airservices

Guide to
our operations

Contents

Introduction

Airservices is Australia's air navigation and aviation fire fighting service provider. We provide air traffic control and aviation rescue fire fighting service at designated airports around the country.

Each year we manage domestic and international air traffic operations for over 156 million passengers on more than four million aircraft movements in a region covering 11 per cent of the world's surface.

The safety and integrity of Australia's air navigation system is our primary consideration.

Even to the most seasoned traveller, the world of air traffic control remains largely a mystery. This guide has been produced to demystify the broader public to understand how air traffic control works and to provide insights into everyday occurrences at airports.

OUR GOVERNANCE

Airservices is wholly owned by the Australian Government and governed by a Board of Directors appointed by the Minister for Infrastructure, Transport and Regional Development. Our services are funded through revenue from our airline customers under a five-year pricing agreement.

OUR PURPOSE

Our purpose is to provide safe, secure, efficient and environmentally responsible services that are valued by the aviation industry and community. We are positioned to be the industry partner for keeping skies safe and for delivering distinctive value to our customers.

As air traffic continues to grow, Airservices has a unique role at the heart of the aviation industry as we become more agile while maintaining productive operations to ensure we can continue to deliver safe and efficient services to all who use Australia's changing skies.

CONTACTING US

You can find more information on our activities at www.airservicesaustralia.com or by phoning 1300 301120.

You can also follow Airservices on Twitter, LinkedIn and YouTube.

@AirservicesNews

AirservicesTV

Who's responsible for what?

A number of Government departments, agencies and organisations have responsibilities across the aviation industry.

Airservices provides air traffic control and aviation rescue fire fighting services to the aviation industry, including maintaining technology used by the industry for navigation and surveillance.

The Australian Maritime Safety Authority is responsible for search and rescue coordination, which is conducted from the Rescue Coordination Centre in Canberra.

The Australian Transport Safety Bureau is Australia's national transport safety investigator. When things go wrong in transport safety, the Australian Transport Safety Bureau undertakes an investigation to determine what happened.

The Bureau of Meteorology is Australia's national weather agency. Through Airservices, it provides aviation users with meteorological information necessary for safe and efficient operations, including the provision of observations, forecasts, warnings and advisories.

The Civil Aviation Safety Authority is Australia's safety regulator for civil air operations and the operation of Australian aircraft overseas. It is the agency responsible for licensing of aircraft and pilots, and has a role in delivering safety education and training programs. Through the Office of Airspace Regulation, it also has responsibility for airspace regulation.

The Department of Defence is responsible for military aviation operations and air traffic control at airports with a shared civil and military use. Airservices is also working closely with Defence to deliver a single harmonised civil–military air traffic control system (OneSKY).

The Department of Infrastructure, Transport, Cities and Regional Development oversees government legislation and policy relating to airports and aviation, including curfews, noise insulation programs and aircraft noise regulations.
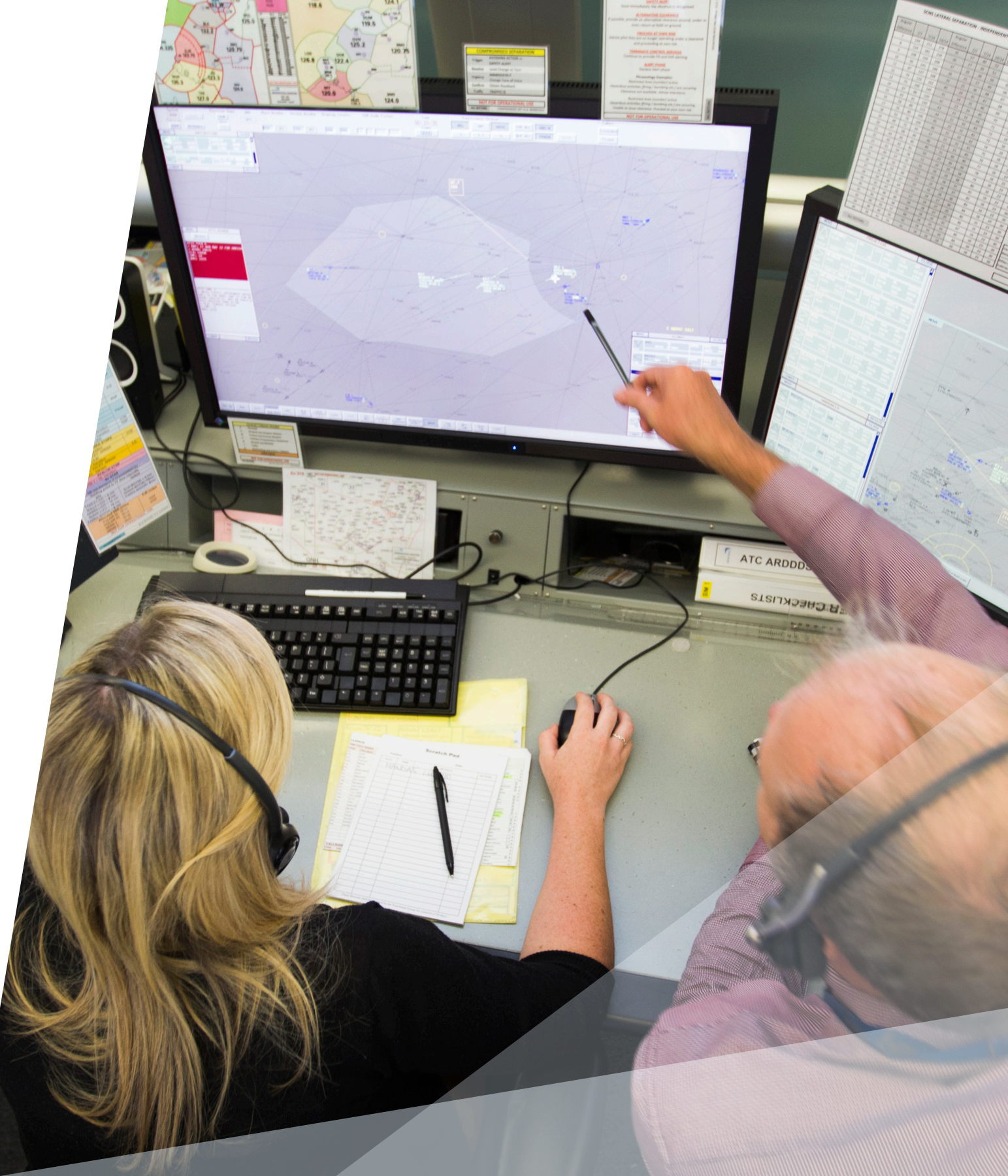
Our operations at a glance

AIR TRAFFIC CONTROL

We have two major operating centres in Melbourne and Brisbane and a corporate office in Canberra. We operate 29 air traffic control towers at international and regional airports, and provide aviation rescue fire fighting services at 26 of Australia's busiest airports, providing air navigation services across 11 per cent of the world's airspace.

