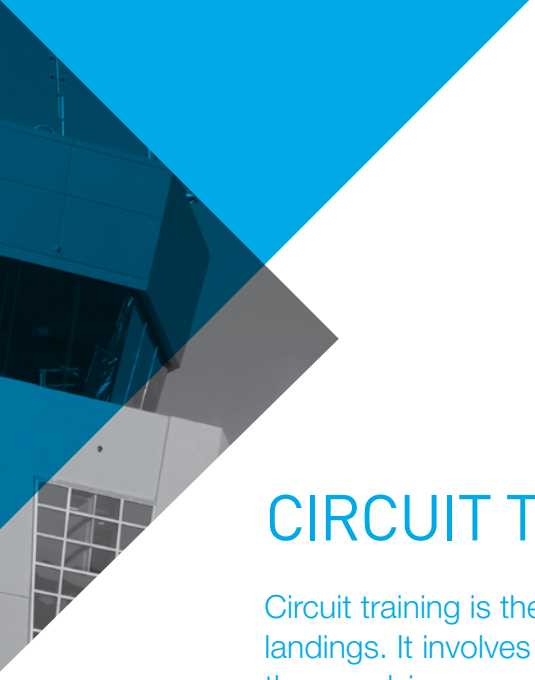


CIRCUIT TRAINING

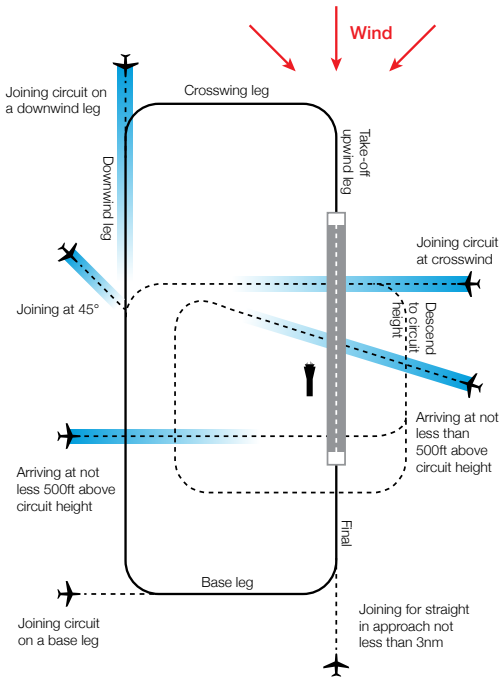
Circuit training is the first stage of practical pilot training focused on take-offs and landings. It involves the pilot making approaches to the runway, touching down and then applying power to take off again.

This is undertaken in accordance with Civil Aviation Safety Authority (CASA) Regulations which are consistent with international practices.

Circuit training is undertaken at most airports, particularly regional and general aviation aerodromes. Each airport makes its own determination about the hours of the day or days of the week that training may be undertaken. This is based on factors including pilot demand, the number and time of other regular flights into and out of the aerodrome, runway capacity and configuration, availability of air traffic control services and the type of navigational equipment available at the aerodrome.

Training during both day and night is important for developing pilot competencies, as is experience with using different types of navigational aids.

Figure 1 Left hand training circuit.



As different aerodromes offer different facilities, the numbers and timing of circuit training flights varies between locations.

A training circuit consists of five legs – the take-off, crosswind, downwind, base and final approach to the runway. A simplified representation is shown in Figure 1. The take off and final stage of the circuit is flown into the wind, as this is the safest way for an aircraft to operate. The direction of the training circuit depends on local terrain and the position of the runway(s) at the airport. The aircraft symbols and dotted lines shown in Figure 1 indicate recommended ways for an aircraft to join the circuit pattern.

LEFT HAND CIRCUITS

Figure 1 depicts a left hand circuit with the aircraft turning left after take-off and flying anticlockwise. This is the most common type of circuit operation.

RIGHT HAND CIRCUITS

Where a right hand circuit is used, a pilot turns right after take-off for a clockwise circuit. This may occur because of high terrain restricting circuit operations to one side of the runway, regardless of the wind direction. Another example of the use of a right hand circuit is an airport which has parallel runways, such as Bankstown, Parafield or Moorabbin. During times when air traffic control services are provided, circuit operations can be conducted off both parallel runways at the same time. This means both left and right hand circuits may be flown concurrently.

