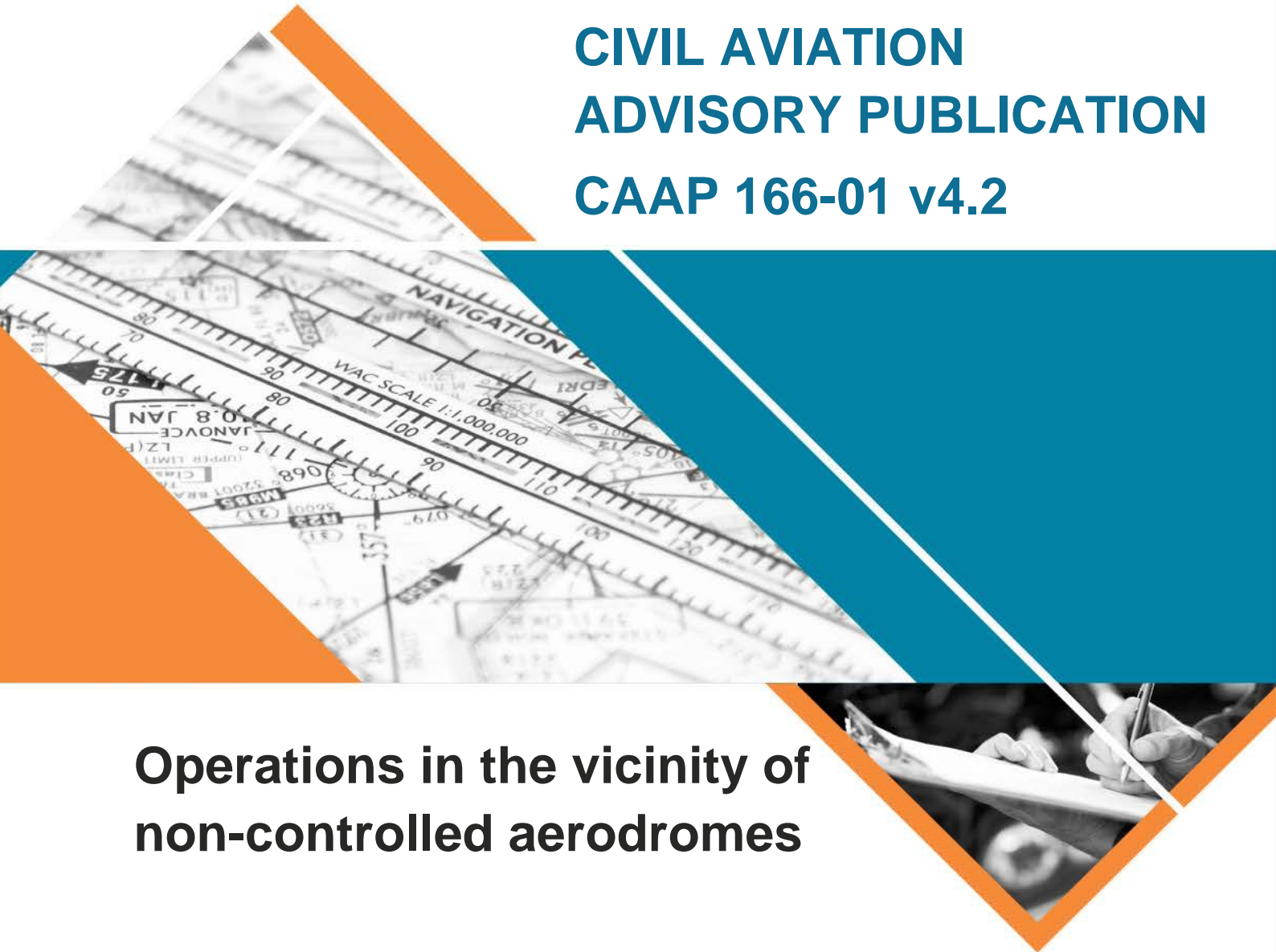




CIVIL AVIATION ADVISORY PUBLICATION CAAP 166-01 v4.2



Operations in the vicinity of non-controlled aerodromes

Date December 2018
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This Civil Aviation Advisory Publication (CAAP) provides guidance, interpretation and explanation on complying with the Civil Aviation Regulations 1988 (CAR) or a Civil Aviation Order (CAO).

This CAAP provides advisory information to the aviation industry in support of a particular CAR or CAO. Ordinarily, the CAAP will provide additional 'how to' information not found in the source CAR, or elsewhere.

Civil Aviation Advisory Publications should always be read in conjunction with the relevant regulations/orders.

Audience

This Civil Aviation Advisory Publication (CAAP) applies to operators and pilots who operate at, or in the vicinity of, non-controlled aerodromes in all types of aircraft.

Purpose

The purpose of this CAAP is to support Common Traffic Advisory Frequency (CTAF) procedures. It provides guidance on a code of conduct (good airmanship) to allow flexibility for pilots when flying at, or in the vicinity of, non-controlled aerodromes.

This CAAP should be read in conjunction with CAAP 166-2 - Pilots' responsibility for collision avoidance in the vicinity of non-controlled aerodromes using 'see-and-avoid'.

For further information

For further information on this CAAP, contact CASA's Flight Standards Branch (telephone 131 757).

Status

This version of the CAAP is approved by the Manager, Flight Standards Branch.

Note: Changes made in the current version are annotated with change bars.

| Version | Date | Details |
|---------|---------------|---|
| v4.2 | December 2018 | This is a revised version of CAAP 166-01(v4.1), issued in April 2017. Guidance has been provided around the appropriate frequency to use in the vicinity of aerodromes and aeroplane landing areas (ALAs) that are not published on aeronautical charts. |
| v4.1 | April 2017 | This is a revised version of CAAP 166-1(3), which was issued in August 2014. A paragraph has been added to explain why an aerodrome operator can require use of a radio at their aerodrome if it is not certified, registered, military or one designated by CASA. A recommended ERSA entry for affected aerodromes has also been included. The definition for MULTICOM has been included as it is referred to in the CAAP. |
| (3) | August 2014 | This is a revised version of CAAP 166-1(2), issued in December 2013. It has been amended slightly to clarify radio procedures at non-controlled aerodromes and to align it with other guidance and operational documents. The amended guidance is in subsections 7.3 and 7.4 of this CAAP. Some of the text has also been moved from subsection 6.6 to 7.3 to make it flow more logically. |
| (2) | August 2014 | This is the second amendment of CAAP 166-1 and replaces CAAP 166-1(1) issued by the Civil Aviation Safety Authority (CASA) in August 2012. It has been re-written following a review of guidance and educational materials related to the implementation, in June 2010, of amended procedures under Regulation 166 of CAR. The review included an analysis of Australian Transport Safety Bureau incident data related to operations at non-controlled aerodromes since June 2010. This version of CAAP 166-1 takes into account findings from an analysis of that data. The amended guidance is in sections 6.3, 6.4, 6.6, 6.7, 6.8, 6.9, 6.10 and 7.7 of this CAAP. Review of the actual regulatory amendments was conducted during the consultation process for the proposed Part 91 of the Civil Aviation Safety Regulations (CASR) 1998. |
| (1) | August 2012 | This is the first amendment of this CAAP and replaces CAAP 166-1(0) issued in June 2010. It has been amended to coincide with consequential amendments made to the Aeronautical Information Package (AIP) relating to the introduction of the 'broadcast areas' which are depicted in the AIP MAP. It is essential that these changes are also incorporated in this CAAP as it is a requirement for pilots to make a broadcast when 'in the vicinity' of any aerodrome whilst they are operating in a broadcast area (See CAR 166C). |
| (0) | June 2010 | This is the first CAAP written on this subject. |

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1 Reference material

1.1 Acronyms

The acronyms and abbreviations used in this CAAP are listed in the table below.

| Acronym | Description |
|----------------|---|
| AFM | Aircraft Flight Manual |
| AFRU | Aerodrome Frequency Response Unit |
| AIP | Aeronautical Information Publication |
| AIP ENR | AIP – En Route |
| AIP GEN | AIP – General |
| ALA | Aeroplane Landing Area |
| ALT | Altitude |
| ATS | Air Traffic Services |
| CA/GRS | Certified Air/Ground Radio Service |
| CAAP | Civil Aviation Advisory Publication |
| CAO | Civil Aviation Order |
| CAR | <i>Civil Aviation Regulations 1988</i> |
| CASA | Civil Aviation Safety Authority |
| CASR | <i>Civil Aviation Safety Regulations 1998</i> |
| CTAF | Common Traffic Advisory Frequency |
| ERSA | En Route Supplement Australia |
| FIS | Flight Information Service |
| GPS | Global Positioning System |
| IAS | Indicated Airspeed |
| IFR | Instrument Flight Rules |
| NOTAM | Notice to Airmen |
| RPT | Regular Public Transport |
| SFC | Surface (level) |
| SOP | Standard Operating Procedure |
| UNICOM | Universal Communications |
| VFRG | Visual Flight Rules Guide |
| VFR | Visual Flight Rules |
| VHF | Very High Frequency |

