Gliding Australia Training Manual

Pilot Guide

Unit 23

Rules of the Air

WHAT THIS UNIT IS ABOUT

To introduce the basic Rules of the Air and operating procedures enabling the pilot to fly solo safely within the local area.

WHAT ARE THE PRE-REQUISITES FOR THIS UNIT?

- GPC Units 1 - 22 which will include Unit 21 Radio Use & Endorsement.

COMPLEMENTARY UNITS

This unit should be read in conjunction with:

Nil

KEY MESSAGES

The student must be able to:

- apply the "Rules of the Air" practically in the circuit and in local flying.
- apply the limitations of the Visual Meteorological Conditions for a local flight.
- describe the altitude and any area limitations of the local operating airspace.

PILOT GUIDE FOR THIS UNIT

Applicable Rules of the Air.

Refer to ***GFA Airways and Radio Procedures for Glider Pilots***.

The following "rules" must be remembered so that you can operate safely with other aircraft.

- A sailplane shall not operate lower than:
    - 1,000 feet over a built-up area, except in the course of taking off or landing at an aerodrome or gliding site, nor
    - 500 feet above the ground, except when taking off or landing as above, being retrieved following an outlanding, when completing an approved low-level finish procedure, or when engaged in ridge or hill soaring.
- A sailplane which is required to give way to another aircraft shall do so by passing behind it, or if passing in front or above or below that aircraft, shall keep well clear.
- When two aircraft are on converging headings at approximately the same height, the aircraft which has the other on its right shall give way, except that:
    - Powered aircraft shall give way to airships, sailplanes and balloons;
    - Airships shall give way to sailplanes and balloons;
    - Sailplanes shall give way to balloons; and
    - Powered aircraft shall give way to aircraft that are seen to be towing sailplanes.

- Where two aircraft are approaching head-on or approximately so and there is a danger of collision, each shall alter its heading to the right.
- An aircraft being overtaken has right of way over the overtaking aircraft, which shall not overtake by climbing or diving to pass over or under the other aircraft. An aircraft shall overtake another aircraft by passing to its right.
- An aircraft in flight or on the ground shall give way to an aircraft landing or on final approach to land. Where two or more sailplanes are approaching to land, the lowest sailplane has the right of way but shall not use this rule to cut in front of or overtake another sailplane on final approach. A powered aircraft shall give way to a sailplane which is approaching to land.
- Where two sailplanes are at approximately the same height and both are approaching to land, the higher-performance sailplane shall give way to the lower-performance sailplane.
- An aircraft which is about to take off shall not do so until there is no apparent risk of collision with another aircraft.
- The minimum vertical or horizontal separation between gliders in a thermal is 200ft.
- The first glider in a thermal establishes the direction of turn.
- A joining glider must turn in the same direction.

Airspace Classification and Airways Procedures

Responsibility of Flight Crew to see and Avoid Aircraft.

The Civil Aviation Regulations require the flight crew of an aircraft to maintain vigilance so as to see, and avoid, other aircraft.

For this reason, there are 'Visual Flight Rules" so that the above regulations can be maintained.

Visual Flight Rules

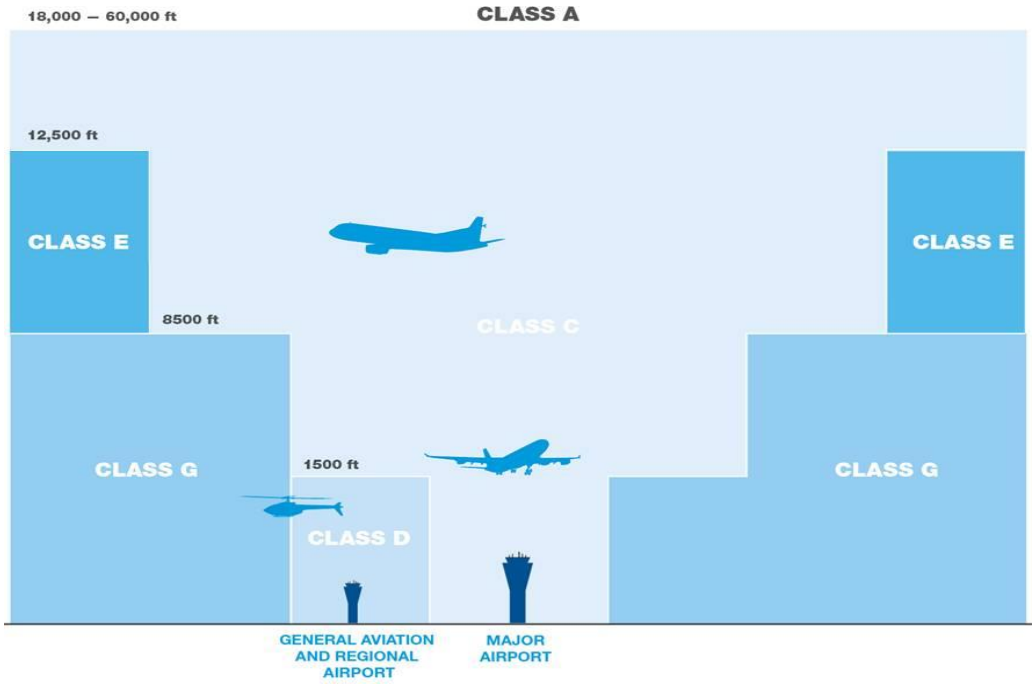
Gliders are only permitted to fly in Visual Meteorological Conditions (VMC). The table below shows the requirement for VMC for gliders in uncontrolled airspace.