AVIATION COMMUNICATIONS, SURVEILLANCE AND NAVIGATION SYSTEMS

We manage satellite technology such as Automatic Dependent Surveillance Broadcast as well as the installation and maintenance of radar, surface movement control technology, instrument landing systems and navigation beacons.

MANAGEMENT OF AIRCRAFT NOISE

We operate the national aircraft noise and flight path monitoring system and also manage all aircraft noise complaints through our Noise Complaints and Information Service.

AVIATION RESCUE FIRE FIGHTING SERVICES AT MAJOR AIRPORTS

We are one of the world's largest aviation fire fighting organisations with more than 900 operational and support personnel based around Australia. We provide aviation rescue fire fighting services at the following airports:

Adelaide, Alice Springs, Avalon, Ayers Rock, Ballina, Broome, Brisbane, Cairns, Canberra, Coffs Harbour, Darwin, Gladstone, Gold Coast, Hamilton Island, Hobart, Karratha, Launceston, Mackay, Melbourne, Newman, Perth, Port Hedland, Rockhampton, Sunshine Coast, Sydney and Townsville.

FAST FACTS

We safely manage 11 per cent of the world's airspace where there are more than four million aircraft movements carrying more than 156 million passengers annually.

We employ about 1000 air traffic controllers, 900 aviation rescue fire fighters, as well as technical officers and engineers.

We maintain an asset base valued at more than $1 billion at more than 700 locations across the country.

Our activities are funded by airspace users, who use the vast range of services and facilities we provide.

Air traffic control

Air traffic control manages the safe and orderly flow of aircraft into, out of and across Australian airspace.

Our air traffic controllers keep aircraft at safe distances from each other in the air and on the ground, while arranging them in an order for landing or take-off along organised flight paths.

We use systems and processes to allow the maximum number of aircraft to fly safely in our skies.

Air traffic control services at joint civil–military airports, such as Darwin, Townsville and Williamtown are provided by the Royal Australian Air Force. Airservices aviation rescue fire fighters may still have a role at these airports.

TYPES OF AIR TRAFFIC CONTROLLERS

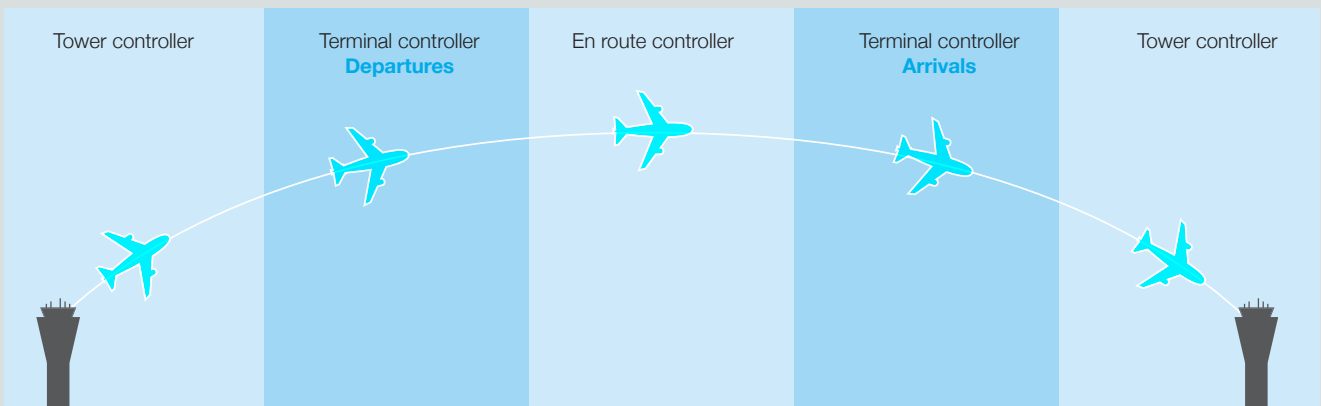There are three types of air traffic control.

Tower controllers are located at an airport's control tower and are responsible for all aircraft and vehicle movements on taxiways, runways and in the immediate vicinity of the airport. Tower controllers separate aircraft visually but use a range of technology to assist with this.

Terminal or approach controllers use radar and other surveillance technology to manage the flow of aircraft arriving

and departing from major city airports. Airservices provides air traffic control services in an extended area around capital city airports, and these controllers are instrumental in maximising the safe use of this busy airspace.

En route controllers located in Brisbane and Melbourne are responsible for all aircraft flying outside tower and terminal airspace. These controllers are responsible for the majority of air traffic over the Australian mainland and on oceanic routes within Australia's flight information region and on behalf of Nauru and Solomon Islands.

Who's in control

| Tower controller | Terminal controller **Departures** | En route controller | Terminal controller **Arrivals** | Tower controller |

SEPARATION STANDARDS

Air traffic controllers apply separation standards to keep aircraft a minimum distance apart operating in controlled airspace and at airports. When two aircraft experience a loss of the minimum separation distance (which varies depending on the airspace classification), it is referred to as a Loss of Separation (LOS). A LOS does not mean that the aircraft were at immediate risk of colliding or that the incident was a 'near miss', it simply means that separation standards were not maintained.

Inadequate Separation Assurance is when sepration exists however the conflict is not identified; or is unplanned, not executed appropriately, not monitored or inappropriately monitored.

