A pilot's guide to runway safety

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australia

A changing space

The global aerospace industry is currently going through a significant time of change. We are welcoming new and different aerospace users and environments in response to the introduction of new aircraft, increasing populations, structural development and global response to climate change.

As a hub of innovation and development, Australian airspace is at the forefront of this change, and our skies are becoming busier and more complex than ever.

As a pilot, these changes will potentially impact you on the ground and in the air every time you fly. We are here to support you, not only by managing air traffic and providing aviation rescue fire fighting services, but by providing you with information on operational risks and occurrences to enable you to prepare for a safer flight.

Making runways a safer space

The combination of weather, time of day, aircraft and aerodrome type, communication skills and your unfamiliarity with your operating environment can all contribute to an increase in risk of error. Of particular concern to both air traffic control (ATC) and pilots is the risk of a runway incursion.

Runway incursions are a serious safety concern. Globally, runway collisions have involved combinations of regular public transport aircraft, commuter aircraft, general aviation (fixed wing and helicopters) and ground vehicles, some of which have resulted in fatalities.

In this guide, we focus on a few areas that are important in surface operations. Each section identifies safety measures you can take to help reduce errors that lead to runway incursions.

Although the guide is focused on surface movement for single pilot operations, the information is also valid for operations with two or more crew members. However, operational coordination procedures between crew members are not addressed.

Digital first

As part of Airservices Australia's commitment to sustainability and flexible service delivery, this document is designed to view on an electronic device. In doing so, we hope to reduce waste of unused and outdated material and enable greater access to our communications. Please consider saving to your device rather than printing and emailing to a friend or colleague to increase safety awareness. Thank you.

The information contained in this document is current as of the date of publication. It is offered as supplemental guidance material to be used in conjunction with the AIP. However, the AIP is the primary source of information for charts and operational data. Always refer to the current AIP for the latest information.

Contents

01. Planning your aerodrome operation

Thorough planning is essential for safe taxi operations. You should give as much attention to planning the aerodrome surface movement of your flight as you give to other phases.

Aerodrome planning checklist

+ Anticipate your taxi route. Base your plans on information from

  - the Automatic Terminal Information Service (ATIS)
  - Notices to Airmen (NOTAMs)
  - En Route Supplement Australia (ERSA)
  - recent experience at the aerodrome and a review of the most current aerodrome chart.

+ Take time to study the layout of your departure and arrival aerodromes.

+ Have a current aerodrome chart or diagram readily available to use not only during the planning phase but also during taxi.

+ Check the expected taxi route against the aerodrome chart or ERSA. Pay special attention to any complex intersections (e.g. multiple taxiways intersecting along the taxi route or where runways intersect the taxi route).

+ Identify when you should be in 'heads up' mode on the taxi route (e.g. transitioning through complex intersections and crossing runways).

+ Confirm your assigned route if you are in doubt about the taxi instructions received from a controller.

Who is responsible for collision avoidance on the ground?

A common misconception when operating on aerodrome movement areas is that ATC will provide positive separation between other aircraft or vehicles on the ground. This is not the case.

While ATC will issue push-back approvals and provide taxi clearances, the main purpose of these is to regulate aircraft/vehicle movement at the aerodrome.

The avoidance of a collision on the apron area is a joint responsibility of the pilot in command, airside driver and any assisting ground personnel.

While ATC will provide you information about other aircraft/ vehicles that they are aware of, it is imperative that drivers, pilots and ground crew maintain a good lookout.

Runway confusion

Runway confusion occurs when pilots enter, take-off or land on the wrong runway. This is a particular problem at aerodromes with parallel runway systems where it is relatively easy to mistake runways by day or night. Runway confusion can also occur when a taxiway, usually parallel, is mistaken for a runway. This is most often a problem at night.

In addition to thoroughly planning your aerodrome operation and maintaining situation awareness:

+ pay careful attention to runways in clearances

+ always read back an assigned runway in full (e.g. runway three one left)

+ if a non-precision approach, circling approach or an entirely visual approach is being flown, take sufficient time during the approach briefing to agree on how positive runway identification will be accomplished

+ whenever conditions permit, make sure you visually identify the correct runway before you enter or land on it. Signage, orientation and runway markings are all important identifying features

+ runway lighting is coloured completely differently to taxiway lighting and should provide a flight crew with an opportunity to distinguish one from the other

+ at aerodromes where parallel runway operations are conducted, ensure your 'ready' call is on the correct aerodrome control frequency.

