Australian Government
Civil Aviation Safety Authority

ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL

Australian air transport operations—smaller aeroplanes

Part 135 of CASR

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An Acceptable Means of Compliance (AMC) explains how one or more requirements of the Civil Aviation Safety Regulations 1998 (CASR) for the issue of a certificate, licence, approval or other authorisation, can be met by an individual or organisation applying to the Civil Aviation Safety Authority (CASA) for the authorisation.

AMC are non-binding advisory documents issued by CASA which may be used by persons and organisations to achieve compliance with CASR.

Applicants are not required to utilise an AMC to comply with a legislative requirement but if they do, CASA will issue the authorisation to which the AMC relates.

AMC do not articulate the only way compliance can be achieved. Individuals and operators may, on their own initiative, propose other ways of meeting the requirements of CASR; however, any such proposal will be subject to separate assessment by CASA to determine whether the proposed methods are likely to produce the required legislative outcome.

Guidance material (GM) is non-binding material issued by CASA which helps to illustrate the meaning of a requirement or specification in CASR. It provides explanations of the CASR and sometimes an amplification of the policy intention underpinning the applicable provision of CASR, rather than a means of complying with it. GM should be read in conjunction with the applicable provision of CASR and AMC. GM is identified by grey shaded text.

Contents

Status

This version of the AMC and GM is approved by the Manager, Flight Standards Branch.

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

Version	Date	Details
v2.4	December 2023	Updated guidance contained under the Subpart 135.A heading about CASA EX97/22 (the MOPSC 10-13 seat exemption). Provided new guidance about performance data in the GM 135.340 entry.
v2.3	October 2023	Notable added new information is outlined below: • updated all references to CASA EX137/21 to instead refer to EX97/22 • about the forms to use for certain applications • included references to the legal instruments which determine, for operators who transitioned on 2 December 2021 to the new training and checking rules, the equivalency of certain training and checking events completed before 2 December 2021 to certain new training and checking requirements • about approvals that are mentioned in CASA exemption and direction instruments and how these relate to the significant change approval rules • GM 135.005: interrelationships between Part 135, Subpart 121.Z and CASA EX97/22 • GM 135.175: stabilised approach procedures • GM 135.350: removed the prohibition on simultaneous issue of approvals for reduced landing factors and short landing operations • AMC 135.370 and GM 135.370: information regarding multiple kinds of equipment • GM 135.380: flight crew member proficiency checks • GM 135.435: flight crew member recency on different aeroplanes • GM 135.460: training and checking for medical transport specialists.
v2.2	December 2021	Added references to additional exemptions incorporated into EX85/21 by EX150/21. Added reference to the exemption and transitional approvals arising from CASA EX161/21. Added additional guidance material to the References section.
v2.1	December 2021	Added references to exemptions and directions relating to Part 135 operators, and landing on wet runways guidance from CAAP 235-5 (the CAAP will be withdrawn on 2 December 2021).
v2.0	September 2021	Addition of new guidance material, clarification of policy matters and editorial changes.
v1.0	December 2020	Initial AMC and GM.

Unless specified otherwise, all subregulations, regulations, Divisions, Subparts and Parts referenced in this AMC/GM are references to the *Civil Aviation Safety Regulations 1998* (CASR).

1 Reference material

1.1 Acronyms

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

Acronym	Description
AC	advisory circular
AFM	aircraft flight manual
AIP	aeronautical information publication
ALA	aeroplane landing area
AMSA	Australian Maritime Safety Authority
APU	auxiliary power unit
ATC	air traffic control
ATSB	Australian Transport Safety Bureau
CAAP	Civil Aviation Advisory Publication
CAR	*Civil Aviation Regulations 1988*
CASA	Civil Aviation Safety Authority
CASR	*Civil Aviation Safety Regulations 1998*
CofA	Certificate of Airworthiness
EFB	electronic flight bag
ERSA	En Route Supplement Australia
FCOM	flight crew operating manual
GAF	graphical area forecast
IFR	instrument flight rules
IMC	instrument meteorological conditions
MEL	minimum equipment list
MOPSC	maximum operational passenger seat configuration
MOS	Manual of Standards
MTOW	maximum take-off weight
MTS	medical transport specialist
OEI	one engine inoperative
OEM	Original equipment manufacturer
ONC	operational navigation chart
PED	personal electronic device
PIC	pilot in command

Acronym	Description
PSEA	prescribed single-engine aeroplane
SAR	search and rescue
SMS	safety management system
SOP	standard operating procedures
STC	supplemental type certificate
TAF	terminal area forecast
TC	type certificate
VASIS	visual approach slope indicator system
VMC	visual meteorological conditions
WAC	world aeronautical chart

1.2 Definitions

Terms that have specific meaning within this AMC and GM are defined in the table below. Where definitions from the civil aviation legislation have been reproduced for ease of reference, these are identified by 'grey shading'. Should there be a discrepancy between a definition given in this AMC and GM and the civil aviation legislation, the definition in the legislation prevails.

Term	Definition
suitable forced landing area	refer to regulation 135.015.
air transport operation	1. An air transport operation is a passenger transport operation, a cargo transport operation or a medical transport operation, that: a. is conducted for hire or reward; or b. is prescribed by an instrument issued under regulation 201.025. 2. Despite subclause (1), an air transport operation does not include an aerial work operation or a balloon transport operation.
cargo transport operation	cargo transport operation: 1. means an operation of an aircraft that involves the carriage of cargo and crew only; but 2. does not include the following: a. an operation conducted for the carriage of the possessions of the operator or the pilot in command for the purpose of business or trade; b. a medical transport operation.
carry-on baggage	means baggage or personal effects taken into, or to be taken into, the cabin of an aircraft, for carriage on the aircraft, by: a. a person (including a crew member of the aircraft) travelling on the aircraft, or b. a member of the personnel of the operator of the aircraft on behalf of a person mentioned in paragraph (a).
medical transport operation	1. A medical transport operation is an operation: a. the primary purpose of which is to transport one or more of the

Term	Definition
	following: i medical patients; ii medical personnel; iii blood, tissue or organs for transfusion, grafting or transplantation; or b. of a kind prescribed by the Part 119 Manual of Standards for the purposes of this paragraph. Note: Other medical supplies (including medical equipment and medicines) might also be transported on an aircraft for a medical transport operation. 2. Despite subclause (1), an operation is not a medical transport operation if the operation is of a kind prescribed by the Part 119 Manual of Standards for the purposes of this subclause. **Note:** At the time of publication of v2.3 of this Part 135 AMC/GM document, no operations had been prescribed in the Part 119 Manual of Standards for the purposes of this definition.
medical transport specialist	means: 1. a crew member for a flight who carries out a specified function during the flight relating to a medical transport operation, and who is not: a. a flight crew member for the flight; or b. an air crew member for the flight; or 2. a crew member, for a flight, of a kind prescribed by the Part 119 Manual of Standards for the purposes of this paragraph. **Note:** At the time of publication of v2.3 of this Part 135 AMC/GM document, no crew members had been prescribed in the Part 119 Manual of Standards for the purposes of this definition.
passenger transport operation	1. A passenger transport operation is an operation of an aircraft that involves the carriage of passengers, whether or not cargo is also carried on the aircraft. 2. Despite (1), an operation is not a passenger transport operation if the operation is: a. an operation of an aircraft with a special certificate of airworthiness; or b. a cost-sharing flight; or c. a medical transport operation; or d. if the registered operator of an aircraft is an individual—an operation of the aircraft: i that involves the carriage of that individual; and ii does not also involve the carriage of other passengers; or e. if the registered operator of an aircraft is an individual—an operation of the aircraft: i that involves the carriage of that individual; and ii involves the carriage of other passengers; and iii for which no payment or reward is made or given in relation to the carriage of the other passengers or cargo.
visual approach slope indicator system	A visual approach slope indicator system is defined in the Part 139 MOS to include the following: 1. a T visual approach slope indicator system (T-VASIS), 2. an abbreviated T visual approach slope indicator system (AT-VASIS), 3. a precision approach path indicator system (PAPI),

Term	Definition
	4. a double-sided PAPI.

1.3 References

Legislation

Legislation is available on the Federal Register of Legislation website https://www.legislation.gov.au/

Document	Title
Civil Aviation Act	Civil Aviation Act 1988
Civil Aviation Regulations	Civil Aviation Regulations 1988
Civil Aviation Safety Regulations	Civil Aviation Safety Regulations 1998 (CASR)
Part 11 of CASR	Regulatory administrative procedures
Part 21 of CASR	Certification and airworthiness requirements for aircraft and parts
Part 23 of CASR	Airworthiness standards for aeroplanes in the normal, utility, acrobatic or commuter category
Part 25 of CASR	Airworthiness standards for aeroplanes in the transport category
Subpart 42.C of CASR	Continuing airworthiness management – requirements for person responsible for continuing airworthiness for aircraft
Regulation 61.340 of CASR	Production of licencing documents, medical certificates and identification
Part 91 of CASR	General operating and flight rules
Part 91 MOS	Part 91 (General operating and flight rules) Manual of Standards 2020
Part 92 of CASR	Consignment and carriage of dangerous goods by air
Regulation 92.025 of CASR	Compliance with technical Instructions – operators
Part 119 of CASR	Australian air transport operators—certification and management
Part 121 of CASR	Australian air transport operations—larger aeroplanes
Part 121 MOS	Part 121 (Australian air transport operations—larger aeroplanes) Manual of Standards 2020
Part 133 of CASR	Australian air transport operations—rotorcraft
Part 135 of CASR	Australian air transport operations—smaller aeroplanes
Part 135 MOS	Part 135 (Australian air transport operations—smaller aeroplanes) Manual of Standards 2020
CASR Dictionary	Part 1, Part 2, Part 3 of the CASR Dictionary
	Radiocommunications Act 1992
	Transport Safety Investigation Act 2003
CAO 48.1	Instrument 2019 (flight crew member fatigue requirements)

Document	Title
CAO 100.7	Instrument 2015 (Weight requirements for aircraft)
CASA 90/21	Training and Checking (CASR Part 119) Determination 2021
CASA 93/21	Training and Checking (CASR Part 135 and Subpart 121.Z) Determination 2021
CASA 152/12	Direction – Personal Electronic Devices used as Electronic Flight Bags or provided as In Flight Entertainment devices
CASA EX81/20	Implementation of Drug and Alcohol Management Plans (Micro-businesses and DAMP Organisations) Exemption 2020
CASA EX81/21	Part 91 of CASR - Supplementary Exemptions and Directions Instrument 2021
CASA EX82/21	Part 119 of CASR - Supplementary Exemptions and Directions Instrument 2021
CASA EX85/21	Part 135 and Part 91 of CASR - Supplementary Exemptions and Directions Instrument 2021
CASA EX87/21	Flight Operations Regulations - SMS, HFP&NTS and T&C Systems - Supplementary Exemptions and Directions Instrument 2021
CASA EX97/22	Part 121 – Single Pilot Aeroplane (MOPSC 10-13) Operations – Exemptions Repeal, Remake, and Direction Instrument 2022
CASA EX161/21	Miscellaneous Flight Operations Exemptions and Approvals (Transitional) Instrument 2021

Advisory material

CASA's advisory materials are available at https://www.casa.gov.au/resources-and-education/publications-and-resources/guidance-material

