Australian Government
Civil Aviation Safety Authority

CASR PART

135

AUSTRALIAN AIR TRANSPORT OPERATIONS SMALLER AEROPLANES

PLAIN ENGLISH GUIDE

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About this guide

Part 135 of the Civil Aviation Safety Regulations 1998 (CASR) and its associated Manual of Standards (MOS) sets out the applicable rules for air transport operations in smaller aeroplanes.

A smaller aeroplane is defined as having a maximum operational passenger seat configuration of not more than 9 and a maximum take-off weight of not more than 8,618 kg.

This Civil Aviation Safety Authority (CASA) plain English guide summarises and restates these regulations from Part 135, its associated MOS and relevant advisory documents. This guide reorganises the information contained in these documents to make it easier for you to find, understand and apply the rules for air transport operations involving smaller aeroplanes.

This guide also includes, as is applicable, Part 119 of CASR which sets out the certification and management rules for air transport. Many of the rules are scalable for operations of different sizes and complexities.

By following this guide, it is expected you will comply with the Part 135 and Part 119 of CASR rules that are applicable to air transport operations in smaller aeroplanes. The guide provides references to the corresponding legislation so you can easily refer to the full text of the CASR and the MOS. The current legislation can be found on the Federal Register of Legislation website.

We are committed to providing you with accurate, consistent and clear information to help you understand your legal obligations. All efforts have been made to ensure the information contained in this guide was correct at the time of publication. However, the information is subject to change without notice. You should ensure you are using the most current version of the guide, which can be found on the CASA website. Please visit the CASA website regularly for updates.

Disclaimer: The guide has been prepared by CASA for information purposes only, and while every effort has been made to ensure that the contents accurately conform to the civil aviation legislation, this guide is not the law. CASA accepts no liability for damages or liability of any kind resulting from its use. You should ensure you are using the most current version of the guide, which can be found on the CASA website.

CASA is responsible for the safety regulation of civil air operations in Australian territory, and for the regulation of Australian registered aircraft outside Australian territory.

For further information, visit CASA's website casa.gov.au

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Who is this guide for?

This plain English guide is intended for anyone involved in aeroplane air transport operations in Australia. This includes:

- operators who hold, or intend to apply for, an Air Operator's Certificate (AOC)
- key personnel within these organisations
- flight crew
- cabin crew
- air crew
- medical transport specialists.

Part 135 of CASR applies to air transport operations in smaller aeroplanes. A smaller aeroplane is defined as having a maximum operational passenger seat configuration of not more than 9 and a maximum take-off weight of not more than 8,618 kg.

Part 135 establishes a regulatory framework for air transport operations in smaller aeroplanes, the primary purpose of which is to ensure the safety of passengers carried by these operations and to protect third-party persons on the ground.

Part 119 of the Civil Aviation Safety Regulations 1998 (CASR) prescribes requirements relating to the organisational aspects of air transport operations. Part 119 applies to operators conducting or intending to conduct Part 135 operations for the transport of passengers and/or cargo, and medical transport operations.

Relevant organisational and certification requirements from Part 119 have been included in this guide. This content is included to assist you in understanding the interaction between Part 119 and Part 135.

How to use this guide

In this guide, certain words have been defined to avoid repetition and improve readability.

Unless stated otherwise, the word 'you' refers to a person or organisation that holds an air operator's certificate (AOC) for a smaller aeroplane transport operation.

A list of abbreviations and acronyms can be found in Appendix A and a full list of definitions in Appendix B.

Where we do not define a word in this document, consider its meaning to be that given in the regulations or if none is given, the Macquarie Dictionary.

For improved understanding, the guide includes exceptions, notes, lightbulbs and explainers.

Exceptions – certain regulations set out a principal legal requirement that in certain circumstances can be varied, or in some cases ignored. You must read these exceptions to understand the requirements fully.

Notes – are included to provide additional information or context.

Lightbulbs – provide useful extra information and are generally based on CASA's advisory circulars (ACs) and other guidance material.

Explainers – provide a more detailed explanation and are based on CASA's ACs, definitions, or other useful information.

The following terminology table has been created to improve readability.

Term	Meaning
approval	an approval provided in writing by CASA under regulation 135.020, 61.040, 91.045 or 119.025 of CASR (For a foreign-registered aircraft operating in Australian territory, approval means that given under the laws of the state of the registry of the operator of the aircraft. Contact your closest CASA regional office for guidance on approvals. See the CASA website for regional office contact details.)
equipment	any reference to equipment being required, fitted, carried or accessible means equipment which is operative or serviceable
exposition	the terms operations manual and exposition are synonymous
may	indicates an option in the context of the requirement
MOS	refers to the Part 135 Manual of Standards
must	indicates an obligation or necessity (i.e. a mandatory requirement)
operations manual	the terms operations manual and exposition are synonymous
operator (of an aircraft)	if the operation of the aircraft is authorised by an AOC – the holder of the AOC or if the operation of the aircraft is not authorised by an AOC – the person, organisation or enterprise that makes the aircraft available to the aircraft's PIC for a flight
Part	unless otherwise specified refers to a part of the CASR
person	can include the pilot, an operator, a passenger, a ground support person or another person
a pilot	refers to any flight crew member (not necessarily the pilot in command)
PIC (pilot in command)	the pilot designated as being in command and charged with the safe conduct of the flight
radio	as with other equipment, which is required to be fitted or carried, a reference to radio or a radiocommunications system means one which is operative
regulations	refers to the Australian civil aviation legislation

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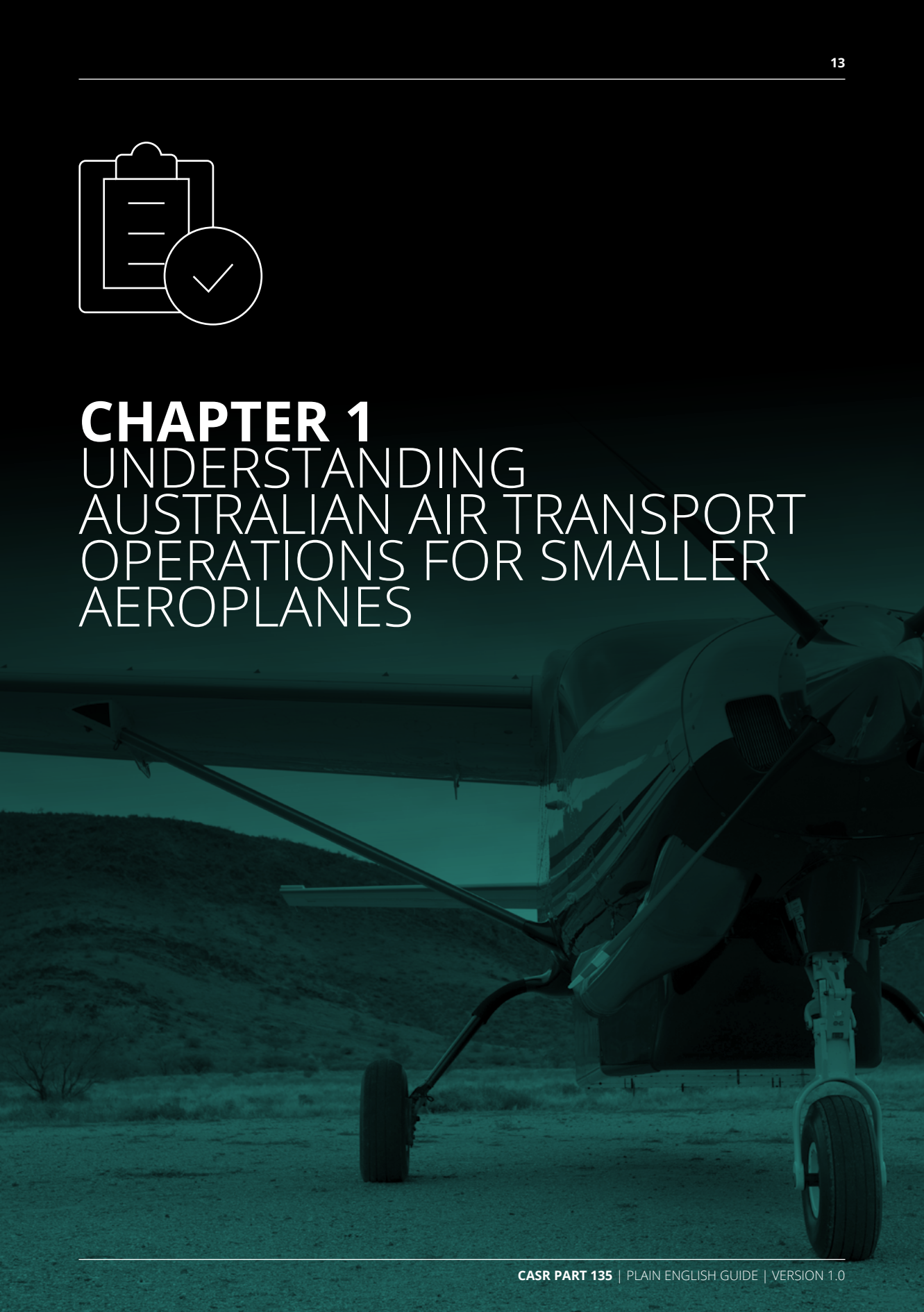
CHAPTER 1
UNDERSTANDING AUSTRALIAN AIR TRANSPORT OPERATIONS FOR SMALLER AEROPLANES



1.1 Overview

(135.005 and 135.010)

Part 135 of CASR applies to the operation of an aeroplane for an Australian air transport operation if the aeroplane has both:

- a maximum operational passenger seat configuration (MOPSC) of not more than 9
- a maximum take-off weight (MTOW) of not more than 8,618 kg.

The MOPSC relates to the number of seats for passengers, not the total number of passengers carried. For example, it is possible that when carrying an adult and infant or 2 children in one seat for the total manifested passengers to be greater than 9 but the MOPSC to remain at 9. It is important to note the total passengers on board the aeroplane must not exceed the maximum certificated passenger seating capacity (MCPSC) as described in the aircraft certification. The MCPSC is normally found on the type certificate, foreign type certificate, supplemental type certificate or foreign supplemental type certificate.

Note: If you are also operating under Part 121 of CASR (larger aeroplanes), you are considered to be following the requirements of a Part 135 regulation if there is a matching requirement in Part 121 and all the provisions of that particular matter are followed.

An air transport operation is:

- a passenger transport operation or cargo transport operation conducted for hire and reward
- a medical transport operation conducted for hire or reward.

The definition of medical transport operation requires consideration of the 'primary purposes of the operation'. The primary purpose of the operation must be to transport any of the following:

- medical patients, medical personnel, medical supplies, blood, tissue
- organs for transfusion, grafting or transplantation
- a purpose of a kind prescribed by the Part 119 MOS.

The purpose of an operation is determined at the start of the first flight for that operation. If the primary purpose is medical transport, this will include the flights or sectors:

- from your home base to the location from which a patient is intended to be retrieved
- to a drop-off location for a patient
- to your home base.

Note: When carrying medical transport specialist crew members (for example, a flight nurse or paramedic who is part of your assigned crew for that flight), it is not considered a medical transport operation as they are part of the crew doing a specific job on the aircraft.

The term 'air transport' has replaced the terms:

- charter
- regular public transport (RPT)
- air ambulance when conducted for hire or reward.

You will also need to refer to Part 119 of CASR which deals with the general certification and organisational aspects of air transport operations. Where applicable this has been included in this guide or a reference has been given to the relevant provisions.

When a flight is not an air transport operation, the requirements of Part 135 do not apply. In such circumstances, it is your and the flight crew's responsibility to ensure the applicable regulations prescribed by Parts 91, 121, 138, 141 and 142 of CASR are adhered to.

Please note, Part 135 may add to or turn off some Part 91 requirements. See table 1 for the Part 91 regulations that do not apply because the corresponding provision in Part 135 takes precedence.

Table 1: Part 135 – Australian air transport operations

Provisions of Part 91	Provisions of Part 135	Sections in this guide
Fuel requirements (91.455) Oil requirements (91.460)	Division 135.D.6	section 12.2, 12.6
Fuelling aircraft – persons on aircraft boarding or disembarking (91.510)	Regulation 135.220	section 12.5
Passengers – safety briefings and instructions (91.565)	Regulation 135.280	section 13.5
Performance (Subpart 91.F)	Subpart 135.F	chapter 15
Weight and balance (Subpart 91.J)	Subpart 135.J	chapter 17
Equipment (Subpart 91.K)	Subpart 135.K	chapter 14
Cabin crew (Subpart 91.P)	Subpart 135.P	chapter 19

There are also additional exemptions from Part 91 that apply only to Part 135 operators. Please see CASA EX71/24 – Part 135, Subpart 121.Z and Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024.

1.2 Approvals by CASA

For Part 135 (135.020)

CASA is authorised to issue approvals. All approvals granted by CASA under Part 135 are subject to the procedural requirements of CASR Part 11 (regulatory administrative procedures). Part 11 requires CASA to have regard for the safety of air navigation and the applicant's history and suitability when considering the issue of approvals.

> **Note:** A regulation 135.020 approval is also a significant change. An application for a regulation 135.020 approval will need to be accompanied by a copy of your exposition (or relevant section) clearly identifying the change. See section 2.8 of this guide.

For Part 119 (119.025)

CASA is authorised to issue approvals. All approvals granted by CASA under Part 119 are subject to the procedural requirements of CASR Part 11 (regulatory administrative procedures). This part requires CASA to have regard for the safety of air navigation and the applicant's history and suitability when considering the issue of approvals.

> **Note:** Regulations 119.135 and 119.145 of CASR state that an approval must be applied for in writing to CASA. CASA must then grant the approval if the application meets the applicable standards and regulation 11.055 (Grant of authorisation).
>
> **Note:** If the approval is a significant change, your written application to CASA will need to be accompanied by a copy of your exposition (or relevant section) clearly identifying the change. See section 2.8 of this guide.

Application forms can be found on the forms and templates page on the CASA website.

1.3 Issue of Manuals of Standards

(135.025 and 119.045)

Part 135 and Part 119 each allows CASA to prescribe standards in a Manual of Standards (MOS) where it is necessary for giving effect to the respective Parts of the CASR.

A MOS is a document that supports the CASR by providing detailed technical material, such as technical specifications or standards. The MOS allows CASA to keep the standards up to date in a timely manner to meet the demands of the ever-changing environment while retaining the legislated change process that includes general and industry consultation. Currently, there is no Part 119 MOS. Part 135 MOS is included in this guide.

1.4 Permitted categories of aeroplanes

(135.030 and MOS 1.09)

Aircraft are categorised in 2 discrete areas:

- operational
- airworthiness.

Operational categories refer to the way the aircraft is to be operated, i.e. air transport, aerial work or flying training. An aircraft airworthiness category is essentially a grouping of aircraft types and models of similar characteristics (based on the proposed or intended use of the aircraft) and their operating limitations. An aeroplane type certificate data sheet (TCDS) will describe its airworthiness category, certification basis and its state of design authority.

Additional information on aircraft categories is available in AC 21.1(1) Aircraft airworthiness certification categories and designations explained.

You may only permit the operation of an aeroplane in air transport operations if the aeroplane is type certificated in at least one of the following operational categories:

- transport
- commuter
- normal
- utility
- acrobatic.

Aircraft certification is the process of assessing an aircraft type against its type design and the aircraft's condition for safe operation. This results in the issue of a Certificate of Airworthiness (CofA) for an individual aircraft. Type certification is part of the aircraft certification process and leads to the issue of a type certificate or equivalent document.

1.5 What is an Australian air transport operation?

(119.010 and 119.030)

Flying or operating an aeroplane for an Australian air transport operation is recognised as a specific, defined activity, otherwise known as a prescribed purpose. This recognition has legal and/or regulatory implications, such as requiring certain permissions or meeting specific standards.

An air transport operation is considered an Australian air transport operation if it meets any of the following conditions:

- it is conducted by an Australian operator using a registered aeroplane
- it involves both:
  - a flight into or out of Australia, or within Australia
  - a flight conducted by an Australian operator using a foreign-registered aeroplane
- it is conducted by an Australian operator using an aeroplane that is provided for by the Australia and New Zealand mutual recognition agreements (ANZA)
- it is conducted by a foreign operator using a foreign-registered aeroplane and is conducted entirely within Australia, and not part of a flight into or out of Australia.

Note: There are aeroplane operations that are similar to the above but are not considered an Australian air transport operation. These aeroplane operations are conducted under permission granted under either:

- section 25 of the Civil Aviation Act 1988 (the Act) (non-scheduled flights by foreign registered aircraft)
- section 27A of the Act (permission for operation of foreign registered aircraft without an air operator's certificate (AOC)).

In addition, the following are not Australian air transport operations:

- an air transport operation authorised by a New Zealand AOC with ANZA privileges that is in force for Australia
- an operation of an aircraft to which Part 129 (foreign air transport operations) of CASR applies.

1.6 What is an Australian air transport air operator's certificate and an Australian air transport operator?

(119.015)

An Australian air transport air operator's certificate (AOC) authorises the operation of an aeroplane for an Australian air transport operation.

An Australian air transport operator is a person who holds an Australian air transport AOC.

1.7 Maximum period for use of foreign registered aircraft in Australia

(119.260)

You may only operate a foreign registered aircraft for a maximum total period of 90 days, or for a period approved by CASA, in any 12-month period.

CHAPTER 2
APPLYING FOR AND CHANGING AN AIR OPERATOR'S CERTIFICATE (AOC)

2.1 Overview

This chapter details the requirements for the grant of an Australian air operator's certificate (AOC) for conducting air transport operations in Australia and includes:

- AOC applications, compliance, conditions and responsibilities
- exposition approvals
- significant and non-significant changes to an AOC
- CASA oversight
- restrictions on authorisations.

2.2 When is an Australian air transport AOC required?

(119.050)

If you wish to conduct Australian air transport operations, you must hold an Australian air transport AOC that permits the operation.

2.3 Compliance as the AOC Holder

(119.055, 119.060 and 119.080)

You must operate in a way that does not contravene:

- your AOC
- a condition of your AOC
- a direction or obligation imposed by CASA.

For all aeroplanes operated under your AOC, you must be the registered operator or hold an approval for that aeroplane under regulation 119.025. See section 1.2 of this guide.

> **Exemption** CASA EX68/24 – Part 119 of CASR – Supplementary Exemptions and Directions Instrument 2024 allows certain air transport operators to operate aircraft without being the registered operator. The exemption enables you to not be the registered operator or owner of the aircraft you operate but does include specific safety conditions that must be followed. You should review section 7AB of this exemption.

All key personnel positions must be filled. If you are a sole operator, you must be the nominated chief executive officer (CEO). See section 4.6 of this guide.

You are also responsible for ensuring that your personnel comply with all directions given by CASA (under a provision of the regulations) and each provision of the civil aviation legislation that applies to your operations under your AOC.

2.4 Applying for your AOC

(119.065)

When applying for an AOC, your application must be accompanied by a copy of your proposed exposition signed by the chief executive officer (CEO) (or proposed CEO). It must include:

- your name (as the applicant including any operating or trading name), contact details and ABN (if any)
- the address of your operational headquarters if different from your mailing address
- if you are applying as an individual (i.e. if you are not a corporation) a statement from your CEO (or proposed CEO) that they will hold that position or if you are applying as a corporation, the name of each of the directors of the corporation
- the ACN and the address of the registered office (if an Australian corporation) or if not registered in Australia, the place where incorporated or formed
- details of the Australian air transport operations covered in the application
- a written undertaking from your CEO, or person proposed to be the CEO, that they are capable of operating and will operate in accordance with your exposition and all relevant civil aviation legislation.

2.5 Conditions for the issue of an AOC

(119.070)

CASA will issue you an Australian air transport AOC once it is satisfied your:

- exposition contains the required content (see section 3.2 of this guide)
- operations will be conducted safely
- operations will comply with your exposition and all relevant civil aviation legislation
- key personnel and directors (if any) are fit and proper persons
- key personnel meet the legislated qualification and experience requirements
- arrangements for managing the continuing airworthiness for each type and model of aircraft you propose to operate comply with the relevant legislation.

In approving the AOC, CASA considers:

- the exposition and your capacity, as the operator, to comply with it
- the nature of your proposed operations
- any relevant previous or current suspensions or cancellations of an Australian or foreign civil aviation authorisation
- your corporate and organisational structures
- any other relevant information accompanying your application.

CASA may consider any of the following to be relevant when deciding if a person is a fit and proper person:

- the person's:
  - criminal records (if any)
  - bankruptcy status (if applicable)
  - history of serious behavioural problems
  - demonstrated attitude towards compliance with civil aviation legislation or transport or safety-critical legislation in Australia or overseas
- any breaches of any civil aviation legislation or transport or safety-critical legislation in Australia or overseas by the person
- if the person is (or was) a director of a corporation or holds (or held) a position equivalent to a key personnel member in any corporation (in Australia or overseas), the corporations:
  - records of insolvency, receivership, or winding-up
  - record of any investigations or comments by a statutory authority that regulates share dealing or financial affairs of corporations
- other matters relating to the person's capacity to hold an Australian air transport AOC or be the director of a corporation that holds an Australian air transport AOC.

2.6 Approval of your exposition

(119.075)

If CASA issues you an Australian air transport AOC, your proposed exposition is also approved.

All AOCs are issued for a specified term. As the AOC holder you must apply for, and be issued with, a new AOC to continue operating after the specified term expires.

2.7 Significant and non-significant changes

Significant change (119.020 ,119.090 and 119.100)

You must not make a significant change without prior approval from CASA. An application for approval of a significant change must:

- be in writing
- set out the change
- be accompanied by a copy of the part of your exposition affected by the change, clearly identifying the change.

A change in relation to any of the following is deemed a significant change:

- the location and operation of your main operating bases, including the opening or closing of main operating bases
- your key personnel (see section 4.5 of this guide)
- a person authorised to carry out the responsibilities of any of the key personnel if the position holder is absent from the position or cannot carry out the responsibilities of the position (this person is commonly referred to as the alternate)
- the formal reporting lines for a managerial or operational position with safety functions and responsibilities that reports directly to any of the key personnel
- your process for making changes that relate to the safe conduct and management of air transport operations
- the kinds of Australian air transport operations you are authorised to conduct under your Australian air transport AOC
- your areas of operation or routes, including beginning to operate in a new area or on a new route (but not including ceasing to operate in an area or on a route)
- the types and models of aircraft used in your Australian air transport operations, including the addition of a new type or model (but not including ceasing to operate a type or model)
- a change in relation to any of the following that does not maintain or improve, or is not likely to maintain or improve, aviation safety:
  - the plans, processes, procedures, programs and systems for the safe conduct and management of your Australian air transport operations
  - the qualifications, experience and responsibilities required by you for any key personnel
  - any other aeronautical or aviation safety related services provided to you by third parties
  - any change to the registration of an aircraft used in your Australian air transport operations
  - any leasing or other arrangements for the supply of an aircraft used in your Australian air transport operations
- a change required to be approved by CASA under CASR (other than a change that results in the reissue or replacement of an instrument previously issued by CASA), in which the conditions or other substantive content of the instrument are unchanged.

Non-significant change (119.100)

Non-significant changes do not require CASA approval but must comply with operational safety standards. Such changes include minor modifications that do not affect safety-critical aspects of the operation. You are responsible for assessing the impact of any non-significant change and ensuring compliance with all relevant regulations.

Approval of significant changes (119.095)

CASA may approve a significant change if satisfied the requirements for your AOC will continue to be met. When CASA approves a significant change, your amended exposition is also considered to be approved.

2.8 How and when to make changes to your exposition

(119.020, 119.085 and 119.100)

All changes to your exposition must be made in accordance with your documented management of change process. Your exposition must document this process.

You must submit a written notice to CASA and include a copy of the amended sections of your exposition if the following are changed:

- operating or trading name
- contact details
- operational headquarters address (if different to your mailing address)
- any other change that is a significant change.

When making changes to your exposition you must consider if the changes are a significant or non-significant change to your operations. See section 2.7 of this guide.

2.9 CASA directions relating to exposition or key personnel

(119.105)

CASA may direct you to:

- remove, include or vary information, procedures or instructions in your exposition
- remove any key personnel from a position if CASA believes the person is not carrying out the safety responsibilities of the position
- remove the CEO from the position if CASA believes that are not properly managing safety matters they are accountable for.

All CASA directions to you must be in writing and will state the time within which compliance is required.

2.10 Dealings in relation to cancelled, suspended, varied, pending or refused civil aviation authorisations

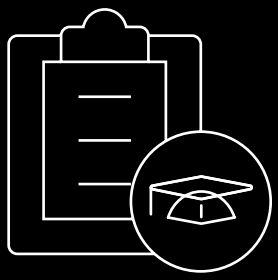
(119.255)

Unless you have CASA approval, you must not enter into an agreement with another person and carry out any of the following activities if their authorisation has been cancelled, suspended, varied, is pending, or has been refused:

- using an aeroplane with a cancelled authorisation
- employing a person who was employed by the person at the time of the cancellation of the authorisation
- conducting an operation (or part of an operation) which was authorised by a cancelled authorisation held by the person.

Note: In this section:

- cancelled authorisation means a civil aviation authorisation that has been cancelled by other than the holder of the authorisation (by application or request)
- employment/employed includes engage, whether by contract or other arrangement
- suspended authorisation means a civil aviation authorisation that has been suspended by other than the holder of the authorisation (by application or request)
- varied authorisation means a civil aviation authorisation that has been varied by other than the holder of the authorisation (by application or request).



CHAPTER 3
EXPOSITIONS FOR AUSTRALIAN AIR TRANSPORT OPERATORS

3.1 Overview

An Australian air transport operator must have a CASA approved exposition. This chapter outlines:

- the required content, including key personnel, operations, aircraft, safety, airworthiness, leasing, change management and CASA requirements
- your obligations to provide relevant sections to personnel and ensure compliance with your exposition and the civil aviation legislation.

3.2 Content of exposition

(119.205)

You must have an exposition which includes:

- your name (including any operating or trading name), contact details, and ABN (if any)
- the address of your operational headquarters
- the address of each of your main operating bases
- the address of your operational facilities
- a description of your organisational structure including a diagram showing formal reporting lines for your key personnel and as required, other personnel
- if you, as the operator, are a corporation, a description of your corporate structure
- key personnel information:
  - qualifications, experience and responsibilities for each position
  - name of the person appointed to the position
  - name of each person authorised to carry out the responsibilities of each key person position when the position holder is absent and a description of how the responsibilities of the key position will be managed during absences
  - any additional responsibilities and accountabilities
- an outline of your air transport operations, including areas of operation and routes
- details of the plans, processes, procedures, programs, and systems you have implemented to safely conduct and manage your operations in compliance with the applicable requirements (for example, safety plans and systems)
- for each aeroplane you operate:
  - the type, model, and registration mark of each registered aeroplane
  - the type, model, nationality, and registration mark of each foreign registered aircraft
- a description of the arrangements for managing the continuing airworthiness of the aeroplane
- a description of leasing or other arrangements for the supply of an aeroplane related to operational control or airworthiness of the aeroplane
- a description of the process for making changes (change management) including identifying significant and non-significant changes, and how you inform CASA and your personnel
- a description of anything else required to be approved by CASA
- any other matter required to be included under the regulations (see this guide for information regarding your exposition content requirements).

3.3 Complying with the exposition

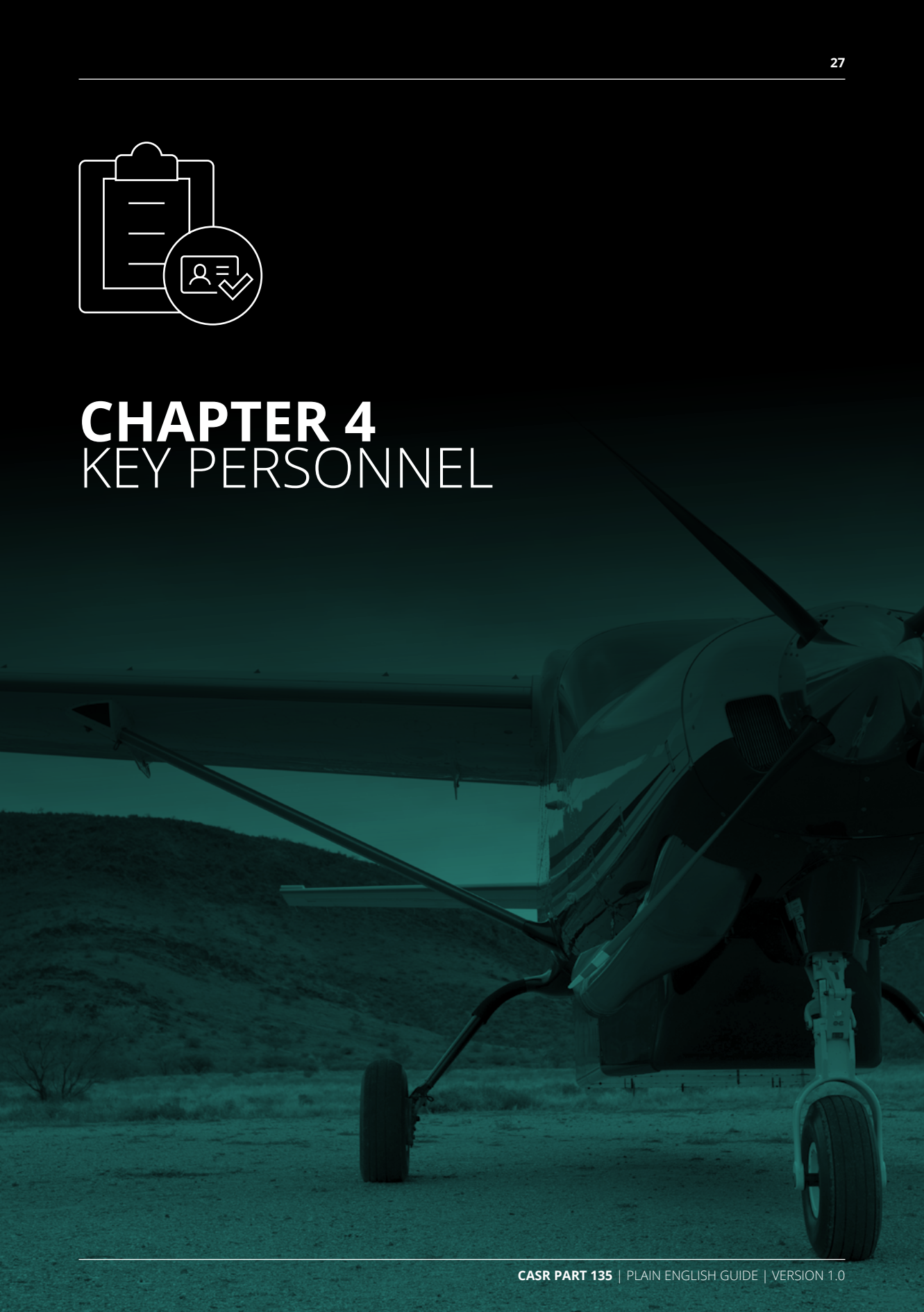
(119.210, 119.215 and 119.220)

As the operator, you are required to:

- meet the requirements of your exposition
- make your exposition (or relevant parts of the exposition) available to any of your personnel who are subject to a requirement of your exposition. You must do this prior to that person first carrying out any relevant duties
- ensure all personnel who have specific requirements mentioned in your exposition meet those requirements.

You are responsible and accountable for understanding your policies and procedures. If you choose to use a sample exposition or engage a manual/technical writer, it is important you know and understand what is in your exposition and ensure it reflects your operations.

CHAPTER 4
KEY PERSONNEL



4.1 Overview

You must nominate key personnel who will be responsible for the safety, compliance and effective management of your operations.

This chapter outlines the roles, responsibilities and qualification standards expected under the civil aviation legislation to ensure safe, compliant operations.

4.2 Organisation and personnel

(119.110)

Your organisational structure must support the effective management of your operations taking into consideration the size, nature and complexity of your business.

Your key personnel must abide by your exposition and the requirements of their position.

Key personnel are your:

- chief executive officer (CEO) or equivalent title, for example, managing director
- head of flying operations (HOFO)
- head of training and checking (HOTC)
- safety manager (SM).

Depending on the size, scope and complexity of your operation, some key personnel roles may be combined and held by a single person. This is more common in smaller or less complex organisations. However, any combined role must still meet the regulatory competency and experience requirements for each position and be approved by CASA as part of your exposition.

4.3 Key personnel – additional qualification and experience requirements

(119.165)

CASA may require key personnel to:

- have additional qualifications or experience to those listed in the legislation
- undertake an examination
- be interviewed by CASA
- complete a specific training course.

In deciding to impose any such requirement, CASA must consider at least the following:

- whether your Australian air transport operations can be safely conducted in accordance with your exposition and relevant legislation
- the nature and complexity of your operation
- the required leadership, management and standards setting skills
- the person's recent aviation skills
- if the person can exercise the privileges of their civil aviation authorisations.

4.4 Familiarisation training for key personnel

(119.120)

You must ensure all your key personnel have completed familiarisation training necessary to fulfil the responsibilities of their positions prior to commencing any duties. You should have a training program for key personnel and keep records of the delivery and results of the training program.

4.5 When key personnel cannot carry out responsibilities

(119.090 and 119.115)

You must inform CASA if you become aware that any of your key personnel cannot carry out, or are unlikely to be able to carry out, the responsibilities of their position for a period of more than 35 days.

You must inform CASA within:

- 24 hours if there is not another person authorised to carry out the responsibilities for all or part of the period of absence
- 3 days if there is another person authorised (an approved alternate) to carry out the responsibilities for all or part of the period of absence.

A permanent appointment or an acting appointment (for a period greater than 35 days) of any key personnel is a significant change. See section 2.8 of this guide. In this situation you must apply to CASA for approval of the change within 7 days of the change being made.

The regulations highlight the importance of having additional people approved to act in key personnel positions. This ensures the operational continuity and compliance of your business. The most common alternative key positions are for the roles of the chief executive officer (CEO), head of flying operations (HOFO) and safety manager (SM).

4.6 Chief executive officer

Minimum experience required
(119.025 and 119.125)

Your CEO must have:

- sufficient relevant experience in organisational, operational, financial and people-management of air operations to capably lead, manage and set standards so you can conduct safe operations in accordance with your exposition and the civil aviation legislation
- a satisfactory record in the conduct or management of air operations.

The CEO sets the tone, vision, standards and culture of the organisation. CASA may grant special consideration to a CEO with other experience.

Responsibilities and accountabilities
(119.130)

The CEO is accountable to you as the AOC holder, and CASA, for ensuring the safe conduct of operations in accordance with your exposition and relevant legislation. In particular, the CEO must ensure you:

- have sufficient suitably experienced, qualified and competent personnel
- have a suitable management structure
- are adequately financed and resourced
- comply with civil aviation legislation
- comply with the aviation safety laws of each foreign country (if any) where you conduct Australian air transport operations
- have procedures to ensure all your personnel understand your safety policy
- implement and effectively manage your safety management system
- have an organisational structure that ensures that the safety manager is independent and not subject to undue influence
- set and maintain standards for flight and ground operations
- inform CASA of any changes to leasing, financing or other arrangement for your aeroplane that may:
  - impact the safe conduct of your air transport operations
  - be in breach of the legislation of the of registered of the aircraft
- maintain all foreign registered aircraft in accordance with the law of the country in which the aircraft is registered (if applicable)
- establish and regularly review safety performance indicators and targets
- monitor and manage the constant improvement of your exposition
- conduct training and checking of safety-critical personnel that are not flight crew in accordance with your exposition
- monitor key personnel to ensure they carry out the responsibilities in accordance with civil aviation legislation and your exposition.

4.7 Head of flying operations

Minimum qualifications and experience (119.135)

You must nominate a person to oversee your flying operations (a head of flying operations).

Your head of flying operations (HOFO) must:

- hold either:
  - a commercial pilot licence (CPL) (for single pilot operations only) and a class or type rating for the type or classes of aircraft predominantly used by the operation
  - an air transport pilot licence (ATPL) (for any operations) and a class or type rating for the type or classes of aircraft predominantly used by the operation
- have a satisfactory record in the conduct or management of air operations
- have sufficient safety and regulatory knowledge to enable safe operations in accordance with the exposition and relevant legislation
- have at least 500 hours flight time on the type of aeroplane used in a significant proportion of your air transport operations
- have at least 6 months experience in the conduct or management of the air operations conducted under an AOC or equivalent foreign authorisation.

However, if you have been issued a specific approval from CASA that varies the minimum flight hours, then the minimum hours of flight time required to be met are as set out in the approval.

The HOFO (or proposed HOFO) may be required by CASA to undertake an assessment to demonstrate their suitability for the role. This may include a flight assessment in an applicable aeroplane.

A HOFO with a lower level of experience would only be approved if CASA considers an acceptable level of aviation safety would be preserved.

Responsibilities (119.140)

The HOFO is responsible for safely managing your flying operations, which includes:

- monitoring, maintaining and reporting to the CEO on operational compliance (being the civil aviation legislation and your exposition)
- ensuring flight crews are provided with the necessary information and documentation to fulfil their responsibilities
- allocating and deploying the appropriate aeroplane and personnel for your air transport operations
- providing access to a reference library.

4.8 Head of training and checking

Minimum qualifications and experience (119.036 and 119.145)

You must nominate a person to oversee your training and checking (a head of training and checking).