At Class D aerodromes at which parallel runway operations are in progress, pilots must identify the departure runway when reporting 'ready,' e.g. "Alpha Bravo Charlie ready, Runway 35 Right".
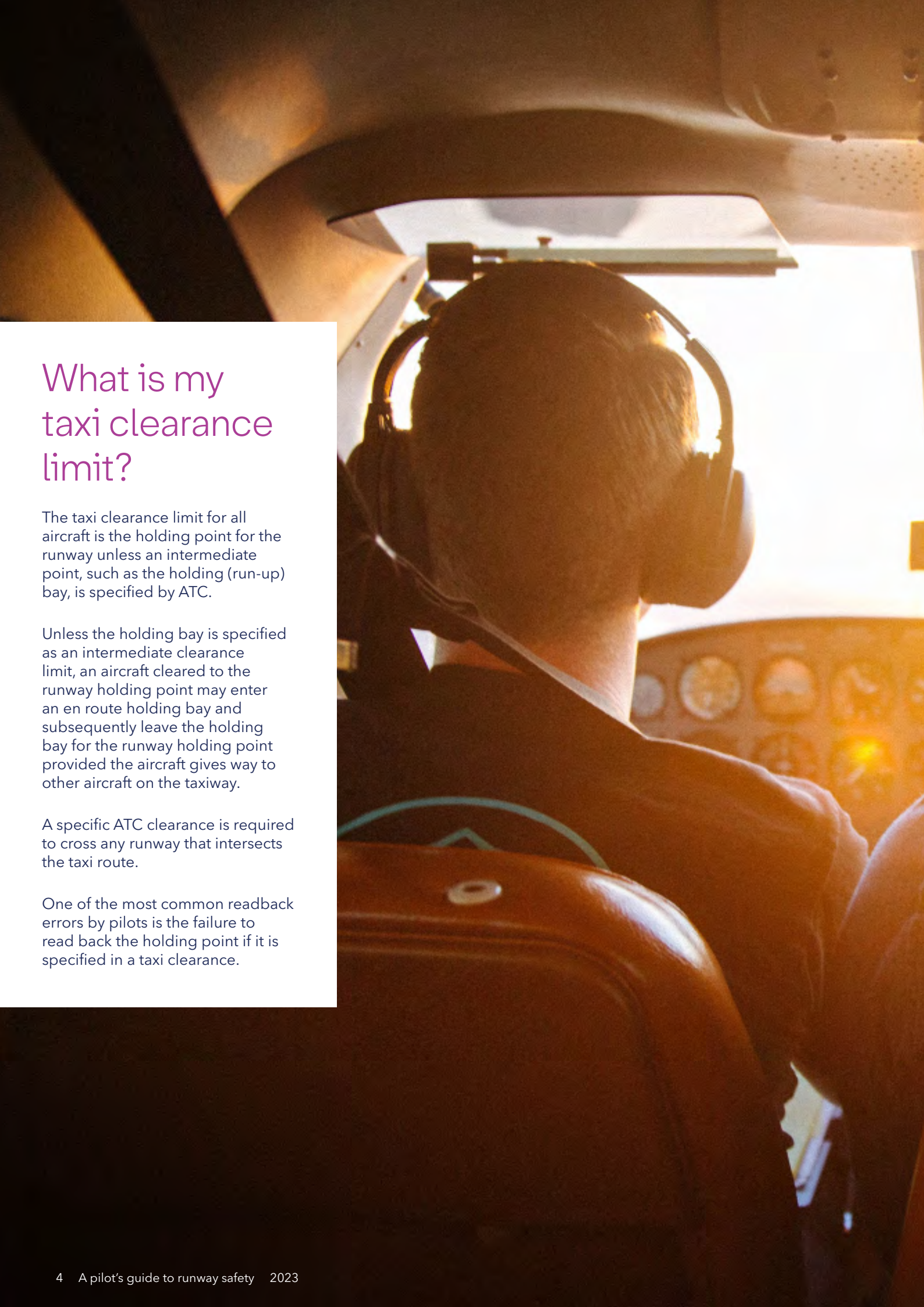
Aerodrome charts

Aerodrome charts provide the layout and names of runways and taxiways and show the location of major facilities. They are available through various sources including:

- En Route Supplement Australia (ERSA)
- Departure and Approach Procedures (DAP)
- Visual Terminal Charts (VTC)
- ERSA and DAP charts are available on the Airservices website at

  www.airservicesaustralia.com/aip.
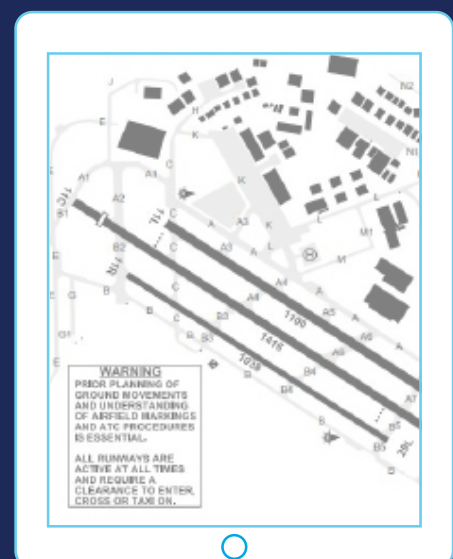
What is my taxi clearance limit?

The taxi clearance limit for all aircraft is the holding point for the runway unless an intermediate point, such as the holding (run-up) bay, is specified by ATC.

Unless the holding bay is specified as an intermediate clearance limit, an aircraft cleared to the runway holding point may enter an en route holding bay and subsequently leave the holding bay for the runway holding point provided the aircraft gives way to other aircraft on the taxiway.

A specific ATC clearance is required to cross any runway that intersects the taxi route.

One of the most common readback errors by pilots is the failure to read back the holding point if it is specified in a taxi clearance.

2. Taxi procedures

Following good operating procedures while taxiing increases the safety of operations on an aerodrome. This section focuses on some of the common tasks that you should incorporate into your taxi procedures.

ATC instructions

Wherever possible, obtain your airways clearance before requesting your taxi clearance. Once taxi instructions are received you should:

+ write down taxi instructions as it can help you to remember the whole instruction

+ monitor ATC instructions issued to other aircraft to enhance your situation awareness

+ be especially vigilant if another aircraft has a similar sounding call sign

+ listen carefully to avoid responding to an instruction/clearance intended for someone else

+ ask immediately if you are uncertain about any ATC instruction or clearance

+ read back all required instructions/clearances with your aircraft call sign.
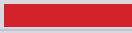
Remember an ATC taxi instruction is not a clearance to cross a runway holding point, illuminated stop bar or to enter or to taxi on ANY runway unless specifically cleared to do so.

You must not cross an illuminated stop bar, even if ATC clear you to do so. A runway holding point marking will always be set back from the sealed surface of a runway and never aligned with the edge of the sealed surface. Advise ATC if they instruct you to enter/cross/line up on a runway and the stop bars remain red.

Advise ATC if you anticipate a delay or are unable to comply with their instructions.

If instructed to hold short of a runway, remain behind the marked runway holding point. Read back any clearance or instruction to hold short of, enter, land on, conditionally line up on, take-off on, cross, or backtrack on any runway. Do not merely acknowledge these clearances or instructions by saying 'Roger' or 'Wilco' or your call sign.

If you suspect that you are failing to send or receive communication via radio, look for light signals from the tower, maintain terrain clearance throughout all procedures and SQUAWK 7600.
Refer to ERSA - EMERG 1.5 for more information on communication failure procedures.

Light signal meanings for vehicles when taxiing		
Signal		**Meaning**
🟩🟩🟩🟩🟩	Green flashes	Permission to cross landing area or to move into taxiway
🟩	Steady green light	Permission to take-off if you are satisfied no collision risk exists
🟥	Steady red light	Stop
🟥🟥🟥🟥	Red flashes	Move off the landing area or taxiway and watch out for aircraft
⬜⬜⬜⬜⬜	White flashes	Vacate the manoeuvring area in accordance with local instructions

What if the airport uses the Advanced Surface Movement Guidance Control System?