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| Acronym | Description |
|---------|----------------------------------|
| VMC | Visual Meteorological Conditions |

1.2 Definitions

Terms that have specific meaning within this CAAP are defined in the table below.

| Term | Definition |
|---|---|
| Active runway | Preferably the runway most closely aligned into the prevailing wind. In nil wind, or when predominantly all crosswind, it is the runway in use. |
| Aerodrome elevation | The elevation of the highest point of the landing area. |
| Aerodrome traffic | All traffic on the manoeuvring area of an aerodrome and all traffic in the vicinity of an aerodrome. |
| Aerodrome traffic circuit | The specified path to be flown by aircraft flying in, entering, or leaving the traffic circuit. |
| Airmanship | The consistent use of good judgement and well-developed knowledge, skills and attitudes to achieve flight objectives. |
| Airprox | The code word used in an air traffic incident report to designate an aircraft proximity event – a situation in which, in the opinion of a pilot or Air Traffic Services (ATS) personnel, the distance between aircraft, as well as their relative positions and speed, have been such that the safety of the aircraft involved may have been compromised. |
| Broadcast areas | A defined airspace volume in Class G airspace for which a discrete frequency (e.g., CTAF) has been allocated. All operations, including those at aerodromes (charted and uncharted) and landing sites within this area shall use this CTAF as the broadcast frequency. Charts are annotated: “For operations in this area SFC - (altitude) use CTAF (frequency)”. |
| CA/GRS (Certified Air/Ground Radio Service) | An aerodrome-based radio information service, which may operate at non-controlled aerodromes. The service is a safety enhancement facility which provides pilots with operational information relevant to the particular aerodrome. The service is operated by or for the aerodrome operator to published hours on the CTAF assigned to the particular aerodrome. It is not an air traffic service provided by Airservices Australia or the Royal Australian Air Force. |
| Certified aerodrome | An aerodrome certified by CASA under subpart 139.B of CASR. A certified aerodrome has a runway suitable for aircraft with more than 30 passenger seats or able to carry a payload of 3,400 kg in Regular Public Transport (RPT) or charter operations. It has higher operating standards than a registered aerodrome (also see Registered aerodrome). |
| Chicago Convention | Convention on International Civil Aviation. |
| Class G airspace | Non-controlled airspace. Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) flights are permitted in Class G airspace in which IFR flights receive a flight information service (FIS) that includes directed traffic information. VFR flights may receive a FIS, on request, that includes directed traffic information. |

| Term | Definition |
|------------------------------------|--|
| Code of conduct: | A set of conventional principles and expectations that are considered binding on any person who is a member of a particular group. |
| Designated aerodrome: | A non-controlled aerodrome, identified by CASA, where the carriage of radio is required when operating in the vicinity. CASA will identify and publish designated aerodromes in the ERSA and/or NOTAMs. |
| In the vicinity: | An aircraft is in the vicinity of a non-controlled aerodrome if it is within: <ul style="list-style-type: none"> • airspace other than controlled airspace; • a horizontal distance of 10 NM from the aerodrome (reference point); and • a height above the aerodrome (reference point) that could result in conflict with operations at the aerodrome. |
| Military aerodrome | An aerodrome under the control of any part of the Australian Defence Force. Note that criteria for military aerodrome operations are published in ERSA and that the carriage of radio is required at military aerodromes at all times. |
| MULTICOM | The frequency (126.7 MHz) used for broadcasts in the vicinity of a non-controlled aerodrome that does not have a discrete CTAF assigned. |
| Non-controlled aerodrome | An aerodrome at which Air Traffic Control (ATC) is not operating. This can be one of the following: <ul style="list-style-type: none"> • an aerodrome that is always in Class G airspace. • an aerodrome with a control tower where no ATC service is currently provided. • an aerodrome that would normally have ATC services but such services are temporarily unavailable. |
| NOTAM | A notice containing information concerning the establishment, condition or change in a facility, service, procedure or hazard, which is essential to flight operations personnel. |
| Standard Operating Procedure (SOP) | Any procedure described in the operations manual of an Air Operator's Certificate holder or a self-administering organisation. |
| Radio | Very High Frequency (VHF) aeronautical mobile two-way radio. |
| Registered aerodrome | An aerodrome registered by CASA under CASR subpart 139.C. A registered aerodrome meets certain minimum operating standards and is regularly inspected (also see Certified aerodrome). |
| UNICOM | A non-ATS communication service provided by an aerodrome operator or user to enhance the value of information normally available about a non-controlled aerodrome. |

1.3 References

Regulations

Regulations are available on the ComLaw website <https://www.legislation.gov.au/>

| Document | Title |
|--|--|
| Regulation 92 of CAR | Use of aerodromes |
| Regulation 99A of CAR | Broadcasts to be made at certain aerodromes |
| Regulation 120 of CAR | Weather reports not to be used if not made with authority |
| Regulation 138 of CAR | Pilots to comply with requirements etc. of aircraft's flight manual etc. |
| Regulation 161 of CAR | Right of way |
| Regulation 162 of CAR | Rules for prevention of collision |
| Regulation 163 of CAR | Operating near other aircraft |
| Regulation 166 of CAR | Definitions for Subdivision 2 |
| Regulation 166A of CAR | General requirements for aircraft on the manoeuvring area or in the vicinity of a non-controlled aerodrome |
| Regulation 166B of CAR | Carrying out a straight-in approach |
| Regulation 166C of CAR | Responsibility for broadcasting on VHF radio |
| Regulation 166D of CAR | Designation of non-controlled aerodromes |
| Regulation 166E of CAR | Requirements for operating on or in the vicinity of certified, registered, military or designated non-controlled aerodromes |
| Schedule 2 and 3 of the Manual of Standards to Part 61 of CASR | Aeronautical Radio Operator Competency and Knowledge standards |
| Regulation 243 of CAR | Listening watch |
| CAO 29.2 | Air service operations – night flying training |
| CAO 95.4 | Exemption from provisions of the Civil Aviation Regulations 1988 – gliders, powered sailplanes and power-assisted sailplanes |
| CAO 95.10 | Exemption from provisions of the Civil Aviation Regulations 1988 – low-momentum ultralight aeroplanes |
| CAO 95.55 | Exemption from provisions of the Civil Aviation Regulations 1988 – Certain ultralight aeroplanes |
| Regulation 137.155 of CASR | Operations near RPT aircraft |
| Regulation 137.160 of CASR | Aerodrome circuit requirements |
| Subpart 139.B of CASR | Certified aerodromes |
| Subpart 139.C of CASR | Registered aerodromes |

Advisory material

CASA's Advisory Circulars are available at <http://www.casa.gov.au/AC>

CASA's Civil Aviation Advisory Publications are available at <http://www.casa.gov.au/CAAP>

| Document | Title |
|-----------------------------|---|
| CAAP 92-1 | Guidelines for aeroplane landing areas |
| CAAP 152-1 | Parachuting Through Cloud |
| CAAP 166-2 | Pilots' responsibility for collision avoidance in the vicinity of non-controlled aerodromes using 'see and avoid' |
| AIP GEN 3.5, section 6 | Hazardous Weather |
| AIP GEN 2.2, section 1 | Definitions and Abbreviations |
| AIP ENR 1.1 | Operations in Class G Airspace |
| AIP ENR 1.1, paragraph 41.2 | Separation Minima |
| AIP ENR 1.2, paragraph 1.1 | Visual Flight Rules (VFR) |
| AIP ENR 1.5, paragraph 1.7 | Circling Approaches and Visual Circling |

2 Introduction

- 2.1.1 Non-controlled aerodromes can cater for both IFR and VFR flights by a mix of aircraft (see Section 4), including:
- larger passenger-carrying aircraft
 - smaller general aviation aircraft
 - agricultural aircraft
 - military aircraft
 - various sport and recreational aircraft.
- 2.1.2 This can present many challenges to pilots who operate into, out of, or in the vicinity of these aerodromes. In addition to being aware of the potential aircraft and operational mix at a non-controlled aerodrome, pilots must be cognisant of general operational hazards such as separation requirements, collision avoidance and wake turbulence (see Section 4).
- 2.1.3 This CAAP provides guidance on a code of conduct (good airmanship) that, when followed, will improve situational awareness and safety for all pilots when flying at, or in the vicinity of, non-controlled aerodromes.
- 2.1.4 CASA strongly recommends the use of 'standard' traffic circuit and radio broadcast procedures by radio-equipped aircraft at all non-controlled aerodromes. These procedures are described in the Aeronautical Information Publication (AIP) and Visual Flight Rules Guide (VFRG), and discussed in Section 5 of this CAAP (Standard traffic circuit procedures) and Section 7 (Radio broadcasts).
- 2.1.5 Pilots must also maintain a listening watch when flying radio-equipped aircraft (Regulation 243 of CAR).
- 2.1.6 Non-controlled aerodromes where the carriage of radio is required are:
- the certified, registered and military aerodromes identified and published in En Route Supplement Australia (ERSA).
 - aerodromes with Class C or D ATC services during those times that such services are unavailable
 - any other aerodromes designated by CASA on a case-by-case basis, as published in the ERSA or Notice to Airmen (NOTAM)¹.
- Note:** Pilots should always consult the ERSA and latest NOTAMs for operating times of ATC services at these Class C or D aerodromes.
- 2.1.7 Radio carriage at uncertified and unregistered aerodromes is not mandatory; however, an aerodrome operator may require it as a condition of use for that aerodrome. This is consistent with the authority of an aerodrome operator to require prior permission for its use. It is recommended that a standard entry is included in ERSA FAC under Local Traffic Regulations that 'Carriage and use of radio is required by AD OPR'.