The head of training and checking (HOTC) must:

- hold either:
  - a commercial pilot licence (CPL) (for single pilot operations only) and a class or type rating for the type or classes of aircraft predominantly used by the operation
  - an air transport pilot licence (ATPL) (for any operations) and a class or type rating for the type or classes of aircraft predominantly used by the operation
- have a satisfactory record in the conduct or management of air operations
- have sufficient safety and regulatory knowledge to enable safe operations in accordance with your exposition and relevant civil aviation legislation
- have at least 500 hours flight time on the type of aeroplane used in a significant proportion of your air transport operations and at least 6 months experience in the conduct or management of the air operations conducted under your AOC or equivalent foreign authorisation.

However, if you have been issued a specific approval from CASA, then the minimum hours of flight time required to be met are as set out in the approval.

The HOTC (or proposed HOTC) may be required by CASA to undertake an assessment to demonstrate their suitability for the role. This may include a flight assessment in an applicable aeroplane or flight simulation training device.

Responsibilities (119.150)

The HOTC is responsible for the safe and effective management of all your flight crew training and checking activities, including:

- ensuring you comply with the relevant civil aviation legislation that relates to the qualifications, training or checking of flight crew
- reporting to the HOFO on your compliance with the provisions of the civil aviation legislation that relate to qualifications, training or checking of flight crew
- ensuring that the training and checking of flight crew is conducted in accordance with your exposition.

If you have a contract with a Part 142 training and checking organisation to provide training for flight crew, the HOTC must:

- ensure that the contractor is authorised under Part 61 to conduct the activities involved in the training or checking
- notify the Part 142 operator, in writing, of any change to your exposition relating to the training and checking activities that the Part 142 operator conducts.

4.9 Safety manager

Experience (119.035 and 119.155)

You must nominate a person to oversee your safety management system (a safety manager).

The safety manager (SM) is responsible for the day-to-day operation of your safety management system (SMS) and for ensuring you are kept appropriately informed on safety matters.

They should have:

- sufficient relevant safety management experience to capably lead, manage and set standards to enable you to safely implement your SMS according to your exposition
- a satisfactory record in the conduct or management of air operations
- sufficient safety and regulatory knowledge to enable you to conduct your Australian air transport operations safely and in accordance with your exposition and civil aviation legislation.

If you are an operator who held, or had applied for, an AOC before 2 December 2021 you may be eligible for transitional relief. You should review the current applicable exemption instrument CASA EX17/26 Flight Operations (Exemptions – Key Personnel & Other Measures) Amendment (EX68/24 and EX72/24) Instrument 2026 to determine whether any exemption or alternative safety manager arrangements apply to your operation. Repeal dates, eligibility requirements and conditions may change, so you should always refer to the current legislative instrument.

Responsibilities (119.160)

The safety manager is responsible for the management of your SMS. These responsibilities must be documented in your exposition and include:

- managing the operation of the SMS including managing corrective, remedial and preventative action in relation to the SMS
- regularly reporting to the CEO on the effectiveness of the SMS
- managing the maintenance and continuous improvement of the SMS and fatigue risk management system (FRMS) if any.

CHAPTER 5
SAFETY MANAGEMENT

5.1 Overview

As an Australian air transport operator, you must have a safety management system (SMS) that is appropriate for the size, nature and complexity of your operations.

This chapter outlines the SMS requirements for safety policies, risk management, safety assurance, training, and emergency response planning.

CASA has developed an SMS kit for aviation. The kit includes booklets and outlines the structure of an SMS that follows International Civil Aviation Organization's (ICAO's) safety management principles. You can adapt the kit to suit your organisation's needs by downloading either the entire kit or its individual booklets.

5.2 Safety management system requirements

(119.190)

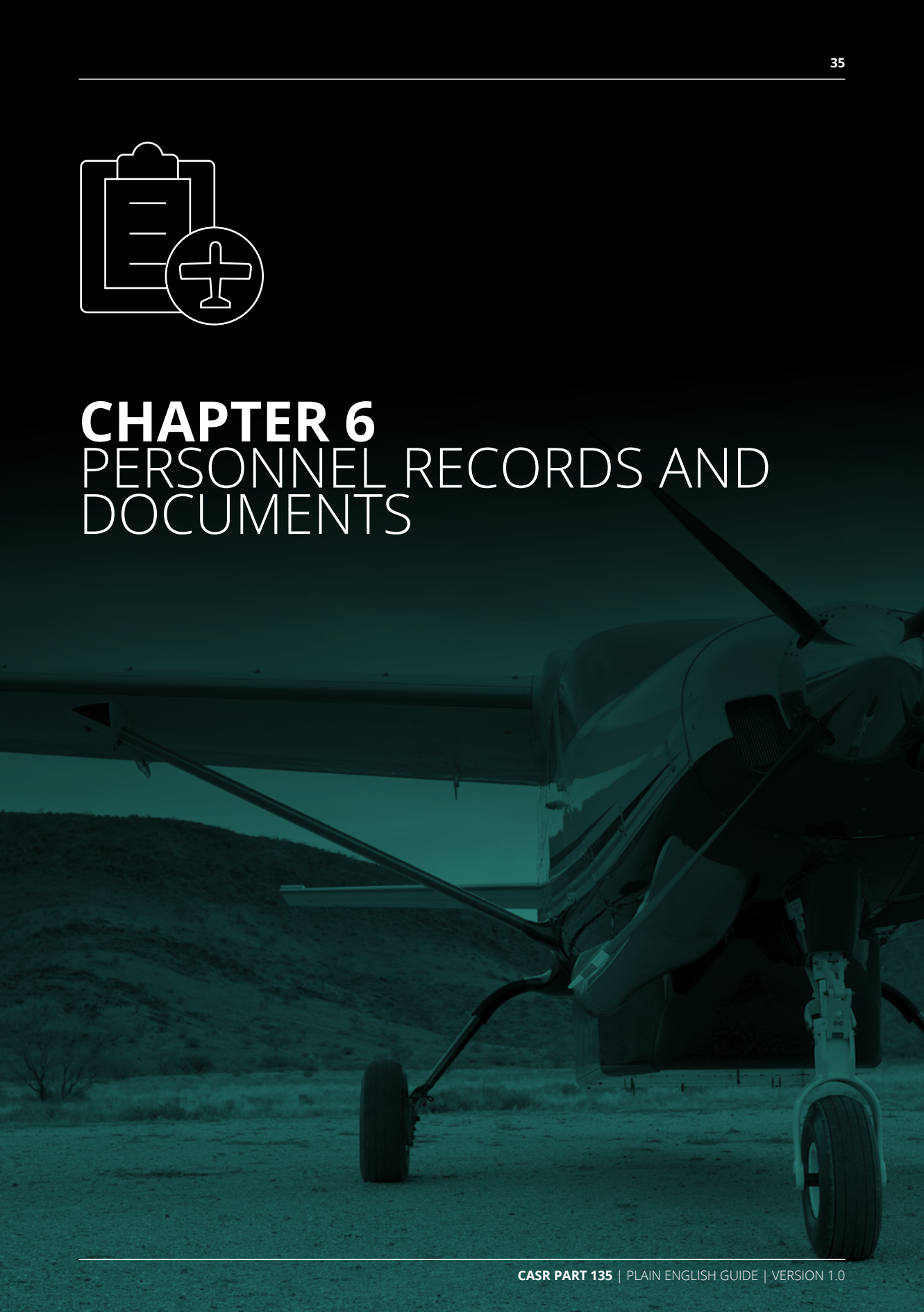
Your SMS must consist of the following components and elements:

- a safety policy and objectives that includes:
  - management commitment to, and responsibility for, safety
  - safety accountabilities of managers (including key personnel)
  - appointment of safety management personnel
  - coordination of an emergency response plan
  - SMS documentation
- a safety risk management process that includes:
  - a hazard identification process
  - a safety risk assessment and mitigation process
- a safety assurance system that includes processes for:
  - safety performance monitoring and measurement
  - how you manage change (you need to include a process)
  - continuous improvement of your SMS
- a safety training and promotion system that includes:
  - SMS training and education
  - how the SMS and the outcomes are communicated to personnel.

CASA EX73/24 – Flight Operations Regulations – SMS, HFP&NTS and T&C Systems – Supplementary Exemptions and Directions Instrument 2024.
If you are an operator who, prior to 2 December 2021 held an AOC or was applying for an AOC you may not need a formal safety management system or to submit those documents to CASA. You should read the exemption in detail to determine if this exemption is applicable to your operations.

Also refer to AC 119-12 Human factors principles and non-technical skills training and assessment for air transport operations.

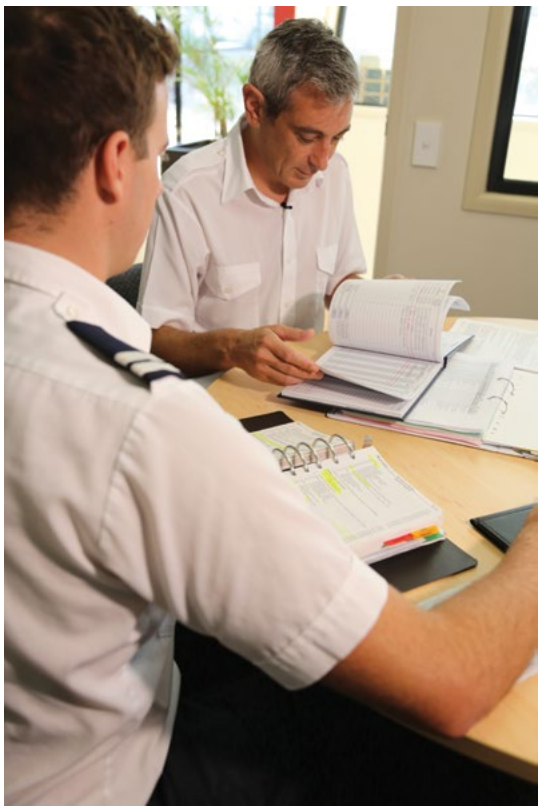
CHAPTER 6
PERSONNEL RECORDS AND DOCUMENTS



6.1 Overview

This chapter outlines your responsibilities for managing and retaining records, including:

- requests for copies of records by personnel and other operators
- time frames required when providing copies of records
- the retention periods for personnel records and flight related documents.



6.2 Personnel training and checking records

(119.225 and 119.030)

Records must be completed within 21 days after any activity for training, checking, flying experience or qualification (see figure 1).

The record must include:

- the date the activity was completed, or the qualification or certificate or experience was obtained
- whether the training, check, flight test, flight review or assessment of competency was successful.

If a member of your personnel requests a copy of their training and checking records, you must provide those records within 7 days of receiving the request.

If another operator requests a copy of a training and checking record and the person has given consent for their record to be shared, you must provide it to the other operator within 7 days of that request.

6.3 Retention periods for personnel records

(119.225, 119.235 and 119.240)

You must retain the required records for personnel as detailed in figure 1.

Figure 1: Required records and retention periods for operator personnel

Personnel	Required records and retention periods
 **Flight crew**	while the person is employed as a flight crew member: ☑ flight crew licence ☑ medical certificate from the time the record is created until 5 years after the person ceases employment: ☑ general emergency training ☑ general emergency check of competency ☑ conversion training (for you as the operator) ☑ line training ☑ line check ☑ differences training (if required) ☑ recurrent training and checking ☑ remedial training (if required) ☑ training program for a training pilot, check pilot or training and check pilot (if applicable) ☑ pilot in command responsibilities training (if applicable) ☑ flight crew member proficiency check ☑ flight crew member line check ☑ training in human factors principles or non-technical skills ☑ training or education in your safety management system
 **Air crew member**	from the time the record is created until 5 years after the person ceases employment: ☑ general emergency training ☑ general emergency check of competency ☑ conversion training (for you as the operator) ☑ line training ☑ line check ☑ differences training (if required) ☑ recurrent training and checking ☑ remedial training (if required) ☑ air crew member proficiency check ☑ training program for a training air crew member, check air crew member or training and check air crew member (if applicable) ☑ training in human factors principles or non-technical skills ☑ training or education in your safety management system

Personnel	Required records and retention periods
 **Medical transport specialist**	from the time the record is created until 1 year after the person ceases employment: ☑ general emergency training ☑ general emergency check of competency ☑ conversion training (for the operator) ☑ line training ☑ line check ☑ differences training (if required) ☑ recurrent training and checking ☑ remedial training (if required) ☑ medical specialist proficiency check ☑ training program for a training medical transport specialist, check medical transport specialist or training and check medical transport specialist (if applicable) ☑ training in human factors principles or non-technical skills ☑ training or education in your safety management system
 **Ground support crew**	from the time the record is created until 1 year after the person ceases employment: ☑ training (as required)
 **Operational safety – critical personnel (other than flight crew or cabin crew)**	☑ training in human factors principles or non-technical skills ☑ training or education in your safety management system
 **Personnel not mentioned elsewhere in this figure**	☑ training or education in your safety management system

Exemption CASA EX68/24 – Part 119 of CASR – Supplementary Exemptions and Directions Instrument 2024 (Part 20). You are not required to maintain a copy of the flight crew medical certificate and/or flight crew licence provided you maintain an up-to-date record showing the currency of each of the following for the flight crew member:

- medical certificate
- flight crew licence
- flight crew ratings
- flight crew endorsements.

6.4 Retention periods for flight-related documents

(119.245, 119.250 and CAO 48.1)

You must keep records as set out in table 2.

Table 2: Retention periods for flight-related documents

Kind of record for a flight	Period after the end of the flight
operational flight plan	3 months
authorised weather forecasts	3 months
authorised aeronautical information	3 months
flight technical log	6 months
journey log	6 months
weight and balance documents	3 months
statement about cargo that may require special or unusual handling e.g. dangerous goods	3 months
passenger list	3 months
a notice of action, taken in an emergency by the pilot flying the aeroplane, that involves a contravention of civil aviation legislation	3 months
flight and duty time extension (including copies of any relevant reports and documents)	5 years

A person responsible for the continuing airworthiness of an aeroplane has certain obligations under Part 42 of CASR for retaining records in the flight technical log. You should refer to those regulations to ensure compliance.

CHAPTER 7
OPERATIONAL DOCUMENTS

7.1 Overview

This chapter outlines the documents required for your exposition and for ensuring compliance with the requirements of the civil aviation legislation for safe operations. This chapter covers:

- flight manual and minimum equipment list (MEL) compliance, checklist availability for normal, abnormal, and emergency operations
- document requirements and carriage
- exposition accessibility
- electronic documents
- flight preparation
- defect and incident reporting.

7.2 Required material for your reference library

(119.040)

Your reference library may include both hard and electronic copies of documents.

The documents required are:

- the civil aviation legislation and parts of the aeronautical information package (AIP) relevant to your operations
- a document or documents equivalent to the AIP for each country you operate in (if you conduct operations in one or more foreign countries)
- all information about the flight operation of each type and model of aeroplane you operate that is necessary to ensure the safe conduct of the operations
- any other publications, information or data specified in your exposition.

The required material in your reference library must be readily accessible. This includes via an electronic copy. Access can be provided to individuals through their own devices, or you can provide organisation owned/provided devices for access.

7.3 Complying with the flight manual

(135.040 and 91.095)

You must ensure your aeroplanes are operated in accordance with the requirements and limitations of the relevant aircraft flight manual (AFM).

The PIC must operate the aeroplane in accordance with the AFM instructions.

If there is a conflict between the AFM and the exposition, the AFM takes precedence.

A reference to an AFM includes both:

- the flight manual
- any other document that contains the aircraft's operating limitations (if any) and information for the safe operation of the aircraft.

This includes all amendments and supplements and must include:

- normal, abnormal and emergency procedures for the aircraft
- any operating limitations, instructions, markings and placards relating to the aircraft
- all amendments and supplements to the AFM or other documents required for the safe operation of the aircraft.

The AFM may be referred to as the pilot's operating handbook (POH), owner's handbook or owner's manual. The flight manual is as important as any other critical part of the aircraft and is a part of the type design.

Note: If a flight manual amendment or flight manual supplement has already been approved by the national aviation authority (NAA) responsible for issuing the type certificate (TC) for an aircraft, there is no requirement for additional approval by CASA.

7.4 Minimum equipment list for certain flights

(135.045)

You are required to have a minimum equipment list (MEL) for each aeroplane that you operate under the instrument flight rules (IFR) and for which there is a master MEL (MMEL).

You must ensure there is an MEL for each aeroplane in either or both of the following circumstances:

- an IFR flight
- the flight begins or ends at an aerodrome outside of Australian territory.

> **Note:** The MEL should always remain with the aeroplane and must be carried on every flight so it can be accessed by the flight crew.

7.5 Availability of checklists

(135.050)

You must ensure normal, abnormal and emergency checklists are available to all crew members before they carry out their duties for a flight.

Explainer: Checklists

Checklist requirements

Checklists should include the procedural steps of the normal, abnormal and emergency procedures from the flight manual. To meet the requirements, you must have processes and instructions published in your exposition for establishing, using and maintaining checklists.

Checklists may be in hard copy or electronic format (sometimes integrated with the flight management system). If electronic, a back-up or hard copy should also be readily available to the crew.

Establishing checklists

Checklists may be externally sourced, such as those produced by aircraft manufacturers. Alternatively, you could produce your own checklists. In all cases, you are responsible for ensuring normal, abnormal and emergency checklists are available to all crew members before they carry out their duties for a flight. You should also include in your exposition, a process for verifying that checklists meet and match flight manual procedures.

Many modern aircraft have electronic checklists integrated with the flight management system. Whether electronic or otherwise, aircraft checklists should be a list of procedural checks devoid of other content such as amplifying notes. These checklists are known as 'aircraft checklists' or 'abbreviated checklists'. Producing aircraft checklists by directly copying pages from a flight manual is generally unsuitable due to the amplifying content or formatting. The full procedures published in the flight manual, including amplifying content, are sometimes referred to as 'expanded checklists' and should be available to crew for reference and study.

Your exposition should also include procedures for ensuring aircraft checklists are durable, accessible and usable in all flight conditions including night, turbulence and emergencies.

You should manage the accessibility and stowage of checklists to minimise risks associated with loose articles jamming controls or falling from the aircraft.

Using checklists

Instructions for using checklists (published in the exposition) should describe how, when and by whom each checklist is carried out. Many of these matters are at the discretion of the operator. For example, work methodology (procedural actions followed by checklist, or the checklist determining procedural action and check), standard phraseology, limitations for commencement or completion of a checklist.

In a multi-crew environment, the use of an interactive 'challenge and response' procedure is preferable and will assist in crew situational awareness. Precise instructions for use in all circumstances should be described, including dealing with contingencies such as interrupted checks or erroneous responses.

Knowledge and competency in correct checklist usage should be part of crew training and checking.

Maintaining checklists

The integrity of the checklist system is maintained through document control, amendment and distribution processes described in your exposition. For document control, each checklist should be identified with version control markings, such as version number and/or date.

A checklist is considered part of your exposition so you should apply your change management process to any changes or amendments.

AC 91-22 Aircraft checklists contains further information on aircraft checklists.

7.6 Electronic documents

(135.055)

Any document required to be carried on a flight may be carried as an electronic copy.

> **Note:** Electronic documents for flights that begin or end outside Australian territory may not comply with the laws of a foreign country.

Where electronic documents are stored in or downloaded from the 'cloud', or any other source, you and the PIC must ensure that a copy of the current electronic document is stored on the applicable device, such that the material is accessible when the device is in 'flight mode'.

General guidance on electronic certifications, record keeping and management systems is available in AC 11-03 Electronically formatted certifications, records and management systems.

Specific guidance on the use of electronic flight bags is available AC 91-17 Electronic flight bags and AC 91-07 Cabin electronic flight bags.

You must not use an electronic flight bag (EFB) in an operation for the first time unless CASA, in writing, has approved the use of the EFB for your operations and by your flight crew.

An EFB is an information system for the flight crew members of an aircraft, that allows storing, updating, delivering, and displaying, with or without computing, digital data to support flight operations or flight duties on the aircraft.

You must include in your exposition information, procedures and instructions in relation to:

- flight crew members using the EFB
- managing the EFB, including access to it, and the security and updating of it
- how you will obtain CASA approval of any changes to the use of the EFB as described in the exposition.

> **Exemption** CASA EX68/24 – Part 119 of CASR – Supplementary Exemptions and Directions Instrument 2024. Section 5 of this exemption provides that the requirements detailed in this section of the guide relating to EFBs do not apply to an Australian air transport operator if, immediately before 2 December 2021, you were:
>
> - authorised to conduct charter operations, regular public transport operations, or aerial work (air ambulance) operations
> - using an EFB in compliance with the requirements of paragraph 11.1 and Appendix 9 of CAO 82.0.

7.7 Availability of parts of exposition

(135.060)

All parts of your exposition relevant to a crew member for a flight must be made available to the crew member before the flight begins.

This includes any part that is:

- relevant to the duties of the crew member for the flight
- required for the conduct of the flight any additional manuals or subsidiary manuals, for example, ground operations manuals or cargo handling manuals.

You should encourage all crew to regularly refresh and review their knowledge of your exposition and ensure the exposition is accessible, especially during flight planning and preparation.

7.8 Carriage of documents

(135.065, 135.070, 135.075, 135.145, MOS 3.01 and 3.02)

Both you and the PIC must ensure that all the required documents are carried onboard the aeroplane during a flight. Table 3 lists the required documents.

Table 3: Carriage of documents

Document **Note:** See details below this table for more information.	**VFR flights within 50 NM of the departure aerodrome** * may be carried on the flight OR available immediately before the flight	**All flights greater than 50 NM from the departure aerodrome**	**VFR flights at night**	**IFR flights**	**All flights partly or wholly outside Australian Territory**
aircraft flight manual	☑	☑	☑	☑	☑
either: › the flight technical log › the maintenance release for the aeroplane if Part 42 does not apply to the aeroplane	☑	☑	☑	☑	☑
minimum equipment list (if any)				☑	☑
operational flight plan (if applicable)		☑	☑	☑	☑
the journey log for the flight	☑	☑	☑	☑	☑
authorised aeronautical information for the flight which can include scale maps and aeronautical charts for the route showing: › certified and non-controlled aerodromes › the lateral and vertical limits of controlled airspace, and prohibited, restricted or danger areas › topographical information to enable navigation to a suitable landing area	☑	☑	☑	☑	☑
for each flight crew member: › a medical certificate (if required) › a commercial pilot licence or a certificate of validation (as is applicable) › passport or a photographic ID issued by a commonwealth, state or territory authority or agency	☑	☑	☑	☑	☑
flight notification (as required by Part 91)	☑ *	☑	☑	☑	☑
weight and balance documents for the flight	☑ *	☑	☑	☑	☑

Document **Note:** See details below this table for more information.	**VFR flights within 50 NM of the departure aerodrome** * may be carried on the flight OR available immediately before the flight	**All flights greater than 50 NM from the departure aerodrome**	**VFR flights at night**	**IFR flights**	**All flights partly or wholly outside Australian Territory**
NOTAMS for the flight	☑ *	☑	☑	☑	☑
aeronautical information service (AIS) briefing documents for the flight	☑ *	☑	☑	☑	☑
authorised weather forecasts for: › the planned route of the flight › the planned area of operation for the flight › the destination alternate aerodrome if one is required	☑ *	☑	☑	☑	☑
if there is a person onboard who may require special consideration, a statement identifying the person and the nature of the special consideration	☑ *	☑	☑	☑	☑
operating instructions for computerised navigation equipment (if fitted)	☑ *	☑	☑	☑	☑
certificate of airworthiness					☑
certificate of registration					☑
radio licence copy (if any)					☑
passenger list containing the details described in section 7.11 of this guide if passengers are carried or the flight is a medical transport operation					☑
cargo manifest for flights carrying cargo (other than passenger baggage)					☑
a certified true copy of your Australian air transport AOC and a copy of the operations specifications issued to you specific to your Australian air transport AOC					☑
any other document required by a foreign country					☑

An alternative document to the aircraft flight manual (AFM) may be carried if the document contains the relevant airworthiness standards that are normally found in the AFM. This alternative document must be carried onboard the aircraft in place of the AFM. It must not contain information that alters or conflicts with information contained in the AFM. For example, the alternative document may be your exposition.

An alternative checklist (for normal, abnormal and emergency procedures) may be carried as an alternative to the checklists in the AFM. The alternative checklists must be carried onboard the aircraft in place of the AFM. They must not contain information that alters or conflicts with information contained in the AFM.

The cargo manifest must include a detailed declaration of the cargo carried and a statement as to whether any cargo requires special or unusual handling.

If, for any reason the flight crew member cannot carry their medical certificate and/or flight crew licence on the flight, they must give CASA written notice either:

- before the flight begins
- within 24 hours if not practicable to do so before the flight.

Other documents may also be required to be carried on the aircraft under other legislation. For example, documentation relating to the carriage of dangerous goods under Part 92 of CASR, or documentation relating to aircraft disinsection requirements and procedures under the Biosecurity Act 2015.

Photographic ID can be an Australian driver licence, aviation security identification card (ASIC) or aviation identification (AVID).

Any document can be carried in electronic format if it is readily available when required (see section 7.6 of this guide).

7.9 Journey logs

(135.085)

You are required to have procedures that detail when and how the PIC must complete the journey log. The PIC is responsible for ensuring that the required information is recorded at the required time. You must also ensure that the journey log has a place for the PIC to verify the entries for the flight.

> **Note:** You are not required to have a separate document specifically named 'journey log' if the required information detailed in this section is recorded and accessible, when required, elsewhere, for example an operational flight plan.

The journey log must contain:

- at the pre-flight stage:
  - the aeroplane's registration mark
  - the flight number (if any)
  - the date of the flight
  - for each crew member, their name (or other identifier) and assigned duties
  - the place of departure
  - the time the flight begins
  - total flight time
  - the amount of fuel added to the fuel tanks before the flight begins (if any)
  - the total amount of fuel in the fuel tanks when the flight begins
- post flight:
  - the place of arrival
  - the time the flight ends
  - the duration of the flight
  - the amount of fuel in the fuel tanks when the flight ends
  - any incidents or observations relevant to the flight.

Note: Due to the urgent nature of some medical transport operations, pre-flight entries in the journey log (or its equivalent documentation) might not be possible before the flight begins. It is therefore permitted for the flight to begin without completing the required information in the journey log if the flight is a medical transport operation and:

› the flight is of an urgent nature

› the PIC is satisfied, when the flight begins, that failure to complete any or all the information in the journey log will not affect the safety of the aeroplane

› the information is recorded in the journey log as soon as practicable after the flight ends.

Exemption CASA EX71/24 – Part 135, Subpart 121.Z and Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024 (Parts 7 and 8), the exemption permits some elements of the journey log to be completed as soon as practicable after the end of the flight, but prior to the next flight of the aeroplane. These are:

› pre-flight entries in the journey log (or its equivalent documentation) for the departure time of the flight are not required if it is completed as soon as practicable after the end of the flight, but prior to the next flight of the aeroplane

› post-flight entries in the journey log (or its equivalent documentation) for the place of arrival and any incidents or observations relevant to the flight are not required if they are completed as soon as practicable after the end of the flight, but prior to the next flight of the aeroplane.

7.10 Keeping and updating documents

(135.080 and MOS 3.03)

These requirements apply to passenger air transport operations for multi-flight journeys where the passenger list requires updating, and it is not practicable to keep a copy of the updated document on the ground.

You may conduct a series of flights away from the company administrative base involving changes in the passengers who are aboard. For these situations, your exposition must contain procedures to ensure that updated information continues to be recorded and continues to be accessible to your nominated person on the ground.

These procedures must include:

› the method to ensure that updated information continues to be recorded and to be accessible to a person on the ground

› the procedures and circumstances in which a person on the ground may provide the information contained in the documents to another person.

The information on the passenger manifest can be updated by physical completion, or by electronic transmission, for example, email, radio or datalink.

7.11 Passenger lists

(135.090)

For every flight that is a passenger transport operation, a passenger list (sometimes known as a passenger manifest) is required. You must be able to demonstrate how the information is recorded and accessible when needed. This list must include the following information:

› the aeroplane's registration mark

› the date and estimated departure time of the flight

› the names of all passengers, noting the places where they are to embark and disembark

› the total number of infants carried.

Note: You are not required to have a separate document specifically named 'passenger list' or 'passenger manifest' if the required information detailed in this section is recorded and accessible, when required, elsewhere.

Medical transport operations are not required to prepare a passenger list. However, if the flight begins or ends outside Australian territory a passenger list must be carried.

7.12 Flight preparation forms for flights outside Australian territory

(135.095)

Before a flight that begins or ends outside Australian territory, the PIC must sign a flight preparation form confirming that:

- the aeroplane is being operated according to its configuration deviation list (if applicable)
- the crew has received all relevant parts of the exposition related to the flight and their duties before departure
- the flight can be conducted in compliance with the requirements and limitations outlined in the exposition
- the flight meets the requirements for the carriage of documents as set out in the regulations
- all necessary equipment required is either installed or carried onboard, as is applicable (see chapter 14 of this guide), and is either:
  - operative
  - inoperative, and permitted to be inoperative for the flight
- during take-off, en route, and landing, the aircraft's performance capabilities meet the necessary requirements for the expected conditions and circumstances
- the weight and balance remain within the allowable limits for the entire flight.

7.13 Reporting and recording defects and incidents

(135.100 and 135.105)

Your exposition must include procedures for reporting and recording any of the following that may occur during a flight:

- abnormal instrument indications
- abnormal flight conditions
- abnormal behaviour by the aeroplane
- exceedance of an operating limit specified in the aircraft flight manual
- defects in the aeroplane
- incidents relating to the flight that endanger, or could endanger, the safe operation of the aeroplane.

It is the applicable crew member's responsibility to make the report or record.

This requirement is not a substitute for any defect reporting requirements in Part 42 of CASR or Part 4A of CAR. Defects are to be recorded in the aeroplane flight technical log or maintenance release (whichever is in use). The requirements of this section also apply to any item of operational or emergency equipment fitted to the aeroplane, regardless of whether it is required by the approved design for the aeroplane or the regulations for the flight.

CHAPTER 8
OPERATIONAL PROCEDURES

8.1 Overview

This chapter defines operational procedural requirements and includes information about:

- operational control
- protocols for cold weather operations and managing icing conditions
- portable electronic devices (PED)
- guidelines for transporting animals, including safety and compliance
- cosmic radiation monitoring
- information about search and rescue, emergency, and survival equipment
- crew responsibilities for safe operations
- crew briefing and seat authorisation.

8.2 Operational control and procedures

(135.135)

Your exposition must include procedures for determining how operational control of a flight is to be exercised and by whom. For example, operational control responsibilities may change under flight test or examination conditions.

Operational control is defined as having authority over starting, continuing, changing or ending a flight to ensure the safety of the aircraft and the efficiency of the flight. Under almost all circumstances, operational control rests with the PIC. The diverse nature of possible Part 135 operations means that you must tailor your exposition procedures to suit your operations.

8.3 Cold weather procedures

Procedures relating to ice (135.310)

Your exposition must include procedures for:

- the PIC inspecting the aeroplane before a flight if frost or freezing conditions exist
- carrying out ground de-icing and anti-icing measures (if required before the flight)
- using de-icing and anti-icing equipment (where fitted) during the flight.

Your policy, procedures and training relating to airframe and engine icing must be consistent with the relevant aeroplane flight manual. Under no circumstances should your policy, procedure and training be less limiting than the aeroplane flight manual limitations and guidance.

If you do not intend to conduct operations from aerodromes that are regularly exposed to ground icing, your exposition should include a section that gives clear instructions for the operating crew to follow when ground icing conditions do occur. These instructions should, as a minimum, include:

- a statement that precludes aircraft operations when ground icing is present
- advice on conditions that will allow operations to commence
- precautions that must be taken prior to operations commencing.

Polar operations (135.325)

For operations conducted in a polar region, your exposition must contain procedures for:

- monitoring and dealing with fuel freezing
- ensuring communication capability for the duration of the flight in the polar region
- training the flight crew in polar operations
- mitigating crew member and passenger exposure to cosmic radiation during solar flare activity.

For flights in a polar region:

- if the flight is not flown over water, you must ensure that each person on the aircraft wears a serviceable, cold weather, anti-exposure suit that is appropriate for the temperatures for the flight
- if the flight is flown over water, you must ensure that each person onboard wears an immersion suit that is appropriate for the temperatures for the flight.

A polar region is a defined term in the CASR Dictionary and is the area:

- north of 78° N
- south of 60° S.

8.4 Portable electronic devices

(135.315)

Your exposition must include procedures for the operation of portable electronic devices for a flight.

A portable electronic device (PED) is any lightweight, electrically powered equipment. These devices are typically consumer electronic devices capable of communication, data processing and/or utility. Examples range from tablets, e-readers, and smart phones to electronic games. A PED may be transmitting or non-transmitting.

A person may only operate a PED on the aircraft with the PIC's permission. The PIC may only give permission if they have determined that the device will not affect the safety of the aircraft.

A person must stop using the device at the PIC's direction. When giving permission, the PIC should consider any relevant limitation in the AFM, the aircraft manufacturer's supplementary data (if any) and their operational experience with that type of PED. Considerations should include hazards associated with:

- PEDs used during various phases of flight
- improperly stowed PEDs
- impeded or slowed evacuations
- passenger non-compliance e.g. not switching off PEDs, or not stowing PEDs properly
- disruptive passengers
- battery fire.

Flight crew members (FCMs) must not operate a PED at any time during a flight if it is likely to distract them from performing their duties.

This does not prevent flight crew from using portable electronic flight aids such as maps or navigation aids. Further information about the use of electronic flight bags (EFBs) is available in AC 91-07 Cabin electronic flight bags and AC 91-17 Electronic flight bags. Electing to use an EFB for operations also requires consideration of Division 91.C.8 of the Part 91 MOS which addresses the carriage and use of PEDs in aeroplanes.

8.5 Carrying animals

(135.320)

Your exposition must include procedures for carrying animals on a flight.

When establishing these procedures, consider including:

- acceptance of animals for carriage in the cabin of the aircraft
- how the animal will be restrained and controlled so that it will not adversely affect the safety of the aircraft or the safety of persons onboard
- how excreta from the animal, or water or other fluids provided for the animal, are contained so that these do not escape and present a risk to the safety of the aircraft and its systems.

AC 91-03 Carriage of assistance animals provides further information that will assist you and the crew in understanding the requirements for the carriage of assistance animals and the carriage of animals in the cabin.

8.6 Cosmic radiation

(135.330 and 135.335)

Your exposition must specify a limit for the total cosmic radiation that can be received inside the cabin during the flight if it is above FL490.

You must keep records of any member of your flight crew who has flown a flight above FL490 in the past 12 months. These records must include the total cosmic radiation dose received by that crew member during each flight.

Cosmic radiation is radiation from space that is more intense at high altitudes because the thinner atmosphere provides less protection. Cosmic radiation exposes the body to radiation similar to exposure from a medical x-ray. The amount of cosmic radiation exposure received while flying depends on the amount of time in the air, altitude, latitude, and solar activity. Lowest dose rates at a given altitude are found near the equator and increase as you move toward the poles. For any location at commercial flight altitudes, a higher altitude will incur a higher dose rate.

If the aeroplane is flown above FL490 and the limit stated in your exposition for the total cosmic radiation inside the cabin is exceeded, the PIC must, as soon as practicable after the limit is exceeded, descend to the lowest altitude at which it is practicable to safely complete the flight.

Explainer: Permission to carry an assistance animal in the passenger cabin

You do not require CASA approval to carry assistance animals on a flight. Regulation 91.620 of the CASR permits a person to take any animal on board an aircraft with the permission of the PIC.

You must provide instructions for carrying animals in your exposition, including any limitations or requirements you expect personnel to observe and respect.

The PIC must take all reasonable steps to ensure carrying an animal (including an assistance animal) will not adversely affect aviation safety before giving any permission.

In general, carrying an animal that is not an assistance animal is no different to carrying cargo.

Assistance animals carried in the cabin must not block, impede access to, or escape through, an emergency exit.

In determining whether to grant permission for carrying an assistance animal in the aircraft cabin, the following considerations are relevant:

- the reason for carrying the animal and whether the animal is in the company of its owner/handler
- whether the animal has been trained to a standard of behaviour and hygiene that is appropriate for travel in the passenger cabin of the aircraft
- whether the owner/handler/trainer has been trained and will be able to control the animal on board the aircraft
- what documentation or other evidence is required to help inform decisions on the above matters
- excreta containment
- adequate restraint of the animal at different stages of flight
- access to emergency exits
- passengers with allergies to, or phobia of animals.

You or the PIC have the right to refuse to carry an assistance animal if you reasonably believe it could affect the safety of the aircraft. This takes precedence over the Disability Discrimination Act 1992.

> **Exemption** CASA EX67/24 – Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024 (section 4) shifts the authority for granting permission from the PIC to you, the operator while maintaining safety responsibilities for both you and PIC.

8.7 Search and rescue services and emergency and survival equipment

Information about search and rescue services (135.110)

You must provide flight crew members with information about search and rescue services before a flight commences.

The ERSA is the primary source of information within the Australian flight information region (FIR).

Outside the Australian FIR, you should refer to the equivalent document from the relevant national aviation or airspace authority. In remote areas, additional details about local services – such as available boats, nearby populated areas, operational unregistered airstrips, and active radio frequencies – may be important.

You should document this information and provide it to the flight crew in a way that is practical and useful for the crew's needs. These documents are considered part of your exposition.