Several Australian airports are equipped with the Advanced Surface Movement Guidance Control System (A-SMGCS).

This is an air traffic surveillance system enabling aircraft and vehicles on the airport surface to be accurately tracked by ATC in all visibility conditions.

To cooperate with A-SMGCS pilots should operate their transponders in accordance with AIP Australia ENR 1.6.

There is no 'squawk ident' procedure associated with A-SMGCS as all tracking is automatic. If A-SMGCS is not available, ATC may stop or restrict low visibility operations.

How will I know where to cross the runway?

ATC will nominate the points of crossing for an aircraft when issuing a runway crossing.

A typical instruction is: 'Alpha Bravo Charlie on Taxiway November cross Runway One Seven'.

Your readback should be: 'On November, crossing runway One Seven, Alpha Bravo Charlie'.

Knowledge check #1

You, call sign Alpha Bravo Charlie, are parked at the main terminal apron.

1

You inform the tower that you want to take-off on Runway 08 and need the full length of the runway for take-off.

The controller's taxiing instructions to you are 'Alpha Bravo Charlie, taxi to Holding Point Hotel Runway 08'.

2

You inform the tower that you want to take-off on Runway 35 and need the full length of the runway for take-off.

The controller's taxiing instructions to you are 'Alpha Bravo Charlie, taxi via Papa hold short of Runway 26'.

3

You inform the tower that you want to take-off on Runway 26 and need the full length of the runway for take-off.

The controller's taxiing instructions to you are 'Alpha Bravo Charlie, taxi to Holding Point November, Runway 26, cross Runway 35'.
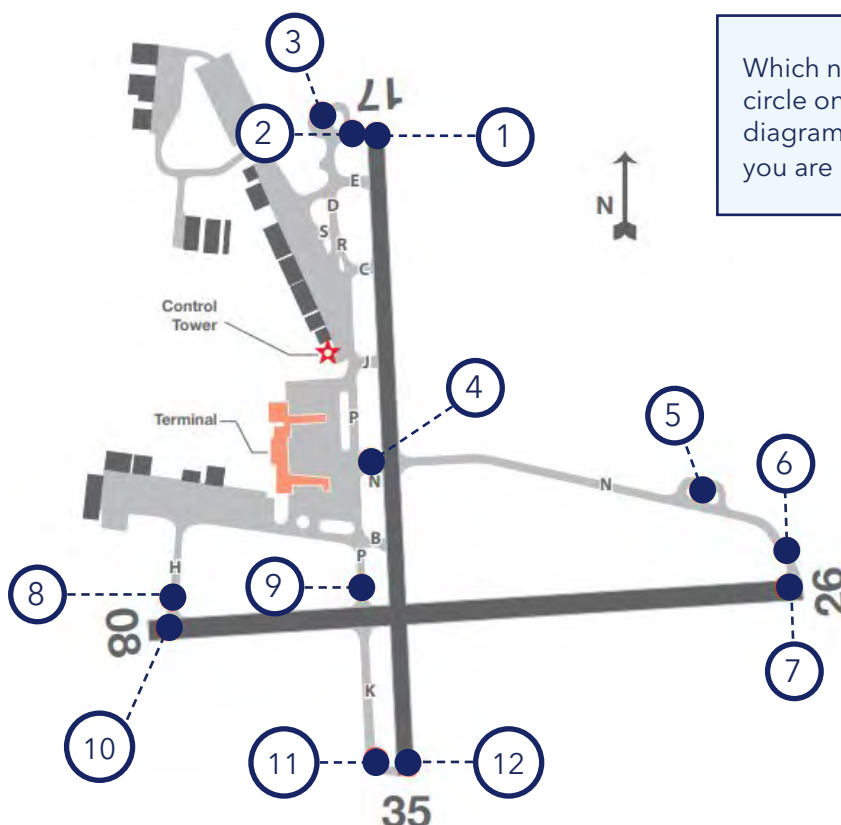
Which number blue circle on the aerodrome diagram indicates where you are required to stop?

Check your answers
A–8, B–9, C–6

Do I always need to get a clearance to cross the holding point?

Yes. You must obtain and readback a clearance to enter, cross, line up or take off from the designated runway before crossing from the solid side to the dashed side of a runway holding point at any aerodrome when a control tower is operating.

At some aerodromes, holding points are located at a runway undershoot or overshoot and you may not even see the sealed surface of the runway when you are at the holding point.

You are still required to get a specific clearance from ATC to cross this holding point.

Situation awareness

Maintain a 'sterile' cockpit. You must be able to focus on your duties without being distracted by non-flight-related matters like engaging in conversation with a passenger or talking on a mobile phone.

When taxiing, you need to be aware of your location, how that location relates to your intended taxi route and to other aircraft and vehicles that may be operating on the aerodrome. This is commonly referred to as 'situation awareness.'

Maintain situation awareness by:

+ ensuring you understand and follow ATC instructions and clearances

+ using current aerodrome charts/diagrams

+ knowing the meaning of the visual aids available on the aerodrome, such as markings, signs and lights

+ monitoring the radio and using the aerodrome chart to assist you in locating other aircraft and vehicles that may be on the aerodrome

+ avoiding distractions

+ minimising 'heads down' activities while the aircraft is moving.

If you become uncertain about your location on the aerodrome manoeuvring area, make sure you are clear of any runway and stop the aircraft. Advise ATC and, if necessary, request progressive taxi instructions.

Non-controlled aerodromes

When operating at a non-controlled aerodrome, the additional safety net provided by ATC is removed and the principles of 'alerted' see-and-avoid are critical to safety. In addition to the guidance in this booklet, ensure you monitor the aerodrome frequency and broadcast your intentions to maintain both your situation awareness and that of other runway users.

Although standard broadcasts are detailed in the AIP, remember to make any additional broadcasts you feel are necessary to minimise the risk of collision. At non-controlled aerodromes, you may be able to use an aerodrome frequency response unit (AFRU) to confirm that you are on the correct frequency and that your radio is working and set up correctly.