¹ **Note:** To determine whether an aerodrome has been designated for mandatory radio carriage, see the 'Designations' link at: http://www.casa.gov.au/scripts/nc.dii?WCMS:STANDARD::pc=PC_91055.

- 2.1.8 At non-controlled aerodromes where the carriage of radio is required, the pilot should, when required, make the standard radio calls described in Section 6.3 of this CAAP.
- 2.1.9 Regulations 166-166E of CAR detail the requirements for operating in the vicinity of a non-controlled aerodrome. For aerodromes where the carriage of radio is required, or where special circuit procedures apply, pilots should consult the current ERSA and check the latest NOTAMs before flight. The requirement for the carriage of radio is annotated in ERSA aerodrome charts, as depicted in Figure 1.

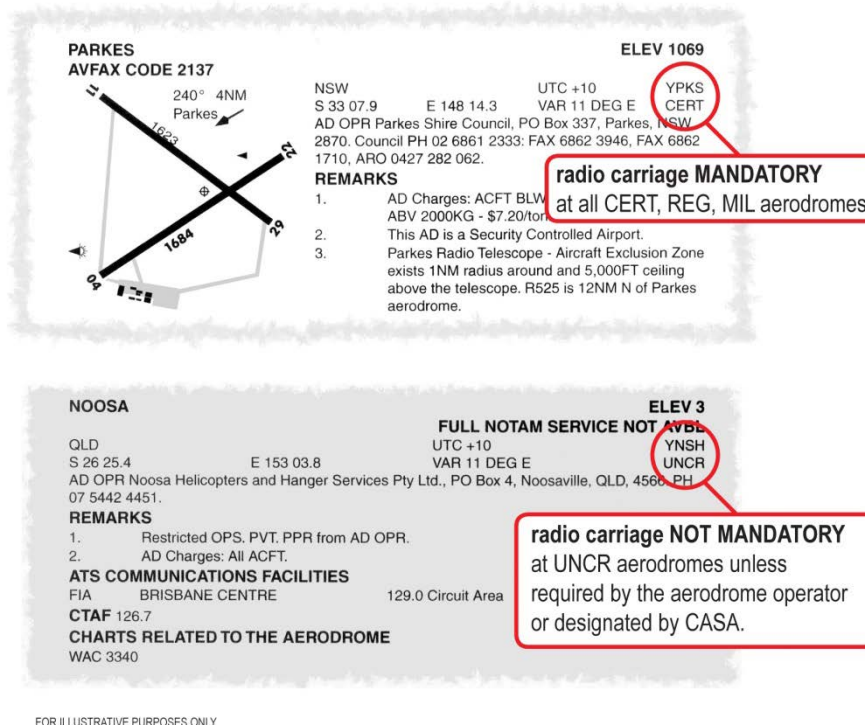


Figure 1 – Radio carriage requirements as depicted in ERSA

- 2.1.10 There are additional risks associated with operations at aerodromes or ALAs that are not published on an aeronautical chart. This is because transiting pilots may not be aware of their existence and will be monitoring Area VHF. If the frequency being used at these locations is other than the overlying Area VHF, transiting pilots may not be aware of the local operations taking place. Thus the safety benefits of 'alerted' see-and-avoid may not be achieved

2.2 Related safety actions at non-controlled aerodromes

- 2.2.1 Pilots are encouraged to turn on external aircraft lights, where fitted, when in the vicinity of a non-controlled aerodrome. These lights should be kept on until the aircraft has landed and is clear of all runways.
- 2.2.2 Transponders can be detected by other aircraft equipped with an Airborne Collision Avoidance System (ACAS) or Traffic Alert and Collision Avoidance System (TCAS), allowing them to 'see' other aircraft and take action to ensure separation. Pilots of

transponder-equipped aircraft should, at all times, ensure their transponder is switched to ON/ALT (Mode C), especially when operating in the vicinity of a non-controlled aerodrome. In the event of a radio failure, it is important that pilots select and squawk code 7600 in Mode C on their transponders.

- 2.2.3 Pilots flying recreational, sport or general aircraft should consider giving way to commercial aircraft, provided that this can be done safely and without undue inconvenience to their own operation. Operators of commercial aircraft should never expect a 'give way' offer to be assumed or automatic. Any offer to give way must be explicit and its acceptance acknowledged.
- 2.2.4 Prior to operating at any non-controlled aerodrome, pilots should satisfy themselves that it is suitable for their operation by reference to AIP, ERSA, the company operations manual or by contacting the aerodrome operator. Also see CAAP 92-1 for information on the physical aspects of landing areas.

3 The traffic mix

3.1.1 Non-controlled aerodromes can host a variety of aircraft and types of operations, including passenger air transport in large jet and turboprop aircraft, glider, parachute, helicopter, gyroplane, ultralight, balloon, and agricultural operations. This diversity presents a range of potential safety risks that are mitigated through the adoption of a standard code of conduct and good airmanship.

3.2 Larger passenger transport aircraft operations

3.2.1 At certain non-controlled aerodromes, regular air transport passenger, corporate and charter companies may utilise large turboprop or jet aircraft. These aircraft may have different operating parameters/criteria to those of many general aviation aircraft. They fly under IFR and are generally operated in accordance with company Standard Operating Procedures (SOPs). Pilots of large aircraft flown at slow speeds with a high nose angle may find it difficult to see other, smaller aircraft below their flight path, particularly on approach. These aircraft will broadcast their intentions, but it is essential that pilots of smaller aircraft also make and respond to broadcasts and not simply assume that the larger aircraft is aware of their position.

3.2.2 General aviation pilots should be aware that, in certain circumstances, passenger transport aircraft may not be able to use the active runway. Passenger transport aircraft are required to operate under more stringent regulations, including specific aircraft performance regulations. For example, an aircraft may depart downwind, accepting an increased take-off distance because of a performance limitation imposed by terrain clearance requirements on the active runway. Similarly, landing into wind may not always be possible when relevant performance limitations are taken into account.

3.3 Glider operations

3.3.1 Glider operations can be conducted from normal runways associated with an aerodrome or from adjacent sites within the confines of an aerodrome. Gliders can be launched using a variety of methods including aero tow, vehicle tow, self-propulsion and winch launch. In all cases, vehicles and people may be operating on, or in the vicinity of, the runways in use.

3.3.2 A double white cross displayed adjacent to the windsock indicates that gliding operations are in progress. Aeronautical charts also use the double cross to indicate areas where glider operations take place. Some gliders operating adjacent to the CTAF area may use a different frequency to the CTAF or Area VHF.

3.3.3 Winch operations may occur at any aerodrome and launch gliders up to heights in excess of 2000 ft AGL. Pilots should be aware of winch wires up to these levels, particularly when overflying the aerodrome, and check ERSA and the latest NOTAMs for current, specific operational information.

3.3.4 Gliders landing on the active runway may not be able to give way to other aircraft. At aerodromes with both glider and helicopter operations, helicopter pilots should follow

the standard traffic patterns to avoid gliders which may be flying modified circuit patterns.

- 3.3.5 CAO 95.4 details the flight conditions, exemptions and limitations imposed on gliding operations.

3.4 Parachuting operations

- 3.4.1 Aeronautical charts depict parachute symbols at aerodromes where known parachute operations occur. The ERSA also details the aerodromes where parachute operations are conducted. Pilots should consult the latest NOTAMs for any additional information.
- 3.4.2 In Australia, parachuting operations are permitted through cloud in certain circumstances (see CAAP 152-1 – Parachuting Through Cloud).
- 3.4.3 Pilots flying parachuting operations will broadcast on all relevant frequencies. For example, if the jump commences in Class G airspace and will land at a non-controlled aerodrome, advisory calls will be made on both the Area VHF and the CTAF.
- 3.4.4 Parachutists in free-fall are almost impossible to see, so pilots are advised to avoid overflying an aerodrome with an active drop zone. Communication with the parachuting aircraft is essential to avoid flying into a drop zone area.