Information about emergency and survival equipment (135.115 and MOS 3.04)

You must ensure that information about each item required to be carried on the aircraft (see table 4) is readily available and able to be provided to a Rescue Coordination Centre (RCC) when needed.

Table 4: Information about emergency and survival equipment

Equipment	Information
a life raft	the number, colour and type
a signalling device	the number, colour and each type of pyrotechnic device
a first-aid kit	details of the emergency medical supplies in the first-aid kit
a survival emergency locator transmitter (ELT)	the type and frequency of each survival ELT
water supplies carried as an item of survival equipment	details of the water supplies

Note: If you are required to carry a survival ELT, table 4 requires you to hold information on the type of each emergency locator transmitter (ELT). Consider describing each type as per the definitions below:

- Automatic portable ELT (ELT(AP)): An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.
- Automatic deployable ELT (ELT(AD)): An ELT which is rigidly attached to an aircraft, and which is automatically deployed and activated by impact and, in some cases, also by hydrostatic sensors. Manual deployment is also provided.
- Survival ELT (ELT(S)): An ELT which is removable from an aircraft, stowed for quick and easy access for use in an emergency, and manually activated by survivors.

Contact telephone numbers for the rescue coordination centre can be found in AIP GEN – Search and Rescue. The information should be held at a designated place, familiar to relevant staff, until the completion of the flight.

The carriage and use of life jackets, life rafts and first-aid kits are set out in chapter 14 of this guide.

8.8 Crew activities necessary for safe operation

(135.120)

Only activities necessary for conducting the flight safely are to be performed by crew members during take-off, initial climb, final approach or landing.

This does not apply to medical transport specialists during medical transport operations. A medical transport specialist may provide patient care if they are satisfied it is an essential activity and it does not affect the safety of the aircraft.

You need to ensure that crew members perform only necessary activities during specific phases of a flight i.e. take-off, initial climb, final approach or landing. The underlying principle is for flight crew to focus on the task of flying the aeroplane, specifically in critical and high workload phases of flight. This is known as the 'sterile cockpit' rule. The rule applies to all crew. During the 'sterile cockpit' phase, the following should be observed:

- flight crew should restrict activities to essential operational matters only
- non-ATC radiocommunications should not be conducted unless operationally necessary
- conversations unrelated to flight operations should not occur
- if fitted, crew should make use of headsets and boom microphones for the purpose of all radiocommunication
- other crew (if carried) must not engage with the flight crew unless it is for an operational or safety-related item.

Due to the close proximity of passengers in many smaller aeroplanes and the ability for them to talk with the pilot at any time, passengers must be briefed that the pilot will be busy and unable to talk with them during take-off, climb, approach and landing. The passenger brief should include a discussion on an agreed signal that indicates that the flight crew are busy. Your exposition should include instructions regarding the briefing of passengers in these situations.

8.9 Flight crew seat authorisation and briefing

(135.130)

Flight crew seats may only be occupied during a flight by:

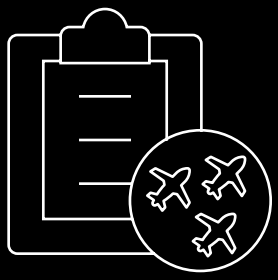
- flight crew members assigned by you
- other crew members if authorised to occupy the crew seat by you and the PIC
- an authorised officer who is carrying out an audit, check, examination, inspection or test
- a person who is permitted to occupy the flight crew seat by your exposition.

These persons may occupy a crew seat provided the PIC ensures they have been briefed on the relevant safety procedures before the flight.

The PIC must be satisfied that the person occupying the seat will not cause a distraction for flight crew and will not interfere with the operation of the aeroplane.

The following matters should be included in the safety brief for persons occupying a flight crew seat:

- an acceptable method to enter and exit the seat and when to do so
- the importance of remaining clear of aeroplane controls and where/what they are
- the operation of the seat belts/harnesses and how to fasten and remove them
- the operation of any emergency equipment or exits and when to use them
- an acceptable method for communicating with the crew
- the requirements relating to sterile cockpit procedures developed by you to comply with section 8.8 of this guide.



CHAPTER 9
FLIGHT PREPARATION

9.1 Overview

This chapter details the requirements for flight preparation for your operations. It covers the responsibilities of you and the pilot to ensure that all necessary planning, performance, weather, fuel, and documentation checks are completed before each flight.

Proper preparation ensures the flight can be conducted safely, efficiently, and in full compliance with regulatory requirements.

9.2 Flight preparation requirements

(135.140)

Your exposition must contain procedures which ensure that, during flight preparation, you meet the weather assessment and alternate aerodrome requirements for the flight.

You must tailor your exposition procedures to suit your individual circumstances and to meet the requirements of the regulations regarding safety briefings, instructions, and demonstrations.

The procedures contained in your exposition should require the PIC to follow a flight preparation process that includes:

- obtaining and interpreting weather forecasts
- using forecast data to determine fuel and alternate requirements.

This process should also outline to flight crew your recommended methods of obtaining, using and updating this information.

In larger or more complex operations, these duties may be delegated to other personnel. They would follow a standardised procedure written in your exposition to provide the flight crew with an operational plan after assessing the weather and alternate requirements. In this case, the exposition would need a procedure for the PIC to verify that the preparation met regulatory requirements.

9.3 Flight planning and operational flight plans

(135.145, MOS 4.01 and 4.02)

An operational flight plan is your plan for the safe conduct of a flight. Your exposition must have procedures specifying when the PIC must complete a flight plan and the methods by which this is done.

You and the PIC must ensure all flights are planned and prepared. An operational flight plan is required if the flight is conducted:

- under the instrument flight rules (IFR)
- under the visual flight rules (VFR) at night
- more than 50 NM from the departure aerodrome.

The flight plan must consider:

- the safety of the aeroplane and the people onboard
- the aeroplane's performance
- the expected operating limitations and conditions for the flight
- the weather conditions for the flight.

The flight plan must include:

- the aeroplane's registration mark
- the flight number (if there is one)
- the date of the flight
- the name or identification of the departure aerodrome and planned destination aerodrome
- the name or identification of the planned destination aerodrome (if applicable)
- whether the flight is VFR flight at night, IFR, or both
- the amount of fuel required and the actual amount of fuel on board (see chapter 12 of this guide for more specific information regarding this requirement)
- the route for the flight including waypoints, distances and tracks
- for night VFR or IFR flights, the lowest safe altitudes (LSALTs) for each route segment
- the planned cruising speed and flying times between waypoints
- the planned altitudes or flight levels for each flight segment.

If a destination alternate is required to be planned, the operational flight plan must include details of the destination alternate aerodrome. These details include the routes or route segments required for the flight to the destination alternate. This requirement does not apply if:

› there is a last-minute change to the destination alternate or a last-minute change that requires a destination alternate to be planned for

› it is not reasonably practical (given the circumstances) to update the flight plan.

You must also ensure there are procedures in your exposition to ensure the PIC is notified of the details of the destination alternate before take-off for the flight .

After the flight, the PIC must ensure the flight log shows:

› the estimated time flown over waypoints required to be reported to Air Traffic Services (ATS)

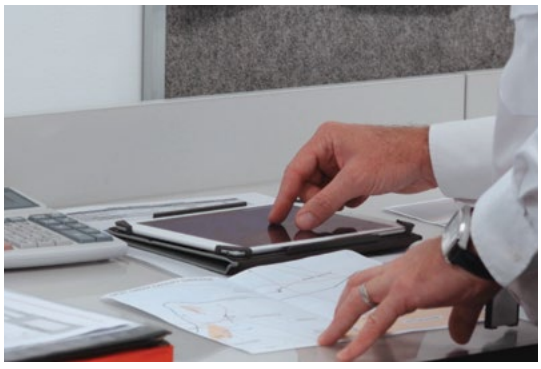
› fuel calculations (see chapter 12 of this guide)

› the final landing aerodrome.

You and the PIC must ensure this information is recorded in the operational flight plan before the flight begins. If it is not practicable to record this information, then it must be recorded as soon as possible after the flight ends.

Information required to be recorded in a flight plan may be recorded in another document (kept by you) or readily available to you from another source. In this case, this information is not required to be recorded on the flight plan.

A journey log, as described in section 7.9 of this guide, can be used to meet these recording requirements.



9.4 Availability of flight planning information

(135.150)

Before a flight commences you must ensure the PIC, and all personnel involved in planning and operational control of the flight, have access to the following information:

› authorised weather forecasts and reports in relation to the flight and the destination alternate (if one is required)

› NOTAMs for the flight

› the suitability of the planned departure, destination and alternate aerodromes for take-off or landing.

This may include access to a dedicated flight planning facility, or making use of suitable electronic equipment such as laptops, tablets, EFBs etc.

Your exposition must contain the required procedures for flight crew and operations personnel to access and use flight planning information when conducting flight planning at:

› your main base of operations

› all satellite locations

› ad-hoc facilities.

For the duration of the flight, you must ensure the PIC and any personnel involved in flight re-planning or operational control continue to have access to this information.

The requirements of this section are relevant only to the pre-flight planning phase. Once a flight begins, the PIC is able to change the planned destination to a different location, provided the new location is also safe to land at, the route is safe for the diversion and the aeroplane continues to have enough fuel to reach that location with minimum fuel reserves left intact.

9.5 Alternate aerodromes

Take-off alternate aerodromes (135.180)

This section applies to you and the PIC of a multi-engine IFR passenger transport operation or medical transport operation if, at take-off, the aircraft cannot return to the departure aerodrome because:

- the visibility and cloud ceiling height at the departure aerodrome will be less than the landing minima requirements for the aerodrome for at least one hour after take-off
- any other reasons.

In the circumstances above, the flight plan must include a suitable take-off alternate aerodrome that meets the following requirements:

- The authorised weather forecast for the take-off alternate aerodrome indicates the visibility and cloud ceiling height at the aerodrome meet the landing minima requirements for the aerodrome for at least one hour after take-off.
- The take-off alternate aerodrome is within the distance from the departure aerodrome that the aeroplane can fly in one hour at the one-engine inoperative cruising speed.

Note: The above does not apply if the flight is a medical transport operation that carries enough fuel to either:

- reach the planned destination
- comply with the flight preparation requirements for reaching the destination alternate aerodrome (if required).

The intent of relaxing the requirements for medical transport operations is to allow flights with a time-critical requirement to depart without a take-off alternate.

IFR flights planned without a destination alternate aerodrome (135.190)

This section applies to an IFR flight where the operational flight plan does not include a destination alternate aerodrome at the time of the flight.

The PIC must not continue the flight to the planned destination if at any time during the flight:

- an authorised weather forecast for the destination is received and because of that forecast a destination alternate is now required
- the aeroplane does not have enough fuel to divert to another suitable aerodrome if a landing at the destination is not possible.

Note: The above does not apply if either:

- the authorised forecast is received within 30 minutes of the estimated time of arrival at the destination aerodrome and the weather forecast indicates that the visibility or cloud ceiling height at the planned destination aerodrome is expected to be:
  - below the alternate minima for the planned destination aerodrome required by the flight preparation (alternate aerodromes) requirements but
  - above the landing minima required by the landing minima requirements for the planned destination aerodrome
- the aeroplane is carrying sufficient fuel to allow it to hold near the planned destination aerodrome until 30 minutes after the visibility and cloud ceiling height is expected to be at or above the specified landing minima for the aeroplane for the aerodrome.

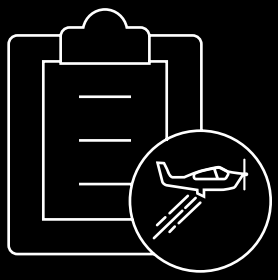
Alternate aerodrome requirements to remote islands (135.185 and MOS 5.01)

If you are conducting a passenger transport operations or medical transport operation in multi-engine aeroplanes to a remote island you must ensure that the PIC nominates a destination alternate aerodrome before the flight begins.

Note: The nominated destination alternate aerodrome must not be located on a remote island unless you have approval from CASA.

The following are classified as remote islands within Australia:

- Christmas Island
- Cocos (Keeling) Islands
- Lord Howe Island
- Norfolk Island.



CHAPTER 10
AERODROMES

10.1 Overview

This chapter provides information and details on:

- the procedures required to determine information about aerodromes
- the safety procedure requirements when operating at an aerodrome.

10.2 Determining information about aerodromes

(135.195)

Your exposition must include:

- procedures for determining information for the:
  - departure aerodrome
  - planned destination aerodrome
  - destination alternate aerodrome (if required)
- procedures for the PIC to plan a take-off from, or a landing at, an aerodrome including the following:
  - runway or strip lengths, width, directions, slopes, surface types for the aerodrome
  - the location of taxiways and turning nodes (if any)
  - the aerodrome's elevation
  - the location of the aerodrome reference point (if any)
  - the location of the aerodrome's windsocks (if any)
  - any aids to navigation and communication facilities available at the aerodrome
  - any limitations on the use of the aerodrome
  - any special procedures in use at the aerodrome, in flight or on the ground or water
  - a contact person capable of providing information about the condition of the aerodrome
  - any special procedures and restrictions that you require the flight crew to use at the aerodrome, including:
    - engine failure procedures
    - obstacle clearance procedures.

Aerodrome information for certified, registered and military aerodromes is published in the ERSA and Jeppesen Airways Manual, with updates provided via NOTAMs. To meet these requirements, you can elect to include the ERSA and/or the Jeppesen Airways Manual as part of your exposition.

Other aerodromes, such as ALAs, may be uncertified and may have little or no information published. These aerodromes may not be subject to regular inspection or notifications by NOTAM. In some cases, you may require permission from the owner or occupier of the area prior to use.

Exemption CASA EX67/24 – Part 91 of CASR Supplementary Exemptions and Directions Instrument 2024 contains a direction at paragraph 11 that the following requirements apply before operating a flight into, out of, or at a military or joint military/civil aerodrome:

- you must obtain permission from the relevant military authority
- you and the PIC must adhere to all applicable conditions set by the military authority, provided they do not conflict with civil aviation legislation.

Both you and the PIC must comply with the aerodrome's authorised aeronautical information for operations at joint military/civilian aerodromes unless such requirements contradict civil aviation legislation.

10.3 Safety at aerodromes

(135.200)

Your exposition must include procedures to ensure the safety of all persons in the vicinity of the aeroplane when:

- a person is embarking or disembarking the aeroplane
- a passenger is embarking or disembarking, or onboard, the aeroplane while an engine is operating (when the aeroplane is not being flown or fuelled)
- the aeroplane is being loaded or unloaded
- the aeroplane is being operated at an aerodrome.

The safety of passengers is paramount. Even regular passengers must be provided with clear and easy-to-follow directions. All passengers should be marshalled and supervised while airside. To ensure airside passenger movements are properly controlled, procedures for escorting passengers on the aerodrome apron should be included in your exposition. You should also develop procedures to ensure aeroplanes are parked in a place that avoids exposing passengers to hazardous conditions.

You should also consider the requirements of the Aviation Transport Security Regulations 2005.

You must also ensure all personnel whose duties include working in the vicinity of an aeroplane, are appropriately trained to perform their duties safely.

10.4 Use of narrow runways

(CASR 121.220 and Chapter 6 of the Part 121 MOS)

If an aeroplane is used for a Part 135 flight and operates on a narrow runway, you and the PIC must ensure the aircraft flight manual includes instructions on how to safely use narrow runways.

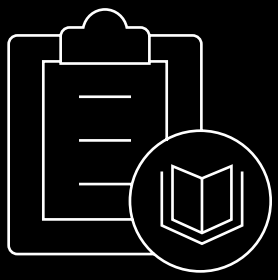
Your procedures must include:

- instructions for taking off and landing on narrow runways
- training requirements for pilots to ensure they can handle these operations correctly.

This applies if the aeroplane meets the following conditions:

- it is taking off or landing on a runway
- the runway is narrower than the standard width for the aircraft (as defined in Part 121 MOS)
- the MTOW is greater than 5,700 kg
- the aeroplane type certification (from its country of manufacture) was issued on or after 1 March 1978.

Note: Instrument CASA EX71/24 – Part 135, Subpart 121.Z and Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024 contains a direction in Paragraph 19 requiring certain Part 135 aircraft operations to comply with the requirements of regulation 121.220 and Chapter 6 of the Part 121 Manual of Standards (MOS).



CHAPTER 11
FLIGHT RULES

11.1 Overview

This chapter covers details regarding:

- flight distance limitations from aerodromes
- take-off and landing minima
- flights to/from foreign countries that do not use ICAO procedures
- authorised instrument approach procedures not listed in the AIP
- exposition requirements for low-visibility operations
- minimum height rules for medical transport operations.

11.2 Flight distance limitations

(135.035 and MOS 2.01)

If a multi-engine aeroplane suffers an engine failure, the aeroplane may need to be landed as soon as practicable.

To enable this to occur (at all times during flight):

- a piston-powered, multi-engine aeroplane with a MTOW of more than 5,700 kg must be within 60 minutes flight time, at the relevant cruising speed, of an adequate aerodrome
- a turbine-powered, multi-engine aeroplane with a MTOW of more than 5,700 kg must be within 180 minutes flight time, at the relevant cruising speed, of an adequate aerodrome. This does not apply if you hold an approval otherwise. See section 1.2 of this guide.

Relevant cruising speed means the one-engine-inoperative cruising speed, in International Standard Atmosphere (ISA) conditions and still air, stated in your exposition.

11.3 Take-off and landing minima

(135.155)

Your exposition must include procedures for determining take-off and landing minima for IFR flights.

The take-off minima:

- must not be less than those prescribed for the aerodrome
- must be sufficient to enable the PIC to control the aeroplane if it is necessary to conduct a rejected take-off in adverse circumstances
- for a multi-engine aeroplane – it must be sufficient to enable the PIC to control the aeroplane if it is necessary to conduct a continued take-off after the failure of an engine or, if applicable, the critical engine.

The landing minima must not be less than the landing minima prescribed for the aerodrome, including for an approach with visual circling.

For IFR flights to or from an aerodrome with an approach involving visual circling, your exposition must include procedures for determining the landing minima.

When developing your exposition procedures you should consider:

- the type, performance and handling characteristics of the aeroplane and any conditions or limitations stated in the flight manual
- the composition of the flight crew including their competence and experience
- the dimensions and characteristics of the runways which may be selected for use
- the adequacy and performance of the available visual and non-visual ground aids
- the equipment available on the aeroplane for navigation, acquisition of visual references and/or control of the flight path during the approach, landing and the missed approach
- the obstacles in the approach and missed approach areas
- the obstacle clearance altitude/height for the instrument approach procedures
- the method used to determine and report meteorological conditions
- the obstacles in the climb-out areas and necessary clearance margins
- any conditions prescribed in the operations specifications
- any minima that may be required by the state of the aerodrome.

You may choose to assess these factors using a risk assessment.

If international operations are conducted in countries where the local regulations have different criteria for the take-off and landing minima, your exposition should detail how the criteria used to establish your minima vary from those in use locally.

11.4 IFR flights to or from foreign countries that do not use ICAO procedures

(135.160)

For instrument meteorological condition (IMC) operations in a foreign country, your exposition must contain instrument departure and approach procedures published by the aviation authority of any country that does not design its instrument approach and departure procedures in accordance with ICAO Document 8168 (PANS OPS).

Note: Pilots should be aware that there are differences in obstacle clearance criteria between procedures designed in accordance with ICAO PANS-OPS and US TERPS. This is especially the case for circling approaches where the assumed radius of turn, and minimum obstacle clearance, are markedly different.

11.5 Authorised instrument approach procedures not in the AIP

(135.165)

If your operations include instrument approach procedures to an aerodrome where the procedures are not published in the AIP, the procedures must be included in your exposition.

Part 173 of CASR allows your organisation to use an authorised or certified Part 173 design organisation to develop your own instrument approach procedures. Once an instrument approach procedure has been authorised, you may use the procedure if it is included in your exposition.

11.6 Exposition requirements for low-visibility operations

(135.170)

If you intend to conduct low-visibility operations, your exposition must include:

- the type of low-visibility operations that may be conducted
- the aircraft systems required for each type of low-visibility operation
- the aerodrome facilities required for the operations
- the training and qualifications required by flight crew members for each type of low-visibility operations
- the requirements to be met by the flight crew members during the operation.

If you do not intend to conduct low-visibility operations, this should be clearly stated in your exposition.

Low-visibility operations are:

- a low-visibility take-off (LVTO) (i.e. a runway visual range of less than 550 m)
- an approach using minima less than the category I (CAT I) minima published in the AIP for the runway in use.

Guidance on low-visibility operations is contained in AC 91-11 Aeroplane low visibility operations - conduct and approvals and AC 91-12 Conduct of practice of auto-land operations.

11.7 Stabilised approach requirements

(135.175)

Your exposition must include procedures and the criteria for stabilised approaches to land at an aerodrome.

Your exposition should clearly define the heights at which the aircraft must meet any specific stabilised approach criteria.

For example.

VFR flights generally, and IFR flights conducting a visual approach from LSALT:

- for a typical VFR single-engine piston aeroplane:
  - by and after 500 ft AGL the aircraft should be configured with flaps 30 degrees, airspeed 70 kts +/-5 kts, power as required for a 3-degree approach
  - after 300 ft AGL the aircraft should be fully configured with flaps 40 degrees, airspeed 65 kts +/-5 kts
- for a typical light piston twin-engine aeroplane:
  - at 1,000 ft AGL: flaps 30 degrees, gear down, airspeed 85 – 95 kts
  - by and after 500 ft AGL: flaps 30 degrees, airspeed 85 kts +/-5 kts, power as required for a 3-degree approach
  - when landing assured: flaps 40 degrees, airspeed 80 kts +5/-0 kts.

IFR flights conducting instrument approaches that do not become visual before the LSALT:

- for a typical single-engine piston aeroplane conducting a normal landing:
  - by and after 1,000 ft AGL: approach flap, airspeed 70 kts +/-5 kts, power as required for a 3-degree approach or instrument approach descent profile
  - after becoming visual and committing to landing: landing flap, airspeed 65 kts +/-5 kts
- for a typical light piston twin-engine aeroplane conducting a normal landing:
  - at 2,000 ft AGL: approach flap, gear down, airspeed 85 – 95 kts
  - if single-engine performance is adequate:
    - by and after 1,000 ft AGL: landing flap, airspeed 85 kts +/-5 kts, power as required for a 3-degree approach or instrument approach descent profile
    - when visual and committed to landing: landing flap, airspeed 80 kts +5/-0 kts
- if single-engine performance is marginal:
  - by and after 1,000 ft AGL: approach flap, airspeed 85 kts +/-5 kts, power as required for a 3-degree approach or instrument approach descent profile
  - after becoming visual and committing to landing: landing flap, airspeed 80 kts +5/-0 kts.

Note: The airspeeds in the above examples are listed for illustration purposes only. You must adjust airspeed and configuration parameters to suit the aircraft type and circumstance.

Standard operating procedures should include a policy on the criteria for a mandatory go-around. This policy will normally require that a go-around is required if an approach is not stabilised or has become destabilised at any subsequent point after a specified minimum height during an approach. You should reinforce this policy through training and state the policy within your exposition.

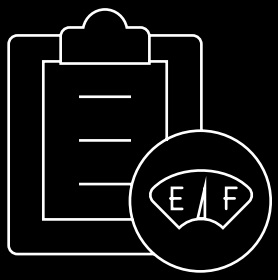
Explainer: Stabilised approaches

A stabilised approach is one during which several key flight parameters are controlled, within specified ranges, during an approach. Although most frequently thought of as only involving the latter part of an approach, stabilising an aircraft begins much earlier. You should consider adding procedures to your exposition that detail an earlier staged stabilised approach procedure depending on the operational circumstances (weather, type of approach being conducted etc). Conformance with established stable approach criteria is of equal importance to VFR and IFR flights. The parameters include:

- aeroplane configuration
- flight path trajectory
- attitude
- rate of descent
- airspeed
- engine thrust or power setting.

In considering the numerical values of the parameters, you should consult the flight manual and other aircraft manufacturer data in the first instance, considering areas such as what tolerances are provided in calculation data. For example, some flight manuals state that the landing distance calculations are dependent on the aircraft being flown in a specific speed range, and this varies between types. If no flight manual/manufacturer guidance is available, you may consider the parameters specified in the Part 61 MOS, Schedule 8, Table 2.


AMBULANCE



CHAPTER 12
FUEL AND OIL REQUIREMENTS

12.1 Overview

This chapter contains details on fuel and oil requirements for flight planning purposes and includes:

- fuel management procedures to complete a flight safely
- the fuel required before, during and after the flight
- emergency fuel state situations
- fuelling safety procedures
- determining the oil quantity for a flight.

12.2 Fuel requirements

(135.205, 135.215, MOS 7.01, 7.03, 7.04 and 7.05)

Your exposition must:

- include fuel management procedures to ensure there is sufficient fuel onboard to complete a flight safely
- contain procedures to ensure that before a flight begins the PIC has the amount of useable fuel required for the flight on board the aircraft.

The PIC is responsible for monitoring fuel usage and confirming that there is sufficient useable fuel remaining at any time during flight.

You and the PIC are responsible for ensuring that prior to any flight, the amount of usable fuel is determined and recorded on the appropriate documentation. Table 5 details the minimum usable fuel required to be on board for a flight.

Table 5: Usable fuel to be carried on board for a flight

	When a flight commences	At any point of in-flight replanning	At any time to continue the flight safely	If diverting to the planned alternate (unable to land at the planned destination)
taxi fuel	☑			
trip fuel	☑			
trip fuel from that point		☑		
trip fuel from that time			☑	
destination alternate fuel (if required)	☑	☑	☑	
destination alternate fuel from that time				☑
holding fuel (if required)	☑	☑	☑	☑
contingency fuel	☑	☑		
final reserve fuel (see table 6 of this guide)	☑	☑	☑	☑
additional fuel, if applicable	☑	☑	☑	

Note: Any deviation from the planned fuel usage will require in-flight fuel replanning.

If, after the commencement of the flight, fuel is used for a purpose other than that originally intended during pre-flight planning, the PIC must both:

- re-analyse the planned use of fuel for the remainder of the flight
- adjust the parameters of the flight if necessary to continue to meet these requirements.

During a flight, the PIC must perform regular in-flight fuel checks, and at each check:

- determine the amount of usable fuel remaining
- compare planned fuel consumption with actual fuel consumption
- if you have specified a point of in-flight replanning and the flight has not proceeded past that point, determine whether the remaining usable fuel is sufficient to meet:
  - the remaining trip, contingency, holding, alternate and additional fuel requirements
  - if no point of in-flight fuel replanning has been specified (or the point has been passed), then as above, but without the contingency fuel requirement
- determine the amount of usable fuel expected to be remaining when the aeroplane lands at the destination aerodrome.

Table 6: Final reserve fuel requirements

Kind of flight	Type of aeroplane	Final reserve fuel flight time
IFR or VFR	a piston engine aeroplane	45 minutes
IFR or VFR	a turbine engine aeroplane	30 minutes

Also see section 12.4 of this guide for permitted operational variations to fuel calculations.

Explainer: Determining fuel data and operational conditions

Fuel consumption data

When determining the quantity of usable fuel required for a flight, the following fuel consumption data sources must be used:

- the most recent aeroplane-specific fuel consumption data derived from your fuel consumption monitoring system, if available
- the manufacturer's data for the aeroplane.

The manufacturer's data may include electronic flight planning data. The manufacturer's data may be in the flight manual, cruise performance manuals or other publications.

Operational conditions

In determining the quantity of usable fuel required, you and the PIC must each consider the effect of the operating conditions for the proposed flight, including the following:

- the actual (if known or available), or anticipated, weight of the aeroplane
- relevant NOTAMs
- relevant meteorological reports and forecasts
- relevant ATS procedures, restrictions and anticipated delays
- the effects of deferred maintenance items and configuration deviations
- the potential for deviations from the planned flight because of unforeseen factors.

12.3 Procedures if fuel reaches specified amount

(MOS 7.06)

If, at any time, the PIC becomes aware that the amount of fuel would be less than the fuel required in section 12.2 of this guide, they must:

- consider the traffic and operational conditions expected on arrival at:
  - the destination aerodrome
  - the destination alternate aerodrome (if required for the flight)
  - any en route alternate aerodrome
- proceed to any of the above aerodromes that enables the PIC to continue to meet the minimum fuel requirements stated in section 12.2 of this guide.

The PIC must request (from ATS), the duration of any likely delay in landing if unforeseen factors result in an arrival at the destination aerodrome with less than the minimum required fuel for:

- final reserve fuel
- destination alternate fuel (if required).

The PIC must declare to ATS a minimum fuel state if they:

- are committed to land with a minimum fuel amount
- will land with less than the final reserve fuel remaining if there is any change to the existing ATC clearance issued for that aerodrome.

> **Note:** Declaring 'minimum fuel' advises ATS that the aeroplane is committed to its intended landing aerodrome and any change to the clearance could result in landing with less than the final reserve fuel. This is not an emergency, but an indication that an emergency situation is possible should any additional delay happen. The PIC should not expect any form of priority handling because of a 'minimum fuel' declaration. ATS will, however, advise of any expected delays. ATS will advise your fuel status when transferring to other ATS units.

If the PIC becomes aware that the amount of useable fuel remaining on landing at the nearest aerodrome (where a safe landing can be made) would be less than the final reserve fuel, the PIC must declare a situation of 'emergency fuel' by broadcasting 'MAYDAY, MAYDAY, MAYDAY FUEL'.

> **Note:** The fuel emergency declaration is a distress message.

12.4 Operational variations for fuel calculations

(MOS 7.07)

You may use an operational variation if the procedures have been approved by CASA and are included in your exposition.

The operational variation may relate to the calculation of any of the following:

- taxi fuel
- trip fuel
- contingency fuel
- destination alternate fuel
- additional fuel.

> **Note:** An operational variation cannot relate to the calculation of holding fuel or final reserve fuel.

At least 28 days before first using an operational variation you must submit to CASA the following information:

- evidence of at least one of the following, that demonstrates how the operational variation will maintain, or improve, aviation safety:
  - documented in-service experience
  - the results of a specific safety risk assessment that includes the following:
    - flight fuel calculations
    - your capabilities, including:
      - use of a data-driven method that includes a fuel consumption monitoring program
      - the use of sophisticated techniques for determining the suitability of alternate aerodromes
      - specific risk-mitigating measures
- details of the operational variation, including procedures in relation to the use of the operational variation, proposed for inclusion in your exposition.

CASA can direct you to remove or revise the operational variation in your exposition if CASA considers there is insufficient evidence the operational variation would maintain, or improve, aviation safety.

12.5 Fuelling safety procedures

(135.220)

Your exposition must include the following:

- procedures to ensure safe fuelling
- procedures relating to the safety of passengers who are embarking or disembarking, or onboard during fuelling including the normal, emergency and communication procedures to be followed by:
  - flight crew on duty in the cockpit and air crew (if applicable) for the flight
  - any of your personnel who carry out a ground support duty for the flight
- if you permit a person to operate low-risk electronic devices inside the cabin while the aeroplane is being fuelled, procedures to ensure that any effects of radio frequency emissions from those devices have been corrected before an engine is started.

Operational procedures must specify that at least the following precautions are taken:

- one qualified person must remain at a specified location during fuelling operations with passengers onboard (This qualified person must be capable of handling emergency procedures concerning fire protection and firefighting, communications, and initiating and directing an evacuation.)
- two-way communication between the ground crew supervising the fuelling and the qualified personnel onboard must be established (This may be by using the inter-communication system or other suitable means.)
- crew, personnel and passengers must be advised that fuelling is taking place
- seat belt signs must be off
- no smoking signs must be on
- interior lighting must be on to enable emergency exits to be identified
- passengers must be instructed to unfasten their seat belts
- the minimum required number of crew (if applicable) must be onboard and be prepared for an immediate emergency evacuation
- if the presence of fuel vapour is detected inside the aeroplane or any other hazard arises during fuelling, it must be stopped immediately
- provision is made for a safe and rapid evacuation.

12.6 Oil requirements

(135.210)

You and the PIC must ensure there is enough oil on board for the planned flight.

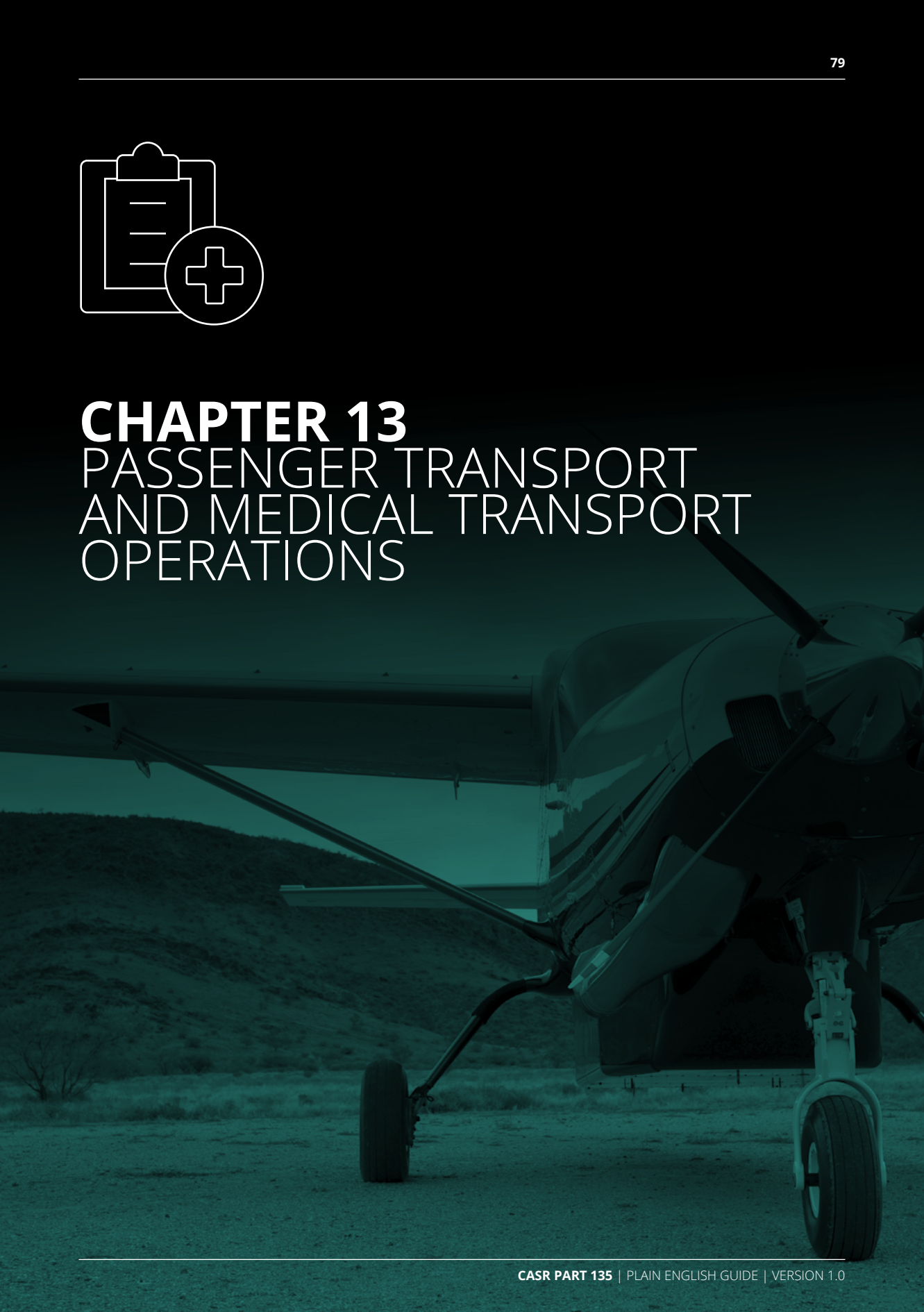
In determining the quantity required, consideration should include items such as:

- the length of the intended flight
- historical oil consumption data for all aeroplane equipment including engines and/or auxiliary power units (APU) (if fitted)
- the method of recording both the consumption and the last level checked
- the number of flights required before a re-supply of oil is required/ obtainable
- the ability to carry or obtain oil for multi-sector flights.

The PIC must know how much oil is on board and be able to estimate oil consumption based on expected flight time and known or published oil consumption rates.

For multi-stage flights it may be necessary to plan an oil uplift between stages.

CHAPTER 13
PASSENGER TRANSPORT AND MEDICAL TRANSPORT OPERATIONS



13.1 Overview

(135.225)

This chapter applies to the operation of an aeroplane for a passenger transport or a medical transport operation and details the requirements for:

- IFR flights
- VFR flights at night
- operations in prescribed single-engine aeroplanes
- decision point and forced landing information
- carrying passengers and restricted persons
- carry-on baggage restrictions and stowage procedures
- the safety briefing instruction and demonstrations before and during flight
- emergency briefings.

13.2 IFR flights

(135.230)

When conducting a passenger transport operation or medical transport operation under the IFR, the aeroplane must be either:

- a multi-engine aircraft
- a prescribed single-engine aeroplane (see section 13.4 of this guide).

13.3 VFR flights at night

(135.235)

When conducting a passenger transport operation or medical transport operation at night under the VFR the aeroplane must:

- be either a multi-engine aircraft or a specific single-engine aircraft that meets regulations
- have a maximum take-off weight (MTOW) less than or equal to 5,700 kg
- have at least one member of the flight crew who holds an instrument rating.

13.4 Emergency or abnormal occurrences with prescribed single-engine aeroplanes

(135.240, MOS 8.01, 8.02, and 8.03)

You are required to publish procedures in your exposition relating to emergency or abnormal occurrences that may occur with prescribed single-engine aeroplane (PSEA) flights conducted under the IFR or VFR at night.

