

Gliding Australia Training Manual

Pilot Guide



Unit 34

Outlanding Planning Demonstration & Execution

Unit 34 - Outlanding Planning Demonstration & Execution

WHAT THIS UNIT IS ABOUT

To develop the skills and knowledge required to plan, prepare and perform a landing in an unknown field. This may include a landing at the conclusion of a cross country flight and in an emergency situation (launch failure, low in circuit, etc) close to the airfield.

WHAT ARE THE PRE-REQUISITES FOR THIS UNIT?

- GPC Unit 15 - Break-off & Circuit Planning
- GPC Unit 16 - Circuit Joining and Execution
- GPC Unit 17 - Stabilised Approach and Landing

COMPLEMENTARY UNITS

This unit should be read in conjunction with:

- GPC Unit 35 - Flight preparation, glider, trailer and pilot.

KEY MESSAGES

- Outlanding requires concentration and planning and adherence to standard procedures. It should not be done in haste so an early decision to land is critical.
- Set personal minima for the decision to land and for flying the circuit and stick to these.
- You need to monitor and estimate height above ground without reference to instruments
- Identifying obstacles, wires, crops, wind direction are key observations required
- Every landing you make is practice for an eventual outlanding.

PILOT GUIDE FOR THIS UNIT

The Decision to Land

Changing from a Soaring pilot to a Landing pilot

- The predecessor to a successful outlanding is putting yourself in a position to be able to plan the outlanding. The lower you get, the less options you have available to you and the less time to execute the landing. On windy days there may be less available suitable paddocks for instance. The transition from soaring pilot to landing pilot can happen quite quickly in heavy sink.
- On every flight you need to be aware of having a suitable landing field within your reach. Even when flying local you may experience heavy sink or strong winds which means that your airfield cannot be safely reached. In this case you must identify and then select an alternate landing field.

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- An outlanding is safe provided you have enough time to prepare and plan, and adjust your decisions based on a close look at the field. Accidents as a result of outlanding are often due to not having enough time to thoroughly inspect and choose a field and plan the landing. The trap is when you keep hoping that you will find a thermal so you delay making the decision to land.
- Set your personal minima as to when you will make this decision and become a landing pilot.
- In rough terrain, even very experienced pilots will make this decision at a higher altitude.
- For your early outlanding you are advised to have selected your field by 1500 feet AGL and remain close to the field until you are ready to start your circuit, all the time looking at the field to confirm that it is suitable. You should have alternative landing fields identified in case you discover a problem with the field you selected.
- If you find a thermal during this pre-landing phase you may use it, but retain awareness of your landing field so that you don't drift away from the circuit joining area. This is no different from what you might do near to your home airfield.
- As you reach circuit joining height then you transition from Soaring Pilot to Landing Pilot and are now committed to landing in the field so you must now focus on that task only. Ignore any other thermals.

Field selection

- On a cross country flight remember that an outlanding is always a possible outcome. This is normal practice.
- You need to look well ahead (20-40km) to ensure that the ground you will be flying over in the next 30 minutes has landable fields available.

How far can you fly?

- Plan on achieving 7km for each 1000 feet of height AGL plus 1500 feet for circuit planning and landing. So, if you are at 4500 feet AGL you can fly 21km before having to land (assuming no excessive sink) so make sure there are suitable fields in the next 21km.
- Suitability of your track will be indicated by the colour of the fields and presence of hills and rough ground. Flat ground with bright green crops may be OK once the crops have been harvested but possibly not suitable in spring. Select a track that will keep you within reach of landable areas.
- Colour is a good indicator because it gives a clue as to what's growing in the field, if anything. Freshly cropped and fallow fields are better than fields which are in crop but low crops are better than high. Fields with deep furrows are to be avoided if possible and if not, land in line with the furrows, not across them.
- Local knowledge is a good idea. If you're not a bush dweller, ask a local to describe to you the appearance of common crops in the region and what to avoid, crops like canola and cotton. Examine the appearance of the fields either side of the road as you drive to the strip. Brown fields have often been cultivated and can be a good surface... there's a saying "if it's dirt, you won't get hurt."
- Getting used to finding fields, assessing them at a distance and confirming or rejecting them as possible landing places when you get closer is an essential part of gaining confidence when soaring.