While taxiing

Use extra caution when directed to taxi on a runway, especially at night and during reduced visibility conditions.

+ Use all resources available to keep your aircraft on its assigned taxi route, including:

    • aerodrome charts and diagrams

    • aerodrome markings, signs and lights

    • heading indicators.

+ Make sure you ask for, receive and comply with hold short or crossing instructions when approaching a runway.

+ Turn on rotating beacon and taxi lights.

Clear left, ahead, above and right

Scan the full length of the runway and the approaches before entering or crossing any runway, even if you have received a clearance.

An airways clearance or a taxi clearance are not clearances to enter or use the runway—you need a specific clearance to do this.

Line up and wait

ATC uses the 'line up and wait' instruction when a take-off clearance cannot be immediately issued due to traffic or for other reasons.

Pay close attention when instructed to 'line up and wait,' especially at night or during periods of low visibility. Before entering the runway, remember to:

• scan the full length of the runway

• scan for aircraft on final approach or landing roll out

• turn on lights as required by using line-up checklist.

Consider lining up slightly to the left or right of the centreline (approximately one metre) when holding in position at night so landing aircraft can differentiate your aircraft from runway lights and markings.

When issuing you with a line-up clearance, ATC will issue a 'wait' instruction if the runway is/will be occupied by a preceding, arriving or departing aircraft or other obstruction.

• If ATC expect the preceding aircraft or obstruction to have vacated prior to you stopping in the lined-up position, the 'wait' instruction may not be included.

• ATC will advise the nature of the obstruction if it is not apparent.

Take care to note the position of traffic and, while you are waiting for take-off clearance, keep track of the amount of time that passes after you have received the 'line up and wait' instruction.

If you are on the runway and held for longer than you think is normal for your anticipated departure (90 seconds is a good guide), contact ATC and advise that you are holding on the runway.

When full-length and intersection departures are being used, be aware that similar-sounding call signs have been a factor in the wrong aircraft lining up.

After landing

Use caution after landing on a runway where the exit taxiways intersect another runway, in particular when operating at aerodromes with parallel runway systems. You will require a specific ATC clearance to cross or enter any runway.

- Do not hold on the runway in use unless ATC authorise you to do so.

- Do not exit onto another runway without ATC clearance.

- Do not accept last-minute turn-off instructions from the tower unless you clearly understand the instructions and are certain that you can comply.

- Do not initiate non-essential communications or actions after landing until you have exited and cleared the runway.

A clearance to land includes a clearance to cross any other runway as part of your landing. However, you cannot exit the landing runway onto another runway without a specific clearance to do so.

There have been collisions in other countries and several incidents involving aircraft holding on a runway waiting for a take-off clearance. Analysis of these incidents indicated that over two minutes elapsed between the time an instruction was issued for the departing aircraft to line up and the resulting collision, land over or go around by an aircraft cleared to land. Contact ATC anytime you have a concern about a potential conflict.
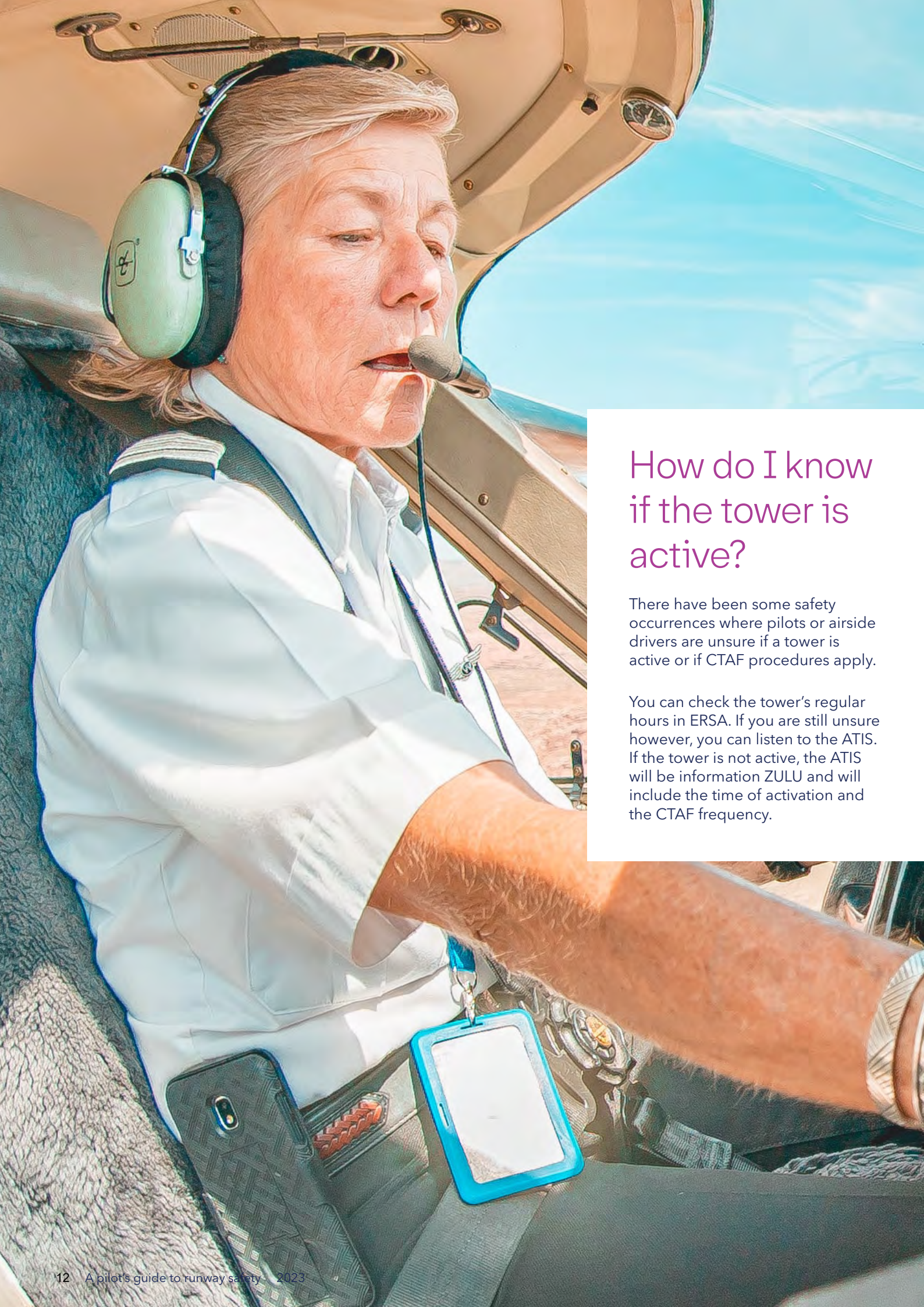
How do I know if the tower is active?