3.5 Helicopter and gyroplane operations

- 3.5.1 Helicopters can arrive at and depart aerodromes in various directions. Helicopter pilots can choose to fly a circuit similar to a fixed wing aircraft, but may also fly a circuit either in or contra to the circuit direction at a height of at least 500 ft above the aerodrome elevation and closer to the runway. This can only be done provided the associated landing site is outside the runway strip in use; the non-standard circuit does not cross the extended centreline of the runway in use and pilots broadcast their intentions. Pilots are advised to check the relevant ERSA entry for any noise abatement procedures. Also see AIP-ENR Helicopter Operations – At aerodromes and Helicopter Access Corridors and Lanes.
- 3.5.2 Helicopters may turn on to their departure heading at any height after take-off, provided it is safe to do so. When approaching to land at a marked helipad or suitable clear area, helicopter pilots should avoid the flow of fixed wing aircraft. Helicopters must avoid other circuit traffic at all times. Other pilots should be aware that, for some helicopter operations, the only suitable landing area is the runway.
- 3.5.3 Helicopters and gyroplanes can fly slower than fixed wing aircraft and approach to land at steeper angles. Both helicopters and gyroplanes can be expected to practise power-off landings (autorotations) which involve a very steep approach and high rate of descent.
- 3.5.4 As helicopter and gyroplane operations can be varied and flexible, pilots need to ensure that they monitor and advise other aircraft of their position and intentions by radio where applicable.

3.6 Ultralight aircraft and operations

- 3.6.1 The term 'ultralight' applies to many small recreational aircraft including trikes, powered parachutes and other small fixed-wing aircraft that cruise at maximum speeds of up to about 55 kt. Pilots of these aircraft should conduct their standard circuit at 500 ft above aerodrome elevation.
- 3.6.2 Entry to the circuit should be at 500 ft above aerodrome elevation as it is normally impractical to overfly the field above all other circuit traffic. Joining the circuit at 500 ft above aerodrome elevation will ensure adequate separation from higher and faster traffic.
- 3.6.3 Ultralight aircraft pilots who choose to use the overfly procedure above the circuit altitude should be aware that:
- Ultralight aircraft are difficult to sight, particularly for faster, larger aircraft.
 - Faster, larger aircraft create significant wake turbulence that may be extremely hazardous to ultralight aircraft.
 - Faster, larger aircraft will not be able to slow to the speeds of an ultralight aircraft to follow the ultralight.
 - Faster, larger aircraft – prior to arriving in the circuit and when below 10,000 ft – can be operating at speeds up to 250 kt. Although aircraft should be operating at a maximum of 200 kt in the circuit, such an aircraft reporting at 20 NM from an aerodrome could be in the vicinity of the circuit within 5 minutes.
- 3.6.4 Ultralight pilots should consult the AIP, VFRG, ERSA, relevant charts and the latest NOTAMs to obtain the most up-to-date information and procedures at their aerodrome.

Notes:

1. Helicopters may also be operating in the circuit at 500 ft above aerodrome elevation.
2. CAO 95.10 and 95.55 list flight conditions, limitations and exemptions for ultralight aircraft, gyroplanes, and hang gliders.

3.7 Fixed wing and rotary wing aerial application (agricultural) aircraft operations

- 3.7.1 Pilots should be aware that 'aerial application' operations are conducted from some non-controlled aerodromes
- 3.7.2 Aerial application operations frequently involve low-level manoeuvring after take-off and prior to landing. These low-level manoeuvres are not required to conform to the standard traffic circuit. However, pilots of other aircraft can expect aerial application (agricultural) aircraft to:
- maintain a listening watch and broadcast their intentions on the CTAF
 - give priority to other traffic.
- 3.7.3 The rules governing these operations include provisions for separation from RPT flights, as specified in Regulations 137.155 and 137.160 of CASR.

3.8 Balloons

- 3.8.1 Aerodromes at which hot air balloons operate are marked on charts with the balloon symbol. Balloons, of course, cannot fly a circuit. Powered aircraft must give way to balloons.
- 3.8.2 Balloon pilots can only operate in the vicinity of a certified or registered aerodrome if they have completed the Australian Balloon Federation's airfield operations check. They are required to broadcast their position and intentions on the CTAF.
- 3.8.3 Balloons may approach the aerodrome on a different track to the one they intend for landing to take advantage of changing wind directions at different altitudes. Not all landings are from straight-in approaches and other pilots should be aware that the balloon may change direction quite quickly as it descends.

3.9 Training operations

- 3.9.1 Many aerodromes are used for training purposes, in all kinds of aircraft. Other pilots using these aerodromes should be alert to non-standard operations by training aircraft in the vicinity, some of which may be piloted by low-hours and student pilots. Where possible, pilots should try to become familiar with the call-signs of training aircraft and take extra care to avoid any conflict by repeating broadcasts or asking for confirmation from the other aircraft when unsure of its intentions.

3.10 Military operations

- 3.10.1 Military aircraft may operate at any aerodrome, sometimes using non-standard civil procedures such as 'initial and pitch' (see AIP-ENR Military initial and pitch circuit procedures). Large military aircraft may also operate at lower levels than similar civil aircraft and fast (up to 150 kt) military aircraft may operate at levels lower than GA aircraft.

3.11 Aerodrome works

- 3.11.1 Pilots departing or approaching an aerodrome should be aware that aerodrome works may be in progress. The aerodrome operator is not required to issue a NOTAM for minor maintenance or repairs, provided the runway can be vacated and returned to serviceability in 10 minutes. Unless the aerodrome is closed, works notified by NOTAM must allow the return to serviceability of the runway strip within 30 minutes. Such a NOTAM must be issued 24 hours in advance of the works.
- 3.11.2 If at any time pilots are unsure about their right to land at an aerodrome, they should contact the aerodrome operator for permission, and also get up-to-date information on the manoeuvring area and facilities. Where conditions on the use of the aerodrome are published in ERSA, pilots are obliged to operate to those conditions.

3.12 Uncharted aerodromes and ALAs

- 3.12.1 A non-controlled aerodrome or ALA published on aeronautical charts gives non-local pilots the necessary awareness to plan and take appropriate action when operating in the vicinity. On the other hand, if an aerodrome or ALA is not published on aeronautical charts, non-local pilots may not be aware that flying activities are taking place at that location. The situation is exacerbated if local operations use a frequency other than Area VHF.
- 3.12.2 To ensure common awareness and consistent local practice, CASA recommends that all aerodromes/ALAs are published on aeronautical charts – particularly those locations at which multiple aircraft operations take place. The default CTAF for published locations is 126.7 MHz. This provides a common frequency for pilots for monitor and make broadcasts when operating locally and assists non-local pilots to be 'alerted' about potentially conflicting traffic.
- 3.12.3 CASA is taking steps to publish as many known aerodromes and ALAs as possible on aeronautical charts. Owners of uncharted aerodromes and ALAs are also encouraged to submit details for publication. The process for having an aerodrome or ALA published on a chart requires the owner to complete and submit the form from this address::

http://www.airservicesaustralia.com/wp-content/uploads/ATS-DPS-0005_2.pdf

4 Hazards

4.1 Aircraft size and performance

- 4.1.1 General aviation pilots should be aware that aerodromes with runways of 1,400 m or more in length can accommodate jet or large turboprop aircraft operations. Runway lengths are published in ERSA.
- 4.1.2 For aerodromes with high performance traffic in the circuit, the overfly height should be no lower than 2,000 ft above aerodrome elevation.
- 4.1.3 Pilots of RPT and other professional operations should be aware that, at many of the aerodromes they operate into, other general aviation aircraft, gliders and ultralight aircraft may also be operating.

4.2 Downwind take-offs and landings

- 4.2.1 Take-off or landing downwind is not recommended as a standard procedure. Pilots should use the runway most closely aligned into wind (the active runway), wherever possible.
- 4.2.2 Pilots must operate within the limitations prescribed in the Aircraft Flight Manual (AFM), in accordance with Regulation 138 of CAR.
- 4.2.3 In accordance with Regulation 92 of CAR, pilots should consider the following hazards if planning to take-off or land downwind:
 - Wind strength: just above ground level may be significantly stronger than indicated by the windsock.
 - Windshear (for take-off):
 - o higher groundspeed at lift-off.
 - o a longer take-off distance required.
 - o a shallower angle of climb.
 - o degraded obstacle clearance.
 - o in the event of an emergency landing straight ahead, touchdown will be at a higher groundspeed.
 - Windshear (for landing):
 - o higher groundspeed at touchdown.
 - o a longer landing distance required.