Document	Title
AC 1-01	Understanding the legislative framework
AC 1-02	Guide to the preparation of expositions and operations manuals
AC 1-03	Transitioning to the flight operations regulations
AC 11-03	Electronically formatted certifications, records and management systems
AC 11-04	Approvals under CASR Parts 91, 103, 119, 121, 129, 131, 132, 133, 135, 138 and 149 (including MOS)
AC 60-02	Flight simulator approvals
AC 91-03	Carriage of assistance animals
AC 91-07	Cabin electronic flight bags
AC 91-09	Ditching
AC 91-11	Approval to conduct low visibility operations
AC 91-12	Conduct of practice autoland operations
AC 91-15	Guidelines for aircraft fuel requirements

Document	Title
AC 91-17	Electronic flight bags
AC 91-18	Restraint of infants and children
AC 91-19, 121-04, 133-10, 135-12 and 138-10	Passenger safety information
AC 91-22	Aircraft checklists
AC 91-25	Fuel and oil safety
AC 91-28	Crew safety during turbulence
Multi-Part AC 91-30, 121-12, 133-03 and 135-14	Emergency locator transmitters
AC 92A-01	The consignment and carriage of dangerous goods on all aircraft in Australian territory and on Australian aircraft overseas: An overview of the legislative framework and procedures
AC 92-1(1)	Dangerous goods training for employees
AC 92-3(0)	Dangerous goods training courses and instructors
AC 119-11	Training and checking systems
AC 119-12	Human factors principles and non-technical skills training and assessment for air transport operations
AC 121-05, 133-04 and 135-08	Passengers, crew and baggage weights
AC 121-08, 133-08 and 135-06	Carry-on baggage
AC 121-09, 133-06 and 135-10	Carriage of special categories of passenger
AC 121-10, 133-07 and 135-11	Passengers seated in emergency exit row seats
AC 135-13	Prescribed single-engine aeroplanes
AWB 02-064	Preventing Carbon Monoxide Poisoning in Piston Engine Aircraft
CAAP 37-1	Minimum equipment lists (MEL)
CAAP 48-01	Fatigue management for flight crew members
Part 91 AMC/GM	Acceptable means of compliance and guidance material - General operating and flight rules
Part 119 AMC/GM	Acceptable means of compliance and guidance material - Australian air transport operators—certification and management

Other material

International Civil Aviation Organization (ICAO) documents are available for purchase from http://store1.icao.int/

Document	Title
ICAO Doc 9976	Flight Planning and Fuel Management Manual

Document	Title
ICAO Annex 2	Rules of the Air
JAR/FAR-23	Airworthiness standards – normal category aeroplanes
JAR/FAR-25	Airworthiness standards – transport category aeroplanes

1.4 Forms

CASA's forms are available at http://www.casa.gov.au/forms

Form number	Title
	Application – Air Operator's Certificate / Associated Approvals (CASR Part 119) **Note:** This form is available as a single form or multiple forms of each constituent part. See the CASA website. Notification – Non-significant changes (CASR Parts 119, 131 and 138)

2 Subpart 135.A—Preliminary

There is a Part 11 direction in force in relation to crew members carrying out audits, checks, examinations etc. Operators and pilots are advised to review section 9 of CASA EX81/21.

Operation under Part 135 by aeroplanes certified to be operated by a single pilot with a MTOW of 8618kg or less and a MOPSC of at least 10 but not more than 13

Multi-engine and single-engine aeroplanes with a MTOW of 8618 kg or less, and a MOPSC of 10-13 seats inclusive, are permitted by exemption EX97/22 to operate under the Part 135 rules if certain additional requirements are satisfied.

This exemption is only applicable for aircraft that are certified for single pilot operations.

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 infants and/or two children in one seat for the MOPSC to remain at 9 but the total manifested passengers will be greater than 9, noting that 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 in the type certificate, foreign type certificate, supplemental type certificate or foreign supplemental type certificate.

AMC 135.005 Application of Part 135

Reserved

GM 135.005 Application of Part 135

The following CASR Dictionary definitions are fundamental to Part 135:

- Australian air transport operation
- maximum operational passenger seat configuration (MOPSC)
- maximum take-off weight (MTOW).

The applicability of Parts 121 and 135 are partially defined in relation to MOPSC instead of certificated seating capacity. Operators who choose to use aeroplanes above the Part 135 seating capacity boundary, but within the MTOW boundary, can elect to modify their aircraft to reduce the MOPSC by physically removing the passenger seats that would otherwise mandate operations in accordance with Part 121. Any such modification would need to be done in accordance with other elements of the regulations, such as the applicable maintenance certifications.

Note: Operators using an aeroplane within the MTOW limit of 8618kg, but above the MOPSC limit of 9 seats are recommended to the rules in Subpart 121.Z and EX97/22 before deciding to modify their aeroplane to reduce the MOPSC. See the information about EX97/22 under the Subpart 135.A heading earlier in this document.

Some examples of different MOPSC situations are:

Example 1

This operation can be conducted as a Part 135 operation without the need to consider CASA EX 97/22.

- An operator conducts single pilot air transport operation in an Aero Commander 690-A (AC690A) configured for a MOPSC of 9 (this includes the forward RHS of the aircraft that could also be occupied by a pilot if two pilots were carried). The AC690A has a MCPSC of 11, allowing many combinations of crew and passengers, including:
  - 1 pilot, 9 adults and 1 restrained infant

    or
  - 1 pilot, 8 adults with 2 children occupying 1 seat.

Example 2

This example has a MOPSC of greater than 9 and therefore can be conducted under Part 135 provided the requirements of EX97/22 are met, or it can be conducted under Part 121.

- An operator conducts single pilot air transport operation in an Aero Commander 690-A (AC690A) configured for a MOPSC of 10 (includes forward RHS). The AC690A has a MCPSC of 11, allowing for allowing many combinations of crew and passengers, including:
  - 1 pilot, 10 adults

    or
  - 1 pilot, 9 adults and 1 restrained infant.

Example 3

This example has a MOPSC of 13 or less and can be conducted under Part 135 provided the requirements of EX97/22 are met, or it can be conducted under Part 121.

- An operator conducts single pilot air transport operation in a Beechcraft King Air B300 (B300) configured for a MOPSC of 13. Some B300 models have a MCPSC of 15, allowing many combinations of crew and passengers, including:
  - 1 pilot, 13 adults and 2 restrained infants

    or
  - 1 pilot, 13 adults.

Relationship with Subpart 121.Z

Subpart 121.Z applies to single-engine aeroplanes with both a MOPSC > 9 and a MTOW <= 8618 kg. The only regulations within Part 121 which apply to these aeroplanes are contained in Subpart 121.Z. This Subpart requires operators of these aeroplanes to comply with Part 135 in addition to the small number of rules in the Subpart, with rules within the Subpart overriding a rule of the same topic within Part 135. CASA EX97/22may be relevant to Subpart 121.Z operators.

Relationship with Part 91

Part 91 prescribes the general operating and flight rules, which are the regulatory requirements that apply, by default, to all operations. Part 135 regulations generally differ from Part 91 for two main reasons. Firstly, to ensure that, where necessary, a higher standard has been required of an air transport operation. Secondly, to enable an air transport operator to take advantage of their greater control and supervision of operations to provide an alleviation or alternative method of compliance with certain rules.

Provisions in Part 135 are such that they impose requirements over and above the standards in Part 91, but if the table within regulation 91.035 does not state that a Part 135 regulation applies in place of a Part 91 regulation, then the relevant Part 91 regulation will apply.

Where an air transport operation is not being conducted, an operator may elect to comply with their normal air transport procedures or may, if the Part 135 regulation imposes a higher requirement, elect to operate to the Part 91 rule for a non-air transport operation flight. For example, after conducting a passenger transport operation the aeroplane needs to be flown (with crew only) to another aerodrome to be refuelled. The flight to the refuelling location is not an air transport operation, and therefore is not required to comply with the Part 135 regulations.

AMC 135.010 Compliance with Part 121 provisions

Reserved

GM 135.010 Compliance with Part 121 provisions

This regulation specifies that a provision about a 'particular matter' in Part 121 may substitute for the equivalent provision in Part 135 only where the same matter is specified in both regulations. CASA would expect the operator to comply with ALL of the Part 121 provisions about the 'particular matter', not just some of them.

Note that some provisions in Part 121 are inextricably linked to other provisions to achieve the target level of aviation safety. Therefore, in some circumstances, compliance with a combination of provisions would be needed to form an acceptable means of compliance. An example of this would be the fuel and alternate provisions in Part 121. Additionally, where an operator elects to operate in accordance with the Part 121 fuel and alternate provisions, they will also be required to operate in accordance with the Part 121 equipment provisions, as parts of these provisions are inextricably linked.

Note: Part 121 fuel and alternate provisions do not contemplate or allow VFR operations.

AMC 135.015 Definition of suitable forced landing area for aeroplane flights

Reserved

GM 135.015 Definition of suitable forced landing area for aeroplane flights

This definition exists to enable operators to determine what areas of ground or water can be considered suitable. The 'areas of ground' definition is applicable to all aeroplanes, whereas

the 'areas of water' definition is only applicable to a prescribed single-engine aeroplane (PSEA), or an aeroplane with a TC or STC for landing on water. The outcome of this distinction is that an area of ground can be a suitable forced landing area for any aeroplane, while an area of water can only be used for some aeroplanes.

Notes:

1. Refer to GM 135.240 for information relating to the use of areas of water for suitable forced landing areas for a PSEA.
2. Refer to GM 135.290 for information relating to the maximum distance from a suitable forced landing area for non-PSEA single-engine aeroplanes.
3. Refer to Chapter 8 of the Part 135 MOS for the maximum distance from a suitable forced landing area for a PSEA.

Areas of ground as suitable forced landing areas

Areas of ground not normally considered formal aerodromes can be suitable forced landing areas, provided the requirements of subregulation 135.015(1) can be met. The requirement that a landing would result in no injuries to persons on the ground could be dealt with by avoiding populous areas where feasible. To meet the reasonable expectation that there would be no injuries to persons in the aeroplane, the pilot is required to be able to visually execute a controlled landing at a place that has suitable physical and environmental conditions.

Operator expositions must provide guidance as to how a pilot can determine, both pre-flight and en route, what constitutes a suitable forced landing area. This guidance should address at least the following matters:

- Processes to identify suitable forced landing areas using the following criteria:
  - the dimensions and surface conditions of an area that the particular aeroplane needs for a successful forced landing
  - the gliding distance normally available from a range of cruising altitudes
  - the weather conditions likely to be experienced, including:
    - wind speed and direction
    - visibility
  - SAR and survival aspects for the particular area, including:
    - nature of terrain
    - distance/time from possible rescue
    - environmental conditions
    - survival equipment on board the aeroplane.

Areas of water as suitable forced landing areas

Where subparagraph 135.015(2)(a)(ii) refers to a distance prescribed by the Part 135 Manual of Standards (MOS), no such maximum distance from land for an area of water to be considered a suitable forced landing area is currently in force. Theoretically, any area of water not normally considered a formal aerodrome can be a suitable forced landing area, provided the provisions of subregulations 135.015(2), (3) and (4) can be met.

For example, when considering whether or not there is a reasonable expectation that persons in the aeroplane would survive in the area of water for the time that it would take to

rescue the persons, as required by paragraph 135.015(3)(b), factors such as, but not limited to, the following might need to be considered:

- that the operational procedures and aircraft configuration related to such an aeroplane ditching in the water would need to be reviewed to ensure the reasonable expectation was established
  - Example: ATSB report AO-2020-010 (available at Investigation: AO-2020-010 - Collision with water involving Textron Aviation Inc. (Cessna) 206, VH-AEE near Happy Valley, Fraser Island, Queensland on 29 January 2020 (atsb.gov.au)) reviewed an occurrence of a Cessna 206 that ditched and identified that the recommended flap configuration of the aeroplane for the ditching sequence significantly restricted the emergency egress of aircraft occupants via the cargo door.
- that such areas may only be suitable for operations with passengers who themselves have been trained in the requisite survival strategies for the area of operations.