TRAINING AIRCRAFT

There are three categories of training aircraft based on the aircraft's speed as shown in Table 1. Each category has a different downwind height requirement measured above the ground level at the airport. This helps separate aircraft that perform differently. Higher performance aircraft fly larger and longer circuits at higher altitude than lower performance aircraft.

AIRCRAFT JOINING AND DEPARTING A CIRCUIT

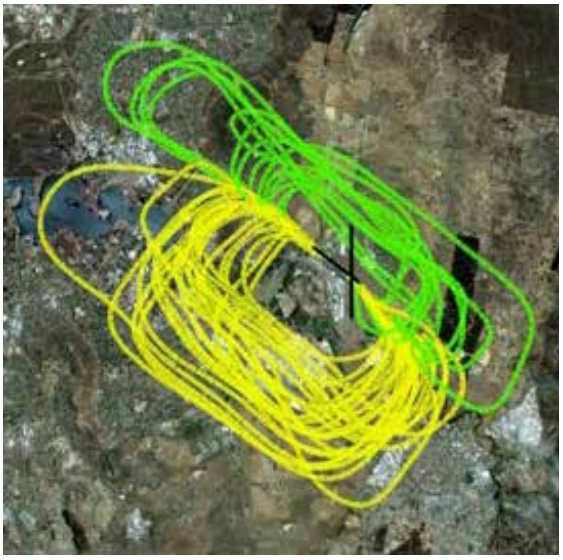
At airports without a control tower, CASA regulations specify how an aircraft should join a circuit when approaching the airport from outside its local area. This is done by flying over the runway at least 500ft above the high performance circuit or by joining the circuit at the beginning, end, or partway along (at a 45o angle to) the downwind leg. If the circuit is clear, an arriving aircraft can join the final approach from three nautical miles (5.6km) out.

At locations with an air traffic control tower pilots must follow the instructions of air traffic control regarding the height they fly and how they may join or depart the circuit.

Arrival paths in the circuit have been designed to give pilots the best visibility of other aircraft in the circuit or approaching the airport from outside the circuit. The approach paths are shown as dotted lines in Figure 1.

Aircraft can depart from the circuit by extending one of the four legs and are only allowed to turn away from the extended leg when well clear of the circuit.

Figure 2 Typical variations in circuit pattern. The yellow circuit depicts circuits when the wind is blowing from the north, whereas the green circuit depicts circuits when the wind is from the south.



Aircraft doing circuit training at airports without a control tower should give way to commercial aircraft, such as regular passenger aircraft. In this case the training aircraft will extend one of the circuit legs to allow the commercial aircraft to land.

AIRCRAFT NOISE IMPACTS

All aircraft operating in Australia, including training aircraft, must meet international noise standards.

There are no regulated hours for circuit training, but most airports have their own limitations which prohibit circuits during the late night to early morning, typically 10pm to 7am. Many airports publish this information on their website.

The circuit length, and therefore the area overflown, depends on how quickly the aircraft can climb to the required height for the downwind leg as outlined in Table 1. This length varies between aircraft and is affected by meteorological conditions (including wind, cloud cover, and temperature), other aircraft in the circuit, air traffic control requirements and pilot proficiency.

The size and location of the circuit is controlled to ensure the safety of all aircraft operations at the airport. This may result in training being undertaken over populated areas, especially where these are in close proximity to the aerodrome.

For example, variations for circuit patterns are shown in Figure 2. These circuit maps were collected at an airport over a 25 day period.

FURTHER INFORMATION

Further information is available from:

- Civil Aviation Safety Authority website www.casa.gov.au
- Airservices website www.airservicesaustralia.com/aircraftnoise/aircraft-operations/circuit-training
- Department of Infrastructure and Regional Development website www.infrastructure.gov.au/aviation/general

Table 1 Circuit height for three categories of training aircraft. *Height is measured above the airport level.

Type of aircraft	Standard circuit speed range	Standard circuit height* (downwind leg)
High performance (including jets and many turboprops)	150-200kts (280-320 km/hr)	1500ft (450m)
Medium performance	55-150kts (100-280km/hr)	1000ft (300m)
Low performance (including helicopters)	Less than 55kts (100km/h)	500ft (150m)

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