Different separation standards apply depending on whether aircraft are operating under instrument flight rules (IFR—all large passenger aircraft) or visual flight rules (VFR—most light aircraft and helicopters).
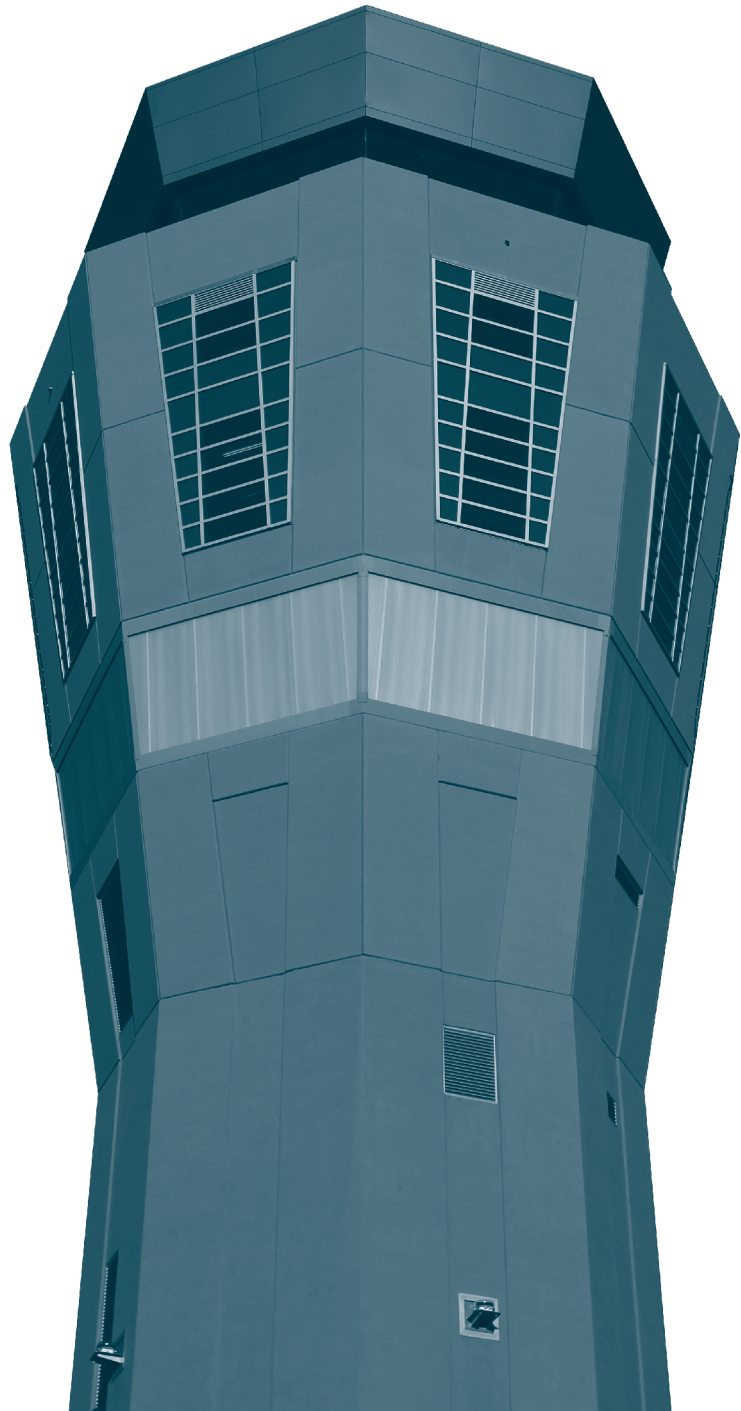
INSTRUMENT FLIGHT RULES (IFR)

Vertical separation

In Australia, IFR aircraft flying in controlled airspace up to 29 000 ft (8800 metres) should not come closer than 1000 ft (305 metres) vertically to another aircraft unless they are separated horizontally. Above 29 000 ft, the vertical separation increases to 2000 ft. (610 metres), except in airspace where Reduced Vertical Separation Minima is applied.

Reduced Vertical Separation Minima (RVSM)

RVSM allows aircraft equipped with modern altimeters and autopilot systems and flying between 29 000 and 41 000 ft (8800–12 400 metres) to be vertically separated by a minimum of 1000 ft (305 metres) rather than the standard 2000 ft (610 metres).
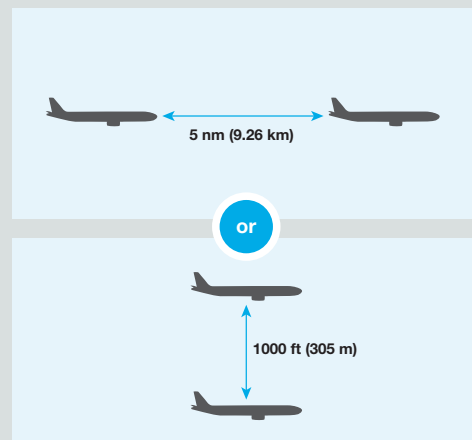
Horizontal separation

In controlled en route airspace, the horizontal separation standard between aircraft flying at the same altitude is five nautical miles (9260 metres). If aircraft are separated vertically, horizontal separation can be reduced. Horizontal separation prevents aircraft flying into another's wake turbulence.

In terminal airspace, the minimum separation is three nautical miles (5500 metres). Within the confines of an airport control zone, separation may be reduced providing the aircraft are sighted by the tower controller remain visually separated.

How far is five nautical miles?

- 5 nm is 9.26 km or 9260 m
- In Sydney 5 nm is the approximate distance from Sydney Airport terminal to Hyde Park (as the crow flies).
- In Melbourne, it is approximately Flinders St Station to Williamstown.
- In Brisbane, it is approximately Queen St Mall to Mount Gravatt.

In areas outside of surveillance coverage or other satellite-based navigation services, separation of aircraft is achived by the application of various procedural rules, for example, based on time and their estimated position.

5 nm (9.26 km)

or

1000 ft (305 m)

Note: different separation standards apply in different areas of airspace

VISUAL FLIGHT RULES (VFR)

The minimum vertical and horizontal separation in visual flight conditions is less than instrument flight rules. At, or in the vicinity of an airport with a control tower, VFR aircraft may operate at the same level as other VFR aircraft as long as they are provided traffic on other VFR aircraft in the same area by ATC.