4.3 Take-off and landing separation

- 4.3.1 When taking-off behind another aircraft, pilots should adhere to the separation standards published in the AIP:
 - Wait until a departing aircraft has crossed the upwind end of the runway or has commenced a turn;
 - If the runway is longer than 1,800 m, then wait until the departing aircraft has become airborne and is at least 1800 m ahead;

or

- If both aircraft have a maximum take-off weight less than 2,000 kg, wait until the departing aircraft has become airborne and is at least 600 m ahead.

4.3.2 For a landing aircraft, the approach should not be continued beyond the runway threshold until:

- a preceding departing aircraft has commenced a turn, or is beyond the point on the runway at which the landing aircraft could be expected to complete its landing roll and there is sufficient distance to manoeuvre safely in the event of a missed approach;

or

- a previous landing aircraft has vacated the runway.

Note: Runway separation standards do not account for wake turbulence and do not provide for a safe operations in the presence of wake vortices (see subsection 5.4 below).

4.3.3 Pilots should be vigilant when using a runway that is not the active runway to ensure that they do not create a hazard to aircraft using the active runway. Conversely, pilots using the active runway should ensure that aircraft operating on another runway have held short, or crossed the active runway, before commencing a take-off or landing.

4.4 Wake turbulence and windshear

4.4.1 Wake turbulence is produced by all aircraft and can be extremely hazardous. Smaller aircraft should be aware that large aircraft produce strong/severe wake turbulence, with large jet aircraft producing extreme wake turbulence.

4.4.2 In calm conditions, wake turbulence may not dissipate for several minutes. Pilots should position their aircraft with sufficient spacing in the traffic circuit to avoid encountering wake turbulence.

4.4.3 On take-off, smaller aircraft will normally require increased separation time before departing behind a larger aircraft.

4.4.4 Helicopters of all sizes produce, in forward flight, vortices similar to those produced by fixed wing aircraft. A hovering or slow air-taxying helicopter creates a rotor downwash that can be a hazard to all aircraft in its vicinity. Therefore, pilots of small aircraft should avoid operating close to helicopters. Equally, helicopter pilots should operate at a safe distance from parked or taxiing aircraft.

4.4.5 Windshear can occur anywhere in the traffic circuit, but is most dangerous when close to terrain. Dust devils ('willy willies') are visible windshear and common at outback aerodromes. Pilots encountering a windshear event should consider an immediate maximum performance climb to fly out of the situation.

4.5 Collision avoidance (maintaining separation in the traffic circuit)

4.5.1 The most hazardous area for collisions is within a space bounded by a cylinder of airspace 5 NM in diameter and up to 3,000 ft above aerodrome elevation. It is important for all pilots to maintain good situational awareness within this high-risk area.

Inbound pilots should minimise distractions within the cockpit. Passengers should be briefed not to distract the pilot unless there is imminent danger.

- 4.5.2 Pilots should be familiar with the aerodrome layout and have radio frequencies set, so their attention can be directed outside the aircraft. Pilots should be alert, looking for other traffic, maintaining a listening watch and responding appropriately to applicable transmissions. Pilots should broadcast their intentions by making the standard positional broadcasts and other broadcasts as necessary in the interests of safety.
- 4.5.3 Most collisions occur on downwind or on final approach. There are many distractions during this time, including configuring the aircraft, completing checklists, setting equipment and communicating. Early completion of checklists and configuration changes will help to minimise distractions at this critical time.
- 4.5.4 Good height and speed control (including use of flaps) is essential to maintaining separation during the approach. If a pilot determines that adequate separation cannot be maintained, a go-around should be initiated sooner rather than later.
- 4.5.5 Regulations 161 and 162 of CAR detail the rules and procedures for establishing right of way and preventing collisions. Pilots should have a sound understanding of these rules if giving way to, approaching head-on to, or overtaking other aircraft. The CARs are published at: <http://www.comlaw.gov.au/Series/F1997B00935>.
- 4.5.6 At aerodromes with both glider and helicopter operations, helicopter pilots should follow the standard traffic patterns to avoid gliders flying modified circuit patterns.

4.6 Collision avoidance (maintaining separation in the vicinity of a non-controlled aerodrome)

- 4.6.1 Increased collision risks exist at non-controlled aerodromes if instrument approaches are conducted at a time when visibility is reduced (by cloud, smoke or haze) but VFR conditions exist below the low-visibility layer.
- 4.6.2 In these situations, it is possible for a pilot flying an instrument approach through cloud to become visual and suddenly encounter a VFR aircraft in the circuit. Diligent radio broadcasting and continuous visual scanning are essential to avoid Airprox events.
- 4.6.3 It is expected that VFR pilots, on hearing IFR pilots broadcasting their intention to make an instrument approach, respond promptly to establish situational awareness with the IFR aircraft. Information that would be useful to the IFR pilot includes aircraft type, position and flight intentions.
- 4.6.4 Pilots operating under VFR should remember their responsibility to remain clear of cloud and maintain in-flight visibility in accordance with the criteria for visual meteorological conditions (VMC), as described in AIP-ENR 1.2 and the VFRG.

4.7 Practice instrument approaches

- 4.7.1 Pilots who wish to conduct practice instrument approaches in VMC should be particularly alert for other aircraft in the circuit, so as to avoid impeding the flow of traffic.

Pilots flying IFR should give position reports in plain English so as to be easily understood by VFR pilots, who generally have no knowledge of IFR approach points or procedures. In general, positions should include altitude, distance and direction from the aerodrome. Including details such as the outbound/inbound legs of an instrument approach, or area navigation fixes, will generally be of little assistance to VFR pilots in establishing situational awareness.

Notes:

1. In an IFR training situation, one of the pilots in the aircraft should have an unrestricted view outside at all times. Therefore, instrument simulation should only be by a 'hood' or 'foggles', not by covering any part of the windscreen.
2. Pilots should not practice instrument approaches in VMC without a safety pilot when intending to rely solely on the aircraft instruments.

5 Standard traffic circuit procedures

5.1 Traffic circuit direction

- 5.1.1 The standard aerodrome traffic circuit facilitates the orderly flow of traffic and is normally a left-hand circuit pattern with all turns to the left (Regulation 166A of CAR). When arriving at an aerodrome to land, the pilot will normally join the circuit on upwind, crosswind (midfield), or at or before mid-downwind. Landings and take-offs should be made on the active runway or the runway most closely aligned into wind.
- 5.1.2 If a secondary runway is being used (e.g. for crosswind or low-level circuits), pilots using the secondary runway should not impede the flow of traffic using the active runway.
- 5.1.3 Aerodromes that have right-hand circuits are listed in the ERSA.

Note: At many aerodromes, the circuit direction at night is different to the direction during the day. This is generally because of terrain, obstructions or noise abatement issues.

5.2 Maximum speed

- 5.2.1 Aircraft should not be flown in the circuit above 200 kt IAS.

5.3 Circuit heights

- 5.3.1 By convention, aircraft should fly the standard traffic circuit at the heights above aerodrome elevation listed in Table 1 and depicted in Figure 2.

Table 1 – Standard circuit heights and aircraft performance

| Type of aircraft | Standard circuit speed range | Standard circuit height |
|--|-------------------------------------|------------------------------------|
| High performance (includes jets and many turboprops) | Above approximately 150 kt | 1,500 ft above aerodrome elevation |
| Medium performance (includes most piston engine aircraft) | Between approximately 55 and 150 kt | 1,000 ft above aerodrome elevation |
| Low performance | Approximately 55 kt maximum | 500 ft above aerodrome elevation |

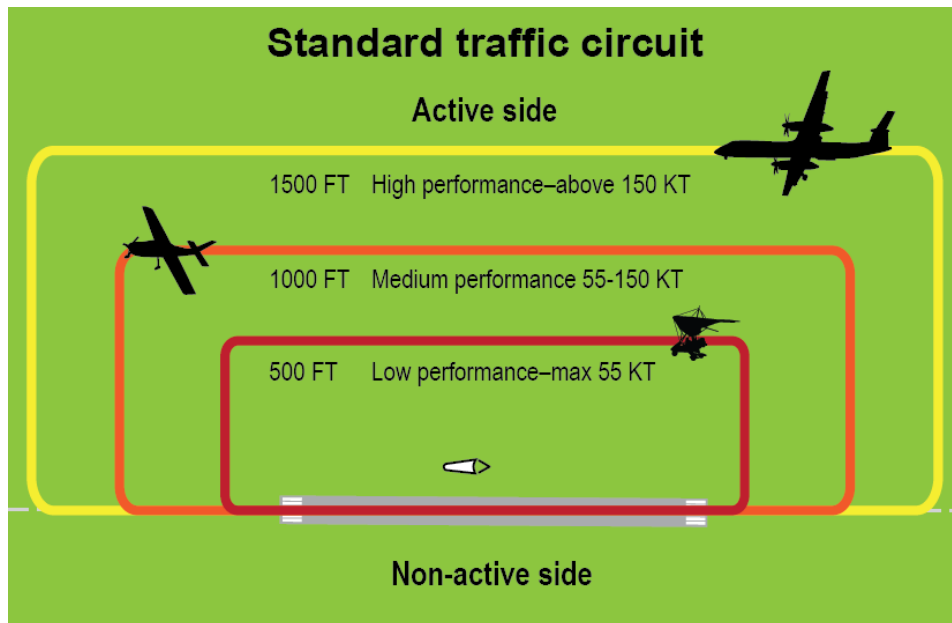


Figure 2 – Lateral and vertical separation in the standard aerodrome traffic circuit

5.3.2 During initial climb-out, the turn on to crosswind should be appropriate to the performance of the aircraft but, in any case, not less than 500 ft above terrain so as to be at circuit height when turning downwind (refer paragraph 166A (2) (f) of CAR). Pilots may vary the size of the circuit depending on:

- the performance of the aircraft.
- AFM/Pilot's Operating Handbook requirements.
- company SOPs.
- other safety reasons.