CASA does not require or issue specific approvals for an aircraft to be operated as a PSEA. You are required to determine if the aircraft and its equipment comply with the relevant CASR and MOS provisions relating to the intended operation.

A prescribed single-engine aeroplane (PSEA) is either:

- an aeroplane approved under subparagraphs 714B(2)(d) or 175A(1)(d) of CAR as at or immediately prior to the commencement of the manual of standards
- an aeroplane whose type certificate, type acceptance certificate, or supplemental type certificate, states the aeroplane is eligible to be either:
  - an approved single-engine turbine-powered aeroplane (ASETPA)
  - a PSEA that conducts an IFR flight or a VFR flight at night.

Note: The terms type certificate, type acceptance certificate and supplemental type certificate are defined in Appendix B of this guide.

Additional information can be found in AC 135-13 Prescribed single-engine aeroplanes.

Engine malfunction or failure

(MOS 8.04)

A prescribed single-engine aeroplane may have a malfunction or failure that happens during the take-off and initial climb stage of a flight, which makes it necessary, in the interests of safety, for the PIC to either:

- abort the take-off
- after the take-off stage of the flight:
  - land the aeroplane on a suitable forced landing area if available
  - land the aeroplane on the most suitable terrain for a forced landing in the vicinity of the aerodrome from which it took off if a suitable forced landing area is not available
  - carry out a turn-back manoeuvre.

Note: A turn-back manoeuvre means a manoeuvre by which the PIC turns the aeroplane around after take-off and executes a glide approach to, and landing on, any part of the aerodrome from which the aeroplane took off.

You should include procedures in your exposition to assist pilots in determining if a turn-back procedure is an appropriate response to an engine failure. These procedures should include considerations of a variety of circumstances that may occur during take-off. Every take-off, even from the same aerodrome, will pose different challenges, for example the wind component, take-off weight, ceiling and visibility, and pilot recency. As a result, no predetermined decision can or should be made prior to take-off.

Your training and checking system should provide pilots with the knowledge and skills to assess each take-off as to the likelihood of completing a successful turnback. It should also provide decision-making processes that the pilot should follow when determining if the procedure is the best course of action. As a minimum, you should publish guidance as to the minimum altitude and indicated airspeed required for the manoeuvre under a realistic variety of conditions. You should also consider any differing requirements for IFR and VFR departures.

Decision point (MOS 8.05)

A 'decision point' to abort a take-off must be determined for every take-off.

Note: A decision point for a runway means the last point the aeroplane reaches during take-off, at which the PIC may abort the take-off with a reasonable expectation of stopping the aeroplane without causing injury to a person or damage to property.

Your training and checking system should provide pilots with the knowledge and skills to assess each take-off and provide processes that the pilot should follow when determining the decision point. Decision point determination should take into account:

- runway length
- take-off weight
- terrain
- environmental conditions, including wind, temperature and density
- braking efficiency or factors affecting brake efficiency, such as ice, snow or standing water.

It may not be feasible for your exposition to provide pre-determined decision points for every possible departure runway. Guidance for your pilots concerning decision points should include:

- For departure runways at commonly used aerodromes or those used for scheduled flights, you could determine the point applicable to each runway and publish it in your exposition that is easy for pilots to reference, such as a cockpit route guide or ready reckoner. It might also contain adjustments for ambient conditions and aircraft loading, or other commonly variable factors that affect the selection of the point.
- For non-scheduled flights to ad-hoc destinations, you could include in your exposition a process to be followed by pilots to determine the point, and how pilots can recall and identify the point on the take-off roll.

Forced landing (MOS 8.06)

Your exposition must include procedures and instructions for conducting a forced landing from:

- above 1,000 ft AGL in the after take-off, climb, en route, descent and approach stages of a flight
- 1,000 ft AGL and below.

Each aeroplane type you operate will have different checklist procedures or considerations depending on its configuration and the situation where the engine failure occurs. Your procedures must be suitable for each aeroplane type or kind operated and include considerations for:

- altitude and terrain
- effect of wind
- in the presence or likelihood of icing conditions
- normal, standby or alternate electrical power limitations
- loadshedding
- standby or primary instrumentation limitations
- procedures or patterns to fly to achieve a stabilised glide to arrive in the circuit of an aerodrome, or a selected forced landing area, at 1,000 ft AGL.

Additionally, these procedures should consider the in-flight conditions, including:

- normal VMC glide circuit procedures, in line with AFM instructions
- procedures to track direct to the nearest suitable forced landing area
- glide in IMC to becoming visual with the landing environment, with time to adjust for the touchdown
- glide in IMC to touchdown
- glide at night to touchdown, without runway or ground lighting
- instructions on the best speed, configuration and procedures to achieve minimum impact at touchdown and enhance safety and survivability aspects.

Your exposition must include procedures for gliding to a suitable aerodrome or forced landing area. The procedures need to be relevant to each type or kind of aeroplane and take into consideration the differences in glide performance, or use of high lift or drag devices during the glide approach phase.

Procedures should be designed as memory or recall items and reinforced in your training and checking system. When designing the procedures for conducting a forced landing from altitudes below 1,000 ft AGL, it is highly recommended, due to the very limited time available, that these procedures be simple memory items able to be rapidly executed. This enables the pilot to maximise the chances of a successful outcome.

Engine ignition and performance (MOS 8.07)

You must include procedures in your exposition for the immediate actions, and considerations, for continued flight following:

- an activation of a chip detector warning (an engine oil metal contamination detection system)
- an uncommanded engine shutdown or failure
- an exceedance of an engine parameter
- an activation of an engine fire warning
- engine failure
- electrical load shedding.

The relevant AFM procedures and instructions should be the basis for these procedures.

Suitable route and forced landing areas (135.015 and MOS 8.08)

A PSEA operating an IFR flight or a VFR flight at night can only be outside the glide range of suitable forced landing area for 15 minutes at normal cruising speed. In making this calculation you must consider:

- the nature of the terrain to be overflown
- the weather information
- seasonal and other adverse meteorological influences
- the ditching capabilities of the aircraft.

However, if a flight is in progress, you may extend the 15 minute time period if relevant procedures are contained in your exposition and only under the following circumstances:

- diversion for medical flights
- instrument approach and departure procedures
- compliance with ATS instructions
- if flying outside controlled airspace and the PIC needs to manoeuvre to maintain appropriate separation from other aircraft in the vicinity.

The extension of time is also available if a pilot requests a change in route or altitude in response to an aviation safety-related circumstance, such as the presence of hazardous weather on the planned route. In these types of circumstances in controlled airspace, a pilot may determine that the continued safety of the aeroplane requires action such as holding, diversion or a level change and requests approval to carry out the change to the flight path from ATC. If ATC grants the request, this becomes an ATC instruction. The pilot can operate the flight outside the 15 minute distance while complying with this type of instruction.

This extension of time is not available to the pilot for matters requested by the pilot that are unrelated to aviation safety. An example of this is a change in route to allow direct tracking to shorten flight time. A route change such as this is not permitted if it results in the aeroplane exceeding the 15 minute flight time distance limitation.

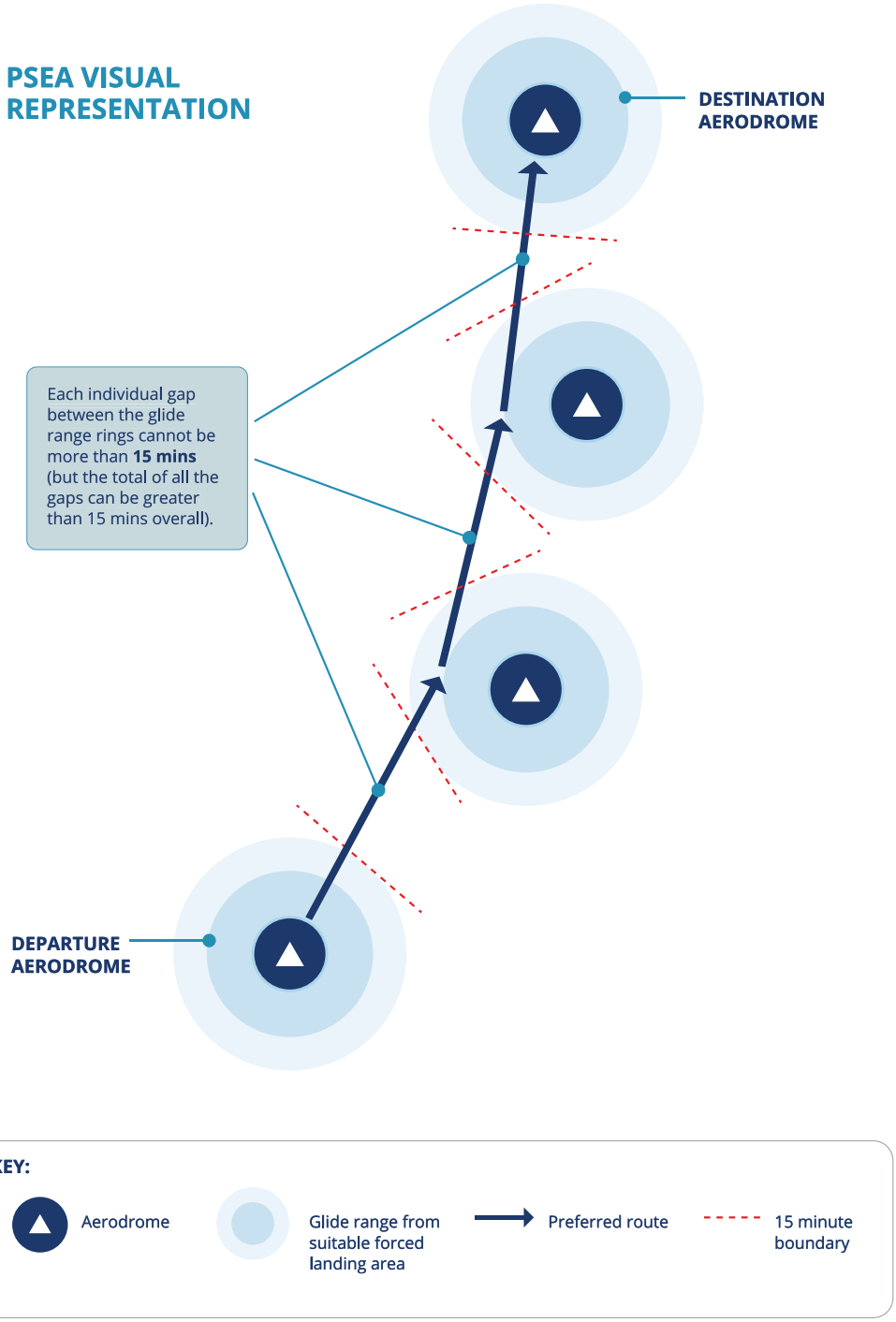
Your exposition must include instructions to flight crew on planning a suitable route for a flight. The instructions should consider:

- the route to be flown and any potential alternate routes and suitable aerodromes or forced landing areas
- the programming of the locations of identified aerodromes and suitable forced landing areas into the aeroplane's navigation system.

The exposition should include procedures for in-flight replanning, which takes into consideration the circumstances managed by the PIC. It should include any restrictions, limitations and considerations for flight along the route, and include:

- considerations for the terrain to be overflown, or company instructions on avoiding overflying certain types of terrain of bodies of water
- weather phenomena that may require a diversion or a change in the normal or planned operating altitude which reduces glide range. When considering weather effects, your exposition should include guidance on:
  - known regular weather events or wind patterns
  - seasonal variation or diurnal variation of weather
  - rare or occasional events (cyclones or tropical revolving storms)
  - widespread areas of icing conducive weather or cloud formations
  - extremes of temperature
  - areas of known or forecast turbulence
- any other event that may take the aeroplane outside of gliding distance of a suitable landing area, or any factors that may affect that range
- air traffic control (ATC) requirements such as established required navigation performance, routes or airspace to be considered when planning routes including instructions to flight crew on:
  - planning routes clear of special use airspace (danger, restricted or prohibited airspace) where possible
  - advising ATC of PSEA requirements if control measures cause tracking or descent, which will limit the glide capability or place the aeroplane over water, unsuitable terrain or into conditions that will affect safe operations.

Figure 2: Visual representation for the selection of a route to minimise reliance on the 15-minute rule.



In figure 2, a more direct route would be available at the planning stage if suitable forced landing areas were to be identified in the relevant areas not covered by the blue circles.

Explainer: (135.015)

Definition of a suitable forced landing area for aeroplane flights:

Ground areas

A suitable forced landing area on the ground is one where an aeroplane can land with a reasonable expectation of no injuries to passengers or people.

Water areas

A body of water qualifies as a suitable forced landing area:

- if the aeroplane is a prescribed single-engine aircraft and the water is closer to land than the distance prescribed in the MOS
- if the aeroplane is certified for water landings through a type certificate or supplemental type certificate.

To be considered suitable, the water area must:

- allow the aeroplane to ditch with a reasonable expectation of no injuries to persons onboard or in the water
- provide a reasonable expectation that persons onboard could survive until rescued
- for a passenger transport operation or medical transport operation, also be one of the following:
  - adjacent to land
  - adjacent to an offshore installation with search and rescue capabilities
  - in a designated location specified in your exposition that has search and rescue capabilities.

Additional considerations

Factors affecting the suitability of a water area include:

- surface conditions such as wave height, wind, and swell
- the capability of life rafts onboard to remain stable in various sea conditions and support survival.

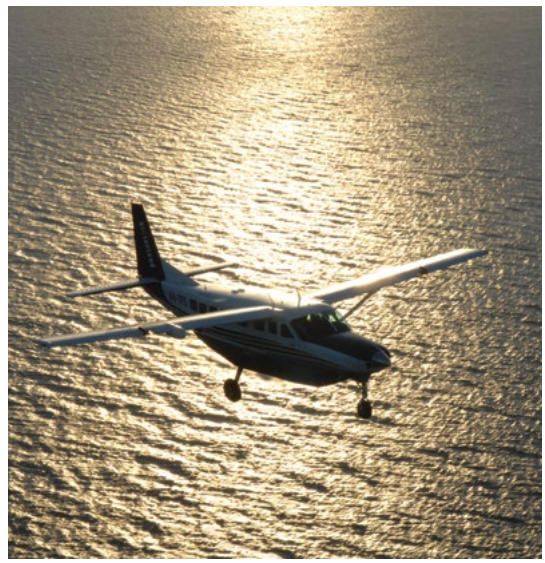
Flights over water for single-engine aeroplanes (135.290)

If you are operating a (non-PSEA) single-engine aeroplane (that does not have a type certificate or supplemental type certificate for landing on water), you must not fly more than 25 NM over water from a suitable forced landing area.

If you are operating a PSEA (that does not have a type certificate or supplemental type certificate for landing on water), you must not fly more than 25 NM over water from a suitable forced landing area.

An aircraft that has a type certificate or supplemental type certificate for landing on water can operate more than 25 NM from land, provided that the flight complies with the requirements of a suitable forced landing water areas.

For further guidance related to ditching, see AC 91-09 Ditching. For further guidance on considerations for PSEAs and the use of suitable forced landing areas on water, see AC 135-13 Prescribed Single-Engine Aeroplanes.



13.5 Simulating emergency or abnormal situations

(135.245)

You and the PIC must not permit simulated abnormal or emergency situations during passenger transport operations or medical transport operations.

13.6 Carrying restricted persons

(135.250)

Your exposition must state whether you permit the carriage of restricted persons.

Restricted persons are:

- deportees
- removees
- persons in custody.

If your exposition states that you will carry restricted persons, then it must also have procedures for:

- carrying a restricted person
- informing each crew member of the carriage of a restricted person.

When developing procedures, you will also need to be aware of the requirements of Division 4.5 of the Aviation Transport Security Regulations 2005.

Additional information is available in Multi-Part Advisory Circular AC 91-19, AC 121-04, AC 133-10, AC 135-12 and AC 138-10 Passenger safety information, and also Multi-Part Advisory Circular AC 121-09, AC 133-06 and AC 135-10 Carriage of special categories of passenger.

13.7 Carry-on baggage

(135.255)

Your exposition must contain procedures for:

- determining the maximum weight and size of carry-on baggage that can be taken on the aeroplane
- determining how and where carry-on baggage can be securely stowed
- giving instructions to passengers about securely stowing carry-on baggage:
  - before take-off
  - before landing
  - at any other time that the PIC directs.

Note: This requirement does not apply to medical transport operations.

Your procedures should ensure that only carry-on baggage that can be adequately and securely stowed is taken into the passenger cabin. Carry-on baggage must only be placed into stowage locations determined suitable by you, such as:

- under a passenger seat, where the stowage compartment has a means of preventing solid articles from shifting forwards
- in any other locker that has been designed to contain solid articles in flight in accordance with the design weight limitation of the locker.

Refer to Multi-Part Advisory Circular AC 121-08, AC 133-08 and AC 135-06 Carry-on baggage for further information.

13.8 Obstruction of emergency exits

(135.260)

You and the PIC must ensure that emergency exits are not obstructed:

- while the aeroplane is taxiing, taking off or landing
- at any time when the PIC advises.

Note: A passenger sitting next to an emergency exit is not deemed to be an obstruction.

Note: For medical transport operations, stretchers installed in accordance with a supplemental type certificate (STC) are not deemed to be an obstruction.

13.9 Passengers in seats adjacent to emergency exits

(135.265)

You and the PIC must be satisfied that each person sitting adjacent to an emergency exit is either:

- a suitable person who can operate the exit and agrees to assist the crew in an emergency evacuation
- accompanied or assisted by a person who can access and operate the exit and has agreed to assist the crew with an emergency evacuation.

A seat adjacent to an emergency exit means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction. Your procedures for allocating emergency exit seats should include criteria for determining which passengers qualify as suitable persons.

Note: This requirement does not apply to medical transport operations.

For further guidance, refer to Multi-Part Advisory Circular AC 121-10, AC 133-07 and AC 135-11 Passengers seated in emergency exit row seats.

13.10 Carrying passengers with reduced mobility

(135.270)

You and the PIC must ensure that passengers with reduced mobility only occupy seats where they do not:

- hinder crew members in the performance of safety-related duties
- obstruct emergency exits or equipment
- hinder emergency evacuation of the aircraft.

This does not apply if the passenger is accompanied or helped by someone seated adjacent to an emergency exit who:

- is accompanying or assisting only that passenger
- has agreed to assist the crew with the evacuation in an emergency.

Your exposition must include procedures for carrying passengers with reduced mobility. This includes procedures for informing crew members of any passengers with reduced mobility.

Passengers with reduced mobility include any person who is likely to require special conditions and assistance to find and use an exit onboard an aircraft in an emergency because the person's mobility is impaired, or the person has another impairment.

For additional information, refer to Multi-Part Advisory Circular AC 91-19, AC 121-04, AC 133-10, AC 135-12 and AC 138-10 Passenger safety information.

13.11 Safety briefing cards

(135.275 and MOS 9.01)

Safety briefing cards are only required for an aeroplane that has more than 2 rows of seats.

You must ensure safety briefing cards are available for each passenger at the beginning of a flight. They must contain the following information and instructions:

- how to use and adjust seatbelts (other than extension belts)
- when to adjust the back of adjustable seats to an upright position, or other position permitted by the aircraft flight manual
- when tray tables, footrests or any other seat attachments must be stowed
- when an attachment fixed on an interior cabin structure for use by passengers during flight (for example, a tray table or bassinet) must be stowed
- when and where to stow or secure carry-on baggage and personal effects
- where the emergency exits are located, and how to use them
- the form, function, colour, and location of any escape path lighting system that has been fitted
- how to assume the brace position, including the position for passengers with infants
- the location and method of use of passenger-operated oxygen dispensing systems (if fitted)
- the location and use of life jackets (if applicable)
- the location and use of life rafts in an initial evacuation (if applicable)
- that smoking is not permitted during the flight.

The only other information that may be included on the safety briefing card is:

- information relevant to the type and model of the aeroplane
- information relevant to the safety of the aeroplane and its passengers.

> **Note:** The storage location of infant life jackets does not have to be mentioned on the safety briefing card, but the card must contain instructions on their use.
>
> **Note:** This requirement does not apply to medical transport operations.

13.12 Safety briefings, instructions and demonstrations

(135.280, 135.285, MOS 9.02 and 9.03)

Before take-off

The safety briefing, instruction or demonstration must take place at one of the following times:

- before passengers board the aeroplane in accordance with your pre-flight boarding procedures
- with passengers on board the aeroplane either:
  - before the engines are started
  - after the engines started but before take-off only if there is another crew member (other than the PIC) who can give the safety briefing, instruction or demonstration without otherwise affecting the safety of the aeroplane.

The safety briefing, instruction or demonstration must be given so that people can apply appropriate safety procedures in the event of an emergency. It must address:

- when seatbelts must be worn during the flight, and how to use them
- if the seats are adjustable, when to adjust the back of the seat to an upright position, or other position permitted by the aircraft flight manual
- if the seats have attachments (e.g. tray tables or footrests) that are intended to be used by passengers, when the attachment must be in its stowed position
- if there is an attachment permanently fixed on an interior cabin structure (e.g. a tray table or bassinet), when the attachment must be in its stowed position

- when and where to stow or secure carry-on baggage and personal effects
- where the emergency exits are located
- where the escape-path lighting is located (if fitted)
- the location of the supplemental oxygen equipment and how to use it (if fitted)
- if life jackets are required to be carried:
  - where they are located
  - a demonstration of how to put one on and inflate it
  - a warning that life jackets must not be inflated inside the aeroplane
- if life rafts are required to be carried:
  - where they are located
  - how to deploy the life raft (if it is intended to be used by a passenger without instructions at the time of use)
- that smoking is prohibited onboard
- that carry-on baggage must be left behind in the event of an emergency evacuation
- the requirement to comply with any safety directions and instructions given by a crew member
- if a safety briefing card is required to be available to each passenger:
  - where it is located
  - if it sets out different seating configurations for the aeroplane, which configuration is in use
- the location of special survival equipment relevant to a specific environment that is intended to be used by a passenger
- when and how to assume the brace position, including the position for passengers with infants.

You may include other information on a safety briefing card only if it is relevant to the type and model of aeroplane of to the safety of the aeroplane and its passengers.

For guidelines on content and standard of safety information to be provided to passengers refer to Multi-Part Advisory Circular AC 91-19, AC 121-04, AC 133-10, AC 135-12 and AC 138-10 Passenger safety information and ICAO Doc 10086 Manual on Information and Instructions for Passenger Safety.

Individualised pre-flight briefings prior to flight

The following passengers must be given specific, direct, individual briefings about the following:

- passengers with reduced mobility and an accompanying or assisting person: what to do if an emergency evacuation is required (after having been asked by a crew member for the best way to help them in the event of an emergency evacuation)
- passengers responsible for infants: when and how to restrain the infant, and the location of infant life jackets
- passengers seated in emergency exit rows: what to do if it is necessary to use the exit.

Note: Passengers seated in emergency rows need not be specifically briefed if a crew member for the flight is seated in a crew station adjacent to the exit and the crew member has been assigned evacuation responsibilities for that exit. This procedure must be as per the procedures detailed in your exposition.

In small aircraft, passengers sit close to the pilot and can talk at any time. They must be briefed that during take-off, climb, approach and landing, the pilot will be busy and unable to talk. Unless there is a safety issue, passengers should remain quiet during these phases. The briefing should include an agreed signal to show when the crew are busy.

During flight, before landing

Safety instructions must be given to passengers before landing. This must be timed to ensure that the passengers can reasonably remember the instructions before the flight ends. The briefing must contain the following instructions:

- seatbelts and restraint systems must be securely fastened for landing
- seat backs must be in the upright position or, for a person who is ill or incapacitated, another position approved by the PIC
- any attachments to a seat, including a tray table or footrest, must be stowed
- any permanently fixed attachment to the interior of the aircraft that is intended to be used or manipulated by passengers (for example, a tray table or bassinet) must be stowed.

Under Part 91, the PIC is also responsible for giving specific directions to passengers in relation to seats during taxi, take-off and landing. These include:

- fastening seatbelts
- ensuring that the seat back is in an upright position, and any seat attachment, such as a tray table or footrest, is stowed.

A direction to fasten seatbelts may be given by an illuminated sign.

A person occupying a seat is not required to fasten their seatbelt if it may be detrimental to the person's health and if the PIC believes that the person is otherwise safely restrained.

A passenger's seat is not required to be in the upright position if the passenger is ill or incapacitated, if the PIC agrees to the passenger not adjusting their seat, and if the person is otherwise safely restrained and will not affect the safety of other passengers.

Safety briefing in the event of an emergency

Your exposition must include procedures for briefing passengers, other than medical patients on medical transport operations, during an in-flight emergency.

CHAPTER 14
INSTRUMENTS, INDICATORS, EQUIPMENT AND SYSTEMS

14.1 Overview

(MOS 11.01)

This chapter describes the equipment required to be fitted to an aeroplane for an air transport flight. The chapter also includes the procedures for use of certain equipment including procedures for when that equipment becomes unserviceable.

This chapter includes information on:

- the minimum flight instruments needed for flight under day VFR, night VFR and IFR
- communication and recording equipment
- operational equipment
- navigational equipment
- automatic pilot
- warning devices, survival equipment and ELTs
- equipment for flights over water and remote areas
- lighting and oxygen systems.

Unless otherwise stated, the requirements in this chapter apply to you as the operator. If there are requirements for the PIC, this will be specified.

> **Note:** In this chapter, unless otherwise stated, a pilot seeing or viewing something means seeing or viewing it from the pilot's normal seated position.

14.2 Requirements relating to equipment

(135.370, 91.935, MOS 11.02, 11.03 and 11.04)

Before an Australian registered aeroplane begins a flight, any equipment that is required to be fitted to, or carried on, the aeroplane must meet the requirements of, or be approved under, Part 21 of CASR (Certification and airworthiness requirements for aircraft and aircraft parts) unless it is:

- an item of equipment used to display the time
- an independent portable light, for example, a flashlight or torch
- a headset
- a portable megaphone
- a sea anchor and other equipment for mooring
- a first-aid kit, an emergency medical kit or a universal precaution kit
- survival equipment, including signalling equipment.

Unless permitted otherwise, equipment required by the regulations must be serviceable for a flight unless the equipment is:

- inoperative because of a defect that has been approved as a permissible unserviceability for the aircraft for the flight
- is fitted or carried in accordance with the permissible unserviceability.

Any equipment used in the cockpit must be usable and visible from the pilot's seat. Any emergency equipment required for a flight must be easily accessible for immediate use in the event of an emergency.

Flight decks designed specifically for single pilot operations need to be carefully assessed for adequacy of instrument visibility, interpretation and usability. Operations with single-pilot cockpits should evaluate the readability of attitude and performance instruments (analogue or electronic flight instrument system (EFIS)) critical for flight path management before using the aircraft for line supervision, training, checking, or testing that involves a second pilot for additional flight path monitoring. If needed, an in-flight assessment should be conducted to ensure the instruments are readable and usable.

Any risk assessment or flight assessment must ensure all information presented by the attitude and performance instrument package in the aircraft (including EFIS trend lines or other trend indicators) can be used by checking and training crew in the non-command or training pilot seat for flight path monitoring.

Before a foreign-registered aeroplane begins a flight, the equipment required to be fitted to, or carried on, the aeroplane must have been approved by the aviation authority of its country of registration.

If equipment is carried on an aeroplane, and it is not required to be fitted or carried, then:

- the equipment need not meet the requirements of, or be approved under, Part 21 of CASR
- for a foreign-registered aeroplane, the equipment need not have been approved by the NAA of the aeroplane's state of registry
- no information or data provided by the equipment may be used by a flight crew member to comply with any requirement of the civil aviation legislation relating to communications or navigation
- the equipment, whether functional or otherwise, must not at any time affect the airworthiness of the aeroplane
- if the equipment is surveillance equipment, whether functional or otherwise, it must not at any time adversely affect the safety of other aircraft or interfere with the proper functioning of an air traffic service.

Note: A minimum equipment list (MEL) (approved under regulation 91.935) allows specified aircraft equipment to be unserviceable within specified limits outlined in this chapter.

Any equipment required by the MOS must be serviceable unless either:

- the MOS allows otherwise
- the defect has been approved as a permissible unserviceability (PUS).

Any conditions and/or time limits detailed in the MOS for operating with certain equipment unserviceable should be detailed in the MEL and be equivalent to or more restrictive than the master minimum equipment list (MMEL) or MOS requirement.

Exemption CASA EX14/25 – Serviceability of Equipment under the Part 91, 121, 133 and 135 Manuals of Standards – Exemption Instrument 2025 provides for additional equipment serviceability provisions which may be applied with the MEL.

14.3 Flight instruments

(MOS 11.05, 11.06 and 11.07)

An aeroplane operating under the visual flight rules (VFR) by day/night or the instrument flight rules (IFR) must be fitted with the appropriate equipment that displays the measurement of specific parameters during flight.

Day VFR flights

An aeroplane operating under the VFR by day must be fitted with the equipment listed in table 7.

Table 7: Day VFR flight instrument fitment

Type of flight	Flight Instruments required
VFR by day (single pilot operation)	› airspeed indicator › pressure altitude indicator › magnetic heading indicator › clock › Mach number indicator (if applicable) › turn and slip indicator › outside air temperature indicator
VFR by day (2 pilot operation)	› 2 x airspeed indicators › 2 x pressure altitude indicators › magnetic heading indicator › clock › 2 x Mach number indicators › 2 x turn and slip indicators › outside air temperature indicator

The equipment must meet the requirements detailed in table 8.

Table 8: Requirements for flight instruments – VFR flight by day

Flight information	Requirements
pressure altitude	the equipment must: › have an adjustable datum scale calibrated in millibars or hectopascals (hPa) › be calibrated in feet. **Note:** If the flight is conducted in a foreign country that measures flight levels or altitudes in metres, calibrated in metres or fitted with a conversion placard or device.
magnetic heading	the equipment must be: › a direct reading magnetic compass or › a remote indicating compass and standby direct reading magnetic compass
time	the equipment must display accurate time in hours, minutes and seconds and be: › fitted to the aeroplane or › worn by, or be immediately accessible to, the pilot for the duration of the flight
Mach number (if applicable)	only for an aeroplane with operating limitations expressed in terms of Mach number

Night VFR flights

An aeroplane operating under the VFR by night must be fitted with the equipment listed in table 9.

Table 9: Night VFR flight instrument fitment

Type of flight	Flight Instruments required
VFR by night (single pilot operation)	› airspeed indicator › pressure altitude indicator › magnetic heading indicator › clock › Mach number indicator (if applicable) › turn and slip indicator › outside air temperature indicator › attitude indicator › vertical speed indicator › stabilised heading indicator › an indicator that shows the supply of power to gyroscopic instruments, if any, is adequate
VFR by night (2 pilot operation)	› 2 x airspeed indicators › 2 x pressure altitude indicators › magnetic heading indicator › clock › 2 x Mach number indicators (if applicable) › 2 x turn and slip indicators › outside air temperature indicator › 2 x attitude indicators › 2 x vertical speed indicators › 2 x stabilised heading indicators › an indicator that shows the supply of power to gyroscopic instruments, if any, is adequate

The equipment must meet the requirements detailed in table 10.

Table 10: Requirements for flight instruments – VFR flight at night

Flight information	Requirements
indicated airspeed	the equipment must be capable of being connected to either: › an alternate static system that: » is selectable by a pilot » includes a selector that can open, or block, the static source and alternative static source at the same time OR › for aeroplanes with a MTOW of 5,700 kg or less – a balanced pair of flush static ports › for an aeroplane with a MTOW of more than 5,700 kg – 2 independent static sources, each consisting of a balanced pair of flush static ports
pressure altitude	the equipment must: › have an adjustable datum scale calibrated in millibars or hectopascals (hPa) › be calibrated in feet **Note:** If the flight is conducted in a foreign country that measures flight levels or altitudes in metres, calibrated in metres or fitted with a conversion placard or device. in addition, the equipment must be capable of being connected to either: › an alternate static system that: » is selectable by a pilot » includes a selector that can open, or block, the static source and alternative static source at the same time OR › for aeroplanes with a MTOW of 5,700 kg or less – a balanced pair of flush static ports › for an aeroplane with a MTOW of more than 5,700 kg – 2 independent static sources, each consisting of a balanced pair of flush static ports
magnetic heading	the equipment must be: › a direct reading magnetic compass or › a remote indicating compass and a standby direct reading magnetic compass
time	› the equipment must display accurate time in hours, minutes and seconds › the equipment must be: » fitted to the aeroplane or » worn by, or be immediately accessible to, the pilot for the duration of the flight

Flight information	Requirements
turn and slip	the equipment must: › display turn and slip information, except where a second independent source of attitude information is available, in which case only the display of slip information is required. › have an alternate power supply in addition to its primary power supply unless one of the following applies: » the equipment has a source of power independent of the power operating other gyroscopic instruments » a second independent source of attitude information is available that has a source of power independent of the power operating other gyroscopic instruments
Mach number (if applicable)	only for an aeroplane with operating limitations expressed in terms of Mach number
attitude	the equipment must have an alternate power supply in addition to its primary power supply unless one of the following applies: › the turn and slip equipment has a source of power independent of the power operating other gyroscopic instruments › a second independent source of attitude information is available that has a source of power independent of the power operating other gyroscopic instruments
vertical speed	the equipment must be capable of being connected to either: › an alternate static system that: » is selectable by a pilot » includes a selector that can open, or block, the static source and alternative static source at the same time OR › for aeroplanes with a MTOW of 5,700 kg or less – a balanced pair of flush static ports › for an aeroplane with a MTOW of more than 5,700 kg – 2 independent static sources, each consisting of a balanced pair of flush static ports
stabilised heading	the equipment must have an alternate power supply in addition to its primary power supply unless: › the turn and slip indicator has a source of power independent of the power operating other gyroscopic instruments or › a second independent source of attitude information is available that has a source of power independent of the power operating other gyroscopic instruments **Note:** A gyro-magnetic type of remote indicating compass meets this requirement if it has a primary power supply and alternate power supply.

IFR flights

An aeroplane operating under the IFR must be fitted with the equipment listed in table 11.

Table 11: IFR flight instrument fitment

Type of flight	Flight Instruments required
IFR (single pilot operations)	› airspeed indicator › pressure altitude indicator › magnetic heading indicator › clock › turn and slip indicator › outside air temperature indicator › Mach number indicator (if applicable) › attitude indicator › standby attitude indicator (only required for a/c >5,700 kg MTOW) › vertical speed indicator › stabilised heading indicator › an indicator that shows the supply of power to gyroscopic instruments, if any, is adequate
IFR (2 pilot operations)	› 2 x airspeed indicators › 2 x pressure altitude indicators › magnetic heading indicator › clock › 2 x Mach number indicators (if applicable) › 2 x turn and slip indicators › outside air temperature indicator › 2 x attitude indicators › standby attitude indicator (only required for a/c >5,700 kg MTOW) › 2 x vertical speed indicators › 2 x stabilised heading indicators › an indicator that shows the supply of power to gyroscopic instruments, if any, is adequate

The equipment must meet the requirements detailed in table 12.

Table 12: Requirements for flight instruments – IFR flights

Flight information	Requirements
indicated airspeed	the equipment must be capable of being connected to either: › an alternate static system that: » is selectable by a pilot » includes a selector that can open, or block, the static source and alternative static source at the same time OR › for aeroplanes with a MTOW of 5,700 kg or less – a balanced pair of flush static ports › for an aeroplane with a MTOW of more than 5,700 kg – 2 independent static sources, each consisting of a balanced pair of flush static ports **Note:** At least 1 unit of equipment for indicated airspeed must include a means of preventing malfunction due to condensation or icing.
pressure altitude	the equipment must: › have an adjustable datum scale calibrated in millibars hectopascals (hPa) › be calibrated in feet **Note:** If the flight is conducted in a foreign country that measures flight levels or altitudes in metres, calibrated in metres or fitted with a conversion placard or device. in addition, the equipment must be capable of being connected to either: › an alternate static system that: » is selectable by a pilot » includes a selector that can open, or block, the static source and alternative static source at the same time OR › for aeroplanes with a MTOW of 5,700 kg or less – a balanced pair of flush static ports › for an aeroplane with a MTOW of more than 5,700 kg – 2 independent static sources, each consisting of a balanced pair of flush static ports
magnetic heading	the equipment must be: › a direct reading magnetic compass or › a remote indicating compass and a standby direct reading magnetic compass
time	› the equipment must display accurate time in hours, minutes and seconds. › the equipment must be: » fitted to the aeroplane or » worn by, or be immediately accessible to, the pilot for the duration of the flight
turn and slip	the equipment must: › display turn and slip information, except where a third independent source of attitude information is available, in which case only the display of slip information is required. › have an alternate power supply in addition to its primary power supply

Flight information	Requirements
Mach number (if applicable)	only for an aeroplane with operating limitations expressed in terms of Mach number
attitude	the equipment must have an alternate power supply in addition to its primary power supply
standby attitude indicator	the equipment must: › have a source of power independent of the electrical generating system › operate independently of other attitude systems continue to operate, without any action by a flight crew member, for a period of 30 minutes following the failure of the electrical power generating system
vertical speed	the equipment must be capable of being connected to either: › an alternate static system that: » is selectable by a pilot » includes a selector that can open, or block, the static source and alternative static source at the same time › for aeroplanes with a MTOW of 5,700 kg or less – a balanced pair of flush static ports › for an aeroplane with a MTOW of more than 5,700 kg – 2 independent static sources, each consisting of a balanced pair of flush static ports
stabilised heading	› the equipment must have an alternate power supply in addition to its primary power supply **Note:** A gyro-magnetic type of remote indicating compass meets this requirement if it has a primary power supply and alternate power supply.