In the air, depending on the operations being performed, and where they are being performed, VFR aircraft may separate themselves. For example, over Sydney Harbour, sightseeing helicopters use the 'see and avoid' principles where VFR pilots maintain their own separation from each other.

For general aviation aircraft (non commercial aircraft), outside of controlled airspace, separation can be as close as 500 ft (152 metres) vertically and horizontally. Some aircraft (for example, during formation display flying) may operate closer with dispensations from the Civil Aviation Safety Authority.

FLIGHT PATHS

The term 'flight path' is used to refer to the corridor where the aircraft fly most of the time. Flight paths can be a number of kilometres wide. Over time, as navigation technology has improved, flight corridors have generally become narrower.

Factors such as aircraft type, weight and weather conditions can determine how precisely aircraft fly within corridors. From the ground, it can appear that aircraft that should be flying the 'same' path, are flying a different path. This leads to the perception that aircraft are flying on the 'wrong' or a 'new' flight path, which is rarely the case.

Aircraft may be required to deviate from the usual flight paths by air traffic controllers to ensure safe separation between aircraft, to avoid emergency firefighting, search and rescue, medical or police operations, or if an aircraft conducts a missed approach. Pilots may also ask to fly different routes to avoid bad weather and storm cells.

HOW LOW CAN THEY GO?

Aircraft can fly no lower than 1000 feet (305 metres) above the ground in built-up areas or 500 feet (152 metres) in non-residential areas unless they are in the process of landing or taking off. Helicopters may fly below 1000 feet in specified areas.

In some circumstances, a 'low flying permit' may be required which is issued by the Civil Aviation Safety Authority. Additionally, pilots may be required to have a special 'low flying' endorsement attached to their pilots licence.

SERVICE DISRUPTIONS

Equipment failure

Air traffic control services may sometimes be adversely affected by the failure of radar or other facilities or equipment. This can result in a reduction in the normal level of service, or a suspension of air traffic control in an area of airspace.

In these cases, back-up processes, procedures, and specific contingency plans are always available and activated as required.

What happens during an outage?

Where air traffic control services are unavailable, a Notice to Airmen (NOTAM) is issued and all stakeholders are informed. Assistance is provided to allow services to operate clear of the affected airspace or under modified procedures to allow for the safe passage of aircraft through the airspace. This information is reported by Airservices regularly and is available on our website www.airservicesaustralia.com
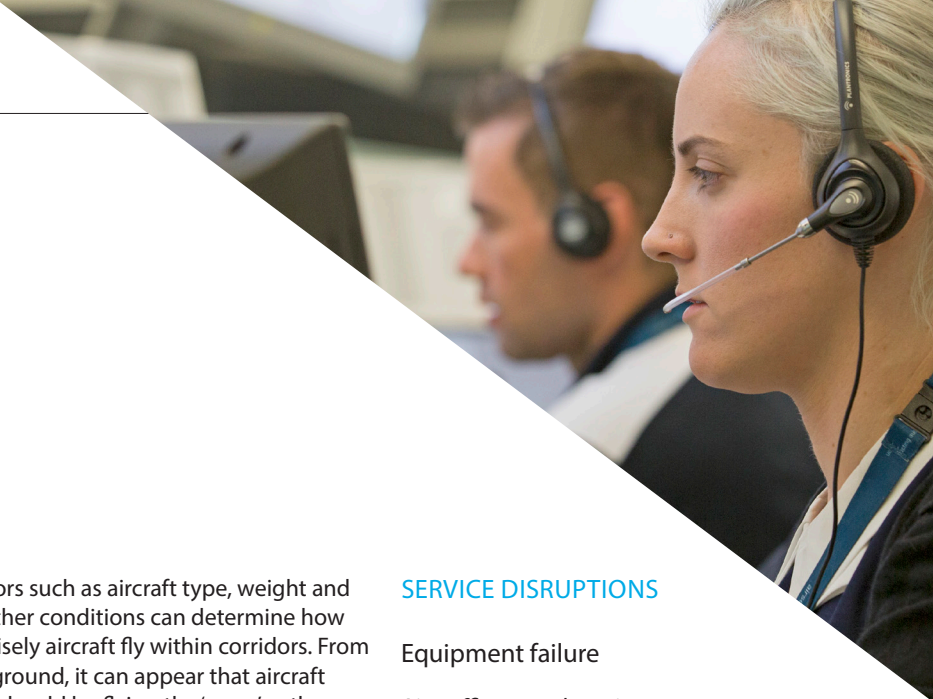
How airspace works

Airspace is classified into 'categories' which determine the level of service provided. In Australia these range from Class A (typically en route, high level airspace), through to Class G (uncontrolled airspace predominantly used by light aircraft).

CONTROLLED VERSUS UNCONTROLLED AIRSPACE

Airspace is designated as 'controlled' or 'uncontrolled'. Controlled airspace in Australia is actively managed by air traffic controllers and is broken up into a number of different classes or classifications.

To enter controlled airspace, an aircraft must first gain a clearance from air traffic control. In contrast, no clearance (or supervision by air traffic control) is required to operate in uncontrolled airspace. The large majority of light aircraft and helicopters operate outside or underneath controlled airspace (for example, aircraft that operate at low levels over Sydney Harbour).

The service provided by air traffic control varies depending on the class of airspace:

- Separation service: air traffic controllers keep aircraft a minimum distance apart to reduce the risk of collision and to reduce the impact of wake turbulence

- Flight information service: the provision of advice and information which may be valuable for the safe and efficient conduct of flight

- Traffic information service: information issued by controllers to alert the pilot of an aircraft that another aircraft may be close to his or her position or intended route.

There are also different areas of controlled airspace.

TERMINAL AIRSPACE

Terminal airspace is the airspace surrounding a major airport, generally within a 30–50 nautical miles (55–90 kilometres) radius. In the case of some major airports, this airspace extends from ground level up to 18 000 ft (approximately 6000 metres).