GM 135.240 contains guidance for PSEA on suitable forced landing areas, including the selection of suitable water areas. Operators of seaplanes and floatplanes may also consider this material in constructing their exposition procedures. Operators should also refer to AC 91-09 - Ditching.

AMC 135.020 Approvals by CASA for Part 135

Reserved

GM 135.020 Approvals by CASA for Part 135

General guidance on approvals under the flight operations regulations, which includes Part 138, is available in AC 11-04 Approvals under Parts 91, 103, 119, 121, 129, 131, 132, 133, 135, 138 and 149 of CASR (including MOS).

Where a provision of Part 135 or the Part 135 MOS makes explicit reference to a CASA approval issued under regulation 135.020, this regulation authorises CASA to issue that approval. All approvals granted by CASA under Part 135 are subject to the procedural requirements of Part 11. Part 11 specifies that approvals must only be granted if they preserve a level of aviation safety that is at least acceptable[1].

For the purposes of paragraphs 11.030(1)(a) and (aa) of CASR, all applications for 135.020 approvals are to be made using the form titled *Air Operator's Certificate / Associated Approvals*, which is available from CASA's website. Section E5 of the form lists the specific information required to be provided for each 135.020 approval. Approval applicants are advised that under regulation 11.040 CASA may request additional information or documents as part of assessing an application. Additionally, when evaluating approval applications, CASA will appropriately consider the matters mentioned in regulations 11.050 and 11.055.

[1] Subregulation 11.055 (1B)

In addition to approvals of significant changes under regulation 119.095, there are a number of specific CASA approvals available under regulation 135.020. These approvals are also considered to be a significant change[2]. An exception applies in relation to the reissue or replacement of an instrument previously issued by CASA where the conditions or other substantive content of the instrument are unchanged. If operators are unsure whether the substantive content of an instrument is unchanged, contact CASA for advice (Contact us | Civil Aviation Safety Authority (casa.gov.au)).

Since a 135.020 approval is taken to constitute a significant change under Part 119 due to paragraph 119.020(c), in accordance with paragraph 119.090(3)(c), an application for a 135.020 approval will need to be accompanied by a copy of the part of the operator's exposition affected by the 135.020 approval (i.e. the significant change), clearly identifying the change.

AMC 135.025 Issue of Manual of Standards for Part 135

Reserved

GM 135.025 Issue of Manual of Standards for Part 135

This provision provides the authority for CASA to issue a Manual of Standards (MOS) for Part 135.

A MOS is a document that supports CASR by providing detailed technical material, such as technical specifications or standards.

MOSs are legislative instruments and are subject to registration and disallowance under the *Legislation Act 2003*. Part 11 sets out procedural requirements for the issue, amendment or revocation of a MOS, including consultation requirements.

[2] Paragraph 119.020 (c)

3 Subpart 135.C—General

3.1 Division 135.C.1—General flight limitations

AMC 135.030 Permitted categories of aeroplanes

Reserved

GM 135.030 Permitted categories of aeroplanes

The MOS content for subparagraph 135.030 (1) (b) (iv) is contained in section 1.09 of the Part 135 MOS.

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

The obligation for Contracting States of the International Civil Aviation Organisation (ICAO), of which Australia is a member, to issue CofAs, is laid down in Part II, Section 3 of ICAO Annex 8, "Airworthiness of Aircraft".

Aircraft are categorised in two discrete areas — operational and airworthiness.

Operational categories refer to the manner in which the aircraft is to be operated, i.e., Air Transport, Aerial Work or Flying Training.

An aircraft airworthiness category is essentially a homogeneous grouping of aircraft types and models of generally similar characteristics, based on the proposed or intended use of the aircraft, and their operating limitations.

A standard CofA may be issued in the following categories:

- transport
- normal
- utility
- acrobatic
- commuter
- manned free balloons
- special class.

The regulation provides that Part 135 operations may only be conducted in an aeroplane that is type certificated in the following categories:

- transport
- commuter
- normal
- a category prescribed in the Part 135 MOS (refer to section 1.09 of the MOS).

Additional information on aircraft categories is available in AC 21.1(1) Aircraft airworthiness

certification categories and designations explained.

AMC 135.035 Flight distance limitations

Reserved

GM 135.035 Flight distance limitations

Collectively, Section 5 and schedule 1 of the CASA EX161/21 instrument grant the approval required by subsection 2.01(5) of the Part 135 MOS, in relation to operations of certain aeroplanes beyond 180 minutes, to the holders of the relevant kind of approval that existed under the pre-2 December 2021 rules. It is recommended that operators review section 5 and schedule 1 of CASA EX161/21.

The MOS content for subregulation 135.035 (1) is contained in section 2.01 of the Part 135 MOS.

The regulation enables the Part 135 MOS to place prescriptive limits on the distance an air transport aeroplane can operate from an adequate aerodrome for a flight. This stems from the requirement that certain types of aeroplane must land as soon as practicable in some emergency situations[3].

The distance limitation is derived from consideration of the number and type of engines fitted to the aeroplane, the reliability of the powerplants and systems, the number of passengers carried and the environment the flight passes over.

As stated in subsection 2.01(5) of the Part 135 MOS, an approval can be requested from CASA for a turbine multi-engine aeroplane with an MTOW > 5 700 kg to be flown further than the distance from an adequate aerodrome that the aeroplane can fly, at the one-engine-inoperative cruising speed, in ISA conditions and still air, stated in the operator's exposition, for more than 180 minutes.

Operators are reminded that the standard of safety for such an approval is one that will provide sufficient assurance of the operator's operations maintaining an equivalent level of safety to operations conducted within the prescriptive distance limit. Refer to AC 11-04 for more information on approvals under the flight operations regulations in general.

CASA advises operators that may be considering applying for this approval that, if the information listed below is not provided by the operator as part of the supporting documentation for the application, then it is highly likely CASA will request the applicant to supply this information under regulation 11.040. The supporting information is the:

- capability and competence of the operator to safely conduct and adequately support the intended operations
- particular airframe/engine combination to be operated
- route to be flown.

Regulation 135.180 imposes a distance limit relating to the take-off alternate for multi-engine aeroplanes engaged in passenger or medical transport operations under the IFR.

[3] Regulation 91.685.

Regulation 135.290 contains a distance limit when operating non-PSEA single-engine aeroplanes over water that are engaged in passenger or medical transport operations.

Chapter 8 of the Part 135 MOS contains distance limits for the operation of PSEA.

For further guidance material, refer to ICAO Doc 10085 - Extended Diversion Time Operations (EDTO) Manual.

3.2 Division 135.C.2—Operational documents

AMC 135.040 Compliance with flight manual

Reserved

GM 135.040 Compliance with flight manual

There is a Part 11 direction in force in relation to this regulation. The specific wording of this regulation mistakenly limits flight manual compliance to 'during a flight' (see the definition of *flight* in the *Civil Aviation Act 1988*), even though multiple flight manual requirements apply before a flight technically begins and after a flight ends. It is recommended that operators review section 18 of CASA EX85/21.

Transitional regulation 202.416A, item 20 of the table (which can be found here - Civil Aviation Legislation Amendment (Flight Operations—Consequential Amendments and Transitional Provisions) Regulations 2021), contains a provision that deems an existing CAR 232 flight check approval to be an exemption, where necessary, from the requirements of this regulation. CASA recommends operators read this regulation to determine its applicability to their operation.

The operator is required to ensure that the aeroplane is operated in accordance with all the requirements and limitations set out in the *aircraft flight manual instructions* (defined term – see below) that relate to the operation of the aeroplane.

The definition of *aircraft flight manual instructions* is:

> ***aircraft flight manual instructions***, for an aircraft, means the following documents and information provided by the aircraft's manufacturer or issued in accordance with a Part 21 approval:
>
> (a) the aircraft's flight manual;
> (b) checklists of normal, abnormal and emergency procedures for the aircraft;
> (c) any operating limitation, instructions, markings and placards relating to the aircraft.

Reference to a flight manual includes reference to an aircraft flight manual, a flight crew operation manual, a pilot operations handbook, or another document that contains operating limits and requirements for safe operation of the aeroplane. Refer to the definition of 'flight manual' in the CASR Dictionary.

Aircraft flight manuals are required, under aircraft type certification rules (for example FAR Parts 23, 25, 27 and 29 and equivalent EASA rules), to contain a differing mixture of mandatory requirements and non-mandatory (advisory) elements. The balance in a flight

manual between the mandatory and advisory material is dependent on which type certification rule applies to the aircraft.

Section 2.3 of AC 21-34 - Aircraft flight manuals describes these different kinds of flight manual requirements as either “approved”, as in required to be approved by the national aviation authority (NAA) that provides the initial certification of a new aircraft type, or “unapproved”, as in advisory content from the manufacturer that is not required to be approved by the NAA.

The wording of regulation 135.040 only requires compliance with mandatory flight manual elements. This is due to the use of the words ‘requirement or limitation’.

AC 91-22 - Aircraft checklists contains information on aircraft checklists in the context of this regulation and similar regulations in Parts 91, 121, 133 and 138.

AMC 135.045 Operator to have minimum equipment list for certain flights

Reserved

GM 135.045 Operator to have minimum equipment list for certain flights

For IFR flights and flights into and out of Australia, this regulation requires the operator of an aeroplane to have a minimum equipment list (MEL) or equivalent document for the aeroplane before commencing a flight. Regulation 135.065 and the associated MOS Division require the carriage of the MEL on a flight if a MEL is required under this regulation.

The MEL should consider all items specified by the aeroplane manufacturer and include all operational requirements relevant to the AOC holder’s operations.

An exemption currently exists for some operators in relation to this regulation. It is recommended that operators review section 6 of CASA EX85/21. The approval mentioned in the exemption is taken to be a significant change due to it activating paragraph 119.020(c) of CASR. Operators are to apply for this approval by applying for a significant change via the Air Operator’s Certificate / Associated Approvals form available on CASA's website.

Note: This regulation does not prescribe matters pertaining to the content or development of the MEL. Subpart 91.Y prescribes requirements for the development, approval and variation of a minimum equipment list.

AMC 135.050 Availability of checklists

Reserved

GM 135.050 Availability of checklists

Operators are required to make the specified checklists available to each crew member before they begin to carry out any duties for a flight.

To meet the requirement, an operator must have processes and instructions published in the exposition for establishing, using and maintaining checklists[4].

[4] Paragraph 119.205 (1) (h).

Establishing checklists

The requirement under this regulation is a corollary of regulation 135.040, which provides that an aeroplane must be operated in accordance with the requirements and limitations set out in the *aircraft flight manual instructions*[5]. The requirement is basic to flight safety, as the certification of aircraft airworthiness is conditional on the aircraft being operated in accordance with flight manual requirements and limitations. Accordingly, checklists should include, without deviation, the procedural steps of the normal, abnormal and emergency procedures of the flight manual.

Checklists may be externally sourced, such as those produced by aircraft manufacturers. Alternatively, the checklists may be produced by the operator. In all cases, the operator is responsible for ensuring that the checklists meet the requirement of regulation 135.040 and that the exposition includes a process for verifying checklist conformity with the flight manual procedures.