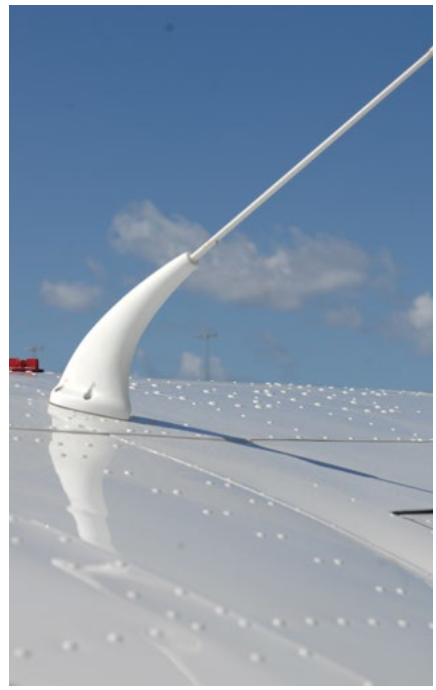
14.4 Radiocommunication systems

(MOS 11.08)

Your aeroplane must be fitted with one radiocommunication system that is capable of continuous communication on all frequencies necessary to meet reporting, broadcast and listening watch requirements.

For a flight in any class of airspace, the aeroplane must be fitted with at least 2 independent radiocommunication systems:

- each capable, under normal operating conditions, of communicating with an appropriate ground station from any point on the route, including in the event of a diversion
- each capable of receiving meteorological information at any time during the flight
- at least one of which must have two-way voice communication capability
- at least one of which must provide for communication on the aeronautical emergency frequency 121.5 MHz.



However, for a VFR flight by day the aeroplane must be fitted with the following radiocommunication systems:

- at least one VHF radiocommunication system
- if a VHF radiocommunication system would not allow for continuous communication with ATS at all stages of the flight then one of the following must be fitted:
  - an additional radiocommunication system capable of continuous two-way communications with ATS or the operator
  - an additional radiocommunication system capable of sending an automatic notification to you or a person nominated by you that notifies you of an emergency and includes information about the aeroplane's general location
- if an additional radiocommunication system is fitted, it must only be used for communications with ATS, you or a person nominated by you, during the flight (this applies when VHF communications with ATS are not available).

Note: Notification may involve relaying signals from the radiocommunication system through various technologies, such as satellite or mobile phone networks.

14.5 Navigation equipment

(MOS 11.09)

To ensure adequate redundancy in navigation equipment during air transport operations your aeroplane must have sufficient navigation equipment so that if any part fails during a flight, the remaining equipment can:

- continue to follow the operational flight plan
- meet the requirements of ATS and the airspace in which the aeroplane is planned to be flown.

Many modern Global Navigation Satellite System (GNSS) units also include a VHF navigation aid function. However, this single unit is not considered 2 separate navigation devices. Another separate unit is needed to control the VHF navigation aids instead of relying on the GNSS head unit.

The pilot and operator must ensure the flight continues safely, adhering to their obligations to ensure flight safety.

- An approved GNSS is either:a GNSS system that is authorised in accordance with one of the following:
  - (E)TSO-C129
  - (E)TSO-C145
  - (E)TSO-C146
  - (E)TSO-C196a
- an authorised multi-sensor navigation system that:
  - includes GNSS and inertial integration
  - is approved, under Part 21 of CASR, as providing a level of performance equivalent to a GNSS system mentioned above.

Note: GNSS equipment authorised in accordance with (E)TSO-C129 is unlikely to support Automatic Dependent Surveillance – Broadcast (ADS-B) position source equipment requirements.

For a night VFR flight, the aeroplane must be fitted with either:

- an approved GNSS
- an automatic direction finder (ADF) or very high frequency (VHF) omnidirectional range (VOR).

For an IFR flight, the aeroplane must be fitted with either:

- 2 approved GNSS
- 1 approved GNSS and either:
  - 1 ADF
  - 1 VOR.

Note: An approved GNSS may not be authorised in accordance with (E)TSO-C129.

The automatic barometric aiding options of an approved GNSS unit must be connected if the GNSS unit is provided with automatic barometric aiding options in accordance with any of the following:

- (E)TSO-C129a
- (E)TSO-C145a
- (E)TSO-C146a
- (E)TSO-C196a.

The navigation equipment must ensure that, if any part fails during a flight, there is sufficient navigation equipment to enable navigation in accordance with both:

- the operational flight plan
- the requirements of:
  - ATS
  - the airspace in which the aeroplane is planned to be flown.

If an aeroplane is fitted with a single GNSS and either an ADF or VOR (or combinations of these), the approved GNSS must not be authorised in accordance with (E)TSO-C129 unless both:

- the aeroplane was manufactured before 6 February 2014
- the GNSS was installed before 6 February 2014.

Note: For an aircraft entering oceanic airspace with RNP 2, RNP 4 or RNP 10 navigation specification capability, refer to subsections 11.03(1B) and (1C) of the Part 91 MOS. The term oceanic airspace is defined in subsection 11.01(2) of the Part 91 MOS.

14.6 Automatic pilot

(MOS 11.10)

An aeroplane operated by a single pilot must be fitted with an automatic pilot when it is either:

- an IFR flight
- a VFR flight at night.

The automatic pilot that has been fitted must have:

- an altitude-hold mode
- a heading mode.

Note: An automatic pilot may be inoperative at the beginning of a flight only if the flight is conducted in VMC by day.

14.7 Equipment to ensure a clear view through the windshield

(MOS 11.11)

An aeroplane must be fitted with equipment to remove precipitation from the area of windshield directly in front of a pilot's seat.

This requirement does not apply to an aeroplane with a MTOW of 5,700 kg or less if the windshield design is such that moderate rain will not impair the pilot's view for take-off, landing or normal flight.

Exemption CASA EX14/25 – Serviceability of Equipment under the Part 91, 121, 133 and 135 Manuals of Standards – Exemption Instrument 2025. Section 8 provides for a period of no more than 10 days an aeroplane may operate without equipment to ensure a clear view through the windshield provided the following conditions are met:

- there is no actual or forecast precipitation within 5 NM of the aerodrome of intended take-off or landing
- the approved MEL must permit flight with the relevant equipment inoperative and is no less restrictive than the conditions listed in this exemption
- low-visibility operations are not conducted.

14.8 Internal doors and curtains

(MOS 11.12)

If an aeroplane has an internal door or a curtain through which a passenger must pass to reach a passenger emergency exit, the door or curtain must be fitted with a means of being secured open.

Additionally:

- a placard must be placed on an internal door and adjacent to a curtain indicating that the door must be secured open during take-off and landing
- there must be a means for crew members to open a door that is accessible to, and lockable by, a passenger.

14.9 Airborne weather radar equipment

(135.295, MOS 11.27 and 11.28)

Airborne weather radar equipment is required for passenger transport operations and medical transport operations flown under the IFR or VFR at night in:

- pressurised turbine engine aeroplanes
- pressurised piston engine aeroplanes with a maximum take-off weight (MTOW) of more than 5,700 kg and required to be flown by 2 or more pilots.

If airborne weather radar equipment is fitted to your aeroplane, then your exposition must contain procedures for:

- the use of the equipment during a flight
- conducting flights without use of the equipment due to the equipment being inoperative.

Airborne weather radar equipment should be operative at the beginning of a flight. Airborne weather radar equipment may only be inoperative at the beginning of a flight if the relevant forecasts or reports indicate no potentially hazardous weather conditions along the planned flight path to the destination and alternate (if specified).

Note: Potentially hazardous weather conditions mean conditions that can be detected by airborne weather radar equipment.

Note: Relevant forecasts or reports means any of the following:

- an authorised weather forecast in relation to the flight
- an authorised weather report in relation to the flight.

Your exposition should include procedures for a weather radar failure. The following should be included:

- Weather forecasts: Consider what the weather is expected to be along the planned route, especially the chances of thunderstorms, heavy cloud or turbulence.
- Day vs night operations: In daylight, crews may be able to see and avoid large cloud formations. At night, this isn't practical, so clear guidance is needed on how to avoid severe weather without relying on visual cues.
- Company guidance: Your exposition should set out clear instructions on avoiding severe weather when the radar is unavailable.
- Weather radar use: While most modern radar manuals are detailed, not all are. You should make sure your exposition includes specific, step-by-step procedures for flight crew to follow when using or managing the weather radar.

14.10 Head-up displays, enhanced vision systems and synthetic vision systems

(135.300)

Your exposition must contain procedures for the use of each system listed in this section if you conduct operations under the IFR or VFR at night and the aeroplane is fitted with the system. The systems are:

- a head-up display
- an enhanced vision system
- a synthetic vision system.

Your exposition must also include procedures for operating the aeroplane when any of these systems are inoperative to ensure continued safe flight.

14.11 Equipment to measure, and record cosmic radiation

(MOS 11.14)

If the aeroplane is to be flown above FL490 it must be fitted with equipment that is readily visible to the flight crew which displays and measures:

- the total cosmic radiation received in the aeroplane cabin
- the dose rate of total cosmic radiation being received during the flight
- the cumulative dose of total cosmic radiation received on each flight.

> **Note:** Total cosmic radiation means the total of ionising, and neutron, radiation of galactic, and solar, origin.

14.12 Cockpit and cabin lighting systems and requirements

(MOS 11.15)

An aeroplane operating at night must be fitted with, or carry, as applicable:

- cockpit lighting that meets the requirements of this section of the guide
- cabin lighting that enables each occupant to see and use:
  - their seatbelt and oxygen facilities (if any)
  - the normal and emergency exits
- an independent portable light accessible from each crew seat or station for each crew member.

Cockpit lighting equipment for night operations must:

- illuminate each item of equipment that may be used by a flight crew member
- illuminate the documents that may be used by a flight crew member including checklists and flight documents
- be compatible with each item of equipment that may be used by a flight crew member
- be arranged in a way that:
  - enables all placards and instrument markings to be read from each flight crew member's normal sitting position
  - each flight crew member's eyes are shielded from direct and reflected light
- be adjustable so that the intensity of the lighting can be varied for the light conditions.

If natural light does not sufficiently illuminate the equipment and documents in the cockpit during the day, cockpit lighting equipment must be used that:

- illuminates each item of equipment that may be used by a flight crew member
- illuminates the documents that may be used by a flight crew member including checklists and flight documents
- is compatible with each item of equipment that may be used by a flight crew member.

A torch carried onboard by the flight crew member is considered to constitute 'an independent portable light' provided that the flight crew member has confirmed on the day of the flight that the torch:

- is serviceable
- provides enough light to properly illuminate cockpit controls, switches and displays for flight crew members to see and operate during normal, abnormal or emergency situations.

14.13 Anti-collision lights

(MOS 11.16)

An aeroplane operating by day or night must be fitted with anti-collision lights consisting of one of the following:

- at least one red beacon light
- at least 2 white strobe lights
- a combination of all the lights mentioned above.

The anti-collision lights must be displayed:

- from immediately before the engines are started until the time the engines are shut down for turbine engine aeroplanes
- from immediately after the engines are started until the time the engines are shut down for any other aeroplanes.

For anti-collision light equipment consisting of a combination of red beacon lights and white strobe lights, the lights must be displayed:

- when taxiing and crossing active runways
- from entering the runway until exiting the runway, or the final approach and take-off area.

Note: If the PIC reasonably believes reflection or glare from the anti-collision lights may cause a hazard to an aircraft, then anti-collision lights may be used at the PIC's discretion.

Exemption CASA EX14/25 – Serviceability of Equipment under the Part 91, 121, 133 and 135 Manuals of Standards – Exemption Instrument 2025. For a period of no more than 3 days an aeroplane may operate without serviceable anti-collision lights provided the following conditions are met:

- the aeroplane must not be operated at night
- the approved MEL must permit flight with the relevant anti-collision light inoperative and is no less restrictive than the conditions listed here in this guide
- your exposition (or MEL) must include procedures for operations on the ground with anti-collision lights inoperative that include:
  - informing ground crew and maintenance personnel when they may, or may not, approach the aeroplane
  - the flight crew is responsible for determining that it is safe to start the aeroplane engines and taxi the aeroplane
- you have procedures in place to notify all ground handling agents and maintenance personnel that the anti-collision lights are not operating and that alternate procedures apply.

Information on ground handling agents and maintenance personnel, as detailed in this section, must be provided at each location of your operation.

14.14 Landing and navigation lights

(MOS 11.17 and 11.18)

An aeroplane operating at night must be fitted with at least:

- either:
  - 2 landing lights
  - a single landing light, having 2 independent and separately energised illumination sources
- navigation lights which must be displayed during a flight or on the movement area of an aerodrome.

14.15 Altitude alerting equipment and assigned altitude indicators

(MOS 11.20 and 11.21)

An aeroplane operating under the IFR must be fitted with altitude alerting equipment if it is:

- a piston-engine aeroplane, or unpressurised turbine-engine aeroplane, operating in controlled airspace above FL150
- a pressurised turbine-engine aeroplane.

The altitude alerting equipment must:

- include an assigned altitude indicator
- alert the flight crew if the aeroplane approaches a preselected altitude
- alert the flight crew, including by an aural warning, if the aeroplane deviates from a preselected altitude.

An aeroplane that is not required to be fitted with altitude alerting equipment that is operating under the IFR in controlled airspace, must be fitted with at least an assigned altitude indicator.

Altitude alerting equipment, or an assigned altitude indicator, fitted to the aeroplane may be inoperative at the beginning of a flight, but only if the flight begins both:

- within 72 hours of the time the equipment or indicator was found to be inoperative
- from an aerodrome at which there is no facility for the equipment or indicator to be repaired or replaced.

In addition, if the aircraft is required to be fitted with an airborne collision avoidance system (ACAS,) the ACAS must be operational (see section 14.17 of this guide).

14.16 Radio altimeters

(MOS 11.21A)

Aeroplanes fitted with a radio altimeter used for conducting low-visibility approaches in Australian territory must meet the following requirements.

The radio altimeter must comply with the requirements for tolerance to radio frequency interference specified for a 'radio altimeter tolerant aeroplane' in FAA Airworthiness Directive AD 2023-10-02 (FAA AD 2023-10-02) 26 May 2024.

14.17 Airborne collision avoidance system

(MOS 11.22, 11.23 and 11.24)

A turbine-engine aeroplane must be fitted with an approved airborne collision avoidance system (ACAS) if it has a MTOW of more than 5,700 kg and was first registered in Australia or elsewhere, on or after 1 January 2014.

The approved ACAS must be activated in a mode that enables a resolution advisory (RA) to be produced for the period from when the aeroplane commences take-off and until the aeroplane lands.

However, if the aeroplane flight manual requires the ACAS to be operated in another mode in specified circumstances, the ACAS may be operated in that mode in those circumstances.

> **Note:** For example, the RA indication mode using traffic advisory (TA) indication (only or equivalent) may be inhibited if this is called for by an abnormal procedure specified in the aeroplane flight manual.

The approved ACAS may be inoperative at the beginning of a flight only if:

- the flight either:
  - begins from an aerodrome at which there is no facility for the ACAS to be repaired or replaced and within 72 hours of the time the ACAS was found to be inoperative
  - is to an aerodrome at which there is a facility for the ACAS to be repaired or replaced
- the aeroplane is required to be fitted with an altitude alerting system or assigned altitude indicator, the system or indicator is not also inoperative.

14.18 Terrain awareness and warning system

(MOS 11.25 and 11.26)

If you are conducting a passenger transport or a medical transport operation under the IFR or VFR flight at night then the aeroplane must be fitted with a terrain awareness and warning system as detailed in table 13.

Table 13: Terrain awareness and warning system (TAWS) requirements

Aircraft	TAWS required
turbine engine aeroplane that either: › has a MTOW of more than 5,700 kg › is carrying 10 or more passengers	TAWS Class A
turbine engine aeroplane that both: › has a MTOW of 5,700 kg or less › is carrying 10 or more passengers	either: › TAWS Class A › TAWS Class B+
piston engine aeroplane that either: › has a MTOW of more than 5,700 kg › is carrying 10 or more passengers	either: › TAWS Class A › TAWS Class B+ › TAWS Class B

A TAWS fitted to an aeroplane may be inoperative at the beginning of a flight if either:

› the flight begins from an aerodrome at which there is no facility for the TAWS to be repaired or replaced within 24 hours of the time the TAWS was found to be inoperative

› an authorised weather forecast indicates that the flight, when operating below minimum height requirements will be conducted in VMC by day.

14.19 Flight data and voice recorders

Requirements for carriage (MOS 11.30, 11.31 and 11.32)

One flight data recorder (FDR) and one cockpit voice recorder (CVR) must be fitted to an aeroplane that has a MTOW of more than 5,700 kg and is either:

› turbine-powered

› of a type first certificated in its country of manufacture on, or after, 1 July 1965.

A CVR must also be fitted to a multi-engine turbine pressurised aeroplane that:

› has a MTOW of 5,700 kg or less

› is type certificated in its country of manufacture for operation with more than 11 seats (including crew member seats)

› was first issued with a certificate of airworthiness after 1 January 1988.

If the aeroplane must be fitted with both an FDR and a CVR, the requirements may be met by the fitment of any of the following combinations:

› 2 combination recorders

› one FDR and one combination recorder

› one CVR and one combination recorder.

FDR, CVR and combination recorder technical requirements (MOS 11.33)

An FDR or combination recorder must comply with one of the following:

› the requirements of Civil Aviation Order 103.19 Instrument 2007

› (E)TSO-C124a.

> **Note:** These standards include the minimum recording time requirements.

A CVR or combination recorder must comply with one of the following:

› the requirements of Civil Aviation Order 103.20 Instrument 2007

› (E)TSO-C123a.

> **Note:** These standards include the minimum recording time requirements.

Technical requirements for FDR, CVR and combination recorders (MOS 11.33 and 11.34)

If your aeroplane is required to be fitted with an FDR, CVR or combination recorder, you must comply with the requirements as detailed in table 14.

Table 14: Technical requirements

	Requirements
FDR or combination recorder	either: › the requirements of Civil Aviation Order 103.19 Instrument 2007 › (E)TSO-C124a
CVR or combination recorder	either: › the requirements of Civil Aviation Order 103.20 Instrument 2007 › (E)TSO-C123a

In addition, the data and/or recording must be maintained as detailed in table 15.

Table 15: Data and voice recording requirements

	Requirements
FDR or combination recorder	› retains its last 25 hours of flight data recording › the recorder data is preserved from the last 2 occasions on which flight data recording was calibrated to enable the determination of the accuracy of recorded data
CVR or combination recorder	retains its last 30 minutes of cockpit voice recording

An FDR (and CVR with a combination recorder) must record continuously from when the aeroplane starts moving until it can no longer move under its own power at the end of the flight.

A CVR (and CVR with a combination recorder) must:

- start to record before the aeroplane first begins moving under its own power for a flight
- start to record as early as possible during the cockpit checks before the engines are started at the beginning of the flight (if electrical power is available)
- record continuously until the termination of the flight when the aeroplane is no longer capable of moving under its own power and the engines have been shut down
- continue recording until as close as possible to the conclusion of the cockpit checks immediately following engine shutdown at the end of the flight (if electrical power is available).

A CVR must continuously record during the period beginning after the engines are started for the flight and ending when the final pilot checklist is completed at the end of the flight, if:

- there is no auxiliary power unit (APU) or other alternative power source
- it is reasonably necessary to preserve the primary power source to start the engines
- the FDR is operated continuously during the period beginning just before the engines are started for take-off and ending when the final pilot checklist is completed at the end of the flight.

An FDR or combination recorder must not be operated during the maintenance of the aeroplane or while an aeronautical product is fitted, unless the maintenance is to the recorder or an engine.

> **Note:** An APU is not an engine unless it can propel the aeroplane.

Flight with an inoperative FDR, CVR or combination recorder (MOS 11.35)

An FDR, CVR or combination recorder may be inoperative at the beginning of a flight only if:

- the flight begins from a departure aerodrome with no facility for the recorder to be repaired or replaced
- one FDR or CVR (whether alone or within a combination recorder) remains operative
- the inoperative FDR, or CVR, has not been inoperative for more than 21 days.

14.20 Crew intercommunication systems

Flight crew intercommunication system (MOS 11.37)

An aeroplane must have a communication system (other than a handheld type) for each flight crew member for the flight that includes, for each pilot:

- one headset
- one microphone.

Where the aeroplane is only required to have one pilot (as per civil aviation legislation or the flight manual), it must also be fitted with both:

- an extra headset
- a microphone that is not a handheld type.

Where the aeroplane is required to have 2 pilots (as per civil aviation legislation or the flight manual), it must be fitted with or carry with an extra headset and microphone that is not a handheld type.

Exemption CASA EX14/25 – Serviceability of Equipment under the Part 91, 121, 133 and 135 Manuals of Standards – Exemption Instrument 2025. Section 8 provides that for a period of no more than 3 days an aeroplane may operate without flight crew intercommunication system provided the following conditions are met:

- the flight must have at least 2 pilots
- the aeroplane must be fitted with one headset, and one microphone that are operating and is not of the handheld type, for each pilot for the flight
- the approved MEL must permit flight with the relevant headsets and microphones inoperative and is no less restrictive than the conditions listed in the exemption.

Crew interphone system (MOS 11.38)

An aeroplane must be fitted with a crew interphone if a crew member occupies a crew station remote from the flight deck. The crew interphone must be accessible for use by:

- a crew member who occupies a flight crew seat in the flight compartment
- a crew member who occupies a crew station separate to the flight deck compartment.

The system must enable any crew member to activate an in-coming call alert that:

- uses aural or visual signals
- distinguishes between normal and emergency calls.

The system must provide two-way communication between the flight crew compartment and each crew station in another compartment of the aeroplane.

14.21 Oxygen equipment and oxygen supplies

Supplemental oxygen – pressurised aeroplanes (MOS 11.40)

A pressurised aeroplane operated at a pressure altitude above 10,000 ft must be fitted with or carry, supplemental oxygen equipment capable of storing and dispensing supplemental oxygen to crew members and passengers as shown in table 16.

If an aeroplane is flying between 13,000 ft and FL250 and it can safely descend to 13,000 ft within 4 minutes at any point along the route and complete the planned flight or it must carry supplemental oxygen for passengers. The required amount of oxygen is either:

- enough to meet the passenger requirements listed in table 16
- enough to supply 10% of the passengers during the time the cabin pressure altitude is between 10,000 ft and 13,000 ft.

Table 16: Supplemental oxygen requirements for pressurised aeroplanes

Person	Supplemental oxygen supply requirements
flight crew members, or assisting crew members	there must be supply for each flight crew member, or assisting crew member, for the period that is the greater of either: › 30 minutes › the period while the cabin pressure altitude exceeds10,000 ft
air crew members	› for any period exceeding 30 minutes when the cabin pressure altitude exceeds 10,000 ft, but does not exceed 13,000 ft there must be supply for each air crew member for the entire period › there must be a supply for each air crew member for the entire period when the cabin pressure altitude exceeds 13,000 ft **Note:** If this period is less than 30 minutes then at least a 30 minute supply is required.
passenger	› during the period when the cabin pressure altitude exceeds 15,000 ft, there must be supply for each passenger for the greater of either: » 10 minutes » the period while the cabin pressure altitude exceeds 15,000 ft › for any period when the cabin pressure altitude exceeds 14,000 ft, but does not exceed 15,000 ft, there must be supply for the entire period for at least 30% of the passengers › for any period when the cabin pressure altitude exceeds 10,000 ft, but does not exceed 14,000 ft, for more than 30 minutes (the first 30 minutes) there must be supply for the period, for at least 10% of the passengers, after the first 30 minutes

Supplemental oxygen must be made available through an oxygen dispensing unit in accordance with the supply requirements mentioned in table 16.

Each flight crew member, and any assisting crew member, must use an oxygen mask that is supplying supplemental oxygen while the cabin altitude exceeds 10,000 ft.

Supplemental oxygen – unpressurised aeroplanes (MOS 11.41)

An unpressurised aeroplane operated at a pressure altitude above 10,000 ft must be fitted with, or carry, sufficient supplemental oxygen to meet the requirements set out in table 17.

Flight crew and assisting crew must use supplemental oxygen as detailed in table 17 under either of the following circumstances:

- when the cabin pressure altitude exceeds 13,000 ft
- if the cabin pressure altitude exceeds 10,000 ft for 30 minutes or more, they must use oxygen during any additional time spent above 10,000 ft.

Table 17: Supplemental oxygen requirements for unpressurised aeroplanes.

Person	Supplemental oxygen supply requirements
flight crew members, or assisting crew members	for any period when the cabin pressure altitude exceeds 10,000 ft, but does not exceed 13,000 ft, for more than 30 minutes (the first 30 minutes) there must be supply for the period, after the first 30 minutes
crew members or passengers	there must be supply for each crew member, or passenger, for the entire period the cabin pressure altitude exceeds 13,000 ft
passengers	for any period when the cabin pressure altitude exceeds 10,000 ft, but does not exceed 13,000 ft, for more than 30 minutes (the first 30 minutes), there must be supply for the period, for at least 10% of the passengers, after the first 30 minutes

Oxygen masks for pressurised aeroplanes (MOS 11.42)

Each pilot in a pilot seat must have access to an oxygen mask that is:

- fitted to the aeroplane
- within immediate reach.

When flying above FL250 at least one pilot occupying a pilot seat must either:

- wear a securely fitted oxygen mask that provides a continuous oxygen supply or automatically activates when the cabin pressure altitude is at 14,000 ft or above
- have access to a mask that they can put on quickly (quick donning), which provides oxygen when worn.

When flying above FL450 at least one pilot occupying a pilot seat must always wear an oxygen mask that provides supplemental oxygen that is either:

- a securely fitted sealed oxygen mask
- a quick-donning mask.

Oxygen dispensing units for passengers in pressurised aeroplanes (MOS 11.43)

Any passenger carried in a pressurised aeroplane must have access to oxygen dispensing units if:

- the aeroplane is of a type that was first issued with a certificate of airworthiness (CofA) or an authorisation equivalent to a CofA, issued by the NAA of a contracting state, on, or after, 9 November 1998
- and the aeroplane is either:
  - flown at or above FL250 at any time during the flight
  - flown below FL250 and cannot safely descend from its flight level to a cabin pressure altitude of less than 13,000 ft within a period of 4 minutes in the event of a cabin depressurisation.

For passengers the following applies:

- the oxygen dispensing units must be automatically deployable
- the units must be immediately available to each passenger on the flight, wherever seated
- the number of dispensing units must exceed the number of passenger seats by 10% (additional units)
- the additional units must be evenly distributed throughout the passenger compartment.

Note: If the aeroplane was issued a CofA prior to 9 November 1998 then the oxygen dispensing units do not need to automatically deploy. However, they must be immediately available to the passenger, and the number of dispensing units must exceed the number of passenger seats by 10% and these additional units dispersed throughout the passenger compartments.

Protective breathing equipment for flight crew members (MOS 11.44)

When a pressurised aeroplane begins a flight, it must be carrying protective breathing equipment (PBE) for each flight crew member. The PBE must:

- protect the wearer's eyes, nose and mouth ensuring that the part protecting the wearer's eyes:
  - does not adversely affect vision in any noticeable way
  - allows corrective glasses to be worn in a normal position
- be able to supply oxygen continuously for at least 15 minutes.

The PBE must be accessible for immediate use at the flight crew member's crew station. The PBE must also not prevent, or be likely to prevent, a flight crew member from effectively using any crew intercommunications, radiocommunications or equipment fitted to or carried on the aeroplane.

> **Note:** The oxygen supply for the PBE for each flight crew member can be provided by the supplemental oxygen equipment required to be fitted to the aeroplane.

Portable breathing equipment for flight crew members (MOS 11.45)

When a pressurised aeroplane is required by the civil aviation legislation or its flight manual to be flown by 2 pilots, it must carry portable protective breathing equipment for each pilot (portable PBE units).

A portable PBE unit must:

- protect the wearer's eyes, nose and mouth ensuring that the part protecting the wearer's eyes:
  - does not adversely affect vision in any noticeable way
  - allows corrective glasses to be worn in a normal position
- be able to supply oxygen, or a mixture of oxygen and another suitable gas, continuously for at least 15 minutes.

Portable PBE units must be located in, or as close as is practicable to, the aeroplane's cockpit.

First aid oxygen equipment onboard pressurised aeroplanes (MOS 11.46)

First aid oxygen is a supply of undiluted oxygen for a passenger who, for physiological reasons, may still require oxygen when:

- there has been a cabin depressurisation
- the amounts of supplemental oxygen supply have been exhausted.

A pressurised aeroplane must be fitted with, or carry, first aid oxygen if it is:

- flown above FL250 at any stage of flight
- conducting a passenger transport operation
- required by regulations or the flight manual to be flown by more than one pilot.

When the aeroplane begins the flight, it must carry enough first aid oxygen that will provide an average oxygen gas flow rate of 3 litres a minute for each person:

- for whichever of the following is the greater number of persons:
  - 2% of the number of passengers carried on the flight
  - one person
- for the period of flight after a cabin depressurisation event during which the cabin pressure altitude exceeds 8,000 ft, but does not exceed 15,000 ft.

The aeroplane must carry enough first aid oxygen dispensing units relative to the number of passengers on board, but in no case less than 2 such units.

An oxygen dispensing unit:

- must be capable of generating a flow rate, calculated assuming dry oxygen gas at standard temperature and pressure dry (STPD), of at least 4 litres a minute for each person
- may have a means of reducing the flow to not less than 2 litres a minute for each person STPD at any altitude.

14.22 Survival equipment procedures

(135.305 and MOS 11.13)

Your exposition must include procedures for determining the relevant survival equipment that is appropriate for sustaining life for the particular area for a flight in or through a remote area.

A remote area means one of the following:

- Central Australia remote area
- Snowy Mountains remote area
- Tasmania remote area.

Remote areas are the areas of Australia illustrated by shading in figure 3, figure 4 and figure 5 and described as detailed below.

'Central Australia remote area' is the area enclosed within the boundary of a line from Kalgoorlie to Leigh Creek, to Bourke, Mt Isa, to Townsville, to Cairns, then following the coast north to Cape Horn, then along the coastline of the Gulf of Carpentaria and on to Darwin, then following the coastline to Anna Plains, then to Wiluna, to Laverton, and back to Kalgoorlie, and:

- includes Australian-administered islands adjacent to the remote area between Cairns and Ana Plains
- excludes the area within a 50 NM radius of Darwin
- excludes the flight corridors within sight of, and not more than, 5 NM from the following:
  - the Stuart Highway between Alice Springs and Darwin
  - the Barkly Highway between Tenant Creek and Mt Isa
  - the Bruce Highway between Townsville and Cairns.

'Snowy Mountains remote area' is the area enclosed within the boundary of a line from Mt Franklin to Tharwa, to Berridale, to Delegate, to Mt Baw, to Jamieson, to Khancoban, and back to Mt Franklin.

'Tasmania remote area' is the area enclosed within the boundary of a line from West Point to Black Bluff, then to 15 NM beyond Cape Bruny, then back to West Point at a distance of 15 NM off the coastline (disregarding bays and inlets).

> **Note:** A line to or from a named town is taken to come no closer than 5 NM from the town centre on the side of the town adjacent to the remote area.

Figure 3: Designated Australian remote area map

Figure 4: Snowy Mountains remote area

Figure 5: Tasmania remote area

You have flexibility to choose equipment that suits the environment, route and circumstances of each flight.

Because of this flexibility, you must:

- assess the environments and locations you fly into
- identify the risks
- decide what survival equipment must be carried for different flights.

Your exposition should set out clear procedures showing how these decisions are made. It should explain the factors and risks considered when deciding which items of survival equipment are required for different types of flights or destinations.

Extra guidance can also be found in Appendix 1 of ICAO Annex 2 (Rules of the Air), which explains internationally recognised pyrotechnic distress signals. For example, both of the following mean a person is in grave and imminent danger and needs immediate help:

- red rockets or shells fired one at a time at short intervals
- a parachute flare showing a red light.

Also see the following sections of this guide:

- section 14.23 Emergency locator transmitters
- section 14.24 Portable emergency equipment
- section 14.25 Equipment for flights over water
- section 14.26 Surveillance equipment.

14.23 Emergency locator transmitters (ELT)

Carriage of ELTs (MOS 11.47)

ELTs are an essential tool for emergency situations and are required to be fitted to or carried on Australian aircraft.

The Australian Maritime Safety Authority (AMSA) is responsible for coordinating search and rescue within Australian territory and maintaining Australia's national beacon registration system.

The process of registering a distress beacon is simple and free. It is crucial to keep your registration details up to date, especially whenever your contact details or emergency contacts change. Registering your distress beacon helps to ensure a more efficient rescue operation in the event of an emergency.

An ELT required to be fitted to or carried on an Australian aircraft must be registered. Pilots and operators can fit or carry ELTs even when not required under the civil aviation legislation. See Multi-Part Advisory Circular AC 91-30, AC 121-12, AC 133-03 and AC 135-14 Emergency locator transmitters and amsa.gov.au/beacons for more details.

An aeroplane must be fitted with an automatic ELT. If the automatic ELT has a switch marked, however described, as 'armed', the PIC must ensure the switch is set to the 'armed' position at the beginning of the flight.

However, if the aeroplane is fitted with an unserviceable ELT and the flight is for the purpose of the replacement or repair of that ELT then the flight is permitted if:

- a survival ELT is carried on the aeroplane for the flight
- no passengers are carried on the flight.

An aeroplane must carry a survival ELT if it:

- is flown 50 NM or less from the departure aerodrome
- is not fitted with an automatic ELT.

A survival ELT must be carried in one of the following locations on the aeroplane:

- on the body of a crew member
- in or near a life raft
- adjacent to an emergency exit used for evacuation in an emergency.

Note: If the aeroplane is required to carry a life raft equipped with a survival ELT, this is additional to the requirement to carry a survival ELT detailed in this section of the guide.

Exemption CASA EX14/25 – Serviceability of Equipment under the Part 91, 121, 133 and 135 Manuals of Standards – Exemption Instrument 2025. For a period of no more than 3 days, an aeroplane may operate without an automatic ELT provided the following conditions are met:

- the operation is not one where carrying life rafts is required
- the approved MEL must permit flight with the relevant ELT inoperative and is no less restrictive than the conditions listed in this guide (i.e. this exemption)
- the operation must be for the purpose (at least in part) to fly the aeroplane to a place for repair, or refitting, of the ELT
- no passengers of any kind are carried.

Basic technical requirements for an ELT (MOS 11.48)

An emergency locator transmitter (ELT) must meet the following requirements:

- when activated, it must transmit simultaneously on 121.5 MHz and 406 MHz
- it must be registered with the Australian Maritime Safety Authority (AMSA) and no other authority
- if it is on a foreign-registered aeroplane it must be registered with the authority of the aircraft's State of registry that is responsible for search and rescue services, and not with AMSA
- it must be coded in accordance with the requirements in Appendix 1 to Chapter 5 of Part II, Voice Communications, in Volume III of ICAO Annex 10, Aeronautical Telecommunications
- if the transmitter is fitted with a lithium-sulphur dioxide battery, the battery must be authorised by the FAA, or EASA in accordance with (E)TSO-C142a.

Requirements to be classed as an automatic ELT (MOS 11.49)

An automatic ELT:

- must auto activate on impact
- must be one of the following types:
  - authorised by the FAA, or EASA, in accordance with (E)TSO-C126
  - authorised by EASA in accordance with:
    - for operation on 121.5 MHz: ETSO-2C91a
    - for operation on 406 MHz: ETSO-2C126
  - approved under Part 21 of CASR as having a performance level equivalent to the transmitter types detailed in this section.

Requirements to be classed as a survival ELT (MOS 11.50)

A survival ELT is:

- able to be removed from the aeroplane
- one of the following types:
  - an emergency position-indicating radio beacon that meets the requirements of AS/NZS 4280.1:2003
  - a personal locator beacon that meets the requirements of AS/NZS 4280.2:2003
  - authorised by the FAA, or EASA, in accordance with (E)TSOC126
  - authorised by EASA in accordance with:
    - for operation on 121.5 MHz: ETSO-2C91a
    - for operation on 406 MHz: ETSO-2C126
  - approved under Part 21 of CASR as having a performance level equivalent to the transmitter types detailed in this section.

14.24 Portable emergency equipment

Handheld fire extinguishers (MOS 11.52)

The following handheld fire extinguishers must be carried onboard your aeroplanes:

- one in the flight crew compartment
- for a maximum operational passenger seat configuration of 7 or more, at least one handheld fire extinguisher located in the passenger compartment
- for a maximum operational passenger seat configuration of not more than 9 in which the PIC and passenger occupy the same space, at least one handheld fire extinguisher readily available to the PIC
- for a cargo or luggage compartment that is accessible in flight and not fitted with a fixed fire and smoke detection and extinguishing system, an additional handheld fire extinguisher located in, or as close as is practicable to, the compartment.

The type and quantity of extinguishing agent must:

- be suitable for the type of fire likely to occur in the compartment where the extinguisher is to be used
- minimise the hazard of toxic gas concentration in occupied compartments.

