

Gliding Australia Training Manual

Trainer Guide



Unit 11 Introduction to Soaring

Unit 11 - Introduction to Soaring

AIM

To introduce student pilots to soaring and what can be achieved by progressing through GPC training and beyond. It aims to foster enthusiasm to continue training and remain with the sport longer term. Thermal soaring is comprehensively covered in post-solo GPC units – this unit provides only a basic introduction to thermal soaring.

Note: It is preferred that a Silver Coach train this unit when available to do so.

PRE-REQUISITE UNITS

- GPC Unit 7 Straight flight, various speeds, trim
- GPC Unit 8 Sustained turns, all controls
- GPC Unit 9 Lookout scan procedures

COMPETENCY ELEMENTS AND PERFORMANCE STANDARDS

ELEMENT	PERFORMANCE STANDARDS
1. Summarise soaring pathways and personal goals	<ul style="list-style-type: none"> • Describe <ul style="list-style-type: none"> o Pathways available in the sport • Identify <ul style="list-style-type: none"> o Soaring goals beyond solo
2. Demonstrate basic aircraft control	<ul style="list-style-type: none"> • Demonstrate <ul style="list-style-type: none"> o Cruising at a constant attitude and heading in the direction of a geographic feature o Constant attitude while rolling to 35-45 degree angle of bank o Constant angle of bank and attitude in a sustained turn
3. Demonstrate basic Thermaling skills	<ul style="list-style-type: none"> • Identify <ul style="list-style-type: none"> o A thermal through feel or using the variometer • Demonstrate <ul style="list-style-type: none"> o Basic thermal centring using minor corrections

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KEY MESSAGES

- Soaring is not just about safely taking off and landing. There are many opportunities such as flying advanced aircraft types, cross country flying, mountain flying, flying competitions, badges and records, and aerobatics. Training is available for all of these pathways.
- Soaring in thermals is a key skill essential for longer duration flights and cross country flying.
- More advanced soaring concepts are trained in the GPC syllabus after solo.
- Soaring is a great sport where you never stop learning.

LESSON PLANNING AND CONDUCT

Briefing

This unit is best achieved by exposing the student to flight experiences showing what they could achieve beyond solo. The briefing should be relatively short since the concepts will be trained through later training units.

Brief the opportunities available to a glider pilot including flying advanced aircraft types, cross country flying, mountain flying, flying competitions, badges and records, and aerobatics. Relate each pursuit to the training available.

Thermal soaring is a key enabler for all soaring pursuits. Introduce how gliders fly cross country in thermals by climbing in thermals and cruising to the next thermal.

With reference to the diagrams in the pilot guide for GPC Unit 30 Thermal Centring Techniques, briefly introduce the concept of a thermal and two primary methods of thermal centring:

1. Using feel. When a sustained upward acceleration is felt, bank should be reduced to about half for 2-3 seconds before resuming the original angle of bank.
2. Using the vario. Identify the minimum vario indication in the turn (preferably using audio). 45 degrees (1/8 turn) after this point bank should be reduced to about half for 2-3 seconds before resuming the original angle of bank.

Weather permitting, discuss where it may be possible to fly on a short cross country flight. Introduce planning and TEM for the flight.

Flight Exercises

Soaring is best experienced on a cross country flight. If the weather is suitable conduct a short cross country flight – reasonable thermal conditions are required to ensure a low stress flight and to enable the student pilot to feel the accelerations from lift and sink.

Where conditions are marginal the cross country flight can be around a number of close waypoints that do not take the glider far outside glide range of the home airfield (if at all); or an option may be to take a high aerotow (where available) and fly a short task within glide of the home airfield.

All efforts should be made to enable the student pilot to experience soaring flight outside the normal circuit area.

Demonstration

Demonstrate thermal entry and centring. Verbalise your mental picture of where the core is and approach to recentring. Ask the student to describe where they think the core is. Keep control movements slow and smooth and try to get the student to feel acceleration. Re-iterate the importance of maintaining a constant nose attitude and constant angle of bank once centred.

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On a cross country flight, demonstrate initial climb, departure on task, cruising towards a goal, basic thermal joining, basic Thermaling and thermal departure. Allow the student to enjoy the experience and do not explain complex concepts. Point out ground features, local towns etc.

Student Exercises

Under direction the student practices thermal joining, centring, cruising and related skills. In particular:

- Lookout
- Turning with a constant angle of bank and attitude
- Coming out of a turn on a heading
- Cruising towards a geographic feature holding constant attitude and heading
- Thermal entry – if they think they are in lift start a turn (don't forget lookout)
- The student verbalises where they think the best lift is in a turn
- The student practices moving the centre of the circle in the direction of best lift using one of the basic methods

COMMON PROBLEMS

Problem	Probable Cause
<ul style="list-style-type: none"> • Speed varying in turns 	Flying using airspeed indicator instead of nose attitude relative to the horizon Not trimmed correctly

Debrief

- Identify the parts of the flight the student most enjoyed and elaborate on these to motivate them to complete the GPC.
- Discuss the elements of the flight and how they will be trained in the GPC syllabus.
- Discuss the pathways in soaring for the student once post GPC.
- If a cross country was not possible, it is important to strongly encourage the student fly a cross country with a coach or instructor as soon as the weather allows, or provide assistance in identifying a club where cross country flight is possible.

THREAT AND ERROR MANAGEMENT

- There are a number of unique threats associated with conduct of the cross country flight for this unit; these must be managed and possible errors mitigated. In addition this unit is a good opportunity to introduce the student to the importance of appropriate TEM for a cross country flight.
- The cross country flight may be one of many flights conducted by the trainer on the day with other such flights and/or training introducing threats related to time pressure, lack of preparation and outlanding. Pay attention to hydration for yourself and your student and manage heat stress. This flight will be longer and more stressful than a normal training flight.
- Time pressure is a major source of errors. Consider rescheduling other training and do not attempt the flight if there is insufficient time. You may not have time for the preparation that you would normally complete prior to a cross country flight. Make sure that you always consider actions such as task planning, weather assessment, airspace assessment and arranging a retrieve crew.
- This flight is not about outlanding – minimise that threat by choosing to train this unit in better cross country conditions, or selecting a task that does not venture too far from the airfield.

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Don't allow your student to fly when in proximity to other aircraft – it's too distracting for them at this stage of their flying anyway.

- Introduce your student to basic threat and error management concepts ("to err is human") and strategies that can be employed to reduce risks during the flight.

TRAINING MATERIALS AND REFERENCES

The trainer should be versed in the following units to ensure consistency in training practice even though only a basic introduction to these units will be imparted to the student:

- Unit 30 Thermal centring techniques
- Unit 31 Thermal entry
- Unit 32 Soaring with other gliders
- Unit 33 Thermal sources and structure
- Unit 40 Cruising, speed to fly, height bands and thermal selection