Many modern aircraft are delivered with 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 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 by inclusion in a FCOM or exposition.

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

Usage

Instructions for the use of checklists published in the exposition should describe how, when and by whom each checklist is to be 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.

[5] *aircraft flight manual instructions* is defined in the CASR Dictionary.

Maintenance

The integrity of the checklist system is maintained through document control, amendment and distribution processes described in the 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 the operator's exposition and accordingly any changes/amendments are required to use the change management process required by Subpart 119.C. To ensure implementation of flight manual procedural changes, an operator should have arrangements in place for receipt of these amendments.

Distribution of original and subsequent checklists to aircraft and crew should be controlled and recorded. Periodic checks should be conducted of the condition and functionality of the aircraft checklists.

For more information, refer to AC 91-22 - Aircraft checklists. Other related guidance documents on the use of EFBs are AC 91-07 - Cabin electronic flight bags and AC 91-17 - Electronic flight bags.

3.3 Division 135.C.3—Flight related documents

There is an exemption in force in relation to Division 135.C.3 and Division 91.C.3 that effectively permits operators to use the Part 135 flight documents rules to replace the Part 91 flight document rules during a private operation conducted by the operator. It is recommended that operators review section 10 of CASA EX85/21.

AMC 135.055 Electronic documents

Reserved

GM 135.055 Electronic documents

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.

This regulation confirms that the requirement to carry a document may be satisfied using an electronic format. Where electronic documents are stored on and/or downloaded from a "cloud" or any other source, the operator 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".

If international operations are conducted, the operator will also need to consider whether electronic documents are suitable in the country of operation.

AMC 135.060 Availability of parts of exposition

Reserved

GM 135.060 Availability of parts of exposition

This regulation requires relevant sections of the exposition to be available to crew members before a flight. The exposition can include any defined subsidiary manuals, such as a company operations manual, ground operations manual, cargo handling manuals etc.

Full exposition requirements can be found in Subpart 119.H.

AMC 135.065

Reserved

GM 135.065 Carriage of documents

The MOS content for paragraph 135.065 (1) (b) is contained in section 3.01 of the Part 135 MOS.

Subregulation 135.065 (1) requires both the operator and the PIC to ensure that all of the required documents listed in the Part 135 MOS are carried on the aeroplane for a flight. The list in the Part 135 MOS only considers regulations in Part 135; therefore, in determining the complete list of required documents the operator and the PIC should also consider the requirements of other applicable Parts of the regulations.

Subregulations 135.065 (2) and (3) place responsibility on the operator as well as the flight crew member to ensure that flight crew members carry their flight crew medical certificate and licence.

Paragraphs 135.065 (2) (b) and (3) (b) remove the associated offence provision from both the operator and the flight crew member, provided that notification is provided to CASA as per the regulation.

AMC 135.070 Availability or carriage of documents for certain flights

Reserved

GM 135.070 Availability or carriage of documents for certain flights

Reserved

AMC 135.075 Carriage of documents—flights that begin or end outside Australian territory

Reserved

GM 135.075 Carriage of documents—flights that begin or end outside Australian territory

The MOS content for paragraph 135.075 (2) (a) is contained in section 3.02 of the Part 135 MOS.

AMC 135.080 Keeping and updating documents etc.

Reserved

GM 135.080 Keeping and updating documents etc.

The MOS content for paragraph 135.080 (a) is contained in section 3.03 of the Part 135 MOS.

The intent of this regulation is for operators to ensure that the document(s) prescribed in the Part 135 MOS are accessible to a person on the ground for the duration of a flight. Currently, the only document specified in the Part 135 MOS is a passenger list when conducting passenger transport operations or medical transport operations that begin or end outside Australian territory.

It is acknowledged that aircraft crew may conduct a series of flights away from the company administrative base involving changes in the passengers who are aboard. In these situations, the exposition should contain procedures to ensure that updated information continues to be recorded and accessible to the nominated person on the ground. The method by which this is achieved is determined by the operator and could be by physical completion/transmittal of a form, or by other suitable electronic means, such as e-mail/radio/datalink etc.

For paragraph 135.080 (b), the exposition needs to contain procedures[6] describing how this information will be updated.

Although this information is part of the normal record keeping requirements detailed in Part 119, this requirement also ensures that the most recent information is available for purposes such as search and rescue.

[6] Paragraph 119.205 (1) (h).

AMC 135.085 Journey logs

Reserved

GM 135.085 Journey logs

The operator is required to have procedures[6] that provide guidance for when the PIC must have completed the journey log for the flight and the methods by which this may be achieved. The journey log must be completed as soon as practicable after the end of the flight, but in all cases prior to the next flight of the aeroplane.

There is an error in this regulation relating to the requirement to record certain information at a time which is either impossible or impracticable. Until the regulation is amended, operators should refer to the exemptions contained in sections 7 and 8 of CASA EX85/21.

Subregulations 135.085 (3) and (5) require the following information to be recorded:

- aeroplane registration mark or flight number
- the date of the flight
- each crew member's name (or another identifier) and their assigned duties
- the place and time of departure
- the quantity of fuel added during fuelling
- the total fuel on board the aeroplane at departure
- the place and time of arrival
- total flight time
- quantity of fuel remaining after the flight
- any other incidents/observations relevant to the flight.

Note: This regulation does not require a separate document specifically named ‘journey log’ to be produced; however, the operator must be able to demonstrate how the information is recorded and accessible when needed.

Due to the urgent nature of some medical transport flights, it might not be possible for the journey log to be completed before a flight begins. On such occasions, it is acceptable to begin the flight before completing the journey log if the PIC is satisfied the safety of the flight will not be compromised. The journey log must be completed as soon as practicable after the flight ends.

AMC 135.090 Passenger lists

Reserved

GM 135.090 Passenger lists

When conducting a passenger transport operation, the regulation prescribes that the following information must be recorded by the operator:

- aeroplane registration mark or flight number
- the name of each passenger
- the places of departure and destination for each passenger

- the number of infants carried
- the date and estimated time of departure of the flight.

The operator may prepare a specific passenger list document or may choose to record the information by other means, including as part of other operational documents. The operator must be able to demonstrate how the information is recorded and accessible when needed.

This regulation is only applicable to passenger transport operations. However, medical transport operators should note that regulation 135.075 and section 3.02 of the Part 135 MOS require carriage of a passenger list for operations that begin or end outside Australian territory.

The requirements for keeping and updating documents are in regulation 135.080.

AMC 135.095 Flight preparation forms for flights that begin or end outside Australian territory

Reserved

GM 135.095 Flight preparation forms for flights that begin or end outside Australian territory

This regulation applies to a flight of an aeroplane that begins or ends at an aerodrome outside Australian territory, and is applicable to both the operator and the PIC.

A flight preparation form must be completed and signed by the PIC. The form should be detailed in the operator's exposition as per the requirements of paragraph 119.205 (1) (h).

The form provides a checklist of essential requirements and its completion is used to demonstrate that the regulatory requirements for the flight are being met. The flight preparation form may be reviewed by other aviation regulators during the conduct of international ramp check activities.

3.4 Division 135.C.4—Reporting and recording defects and incidents etc.

AMC 135.100 Procedures for reporting and recording defects etc.

It is an acceptable means of compliance with this regulation if the operator's procedures in their exposition:

- require all reporting of defects and incidents to be recorded in the aeroplane flight technical log or maintenance release (as applicable) by flight crew
- provide a list of the matters requiring entry in their exposition.

Note: The matters requiring an entry are listed in the regulation and the operator may choose (or not) to require other matters to be reported.

GM 135.100 Procedures for reporting and recording defects etc.

The regulation requires operators to have procedures in their exposition for a flight crew member to fulfil their responsibilities regarding the recording of the matters referred to in the regulation. The provision is not a substitute for any defect reporting requirements in Part 42 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 regulation 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.

The operator's procedures must also ensure the aeroplane flight technical log or maintenance release (as applicable) is carried on the aeroplane during a flight, as required by the Part 135 MOS (Division 1 of Chapter 3).

AMC 135.105 Procedures for reporting and recording incidents

Reserved

GM 135.105 Procedures for reporting and recording incidents

The operator's exposition must include procedures for reporting and recording incidents which may be, or have the potential to become, a hazard to the safety of the aircraft, people or property. A core element of an operator's Safety Management System (SMS) includes feedback of incidents that pose a threat to safety. The operator should provide guidance in the exposition as to what matters should be reported and recorded, and how this is to be done.

Note: Regulation 91.675 also requires the PIC to report hazards to air navigation.

This regulation does not replace any reporting requirements imposed by other authorities, such as Airservices Australia, ATSB, Australian Border Force, AMSA or other agencies as applicable to the particular activity.

3.5 Division 135.C.5—Search and rescue services and emergency and survival equipment

AMC 135.110 Information about search and rescue services

Reserved

GM 135.110 Information about search and rescue services

This regulation places the responsibility on the operator to provide flight crew members with information about search and rescue services relevant to a proposed flight prior to its commencement.

The ERSA is the primary source of this information in the Australian FIR. Outside the Australian FIR, the equivalent document of the relevant national aviation or airspace authority is suitable. For remote locations, there may be specific information relating to available services in the locality, such as boats, populated locations, functional unregistered airstrips, manned radio frequencies etc. The details of these should be documented by the operator and presented in a fit-for-purpose manner to the flight crew.

These documents are considered to form part of the operator exposition. Regulation 135.060 also considers availability of the exposition.

AMC 135.115 Information about emergency and survival equipment

Reserved

GM 135.115 Information about emergency and survival equipment

This rule places requirements on the operator to have, at minimum, information about the items listed in section 3.04 of the Part 135 MOS available for communication to a rescue coordination centre.

Contact telephone numbers for the rescue coordination centre can be found in AIP GEN - Search and Rescue. It is recommended that the information be held at a designated place, familiar to relevant staff, until the completion of the flight. Additional Part 135 requirements for the carriage and use of life jackets, life rafts and first-aid kits are set out under Subpart 135.K.

For the entry in the Part 135 MOS that requires the operator to hold information on the type of each portable emergency locator transmitter (ELT), it is recommended that operators describe each type in relation to the ICAO Annex 6, Part I definitions of types of portable ELTs. For convenience, these definitions are provided 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 so as to facilitate its ready use in an emergency, and manually activated by survivors.

3.6 Division 135.C.6—Miscellaneous requirements

AMC 135.120 Crew activities necessary for safe operation

Reserved

GM 135.120 Crew activities necessary for safe operation

The regulation prohibits an operator from requiring a crew member to perform an unnecessary activity during specific phases of a flight, and prohibits crew members from

performing unnecessary activities. This is colloquially known as the ‘sterile flight compartment’ rule, however the rule applies to all crew. 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.

It is not intended that this regulation prohibit the operator from determining what duties are necessary to be conducted during these phases of flight. The operator’s policy, procedures and any limitations for this must be detailed in the exposition[7].

A typical limitation would be the prohibition of any non-standard communication between the flight crew and any other crew or passengers during these periods.

In determining the criteria for a ‘necessary activity’ (where both the criteria and the activities are included in the operator’s exposition), consideration should be given to the following:

- identification of the activity that commences a particular sterile phase, such as closing the final door on the ground (departure), or advising passengers that descent is about to commence (arrival)
- identification of the activity that would indicate to all crew that a particular sterile phase has ended, such as turning off the seat belt signs (departure) or engine shutdown (arrival)
- an explanation of the activities that are deemed necessary (or conversely, examples of activities that would clearly violate the requirement in subregulation 135.120 (2)).