First aid kits (MOS 11.53)

A first-aid kit must be carried onboard a flight and meet the following requirements:

- contain enough supplies for the number of persons carried on the flight
- be easily recognisable as a first-aid kit
- be accessible by each crew member and adult passenger when the aeroplane is on the ground or water, and not in operation.

14.25 Equipment for flights over water

Mooring equipment and sound signals for seaplanes and amphibians (MOS 11.54)

When a seaplane or amphibian aeroplane take-offs or lands on water, it must carry onboard:

- a sea anchor
- other suitable equipment for mooring.

If the flight is conducted on, or over, water to which the international regulations apply, the aeroplane must also carry equipment for making the required sound signals.

International Regulations are defined as the International Regulations for Preventing Collisions at Sea, 1972, in the Convention on the International Regulations for Preventing Collisions at Sea.

Life jackets (MOS 11.55, 11.56 and 11.57)

Life jackets with whistles for each person and infant flotation devices (that may have a whistle) for any infants on board are required if any of the following apply:

- in the event of an emergency happening during take-off or landing, the aeroplane is reasonably likely to land in water
- the aeroplane is a seaplane or amphibian aeroplane
- the aeroplane is a single-engine aeroplane (other than a seaplane or amphibian aeroplane) being flown over water further than it can safely reach a suitable forced landing area with the engine inoperative
- the aeroplane is a multi-engine aeroplane (other than a seaplane or amphibian aeroplane) being flown more than 50 NM from land that is suitable for a forced landing.

When the aeroplane begins a flight, and the passengers and crew are not wearing a life jacket or flotation device then the following applies:

- infant life jackets or flotation devices must be stored near a responsible person who can easily access them during an emergency evacuation
- passenger and crew life jackets must be stored where they can easily be reached from their seat during an emergency evacuation.

The above does not apply if:

- you have documented emergency procedures in the event of a ditching for the distribution of:
  - infant life jackets or flotation devices
  - a life jacket to a second child occupying a single seat
- the crew responsible for these procedures have successfully completed training in these procedures.

A person (other than an infant) on board a single-engine aeroplane must wear a life jacket if the flight is over water and is further than the distance from which, with the engine inoperative, the aeroplane could reach land.

Note: A person is wearing a life jacket if it is secured to the body in a way that allows the person to put it on quickly and easily in an emergency.

The requirement in this section to wear a life jacket does not apply if the aeroplane is flown:

- over water for the purpose of climbing after take-off from, or descending to land at, an aerodrome and in accordance with a navigational procedure that is normal for the climb, or descent, at the aerodrome
- higher than 2,000 ft above the water.

Life raft carriage requirements
(MOS 11.58)

Under specific circumstances an aeroplane must carry enough life rafts for everyone onboard. When calculating the number of life rafts required to be carried:

- a safe place must be provided for each person on the aeroplane (infants need not be included in this count)
- the capacity of a life raft is the rated capacity specified by the manufacturer for the life raft
- any overload capacity of a life raft is not to be considered when determining its capacity.

Table 18 details when life rafts are required to be carried.

Table 18: Life raft carriage requirements

	Requirement
jet engine aircraft over 2,722 kg MTOW	flights over water beyond the following distances from land that has a safe forced landing area, the shorter of: › the distance the aeroplane would fly in 2 hours of flying at normal cruising speed in still air › 400 NM
propeller turbine multi-engine aircraft over 5,700 kg MTOW	flights over water beyond the following distances from land that has a safe forced landing area, the shorter of: › the distance the aeroplane would fly in 2 hours of flying at normal cruising speed in still air › 400 NM
other multi-engine aircraft	flights over water beyond the following distances from land that has a safe forced landing area, the shorter of: › the distance the aeroplane would fly in 30 minutes of flying at normal cruising speed in still air › 100 NM
single-engine aircraft	flights over water beyond the glide distance to reach a safe landing area on land

When required to be carried, life rafts must:

- be fitted with:
  - a survivor locator light
  - a survival emergency locator transmitter (ELT)
- have ease of access and deployment in an emergency.

All onboard storage locations must have clear signage indicating the presence of a life raft.

A flight conducted over water where a life raft must be on board must carry:

- survival equipment that is appropriate for sustaining life
- signalling equipment e.g. distress signals.

For flights that require the carriage of a life raft your exposition must include procedures for determining the pyrotechnic signalling devices required to ensure that a distress signal can be activated.

Life rafts are, however, not required in the following circumstances:

- flights over water during climb after take-off or descent before landing (using standard navigation)
- flights within 5 minutes flying distance (plus engine-off glide distance) of a suitable forced landing area if your exposition includes measures to reduce the risk to passengers if a forced landing were to occur in other than a suitable forced landing area.

14.26 Surveillance Equipment

Carriage of surveillance equipment (MOS 11.60)

An aeroplane must be fitted with surveillance equipment meeting the requirements relevant to the intended operation and class of airspace detailed in table 19.

Table 19: Surveillance equipment requirements.

Operation	Class of airspace	Requirements
IFR	any (Classes A, B, C, D, E and G)	at least 1 approved ADSB OUT equipment configuration
any (IFR or VFR)	Class B or C (at certain aerodromes)	at least 1 approved Mode S transponder if operating at the following aerodromes: › Brisbane (YBBN) › Sydney (YSSY) › Melbourne (YMML) › Perth (YPPH) **Note:** An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.
VFR	Class A, B, C or E and Class G from 10,000 ft and above	› at least 1 approved Mode S transponder with ADS-B capability for an aeroplane first certified in its country of manufacture, or modified by replacing its transponder, on or after 6 February 2014 › at least 1 approved transponder for any other aeroplane **Note:** An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.
VFR	Class A from FL290 and above	at least 1 approved ADSB OUT equipment configuration

You need to carry a transponder for operations within the new Sydney Class D CTA airspace. For further information see casa.gov.au/sydneyairspace.

Explainer:

ADS-B means automatic dependent surveillance – broadcast.

ADS-B OUT means the functional capability of an aircraft or vehicle to periodically broadcast its state vector (position and velocity), and other information derived from onboard systems in a format suitable for ADS-B IN capable receivers.

Approved transponder means an approved Mode A/C transponder or approved Mode S transponder.

Approved Mode S transponder means a Mode S transponder that is either:

- authorised by CASA, or the NAA of a recognised country, in accordance with TSO-C112 or ETSO-2C112a
- another system approved under Part 21 of CASR as having a level of performance equivalent to a system mentioned above.

Refer to Automatic dependent surveillance-broadcast (ADS-B) | Civil Aviation Safety Authority for further details.

Operation of surveillance equipment – general requirements (MOS 11.61)

An approved transponder must:

- be continuously operated in a mode that enables a secondary surveillance radar (SSR) response to be transmitted when operating as detailed in table 20
- not be operated if instructed so by ATC
- have only one transponder operating at any time (if fitted with multiple transponders).

For each transponder, the Mode A code must be set to either:

- the transponder code assigned by ATC for the flight
- the relevant standard code in table 20 if no transponder code is assigned by ATC for the flight.

Table 20: Transponders: Mode A standard codes

Situation	Mode A code
flights in Class A, B, C or D airspace and IFR flights in Class E airspace	3000
IFR flights in Class G airspace	2000
VFR flights in Class E or Class G airspace	1200
flights in Class G over water at a distance greater than 15 NM from shore	4000
flights engaged in coastal surveillance	7615
ground testing by aircraft maintenance personnel	2100
unlawful interference	7500
loss of radiocommunication	7600
in-flight emergency, unless otherwise instructed by ATC	7700

If an approved transponder capable of reporting pressure altitude is fitted, it must be operated with altitude reporting enabled. Pressure altitude information reported by an approved transponder must be determined by a barometric encoder of a type authorised by CASA, or the NAA of a recognised country, in accordance with ETSO-C88a or another system approved under Part 21 of CASR as having a level of performance equivalent to this.

Flight with inoperative surveillance equipment (MOS 11.65)

An approved transponder may be inoperative at the beginning of a flight if it:

- begins from an aerodrome where there is no facility for the approved transponder to be repaired or replaced
- ends not more than 72 hours after the time the approved transponder was found to be inoperative.

> **Note:** For a flight with an inoperative transponder, within controlled airspace or at a controlled aerodrome, Division 11.2 of the Part 91 MOS has requirements relating to air traffic control clearances. Whether a clearance is issued, or when a clearance may be issued, could be affected by the flight not being conducted with an operative transponder.

Specific requirements for Mode S transponders (MOS 11.62)

An approved Mode S transponder and an approved ADS-B OUT equipment must be configured to ensure:

- the assigned aircraft address is entered into the equipment
- one of the following forms of aircraft flight identification is entered into the equipment (if practicable for the equipment):
  - the aircraft identification mentioned in the flight notification if a flight notification is filed with ATS for the flight
  - the aircraft registration mark if no flight notification is filed with ATS for the flight.

When interrogated on the manoeuvring area of an aerodrome or in flight, an approved Mode S transponder must transmit:

- the assigned aircraft address
- the Mode A code
- the Mode C code
- the aircraft flight identification.

If an approved Mode S transponder transmits any Mode S EHS DAPs, the transmitted DAPs must comply with the standards stated in Table 3 of Volume IV, Surveillance and Collision Avoidance Systems, of ICAO Annex 10.

> **Note:** Australian Mode S SSR supports EHS DAPs. Transmission of Mode S EHS DAPs that are not in accordance with the ICAO standards may provide misleading information to ATC. You need to ensure that EHS DAPs are being transmitted.

Transmission of the aircraft flight identification by an approved Mode S transponder is not required if the aeroplane was certified in the country of manufacture before 9 February 2012.

If an approved Mode S transponder is fitted to an aeroplane (first certified on or after 9 February 2012) that has a certificated MTOW above 5,700 kg or is capable of normal operation at a maximum cruising true airspeed above 250 kts, the transponder's receiving and transmitting antennae must:

- be in the upper and lower fuselage
- operate in diversity, as stated in Volume IV, Surveillance and Collision Avoidance Systems, of ICAO Annex 10.

An aeroplane must not fly in Australian territory if it is fitted with Mode S transponder equipment other than an approved ADS-B OUT equipment configuration, unless the equipment is either:

- deactivated
- set to transmit only a value of zero for the NUCp, NACp, NIC or SIL.

> **Note:** It is considered equivalent to deactivation if NUCp, NACp, NIC or SIL is set to continually transmit only a value of zero.

Requirements and configuration for alternate GNSS position source for ADS-B OUT (MOS 11.63)

For an aeroplane first certified in its country of manufacture on or after 8 December 2016, an alternate GNSS position source is acceptable if the source:

- is certified by CASA, or the NAA of a recognised country, for use in an IFR flight
- has included in its specification and operation the following:
  - fault detection and exclusion (FDE), computed in accordance with the definition in paragraph 1.7.3 of RTCA/DO-229D
  - the output function horizontal protection level (HPL), computed in accordance with the definition of the term at paragraph 1.7.2 of RTCA/DO-229D
  - has functionality that adjusts for GPS signal anomalies as outlined in paragraph 1.8.1.1 of RTCA/DO-229D.

For an aeroplane first certified before 8 December 2016, an alternate GNSS position source is acceptable if the source:

- is certified by CASA, or the NAA of a recognised country, for use in an IFR flight
- has included in its specification and operation the following:
  - fault detection and exclusion (FDE), computed in accordance with the definition in paragraph 1.7.3 of RTCA/DO-229D
  - the output function horizontal protection level (HPL), computed in accordance with the definition of the term at paragraph 1.7.2 of RTCA/DO-229D
  - a functionality that adjusts for GPS signal anomalies as outlined in paragraph 1.8.1.1 of RTCA/DO-229D (this is optional).

RTCA/DO-229D refers to the document titled Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment, dated 13 December 2006, of the RTCA Inc. of Washington D.C. USA (RTCA Inc.).

Requirements and configuration for alternate ADS B OUT equipment configuration (MOS 11.64)

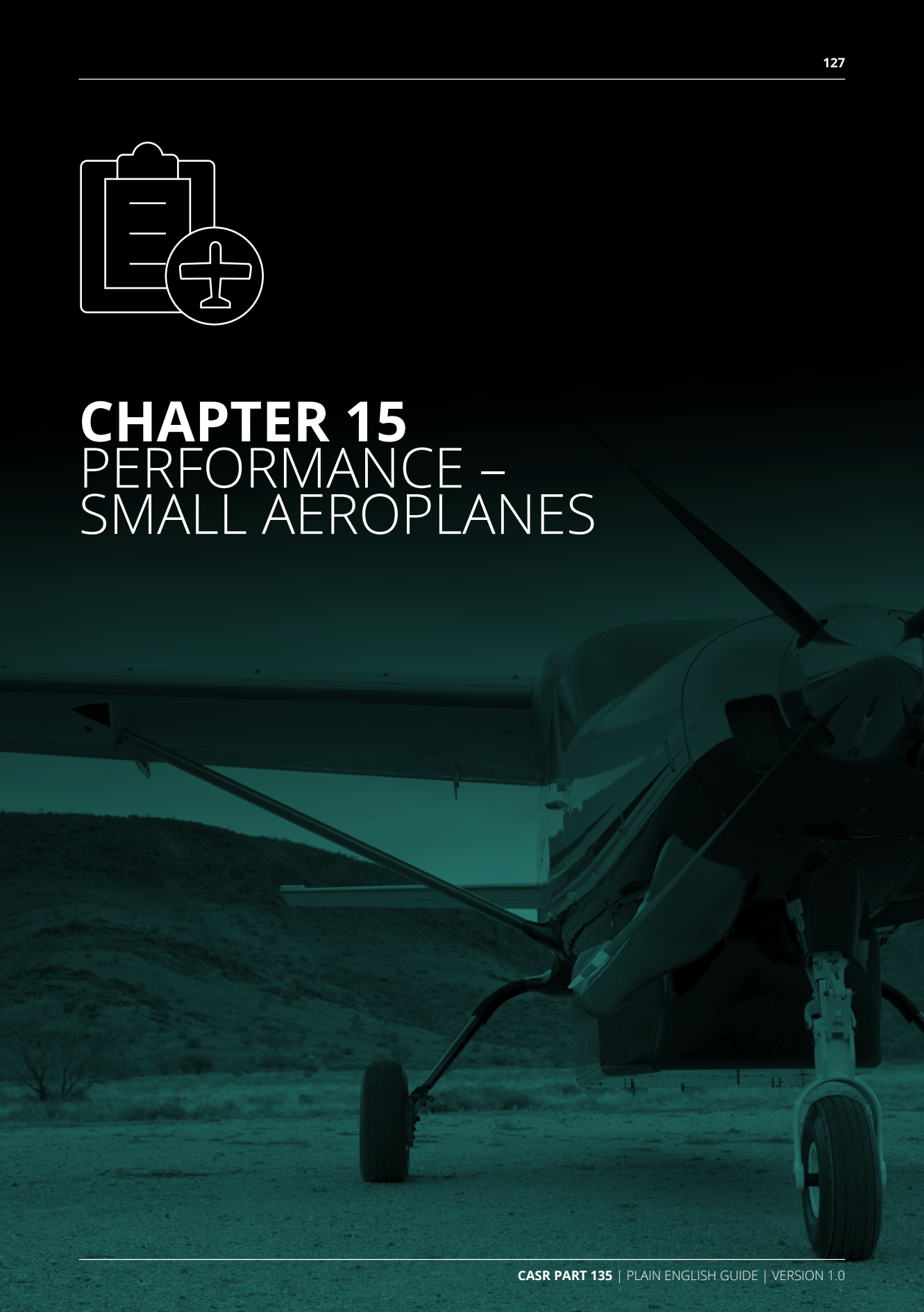
An alternate ADS-B OUT equipment configuration is acceptable if:

- it has been certified by CASA, or the NAA of a recognised country as meeting the standards of EASA AMC 20 24 or EASA CS ACNS or certified by EASA as meeting the standards of EASA AMC 20 24
- it is listed in the flight manual or flight manual supplement as being certified
- the GNSS system meets the performance requirements for ADS-B OUT mention earlier in this section.

For an aeroplane first certified before, on or after 8 December 2016, the equipment configuration is acceptable if:

- it has been certified by the FAA as meeting the standards of 14 CFR 91.227
- the flight manual states the system has been certified
- the GNSS system meets the performance requirements mentioned in this section.

CHAPTER 15
PERFORMANCE – SMALL AEROPLANES



15.1 Overview

(MOS 10.01)

This chapter applies to the operation of the following aeroplanes:

- a propeller or single-engine jet driven aeroplane with a maximum take-off weight (MTOW) of 5,700 kg or less
- a jet driven, multi-engine aeroplane with a MTOW of not more than 2,722 kg.

For aeroplanes above these weight limitations see chapter 16 of this guide.

Additional details can be found in How aerodromes are regulated | Civil Aviation Safety Authority.

Explainer: Understanding normal vs factored performance requirements

It is important to understand the difference between normal (unfactored) performance and factored performance. This distinction underpins all take-off and landing calculations for your operations.

Normal (unfactored) performance

Normal performance refers to the raw performance data taken directly from the aeroplane's flight manual.

This includes values such as:

- take-off run required and take-off distance required (to 50 ft AGL)
- landing distance required.

These figures are calculated using the aircraft manufacturer's data and account for conditions such as weight, pressure altitude, temperature, wind, and runway surface.

Importantly, normal performance assumes ideal conditions and precise pilot technique. It does not include additional safety margins for operational variability.

Factored performance

Factored performance applies safety margins (factors) to the normal performance data to ensure safe operations in real-world conditions.

This results in both:

- a factored take-off run
- a factored landing distance.

These factored values are compared against:

- the take-off run available (TORA) and take-off distance available (TODA)
- the landing distance available (LDA).

The factors applied are either:

- standard factors prescribed in CASR Part 135 and detailed in this chapter of the guide
- approved factors where the operator holds an approval under CASR 135.020.

Factoring ensures that performance calculations account for:

- variations in pilot technique
- runway conditions and surface variability
- environmental uncertainty (e.g. temperature estimation, wind changes)
- aircraft condition and operational tolerances.

This provides a built-in safety margin so that the aircraft can safely operate within the available runway distances.

Standard factors

Standard factors increase the required distance to provide a buffer for variability:

- standard take-off factor:
  - 1.15 for an aeroplane with a MTOW of not more than 2,000 kg
  - a factor derived by linear interpolation between 1.15 and 1.25 for an aeroplane with a MTOW of more than 2,000 kg, but less than 3,500 kg
  - 1.25 for an aeroplane with a MTOW of 3,500 kg or more
- standard landing factor
  - 1.15 for an aeroplane with a MTOW of not more than 2,000 kg
  - a factor derived by linear interpolation, between 1.15 and 1.43 for an aeroplane with a MTOW of more than 2,000 kg, but less than 4,500 kg
  - 1.43 for an aeroplane with a MTOW of 4,500 kg or more.

These factors are applied to the aircraft flight manual performance to produce factored distances used for operational decision-making.

Approved factors

You may use approved take-off or landing factors that differ from the standard values if CASA has granted you an approval to do so under regulation 135.020.

These approvals typically require:

- demonstrated performance capability
- supporting procedures in your exposition
- appropriate training and operational controls.

15.2 Performance data

(135.340, MOS 10.03)

You and the PIC must ensure that in calculating the aeroplane's performance data only the follow are used:

- the performance data set out in the aircraft flight manual
- the performance data for which you hold an approval from CASA and is listed in your exposition.

15.3 Take-off performance

Take-off performance requirements

(135.345 and MOS 10.07)

Both you and the PIC must ensure that the requirements of this section are met.

When calculating performance for an aeroplane during take-off, take the following into account:

- the type of operations being conducted
- features of the aerodrome where the aeroplane takes off
- details of the route to be flown
- features of the aerodrome where the aeroplane will land.

Also ensure that:

- the factored take-off run does not exceed the take-off run available
- the take-off distance required does not exceed the take-off distance available
- any clearway forming part of the take-off distance available does not exceed half the length of the take-off run available.

Consider the following:

- the aeroplane's take-off configuration
- the aerodrome pressure altitude and presumed temperature
- the type of runway surface and condition
- the runway slope in the direction of take-off
- if not accounted for in the aircraft's flight manual, consider applying up to 50% of the headwind or at least 150% of the tailwind for the runway.

Factored take-off run (MOS 10.04 and 10.05)

The factored take-off run, for an aeroplane of the kind mentioned in table 21, is the take-off run required, multiplied by the factor.

Table 21: Factored take-off run

Type of aeroplane	Factor
an aeroplane for which: › there is a flight manual › there is no approved take-off factor	› 1.15 for an aeroplane with a MTOW of not more than 2,000 kg › a factor derived by linear interpolation between 1.15 and 1.25 for an aeroplane with a MTOW of more than 2,000 kg, but less than 3,500 kg › 1.25 for an aeroplane with a MTOW of 3,500 kg or more
a propeller driven aeroplane for which there is an approved take-off factor	the approved take-off factor for the aeroplane

Approval of a take-off factor for a propeller driven aeroplane (MOS 10.04 and 10.05)

CASA may approve a take-off factor for operations at a particular aerodrome (for a propeller driven aeroplane) which is less than the standard take-off factor for the aeroplane.

CASA will only approve this take-off factor if you have undertaken a risk assessment for operations at that aerodrome.

Maximum permitted take-off weight (MOS 10.06)

Both you and the PIC must each ensure that, at take-off, the aeroplane's weight does not exceed each of the weights detailed in this section.

The weights are:

› a weight that would enable the aeroplane to meet the take-off and en route obstacle clearance requirements of this section

› a weight that, considering the expected consumption of fuel and oil for the flight, will ensure the maximum landing weight is not exceeded

› a weight that will ensure a landing weight that, taking into account the expected consumption of fuel and oil for the flight, complies with the aeroplane's landing performance requirements.

Note: The weight at take-off for an aeroplane is also limited by the maximum take-off weight (MTOW) permitted by its flight manual. You must ensure the aeroplane is operated in accordance with the aircraft flight manual instructions.

Initial climb performance and obstacle clearance (MOS 10.08)

You and the PIC (for a flight under the IFR or VFR at night) must ensure the requirements of this section can be met until the aeroplane reaches the minimum height for the flight.

The requirements are:

› for all flights: the aeroplane has the performance to clear all obstacles by a safe margin, as determined by your exposition

› for flights not conducted in VMC by day: the aeroplane has the performance to reach, and maintain, the relevant height.

Also consider:

- the take-off configuration of the aeroplane
- the aerodrome pressure altitude and presumed temperature
- the obstacles, if any, in the vicinity of the take-off path and en route
- the forecast weather en route.

En route obstacle clearance for multi-engine aeroplane (MOS 10.09)

You and the PIC of a multi-engine aeroplane must ensure the aeroplane can safely complete the flight if an engine fails before reaching cruising altitude (or cruising level) with the remaining engines operating within the power limits stated in the aircraft flight manual.

However, this does not apply if your exposition includes procedures that require the pilot to have a plan for returning to the departure aerodrome or diverting to an alternate, clear of all ground, water and obstacles. These procedures may include drift-down techniques, ensuring at least 2,000 ft of vertical clearance from obstacles within 5 NM of the flight path until reaching the aerodrome's circuit area.

15.4 Landing performance

Landing performance requirements (135.350 and MOS 10.10)

When calculating landing performance for an aeroplane you must consider one or more of the following:

- the aeroplane's configuration
- the operation of any equipment for the flight
- characteristics of the aerodrome at which the aeroplane lands
- any safety factor percentages that may need to be applied.

Factored landing distance (MOS 10.11 and 10.12)

The factored landing distance must be in accordance with table 22. The factored landing distance is the landing distance required, for the aeroplane, multiplied by the factor mentioned in that table.

Table 22: Factored landing distance

Aeroplane	Landing	Factor
a propeller-driven aeroplane which has: › a flight manual › no approved landing factor	a landing that is not part of a land and hold short operation (LAHSO)	› 1.15 for an aeroplane with a MTOW of not more than 2,000 kg › a factor derived by linear interpolation, between 1.15 and 1.43 for an aeroplane with a MTOW of more than 2,000 kg, but less than 4,500 kg › 1.43 for an aeroplane with a MTOW of 4,500 kg or more
a propeller-driven aeroplane with an approved landing factor	a landing that is not part of a land and hold short operation (LAHSO)	the approved landing factor for the aeroplane
a jet driven aeroplane	a landing that is not part of a land and hold short operation (LAHSO)	1.67
any aeroplane not mentioned above	either: › a landing that is both: » part of a land and hold short operation (LAHSO) » on a dry runway into wind › a landing that is both: » part of a land and hold short operation (LAHSO) » on a runway that is not dry and into wind	1.67 1.92

Approval of landing factor for a propeller-driven aeroplane (MOS 10.11 and 10.12)

CASA may approve a landing factor for operations at a particular aerodrome (for a propeller-driven aeroplane) which is less than the standard landing factor for the aeroplane.

CASA will only approve this landing factor if you have undertaken a risk assessment for operations at that aerodrome.

Maximum permitted landing weight (MOS 10.13)

Both you and the PIC must ensure that the aeroplane's weight does not exceed a weight that would enable the aeroplane to:

› meet the landing distance requirement stated in this section of the guide

› avoid obstacles in the vicinity of the missed approach path by a safe margin (if a safe landing cannot be made and a missed approach is required).

These requirements must be detailed in your exposition.

> **Note:** The weight at landing for an aeroplane is also limited by the maximum landing weight for a type certificated aeroplane as stated in its flight manual. The aircraft must be operated in accordance with the flight manual instructions.

Landing distance requirement (MOS 10.14)

You and the PIC must ensure the aeroplane can land safely (the factored landing distance) on the available runway provided. The landing distance required must not exceed the landing available for the runway.

To determine this, consider the following:

- the aeroplane's landing configuration
- for other than a short landing the aeroplane should cross the threshold at 50 ft above ground
- the aerodrome elevation
- the type and condition of the runway surface (such as concrete, grass, or wet/dry conditions)
- the runway slope in the direction of landing
- the wind conditions applying only up to 50% of the headwind or not less than 150% of the tailwind for the runway
- any obstacles near the approach flight path.

Approval of short landing operation by day (MOS 10.15)

If you wish to conduct a short landing operation at an aerodrome by day you must gain CASA approval before conducting such an operation.

A short landing operation is a landing at an aerodrome where the airborne component of the landing distance required, for the aeroplane, commences at a position in the aerodrome's safe area.

CASA may approve a short landing operation after being satisfied of the following:

- for an IFR flight, your short landing operation minima for the aerodrome includes a runway visibility of at least 1.5 km
- your exposition includes a set of operating wind limitations, referencing headwind, crosswind, and tailwind limits
- if the tailwind limit mentioned in your exposition is zero then your exposition must state that there must not be a short landing operation at the aerodrome when a tailwind is present
- you can demonstrate how your pilot aerodrome familiarisation and proficiency checking requirements for the aerodrome (for a short landing operation), will be met
- the height at which the aeroplane will cross the beginning of the useable length of the aerodrome's safe area in a short landing operation is at least 50 ft and you can demonstrate how the pilot will determine the height
- you have the aerodrome operator's written approval to use the aerodrome's safe area to conduct a short landing operation
- the width of the aerodrome's safe area, centred on the aerodrome runway centreline, is at least the greater of the following:
  - twice the width of the runway
  - twice the wingspan of the aeroplane
- the aerodrome's safe area is not more than 90 m long
- the aerodrome's safe area does not have any hazards or other characteristics that would endanger an aeroplane undershooting the aerodrome's approach flight path
- no mobile object will be permitted on the aerodrome's safe area while the aerodrome is being used in a short landing operation
- the slope of the aerodrome's safe area does not exceed 5% upward, or 2% downward, in the direction of landing.

CHAPTER 16
PERFORMANCE – LARGE AEROPLANES

16.1 Overview

(MOS 10.16 and 10.17)

This chapter applies to the operation of the following aeroplanes:

- a propeller-driven, multi-engine aeroplane with a MTOW of more than 5,700 kg
- a jetdriven, multi-engine aeroplane with a MTOW of more than 2,722 kg.

For aeroplanes below these weight limitations see chapter 15 of this guide.

Part 135 air transport operations is for 'smaller' aeroplanes, this is defined as:

- a maximum operational passenger seat configuration (MOPSC) of not more than 9
- a maximum take-off weight (MTOW) of not more than 8,618 kg.

However, aeroplane performance requirements are based on different weight limitations. Therefore, you or the PIC may be operating an aeroplane classed as 'smaller' for flight operations but 'large' for performance requirements.

Part 135 MOS refers to the Part 121 MOS in this situation.

16.2 Performance data

(135.340 and MOS 10.03)

You and the PIC must calculate the aeroplane's performance data by using either:

- the performance data set out in the aircraft flight manual instructions
- the performance data for which you hold an approval from CASA and is listed in your exposition.

16.3 Take-off performance

Maximum permitted take-off weight

(MOS 10.17 and Part 121 MOS 9.02)

Both you and the PIC must ensure that the aeroplane weight does not exceed:

- a weight that would enable the aeroplane to meet the take-off requirements and en route obstacle clearance of this section of the guide
- a weight that, considering the expected consumption of fuel and oil for the flight, will ensure a landing weight that does not exceed the maximum landing weight
- a weight that will ensure a landing weight that, taking account the expected consumption of fuel and oil for the flight, complies with the aeroplane's landing performance requirements.

Note: The weight at take-off for an aeroplane is also limited by the maximum take-off weight (MTOW) permitted by its flight manual. You must ensure the aeroplane is operated in accordance with the aircraft flight manual.

Take-off distance requirements (MOS 10.17 and Part 121 MOS 9.03)

Both you and the PIC must ensure the take-off requirements in this section are met.

When calculating the take-off distance for an aeroplane, take the following into account:

- the take-off configuration of the aeroplane
- the pressure altitude and presumed temperature at the aerodrome
- the type of runway surface and the runway surface condition
- the runway slope in the direction of take-off
- unless otherwise accounted for in the performance data stated in the aircraft flight manual instructions for the aeroplane, not more than 50% of the headwind component or not less than 150% of the tailwind component for the runway planned to be used
- the loss of any runway length due to the aligning of the aeroplane for take-off
- any credit for the stopway, and the clearway, at the aerodrome as follows:
  - stopway that is appropriate for the aeroplane type that can be included in the accelerate stop distance available
  - clearway that is appropriate for the aeroplane type that can be included within take-off distance available.

When calculating the take-off distance required, you and the PIC must assume the critical engine fails at Vfe and use the aeroplane's single V1 to ensure the requirements of this section are met.

The requirements are:

- the accelerate stop distance required for a take-off does not exceed the accelerate stop distance available for the runway
- the take-off distance required for a take-off does not exceed the take-off distance available for the runway
- any clearway forming part of the take-off distance available does not exceed half the length of the take-off run available
- in the case of a wet or contaminated runway, the take-off distance is calculated to the point at which the aeroplane reaches a height of 15 ft above the take-off surface using a reduced V1 not below V1 (wet)
- the take-off run required does not exceed the take-off run available using V1 for the rejected and continued take-off
- on a wet or contaminated runway, the weight at which the aeroplane can take-off from the runway does not exceed that permitted for a take-off on a dry runway.

Net take-off flight path requirements
(MOS 10.17 and Part 121 MOS 9.04)

Both you and the PIC must ensure the requirements of this section are met.

When calculating the net take-off flight path for a flight, consider the following factors:

- the weight of the aeroplane at the commencement of the take-off run
- pressure altitude at the aerodrome
- presumed temperature at the aerodrome
- either not more than 50% of the headwind component or not less than 150% of the tailwind component.

When calculating the net take-off flight path for a flight, also ensure the following requirements are met:

- a track change must not be made before the aeroplane's net take-off flight path has achieved a height equal to the greater of the following:
  - 50 ft above the take-off surface
  - one half of the aeroplane's wingspan
- the bank angle must not exceed 25° (the bank angle may only exceed 15° if the performance data used provides for a higher angle of bank)
- the point on the net take-off flight path where a level flight segment commences is the same horizontal distance from the end of the runway as the point where the gross take-off flight path intersects the height selected for the level flight acceleration manoeuvre (level flight must be more than 35 ft higher than the highest obstacles within the new take-off flight path)
- the gross gradient of climb achieved is reduced by:
  - 0.8% if the aeroplane is twin-engine
  - 0.9% if the aeroplane has 3 engines
  - 1.0% if the aeroplane has 4 engines
- allowance is made for:
  - the effect of the bank angle on operating speeds and flight path
  - distance increments resulting from increased operating speeds
  - distance increments resulting from the acceleration reduction equivalent to the climb gradient reductions detailed above
  - retention of stall margin and loss of climb gradient.

> **Note:** The net take-off flight path and the gross take-off flight path may be considered identical when the aeroplane is in the take-off configuration.

Obstacle clearance requirements are detailed in table 23. This table assumes a failure of an aeroplane engine that is recognised at V1 assuming a dry runway.

Table 23: Obstacle clearance requirements

Obstacle clearance minimum	Bank angle and other conditions
35 ft	bank angle not exceeding 15° for take-off
15 ft	bank angle not exceeding 15° for take-off and in the case of a wet or contaminated runway, the take-off distance is calculated to the point at which the aeroplane reaches a height of 15 ft above the take-off surface using a reduced V1 not below V1 (wet)
50 ft	bank angle will exceed 15° for take-off
30 ft	bank angle will exceed 15° for take-off and in the case of a wet or contaminated runway, the take-off distance is calculated to the point at which the aeroplane reaches a height of 15 ft above the take-off surface using a reduced V1 not below V1 (wet)

An obstacle is considered to be within the net take-off flight path if the lateral distance from the obstacle to the aeroplane's intended flight path is within:

- 90 m plus (0.125 x D)
- if the aeroplane has a wingspan less than 60 m, the distance worked out using the formula: (half the wingspan of the aeroplane) + 60 m + (0.125 x D).

D means the horizontal distance the aeroplane will travel from one of the following:

- the end of the take-off distance available at the aerodrome
- if a turn is scheduled before the end of the take-off distance available, the end of the take-off distance required for the take-off.

If the intended flight path does not require a track change exceeding 15°, the distance calculated above in this section is limited to:

- a maximum of 600 m
- a maximum of 300 m if the portion of the flight from the departure end of the runway to the lowest safe altitude for the route can be conducted with a navigation specification of RNP 0.2 or better.

If the intended flight path requires a track change exceeding 15°, the distance calculated above in this section is limited to:

- a maximum of 900 m
- a maximum of 600 m if the portion of the flight from the departure end of the runway to the lowest safe altitude for the route can be conducted with a navigation specification of RNP 0.2 or better.

The gross gradient of climb required at take-off for your aircraft is detailed in table 24.

Table 24: Gross gradient of climb (take-off configuration)

Aeroplane configuration	Aeroplane details	Gross gradient of climb
take-off configuration assuming failure of the critical engine recognised at V1, the aeroplane must be able to climb, without ground effect and without landing gear retraction, at the speed established as the speed at which the aeroplane becomes airborne	2 engines	positive
	3 engines	0.3%
	4 engines	0.5%
take-off configuration that exists with the critical engine inoperative and the landing gear fully retracted and the aeroplane at speed V2	commuter type aeroplane	2%
	2 engines	2.4%
	3 engines	2.7%
	4 engines	3.0%

Level flight acceleration manoeuvre requirements (MOS 10.17 and Part 121 MOS 9.06)

The aeroplane may be accelerated from V_2 to final take-off climb speed when in level flight at a height above the take-off surface that is the greater of:

- 400 ft
- the height necessary to achieve the obstacle clearance as detailed in this section of the guide.

The aeroplane must, during the level flight manoeuvre with the critical engine inoperative, have an available gross climb gradient of at least:

- 1.2% if the aeroplane has 2 engines
- 1.4% if the aeroplane has 3 engines
- 1.5% if the aeroplane has 4 engines.

Gross gradient requirement (en route configuration) (MOS 10.17 and Part 121 MOS 9.07)

The aeroplane must, in the en route configuration at the end of the level flight acceleration manoeuvre, be able to achieve a gross climb gradient of at least:

- 1.2% if the aeroplane has 2 engines
- 1.4% if the aeroplane has 3 engines
- 1.5% if the aeroplane has 4 engines.

> **Note:** The gradient of climb must be achievable at final take-off climb speed with the critical engine inoperative and the remaining engines at maximum continuous power or thrust.

En route requirements (MOS 10.17 and Part 121 MOS 9.08)

When calculating the weight of the aircraft that will ensure en route obstacle clearance, you must ensure the aeroplane can achieve the required net flight path as detailed in this section.

The following requirements must be met:

- during flight from the cruising altitude to an aerodrome where a landing can be made the net flight path must either:
  - have a positive slope at 1,000 ft above all terrain and obstructions within 5 NM of the intended track to be flown or 15 NM if the aeroplane cannot maintain a track using a navigation specification of RNP 2 or better
  - clear all terrain and obstructions by at least 2,000 ft vertically, within 5 NM of the intended track to be flown or 15 NM if the aeroplane cannot maintain a track using a navigation specification of RNP 2 or better
- you must have a positive slope at 1,500 ft above the aerodrome where the landing is assumed to be made after the engine failure.

The en route net flight path calculation is based on both:

- the failure of the critical engine at the most critical point along the flight route
- ensuring the one-engine-inoperative (OEI) performance data for the aeroplane is met.

When making this calculation you and the PIC must consider:

- the effects of forecast wind on the flight path
- the effect of the icing protection systems if the meteorological conditions require their operation
- fuel jettisoning to an extent consistent with reaching the aerodrome with the required fuel reserves.