As the distance from the airport increases, the lower boundary of the control zone rises in steps (see diagram page 14), enabling other airspace users (such as gliders and balloons) to operate outside terminal airspace without requiring an air traffic clearance.

RESTRICTED AIRSPACE

In this airspace, aircraft movements are restricted in accordance with certain specified permissions. Examples of restricted airspace include airspace around military installations and high density flying operations at an air show or other large public event. Restricted airspace may be imposed by police for safety or security reasons in the vicinity of bushfires or major crime scenes. Decisions on restricted airspace are made by the Office of Airspace Regulation.

NO-FLY ZONES

No-fly zones are similar to restricted airspace but are imposed and enforced by the military (usually the Royal Australian Air Force). No-fly zones will often be established around military exercises, heads of government meetings and major events such as the Olympic or Commonwealth Games. Airservices has no authority or control over no-fly zones.

There are two types of airspace in Australia—controlled and uncontrolled. Controlled airspace is broken down into a number of different classes. Depending on how far and how high an aircraft wants to fly, it will pass through different classes of airspace, in which different rules will apply.

The following diagram represents the classes of airspace in Australia and how they connect and overlap. The level of service an aircraft receives from air traffic control and the classes of airspace in which it can fly, are determined by whether it is operating under visual flight rules (VFR) or instrument flight rules (IFR).

Australian airspace architecture

There are two types of airspace—controlled and uncontrolled. Controlled airspace is broken down into a number of different classes. Depending on how far and how high an aircraft wants to fly, it will pass through different classes of airspace, in which different rules will apply to it.

The diagram (opposite) represents the classes of airspace in Australia and how they connect and overlap. The level of service an aircraft receives from air traffic control and the classes of airspace in which it can fly, are determined by whether it is operating under visual flight rules (VFR) or instrument flight rules (IFR).

CLASS A

This high-level, en route controlled airspace is used predominantly by commercial and passenger jets. Only IFR flights are permitted and they require air traffic control clearance.

CLASS C

This is the controlled airspace surrounding major airports. Both IFR and VFR flights are permitted and both require air traffic control clearance.

CLASS D

This is the controlled airspace that surrounds general aviation and regional airports equipped with a control tower. All flights require air traffic control clearance.

CLASS E

This mid-level en route controlled airspace is open to both IFR and VFR aircraft. IFR flights are required to communicate with air traffic control and must request a clearance.

CLASS G

This airspace is uncontrolled. Both IFR and VFR aircraft are permitted and neither require air traffic control clearance.

BRISBANE CONTROL

MELBOURNE CONTROL

60 000 ft

A

18 000 ft

12 000 ft

E

C

E

8000 ft

1500 ft

G

D

G

GENERAL AVIATION
AND REGIONAL
AIRPORT
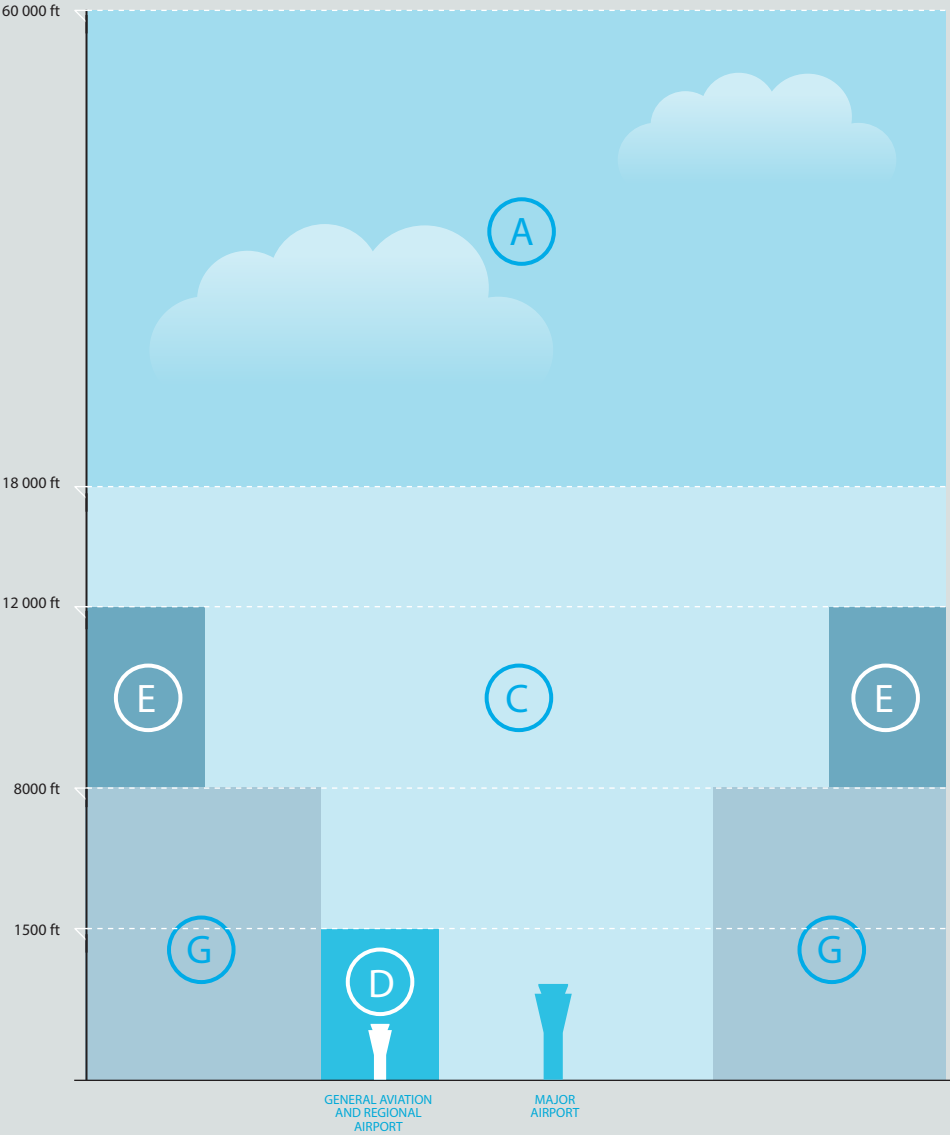
MAJOR
AIRPORT

Our technology

Australia's aviation industry relies on Airservices for the provision and maintenance of air navigation technology and equipment critical to aviation safety at major and regional airports, aerodromes and airstrips.