The regulation does not prescribe any altitude limits for when the initial climb phase of a flight would end, or where the approach phase of a flight would begin. This is left to the operator to determine and requires the operator to consider the particular nature of their operations, and may vary between different operators and aeroplane types.

Typical altitude examples of the selected ‘sterile flight compartment’ phase are:

- For an aeroplane that cruises above the transition level, the sterile phase normally is in place for any operations below the transition level.
- For an aeroplane that cruises below 10,000 ft, the sterile phase is normally in place for any operations that are below the lower of cruise altitude or 3,000 ft AGL.
- For all IFR aircraft during instrument departure and approach operations.

During the 'sterile flight compartment' phase, the following should be observed:

- Flight crew should restrict activities to essential operational matters only.
- Non-ATC radio communications 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 radio communication.
- Cabin/Other crew (if carried) are not to contact the flight crew unless it is for an operational or safety-related item.

[7] Paragraph 119.205 (1) (h).

Situations requiring contact with flight crew during the 'sterile flight compartment' phase may include:

- signs of fire
- a burning smell, or the presence of smoke inside or outside
- fuel or fluid leakage
- malfunctions of emergency exit doors
- extreme cabin temperature changes
- evidence of airframe icing
- equipment or furniture malfunction/breakage which poses a hazard to the occupants
- any suspicious object
- disruptive passengers
- security threats
- abnormal vibration or noise
- medical emergency
- deployment of the oxygen masks (if fitted), and
- any other condition deemed significant by a cabin/other technical crew member.

All crew members should be trained in the 'sterile flight compartment' procedures established by the operator, as appropriate to their duties.

Passenger briefing

Due to the close proximity of passengers in many smaller aircraft and the ability for them to talk with the pilot at any time, they must be briefed that, during take-off, climb, approach and landing, the pilot will be busy and unable to talk with them. Unless safety is a concern, passengers should not talk with the pilot 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.

If passengers do try to communicate with the flight crew during take-off, climb, approach or landing, or when busy, the pilot should indicate they are busy (verbally or by hand signal).

AMC GM 135.125 Competence of ground support personnel

Reserved

GM 135.125 Competence of ground support personnel

In relation to this regulation, there are 3 exemptions in force:

- There is an exemption in force in relation to this regulation and ground support personnel who are not direct employees of the operator. It is recommended that operators review section 9A of CASA EX85/21.
- There is an exemption in force in relation to this regulation and ground support personnel who are under training and are direct employees of the operator. It is recommended that operators review section 9B of CASA EX85/21.

- There is an exemption in force in relation to the subregulation 119.170(4) and its application to operational safety critical personnel who are not flight crew members or other crew members assigned duties on board an aircraft for the flying or safety of the aircraft. It is recommended that operators review sections 14 and 15 of CASA EX82/21.

The term 'ground support personnel' is not itself defined in CASR, but instead relies on the common understanding of the phrase 'ground support' combined with the CASR definition of the word 'personnel'. Paragraph (a) of the definition of *personnel* in the CASR Dictionary applies to Australian air transport operators and states:

> ***personnel***:
> (a) for an Australian air transport operator or an aerial work operator, includes any of the following persons who have duties or responsibilities that relate to the safe conduct of the operator's Australian air transport operations or aerial work operations:
> (i) an employee of the operator;
> (ii) a person engaged by the operator (whether by contract or other arrangement) to provide services to the operator;
> (iii) an employee of a person mentioned in subparagraph (ii); or

Typical ground support duties would include, but are not limited to, the following:

- 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 (where this relates to the safe conduct of the Australian air transport operation)
- passenger transport to and from the aeroplane (where this relates to the safety of the Australian air transport operation – as an example, this might not include an airport operator's bus that transports passengers from the terminal to the aeroplane)
- operation of passenger loading devices
- preparing baggage and cargo for flight
- loading and unloading aeroplane
- operation of ground support equipment.

Australian air transport operators subject to subregulation 119.170(5) must ensure their training and checking system includes the matters mentioned in subregulation 119.170(4) in relation to operational safety-critical personnel (this term is defined in the CASR Dictionary) who are not flight crew or cabin crew. In almost all cases, a person classified as ground support personnel would be operational safety-critical personnel, and therefore the requirements of subregulation 119.170(4) would overlap with the requirements of this regulation. Regulations 119.175 and 119.185 would also overlap with this regulation.

Additional information on regulation 119.170 and training and checking systems is in GM 119.170 and AC 119-11 - Training and checking systems. Additional information on

regulation 119.175 and training programs for human factors principles and non-technical skills is available in GM 119.175 and AC 119-12 - Human factors principles and non-technical skills training and assessment for air transport operations.

Solely in relation to regulation 135.125, compliance is related to the operator satisfying themselves that the ground support personnel have successfully completed their training and been assessed as competent to perform their assigned ground support duties.

Note that this regulation neither requires the operator to perform the training and assessment themselves, nor limits who may conduct the training and assessment activities. If the training and assessment of ground support personnel is performed by another organisation, the method by which the operator satisfies itself as to the training and competence of ground support personnel must be included in the operator's exposition[8].

Some examples of how an operator could satisfy itself regarding the successful completion of training and assessment of competency could include:

- auditing the systems/training in those areas of a service and/or support that a contractor should be providing to the operator; or
- verifying the certification of the contractor by a *recognised foreign State* (the countries included in this list are as per the definition of this term in regulation 61.010); or
- verifying the certification of the contractor by an internationally recognised industry standard such as that provided by the International Business Aviation Council (IBAC) (information relating to this certification is available at IS-BAH, International Standard for Business Aircraft Handling | IBAC).

From the perspective of this regulation, it is recommended that operators regularly conduct due diligence checks of either a contractor's training and assessment processes or ongoing certification status.

It should also be noted that Subpart 119.J contains requirements relating to training and checking records.

AMC 135.130 Flight crew seat authorisation and briefing

Reserved

GM 135.130 Flight crew seat authorisation and briefing

This regulation sets out the persons permitted to occupy a flight crew seat during a flight and the requirements applicable to the conduct of a briefing on the safety procedures relevant for that seat.

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[9].

[8] paragraph 119.205(1)(h)

[9] Subregulation 91.215 (2).

Matters that should be included in the safety brief for persons occupying flight crew seat include:

- the acceptable method to enter and exit the crew seat/cockpit 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
- the acceptable method for communicating with the crew
- the requirements relating to sterile cockpit procedures developed by the operator to comply with regulation 135.120.

Refer to regulation 135.280 and the Part 135 MOS for requirements regarding safety briefings and instructions for passengers.

In developing exposition procedures, operators should also consider the requirements of the *Aviation Transport Security Regulations 2005*.

4 Subpart 135.D—Operational procedures

4.1 Division 135.D.1—Operational control

AMC 135.135 Operational control

Reserved

GM 135.135 Operational control

Operational control is defined in the CASR Dictionary as the exercise of authority over the initiation, continuation, diversion or termination of a flight in the interests of safety of the aircraft and the regularity and efficiency of the flight. Some examples of areas that fall under operational control are:

- risk assessment
- fuel management
- selection of alternate aerodromes
- in-flight diversions
- criteria for acceptance or non-acceptance of a flight
- criteria for rejecting the carriage of a passenger or cargo.

This regulation requires the operator to include, in the exposition, a description of how operational control is exercised by the operator. The exposition must also include a description of the responsibilities of each person who is to exercise operational control.

This regulation does not alter or replace regulation 91.215 regarding the authority and responsibilities of the PIC, nor regulation 135.390 regarding the assignment to duty as PIC, nor regulation 135.150 regarding availability of flight planning information. Therefore, from the beginning to the end of a flight, the PIC is, under almost all circumstances, generally the person exercising operational control.

Unlike some overseas jurisdictions, in Australia there is no formal licensing scheme for flight operations officers / flight dispatchers. Therefore, it is rarer for these persons to be formally delegated operational control even for pre- or post-flight matters. More routinely, if an operator does have an operations officer, that person provides information and advice to the PIC for the PIC to make the final decision.

The intent of this regulation is to ensure that if an operator does determine that a person other than the PIC has responsibility for certain matters that fall within the definition of operational control, that the operator clearly specifies these matters in their exposition.

In the simplest case, the operational control responsibility for a flight may rest solely with the PIC. It is not the intent of the regulation to mandate any more resources or processes in excess of those needed to fulfil the requirement.

In the case of a larger operator, it would be unlikely that individual flight crew could carry out all of the functions mentioned in the definition effectively, and still be able to operate the aircraft on the service. For example, a person on the ground other than the PIC may have far easier access to the information regarding non-weather factors that means they are best

placed to make a decision to divert a flight to another aerodrome, or to terminate a flight and instruct that it return to home base. In all these cases, the PIC at all times retains a 'reserve power' to undertake the actions necessary to ensure the safety of the flight.

In these kinds of circumstances, the operator may elect to assign operational control duties to other trained personnel if the approved method of control and supervision of flight operations assistance requires the use of such a person. It is up to the operator which part or how much of the operational control assistance capability is assigned and to whom. Naming conventions for such persons, such as flight operations officer/flight dispatcher, are not mandated by CASA.

Some duties associated with operational control that may be given to trained personnel are:

- scheduling of departure and arrival times
- crew assignment and flight and duty time management
- risk assessment of routes and ports
- flight preparation including the completion of operational and ATS flight plans
- load and passenger control
- liaison with the air traffic control
- meteorological and communication services monitoring and the provision to the PIC during flight of information necessary for the safe and efficient conduct of the flight
- monitoring the progress of each flight under their jurisdiction
- parking position assignments
- aircraft utilisation tracking
- advising the PIC of company requirements for cancellation, re-routing or re-planning, should it not be possible to operate as originally planned.

The following list contains some example scenarios where the conduct of operational control tasks could be delegated to a person other than the PIC, subject to the final acceptance by the PIC:

- A medical transport operation may receive its tasking from an air ambulance tasking coordination centre direct to the operator's operations room:
  - this room is manned by an operations officer who coordinates aircraft preparations with the crew, or coordinates with the ambulance service to make preparations for the aircraft landing at a destination car accident site.
  - after the departure of the flight, an operations officer may become aware, via information from ground crews at the medical transport pickup location, of critical information such as hazards at the aerodrome. The operations officer passes this information onto the crew so that the crew can conduct an in-flight operational risk assessment for go/no-go decision-making processes.
- An operator conducting international passenger transport operations maintains a flight dispatch centre that manages:
  - route planning for the purpose of dropping off and picking up passengers and cargo
  - allocation of resources (aircraft and crew)
  - the redirection of aircraft due to any changes.

4.2 Division 135.D.2—Flight preparation

AMC 135.140 Flight preparation requirements

Reserved

GM 135.140 Flight preparation requirements

The operator must include procedures in their exposition to comply with the requirements of:

- regulation 91.230 in relation to flight preparation (weather assessments)
- regulation 91.235 in relation to flight preparation (alternate aerodromes).

This regulation does not alter or replace the requirements of:

- regulation 135.180 regarding take-off alternate aerodromes
- regulation 135.185 and corresponding MOS provisions regarding alternate aerodrome requirements in certain circumstances

or

- regulation 135.190 regarding IFR flights without destination alternate aerodromes.

The diverse nature of possible Part 135 operations means that each operator must tailor their exposition procedures in this area to suit their individual circumstances. In the simplest case, the exposition procedure would normally require the PIC to follow a flight preparation process that includes not only obtaining and interpreting weather forecasts, but also using this data to determine fuel and alternate requirements.

