

Gliding Australia Training Manual

Pilot Guide



Unit 32

Soaring with Other Gliders

Unit 32 - Soaring with Other Gliders

WHAT THIS UNIT IS ABOUT

To learn how to safely and cooperatively fly with other gliders. This requires awareness, separation and predictability.

WHAT ARE THE PRE-REQUISITES FOR THIS UNIT?

- GPC Unit 31 Thermal Entry

KEY MESSAGES

- **Lookout** is essential for awareness of other aircraft and predicting behaviour.
- Separation is maintained by thinking ahead and predicting what other aircraft might do.
- If you are in another pilot's blind spot, you are responsible for giving way.
- Adopt gentle, predictable manoeuvring techniques, join in with other gliders cruising or circling patterns and don't surprise anyone or burst any bubbles!

PILOT GUIDE FOR THIS UNIT

Soaring with other gliders is an exciting and rewarding experience. You will learn a lot from watching other pilots and of course they'll mark the thermals for you. The associated risks need to be managed carefully since you will spend extended periods cruising and thermalling with other gliders.

Be aware that judging distance and closing speed to other aircraft is difficult, particularly if you are inexperienced or lack currency. Plan ahead and increase margins so that judgement errors do not result in lack of separation.

Lack of separation is likely to result from poor lookout when cruising (watch for gliders in front manoeuvring and converging headings), when entering thermals, whilst thermalling, and leaving. When entering thermals always join gliders already in the thermal from the outside of their circle and such that 60m separation is maintained. Be vigilant with a regular full scan and targeted scans before manoeuvring.

Anticipate double-blind situations¹ and prevent the situation arising. It's too late once in the situation since separation is not visible. In the cruise, don't allow a glider to remain directly under your nose – manoeuvre to one side to keep the front glider visible. While thermalling never turn inside another glider. When leaving a thermal conduct a targeted scan in the direction of exit as well as under the outboard wing.

Your flying should be predictable at all times so that other pilots can maintain separation through anticipating your actions and likely flight path. Gliders that are ahead in the cruise will expect gliders following to give way if they turn – leave enough space to do this safely. If you are in the lead you should not manoeuvre suddenly and unexpectedly, and should not rely on following gliders seeing you and giving way appropriately.

¹ Double blind situations are where pilots of each aircraft cannot see each other due to being in each other's blind arc. Refer to Pilot Guides 'Lookout Introduction' and 'Lookout Scan Procedures'.

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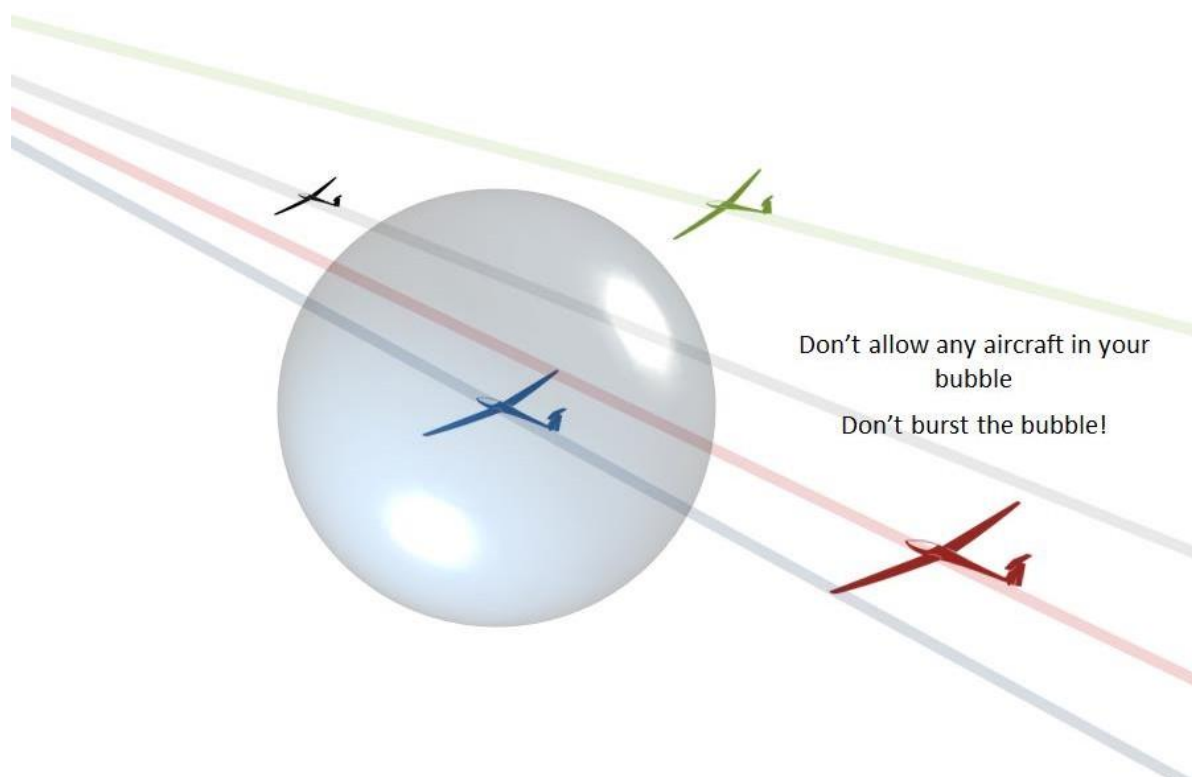
The key to safety when soaring with other gliders is **Awareness**, **Separation** and **Predictability**.