Height	Required flight visibility	Horizontal and vertical distance from Cloud	Additional conditions
At or above 10,000ft AMSL	8Km	1.5 Km horizontal 1,000 ft vertical	
Below 10,000 ft AMSL	5Km	1.5 Km Horizontal 1,000ft Vertical	
At or below 3,000ft AMSL or 1,000ft AGL, whichever is the higher	5Km	Clear of cloud and in sight of the ground or water.	Carriage and use of radio is required when operating to these conditions for communication on the CTAF when required within the vicinity of a non-controlled aerodrome.

Airspace Classification

To control aircraft of all different types and capacity in a safe manner the Civil Aviation Safety Authority have divided sections of Australian airspace into different classifications.

The Classes are A, C, D, E and G.



- A, C and D are controlled and require specific clearances to enter.
- E and G for Gliders are uncontrolled although certain requirements are to be met when gliders are operating in E airspace.

Class A & C Airspace

- Class A controlled airspace is above Flight Level (FL) 180 within radar coverage and above FL245 outside radar coverage). Class A and underlying C airspace extends downwards in "steps" reaching ground level in the immediate vicinity of major airports which handle large public transport aircraft. Although VFR aircraft (including gliders) are permitted to operate in Class C airspace, VHF radio is mandatory and all aircraft must have an individual clearance from Air Traffic Control to enter the airspace.
- Class C airspace is depicted on En-Route Charts, Low (ERCs(L)), Visual Navigation Charts (VNCs) and Visual Terminal Charts (VTCs). These charts are available from Airservices Australia.
- There are also providers that provide all this info on portable electronic devices such as OzRunways.

Class D Airspace

- This is controlled airspace which surrounds some airports with a control tower where the traffic density does not justify the installation of radar: e.g. Camden, Moorabbin.
- Such airspace relies on specified procedures for traffic alerting and separation, and equipment requirements are less stringent that for Class C. VFR traffic (e.g. gliders) may receive traffic information on other aircraft but separation is the pilot's responsibility. For gliders, VHF radio and Air Traffic Control clearance are required. Pilot radio operating qualifications are the same as for Classes A and C. Class D airspace is depicted on ERCs(L), VNCs and VTCs.

Class E Airspace

- This is controlled airspace which generally occupies the space between Class G (uncontrolled) airspace and Class C, D and A airspace in certain parts of Australia. Class E airspace commences at 12,500 feet over Australia but can be as low as 8,500 feet.
- Class E airspace is depicted on ERCs (L), VNCs and VTCs. In Class E airspace, IFR and VFR flights are permitted. IFR flights are provided with an ATC service, are separated from other IFR flights, and receive traffic information on VFR flights as far as is practicable. VFR flights receive a Surveillance Information Service (SIS) on request.
- VFR flights entering and operating in Class E airspace should:

  (a) avoid published IFR routes, where possible;

  (b) monitor the appropriate Class E frequency and announce if in potential conflict; and take appropriate action to avoid potential conflict.

NOTE: CASA and GFA have agreed some formal processes that allow glider pilots to use a discreet frequency while providing greater situational awareness to other airspace users as follows:

- When flying in groups, glider pilots can nominate one aircraft to monitor air traffic control and pass on traffic information to other gliders using a discrete glider frequency.
- Special arrangements can also be made for gliding competitions or events, with authorisation to be provided through a NOTAM issued by Airservices Australia.
- For single glider operations in Class E airspace operations not in accordance with a published NOTAM, glider pilots will maintain a listening watch on the appropriate ATC frequency.