If the aeroplane has 3 or 4 engines, the route to be flown by the aeroplane is not more than 90 minutes away from an aerodrome where a landing can be made in accordance with the requirements of this section. However, the aeroplane may be operated more than 90 minutes away from an aerodrome where a landing can be made if:

- it is assumed that 2 engines fail simultaneously at the most critical point of that portion of the route where the aeroplane is more than 90 minutes (at normal cruising speed) away from an aerodrome where a landing can be made
- the 2-engine inoperative en route flight path data permits the aeroplane to continue the flight, in the expected meteorological conditions, from the point where the 2 engines are assumed to have failed, to an aerodrome at which it is possible to land with 2 engines inoperative
- the net flight path, taking into account the effect of icing protection systems if the meteorological conditions require their operation, clears all terrain and obstructions by at least 2,000 ft within 5 NM of the intended track to be flown or 15 NM if the aeroplane cannot maintain a track using a navigation specification of RNP 2 or better
- the net flight path has a positive slope at an altitude of 1,500 ft above the aerodrome where the landing is assumed to be made after the failure of 2 engines
- the expected weight of the aeroplane at the point where the 2 engines are assumed to fail must be not less than that which would include sufficient fuel to proceed to an aerodrome where the landing is assumed to be made, and to arrive there at an altitude of at least 1,500 ft directly over the aerodrome and thereafter to fly level for at least 15 minutes.

16.4 Landing performance

Landing requirements (135.350 and MOS 10.10)

When calculating landing performance for an aeroplane, you and the PIC must consider the following:

- the aeroplane's configuration
- the operation of any equipment for the flight
- characteristics of the aerodrome at which the aeroplane lands
- any safety factor percentages that may need to be applied.

Pre-flight landing requirements – dry runway (MOS 10.17 and Part 121 MOS 9.10)

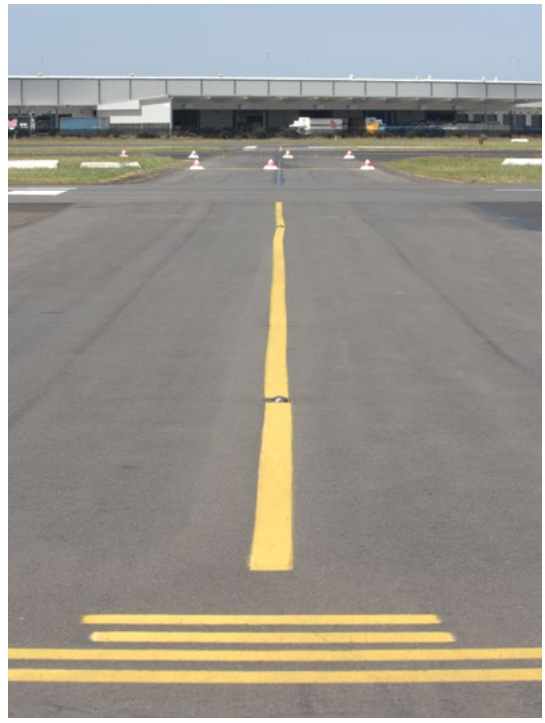
You and the PIC must ensure that the distance to bring the aeroplane to a stop on the runway is not greater than that described in this section of the guide when the authorised weather forecast indicates the planned destination runway (or a destination alternate aerodrome) will be dry.

The relevant distances are:

- for a jet engine aeroplane: 60% of the landing distance available for the runway; and
- a turbo-propeller or piston-engine aeroplane: 70% of the landing distance available for the runway.

When considering the landing distance available, consider:

- that the runway will be dry
- that the aeroplane crosses the runway threshold at a height of 50 ft
- the runway expected to be used, taking into account the wind speed and direction, instrument approach procedure to be used (if any) and terrain
- the anticipated landing configuration for the aeroplane
- the expected consumption of fuel and oil in flight to the planned destination aerodrome
- the expected consumption of fuel and oil in flight to the destination alternate aerodrome (if any):
  - » assuming that the flight is routed via the planned destination aerodrome
  - » including the conduct of a missed approach at the planned destination aerodrome
- the aerodrome elevation
- the runway slope, if greater than +/- 1%
- the wind direction and speed unless otherwise accounted for in the performance data stated in the aircraft flight manual instructions for the aeroplane, not more than 50% of headwind and not less than 150% of tailwind.



Pre-flight landing requirements – wet or contaminated runway (MOS 10.17 and Part 121 MOS 9.11)

You and the PIC must ensure the available landing distance is sufficient if the forecast indicates the destination or alternative runway may be contaminated.

When considering the landing distance available at the aerodrome take the following into account:

- 115% of the landing distance required (calculated as detailed in this section of the guide)
- 115% of the landing distance required (calculated in accordance with the aeroplane performance data if it is specific to contaminated runways).

Planned missed approach climb requirements (MOS 10.17 and Part 121 MOS 9.12)

You and the PIC must ensure that, at the estimated time of arrival (ETA), at least one of the required conditions can be met at the destination or any required alternate.

The requirements are:

- the aeroplane must be able to conduct a missed approach with a climb gradient that is the greater of:
  - the published missed approach climb gradient
  - a missed approach climb gradient of at least 2.5%
- the aeroplane must be able to conduct a missed approach with a climb gradient of at least the gradient required to clear any obstacles in the missed approach flight path, in accordance with section 16.3 of this guide (net take-off flight path requirements)
- the aeroplane must be able to avoid obstacles by an acceptable margin using procedures specified in your exposition for the specific runway, aerodrome and the aeroplane type.

You should also consider the following:

- the aerodrome elevation and the temperature expected for the ETA at the planned destination aerodrome, and the destination alternate aerodrome (if required)
- the expected consumption of fuel and oil in flight to the planned destination aerodrome
- the expected consumption of fuel and oil in flight to the destination alternate aerodrome (if required):
  - assuming that the flight is routed via the planned destination aerodrome
  - including the conduct of a missed approach at the destination aerodrome
- the landing configuration of the aeroplane.

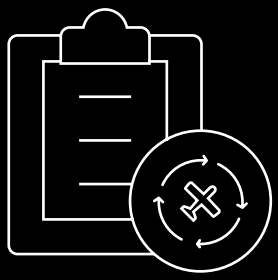
Landing distance – in-flight requirements (MOS 10.17 and Part 121 MOS 9.13)

The PIC of the aeroplane must ensure that, during the flight and before landing:

- if actual landing distance data is used, the landing distance available at the aerodrome is greater than or equal to 115% of the landing distance required to bring the aeroplane to a stop on the runway
- if actual landing distance data is not used, that if a weather report of forecast (or combination of reports and forecasts) indicate the runway may be:
  - dry then the landing distance required to bring the aeroplane to a stop on the runway must not be greater than:
    - for a jet engine aeroplane – 60% of the landing distance available for the runway
    - for a turbo-propeller or piston-engine aeroplane – 70% of the landing distance available for the runway
  - wet then the landing distance available must be either:
    - at least 115% of the landing distance required
    - not greater than the requirements for a dry runway if the aeroplane performance data provides landing distance information for wet runways and this data is used
  - contaminated then the landing distance available must be:
    - not greater than the requirements for a dry runway if the aeroplane performance data provides landing distance information for wet runways and this data is used
    - at least 115% of the landing distance required calculated using the aeroplane's performance data if the data is specific to contaminate runways.

When calculating the landing distance required for a dry runway, the following must be considered:

- the landing configuration for the aeroplane
- the anticipated landing weight for the aeroplane at the aerodrome
- the aerodrome elevation
- the runway slope, if greater than +/- 1%
- unless otherwise accounted for in the performance data stated in the aircraft flight manual instructions for the aeroplane, not more than 50% of headwind and not less than 150% of tailwind.



CHAPTER 17
WEIGHT AND BALANCE

17.1 Overview

This chapter details the weight and balance requirements for you and the PIC. It describes the information needed in your exposition and covers the procedures and documents required to ensure the aeroplane is flown within its weight and balance limits.

17.2 Loading an aeroplane

(135.355)

You and the PIC must ensure the aeroplane is loaded and flown in accordance with the weight and balance limits set out in the aircraft flight manual, both:

- when the flight begins
- at any time during the flight.

The default system for weight and balance calculations is found in the aeroplane flight manual. If you choose to use a different system, such as a computer program or an application on a handheld device, it needs to be approved by a weight control authority. Section 5 of CAO 100.7 sets out requirements for aircraft load data sheets and loading systems. The PIC must not commence a flight unless they have received evidence and taken the necessary actions to ensure compliance with the loading data.

17.3 Procedures and documentation for loading an aeroplane

(135.360 and 135.365)

Your exposition must include procedures for the following:

- loading the aeroplane for a flight to comply with the performance data requirements set out in section 15.2 and 16.2 (as applicable) of this guide
- working out the total weights for a flight of:
  - the crew members
  - the passengers
  - the cargo, including carry-on baggage
  - the fuel to be carried
- ensuring that a lastminute change to a load does not cause the aeroplane to exceed its weight and balance limits
- offloading passengers or cargo to ensure that the aeroplane does not exceed its weight and balance limits.

Your exposition must include procedures for preparing weight and balance documents that include the following:

- the weight and balance of the aeroplane and the information used to calculate it
- the name of the person who prepared the weight and balance documents
- confirmation by the person responsible for planning and supervising the loading of the aeroplane that it has been loaded in accordance with:
  - the procedures set out in the exposition for loading
  - the weight and balance documents
- if the person who prepared the documents is not part of the flight crew, confirmation of the acceptance of the weight and balance documents by the PIC or the copilot
- any other information that the PIC needs to ensure that the loading is in accordance with the weight and balance limits for the aeroplane.

The default system for weight and balance calculations is the flight manual. If you choose to use a different system, such as a computer program or an application on a handheld device, the system should be approved by a weight control authority.

Section 5 of CAO 100.7 sets out requirements for aircraft load data sheets and loading systems.

You must not commence a flight unless you have received evidence and taken the necessary actions to ensure compliance with the loading data.

CHAPTER 18
FLIGHT CREW

18.1 Overview

This chapter details the requirements for flight crew and covers:

- crew composition requirement
- assignment of pilots
- training and checking of pilots
- qualifications
- competence of flight crew
- knowledge of routes
- operation of different types of aeroplanes
- recent experience.

18.2 Crew composition (number), qualifications and training

(135.380)

Before a flight commences, you must ensure that the flight crew composition:

- complies with the aircraft's flight manual
- includes any additional flight crew required by your exposition as part of the total crew count (as applicable)
- consists of qualified flight crew members, each capable of performing their assigned duties (see section 18.7 of this guide)
- includes at least one flight crew member who holds an instrument rating for a passenger transport operation or medical transport operation conducted under the VFR flight at night
- meet the following requirements for the flight:
  - recent experience (see sections 18.3 and 18.12 of this guide)
  - training and checking (see section 18.3 of this guide)
  - route and aerodrome knowledge for the flight (PIC only) if required to be included in your exposition (see section 18.3 of this guide)
  - differences training if required to be included in your expositions (see sections 18.3 and 18.9 of this guide).

If you are required to carry additional crew for your operations, your exposition must include the kinds of operations in which additional crew are required to be carried.

Your exposition must also include any other requirements that must be met by new or inexperienced crew members before they can be assigned to duty in an aeroplane.

Exemption CASA EX78/24 –Transitional Training and Checking Requirements for Crew Members in Part 135 Operations – Exemption Instrument 2024 allows crew members to meet training requirements that were in place before December 2, 2021. They must be assessed as competent for their assigned duties. You should read the exemption in detail to determine if this exemption is applicable to your operations.

18.3 Training and checking requirements for flight crew

(135.385, 135.410, MOS 12.02, 12.03, 12.04, 12.05, 12.06 and 12.07)

Before assigning a person as a flight crew member to a flight, you must ensure that they have been assessed as competent to perform their assigned duties. This assessment must be according to the requirements set out in your exposition.

The minimum competency standards for every flight crew member, regardless of the kind of operation being conducted, are in Part 61 of CASR. Your minimum required level of competency must be equal to or better than those prescribed by Part 61 for the relevant class or type of aeroplane, or the activity being performed. The specific competencies for your flight crew members may vary depending on the nature and complexity of the air transport operation being performed. Refer to the Part 61 Aeroplane category flight crew licensing plain English guide.

Each flight crew member must meet the following training and checking requirements for your operation. They must have successfully completed:

- your general emergency training and the flight crew member general emergency check of competency (see table 25 of this guide)
- your conversion training and the flight crew member proficiency check (see table 25 of this guide)
- your differences training (if required) (see table 25 of this guide)
- your recurrent training and checking (see section 18.4 of this guide)
- your remedial training (if required) (see section 18.5 of this guide).

They must also be undertaking, or have successfully completed, your line training and the flight crew member line check.

Table 25: Flight crew training requirements

Type of training	Requirements
general emergency training	the training must include: › training in general emergency and survival procedures › training in aerodrome and aeroplane security procedures › training in procedures for the location of, access to and use of, the emergency and safety equipment onboard › if life jackets and life rafts are required to be carried then training in ditching procedures, including in-water practical training and the use of life jackets and life rafts › if life rafts are not required but life jackets are carried then training in ditching procedures including in-water practical training and the use of life jackets is required
conversion training	the training must include: › the duties and responsibilities for the flight crew member's position › the standard operating procedures for the type or class of aeroplane used for the flight › the normal, non-normal and emergency procedures for an aeroplane of that type or class › any flight procedures or manoeuvres, conducted in an aeroplane of that type or class, that you hold e.g. using certain performance based navigation (PBN) specifications › training in the procedures for any other operations conducted by you in an aeroplane of that type or class that the flight crew member has not previously experienced e.g. precision runway monitor operations (PRM) or land and hold-short operations
line training	the training must include: › your safety management system's risk assessment and management practices › the procedures for the conduct of line operations › the procedures related to aerodrome ground handling, aeroplane parking and public safety › the conduct of passenger handling, briefings and safety demonstrations (if passengers are carried) › your specific area of operations, or routes if described in the exposition › specific aerodrome procedures if described in the exposition › pre-flight and post-flight activities relating to line operations
differences training	a flight crew member must have successfully completed your differences training for the aeroplane as detailed in your exposition **Note:** The successful completion of the training is evidenced by a course completion certificate given to the flight crew member.

The PIC must also have knowledge of the route and aerodromes (including alternates) applicable to their operations.

Additionally, your exposition must define the necessary requirements for assigning new or inexperienced crew members to duty for a flight.

Exemption CASA EX78/24 –Transitional Training and Checking Requirements for Crew Members in Part 135 Operations – Exemption Instrument 2024. CASA EX78/24 is a temporary exemption to assist small aeroplane operators and crew members in transitioning to new training and checking requirements. The exemption allows you to continue using certain previous training and checking activities, provided these were completed within specified timeframes. The exemption provides additional time for operators to fully comply with the new standards and only applies to crew members who have completed equivalent training and checking events under previous regulations within designated timeframes. Operators and crew members must meet specific criteria outlined in the exemption to benefit from the transitional provisions.

18.4 Recurrent training and checking

(MOS 12.08)

All recurrent training activities are conducted as checks unless the flight crew member requires additional support to meet the required standard. If a flight crew member does not demonstrate competency during the check, remedial training is to be provided, followed by a re-check to confirm they meet the regulatory requirements. See section 18.5 of this guide.

You must ensure flight crew maintain competency through regular checking, with training delivered only when necessary to address identified gaps.

A flight crew member must have successfully completed your recurrent training and checking for the aeroplane as detailed in table 26.

Table 26: Flight crew recurrent checking requirements

Type of recurrent training and checking	Time period requirements	Conditions
general emergency check of competency	not more than 1 year after the previous check	a check of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date
general emergency check of competency – the use of life rafts	not more than 3 years after the previous check	a check of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date
proficiency check for a flight crew member only conducting a flight under the VFR by day	initially 6 months after first commencing unsupervised line operations for you, and then at intervals of 1 year after the previous proficiency check	› the first check of competency after the initial check that is successfully completed within 30 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date › a subsequent checks of competency that is successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date
proficiency check for a flight crew member conducting a flight other than under the VFR by day	initially 6 months after first commencing unsupervised line operations for you, and then at intervals of 6 months after the previous proficiency check	a check of competency successfully completed within 30 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date

Recurrent training and checking in relation to the use of life rafts or life jackets does not need to include in-water practical training.

18.5 Remedial training

(MOS 12.09)

If a flight crew member fails either the general emergency check of competency or the flight crew proficiency check, as outlined in table 26 for a specific type or class of aeroplane, they must complete the following steps before resuming duty:

- successfully complete targeted remedial training in the areas where the competency was not demonstrated (as identified in the failed check)
- then pass the general emergency check of competency or flight crew proficiency check for the relevant type or class of aeroplane
- then have their flight crew member status updated to permit unsupervised operations in the relevant type or class of aeroplane.

18.6 Individuals who conduct training and checking

(135.387, MOS 12.11 and 12.12)

The training or checking you conduct must be detailed in your exposition and conducted by an individual who:

- is engaged by you by contract or other arrangement to perform the training or check
- meets the minimum experience and entry control requirements outlined in your exposition for a training pilot, check pilot, or training and check pilot (as applicable)
- has successfully completed the relevant training program
- has fulfilled the required recency or proficiency requirements necessary for conducting the training or check
- has been nominated by you in your exposition as meeting the criteria for a training pilot, check pilot, or training and check pilot within your training and checking system.

Exemption CASA EX71/24 – Part 135, Subpart 121.Z and Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024
Paragraph 20A has a direction requiring you to only use appropriately qualified individuals for certain high-risk in-flight training and checking activities involving non-normal exercises. The appropriate qualifications are:

- a Part 61 flight instructor rating with an appropriate training endorsement and a current flight proficiency check in the relevant class or type of aeroplane
- a Part 61 flight examiner rating with an appropriate flight examiner endorsement and a current examiner proficiency check in the relevant class or type of aeroplane
- an approval from CASA that grants privileges equivalent to those required for a training pilot, check pilot, or training and check pilot, as applicable.

You may also contract a Part 142 operator to conduct training and checking for your operations.

CASA may elect to test the person you nominate to be a training pilot, check pilot, or training and check pilot, as applicable, to assess their competency for the role. CASA must give the individual:

- written notice of the test which includes the date, time and location of the test (these must be reasonable in the circumstances)
- a copy of the result of the test, including the CASA testing officer's assessment of their competency in the role.

Note: If CASA assesses an individual and deems them unfit to conduct training or checks, it has the authority under Subpart 11.G of CASR to require further training before they start or continue in the role.

Exemption CASA EX71/24 – Part 135, Subpart 121.Z and Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024 paragraph D allows you to use the services of a foreign training organisation for flight crew training or checking if:

- the training is conducted by a person who is employed by a training provider authorised by the national aviation authority of a recognised foreign state and the training or check is equivalent to the training or check required by Part 135 of CASR and the person is authorised by that national aviation authority to conduct the equivalent training or checking
- you ensure that each person who conducts the training or checking for the foreign training provider is appropriately authorised by the foreign national authority to conduct the equivalent training or checking
- the foreign training provider is notified, in writing, of any change to your exposition relating to the training or checking that the foreign training provider conducts under the contract.

18.7 Assignment of duty and training for a pilot in command

(135.390,135.395 and MOS 12.13)

Before any flight begins, you must appoint a qualified PIC. This pilot must have completed the minimum required flight hours, as outlined in table 27. Your exposition must specify the minimum flight experience for all aeroplanes operated under your Australian air transport operation AOC.

The following requirements apply:

- Training: The pilot must undergo training specific to the responsibilities of commanding an aeroplane of the relevant type or class.
- Supervised line flying: The pilot must complete supervised line flying as pilot in command, under supervision, for the required number of flight hours stated in your exposition.
- Command training: The pilot must successfully complete command training in accordance with your exposition.
- In the case of a flight in an Australian registered aircraft: The pilot must be authorised to pilot the aeroplane as PIC under Part 61 of CASR.
- In the case of a flight in a foreign registered aircraft: The pilot must be authorised to pilot the aeroplane as PIC by the aeroplane's state of registry.

Note: Before acting as a PIC, the pilot must successfully pass both your flight crew member proficiency check and flight crew member line check for a PIC of that aeroplane.

Table 27: Minimum flight hours required to qualify as PIC

Flight	Flight hours
IFR flight at night	15 hours as PIC, or PICUS, under the IFR at night
flight in a multi-engine aeroplane that has a MTOW of less than 5,700 kg	both: › 10 hours as PIC, or PICUS, of a multi-engine aeroplane › 10 hours as PIC, or PICUS, of an aeroplane of that kind
flight in a multi-engine aeroplane that has a MTOW of at least 5,700 kg	both: › 50 hours as PIC, or PICUS, of a multi-engine aeroplane › 10 hours as PIC, or PICUS, of an aeroplane of that kind
flight in a prescribed single-engine aeroplane (PSEA)	20 hours as PIC, or PICUS, of an aeroplane of that kind
flight in an aeroplane covered by an aircraft type rating	25 hours as PIC, or PICUS, of an aeroplane of that aircraft type rating

Note: Flight hours accrued on one type of flight can be considered to meet more than one flight hour requirement. For example, flight hours under the VFR at night can meet the VFR flight in a single-engine aeroplane requirement.

Your exposition must include minimum flying experience requirements for all aircraft you operate in air transport operations.

You may elect higher minimum hours than those provided in table 27. Your exposition must consider all aircraft types that will be operated.

18.8 Pilot in command in a non-command pilot's seat

(135.405 and MOS 12.14)

You must ensure that the PIC holds a valid proficiency check before assigning them to the noncommand pilot's seat for any of the following roles:

› operating the aeroplane as PIC
› performing copilot duties
› conducting training or examination duties.

The PIC must complete the relevant section of your flight crew proficiency check while occupying the non-command seat, either as PIC or under supervision. This check ensures their competence in fulfilling non-command seat duties.

18.9 Assigning flight crew to aeroplanes of different type ratings

(135.415 and 135.420)

If you operate aeroplanes of more than one type rating under Part 135 operations, and you assign, or are likely to assign, a flight crew member employed by you to a duty on aeroplanes of more than one type rating, your exposition must include the following:

› a description of the circumstances in which you may assign a flight crew member to duty on aeroplanes of more than one type rating
› the combinations of aeroplanes with different type ratings that you may assign a single flight crew member
› the flying experience, checks and training that a flight crew member must gain or complete, while employed by you, before being assigned to duty on aeroplanes of more than one type rating
› procedures to ensure if a flight crew member is assigned to duty on aeroplanes with different type ratings within one tour of duty, the flight crew member has adequate time between flights on aeroplanes with different ratings to prepare for duty.

18.10 Assigning the pilot in command to aeroplanes of different types

(135.430)

You must ensure that if you assign a pilot to duty as PIC to fly different types of turbine engine aeroplanes the pilot must have a valid proficiency check for each type of aeroplane.

You must ensure that if you assign a pilot to duty as PIC to fly different types of piston engine aeroplanes the pilot must meet the following requirements:

- if the aeroplanes belong to the same aircraft class rating, the pilot must have a valid proficiency check for at least one type of aeroplane
- if the aeroplanes belong to different aircraft class ratings, the pilot must have a valid proficiency check for each class of aeroplane.

18.11 Copilot

(135.400)

A pilot is considered qualified to serve as a copilot for an aeroplane after they complete the required supervised line flying on an aeroplane of that kind (as outlined in your exposition) and they are authorised by either:

- Part 61 of CASR for an Australian-registered aircraft
- state of registry for a foreign-registered aeroplane.

A pilot is considered qualified as a copilot for the flight if they meet the criteria specified in section 18.7 of this guide as it applies to the PIC.

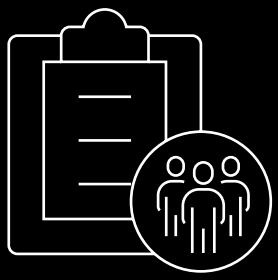
18.12 Recent experience requirements – 90 days before flight

(135.435)

You must not assign a pilot to duty as PIC or copilot, and they must not operate an aeroplane, unless they meet the recency requirements detailed in table 28.

Table 28: Recent experience requirements (90 days before flight)

Type of flight	Requirements for the pilot (PIC or copilot, as applicable)
flights by day	within 90 days before the flight completed one of the following: › in an aeroplane of that kind or approved flight simulator: » at least 3 take-offs followed by climbs to at least 500 ft AGL while controlling the aeroplane or simulator » at least 3 landings while controlling the aeroplane or simulator › passed a flight test for the grant of a pilot licence or a rating in an aeroplane of that kind or an approved flight simulator for the aeroplane › successfully completed a proficiency check for the aeroplane that complies with the requirements prescribed by the Part 135 MOS (see section 18.4 of this guide)
flights by night	within 90 days before the flight completed one of the following at night in an aeroplane of that kind or under nighttime conditions in an approved flight simulator either: › both: » at least 3 take-offs followed by climbs to at least 500 ft AGL while controlling the aeroplane or simulator » at least 3 landings while controlling the aeroplane or simulator › passed a flight test for the grant of a pilot licence or a rating on a pilot licence in an aeroplane of that kind or an approved flight simulator for the aeroplane › successfully completed a proficiency check for the aeroplane that complies with the requirements prescribed by the Part 135 MOS (see section 18.4 of this guide)



CHAPTER 19
CREW OTHER THAN FLIGHT CREW

19.1 Overview

This chapter details the requirements for air crew and includes:

- training and checking requirements
- recurrent training and checking requirements
- details on persons who may be approved to conduct training
- competence of air crew
- English proficiency requirements.

Under CASR Part 135 there is no requirement to carry cabin crew. This is because, in smaller aircraft, the pilot or copilot is responsible for passenger safety briefings, emergency procedures, and other duties normally handled by cabin crew on larger aircraft. Part 121, which applies to larger transport aircraft, does require a minimum number of cabin crew for passenger safety. You must still make sure that passengers are properly briefed and that someone is responsible for safety in the cabin, but this can be managed by the flight crew rather than a dedicated cabin crew member.

19.2 Training and checking for air crew

(135.445, MOS 13.02, 13.03, 13.04, 13.05, 13.06 and 13.07)

An air crew member must meet the following training and checking requirements for your operation. They must have successfully completed:

- your general emergency training and the air crew member general emergency check of competency (see table 29 of this guide)
- your conversion training and the air crew member proficiency check (see table 29 of this guide)
- your differences training (if required) (see table 29 of this guide)
- your recurrent training and checking (see section 19.3 of this guide)
- your remedial training (if required) (see section 19.4 of this guide).

They must also be undertaking, or have successfully completed, your line training and the air crew line check.

Table 29: Air crew training requirements

Type of training	Requirements
general emergency training	the training must include: › general emergency and survival procedures for the aeroplane › aerodrome and aeroplane security procedures › the location of, access to and use of, the emergency and safety equipment on the aeroplane › if life jackets and life rafts are required to be carried then training in ditching procedures, including in-water practical training and the use of life jackets and life rafts › if life rafts are not required but life jackets are carried then training in ditching procedures including in-water practical training, and the use of life jackets
conversion training	the training must include: › the duties and responsibilities for the air crew member's position › the standard operating procedures for the type or class of aeroplane › the normal, non-normal and emergency procedures for an aeroplane of that type or class › the procedures for any other operations conducted that the flight crew member has not previously experienced
line training	the training must include: › your safety management system's risk assessment and management practices › the procedures for the conduct of line operations › the procedures related to aerodrome ground handling, aircraft parking and public safety › the conduct of passenger handling, briefings and safety demonstrations (if applicable) › your specific area of operations if described in the exposition › pre and post-flight activities
differences training	the training must include: › the limitations or systems of the aeroplane that the air crew member has not previously received training on › the location, and use, of equipment if the equipment on the aeroplane that the air crew member has not previously received training for › normal and emergency procedures for the aeroplane if the air crew member has not previously received training

Additionally, your exposition must define the necessary requirements for assigning new or inexperienced crew members to duty for a flight.

Exemption CASA EX78/24 –Transitional Training and Checking Requirements for Crew Members in Part 135 Operations – Exemption Instrument 2024. CASA EX78/24 is a temporary exemption to assist small aeroplane operators and crew members in transitioning to new training and checking requirements. The exemption allows you to continue using certain previous training and checking activities, provided these were completed within specified timeframes. The exemption provides additional time for operators to fully comply with the new standards and only applies to crew members who have completed equivalent training and checking events under previous regulations within designated timeframes. Operators and crew members must meet specific criteria outlined in the exemption to benefit from the transitional provisions.

19.3 Recurrent training and checking

(MOS 13.08)

All recurrent training activities are conducted as checks unless the air crew member requires additional support to meet the required standard. If an air crew member does not demonstrate competency during the check, remedial training is to be provided, followed by a re-check to confirm they meet the regulatory requirements. See section 19.4 of this guide.

You must ensure air crew maintain competency through regular checking, with training delivered only when necessary to address identified gaps.

An air crew member must have successfully completed your recurrent training and checking for the aeroplane as detailed in table 30.

Table 30: Air crew recurrent checking requirements

Type of recurrent training and checking	Time period requirements	Conditions
general emergency check of competency	not more than 1 year after the previous check	a check of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date
general emergency check of competency – the use of life rafts	not more than 3 years after the previous check	a check of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date
proficiency check for an air crew member for the relevant aeroplane	initially 1 year after first commencing unsupervised line operations for you, and then at intervals of 1 year after the previous proficiency check	subsequent checks of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date

Recurrent training and checking in relation to the use of life rafts or life jackets does not need include in-water practical training.

19.4 Remedial training

(MOS 13.09)

If an air crew member fails either the general emergency check of competency or the air crew proficiency check, as outlined in table 30 they must complete the following steps before resuming duty:

- successfully complete targeted remedial training in the areas where the competency for the kind of aeroplane was not demonstrated (as identified in the failed check)
- then pass the general emergency check of competency or air crew proficiency check for the relevant type or class of aeroplane
- then have their air crew member status updated to permit unsupervised operations in the relevant type or class of aeroplane.

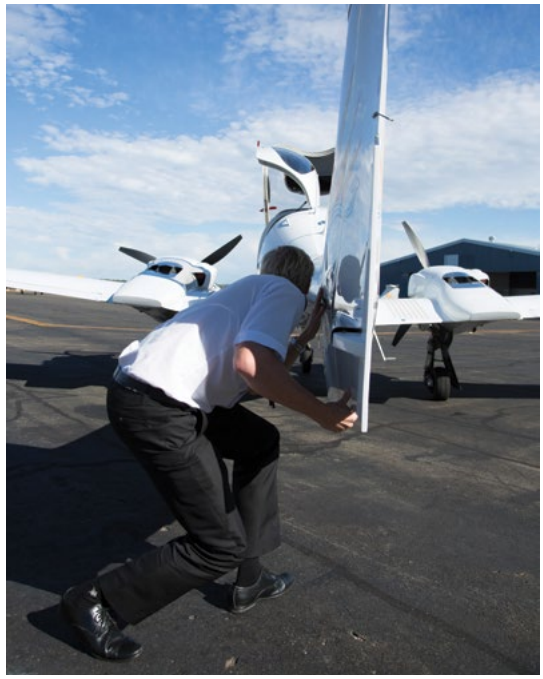
19.5 Individuals who conduct training and checking

(135.445, MOS 13.11 and 13.12)

The training or check you conduct must be detailed in your exposition and conducted by an individual who:

- meets the minimum experience and entry control requirements outlined in your exposition for a training air crew member, check air crew member, or training and check air crew member (as applicable)
- has successfully completed the relevant training program
- has fulfilled the required recency or proficiency requirements necessary for conducting the training or check
- has been nominated by you and officially listed in your exposition as meeting the criteria for a training air crew member, check air crew member, or training and check air crew member within your training and checking system.

CASA may elect to test the person you nominate to be a training air crew member, check air crew member, or training and check air crew member, as applicable, to assess their competency for the role.



CASA must give the individual:

- written notice of the test which includes the date, time and location of the test (these must be reasonable in the circumstances)
- a copy of the result of the test, including the CASA testing officer's assessment of their competency in the role.

> **Note:** If CASA assesses an individual and deems them unfit to conduct training or checks, it has the authority under Subpart 11.G of CASR to require further training before they start or continue in the role.

19.6 Competence

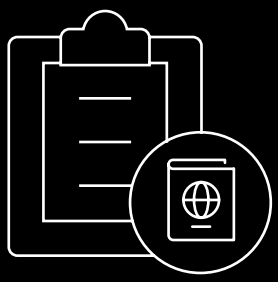
(135.450)

Any air crew member assigned by you to a flight must be assessed, in accordance with your exposition, as competent to perform their duties.

19.7 English proficiency

(135.455)

An air crew member assigned by you for a flight must meet the ICAO level 4, 5 or 6 aviation English language proficiency standards mentioned in the Part 61 MOS (Section 2 of Schedule 8).



CHAPTER 20
OTHER PERSONNEL

20.1 Overview

This chapter outlines the roles and responsibilities of other operational personnel, such as ground crew and support staff, who assist in ensuring safe and efficient operations under Part 135. It explains how their duties support the flight crew, including aircraft turnaround, refuelling, loading, and passenger handling. All personnel must be trained and competent for their assigned tasks to maintain compliance and safety standards. Ground support personnel carry out support duties such as:

- aeroplane fuelling
- anti-icing and de-icing of aeroplane
- preparation of aeroplane weight and balance documentation
- flight planning
- aeroplane receipt and dispatch
- passenger acceptance and boarding
- operation of passenger loading devices
- preparing baggage and cargo for flight
- loading and unloading aeroplane
- operation of ground support equipment.

20.2 Competence of ground support personnel

(135.125 and 119.170)

Any personnel carrying out ground support duties for a flight must have successfully completed training and been assessed as competent to perform their assigned ground support duties.

Your exposition must include information, procedures and instruction on how the training and checking system complies with the requirements of the regulations for ground support personnel.

For operations in an aeroplane with a MTOW of more than 8,618 kg and/or a maximum operational passenger seat configuration of more than 9 seats, there are additional requirements to be met if ground personnel are also considered operational safety-critical personnel. Your training and checking system must include:

- a description of how training and checking, including recurrent training, is conducted
- an auditable system for maintaining records of training and checking results
- the circumstances when training is required to familiarise personnel with their duties
- if you have a contract with a person for them to conduct training or checking on your behalf:
  - details of the person
  - details of the training or checking covered by the contract
  - details of how you ensure the person is complying with your training and checking system
- if any training or checking is conducted by your personnel, you must include a description of your system for training and assessing operational safety-critical personnel.

Exemption CASA EX68/24 – Part 119 of CASR – Supplementary Exemptions and Directions Instrument 2024 exempts you from the requirements in this section as detailed above for operational safety-critical personnel provided your exposition includes information, procedures and instructions on how your training and checking system:

- ensures exempted personnel are competent in their duties and that they do not pose a risk to aviation safety
- ensures immediate action will be taken if someone loses competence or becomes a safety risk.

Note: This exemption does not apply to flight crew or other crew members with duties directly relate to flying or aircraft safety. Consider reviewing sections 14 and 15 of the exemption.

CHAPTER 21
MEDICAL TRANSPORT SPECIALISTS

21.1 Overview

This chapter details the requirements for medical transport specialists and includes:

- training and checking requirements
- emergency training that may be required
- conversion, line, recurrent and remedial training
- differences training if required
- who can provide the training and checking
- proficiency and competency checks.

21.2 Training and checking for medical transport specialists

(135.460, MOS 14.02, 14.03, 14.04, 14.05, 14.06 and 14.07)

If a medical transport specialist is required for a flight, they must meet the training and checking requirements as outlined in table 31.

A medical transport specialist must meet the following training and checking requirements for your operation. They must have successfully completed:

- your general emergency training and the medical transport specialist general emergency check of competency (see table 31 of this guide)
- your conversion training and the medical transport specialist proficiency check (see table 31 of this guide)
- your differences training (if required) (see table 31 of this guide)
- your recurrent training and checking (see section 21.3 of this guide)
- your remedial training (if required) (see section 21.4 of this guide).

They must also be undertaking, or have successfully completed, your line training and the medical transport specialist line check.

Explainer: (MOS 14.01)

A medical transport specialist general emergency check of competency means an assessment, conducted by your organisation in accordance with your exposition, of whether a person is competent, as a medical transport specialist.

A medical transport specialist line check means an assessment, conducted by your organisation in accordance with your exposition, of whether a person is competent to safely carry out the duties as a medical transport specialist in the aeroplane.

A medical transport specialist proficiency check means an assessment, conducted by your organisation in accordance with your exposition, of whether a person is competent to safely carry out the duties as a medical transport specialist in the aeroplane.

Table 31: Medical transport specialist training requirements

Type of training	Requirements
general emergency training	the training must include: › general emergency and survival procedures for the aeroplane › aerodrome and aeroplane security procedures › the location of, access to and use of, the emergency and safety equipment on the aeroplane › if life jackets and life rafts are required to be carried then training in ditching procedures, including in-water practical training and the use of life jackets and life rafts › if life rafts are not required but life jackets are carried then training in ditching procedures including in-water practical training, and the use of life jackets
conversion training proficiency check	the training must include: › the duties and responsibilities for the position › the standard operating procedures for the type or class of aeroplane used for the flight › the normal, non-normal and emergency procedures for an aeroplane of that type or class › the procedures for any other operations conducted that the medical transport specialist has not previously experienced
line training and line check	the training must include: › your safety management system's risk assessment and management practices › the procedures for the conduct of line operations › the procedures related to aerodrome ground handling, aircraft parking and public safety › medical patient handling, briefings and safety demonstrations (if applicable) › pre and post-flight activities
differences training	the training must include: › the limitations or systems of the aeroplane that the medical transport specialist has not previously received training for › the location, and use, of equipment if the equipment on the aeroplane that the medical transport specialist has not previously received training for

21.3 Recurrent training and checking

(MOS 14.08)

All recurrent training activities are conducted as checks unless the medical transport specialist requires additional support to meet the required standard. If a medical transport specialist does not demonstrate competency during the check, remedial training is to be provided, followed by a re-check to confirm they meet the regulatory requirements. See section 21.4 of this guide.