There have been some safety occurrences where pilots or airside drivers are unsure if a tower is active or if CTAF procedures apply.

You can check the tower's regular hours in ERSA. If you are still unsure however, you can listen to the ATIS. If the tower is not active, the ATIS will be information ZULU and will include the time of activation and the CTAF frequency.

3. Aircraft lights

During day and night time operations, exterior aircraft lights may be used to make an aircraft operating on an aerodrome more conspicuous, and to convey location and intent to other pilots.

Use of exterior aircraft lights

- Engines running – turn on the rotating beacon.

- Taxiing – prior to commencing taxi, turn on the rotating beacon, navigation, strobe, taxi, and logo lights if available.

- Crossing a runway – all exterior lights should be illuminated when crossing a runway. You should consider any adverse effects to safety that illuminating the forward-facing lights will have on the vision of other pilots or ground personnel during runway crossings.

- Entering the departure runway following an instruction to line up and wait – turn on all exterior lights, other than your landing lights, to make your aircraft more conspicuous to aircraft on final and to ATC. In some circumstances, this may include using your landing lights if you believe it is warranted.

- Take-off – additionally turn on landing lights when take-off clearance is received or when commencing take-off roll at an aerodrome without an operating control tower.

Using Aircraft Lights

⊘ = turn on	Rotating beacon	Navigation lights	Strobe lights*	Taxi lights	Logo Lights	Landing lights
Engine(s) running	⊘					
Taxiing	⊘	⊘	⊘	⊘	⊘	
Crossing a runway	⊘	⊘	⊘	⊘	⊘	⊘
Entering departure runway for line up and wait	⊘	⊘	⊘	⊘	⊘	
Take-off	⊘	⊘	⊘	⊘	⊘	⊘

*Strobe lights should not be illuminated if it will have an adverse effect on others

4. Communications

Effective pilot/controller communications are key to safe aerodrome operations. You can help enhance the controller's understanding by responding appropriately and using standard phraseology.

Guidelines for clear and accurate communications

+ Use standard phraseology, as outlined in AIP GEN 3.4 -24, when contacting ATC to facilitate clear and concise communication. Your initial transmission should contain these elements:

    • who you are calling

    • your call sign

    • where you are located

    • what you want to do (a short description).

+ State your position whenever making initial contact with any tower or ground controller, regardless of whether you have previously stated your position to a different controller.

+ Focus on what ATC is instructing you to do.

+ Do not perform any non-essential tasks while communicating with ATC.

Good radio technique

+ Prepare first: your transmission should be well thought out. Before keying your transmitter, know what you want to say and check to make sure you are on the correct frequency and will not be interrupting another transmission or its response.

+ Communication with ATC should be concise and to the point: for unusual situations or lengthy communications, initial contact should be established first.

+ Acknowledge all clearances: read back required elements of the clearance and end your transmission with your call sign.

+ Read back any holding point including the words 'holding point' specified in a taxi instruction and any clearance or instruction to:

  • hold short of a runway

  • enter a runway

  • land on a runway

  • conditionally line up on a runway

  • wait on a runway

  • take-off on a runway

  • cross a runway

  • taxi or backtrack on a runway.

+ Monitor the assigned tower frequency for potential conflicts involving your runway when holding on a runway for take-off or on final approach.

+ Read back all take-off and landing clearances, including the runway designator where it is included in your clearance.

+ Ask for progressive taxi instructions if unfamiliar with the taxi routes at an airport.

+ Clarify any misunderstanding or confusion concerning ATC instructions or clearances.

What if there is an aircraft on the runway I am cleared to land on?

I am approaching the aerodrome and have received a landing clearance. As I continue my approach, I notice an aircraft on the runway I am cleared to land on. What should I do?

It is likely that the controller is aware of the traffic and has already issued a take-off clearance to that aircraft or is waiting for the aircraft to clear the runway.

However, if any doubt exists or if you are uncomfortable with the spacing, query the clearance to land with the controller referring to the other traffic, and be prepared to execute a go around.

Examples of taxi instructions

Initial call-up

Example

Pilot: Essendon Ground, Alpha Bravo Charlie, GA Park, received Alpha, to Sydney, request taxi.

Controller: Alpha Bravo Charlie, Essendon Ground, taxi to Holding Point Echo, Runway One Seven.

Pilot: Holding Point Echo, Runway One Seven, Alpha Bravo Charlie.

Example

Pilot: Bankstown Ground, Helo Forty Four, request air taxi from Heli Tours to the main pad.

Controller: Helo Forty Four, Bankstown Ground, air taxi to the main pad, cross Runway Two Niner Left, Centre and Right.

Pilot: Cross Runway Two Niner Left, Centre and Right, Helo Forty Four.

Initial call-up with specific request

Make clear any special requests on initial contact

Example

Pilot: Melbourne Ground, Qantas Five Forty Two, received Alpha, Bay Twenty, request taxi and intersection departure from Juliet.

Controller: Qantas Five Forty Two, Melbourne Ground, taxi to Holding Point Juliet, Runway Three Four.

Pilot: Holding Point Juliet, Runway Three Four, Qantas Five Forty Two.

'Line up and wait'

Read back all 'line up' and 'line up and wait' instructions, including the runway designator when transmitted by ATC or when there is a possibility of confusion.

Example

Controller: Velocity Two Thirty Two, line up and wait Runway Two Seven.

Pilot: Line up and wait, Runway Two Seven, Velocity Two Thirty Two.