1. Awareness

- Keep a constant lookout when cruising and thermalling to locate other aircraft and predict:
- what the other aircraft might do; and
- where conflict may occur due to converging headings or converging heights.

2. Separation

Imagine a 60m (200 feet) radius "bubble" around each glider. No aircraft should ever be inside your bubble. The diagram below illustrates the concept with four gliders in the cruise (cruising to the left).

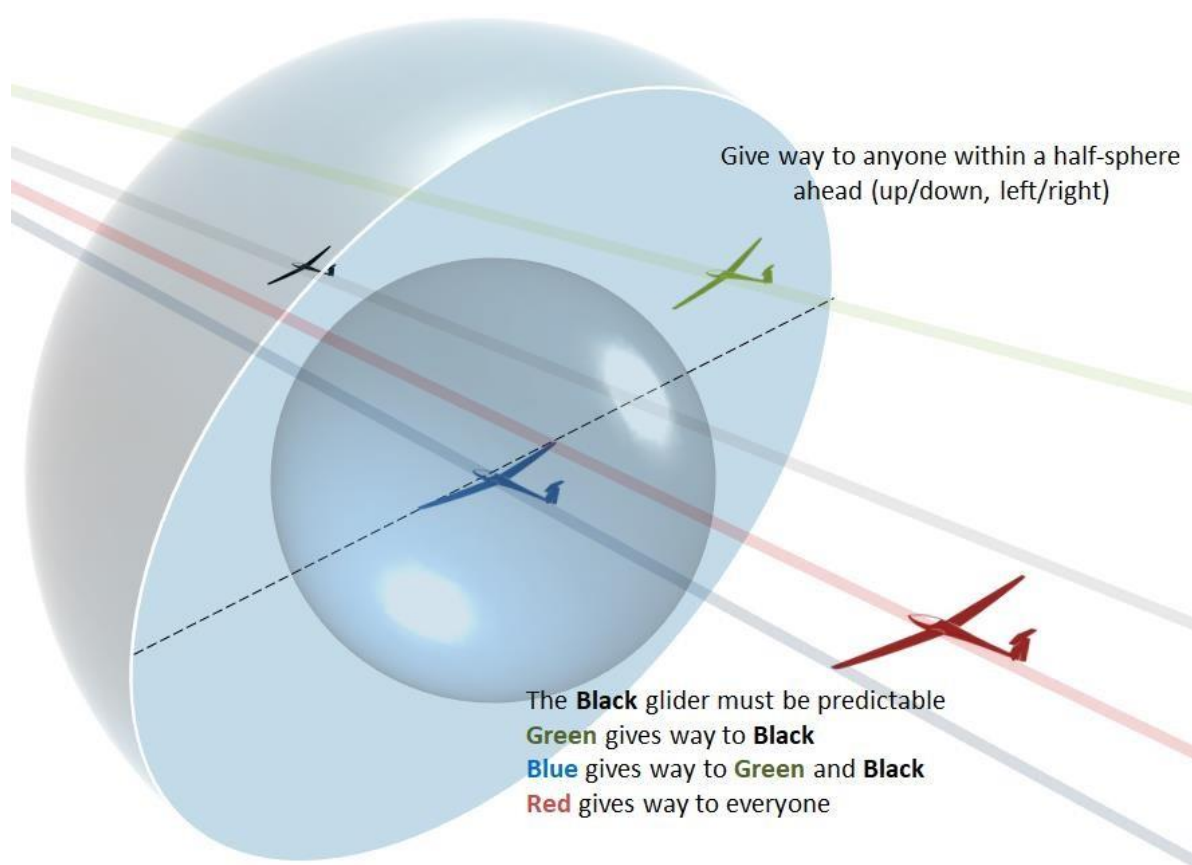


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Use the principle of **Separation Priority** when cruising:

- o Give way to anyone within a half sphere ahead (up/down, left/right)
- o You must give way to these gliders no matter how the gliders in front, or to the side, manoeuvre.
- o When overtaking make the other pilot aware – use the radio (in most cases you will have identified the other glider).
- o Do not enter double-blind situations. Eg aircraft under the nose or over the tail – you can't see each other.

The diagram below illustrates the principle for four gliders in a cruise. The 60m bubble and half sphere is shown for the **Blue** glider only but of course all gliders have their own bubble for separation. The outer half sphere is of arbitrary radius but roughly shows an area up/down and left/right where the **Blue** glider would need to give way to other gliders if they manoeuvre.



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3. Predictability

It is important that all pilots behave in the same way when approaching, entering, and leaving thermals, and when making centring corrections. If you are predictable and other pilots are predictable then actions can be anticipated with safer outcomes. The points below introduce elements of predictable behaviour related to thermalling.

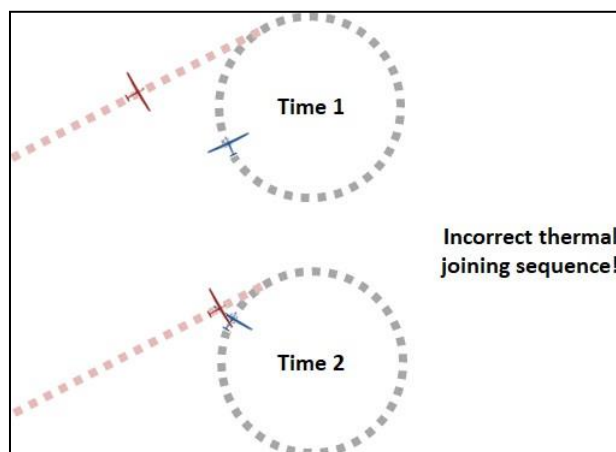
When approaching a thermal:

- o Conduct a thorough FULL scan and TARGETED scan as discussed in GPC Unit 31 Thermal Entry.
- o Locate gliders in the thermal and identify their direction of turn. You must match the direction of turn (even with very large differences in height).
- o Plan ahead for your arrival – which gliders will you be joining in with?
- o When the tail of a glider in the thermal is pointing directly at you, pick a heading a little outside that point, and maintain that heading (don't follow the glider).
- o Slow down gradually before arriving to synchronize with the other gliders' speed.
- o **Don't pull up in the core.**

When entering a thermal:

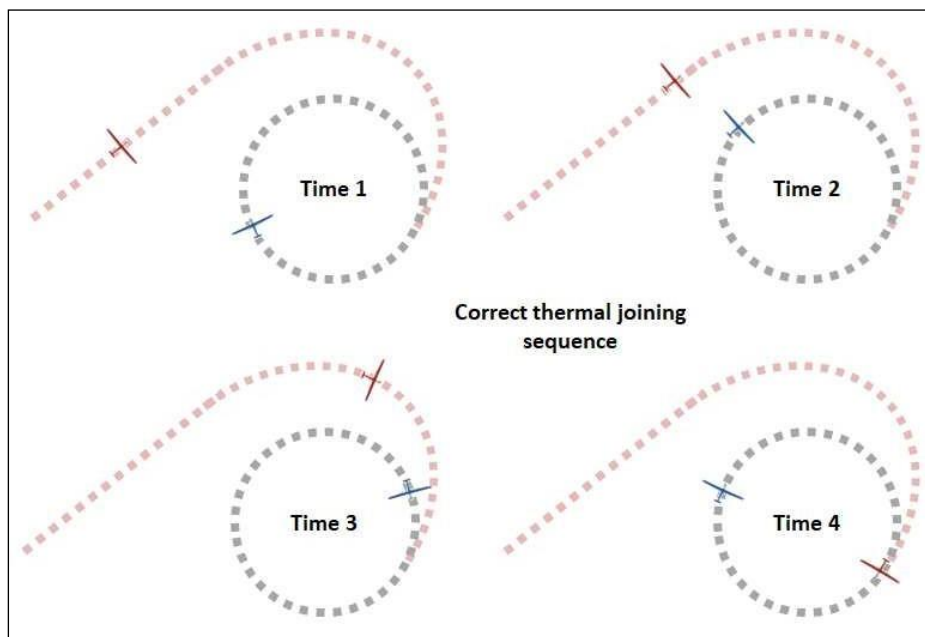
- o You must give way to gliders already in the thermal.
- o Join with zero potential conflict – fly around the outside of the other gliders' circle (with at least 60m separation) until an opening is available or they climb above.
- o Figures 1 and 2 below illustrate an incorrect (and unsafe) thermal joining sequence and an appropriate joining sequence.