You must ensure air crew maintain competency through regular checking, with training delivered only when necessary to address identified gaps.

A medical transport specialist must have successfully completed your recurrent checking for the aeroplane as detailed in table 32.

Table 32: Air crew recurrent training and checking requirements

Type of recurrent training and checking	Time period requirements	Conditions
general emergency check of competency	not more than 1 year after the previous check	a check of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date
general emergency check of competency – the use of life rafts	not more than 3 years after the previous check	a check of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date
proficiency check for a medical transport specialist for the relevant aeroplane	initially 1 year after first commencing unsupervised line operations for you, and then at intervals of 1 year after the previous proficiency check	subsequent checks of competency successfully completed within 90 days before, or after, its due date is taken to meet the requirements as if it had been completed on the due date

Recurrent training and checking in relation to the use of life rafts or life jackets does not need include in-water practical training.

21.4 Remedial training

(MOS 14.09)

If a medical transport specialist fails either the general emergency check of competency or the medical transport specialist proficiency check as outlined in table 32, then before resuming duty they must:

- successfully complete targeted remedial training in the areas where the competency for the kind of aeroplane was not demonstrated (as identified in the failed check)
- then pass the general emergency check of competency or medical transport specialist check for the relevant type or class of aeroplane
- then have their air crew member status updated to permit unsupervised operations in the relevant type or class of aeroplane.

21.5 Individuals who conduct training and checking

(MOS 14.10, 14.11 and 14.12)

The training or check must be conducted by an individual who has:

- met the minimum experience and entry control requirements, stated in your exposition, for a training medical transport specialist, check medical transport specialist, or training and check medical transport specialist, as applicable
- completed the training program, for a training medical transport specialist, check medical transport specialist, or training and check medical transport specialist, as applicable, that is included in your exposition
- met the relevant recency or proficiency requirements that are required for the conduct of the training or check, as stated in your exposition
- been nominated by you to be a training medical transport specialist, check medical transport specialist, or training and check medical transport specialist, as applicable, for your training and checking system.

CASA may elect to test the person you nominate to assess their competency for the role in which case CASA must give the individual:

- written notice of the test
- the date, time and location of the test (these must be reasonable in the circumstances)
- a copy of the result of the test, including the CASA testing officer's assessment of their competency in the role.

21.6 Competence

(135.465)

Any medical transport specialist assigned by you to duty for a flight must be assessed in accordance with your exposition, as competent to perform their duties.

APPENDICES

Appendix A: Acronyms and abbreviations

Term	Meaning
ABN	Australia Business Number
AC	Advisory Circular
ACAS	airborne collision avoidance system
ACNS	airborne communications, navigation and surveillance
AD	automatic deployable i.e. ELT(AD)
ADF	automatic direction finder
ADS-B	Automatic Dependent Surveillance – Broadcast (ADS-B)
AFM	aircraft flight manual
AGL	above ground level
AIP	aeronautical information package
AIP GEN	Aeronautical information package general
AIS	aeronautical information service
ALA	authorised landing area
AMC	acceptable means of compliance
AMSA	Australia Maritime Safety Authority
ANZA	Australia and New Zealand mutual recognition agreements
AOC	air operator certificate
AP	automatic portable i.e. ELT (AP)
APU	auxiliary power unit
ASIC	Aviation Security Identification Card
AS/NZS	Australian standard/New Zealand standard
ASETPA	approved single-engine turbine-powered aeroplane
ATC	air traffic control
ATPL	air transport pilot licence
ATS	air traffic services
AVID	Aviation Identification
CAA	Civil Aviation Act 1988
CAO	Civil Aviation Order
CAR	Civil Aviation Regulations (1988)
CASA	Civil Aviation Safety Authority
CASA EX	an exemption granted by the Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations 1998
CAT	category
CEO	chief executive officer

Term	Meaning
CFR	code of federal regulations
CofA	certificate of airworthiness
CPL	commercial pilot licence
CVR	cockpit voice recorder
DAPs	departure and approach procedures
EASA	European Aviation Safety Agency
EFB	electronic flight bag
EFIS	electronic flight instrument system
EHS DAPs	enhanced surveillance downlink of aircraft parameters
ELT	emergency locator transmitter
ERSA	en-route supplement Australia
ETA	estimated time of arrival
(E)TSO	European technical standard order
EX	exemption
FAA	Federal Aviation Administration (United States of America)
FAR	Federal Aviation Regulation (United States of America)
FCM	flight crew member
FDE	fault detection and exclusion
FDR	flight data recorder
FIR	flight information region
FL	flight level
FRMS	fatigue risk management system
ft	feet
GNSS	global navigation satellite system
HFP&NTS	human factor principles and non-technical skills
HOFO	head of flying operations
HOTC	head of training and checking
hPa	hectopascal
HPL	horizontal protection level
ICAO	International Civil Aviation Organisation
ID	identification
IFR	instrument flight rules
IMC	instrument meteorological conditions
ISA	international standard atmosphere

Term	Meaning
kgs	kilograms
Km	kilometre
kts	knots
LAHSO	land and hold short operation
LDA	landing distance available
LSALT	lowest safe altitude
LVTO	low-visibility take-off
MEL	minimum equipment list
MHz	megahertz
MMEL	master minimum equipment list
MOPSC	the maximum operational passenger seat configuration for an aeroplane
MOS	manual of standards
MTOW	maximum take-off weight
N	north
NAA	National Aviation Authority
NACp	navigation accuracy category – position
NIC	navigation/Integrity Category
NM	nautical mile
NOTAMS	notices to airmen
NUCp	navigation uncertainty category – position
OEI	one engine inoperative
PAN OPS	Procedures for Air Navigation Services – Aircraft Operations
PBE	personal breathing equipment
PBN	performance based navigation
PED	portable electronic device
PIC	pilot in command
PICUS	pilot in command under supervision
PRM	precision runway monitor
PSEA	prescribed single-engine operations
PUS	permissible unserviceability
RA	resolution advisory
RNP	required navigation performance
RPT	regular public transport
RTCA	Radio Technical Commission of Aeronautics
S	south

Term	Meaning
S	survival i.e. ELT(S)
SIL	source integrity level
SM	safety manager
SMS	safety management system
SSR	secondary surveillance radar
STC	supplemental type certificate
STPD	standard temperature and pressure dry
T&C	training and checking
TA	traffic advisory
TAWS	terrain awareness and warning system
TC	type certificate
TCDS	type certificate data sheet
TODA	take-off run available
TORA	take-off run available
TSO	technical standards orders
US TERPS	U.S. Standard for Terminal Instrument Procedures
V	velocity
VFR	visual flight rules
VHF	very high frequency
VMC	visual meteorological criteria
VOR	VHF omnidirectional range

Appendix B: Definitions

Term	Meaning
additional fuel	supplementary amount of fuel required to allow an aeroplane that suffers engine failure or loss of pressurisation at the critical point along the route (whichever results in the greater subsequent fuel consumption) to: › proceed to an alternate aerodrome for the flight of the aeroplane; and › fly for 15 minutes at the holding speed, for the aeroplane, at 1,500 ft above the aerodrome elevation in ISA conditions; and › make an approach and landing
ADS-B OUT	the functional capability of an aircraft or vehicle to periodically broadcast its state vector (position and velocity) and other information derived from onboard systems in a format suitable for ADS-B IN capable receivers
aerodrome	a defined area (including buildings, installations, and equipment) intended for the arrival, departure, and movement of aircraft
aeronautical information publication (AIP)	an official publication containing regulations, procedures, and other information necessary for safe flight operations
aeroplane	a power-driven heavier-than-air aircraft deriving lift in flight from aerodynamic reactions on fixed surfaces
airborne collision avoidance system	a system fitted to an aircraft to provide information to its pilot for avoiding collisions with other aircraft
aircraft address	a unique combination of 24 bits available for assignment to an aircraft for the purpose of air-ground communications, navigation, and surveillance
air crew member general emergency check of competency	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent, as an air crew member, in relation to the matters mentioned in subsection 13.04(2) of the MOS
air crew member line check	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as an air crew member in the aeroplane, which relates to the matters mentioned in subsection 13.06(2) of the MOS
air crew member proficiency check	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as an air crew member in the aeroplane, which relates to the matters mentioned in subsection 13.05(2) of the MOS
air operator's certificate (AOC)	a certificate issued by CASA authorising an operator to conduct air transport operations
alternate aerodrome	an aerodrome specified in a flight plan where an aeroplane may land if landing at the intended destination becomes inadvisable
approval	an approval provided in writing by CASA under regulation 135.020, 61.040, 91.045 or 119.025 of CASR
approved	approved in writing by CASA. Such an approval may contain conditions listed on your AOC

Term	Meaning
approved ACAS	an ACAS that is authorised in writing by CASA, or the NAA of a recognised country, in accordance with one of the following: a. (E)TSO-C119c b. (E)TSO-C219
approved ADS-B OUT equipment configuration	an equipment configuration capable of ADS-B OUT operation on the ground and in flight, and that is one of the following: › an approved Mode S transponder with ADS-B capability connected to an approved GNSS position source › an alternate ADS-B OUT equipment configuration meeting the requirements mentioned in section 11.64 of the MOS › another system approved under Part 21 of CASR as having a level of performance equivalent to a system mentioned in paragraph (a) or (b)
approved flight simulation	a flight simulator is an approved flight simulator for a purpose if: › a Part 141 operator's operations manual, or a Part 142 operator's exposition, states that the simulator may be used for the purpose the operator of the simulator holds an approval under regulation 60.055 to use the simulator for the purpose › the simulator is: qualified (however described) by the national aviation authority of a recognised foreign state approved for the purpose by the national aviation authority
approved GNSS position source	a GNSS position source that is: › authorised by the FAA or EASA in accordance with one of the following: » (E)TSO-C145a » (E)TSO-C146a » (E)TSO-C196a › an alternate GNSS position source meeting the requirements mentioned in section 11.63 of the MOS › another system approved under Part 21 of CASR as having a level of performance equivalent to performance
approved landing factor	for a propeller-driven aeroplane, means the landing factor for which the aeroplane operator holds an approval under regulation 135.020 of CASR
approved Mode A/C transponder	means a Mode A transponder, or Mode C transponder, which is authorised: › by CASA, or the NAA of a recognised country, in accordance with TSOC74c or ETSO-C74d; or › by CASA in accordance with ATSO-1C74c
approved Mode S transponder	a Mode S transponder that is: a. authorised by CASA, or the NAA of a recognised country, in accordance with TSO-C112 or ETSO-2C112a b. another system approved under Part 21 of CASR as having a level of performance equivalent to a system mentioned in paragraph (a)

Term	Meaning
approved Mode S transponder with ADS-B capability	an approved Mode S transponder that is: a. authorised by CASA, or the NAA of a recognised country, in accordance with (E)TSO-C166; or b. another system approved under Part 21 of CASR as having a level of performance equivalent to a system mentioned in paragraph (a)
approved transponder	an approved Mode A/C transponder or approved Mode S transponder
approved take-off factor	for a propeller-driven aeroplane, means the take-off factor for which the aeroplane operator holds an approval under regulation 135.020 of CASR
assessment	the process of gathering measurable information and evidence about the performance of an individual or team and comparing this with a defined set of competency standard
assigned aircraft address	an aircraft address that is assigned to an aircraft by: a. for an aircraft registered on the Australian Civil Aircraft Register – CASA b. for an aircraft that is a foreign-registered aircraft – the relevant NAA
assisting crew member	a crew member who assists flight crew members with the fight crew member's duties
Australian registered aircraft	an aircraft registered in Australia
authorisation	a permission, approval, licence, rating, or endorsement granted under the civil aviation legislation that allows a person to perform a specified aviation activity
aviation English language proficiency	an aviation English language proficiency assessment conducted under regulation 61.255
CASA (Civil Aviation Safety Authority)	the regulatory body responsible for the safety regulation of civil air operations in Australian territory and for Australian-registered aircraft operating outside Australia
CASR (Civil Aviation Safety Regulations)	the set of legal regulations governing civil aviation safety in Australia
certificate of airworthiness (CofA)	a document certifying that an aircraft meets the required safety and airworthiness standard
checklists (normal, abnormal, emergency)	standardised lists of actions for pilots and crew to follow for safe aeroplane operation
chief executive officer (CEO)	the person appointed by the operator who is responsible for the overall management and control of the organisation and its operations

Term	Meaning
civil aviation legislation	has the meaning given in the Civil Aviation Act 1988 or the regulations legislative instruments made under the Act or the regulations Chapter 7 of the Criminal Code, insofar as that Chapter applies to conduct in relation to: › the Civil Aviation Act 1988 or the regulations › legislative instruments made under › the Act or the regulations › CASA › an officer of CASA acting, or purporting to act, in the course of the officer's official duties; or › an authorised person acting, or purporting to act, in accordance with powers conferred under the regulations; or › a person to whom a power or function has been delegated under the Civil Aviation Act 1988, the regulations, or an instrument made under that Act or the regulations
clearway	› for an aerodrome in Australian territory—has the meaning given in the Part 139 (Aerodromes) Manual of Standards 2019; or › for an aerodrome in a foreign country—means the clearway for a runway at the aerodrome, declared in accordance with the relevant requirements of the NAA of the country
cold weather operations	procedures and requirements for safely operating aircraft in low temperatures, including de-icing
combination recorder	a single recording system combining the capabilities and the functions of an FDR and a CVR
competency	a combination of skills, knowledge and behaviours required to perform a task to the prescribed standard
compliance	adhering to civil aviation legislation, regulations, and exposition requirements
conduct	› in relation to a flight operation – to occupy a flight control seat in an aircraft while the operation takes place › in relation to a simulated flight operation – to occupy a flight control seat in an approved flight simulation training device while the simulated operation takes place
contingency fuel	for an aeroplane and flight, means the amount of fuel required to compensate for unforeseen factors, which must not be less than the greater of the following amounts: › if: » the aeroplane is a piston-engine aeroplane — 10% of the trip fuel amount for the flight or » the aeroplane is a turbine-engine aeroplane — 5% of the trip fuel amount for the flight › an amount of fuel required to fly, in ISA conditions, for 5 minutes at the holding speed, for the aeroplane, at 1 500 ft above the planned destination aerodrome
copilot	a pilot onboard an aircraft in a piloting capacity other than the pilot in command, or a pilot who is onboard the aircraft for the sole purpose of receiving flight training
crew member	any person assigned to duties related to an aeroplane's operation during flight time

Term	Meaning
dangerous goods (DGs)	hazardous materials that pose risks to health, safety, or property when transported by air
DAPs	Mode S EHS downlink aircraft parameters
destination alternate fuel	the amount of fuel required to enable an aeroplane to do the following in a sequence: › perform a missed approach at the destination aerodrome › climb to the expected cruising altitude › fly the expected routing to the destination alternate aerodrome › descend to the point where the expected approach is initiated › conduct the approach › land at the destination alternate aerodrome
differences training	additional training required for a pilot transitioning to an aeroplane with different operating characteristics
duration (of flight)	for a flight in an aeroplane – the time from the moment the aircraft begins moving, whether or not under its own power, in preparation for flight until the moment it comes to rest at the end of the flight
EASA AMC 20-24	Annex II to ED Decision 2008/004/R titled Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHz Extended Squitter, dated 2 May 2008, of EASA
EASA CS-ACNS	Annex I to ED Decision 2013/031/R titled Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance CS-ACNS, dated 17 December 2013, of EASA, or any later version
electronic flight bag (EFB)	a digital system replacing paper-based flight documents, including charts, manuals, and checklists
emergency locator transmitter (ELT)	a device that transmits distress signals in case of an aircraft emergency or crash
emergency procedures	defined actions taken in response to emergency situations, such as system failures or adverse weather
en route alternate aerodrome	an alternate aerodrome that is an en route alternate (within the meaning of Annex 2 to the Chicago Convention)
equipment	any reference to equipment being required, fitted, carried, or accessible means equipment that is operative or serviceable
established	› established by the aeroplane's manufacturer, and published in the aeroplane's flight manual › established by the use of a fuel consumption monitoring system › established by the aeroplane's operator and published in the operator's exposition, along with: » the relevant data and methodology used; or » references to another accessible location of the data and methodology used
exceedance report	a report documenting instances where operational limits (for example, speed, altitude, engine performance) were exceeded

<table>
<tr><th>Term</th><th>Meaning</th></tr>
<tr><td>exemption</td><td>a formal authorisation granted by CASA allowing deviation from specific regulatory requirements under defined conditions</td></tr>
<tr><td>exposition</td><td>the terms “operations manual” and “exposition” are synonymous</td></tr>
<tr><td>factored landing distance</td><td>for an aeroplane mentioned in column 1 of an item in Table 10.11, conducting a landing mentioned in column 2 of the item, the factored landing distance is the landing distance required, for the aeroplane, multiplied by the factor mentioned in column 3 of the item

Table 10.11 of the MOS Factored landing distance
<table><tr><th>Item</th><th>Column 1</th><th>Column 2</th><th>Column 3</th></tr><tr><td></td><td>Aeroplane</td><td>Landing</td><td>Factor</td></tr><tr><td>1</td><td>Propeller-driven aeroplane for which:
(a) there is a flight manual; and
(b) there is no approved landing factor</td><td>A landing that is not part of a land and hold short operation</td><td>The standard landing factor for the aeroplane</td></tr><tr><td>2</td><td>Propeller-driven aeroplane for which there is an approved landing factor</td><td>A landing that is not part of a land and hold short operation</td><td>The approved landing factor for the aeroplane</td></tr><tr><td>3</td><td>Jet driven aeroplane</td><td>A landing that is not part of a land and hold short operation</td><td>1.67</td></tr><tr><td>4</td><td>Aeroplane not mentioned in item 1, 2 or 3</td><td>A landing that is:
(a) part of a land and hold short operation; and
(b) on a dry runway into wind</td><td>1.67</td></tr><tr><td>5</td><td>Aeroplane not mentioned in item 1, 2 or 3</td><td>A landing that is:
(a) part of a land and hold short operation; and
(b) not on a dry runway into wind</td><td>1.92</td></tr></table></td></tr>
</table>

<table>
<tr><th>Term</th><th>Meaning</th></tr>
<tr><td>factored take-off run</td><td>the factored take-off run, for an aeroplane of the kind mentioned in column 1 of an item in Table 10.04, is the take-off run required, for the aeroplane, multiplied by the factor mentioned in column 2 of the item
<table>
<tr><th colspan="3">Table 10.04 of the MOS Factored take-off run</th></tr>
<tr><th>Item</th><th>Column 1</th><th>Column 2</th></tr>
<tr><th></th><th>Aeroplane</th><th>Factor</th></tr>
<tr><td>1</td><td>Aeroplane for which:
(a) there is a flight manual; and
(b) there is no approved take-off factor</td><td>The standard take-off factor for the aeroplane</td></tr>
<tr><td>2</td><td>Propeller-driven aeroplane for which there is an approved take-off factor</td><td>The approved take-off factor for the aeroplane</td></tr>
</table></td></tr>
<tr><td>fatigue risk management system (FRMS)</td><td>a structured approach to managing fatigue-related risks in aviation</td></tr>
<tr><td>FDE</td><td>fault detection and exclusion, a feature of a GNSS receiver that excludes faulty satellites from position computation</td></tr>
<tr><td>FDR</td><td>flight data recorder</td></tr>
<tr><td>final reserve fuel</td><td>the calculated amount of fuel:
› that is required to fly an aeroplane mentioned in column 1 of an item in the following table, calculated as follows:
» for the kind of flight mentioned in column 2 of the item—for the period of the flight mentioned in column 3 of the item
» at 1500 ft above aerodrome elevation in ISA conditions
» at holding speed
» at the aeroplane's estimated weight on arrival at the destination alternate aerodrome, or planned destination aerodrome if no destination alternate aerodrome is required for the flight
» that is usable fuel remaining on completion of the final landing at the aerodrome
<table>
<tr><th colspan="4">Table – Final reserve fuel requirements</th></tr>
<tr><th>Item</th><th>Column 1</th><th>Column 2</th><th>Column 3</th></tr>
<tr><th></th><th>Aeroplane</th><th>Kind of flight</th><th>Final reserve fuel flight time</th></tr>
<tr><td>1</td><td>A piston-engine aeroplane</td><td>IFR flight or VFR flight</td><td>45 minutes</td></tr>
<tr><td>2</td><td>A turbine-engine aeroplane</td><td>IFR flight or VFR flight</td><td>30 minutes</td></tr>
</table></td></tr>
</table>

Term	Meaning
first aid oxygen	a supply of undiluted oxygen for any passengers who, for physiological reasons, may still require oxygen when: a. there has been a cabin depressurisation; and b. the amounts of supplemental oxygen supply, otherwise required, have been exhausted
flight	the operation of an aircraft from the moment it begins to move for the purpose of taking off until the moment it comes to rest after landing
flight crew licence	a licence granted under CASR Part 61 authorising a person to perform duties as flight crew, including pilot or flight engineer duties, in accordance with the privileges and limitations of the licence
flight crew licensing (FCL)	regulations governing the qualifications and certification of pilots and crew members
flight crew member	a crew member who is a pilot or flight engineer assigned to carry out duties essential to the operation of an aircraft during flight time
flight crew member general emergency check of competency	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent, as a flight crew member, in relation to the matters mentioned in subsection 12.04(2) of the MOS
flight crew member line check	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a flight crew member in the aeroplane, which relates to the matters mentioned in subsection 12.06(2) of the MOS
flight crew member proficiency check	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a flight crew member in the aeroplane, which relates to the matters mentioned in subsection 12.05(2) of the MOS
flight duty period (FDP)	the total time a crew member is required to be on duty, including pre-flight and post-flight duties
flight manual (AFM/POH)	a document provided by the aeroplane manufacturer containing operating procedures, limitations, and performance data for an aeroplane
flight preparation form	a document signed by the PIC to certify that all operational and safety requirements are met before a flight
flight review	an assessment of the competency of a flight crew member to perform: › for the holder of a pilot licence or flight engineer licence – an activity authorised by a flight crew rating that the crew member holds

Term	Meaning
flight simulator	for a specific type (or a specific make, model and series) of aeroplane, a simulator that simulates the aeroplane in ground and flight operations and comprises: › a full-size replica of the flight deck of the aircraft › a visual system providing an out of the flight deck view › a force cueing motion system › includes the necessary software and equipment and the way that the equipment is interconnected
flight technical log	a document recording the operational and technical status of an aeroplane
flight test	for a flight crew licence, rating or endorsement: › a test conducted under regulation 61.245 for the licence, rating or endorsement
fuel reserves	the minimum required fuel onboard to ensure safe operation in case of delays or diversions
ground handling	services provided to an aeroplane while on the ground, including refuelling, baggage handling, and maintenance
hazard identification	the process of recognising conditions or activities that could cause harm or pose operational risks
headset	includes a flying helmet that incorporates a headset
head-up display (HUD)	a transparent display in the pilot's line of sight showing critical flight information
holding fuel	the amount of fuel required by an aeroplane to fly for the period anticipated for holding (taking into account the operating conditions), calculated at the holding fuel consumption rate established for the aeroplane for the anticipated meteorological conditions, or ISA conditions
HPL	the horizontal protection level of the GNSS position of an aircraft as an output of the GNSS receiver or system
human factors (HF)	the study of how human capabilities and limitations affect aviation safety and performance
in-flight medical emergency	an unexpected health crisis occurring during flight, requiring immediate response
inoperative	an item for a flight of an aircraft is inoperative if, due to a defect, the item, or a function of the item, does not: a. accomplish its intended purpose; or b. consistently function within the operating limits or tolerances mentioned in the approved design for the item or the flight manual for the aircraft
instrument flight rules (IFR)	a set of regulations under which a pilot operates an aeroplane primarily by reference to instruments rather than visual cues
journey log	a record of key flight details, including departure and arrival times, fuel usage, and crew assignments
key personnel	individuals designated in an operator's exposition as responsible for the safety and compliance of operations (for example, CEO, head of flying operations, safety manager)

Term	Meaning
landing distance available	for a landing of an aeroplane at an aerodrome, means the length of runway at the aerodrome established by the aeroplane's operator to be available and suitable for the ground run of an aeroplane landing
landing distance required	for an aeroplane, means the landing distance for the aeroplane calculated in accordance with the relevant requirements stated in the aeroplane's flight manual
landing performance requirements	for an aeroplane, means the landing performance requirements for the aeroplane stated in its flight manual
line training	training conducted during actual commercial flight operations under the supervision of an instructor
logbook	a record of an aeroplane's maintenance, defects, and operational history
low-visibility operations (LVOs)	flight operations conducted in conditions of reduced visibility, requiring special procedures and equipment
manual of standards (MOS)	a legislative instrument issued under the Civil Aviation Safety Regulations that sets out detailed technical and operational requirements supporting a Part of CASR
may	indicates an option in the context of the requirement
medical transport operation (MTO)	an air transport operation conducted for the purpose of transporting medical personnel, supplies, or patients
medical transport specialist general emergency check of competency	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent, as a medical transport specialist, in relation to the matters mentioned in subsection 14.04(2) of the MOS
medical transport specialist line check	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a medical transport specialist in the aeroplane, which relates to the matters mentioned in subsection 14.06(2) of the MOS
medical transport specialist proficiency check	an assessment, conducted by an aeroplane's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a medical transport specialist in the aeroplane, which relates to the matters mentioned in subsection 14.05(2) of the MOS
minimum equipment list (MEL)	a list of the minimum operable equipment required for a flight to be conducted legally and safely
Mode A	is a transponder function that transmits a 4-digit octal identification code for an aircraft's identity when interrogated by an SSR
Mode A code	is the 4-digit octal identification code transmitted by a Mode A transponder function
Mode C	is a transponder function that transmits a 4-digit octal identification code for an aircraft's pressure altitude when interrogated by an SSR
Mode S	is a transponder function that uses a unique aircraft address to selectively call individual aircraft, and supports advanced surveillance using Mode S EHS, Mode S ELS, or Mode S ES capabilities

Term	Meaning
Mode S EHS	Mode S enhanced surveillance, which is a data transmission capability of a Mode S transponder
Mode S ELS	Mode S elementary surveillance, which is a data transmission capability of a Mode S transponder
Mode S ES	Mode S extended squitter, which is a data transmission capability of a Mode S transponder used to transmit ADS-B OUT information.
must	indicates an obligation or necessity (i.e., a mandatory requirement)
operative	for anything, means the thing is not inoperative **Note:** The term inoperative is defined in the Dictionary.
operational control	the authority and responsibility for initiating, conducting, and terminating a flight
operational flight plan	a document detailing flight preparation, including route, fuel, weather, and aeroplane performance considerations
operational flight risk assessment	a pre-flight evaluation of potential hazards affecting flight safety
operations manual	the terms 'operations manual' and 'exposition' are synonymous
operator (of an aeroplane)	a person or organisation that holds an AOC for an air transport operation
Part	unless otherwise specified, refers to a Part of the CASR
passenger list (Manifest)	a document listing all passengers onboard, including embarkation and disembarkation details
person	can include the pilot, an operator, a passenger, a ground support person, or another person
pilot (noun)	refers to any flight crew member (not necessarily the pilot in command) authorised under CASR Part 61 to manipulate the flight controls of an aircraft during flight
pilot (verb)	› to manipulate the flight controls of an aircraft during flight › to occupy a flight control seat in an aircraft during flight
pilot in command (PIC)	the pilot responsible for the operation and safety of an aeroplane during flight time
point of in-flight replanning	a point en route during a flight of an aeroplane, determined by the operator or pilot in command for the flight before the flight commences, at which an aeroplane can: › if the flight arrives at the point with adequate fuel to complete the flight to the planned destination aerodrome while maintaining the fuel required by subsection 7.04(2) —continue to that aerodrome › otherwise – divert to an en route alternate aerodrome while maintaining the fuel required by subsection 7.04(3) of the MOS
post-flight inspection	a mandatory check of an aeroplane after landing to detect any damage or technical issues
pre-flight briefing	a meeting where crew members review flight details, weather, procedures, and emergency protocols
pre-flight Inspection	a mandatory walk-around inspection conducted by the pilot before flight to ensure aeroplane airworthiness

Term	Meaning
presumed temperature	at an aerodrome, in relation to the take-off of an aeroplane, means the most limiting of the following: › the ambient temperature › the temperature assumed to be the ambient temperature determined using the procedures, stated in the aeroplane operator's exposition, for estimating the ambient temperature at take-off for the purpose of determining take-off performance
quick-donning mask	an oxygen mask that: › is for a flight crew member's personal use › within 5 seconds of it being deployed and ready for use, the flight crew member can, with 1 hand, place over the flight crew member's face, secure and seal
radio	as with other equipment, which is required to be fitted or carried, a reference to "radio" or "radiocommunications system" means one that is operative. Where a radio is required, the pilot must be qualified to use it (see 91.625)
recurrent training	ongoing training required at regular intervals to maintain crew competency and regulatory compliance
regulations	in general, this refers to Australian civil aviation legislation
relevant cruising speed	the one-engine-inoperative cruising speed, in ISA conditions and still air, stated in the operator's exposition
remedial training	additional training provided to crew members who fail to meet required performance standards
resolution advisory (RA)	for an ACAS, means an indication given to the flight crew recommending: › a manoeuvre intended to provide separation from all threats › a manoeuvre restriction intended to maintain existing separation
risk management	a systematic approach to identifying, analysing, and mitigating safety hazards
RTCA/DO-229D	document RTCA/DO-229D titled Minimum operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment, dated 13 December 2006, of the RTCA Inc. of Washington D.C. USA (RTCA Inc.)
RTCA/DO-260	RTCA Inc. document RTCA/DO-260 titled Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance – Broadcast (ADS-B), dated 13 September 2000
RTCA/DO-260B	RTCA Inc. document RTCA/DO-260B titled Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance – Broadcast (ADS-B) and Traffic Information Services – Broadcast (TIS-B), dated 2 December 2009
runway strip	› for an aerodrome in Australian territory—has the meaning given in the Part 139 (Aerodromes) Manual of Standards 2019 › for an aerodrome in a foreign country—means the runway strip for a runway at the aerodrome, as declared in accordance with the relevant requirements of the NAA of the country

Term	Meaning
safe area	an area of land or water, before the start of the landing distance available for a landing of an aeroplane at the aerodrome, which: › has no obstacles › has a surface that is not suitable to be used for the ground run of the aeroplane during landing
safety briefing card	a printed or digital card providing emergency and safety instructions to passengers
safety management system (SMS)	a systematic approach to managing safety, including policies, risk management, and continuous improvement processes
secondary surveillance radar (SSR)	a surveillance radar system which uses transmitters/receivers (interrogators) and transponders
short landing operation	a landing of the aeroplane at the aerodrome where the airborne component of the landing distance required, for the aeroplane, commences at a position in the aerodrome's safe area
significant change	a modification to operations, personnel, or equipment that requires CASA approval before implementation
simulator check	an assessment of pilot competency conducted in a flight simulator
single-pilot operation	an operation in an aircraft, other than a multicrew operation
situational awareness (SA)	a pilot's understanding of their surroundings, including aeroplane status, weather, and air traffic
standard landing factor	› for an aeroplane with a MTOW of not more than 2,000 kg—1.15 › for an aeroplane with a MTOW of more than 2,000 kg, but less than 4,500 kg—a factor derived by linear interpolation, between 1.15 and 1.43, according to the aeroplane's MTOW › for an aeroplane with a MTOW of 4,500 kg or more—1.43
standard take-off factor	› for an aeroplane with a MTOW of not more than 2,000 kg—1.15 › for an aeroplane with a MTOW of more than 2,000 kg, but less than 3,500 kg—a factor derived by linear interpolation between 1.15 and 1.25, according to the aeroplane's MTOW › for an aeroplane with a MTOW of 3,500 kg or more—1.25
standard temperature and pressure	means 0 degrees Celsius at a pressure of 760 mm Hg
subpart	unless otherwise specified, a subordinate part of Part 135
surveillance radar	radar equipment used to determine the position of an aircraft in range and azimuth
take-off alternate aerodrome	an alternate aerodrome that is a take-off alternate (within the meaning of Annex 2 to the Chicago Convention)
take-off and landing minima	the minimum weather conditions required for safe take-off and landing

Term	Meaning
take-off distance available	for a take-off of an aeroplane at an aerodrome, means the total of › the length of the take-off run available for a runway at the aerodrome; and/or › if: » a clearway is provided at the aerodrome—the length of the clearway » a clearway is not provided at the aerodrome—the length of the part of the runway strip between the end of the runway and the runway strip end
take-off distance required	for an aeroplane, means the take-off distance to 50 ft AGL, for the aeroplane, calculated in accordance with the relevant requirements stated in the aeroplane's flight manual
take-off run available	for a runway at an aerodrome, means the length of the runway available and suitable for the ground run of an aeroplane taking off at the aerodrome
take-off run required	for an aeroplane, means the take-off run for the aeroplane calculated in accordance with the relevant requirements stated in the aeroplane's flight manual
TAWS-Class B+	a TAWS that: a. is a TAWS-Class B; and b. includes a colour terrain display that meets the following requirements: i. the displayed terrain information must be depicted relative to the aeroplane's position such that the pilot can estimate the relative bearing to the terrain of interest ii. the displayed terrain information must be depicted relative to the aeroplane's position such that the pilot may estimate the distance to the terrain of interest iii. the displayed terrain information depicted must be oriented to either the heading or the track of the aeroplane, and may include an additional selectable north-up orientation format iv. variations in terrain elevation must be depicted relative to the aeroplane's current or projected elevation (above and below) and be visually distinct, except that terrain that is more than 2,000 ft below the aeroplane's elevation may be excluded v. terrain that generates alerts must be displayed in a manner that distinguishes it from non-hazardous terrain, consistent with the caution and warning alert level relevant to the TAWS Class B equipment
taxi fuel	the amount of fuel expected to be used by an aeroplane before take-off, taking into account: › local conditions at the departure aerodrome › APU consumption, if applicable
total cosmic radiation	the sum total of ionising, and neutron, radiation of galactic, and solar, origin
traffic advisory (TA)	for an ACAS, means an indication given to the flight crew that a certain intruder aircraft is a potential threat

Term	Meaning
training and checking system	the structured process for ensuring that flight and ground personnel maintain required qualifications and competencies
training provider	for a person undertaking flight training: › the Part 141 or Part 142 operator conducting the training › the person conducting the training who holds an approval under regulation 141.035 or Part 142.040 to conduct the training
transponder	an aircraft's SSR transponder
transport category aircraft	aircraft certified under specific airworthiness regulations (for example, Part 25 for aeroplanes in transport category)
trip fuel	the amount of fuel required to enable an aeroplane to fly from any point along the route until landing at a destination aerodrome, including (as applicable) the following: › fuel for take-off and climb from the departure aerodrome to initial cruising level or altitude, taking into account the expected departure routing › fuel for cruise from top of climb to top of descent, including any step climb or descent › fuel from top of descent to the point where the approach is initiated, taking into account the expected arrival procedure › fuel for executing an approach and landing
type rating	a certification required for pilots to operate specific aircraft types.
unforeseen factors	factors that could have an influence on an aeroplane's fuel consumption to the planned destination aerodrome, including: › the aeroplane's deviation from the expected fuel consumption data for an aeroplane of that type › extended delays and deviations from planned routings or cruising levels
visual flight rules (VFR)	regulations under which a pilot operates an aeroplane using visual references rather than instruments
visual meteorological conditions (VMC)	weather conditions that allow pilots to operate using visual references
weight and balance	the calculation ensuring that an aeroplane's weight distribution is within safe operational limits

Appendix C: Exemptions referred to this guide

Exemption/Instrument	Repeal date	Sections in this guide
CASA EX14/25 – Serviceability of Equipment under the Part 91, 121, 133 and 135 Manuals of Standards – Exemption Instrument 2025	28 February 2027	14.2, 14.7, 14.13, 14.20
CASA EX67/24 – Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024	1 December 2030	8.5, 10.2
CASA EX68/24 – Part 119 of CASR – Supplementary Exemptions and Directions Instrument 2024	1 December 2027	2.3, 6.3, 7.6, 20.2
CASA EX71/24 – Part 135, Subpart 121.Z and Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024	1 December 2027	7.9, 10.4, 13.3, 18.6
CASA EX73/24 – Flight Operations Regulations – SMS, HFP&NTS and T&C Systems – Supplementary Exemptions and Directions Instrument 2024.	1 December 2027	4.9, 5.2
CASA EX78/24 –Transitional Training and Checking Requirements for Crew Members in Part 135 Operations – Exemption Instrument 2024	1 December 2027	18.2, 18.3, 19.2
CASA EX17/26 Flight Operations (Exemptions – Key Personnel & Other Measures) Amendment (EX68/24 and EX72/24) Instrument 2026	1 December 2027	4.9

Appendix D: Version history

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Version 1.0 **June 2026**	**Details**
Version history (new)	Initial issue

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