Class G Airspace

- This is uncontrolled airspace and is all that airspace which is not covered by any of the previous categories.
- Any glider operating in Class G airspace which has a radio is encouraged, but not required, to monitor the appropriate VHF frequency (rather than a glider frequency) when above 5,000 feet AMSL.
- A Radar Information Service (RIS) is provided for transponder-equipped aircraft in the vicinity of some capital city airports. This is unlikely to be of interest to gliders but may be helpful to some tugs. The areas served by RIS are depicted on ERC(L), VNC and VTC charts.

Operations at Non-Towered Aerodromes

This is covered in Civil aviation advisory Publication number 166-1

- Non-towered aerodromes are those at which air traffic control is not operating. This can be any of the following:
  - an aerodrome that is always in Class G airspace;
  - an aerodrome with a control tower where no air traffic control (ATC) service is currently provided; or
  - an aerodrome which would normally have ATC services provided but such services are presently unavailable.
- **Mandatory requirements**: All aircraft operating at, or in the vicinity of any certified, registered and military non-towered aerodrome, as identified and published in ERSA and any other aerodrome designated by CASA on a case by case basis, as published in ERSA or NOTAM, must be operated with a serviceable VHF radio. The radio must be fitted with the common traffic advisory frequency (CTAF) designated for use at the aerodrome as published in ERSA.

- The pilot must be qualified and endorsed to operate the radio and must maintain a listening watch and make radio calls whenever it is reasonably necessary to do so to avoid a collision, or risk of a collision with another aircraft.
- These calls must include:
    - The name of the aerodrome
    - The aircraft's type and call sign; and
    - The position and intentions

Prohibited, Restricted and Danger Areas (PRD)

Prohibited Area

- Flight within a Prohibited Area is not permitted under any circumstances.

Restricted Area

- Flight within a Restricted Area (e.g. military flying training area or gun-firing range) is normally only permitted outside the hours of activation of the area. In special circumstances, operations may be permitted within the hours of activation on the basis that the aircraft must operate within the terms of the clearance given by the controlling authority in charge of the area and the flight path will comply with controlled airspace procedures. However, some Restricted Areas do not allow flight at any time though the areas (e.g. Australian Defence Force munitions factories.)