AUTOMATIC DEPENDANT SURVEILLANCE BROADCAST (ADS-B)

ADS-B is satellite-based technology which requires aircraft to be fitted with an ADS-B capable transponder. Ground receiver stations comprise of an antenna that receives data transmitted from an aircraft's transponder via satellite providing accurate surveillance information. The aircraft's ADS-B data is then displayed on a controller's screen exactly the same as it would using radar.
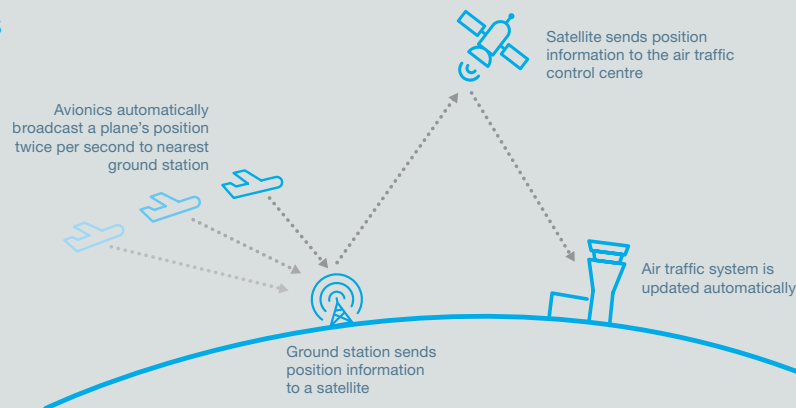
RADAR

Airservices uses terminal area radar (TAR) and en route radar to assist with separation of aircraft in controlled airspace. At major airports it is common to have both radars in use.

Known as primary radar, TAR relies on radio waves reflecting off metallic objects and is effective within a short range from the radar. Regardless of whether an aircraft has a transponder, primary radar (usually used in conjunction with a secondary surveillance radar) will

detect an aircraft's position, height and approximate airspeed. TARs are useful for detecting aircraft in controlled airspace close to the airports.

En route radar, or secondary surveillance radar, relies on an aircraft having a transponder which transmits a data signal. The signal is received and interrogated by a ground station. En route radar covers larger volumes of airspace ranging from 250 nautical miles (463 kilometres) in radius and up to 100 000 ft. (30 kilometres).

How ADS-B works

Satellite sends position information to the air traffic control centre

Avionics automatically broadcast a plane's position twice per second to nearest ground station

Air traffic system is updated automatically

Ground station sends position information to a satellite

INSTRUMENT LANDING SYSTEM (ILS)

An ILS is a highly accurate radio signal navigation aid used by pilots landing at an airport when there is poor weather or low visibility.

An ILS consists of two antennas which transmit signals to receivers in the aircraft cockpit—a glide path tower, located next to the runway and a localiser, installed at the end of the approaching runway. These antennas provide a pilot with vertical and horizontal guidance when landing.

ADVANCED SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM (A-SMGCS)

A-SMGCS works in a similar way to ADS-B but on the ground. Aircraft and ground vehicles are fitted with a transponder which transmits a signal to a receiver at the airport.

A-SMGCS is used at major airports and shows the position of aircraft and ground vehicles on a screen in front of the surface movement controller in the control tower.

GROUND BASED AUGMENTATION SYSTEM (GBAS)

GBAS uses just one array of four short transmitters or receiver towers on an airport. GBAS can guide up to 26 simultaneous and highly precise aircraft approaches.

SMART TRACKING

Smart Tracking is a form of performance-based navigation (referred to in the industry as PBN) which uses satellite-based technology to allow an aircraft to fly through a specific three-dimensional path with precise accuracy. This can reduce flying time for passengers as well as reducing the amount of fuel used and CO_2 generated. It can also reduce noise impacts by allowing continuous descent from high levels rather than "stepped descents" which involve alternating descent and level flying.

OCEANIC FLIGHT TRACKING

Flights in oceanic areas are unable to be tracked using traditional radar as this form of surveillance relies on ground-based sites.

We use satellite-based positioning technology to track all suitably equipped flights in oceanic airspace once every 14 minutes using satellite-based communications equipment called Automatic Dependent Surveillance-Contract (ADS-C).

Aircraft automatically report their exact position using ADS-C technology. The increase in reporting frequency allows air traffic controllers to track an aircraft's position and predict its next position with greater accuracy. This information also allows controllers to observe and react to any unusual flight behaviour and notify search and rescue agencies earlier if necessary.

ONESKY

OneSKY is a joint Airservices and Department of Defence program focused on aligning the needs of civil and military aviation.

This is a once in a generation opportunity for Airservices and Defence to collaborate in delivering Australia's first harmonised air traffic management system.

Keeping the aviation industry moving safely is at our core. It's what we do every day at Airservices, and our current air traffic management system TAAATS is the backbone technology that supports us to be one of the world's safest Air Navigation Service Providers (ANSPs).

We're proud of TAAATS, the technology was ground-breaking when we introduced it back in the 1990 and it created significant change for our air traffic operations. But TAAATS is reaching its end-of-life, its technology is aging and unable to match the capability that new air traffic management solutions can offer us, so we have made the decision to replace it.

Australia's military air traffic control system (ADATS) is also reaching its end-of-life so together with the Department of Defence we're working on an exciting and innovative new solution. We're creating Australia's first harmonised civil and military air traffic management system, or CMATS for short.

The OneSKY program will provide flexibility to both our customers and workforce with a more efficient and resilient service. Our aim is to provide a system that is safe and secure, efficient and harmonised, reliable and cost effective and most importantly, it provides value to our customers.

Aircraft noise

Managing aircraft noise in Australia is a shared responsibility between Airservices, airlines, aircraft operators, airports, federal government agencies and state and local governments.

Airservices works with these partners to minimise the impacts of aircraft noise on communities where it is safe and possible to do so. This includes:

- designing departure and arrival flight paths inside controlled airspace that provide the best possible noise outcomes

- engaging with communities and industry about proposals for new or changed flight paths

- identifying and investigating opportunities to reduce noise

- participating in Community Aviation Consultation Groups run by airports

- providing information to the community about aircraft noise and airport operations.