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

4.3 Division 135.D.3—Flight planning

AMC 135.145 Operational flight plans

It is an acceptable means of compliance with this regulation if the operator uses the Airservices Australia flight notification form in combination with an operator-provided form that addresses the requirements of this regulation that are not included in the Airservices form.

GM 135.145 Operational flight plans

Chapter 4 of the Part 135 MOS prescribes the minimum information to be included in an operational flight plan (OFP).

An operational flight plan is the operator's plan for the safe conduct of the flight based on considerations of aircraft performance, other operating limitations, and following relevant expected conditions on the route and at the aerodromes concerned.

An operator may elect to construct a single document that meets multiple regulatory requirements, including items such as the operational flight plan, management of fuel requirements, and the journey log.

Alternatively, the operator may keep these as single purpose documents. Regardless of the format selected, the operator remains responsible for ensuring that the selected document format satisfies the requirements of the regulations.

The operator must have procedures[10] that specify when the PIC must have completed the operational flight plan for the flight, and the methods by which this may be done.

Waypoints should be selected at regular intervals to provide the flight crew with an accurate assessment of the progress of the flight in relation to time and fuel burn. Where practical, the waypoints should not be more than one hour apart (e.g., remote area flights may have waypoints further apart etc.).

The operator's exposition should contain specific instructions for personnel applicable to the review of information and any computational procedures associated with the required flight planning information[11]. For example, the operator's computer flight planning software may provide completed fuel summaries, including trip fuel, contingency, final fuel and alternate destination fuel figures. The exposition material should provide sufficient information on how these figures are constructed such that the flight crew are able to check the accuracy of the calculations. This is particularly important when conditions may change necessitating a recalculation after the crew has left the point where they may access a revised computer-generated plan.

AMC 135.150 Availability of flight planning information

Reserved

GM 135.150 Availability of flight planning information

An operator must ensure that the PIC and any person with responsibilities for flight planning, inflight replanning or operational control has access to the required flight planning information.

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

The operator's exposition should contain specific procedures for personnel on accessing and using flight planning information when flight planning at:

- the operator's base of operations
- all satellite locations
- ad-hoc facilities.

[10] Paragraph 119.205 (1) (h.)
[11] Paragraph 119.205(1)(h).

Subregulation 135.150(2) requires that for all personnel (PIC, flight planning staff, external providers) involved in flight planning activities, the operator's procedures must describe how this process is accessed and how the relevant information is distributed to the applicable personnel such as the PIC, operational support areas etc.

4.4 Division 135.D.4—Flight rules

AMC 135.155 Take-off and landing minima

Reserved

GM 135.155 Take-off and landing minima

This regulation outlines the requirements regarding take-off and landing minima for IFR operations. It does not apply to VFR operations.

The operator's exposition must contain procedures that enable their personnel to determine the take-off and landing minima applicable to company operations.

The basic concept is that operators may choose to apply more conservative minima than those prescribed by the regulations, but never less limiting (see paragraph 135.155 (2) (a) and subregulation 135.155 (3)).

The general take-off and landing minima are prescribed in the Part 91 MOS.

The operator selected take-off minima must consider the ability of the PIC to conduct either a continued or discontinued take-off safely while allowing for abnormal circumstances, such as an engine failure.

Subregulation (3) and (4) are largely duplicative; however, the intent of these subregulations is that, if an operator conducts circling approaches, the exposition procedures must consider and document the applicable material for circling approaches. This includes procedures for flight crew to follow if the conditions deteriorate below circling minima when circling at the aerodrome and not aligned with the missed approach flight path.

When constructing exposition procedures, it is recommended that the operator 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, 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 the purpose of 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 and the obstacle clearance altitude/height for the instrument approach procedures
- the means 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 promulgated by the State of the Aerodrome.

Operators might choose to assess these factors using a risk assessment.

If international operations are conducted in countries where the local regulations specify different criteria for the take-off and landing minima, the operator's exposition should detail how the criteria used to establish the operator's minima vary from those in use locally (refer also to regulation 135.160).

AMC 135.160 IFR flights to or from foreign countries that do not use ICAO procedures

Reserved

GM 135.160 IFR flights to or from foreign countries that do not use ICAO procedures

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 in respect of circling approaches where the assumed radius of turn and minimum obstacle clearance are markedly different[12].

AMC 135.165 Authorised instrument approach procedures not in the AIP

Reserved

GM 135.165 Authorised instrument approach procedures not in the AIP

This regulation establishes that, for an IFR flight, if the instrument approach procedure for an aerodrome is not published in the AIP, the authorised instrument approach procedure for the aerodrome must be included in the operator's exposition.

Part 173 allows organisations to develop their own instrument approach procedures or have them developed by an authorised or certified Part 173 design organisation.

Once an instrument approach procedure has been authorised, a Part 135 operator may use the procedure if it is included in their exposition.

AMC 135.170 Exposition requirements for low-visibility operations

Reserved

GM 135.170 Exposition requirements for low-visibility operations

The regulation requires inclusion of a list of requirements in an operator exposition if low-visibility operations are intended. A low-visibility operation is defined in the Part 91 MOS and includes:

[12] Circling Approach - difference between ICAO PANS-OPS and US TERPS - SKYbrary Aviation Safety

- a low-visibility take-off (LVTO)
- an approach using minima less than the CAT I minima published in the AIP for the runway in use.

If low-visibility operations are not conducted, then this should be clearly stated in the exposition.

Specific rules for IFR take-off and landing minima are contained in Chapter 15 of the Part 91 MOS.

Guidance on low visibility operations is contained in AC 91-11 - Approval to conduct low-visibility operations and AC 91-12 - Conduct of practice of autoland operations.

AMC 135.175 Stabilised approach requirements

Reserved

GM 135.175 Stabilised approach requirements

The regulation requires the exposition to include procedures concerning 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 and operator procedures are recommended to consider earlier staged stabilised approach procedures 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, operators should consult the flight manual and manufacturer sources 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, operators may consider the parameters specified in the Part 61 MOS, Schedule 8, Table 2 *Aeroplane general flight tolerances – professional level*.

A stabilised approach has the effect of reducing pilot workload, allowing a greater focus on flight path and airspeed, and it establishes the aeroplane at the optimal speed, position and attitude for the landing flare.

Conversely, pilot workload increases when the above parameters are not stable, allowing less time to focus on flight path and airspeed, potentially leading to difficulties achieving the desired touchdown point.

Some situations that reduce the likelihood of a stabilised approach include:

- circling approaches
- discontinuing an approach before the minima/MAPT to continue in VMC
- instrument approaches flown with “step-down” segments instead of a continuous descent
- low level circuits.

These circumstances should be avoided when they are not operationally necessary, or where other more suitable procedures exist.

For many operators, the exposition procedures for a stabilised approach would require that:

- the aeroplane is in the configuration appropriate to its position on the approach
- all briefings and checklists have been completed
- the aeroplane is on the correct flight path (both laterally and vertically within the most conservative of the parameters required by the operator or the procedure being conducted)
- the aeroplane is maintaining the appropriate final approach speed for each stage of the approach (including any allowances for turbulent air conditions, crosswind or windshear)
- the maximum descent rate is not exceeded
- the power setting is appropriate to the aeroplane configuration.

Some AFM procedures require increasing the flap setting and/or decreasing the airspeed on approach as the aircraft gets closer to touchdown, either as part of the aircraft normal procedures or in short field or obstacle clearance landing procedures.

In some light twin-engine aircraft where the engine-out missed approach performance with landing flap is likely to be marginal, operators may elect to publish a ‘decision point or altitude’ which is used by the pilot as the latest point by which they cannot successfully execute a safe missed approach in the event of an engine failure with the flaps set for landing.

In all circumstances the exposition should clearly define the heights at which the aircraft must meet any specific stabilised approach criteria. For example:

<u>VFR flights generally, and IFR flights conducting a visual approach from LSALT</u>

For a typical single-engine piston aeroplane

- Normal landing:
  - By and after 500 ft AGL: flaps 30 degrees, airspeed 70kts +/-5 kts, power as required for 3 degree approach.
  - After 300 ft AGL: flaps 40 degrees, airspeed 65kts +/-5kts.

- Short landing
  - By and after 500 ft AGL: flaps 40 degrees, airspeed 70kts +/-5 kts, power as required for 3 degree approach
  - After 300 ft AGL: flaps 40 degrees, airspeed 60kts +5/-0kts
  - After obstacles are cleared: idle power (if this is the recommended technique in the AFM).

For a typical light piston twin-engine aeroplane

- At 1000 ft AGL: flaps 30 degrees, gear down, airspeed 85 – 95kts
- By and after 500 ft AGL: flaps 30 degrees, airspeed 85kts +/-5 kts, power as required for 3 degree approach
- When landing assured: flaps 40 degrees, airspeed 80kts +5/-0kts.

IFR flights conducting instrument approaches where not visual before LSALT

For a typical single-engine piston aeroplane

- Normal landing:
  - By and after 1000 ft AGL: approach flap, airspeed 70kts +/-5 kts, power as required for 3 degree approach or instrument approach descent profile
  - After becoming visual and committing to landing: landing flap, airspeed 65kts +/-5kts.

For a typical light piston twin-engine aeroplane

- At 2000 ft AGL: approach flap, gear down, airspeed 85 – 95kts.
- If single engine performance is adequate:
  - By and after 1000 ft AGL: landing flap, airspeed 85kts +/-5 kts, power as required for 3 degree approach or instrument approach descent profile.
  - When visual and committed to landing: landing flap, airspeed 80kts +5/-0kts.
- If single engine performance is marginal:
  - By and after 1000ft AGL: approach flap, airspeed 85kts +/-5 kts, power as required for 3 degree approach or instrument approach descent profile.
  - After becoming visual and committing to landing: landing flap, airspeed 80kts +5/-0kts.

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

Go-around policy

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

AMC 135.180 Take-off alternate aerodromes

Reserved

GM 135.180 Take-off alternate aerodromes

The intent of this regulation is to require an alternate within an OEI flight time limitation for passenger or medical transport flights conducted under the IFR in a multi-engine aeroplane that cannot return to the departure aerodrome due to weather or any other reason.

A take-off alternate aerodrome is not required when the departure aerodrome weather minima for landing remain suitable for at least one hour after take-off. If the departure aerodrome landing minima are not suitable for this period of time, then a take-off alternate aerodrome with suitable landing minima within one hour OEI flight time must be planned.

This regulation is not applicable to medical transport operations if, when the flight begins, sufficient fuel is on board for the planned destination and planned destination alternate if one is required.

The intent of relaxing these requirements for medical transport operations is to allow flights with a time-critical requirement to depart without a take-off alternate, provided there is enough fuel to continue to the flight planned destination (and the destination alternate if required).

The take-off alternate, when needed, must be included in the operational flight plan.

AMC 135.185 Alternate aerodrome requirements in certain circumstances

Reserved

GM 135.185 Alternate aerodrome requirements in certain circumstances

The intent of this regulation is to require flights to remote islands, listed in section 5.01 of the Part 135 MOS, to always plan for an alternate on the mainland (not another remote island) regardless of any other consideration.

Chapter 5 of the MOS details the circumstances and requirements to which this regulation refers. They deal with passenger transport or medical transport flights to a remote island in a multi-engine aeroplane.