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- As you get down to 2000ft AGL you need to have identified specific fields that you can land in, rather than areas of suitable fields. This means that you have to identify fields based on a series of criteria.
- The criteria for selecting a field are shown the following table

WSSSSSS

Field Selection Check list

W Wind	If there is no indication of wind on the ground, use the longest distance along the paddock which may be a diagonal. Assess the wind from drift when thermalling, dust, smoke, ripples on dams or other signs. Land into wind as much as possible.
S Size	Adequate length for landing, normally 300 metres, corner to corner diagonally if necessary. Choose the largest available rather than the most convenient.
S Slope	If a slope can be detected from circuit height, it is too steep to land in. Pick another paddock. Land uphill, even if there's a small downwind component.
S Surface	As smooth as possible. Stubble and dirt are best. Avoid crops like canola. Fields with many trees may not have been cropped and so can be rough, with fallen branches and holes to cause problems.
S Stock	Avoid paddocks with animals. Sheep are usually not much of a problem. Cows eat or walk on gliders. Single cows aren't cows (Bulls!), Horses may panic.
S Surrounds	With adequate approach paths. An approach over trees means a longer distance into the field before touchdown and there's a risk of wires hung between trees, wind shadow or turbulence off the trees.
S SWER	Single Wire Earth Return power lines are very hard to see. Overhead power <i>lines and wires strung between trees as well as fence wires are a fact of life in the country</i> , especially near buildings. It's hard to see wires so look for poles or plant growth along fence lines. Don't fly an approach between trees

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Circuit

- Your circuit height must not be too high, and definitely not too low. You are able to identify problems with the field more easily at 800 feet than at 1200 feet. As you fly downwind focus on seeing power lines, fences, rough ground, stock etc and adjust your aiming point accordingly.
- Your circuit should be a normal circuit, same angles and speeds with a final turn no lower than 300 feet AGL. Perform Pre-Landing checks (FUST), make a broadcast radio call to advise your plans if you have time to do this.
- Select an aiming point that reduces obstacles on approach. It does not have to be in the middle of the field if the ground and obstacles are better on one side.
- Once you land, stop as soon as you can – there may be unseen holes and obstacles in front of you.

Post landing actions

- Radio others to let them know that you have landed safely. They may be able to help you make contact with home-base to arrange a retrieve.
- Tie the glider down before you walk away. It may be a few hours before you are back at the glider with your crew, and the weather can change quite quickly.
- Orient yourself and review your map to identify main roads and tracks. Try and identify nearby houses where you can seek assistance. Look for gates into the field and if possible check if they are locked. Leave flashing lights at key locations, Take water with you because it may be a long walk.
- Use your mobile phone to contact your crew. Text may work better if in a low reception area.
- Try to locate the owner of the property so that they are aware that you are there. Generally farmers are happy to meet you, but get grumpy if you have not made contact with them before your crew arrives in the field. Giving the children a look at the glider is always good Public relations.
- GFA insurances will cover any crop or property damage. It is rarely used but good to offer if the farmer is concerned.

Use of See You and Google Earth and Simulators

- These tools will give you a chance to review available fields in your flying area. (crops may be different but you can see many issues.)
- Identify power lines and roads and houses.
- Identify fields that could be suitable.
- Select a suitable field and plan the circuit

FLIGHT EXERCISES FOR THIS UNIT

Local flying exercises

- Estimate your height above ground based on observation of features such as trees, stock, fences.
- Develop some rules of thumb to estimate your height around your airfield.

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At 500 feet

- Trees appear to have a solid canopy, below 500 feet you can start to see through between the branches and identify leaves.
- Fence posts become individually visible
- Cows have visible legs, a little lower sheep have visible legs
- Power poles become more visible and you can identify guy wires where present

Identify Crops:

- Learn to identify major crops from the air.
- When driving, stop and look at various crops to identify height and density.
- Beans and Peas and Sunflowers have potential for damage due to density or strong stalks
- Beware of crops that are trellised, most obvious are grapes.

Field size.