Conditional clearance

A pilot receiving a conditional clearance must identify the aircraft or vehicle causing the conditional clearance before proceeding in accordance with the clearance.

Example

Controller: Alpha Bravo Charlie, behind Cessna on short final line up behind.

Pilot: Behind the Cessna, line up, Alpha Bravo Charlie.

Take-off clearance/landing clearance

Read back all take-off and landing clearances with a call sign, including the runway designator when transmitted by ATC or when there is a possibility of confusion.

Example

Controller: Alpha Bravo Charlie, Runway Three Four, cleared for take-off.

Pilot: Runway Three Four, cleared for take-off, Alpha Bravo Charlie.

Example

Controller: Qantas Two Twenty-Two, Runway Three Four, cleared to land.

Pilot: Cleared to land, Runway Three Four, Qantas Two Twenty-Two.

'Land and hold short' (LAHSO)

Land and hold short instructions require pilot readback.

Example

Controller: Velocity Five Thirty Four a Cessna 441 landing on crossing runway, hold short Runway Two Seven, cleared to land Runway Three Four.

Pilot: Hold short Runway Two Seven, cleared to land Runway Three Four, Velocity Five Thirty Four.

Example

Controller: Qantas Thirty Three, Boeing 737 landing on crossing runway will hold short – Runway Two Seven cleared for take-off.

Pilot: Runway Two Seven, cleared for take-off, Qantas Thirty-Three.

Initial contact after exiting runway

You are expected to exit the runway at the first available taxiway or as instructed by ATC. You should contact ground control as soon as possible after exiting the runway.

Example

Pilot: Cairns Ground, Alpha Bravo Charlie, Bay Two.

Controller: Alpha Bravo Charlie, Cairns Ground, taxi to Bay Two, cross Runway One Two.

Pilot: Cross Runway One Two, Alpha Bravo Charlie.

When instructed to taxi to a runway for departure, you must read back the holding point specified in the taxi clearance.

Example

Controller: Alpha Bravo Charlie, taxi to Holding Point Tango Runway One Seven.

Pilot: Holding Point Tango, Runway One Seven, Alpha Bravo Charlie.
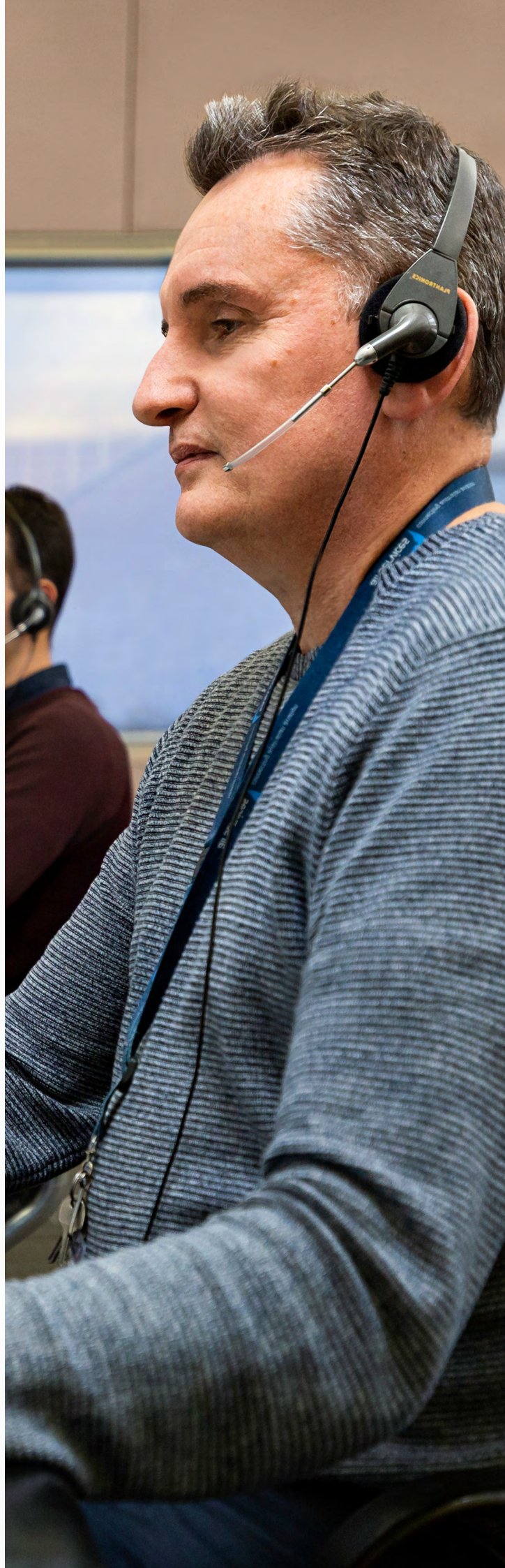
Phraseology

Use standard radio calls or readbacks, as outlined in AIP Gen 3.4, to ensure ATC understands your intentions and confirm that you have understood your clearance. Using non-standard radio calls or readbacks affects the ability of ATC to understand your intentions and confirm that you have understood your clearance.

For a complete listing of all ATC phraseology, consult the Aeronautical Information Publication (AIP).

ACKNOWLEDGE – let me know that you have received and understood my message.

AFFIRM – yes.

APPROVED – permission for proposed action granted.

BREAK – This indicates separation between parts of the message when there is no clear distinction between the text and other parts of the message.

CANCEL – call off the previously transmitted clearance.

CLEARED – authorised to proceed under the conditions specified.

CONFIRM – have I correctly received the following…? Or did you correctly receive this message?

CONTACT – establish radio communication with...

CORRECTION – an error has been made in this transmission (or message indicated) the correct version is…

FINAL – commonly used to mean that an aircraft is on the final approach course or is aligned with a landing area.

HOLD POSITION – stay in place, where you are currently located.

HOW DO YOU READ? – what is the readability of my transmission or how easy is it to understand?

The readability scale is:

1. unreadable
2. readable now and then
3. readable but with difficulty
4. readable
5. perfectly readable.

I SAY AGAIN – I repeat for clarity or emphasis.

NEGATIVE – 'no' or 'permission not granted' or 'that is not correct'.