5.4 Departing the circuit area

5.4.1 Aircraft should depart the aerodrome circuit area by extending one of the standard circuit legs or climbing to depart overhead. However, the aircraft should not execute a turn to fly against the circuit direction unless the aircraft is well outside the circuit area and no traffic conflict exists. This will normally be at least 3 NM from the departure end of the runway, but may be less for aircraft with high climb performance. In all cases, the distance should be based on the pilot's awareness of traffic and the ability of the aircraft to climb above and clear of the circuit area.

CAUTION

Be aware of traffic joining the circuit by the recommended overfly procedure, especially if climbing to depart overhead the aerodrome.

5.5 Final approach

5.5.1 The turn onto final approach should be:

- completed by a distance and height that is common to all operations at the particular aerodrome.
- commensurate with the speed flown in the circuit for all aircraft of the same type.

5.5.2 In any case, the turn onto final approach should be completed at least 500 ft above aerodrome elevation. This should allow sufficient time for the pilot to ensure that the runway is clear for landing. It will also allow sufficient time for the majority of aircraft to fly a stabilised approach and landing.

5.6 Arrival procedures

5.6.1 Where a pilot is unfamiliar with the aerodrome layout, or when its serviceability, wind direction, wind speed, or circuit direction cannot be ascertained prior to arrival, the overfly procedure should be used. The pilot should overfly or circle the aerodrome at least 500 ft above the circuit altitude, usually 2,000 ft or more above aerodrome elevation. When the circuit direction has been determined, the pilot should position the aircraft to a point well clear of the circuit (normally the non-active side of the circuit), before descending to the circuit altitude applicable to the aircraft's performance (see Figure 3).

CAUTION

Pilots should not descend into the active side of the traffic circuit from above because of the difficulty of seeing – and being seen by – aircraft directly below the aircraft's flight path (see Appendix 1 for a more detailed diagram of the traffic circuit and overfly procedure).

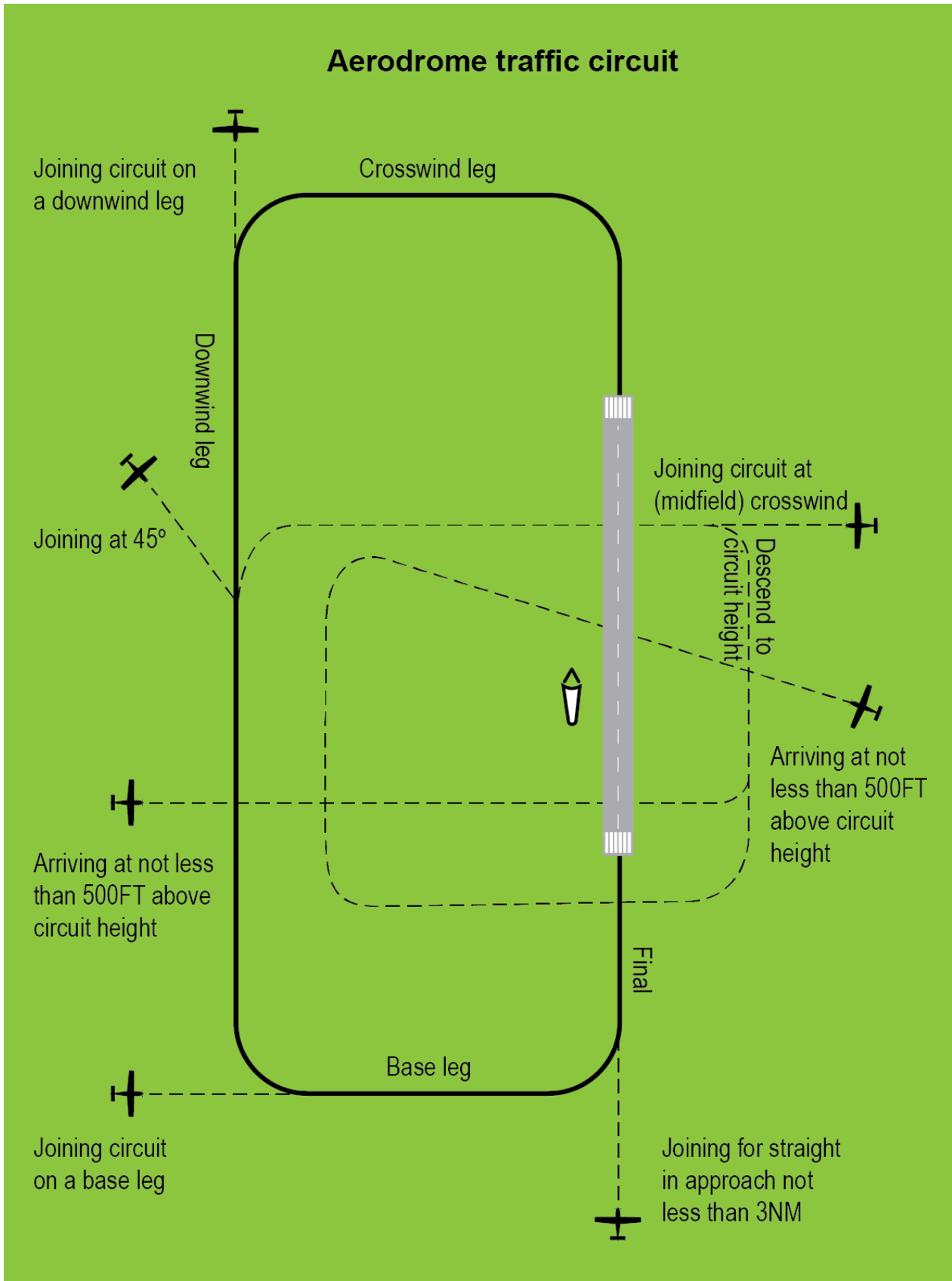


Figure 3 – Aerodrome standard traffic circuit, showing arrival and joining procedures

- 5.6.2 For low-performance ultralight aircraft and rotorcraft with a typical circuit speed of approximately 55 kt, it is recommended that the pilot overfly midfield at 500 ft above aerodrome elevation. This will minimise the risk of conflict with higher or faster traffic (see also sections 3.5 and 4.6 in this CAAP).
- 5.6.3 Aircraft descending on the non-active side of the circuit should be established at circuit altitude by the time they cross the runway centreline on crosswind, somewhere between midfield and the departure end of the runway.
- 5.6.4 Aircraft joining on the active side at circuit altitude should enter midfield at approximately 45 degrees to the downwind leg, giving way to, or following, aircraft already established in the circuit.
- 5.6.5 On the downwind leg, the applicable circuit altitude should be maintained until commencement of the base leg turn, unless this would lead to an unstable approach due to aircraft performance requirements. The base leg turning position is normally where the aircraft is approximately 45 degrees from the runway threshold. Along the base leg, pilots must continue their lookout, particularly for aircraft on or joining final, and maintain traffic separation.
- 5.6.6 When on the final leg, pilots should confirm that the runway is, and remains, clear for landing.