- At your home field, when getting lower, look at the length of your normal landing area and compare it to the size of nearby paddocks. Learn to identify fields that are big enough to land in.
- Select a field that is at least twice this size so you have capacity to adjust your aiming point to avoid obstacles.
- Trees on the final approach will require you to be higher and so the effective length of the field is reduced considerably.

Power lines/ SWER lines

- In your normal circuit area, identify power lines that would make it hard to land in the field.
- Initially you will see the line of the poles and less likely to see the wires. This is true down to quite low altitudes. Get used to seeing the lines of poles and observe how far apart they are. Look for changes in the crops around the poles due to machinery not being able to get close to them.
- As you get lower when flying cross country, regularly look for power poles and follow the lines, identifying when another line splits from the main line. Best places to start searching for power lines is from the farmhouse, sheds or dams.
- When landing in a field with power lines, landing under them is difficult. The wires sag well below the poles and you may not see them. You will need to be very low, close to round-out altitude to avoid them. Best to land in a different field. If you want to fly over them, you should fly over the top of the pole as you can see this more clearly and get proper depth perception. Best to land in a different field.

Simulated outlanding at your airfield

- Ask your Instructor to select an area of the field where you have not landed before. This removes the familiar approach surroundings so requires new judgment. You can even simulate fences and rough ground with suitable props. It is most important that the marked area has a safe undershoot and over-run area available.
- If doing this solo, ask your instructor to observe and give feedback.

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Motor gliders

- The best training opportunity is where you have a motor glider available, for identifying and selecting a suitable field, and then to fly the circuit down to low level. Landing if the Aircraft is suitable. It may be worth visiting a gliding site where this is possible

Outlanding

- Where possible, a dual landing in a 2 seat glider in a field is great training. Even having an identified field with farmer approval for an outlanding provides the pressure and focus required to fly the circuit and landing.

THINGS YOU MIGHT HAVE DIFFICULTY WITH

COMMON PROBLEMS
• Making the decision to land enables you to concentrate on a safe outlanding. Set personal minima for making this decision and then stick with it. • You will be making a lot of decisions in preparing for and flying the circuit and landing. Make sure that you have enough time so that you are not overly pressured. • Landing in a new field means that you won't have the normal landmarks to help with decisions on where to fly and where to turn. You must learn to make decisions based on angles to the aiming point. • Focus on the basics of speed by attitude and descent to the aiming point with airbrake, aiming for a half airbrake approach. • As you get lower you will be able to identify problems with wires and fences and rough ground which were not previously visible. Keep looking so that you can adjust your flight path to avoid obstacles. You need to be flexible and adapt to changing circumstances.

HOW DO YOU DEMONSTRATE COMPETENCE?

- Commit to landing.
- Select a suitable landing area (W & GS)
- Prepare and plan circuit and landing
- Perform a safe circuit to a field
 - Monitor suitability of field and approach path throughout the circuit
 - Final turn above 300 feet AGL
- Land safely
 - Adjust touchdown point to optimise safety
 - Ensure clearance from any obstacles (minimum of 50ft)
 - Minimise ground roll

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- Describe Post outlanding actions
 - Communicate successful outlanding
 - Secure glider
 - Contact property owner

RESOURCES & REFERENCES

- Australian Gliding Knowledge; Pages 162-165.

SELF-CHECK QUESTIONS

Use these questions to test your knowledge of the unit.

1. List the W & 6S for field selection?
2. You are at 7500 feet AGL. How far can you expect to fly from this height and then select a field?
3. On the flight in Q2 above, 30km ahead you see there is an area of forest which looks like it will be say 10km wide. Can you expect to safely fly across the forest?
4. At what height should you have identified suitable landing fields?
5. You are at 1500 feet AGL and have selected a suitable field. Can you search for and use thermals?
6. You decide to start the circuit at 800 Feet AGL. What are the benefits and risks with starting the circuit at 1000 feet or 600 feet?
7. You start downwind leg, what actions do you need to perform to set up for a safe landing
8. At what height do you expect to turn final?
9. As you turn final you note that there is a fence across the middle of the paddock previously hidden by long grass. The field is 800-1000m long. What do you do?
10. What are the benefits of touching down in a field as slow as possible?
11. What are the key actions after your successful landing?