2. Loss of directional control.
3. Rounding out too high (too soon).
4. Ballooning and subsequent pancaking.
5. Stalling in.
6. Rounding out too late, and...
7. Impacting the terrain prematurely ("flying in")

During your training you will certainly experience flying in high wind conditions. Your instructor will take this opportunity to

demonstrate the technique- hopefully on more than one occasion. Only when you are far more advanced should you attempt it yourself with the instructor standing by. Simulating it in calm conditions is not very convincing.

The view, or attitude, on final approach is something that you will need to become experienced at judging. And as with everything in flying, there is no substitute for experience!

### 2. GROUND HANDLING.

Always use a rudder-lock, even in moderate winds and especially when towing a glider downwind. Excessive damage is done to rudder attach points in these conditions.

Often the wind can pick up from 'moderate' to 'strong' and 'very strong' within a few minutes. A decision is then taken to return the lighter gliders to the hangar and special precautions now need to be taken.

A heavy person should be strapped into the front seat and even one in the back. Canopy to be fastened. The stick should be kept forward to prevent the nose lifting and the glider becoming airborne behind the tow vehicle! (It has happened). Feet on rudder pedals and rudder-stop in place.

A person on each wingtip and one holding the tail up is required. When turning crosswind keep the 'into wind' wing lower.

### 3. TUGGNIG.

The Tug Pilot is responsible for the tug and should only agree to tug in wind condition he feels comfortable with. On no account should he be coerced to fly in strong winds if he not willing.

In strong winds, say above 50 kph (windsock horizontal), he should not attempt to turn the aircraft and back-track but should request assistance and be pushed back or assisted with turning.

If the tug pilot has not indicated that he is unwilling to continue tugging the Duty Instructor should stop launching if wind

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conditions are in the region of 65kph.  
A safety circuit is not usually necessary in strong winds.

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