LINE UP AND WAIT – used by ATC to inform a pilot to taxi onto the departure runway and to hold in take-off position. It is not an authorisation for take-off. It is used when take-off clearance cannot immediately be issued because of traffic or for other reasons.

A clearance to line up does not authorise backtracking. If you require backtracking, you must request and obtain a specific clearance to do so.

READ BACK – repeat all, or the specified portion, of this message back to me exactly as received.

ROGER – I have received all of your last transmission. Under no circumstances to be used in reply to a question requiring 'readback' or a direct answer in the affirmative or negative.

SAY AGAIN – repeat all or the following part of your last transmission.

SPEAK SLOWER – reduce your rate of speech.

STAND BY – wait and I will call you. This means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. The caller should re-establish contact if a delay is lengthy. 'Stand by' is not an approval or denial.

UNABLE – I cannot comply with your request, instruction or clearance, usually followed by a reason.

VERIFY – request a check and confirmation of the information identified (e.g. 'verify squawk code').

WILCO – I understand your message and will comply with it.
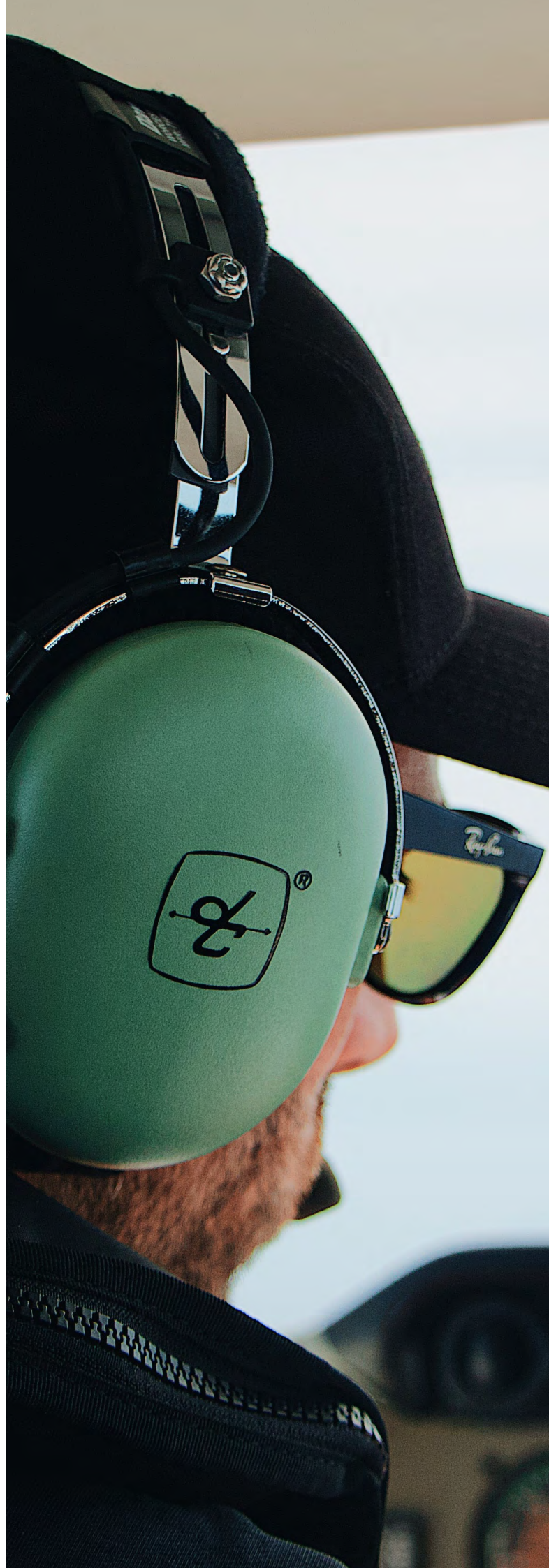
4. Aerodrome markings, signs and lights

Aerodrome markings, signs and lights are designed to assist you in navigating around an aerodrome and during landing and take-off.

Aerodrome markings – understanding the differences

In understanding aerodrome markings, remember the following principles.

Colour

- Runway markings are white (although yellow taxiway centrelines may lead on, lead off, or cross the runway).

- Taxiway markings are yellow.

- Markings on aprons and in ramp areas may include other colours (e.g. it is common to mark vehicle roadways in white).

A vehicle roadway on an apron area. The edges of a roadway are often identified by solid white stripes. An aircraft may taxi across roadways, but should not taxi on them.

Taxiway marking patterns

If a marking pattern consists of two or more lines—some of which are solid and some of which are dashed—these are runway holding position markings.

- It is always permissible to cross from the dashed side to the solid side, providing you have checked there is no conflicting traffic.

- ATC permission is always required to cross from the solid side to the dashed side at an aerodrome with an operating control tower.

- When instructed to 'hold short' always stop before the first solid line of the runway holding point marking as depicted.
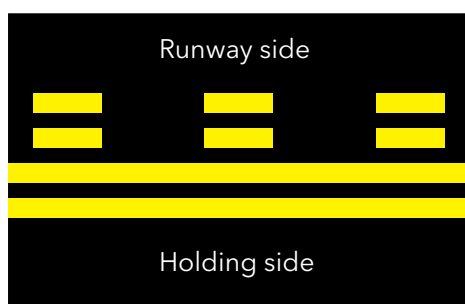
Aerodrome signs – how to get from here to there safely

Along with aerodrome markings and lights, aerodrome signs are designed to assist you in navigating around an aerodrome.

It is essential that you understand the colour coding and meaning of these types of signs when driving on an aerodrome.

1. Taxiway location sign: identifies the taxiway you are currently located on e.g. you are on taxiway A. It has a yellow inscription on a black background. Remember: *black square, you are there!*

2. Mandatory instruction sign: identifies the entrance to a runway or critical area, and areas prohibited for use by aircraft. It has a white inscription on a red background. It is generally co-located with the runway holding position markings. Remember: *red and white, runway in sight.*

   You must obtain a clearance from ATC prior to proceeding past this point.