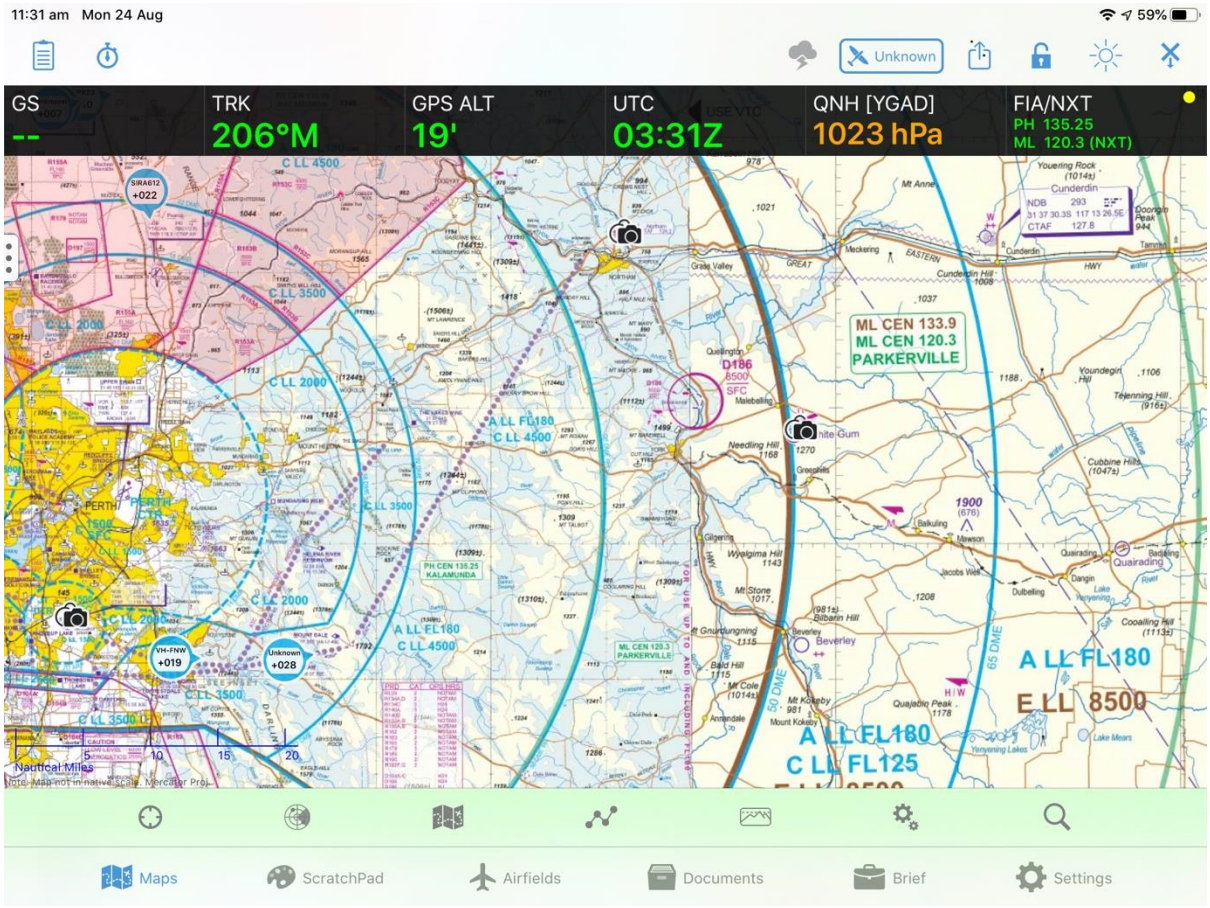
Danger Area

- Flight in a Danger Area (e.g. civil flying training area, light aircraft lane of entry or Mining site where blasting takes place) implies acceptance of a higher degree of Aviation risk and does not require a clearance.
- Danger, Restricted and Prohibited Areas are marked on ERC(L), VNCs and VTCs and details are published in ERSA.

Charts.

The picture below shows a VTC chart with A, C ,E and G airspace.

It also shows a Danger area. (Red circle D186). This is shown from Ground level (SFC) to 8500.



- As it's taken from an electronic software it's also showing real time active restricted airspace. This is shown as red shading (to the north of Perth). If we are just looking at the VTC chart we would have to look at the NOTAMS and check whether the restricted airspace is active.
- NOTE: Your instructor will show you how to log into NAIPS to obtain this information.
- NOTAMS (Notice to Airman) are available 24hrs from Airservices Australia https://www.airservicesaustralia.com/naips/Account/Logon
- G airspace is not shown as it is always below either C or E airspace.
- In this case you can see on the right- hand side of the map E LL 8500, so G airspace is from the ground to 8500.
- The same applies closer to Perth C airspace (left of chart) where you see C LL 4500, G airspace is below this altitude.

Documentation

- As well as the normal WAC charts for visual navigation, up-to-date airspace, aerodrome and radio frequency information is important. Airservices Australia provides a publications service which can supply all the necessary documentation.
- As a minimum, it is strongly recommended that all pilots and gliding clubs obtain the En-Route Supplement Australia (ERSA) with its associated amendment service. The ERSA should be readily available to all club cross-country pilots. In the ERSA will be found details of aerodromes, their categories, and details of those which meet the standard for ALA (Aircraft

Landing Area), including diagrams of each aerodrome layout and the local radio frequencies in use.

- Either the club or individual pilots should obtain En-Route Chart Low-level (ERC(L)) and Visual Terminal Chart (VTC) packages appropriate to the intended area of operation, as well as Visual Navigation Charts (VNCs) where available.
- These charts depict controlled airspace and en-route radio frequencies; they also come with an optional amendment service. If they are purchased by the club, the charts should be available to all cross- country pilots for flight-planning purposes. On any flight likely to be in the vicinity of controlled airspace the pilot should carry any charts necessary to navigate without violating the control zone.

Note:

- The AA Publications Centre is at:

Alan Woods Building

25 Constitution Avenue

Canberra, Australia 2601

Postal Address: Locked Bag 8500 Canberra, ACT, 2601. Australia-wide free call 1300 306630.

Fax number: (02) 6268 5111.

Email: mailto:publications.unit@airservicesaustralia.com

- Contact the Centre for information on "packages" of charts applicable to the area in which you fly and the price of the packages you need.
- Alternatively, all charts, ERSA and the VFG can be purchased on-line through the Airservices Australia web site at: www.airservicesaustralia.com/store/default.asp
- An excellent publication, strongly recommended for all glider pilots, is the Visual Flight Rules Guide, usually known as the VFG, published by CASA and available online at: http://www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_90008

FLIGHT EXERCISES FOR THIS UNIT

At this stage in your flight training, you would have observed many of these rules and observations. Your instructor will continue to indicate and apply these rules to ensure you have sufficient knowledge when you arrive at the solo stage.

THINGS YOU MIGHT HAVE DIFFICULTY WITH

You need to instinctively apply the rules of the air, which will require you to learn and apply them whenever you fly.

HOW DO YOU DEMONSTRATE COMPETENCE?

- In your flight exercises your instructor will observe your application and knowledge of these rules and performance standards which need to be achieved by your first solo.

RESOURCES & REFERENCES

- GFA Airways and Radio Procedures for Glider Pilots.
- Civil Aviation Advisory Publication number CAAP 166-1