AIRCRAFT NOISE OMBUDSMAN (ANO)

Airservices works with the independent office of the ANO to improve the way in which we respond to community concern about the impact of air traffic on communities. The ANO's website is www.ano.gov.au

NOISE ABATEMENT PROCEDURES

Every major airport has Noise Abatement Procedures which are designed to reduce the impact of aircraft noise on the community. These are implemented by air traffic control but their use is subject to weather conditions and aircraft requirements.

NOISE COMPLAINTS

Airservices is responsible for responding to complaints in relation to aircraft noise through the dedicated Noise Complaints and Information Service. For more information see www.airservicesaustralia.com/aircraftnoise.

Weather

Airspace and airports have a limited capacity, like highways and city roads. An added complexity is the significant impact weather can have on airspace and airport capacity. Low cloud, fog and rain may disrupt visibility at or around an airport affecting aircraft operations.

Thunderstorms and lightning strikes will also see aircraft re-routed or diverted. Ground operations at airports may also be stopped when thunderstorms are in the area to prevent injury from lightning strikes.

MINIMISING DISRUPTIONS

Airservices Network Coordination Centre (NCC) in Canberra works closely with the Bureau of Meteorology, air traffic controllers nationally and our airline customers to minimise disruptions caused by weather. The NCC will adjust the number of aircraft movements per hour to match the operating conditions at each airport.

With the use of Ground Delay Programs (GDPs), aircraft are instructed to wait on the ground for their turn to depart. This is a bit like traffic lights on a highway ramp metering the flow of cars onto a busy road. Although weather may be fine at the departure airport, the departure delay is to manage reduced capacity at the destination. This prevents excessive airborne delays resulting in increased fuel burn and CO_2 emissions.

CONDENSATION TRAILS

A condensation trail, or contrail, is a thin trail of condensed water vapour sometimes seen trailling behind an aircraft flying at high altitudes.

FLIGHT CANCELLATIONS

Sometimes the available capacity can be reduced to such an extent, that airlines make the decision to cancel some of their flights. Flight cancellations are careful commercial and logistic considerations by airlines, outside of the control and influence of Airservices. Often airlines will try to combine flights on busy city pairs to get passengers to their destination with as little impact as possible.

WHAT IMPACTS RUNWAY SELECTION?

Weather, in particular wind speed and direction, is generally the main factor in determining which runways are in use at an airport, which direction aircraft will take off and land and which flight paths are used.

Aircraft take off and land into the wind, or with minimal tail wind. As a result, the wind direction (both current and forecast) dictates the selection of runway/s in use at any time. This in turn determines which flight paths are used and this can change at short notice.

Wind blowing across the runway is called a cross wind. Aircraft can take off or land generally with only a low cross wind, usually up to a strength of about 20 knots (37 kilometres per hour). Above that strength of wind, an aircraft may have to use another runway or divert to an alternative airport.

WINDSHEAR

Windshear is a sudden change in wind direction or speed and is usually associated with thunderstorm activity. Windshear can be either vertical or horizontal and can have a significant impact on the control of aircraft during take-off and landing.

VOLCANIC ASH

Airservices works closely with the Bureau of Meteorology's Volcanic Ash Advisory Centre to monitor volcanic ash in the Asia-Pacific region.

Airservices does not close or restrict airspace as a result of volcanic ash but provides advice to airlines on the likelihood of encountering ash. Airlines will make individual decisions on whether or not to fly in or around ash-affected airspace or to suspend their operations.

Accidents and emergencies

AVIATION RESCUE FIRE FIGHTING SERVICE

Airservices provides aviation rescue fire fighting services at 26 of Australia's airports. The service operates 90 of the largest fire fighting vehicles in Australia—the high visibility Mk8 ultra-large fire vehicle.

IN FLIGHT EMERGENCIES

Air traffic controllers provide information and assistance to pilots in the event of an in-flight emergency. As with normal operations, the pilot remains in command of his aircraft at all times and is responsible for determining the safest course of action, such as where and when to land.

Aviation rescue fire fighting service will be advised of in-flight emergencies, at the discretion of the pilot, and will take a range of actions depending on the nature of the emergency. This will range from moving to a state of readiness at the fire station to pre-positioning vehicles at the runway for rapid intervention.

An emergency is declared when an aircraft is experiencing problems and there is a reasonable certainty of a threat to the safety of the aircraft or its passengers, and where emergency assistance is required. Airservices aviation fire fighters will also be alerted.

When a pilot declares an emergency to air traffic control, they will alert the controller to the severity by broadcasting either 'mayday' or 'pan'.

A 'mayday' call indicates an aircraft is in grave and imminent danger and requires immediate assistance.

A 'pan' call is used to describe a less urgent situation but the pilot still requires attention from air traffic control.

An aircraft with a declared emergency will be provided priority for landing. A priority landing in itself is not an 'emergency landing'.

The Aeronautical Information Package, available on our website www.airservicesaustralia.com, provides more detail on the different emergency situations that may be declared by the pilot of an aircraft.

ACCIDENT RESPONSE

Aviation fire fighters are required to respond and arrive on scene within three minutes to any aircraft incident on the airport movement area. We are also required to respond to any aircraft incident within 1000 metres of an airport. In this circumstance, they will take command as first responders and local emergency services will be called out to assist, if required.

At airports without a dedicated aviation fire rescue service, or where an accident occurs more than 1000 metres from an airport perimeter, local emergency services will take the lead.

The aviation rescue fire fighting service operates difficult terrain vehicles and vessels for response where a significant proportion of aircraft movements take place over water, swamp or other difficult terrain on, or in, the immediate vicinity (1000 metres) of the airport. Difficult terrain includes coastal and estuarine waters, swamp, mangroves, mud flats, marsh/bog, dense woodland, salt pans and sand dunes.

Airservices has water rescue capability approximately 20 boats at 13 airports where there is water within 1000 metres of the end of the runway.

Aviation fire fighters regularly respond to a host of different incidents every day ranging from medical emergencies to fire alarms.