3. Direction sign: identifies the taxiways leading out of an intersection along with an arrow indicating the approximate direction of turn needed to align the aircraft on that taxiway. They are located before the intersection, normally on the left side and normally with a location sign. It has a black inscription on a yellow background.

   Remember: *yellow array points the way.*

4. Destination sign: identifies with arrows the directions to specific destinations on the airfield (e.g. runways, terminals or airport services). It also has a black inscription on a yellow background. Check AIP AD 1.1 - 20 for abbreviations used.
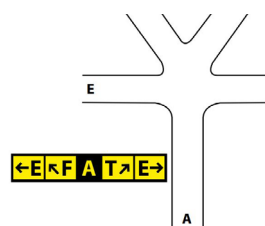
5. Sign arrays: grouping of direction signs. Signs are orientated clockwise from left to right.

6. Left turn signs are on the left of the location sign and right turn signs are on the right of the location sign.

7. Holding position sign: this sign is located next to the yellow taxi-holding point markings painted on taxiways that intersect a runway. The sign to the left indicates that you are on taxiway Alpha at the Holding Point for Runway 15-33. The threshold for Runway 15 is to your left; the threshold for Runway 33 is to your right. As this is a mandatory instruction sign you must get a specific clearance from ATC to cross this holding point.


8. Movement Area Guidance Sign (MAGS): You are at the Holding Point for Runway 16-34 on Taxiway E with 2345m take-off run available on Runway 16.

9. Runway stop bars: have been introduced at several Australian airports and are considered to be a valuable defense against an aircraft or vehicle inadvertently entering a runway without a clearance. No special equipment is necessary in an aircraft to enable stop bar usage. A stop bar provides a visual alert to the pilot to stop and hold.
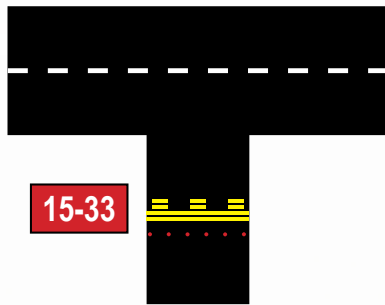
Stop bar lights are red and unidirectional, shown in direction of approach to stop bar.

Crossing the stop bar is only permissible after ATC switches off the stop bar light and instructs you to cross.

Phraseology for stop bar contingency can be found in the phraseologies section of AIP GEN.

Remember, never cross a lit stop bar, even if ATC has cleared you to do so (as shown above).

Make sure to check if runway stop bars are in use at the airport you are operating in/out of and where they are located.

Check the specific aerodrome information in ERSA to confirm.

More stop bars are being implemented across the country.

Globe Marker

MAG sign

Pay close attention to Movement Area Guidance Signs (MAGS) to identify location of stop bars.

Complying with instructions regarding runway stop bars can prevent severe safety hazards from occuring.

Actively monitor ATC communications to be aware of any changes in runway operations, including the activation of stop bars.
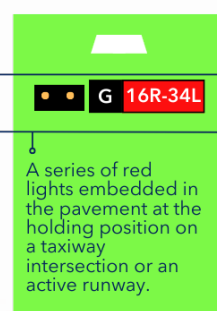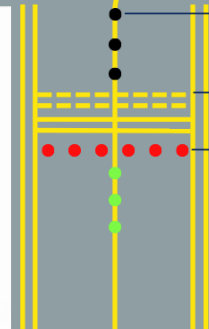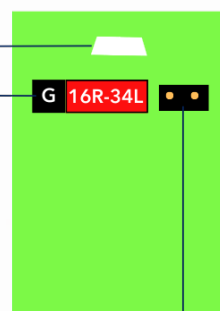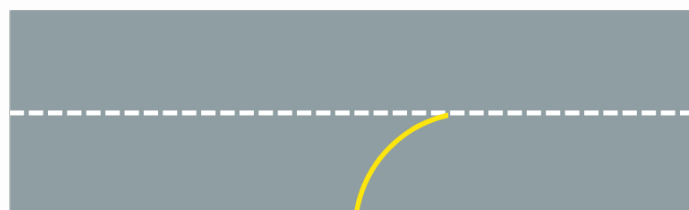
Green lead on lights are off

Runway holding point

Red stop bar lights illuminated.

Never cross an illuminated stop bar, even if you have recieved taxi or takeoff clearance.

A series of red lights embedded in the pavement at the holding position on a taxiway intersection or an active runway.

Runway guard light

Ensure to check if stop bar is illuminated as they can be less visible during bright days.

G 16R-34L

G 16R-34L

Aerodrome lighting

There are many different lighting combinations that may exist on aerodromes, especially where aircraft operations are conducted in the lower visibility ranges. When driving around an aerodrome you should remember the following:

 Runway edge lights are white, although on runways fitted with high intensity lighting, the runway edge lights within 600m from the end of the runway will be yellow. Picture also shows runway centreline and touchdown zone. In the case of a displaced threshold, runway lights will show red in the approach direction.

 Taxiway edge lights or reflectors are blue.

 Taxiway centreline lights or reflectors are green.

 Runway guard lights are flashing yellow lights (either in the pavement or located on the side of the taxiway) and highlight a runway holding point.

 High intensity approach lighting (HIAL) is red and white. They are designed for when aircraft are transitioning from instrument to visual flight on a precision instrument approach.
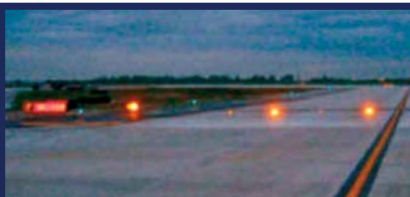
 Runway holding point as viewed from a taxiway centreline. This holding point has both above-ground and in-pavement runway guard lights.

 Parking clearance lines.

Never taxi across a row of illuminated red lights. This is a stop bar—do not proceed until the lights are turned off and you are in receipt of an ATC clearance to cross. Stop bars are being progressively fitted at some major aerodromes.

More resources

Airservices provides information for aerospace users on current and emerging safety risks in Australian aerospace and how to avoid them.

For more information or to provide us with feedback about this resource, please visit

www.bit.ly/pilotsafety.

If you have any questions about this publication, please email

safetypromotions@airservicesaustralia.com.