The MOS permits an operator to apply for an approval under regulation 135.020 to enable the use of an alternate aerodrome which is located on a remote island. The application for this approval is a significant change[13] and operators will be required to demonstrate how their proposed procedures will at least maintain an equivalent level of safety. Refer to AC 11-04 on flight operations regulations approvals for further information. This is usually accomplished through a specific safety risk assessment by the operator that describes how:

- the capabilities of the operator's data driven fuel consumption monitoring system are applied

[13] Paragraph 119.020(c)

- the sophisticated techniques which are used for determining the suitability of alternate aerodromes
- specific risk mitigation measures are applied to maintain an equivalent level of safety.

As part of such an approval it would be expected that the operator would continue to collect operational performance data and monitor the actual performance against the anticipated performance measures. Operators could expect that CASA would seek to review this data during surveillance events. In some cases, regular provision of the data to CASA to validate the ongoing maintenance of an equivalent level of safety might be a condition on an approval.

AMC 135.190 IFR flights without destination alternate aerodromes

Reserved

GM 135.190 IFR flights without destination alternate aerodromes

This regulation affects IFR flights in progress where the PIC has not planned for a destination alternate due to the weather forecasts and reports available prior to the flight commencing, indicating that a destination alternate aerodrome was not needed for weather related reasons.

This regulation works with the fuel requirements of Chapter 7 of the Part 135 MOS.

Chapter 7 requires, amongst other things, the PIC to:

- determine the fuel remaining during the flight and compared planned versus actual fuel consumption (section 7.05)
- ensure at any time during the flight that the rotorcraft has destination alternate fuel (if required) (section 7.04).

These obligations, combined with the PIC's general responsibility to ensure the safety of the flight (regulation 91.215), therefore require the PIC to obtain appropriate weather updates throughout the flight.

If the updated forecast or report indicates an alternate is now required, when not carrying destination alternate fuel, then to comply with chapter 7 of the 135 MOS and subregulation 135.190(2), a diversion to an en-route alternate would be necessary.

However, subregulation 135.190(2) does not apply if subregulations 135.190(3) or (4) apply to the flight.

Where the aeroplane is within 30 minutes of the destination, the landing minima, instead of the alternate minima, can be used to determine if an alternate is required. Hence, in summary, when in-flight the flight may continue to the planned destination aerodrome with no diversion required if the weather is forecast:

- above the alternate minima

  or

- if already within 30 minutes of arrival – above either the visibility or cloud ceiling of the landing minima requirements of the destination aerodromes' available instrument approaches,

  or

- to improve above landing minima, and holding fuel is carried for 30 minutes after this time.

Note: The 3rd bullet point above is based on subregulation 135.190(4) which states holding is possible if the aeroplane is carrying sufficient fuel to hold **near the planned destination**.

The holding pattern of the selected instrument approach would fulfill this requirement. Therefore, the 30 minutes holding fuel should be considered as being required from the planned arrival time at the destination aerodrome.

4.5 Division 135.D.5—Aerodromes

There is a direction in force in relation to the use of military aerodromes. Pilots and operators are recommended to review section 11 of CASA EX81/21.

Use of narrow runways

Under the rules that applied prior to 2 December 2021, charter and regular public transport operators were required to comply with colloquially named 'narrow runway rules' that were contained in regulation 235A of CAR, as in force on 1 December 2021. Mistakenly, these requirements were only incorporated in Part 121 (see regulation 121.220) but were not included in Part 135.

Until Part 135 is amended to include a requirement similar to regulation 121.220, there is Part 11 direction in force that requires 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). It is recommended that operators review section 19 of CASA EX85/21. This section requires that an aeroplane, that is conducting a flight which is a Part 135 operation, fits in the criteria listed below, the operator and the PIC must ensure that if the aeroplane takes off from, or lands on, a narrow runway, then the aircraft flight manual instructions for the aeroplane must include requirements for the operation of the aeroplane on a narrow runway. The exposition must include procedures for taking off from, or landing on, a narrow runway and procedures relating to the training required for the aeroplane's flight crew to conduct a take-off from, or a landing on, a narrow runway. The criteria are that the:

- aeroplane takes off from, or lands on, a runway; and
- width of the runway (a ***narrow runway***) is less than the width for the aeroplane worked out in the manner prescribed by the Part 121 MOS for the purposes of paragraph 121.220(1)(b)
- aeroplane has a maximum certificated take-off weight of more than 5,700 kg; and
- aeroplane is of a type first type certificated in its country of manufacture on or after 1 March 1978.

AMC 135.195 Procedures to determine information about aerodromes

Reserved

GM 135.195 Procedures to determine information about aerodromes

There is a direction in force in relation to the use of military aerodromes. This information is included in this GM section because, even though the direction does not specifically relate to this regulation, it relates to the general topic of aerodrome usage. Pilots and operators are recommended to review section 11 of CASA EX81/21.

Aerodrome information for certified, registered and military aerodromes is published in the ERSA or Jeppesen Airways Manual. Full information with updates via inspections and NOTAMs are provided for certified, registered and military aerodromes.

Other aerodromes, such as ALAs, are 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, the operator may require permission from the owner or occupier of the area prior to use.

This regulation outlines the required procedures and the information that must be considered and published in an operator's exposition about aerodromes. In meeting this requirement, for certified/registered/military aerodromes, operators can elect to include the ERSA and/or the Jeppesen Airways Manual as part of their exposition.

If operations are proposed to or out of aerodromes not listed in the above documents, the exposition is still required to address the requirements as published in the regulation.

Aeroplane with an MTOW in excess of 5 700 kg

In considering the suitability of an aerodrome, an operator should reference the minimum width for the class / type of aeroplane (applicable if the MTOW > 5 700 kg).

Note that details of minimum runway widths are available in the AIP and the Part 139 MOS, and these are in accordance with the ICAO Aerodrome Reference Codes (ARC).

Water aerodromes

The reference in paragraph 135.195(2)(a) to “surface types” is not intended to be interpreted as relating to the surface conditions of a water aerodrome. The condition of this surface impacts the suitability of a water aerodrome for take-off or landing and is therefore a safety issue for the operator and pilot in command (PIC) to assess.

Suitability of aerodromes and contact persons

Paragraph 135.195(2)(i) describes the requirement for an operator’s exposition to include details of a contact person capable of providing information about the condition of an aerodrome. Informed assessment of the condition of suitable aerodromes (departure, planned destination or alternates) by the operator and the PIC, is fundamental to the safe conduct of an operation.

If the aerodrome being used by an operator is not a certified aerodrome, the operator’s obligations determining whether the aerodrome is suitable for use becomes significantly more challenging. When an aerodrome is not certified, the aerodrome operator is not subject

to the Part 139 of CASR mandatory reporting requirements where the aerodrome operator is required to report information about the aerodrome itself or about any obstacles infringing the obstacle limitation surface extending around the runways.

The air operator will need to establish alternative mechanisms to determine this critical information about an aerodrome. In order to meet the obligation on the operator to ensure an aerodrome is suitable for use, they will need to have very robust methods of ensuring the suitability of the aerodrome, and its surrounding area, for every flight to and from the aerodrome. Depending on how recently it has been provided, reliance by the operator on historical data might not meet the operator's obligations.

In these circumstances, the operator will need to establish, either in concert with the aerodrome operator or via another means (such as an agent at the aerodrome whose duty it is to provide the operator, whenever any conditions exist at or near the aerodrome that may affect the safety of an aeroplane attempting to take-off or land at the aerodrome, with information regarding those conditions), a reporting system that provides the data necessary to ensure that the operator, and its crew members, are notified of any changes to the aerodrome serviceability status, and the obstacles in the relevant surrounding airspace, before embarking on a flight to or from such an aerodrome.

For unsealed landing areas, the suitability of a runway is often affected by rain. An operator would need to establish reliable methods of ensuring the suitability of an unsealed runway during or after wet weather prior to a take-off or a landing being conducted.

At more rudimentary aerodromes, operators will also need to satisfy themselves that adequate precautions are in place to ensure that persons, objects and animals are kept off, or are clear of, runways, taxiways and parking areas during take-offs, landings and ground operations with engines running. Regulation 121.215 already requires the air operator to include procedures in their exposition that ensure the safety of persons in the vicinity of an aeroplane and these procedures will need to be more robust for operations at uncertified aerodromes due to the absence of the Part 139 of CASR protective framework.

AMC 135.200 Procedures for safety at aerodromes

Reserved

GM 135.200 Procedures for safety at aerodromes

An operator must ensure that all personnel whose duties include working in the vicinity of an aeroplane are appropriately trained to perform their duties safely. Further training must be provided for those personnel who are also responsible for the movement of persons not employed by the operator, i.e., passengers.[14]

The safety of passengers is paramount. It must be remembered that even regular travellers may be unfamiliar with the airport environment, the differences between various boarding gates, airports and the hazards associated with these differences, and they must be provided with clear and easy-to-follow directions. All passengers should be marshalled and supervised while airside. Many foreign visitors will not recognise local signs or markings unless they are

[14] Regulation 135.125.

clear and unambiguous. Operators should also consider the requirements of the *Aviation Transport Security Regulations 2005*.

To ensure airside passenger movements are properly controlled, procedures for the escort of passengers on the aerodrome apron should be included in an operator's exposition. The operator should also develop procedures to ensure aircraft are parked in a place that avoids exposing passengers to hazardous conditions.

Hazardous conditions that may need to be considered include:

- the distance to be covered by passengers and the amount of time on the apron
- other aircraft movements in close proximity
- ground service or fuelling vehicles
- excessive noise associated with operating engines or machinery
- spark hazards around fuelling operations (including fuelling of other aircraft)
- trip and fall hazards
- weather conditions
- line of sight for marshallers of all passenger movements where it is possible to deviate from the path to the aircraft.

Night operations at remote aerodromes without adequate apron lighting may also present hazards that should be considered.

For operators of aircraft permitted to refuel with passengers on board, the exposition should detail the method of supervision of the passengers while the aircraft is being refuelled.

Operations at larger airports are typically associated with numerous other aircraft. Jet blast, propeller wash, rotor wash, noise, fuelling of other aircraft, airside servicing equipment, and the implications of passengers moving to the aircraft require consideration.

Passengers transiting to or from an aircraft can be distracted by mobile phone or other PED use. This reduces situational awareness, increases unsafe behaviour, and puts the passengers at greater risk of accidents.

Operators should include procedures, facilities or safety devices for the guidance and protection of passengers using PEDs while transiting to and from the aircraft. In circumstances where the operator is not confident of the level of protection provided by procedures, facilities and safety devices, they should consider restricting the use of PEDs.

4.6 Division 135.D.6—Fuel requirements

AMC 135.205 Fuel procedures

Reserved

GM 135.205 Fuel procedures

Reserved

AMC 135.210 Oil requirements

Reserved

GM 135.210 Oil requirements

This regulation requires the operator and PIC to ensure that sufficient oil is carried for the planned flight. In determining the quantity required, consideration should be given to items such as:

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

AMC 135.215 Fuel requirements

Reserved

GM 135.215 Fuel requirements

There is an exemption in force in relation to regulation 135.215 and regulation 91.455 of CASR that effectively permits operators to use the Part 135 fuel rules instead of the Part 91 fuel rules during a private operation conducted by the operator. It is recommended that operators review section 11 of CASA EX85/21.

This regulation requires the operator and the PIC to comply with the fuel requirements in Chapter 7 of the Part 135 MOS.

Further guidance on operational fuel requirements can be found in AC 91-15 - Guidelines for aircraft fuel requirements

Operators that were using an operational variation prior to the commencement of Part 135 on 2 December 2021, under the auspices of section 8 of *CASA 29/18 — Civil Aviation (Fuel Requirements) Instrument 2018*, and that intend to continue using the same operational variation after 2 December 2021, do not need to submit any additional documentation to CASA. The operator is taken to have already submitted the required documentation to CASA required under subsection 7.07(3) of the Part 135 MOS.

