

Ex 12 – LANDING EXERCISE

DO NOT try and teach approach control and landing at the same time.

LANDING EXERCISE BRIEFING

AIM: To teach the trainee how to land a glider.

Under normal conditions the flare starts about 20 feet above the ground, but this will depend on the steepness of the approach and the descent rate. The objective is to transition smoothly from the approach to flying parallel with the ground just a couple of feet up.

When it is time to begin the flare, stop adjusting the airbrake and look away from the RP towards the far end of the landing area and the distant horizon. This helps judge the glider's height and closure with the ground and also allows accurate adjustment of the attitude. During the flare, the pilot should concentrate only on the attitude and flight path.

Smoothly move the stick rearwards to arrest your descent until the glider is flying parallel with the ground. Use the elevator to slowly raise the nose until the glider is in the correct landing attitude then allow the glider to settle onto the ground.

Once on the ground:

- Keep the glider running straight by using the rudder.
- Maintain the wings level with the ailerons for as long as possible.
- Progressively bring the stick all the way back.
- Select full airbrake.
- Apply the wheel brake gently if required.

Landing with a Crosswind

To maintain the correct ground track on the approach the nose of the glider needs to be pointed towards the wind (crabbed) – this may position the RP to the downwind side of the canopy rather than being directly over the nose. The desire to point the glider directly at the RP and therefore be out of balance needs to be resisted – the glider must continue to track in coordinated flight until after the flare has commenced.

- As the nose rises towards the landing attitude, use the rudder to point the glider in the direction of landing.
- Remember – the further effect of rudder will roll the glider in the same direction – prevent this roll by maintaining the wings level with opposing aileron.
- As the glider slows it will want to yaw (weathercock) into the wind – initially maintain and then increase the rudder input as the glider slows.
- Keep the wings level for as long as possible.

TEM

Threats:

Unexpected trainee action

Mitigation:

Avoid unnecessary prompting.

Take control early

Errors:

Lots of trainee errors

Guard the controls effectively.

Take control early

The Flying



LANDING DEMONSTRATION

Ensure you are flying the glider from early on the approach. Example patter could be:

- 'Alignment – attitude – airspeed – RP all good.'
- 'Continuing towards the RP.'
- 'Approaching the flare.'
- 'LOOKING UP – NOW – FLARING – NOW'
- 'Smooth round out – and maintaining THIS height – nose rising to – this attitude.'
(If landing with a crosswind – 'Rudder to point the glider – keep the wings level.')
- 'Touchdown – keep the stick coming back – full airbrake – keep straight with rudder – wings level with aileron.'
- 'Wheel brake gently if required.'

TRAINEE PRACTICE

Allow the trainee to land the glider. Prompting key points such as 'Look up -now, flare – now' might be appropriate for initial efforts but the trainee will have seen quite a few landings by this stage and so will have a reasonable idea of the flare height.

Instructors **must** guard the controls carefully but **must not** interfere with the controls. Either the trainee has control or the instructor has control. Be ready for any eventuality:

- Right hand in front of the stick to prevent any sudden forward movement.
- Feet close to or very gently on the rudder pedals, left hand close to or behind the airbrake lever to prevent a sudden opening.

If there is any doubt – **TAKE CONTROL IMMEDIATELY!**

COMMON ERRORS

Early Flare

An early flare is either caused by a lack of height awareness from the trainee or an element of 'ground shyness.' The trainee's response will indicate their awareness of the initial error. If they are making a reasonable correction, a direct prompt such as 'Hold everything still, let the glider sink – continue to flare' might be appropriate.

If there is either no response or an incorrect one – **TAKE CONTROL IMMEDIATELY!**

Late Flare

A late flare is usually caused by not looking up from the RP towards the end of the landing area – **ask** the trainee in the debrief where they were looking.

A late or even no flare leaves very little time for the instructor to react so **TAKE CONTROL IMMEDIATELY!**

Ballooned flare/landing

A sudden, snatched, or late flare, or even a bounce, can lead to a ballooned landing. These may arise quite naturally during pre-solo training, but it is important that a trainee knows how to recover from them before being sent solo. They can be practised in a simulator prior to attempting it in a glider. Recovery actions should be prompt and focus on the glider's attitude and the severity of the trajectory.

- Smoothly adjust the attitude to stop the glider climbing and reduce the airbrake setting.
- As the glider sinks towards the ground, continue the flare and land.
- If the balloon is more severe, **promptly** adjust the attitude to stop the glider climbing, and **close the airbrakes**.
- Set an **appropriate** attitude to maintain the glider's energy and then re-flare the glider. The airbrakes should remain closed until in the hold off where they can be 'cracked open' gently to prevent the glider floating. With the airbrakes closed the glider is more sensitive in pitch so beware of the possibility of over-controlling and pilot-induced-oscillation.

To set up a 'balloon' practice, use a low airbrake setting and a speed about 10kts higher than normal. Carry out a flare with a 'normal' stick input and this will produce an adequate balloon without bringing the nose up too high.

Instructors should **TAKE CONTROL IMMEDIATELY** if the trainee fails to respond correctly or overreacts in some way.

DE-BRIEFING

Early trainee attempts at landing are unlikely to be perfect. Points to look out for:

- Are they using the correct technique?
- Do they recognise their errors and are they correcting them without instructor intervention?
- Are they looking in the right place?

Finesse will come with practice. If the outcome will be safe, let them get on with it and debrief them appropriately.

COMMON DIFFICULTIES

Trainees landing the glider and then forgetting or failing to continue to control the glider on the ground run – remind them that they may need full control input as the ailerons and rudder lose their effectiveness.

Once the glider has touched down, relaxing the back pressure on the stick – remind them to keep the stick fully back until the glider has stopped.