5.7 Straight-in approaches

- 5.7.1 Straight-in approaches are recommended as a standard procedure for IFR aircraft. However, pilots who choose to adopt a straight-in approach should only do so when it does not disrupt, or conflict with, the flow of circuit traffic. Paragraph 166 (2) (b) of CAR requires a pilot conducting a straight-in approach to give way to any other aircraft established and flying in the circuit pattern. Nonetheless, pilots conforming to the circuit pattern – particularly on the base leg – should continue to check for traffic entering along the final approach path.
- 5.7.2 Paragraph 166 (2) (b) of CAR requires pilots to determine the wind velocity and the runway in use before conducting a straight-in approach. There are several ways to determine the wind direction, speed and runway in use:
- contact with one of the following:
 - o Automatic Weather Station.
 - o Aerodrome Weather Information Service.
 - o Automatic Aerodrome Information Service.
 - radio contact with an:
 - o Aerodrome Flight Information Service.
 - o ground-based radio communication service (CA/GRS, UNICOM).
 - o company agent.
 - o approved observer (as defined in Regulation 120 of CAR).
 - o aircraft currently operating at the aerodrome.
 - visual indications, if the information cannot be determined by one of the above means.

- 5.7.3 Pilots must also assure themselves, by other means, of the aerodrome's serviceability and other hazards which are usually indicated by markings adjacent to the wind indicator.
- 5.7.4 When conducting a straight-in approach, the aircraft must be established on final approach at not less than 3 NM from the landing runway threshold (Paragraph 166B (2) (c) of CAR).
- 5.7.5 Pilots should announce their intention to conduct a straight-in approach with their inbound broadcast. A further broadcast of intentions should also be made when not less than 3 NM from the runway threshold.
- 5.7.6 In addition, pilots conducting a straight-in approach should observe the following:
- Pilots should not commence a straight-in approach to a runway when the reciprocal runway is being used by aircraft already established in the circuit.
 - Only minor corrections to speed and flight path, to maintain a stable approach, should be required within 3 NM on final. The aircraft's transponder should be squawking Mode C or ALT2. The aircraft's external lights (where fitted) should be illuminated and remain on until the aircraft has landed and is clear of all runways.
 - An aircraft established on the base or final leg for any runway has right of way over an aircraft carrying out a straight-in approach.

5.8 Joining on base leg

- 5.8.1 Pilots should be mindful that the following kinds of incidents are more common when joining on the base leg:
- landing downwind in direct conflict with other traffic using the into-wind runway.
 - having to go-around from late final due to other aircraft or vehicles on the runway.
 - landing on a closed runway or at a closed aerodrome.

Joining on the base leg is not a standard procedure. CASA recommends that pilots join the circuit on either the crosswind (midfield) or downwind leg. However, pilots who choose to join on base leg should only do so if they:

- have determined the:
 - o wind direction and speed.
 - o runway in use.
 - o circuit direction.
 - o presence of obstructions on the runway.
 - o serviceability of the aerodrome and runway.
- give way to other circuit traffic and ensure the aircraft can safely (i.e. no traffic conflict likely) join the base leg applicable to the circuit direction in use at the standard height (refer to Table 1 above).
- broadcast their intentions.

² Good airmanship is for transponder-equipped aircraft to squawk the appropriate code for the class of airspace they are in at all times. This aids both ATS radar surveillance and other aircraft fitted with airborne traffic collision and avoidance systems.

- This means that, when the pilot cannot meet these criteria they should overfly the aerodrome and descend on the non-active side of the circuit.

5.8.2 Although aircraft flying at different speeds will generally be separated by both circuit altitude and horizontal displacement, pilots joining on base should take extra care not to descend into traffic at lower altitudes, particularly as they approach final. This can occur if parts of the descending aircraft mask the pilot's view of the flight path below their aircraft.

5.9 Go-arounds

5.9.1 A pilot who elects to abort a landing should manoeuvre to keep other traffic in sight, maintain a safe distance from other aircraft and re-join the circuit when it is safe to do so (see Figure 4). This may involve manoeuvring to the right, left or maintaining the runway centreline, depending on traffic, the circuit direction and terrain. Pilots of IFR aircraft must also adhere to any missed approach procedures and circling restrictions at the aerodrome.

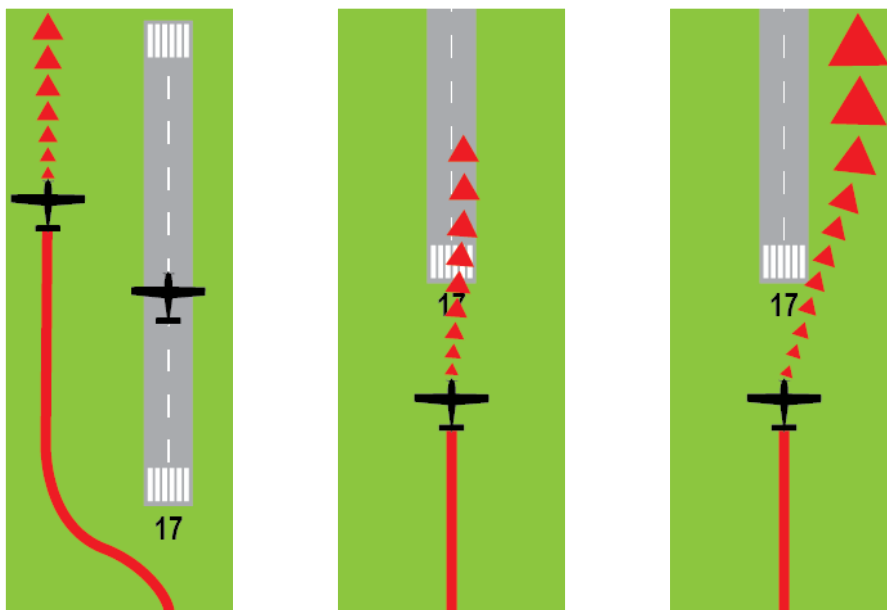


Figure 4 – Go-around manoeuvres

5.10 Transiting and overflying en route

5.10.1 Pilots who prefer to track via non-controlled aerodromes for risk mitigation or other purposes should avoid overflying the aerodrome *at an altitude that could conflict with operations in the vicinity of the aerodrome* (see also Section 4.5 of this CAAP); be aware; however, that IFR approach procedures may commence at significant heights above the aerodrome (e.g. 4,954 ft at Innisfail). VFR pilots can find information on IFR approach procedures on the Airservices website under the AIP publication.

5.11 Flight with an unserviceable radio

- 5.11.1 At non-controlled aerodromes where the carriage of radio is required, Regulation 166E of CAR allows for continuation of a 'no radio' arrival or departure in certain circumstances:
- If a radio failure occurs either en route to, or in the circuit of, the aerodrome then the pilot may continue to land at that aerodrome provided:
 - o the aircraft's landing lights, anti-collision lights and transponder are turned on, if fitted to the aircraft.
 - o the pilot uses the overfly procedure for joining the traffic circuit on arrival (see Appendix 1 of this CAAP).
 - A pilot may depart the aerodrome with an unserviceable aircraft radio and fly to another aerodrome for repairs, provided that the aircraft displays its landing and anti-collision lights and has its transponder turned on (where fitted to the aircraft).
- 5.11.2 A pilot should avoid planning to arrive at, or depart from, an aerodrome for radio repairs during scheduled RPT operations. For aerodromes where there is a UNICOM or CA/GRS, pilots should (where possible) advise their intentions by non-radio means before take-off or landing.

5.12 Non radio-qualified pilot or non-radio equipped aircraft

- 5.12.1 Regulation 166E of CAR 166E makes provision, in exceptional circumstances, for a pilot who is not qualified to use an aircraft radio, or where the aircraft is not equipped with a radio, to operate in the vicinity of a non-controlled certified, registered, military or designated aerodrome.
- 5.12.2 The 'non-radio' aircraft must be operated:
- in VMC during the day
 - so as to arrive or depart under the escort of another aircraft that is radio-equipped and flown by a radio-qualified pilot. This will allow the pilot of the escort aircraft to make radio calls on behalf of both aircraft. The radio-equipped aircraft should be manoeuvred to keep the non-radio aircraft at a safe distance (Part 163 of CAR) and in sight at all times, in order to accurately report its position.
- 5.12.3 Pilots in these situations, or with an unserviceable radio, may also notify ATS of their intentions so that information of their operation can be passed to other aerodrome traffic.

5.13 Night circuits

- 5.13.1 Night circuit operations require increased pilot vigilance as they are generally more demanding than day circuit operations. Detailed instructions for night circuit flying is provided as follows:

- Night circuits for training purposes shall be conducted at a height more than 1,000 ft above aerodrome elevation. CAO 29.2 includes further requirements applicable to night circuits.
- Pilots flying Night VFR should refer to CAAP 5.13-2.
- Pilots flying IFR should consult AIP-ENR 1.5 for guidance on conducting a non-precision approach and visual circling manoeuvres.

6 Radio broadcasts

6.1.1 Regulation 166C of CAR requires a pilot to make a broadcast whenever it is reasonably necessary to do so to avoid a collision, or the risk of a collision, with another aircraft. A broadcast must include:

- the name of the aerodrome.
- the aircraft's type and call sign.
- the position of the aircraft and the pilot's intentions.