ACCIDENT INVESTIGATION

Investigation into the cause of an aircraft accident is the responsibility of the Australian Transport Safety Bureau (ATSB). Airservices works cooperatively with the ATSB during all investigations relating to our operations.

Following an incident or accident, Airservices will not speculate on the cause or provide detailed information on the actions of air traffic controllers or aviation fire fighters.

Airservices is also unable to provide media or the public with recordings of conversations between air traffic controllers and pilots, or confirm if audio obtained from third-party websites is accurate.

SEARCH AND RESCUE

The Australian Maritime Safety Authority (AMSA) is responsible for search and rescue coordination. On receiving a distress signal or notification of an aircraft accident, AMSA's Rescue Coordination Centre in Canberra will coordinate search and rescue efforts, generally with the assistance of local emergency services.

Airservices also advises AMSA when pilots fail to cancel their search and rescue time (SARTIME). Pilots lodge a SARTIME with Airservices based on the expected duration of their flight.

If a SARTIME expires without being cancelled by the pilot, Airservices attempts to contact the pilot. If the pilot cannot be reached within 15 minutes, the information is passed to AMSA for further investigation.

EMERGENCIES OUTSIDE CONTROLLED AIRSPACE

While air traffic controllers play a key role in assisting aircraft in distress, many light aircraft operate outisde of controlled airspace and radar coverage.

Airservices may not have information relating to these aircraft or be the first-response agency in the event of an accident.

Unusual activity

Airservices regularly receives calls relating to what is perceived as 'irregular' aircraft activity or other activity at an airport. It can be difficult for passengers or those on the ground to have an accurate picture or understanding of an incident or activity. Examples of activity that the public may consider unusual or cause concern are listed here.

GO-AROUNDS OR MISSED APPROACHES

A go-around, or missed approach (also sometimes referred to as an aborted landing), is a safe and well-practised manoeuvre that sees an aircraft discontinue its approach to the runway when landing. This standard manoeuvre does not constitute any sort of emergency or threat to safety, but may cause passengers or witnesses to become anxious.

During a go-around, the pilot will apply full take off power to the engine(s), adopt a nose-up take-off attitude, retract the landing gear and flaps and climb into the traffic pattern to circle around for another approach.

A go-around may be initiated by the pilot, or the pilot may be directed to go-around by an air traffic controller.

The causes are usually adverse weather conditions including strong winds experienced by the aircraft on final approach. Other causes include debris on the runway (for example, tyre fragments from the aircraft in front), an aircraft that has been slow to take-off or an aircraft (or vehicle) that has not yet cleared the runway. In these circumstances, a go-around is the safest approach.

Pilots may also deliberately conduct a missed approach as part of training, although this is not usually done with passengers on board.

ABORTED TAKE-OFF

Similar to a go-around or missed approach, an aborted take-off is a procedure which sees an aircraft discontinue the take-off. Usually, it will be a pilot's decision to abort a take-off. Causes may include an engine malfunction or a bird strike.

ACTIVITY INVOLVING FIRE TRUCKS

Aviation fire fighters are routinely called upon to respond to a range of emergencies, including first aid and medical emergencies, around the airport precinct.

When an aviation fire truck responds to an emergency, it will leave the fire station with its red and blue flashing lights operating and occasionally its siren activated. Responding fire trucks may drive across runways and taxiways under control of the air traffic controller. The sight of a fire truck driving quickly at an airport does not mean there is a concern for aircraft safety.

SMOKE AND FLAMES AT AN AIRPORT

Airservices Aviation Rescue Fire Fighting Service regularly conduct training exercises around the country for aviation fire fighters which may involve the creation of large amounts of smoke and flames. There may also be an unusually high number of emergency vehicle movements.

The appearance of smoke and flames at an airport does not mean there has been an accident or that there is any concern

for aircraft safety.

CIRCUIT TRAINING

At major general aviation airports around the country including Archerfield (QLD), Bankstown (NSW), Moorabbin (Vic), Parafield (SA) and Jandakot (WA), flight training schools regularly conduct circuit training. Circuit training sees aircraft, usually small single engine propeller trainers, and fly over the surrounding suburbs at a height of 1000 ft (305 metres).

LOW LEVEL FLIGHTS

Occasionally, aircraft and helicopters fly at low level for law enforcement, rescue and military operations as well as for aerobatic or air show displays. Low level flying requires the aircraft operator and pilot to have a special endorsement and permission from the Civil Aviation Safety Authority.

In some areas, helicopters are required to fly at low level while arriving and departing an airport, sometimes as low as 500 ft (152 metres). Low level flight procedures are also used to navigate around controlled airspace and can see aircraft fly at low altitude through special flight corridors no higher than 1000 ft (305 metres).

REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)

The use of commercially operated remotely piloted aircraft systems, commonly referred to as drones, require registration and certification and their use is regulated by the Civil Aviation Safety Authority.

Recreational drones are exempt from these regulations but users are encouraged to comply with a set of 'common sense' guidelines to ensure they do not cause injury or collisions with aircraft.

Operators of a drone must keep it more than 30 metres from people, vehicles, boats and buildings. Drones can also not fly over crowds or higher than 122 metres and must stay away from aircraft. Drones must also remain more than 5.5 kilometres from aerodromes and be kept in line of sight at all times.

More information is available at www.casa.gov.au/rpa

LASER ATTACKS

Shining a laser at an aircraft is a criminal offence. Airservices encourages anyone who witnesses the shining of a laser at an aircraft to contact police immediately. Airservices does not investigate reports of laser attacks, but will pass on information provided by pilots to police. Air traffic controllers will also broadcast a warning to other pilots in the area.

BIRD STRIKES

Striking a bird while an aircraft is travelling at speed can cause damage to the airframe or engines. Depending on the size of the bird and where on the aircraft it comes into contact, a pilot may declare an emergency or request a priority landing as a precaution (see page 16).

CALIBRATION OF EQUIPMENT

Airservices is responsible for conducting regular flight calibration inspections on around 500 navigational aids nationwide. This involves a specially-equipped aircraft conducting numerous 'missed approaches' to test and calibrate equipment usually at low level.