Figure 1 - Incorrect thermal joining sequence



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Figure 2 - Correct thermal joining sequences



When thermalling:

- o Never point at another glider.
- o Don't turn inside other gliders – keep the nose of your glider outside the line of the tail of any glider in front.
- o Watch out for all gliders, not just the closest glider. If available, monitor your Flarm.
- o Go with the flow – match other gliders bank angle and speed. Accept that climb rate is likely to be lower than thermalling on your own.
- o Make small centring corrections when safe to do so.
- o Note that one pilot with a small bank angle disrupts the thermal for the others who are forced to follow.

When leaving a thermal:

- o Exit with a gentle roll-out after checking for potential conflict. Possible points of conflict are a glider behind and a little on the outside of your turn (check under your outside wing that it's clear) and below (check below your inside wing).
- o Gradually increase speed as you leave.
- o If you roll to wings level (zero bank), others will assume you are leaving so don't turn back into the thermal.

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FLIGHT EXERCISES FOR THIS UNIT

Flying for this unit requires reasonable thermal conditions with at least two other gliders available together to cruise and thermal with. If this is not possible then flight exercises will be delayed to another day or potentially be conducted at another site.

Near other gliders: Cruising, thermal joining, thermalling and leaving thermals will be demonstrated to you. Keep a very good lookout and try to anticipate conflict situations.

You'll then have an opportunity to try it for yourself.

Notes

- ☐ Judgement of the distance to gliders and the closing rate or relative speed between gliders will take time to develop.
- ☐ You may find this exercise challenging because you need to concentrate on what's happening outside the glider while maintaining accurate control of the glider – this gets better with practice.

THINGS YOU MIGHT HAVE DIFFICULTY WITH

COMMON PROBLEMS	
Problem	Probable Cause
<ul style="list-style-type: none"> Not recognising potential conflicts 	<ul style="list-style-type: none"> Poor lookout and/or spatial awareness (develop good lookout habits) Lack of understanding of potential conflict situations (discuss with your trainer)
<ul style="list-style-type: none"> Not maintaining separation 	<ul style="list-style-type: none"> Misjudging closing speeds and geometry (you'll get better at this with practice) Incorrectly predicting behaviours of others (you'll get better at this with practice) Flying unpredictably (if you don't fly predictably then other pilots may misjudge what you are doing – follow the guidelines in this unit)
<ul style="list-style-type: none"> Poorer aircraft handling when near other gliders 	<ul style="list-style-type: none"> Distraction and overload (you'll get better at this with practice)
<ul style="list-style-type: none"> Joining a thermal by aiming at the middle on approach 	<ul style="list-style-type: none"> Heading directly towards a glider in a thermal (when the tail of a glider in the thermal is pointing directly at you, pick a heading a little outside that point, and maintain that heading)
<ul style="list-style-type: none"> Not maintaining position opposite another glider in a thermal 	<ul style="list-style-type: none"> Heading at the glider ahead in the turn instead of outside the tail

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HOW DO YOU DEMONSTRATE COMPETENCE?

- Demonstrate consistent lookout locating other gliders
- Recognise potential conflicts such as converging headings or converging height changes and double-blind situations
- Predict intentions of other pilots
- Describe the concept of a separation bubble and how “separation priority” works
- Demonstrate appropriate separation from other gliders
- Demonstrate predictable behaviour

RESOURCES & REFERENCES

- Gliding Federation of Australia. ‘Lookout for Glider Pilots’, OSB 02/12

SELF-CHECK QUESTIONS

Use these questions to test your knowledge of the unit.

1. What are the three key principles for safely soaring with other gliders?
2. What is the minimum separation from other aircraft at all times?
3. Why is it important to fly predictably?
4. Why is it not safe to turn inside another glider when thermalling?
5. Why should you not turn back into a thermal after rolling wings-level?