6.2 Standard phraseology

6.2.1 Effective radio communication requires the pilot to use standard aviation phraseology as detailed in the *CASA Flight Radiotelephone Operator Licence Syllabus of Training* and in the AIP. Positional and other broadcasts necessary to minimise traffic conflict should be made, for example: 'joining circuit', 'turning base' and 'clear of all runways'. Effective communication and increased traffic awareness will help prevent a collision or an Airprox event. In addition, avoid the use of local terminology in position reports, for example use 'Bundaberg' instead of 'Bundy'.

6.2.2 Pilot broadcasts should be brief and clear. Pilots are advised to think about their message before transmitting.

6.3 Positional broadcasts

6.3.1 When departing or arriving at non-controlled aerodromes, pilots should monitor their radios and broadcast their intentions in accordance with the following and paragraph 6.3.4:

- When in the vicinity of an aerodrome published on aeronautical charts, listen and broadcast as necessary on the CTAF (MULTICOM 126.7 MHz or discrete).
- When aerodromes are located within a Broadcast Area, listen and broadcast as necessary on the Broadcast Area CTAF.
- In all other cases, it is recommended to listen and broadcast as necessary on the Area VHF noting a pilot has the discretion to use the most appropriate frequency to ensure safe operations. This may be MULTICOM 126.7 MHz. To ensure mutual traffic awareness, it is recommended that pilots using an alternative frequency also monitor Area VHF.

Notes:

1. The intent is to ensure broadcasts are made on a frequency that other aircraft in the vicinity will be monitoring.
2. Nonetheless, pilots should study all authorised aeronautical charts relevant to their flight route and category, in accordance with CAR 233 (1)(h). This is because some details may be omitted from charts of different scales even though they cover the same area (usually to avoid clutter).³

³ Chart errors and omissions should be notified to Airservices Australia at: <https://www.airservicesaustralia.com/aip/ccard/default.asp?>

- 6.3.2 Pilots and operators who regularly experience radio traffic congestion at particular aerodromes on 126.7 MHz should contact the local Regional Airspace Users Advisory Committee (RAPAC) representative to take forward a request to change or assign a discrete CTAF to help improve safety. Details of the local RAPAC can be found on the CASA website.
- 6.3.3 When operating a VHF radio-equipped aircraft in the vicinity of a non-controlled aerodrome, pilots must make a broadcast whenever it is reasonably necessary to avoid a collision, or the risk of a collision, with another aircraft (as required by subregulation 166C (2) of CAR).
- 6.3.4 Table 2 sets out the recommended broadcasts on the aerodrome frequency, but pilots may use discretion in determining the number and type of broadcasts they make. For example, when operating from a private or remote airstrip, a single broadcast declaring an intention to take-off and track in particular direction may be all that is required where there is no response to the initial transmission.

Table 2 – Recommended positional broadcasts in the vicinity of a non-controlled aerodrome

| Item | Circumstance (non-controlled aerodromes) | Pilot's radio broadcasts |
|------|---|---|
| 1 | The pilot intends to take-off | Immediately before, or during, taxiing |
| 2 | The pilot intends to enter a runway | Immediately before entering a runway |
| 3 | The pilot is inbound | 10 NM, or further, from the aerodrome, commensurate with aircraft performance and pilot workload, with an estimated time of arrival for the aerodrome |
| 4 | The pilot is ready to join the circuit | Immediately before joining the circuit |
| 5 | The pilot intends to carry out a straight-in approach | On final approach at not less than 3 NM from the threshold |
| 6 | The pilot intends to fly through the vicinity of, but not land at, a non-controlled aerodrome | When the aircraft enters the vicinity of the aerodrome |

Note: Some distances above refer to the runway threshold and others to the aerodrome reference point. Pilots should be aware that a global positioning system (GPS) indication of 3 NM from an aerodrome may not be 3 NM from the runway threshold.

- 6.3.5 In addition to making positional broadcasts, pilots should listen to other broadcasts to increase situational awareness. This 'alerted' see-and-avoid strategy results in an eight-fold increase in the likelihood of seeing another aircraft.
- 6.3.6 Whenever pilots determine that there is a potential for traffic conflict, they should make radio broadcasts as necessary to avoid the risk of a collision or an Airprox event. Pilots

should not be hesitant to call and clarify another aircraft's position and intentions if there is any uncertainty.

- 6.3.7 It is essential that pilots maintain a diligent lookout because other traffic may not be able to communicate by radio (e.g. the other pilot may be tuned to the wrong frequency, selected the wrong radio, have a microphone failure, or have the volume turned down).
- 6.3.8 The standard broadcast format for low and medium performance aircraft is:
- Location Traffic (e.g. 'Parkes Traffic').
 - Aircraft Type (e.g. 'Cessna 172').
 - Call sign (e.g. 'Zulu Foxtrot Romeo').
 - Flight rules if IFR.
 - Position/Level/Intentions (e.g. 'One-zero miles north inbound, on descent through four-thousand-two-hundred, estimating the circuit at three-six')
 - Location (e.g. Parkes).

6.4 Radio call signs

- 6.4.1 Pilots should be aware that a variety of radio call signs are in use:
- Passenger transport (e.g. 'Q-link 2719').
 - Recreational (e.g. 'Jabiru 5234').
 - Military (e.g. 'Stallion 22').
 - Law enforcement (e.g. 'Polair 5').
 - Foreign-registered (e.g. 'November 1-5 Yankee').
 - VH-ZFR (e.g. 'Zulu Foxtrot Romeo').
- 6.4.2 For Broadcast Areas, the horizontal and vertical boundaries are defined in AIP-MAP. The vertical boundary of a Broadcast Area can be one of the following:
- surface to 5,000 ft above mean sea level.
 - surface to the base of controlled airspace if 8,500 ft or less.
 - surface to a designated level.
- 6.4.3 There is usually more than one aerodrome within a Broadcast Area, and pilots operating within the area must maintain a listening watch on the designated CTAF as depicted in AIP-MAP. Pilots should make sufficient broadcasts, as recommended in Table 2, when they are entering, or flying in the vicinity of an aerodrome in, the Broadcast Area to reduce the risk of a collision or an Airprox event.

6.5 General radio procedure guidance

- 6.5.1 Pilots should be careful not to 'clip' the transmission when broadcasting their location, as confusion can arise at aerodromes that are close together and sharing the same CTAF. Calls should be made as clearly and concisely as possible. Pilots should speak at a normal pace, as rapid speech can make transmissions difficult to understand.

- 6.5.2 Ideally, pilots should make circuit broadcasts prior to making a turn because banking aircraft are easier to see. A simple strategy to remember when flying in the circuit is 'Look, Talk and Turn'.
- 6.5.3 Where an Aerodrome Frequency Response Unit (AFRU) is in operation, be careful not to momentarily break transmission as the AFRU will automatically over-transmit any subsequent broadcast.
- 6.5.4 At aerodromes with an Aerodrome Frequency Response Unit, pilots will receive confirmation that they are broadcasting on the relevant CTAF. This will be either the name of the aerodrome and the word "CTAF" or, if any aircraft transmissions have been received by the AFRU within the last five minutes, a low volume 300 millisecond tone burst. This helps pilots to both confirm they are using the right frequency and makes them aware of potential traffic in the area (See ERSA Aerodrome Frequency Response Unit).

Note: Pilots need to take extra care to monitor and broadcast on the correct CTAF, as there continues to be reported incidents in which a pilot claims to have made the appropriate broadcasts but have not been heard by other aircraft.

- 6.5.5 It is essential that, once contact with another aircraft is established, pilots ensure that they and the other aircraft adhere to mutually-agreed flight paths to maintain separation.

Note: There have been a number of incidents in which pilots in the vicinity of a non-controlled aerodrome have heard and acknowledged other aircraft in the vicinity, but have subsequently lost situational awareness with the other aircraft by inadvertently giving a wrong position or diverging from their declared flight path.

- 6.5.6 Pilots must continually look out for other aircraft, even when their broadcasts have generated no response.

Note: By far the most common Airprox reports are incidents in which the reporting pilot has not been aware of the presence of another aircraft in the vicinity. Never assume that the absence of radio transmissions at a non-controlled aerodrome equates to an absence of any traffic.

- 6.5.7 Subregulation 166C (1) of CAR requires that a broadcast be made to avoid the risk of collision if the aircraft is carrying a serviceable VHF radio and the pilot-in-command holds a radiotelephone qualification. Pilots who intentionally avoid broadcasting – for whatever reason – must keep in mind that such action may increase the risk of a collision, with the potential for serious consequences.

Note: There have been a number of incidences of ostensible radio unserviceability where subsequent analysis of the aircraft's radio systems found no fault with the equipment.

Appendix A

Recommended circuit heights and active-side overfly and join procedure

OPERATIONS IN THE VICINITY OF NON-CONTROLLED AERODROMES