AMC 135.220 Fuelling safety procedures

Paragraph 135.220 (b) – procedures relating to the safety of passengers

It is an acceptable means of compliance with paragraph 135.220 (b) if the procedures in the operator's exposition relating to fuelling when passengers are embarking, disembarking, or on board an aircraft cover the matters described below.

When fuelling with passengers on board, ground servicing activities and work inside the aeroplane, such as cleaning or reconfiguring of the aeroplane, must be conducted in such a

manner that they do not create a hazard and do not obstruct the aisles and exits such that an emergency evacuation can be conducted if required.

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 on board. 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 on board the aeroplane must be established. This may be by using the aeroplane's inter-communication system (if appropriate / capable) 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, together with interior lighting 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 on board 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.

GM 135.220 Fuelling safety procedures

Regulation 135.220 takes precedence over regulation 91.510 during a Part 135 operation.

There is an exemption in force in relation to regulation 135.220 and regulation 91.510 that effectively permits operators to comply with regulation 135.220 instead of regulation 91.510 during a private operation conducted by the operator. It is recommended that operators review section 12 of CASA EX85/21.

There is also a Part 11 direction in force in relation to this regulation. It is recommended that operators review section 20 of CASA EX85/21.

Fuelling means both refuelling and de-fuelling.

This regulation provides that an operator’s exposition must include procedures to ensure that fuelling operations are safe. The procedures are specifically required to cover situations where passengers embark, disembark or remain onboard the aeroplane during fuelling, and where low-risk electronic devices are permitted to be used in the aeroplane cabin during fuelling.

The operator’s procedures should require crew members to conduct a briefing when the aircraft is being refuelled with passengers on board or embarking/disembarking (refer to AC 135-12 - Passenger safety information).

The operator's procedures should also outline any safety requirements for ground personnel working around an aircraft during fuelling. Consideration should be given to the inclusion of

safe distances from fuelling equipment, including bonding cables and fuelling vent zones, and procedures for fuel spills. Furthermore, these procedures should detail what actions should be undertaken by ground personnel in an emergency situation, including an emergency evacuation of an aircraft.

Further guidance on fuelling operations can be found in AC 91-25 - Fuel and oil safety.

4.7 Division 135.D.7—Passenger transport and medical transport

There is an exemption in force in relation to Part 135 operators and the seating of crew members that are not flight crew members (called ***the person*** in this paragraph) during medical transport operations. The person is exempted from having to comply with regulation 91.555 subject to compliance with certain conditions. It is recommended that operators review section 17 of CASA EX85/21.

AMC 135.225 Application of Division 135.D.7

Reserved

GM 135.225 Application of Division 135.D.7

This regulation applies Division 135.D.7 to passenger transport and medical transport operations only. The Division does not apply to cargo transport operations.

AMC 135.230 IFR flights

Reserved

GM 135.230 IFR flights

This regulation limits IFR flight with passengers (passenger or medical transport operations) to multi-engine or prescribed single engine aeroplanes.

Refer to GM 135.240 and Chapter 8 of the Part 135 MOS for information on prescribed single-engine aeroplanes.

AMC 135.235 VFR flights at night

Reserved

GM 135.235 VFR flights at night

This regulation requires VFR flights at night that are passenger transport operations or medical transport operations, conducted in the aeroplanes mentioned in the regulation, to have at least 1 flight crew member that holds an instrument rating.

However, this requirement, due to the legal meaning of 'instrument rating', would have precluded a person who holds an ATPL from conducting the flight, even though ATPL(A) holders are permitted to conduct certain kinds of activities under the IFR.

An exemption has been issued to ensure the correct policy intent is realised in the legislation overall. It is recommended that operators review section 9 of CASA EX85/21.

AMC 135.240 Prescribed single-engine aeroplanes

Reserved

GM 135.240 Prescribed single-engine aeroplanes

The regulation applies to a PSEA when conducting an IFR flight (day/night) or a VFR flight at night. The regulation empowers the MOS to prescribe what kinds of single-engine aeroplane are PSEA (for details refer to Chapter 8 of the Part 135 MOS).

The effect of the regulation is that for single-engine aircraft, passenger transport and medical transport flights under the IFR or VFR at night can only occur in a PSEA, and the exposition must include the prescribed matters mentioned in Chapter 8 of the Part 135 MOS.

The MOS mentions matters that relate to procedures to deal with in-flight emergency situations, as well as suitable route selection and forced landing areas. PSEA carrying out VFR day flights do not necessarily have to comply with the provisions of this regulation; however, many operators elect to comply with the PSEA rules unless equipment failure or pilot qualification aspects mean that they could not comply.

Regulation 135.290 applies to passenger transport operations and medical transport operations in single-engine aeroplanes and imposes distance limits from a suitable forced landing area for flight of non-PSEA single-engine aeroplanes over water. See GM 135.015 for the circumstances when a non-PSEA can use an area of water as a suitable forced landing area.

Prescribed matters for a PSEA

Refer to AC 135-13 - Prescribed single-engine aeroplanes for detailed information regarding the procedures required by the Part 135 MOS to deal with in-flight emergency situations, as well as suitable route selection and forced landing areas.

AMC 135.245 Simulation of emergency or abnormal situations

Reserved

GM 135.245 Simulation of emergency or abnormal situations

This regulation prohibits the simulation of emergency or abnormal situations during flight and is applicable to passenger transport and medical transport operations.

The intent is to prevent crew from altering the aeroplane configuration, or the position of controls, switches or settings from normal operations. It does not prevent the crew from

referencing the aeroplane checklists and publications and conducting general technical and scenario-based discussions.

AMC 135.250 Carriage of restricted persons

Reserved

GM 135.250 Carriage of restricted persons

Restricted persons include deportees, removees, persons in custody and people refused entry to a country. The definition of ‘restricted person’ can be found in the CASR Dictionary. The meaning of 'deportee' and 'removee' are defined by subsection 5(1) of the *Migration Act 1958.*

The regulation requires that an operator must state in their exposition whether the carriage of restricted persons is permitted. Where an operator elects to permit this, then the regulation requires that an operator must include in the exposition procedures applicable to this. The procedures should explain how each crew member will be informed of the circumstance, and describe all applicable crew and ground staff procedures.

In developing exposition procedures, operators will also need to be cognisant of the requirements of Division 4.5 of the *Aviation Transport Security Regulations 2005*.

Additional information is available in AC 135-12 - Passenger safety information, and AC 135-10 - Carriage of special categories of passenger.

AMC 135.255 Carry-on baggage

Reserved

GM 135.255 Carry-on baggage

The regulation requires an operator’s exposition to include procedures applicable to the carriage of passenger and crew baggage in the aircraft cabin for a flight. Such procedures must be in accordance with applicable regulations and, as a minimum, must address the amount, size and weight permissible per passenger. The exposition should also detail the training requirements for the organisation's personnel applicable to this topic.

The exposition 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 the operator, 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.

When detailing the procedures for the safe stowage of carry-on baggage, the operator should consider the following:

- the requirements of Part 92 that must be met (Carriage of dangerous goods)
- the identification and management of excess carry-on baggage
- checks that should be made to ensure adherence to the requirements, including regulation 135.260 (Obstruction of emergency exits).

Operators should consider the risks associated with excessive amounts of carry-on baggage and establish procedures for how this should be managed by the operator's personnel.

The weight of carry-on baggage must be accounted for in the weight and balance of an aircraft, as required under Subpart 135.J. This should include procedures for the recording of baggage that is shifted from the passenger area and placed into the aircraft cargo area (if separate). The PIC has the authority to refuse carriage of or disembark any person, baggage or cargo that may represent a potential hazard to the safety of the aeroplane or its occupants[15].

Refer to AC 135-06 - Carry-on baggage for further information.

AMC 135.260 Obstruction of emergency exits

Reserved

GM 135.260 Obstruction of emergency exits

Reserved

AMC 135.265 Passengers in seats adjacent to emergency exits

Reserved

GM 135.265 Passengers in seats adjacent to emergency exits

Subsection 98 (6B) of the *Civil Aviation Act 1988* states that the regulations may contain provisions that are inconsistent with the *Disability Discrimination Act 1992* if that inconsistency is necessary for the safety of air navigation. The restriction of emergency exit row seating to suitable persons is made for this purpose.

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.

The operator's procedures for the allocation of emergency exit seats should include criteria for determining which passengers qualify as suitable persons.

Consideration should be given to the provision of a separate card at the emergency exit seats that contains information on the suitability criteria for passengers to be eligible to occupy an exit seat. This would allow passengers to self-identify if they cannot meet the selection criteria, and allow reseating to occur.

[15] Regulations 91.215 and 91.220.

For further guidance, refer to AC 135-11 - Passengers seated in emergency exit row seats.

AMC 135.270 Carriage of passengers with reduced mobility

Subregulations 135.270 (1) and (2)

It is an acceptable means of compliance with subregulations 135.270 (1) and (2) if the operator's exposition includes procedures that take into account the following:

- General:
  - the aircraft type and cabin configuration
  - the total number of passengers carried on board
  - the number and categories of passengers with reduced mobility (PRM) which should not exceed the number of passengers capable of assisting them in case of an emergency
  - any other factor(s) or circumstances that may impact on the application of emergency procedures by the operating crew members
  - how and when the PIC and any other crew members are made aware that a PRM is being carried on the flight.
- Seat allocation:
  - if the PRM travels with an accompanying passenger, the accompanying passenger should be seated next to the PRM
  - a disability and/or restraint aid that is required to be secured around the back of the seat should not be used if there is a person seated behind, unless the seating configuration is approved for the use of such devices. This is to avoid the changed dynamic seat reactions with the disability and/or restraint aid, which may lead to head injury of the passenger seated behind. If the seat design or installation would prevent head contact of the person seated behind, no further consideration is necessary.
- Provision of safety information:
  - when and how safety information is to be provided to PRM.

GM 135.270 Carriage of passengers with reduced mobility

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

If it is necessary to seat a passenger with reduced mobility (PRM) adjacent to an emergency exit, the PRM will require an additional person who is able to access the exit and has agreed to assist with operation of the emergency exit and any subsequent evacuation.

While a general safety briefing is given to all passengers prior to departure, an individual briefing may be more appropriate for a PRM and their assistant. Crew members must know which passengers have reduced mobility.

The extent to which passengers may require special assistance will vary considerably according to the individual's needs, as well as the aeroplane type and configuration.

Consideration may be given to pre-boarding passengers (and their assistant if they are accompanied by one) to allow the passenger with reduced mobility more time to be seated and stow carry-on baggage. Subregulation 135.280 (4) requires a crew member, prior to take-off, to ask the person with reduced mobility or their assistant the best way of helping them if an emergency evacuation becomes necessary.

For additional information, refer to AC 135-12 - Passenger safety information.

AMC 135.275 Safety briefing cards

Reserved

GM 135.275 Safety briefing cards

The MOS content for paragraph 135.275 (4) (a) is contained in section 9.01 of the Part 135 MOS.

Safety briefing cards must be specific to the type and model of aircraft and cannot include information specific to other types or models of aircraft. However, if multiple types/models of aircraft have identical information, the card may cover all of these aircraft.

This regulation is applied to aeroplanes with more than two rows of seats, including flight crew seats.

Operators must ensure that a safety briefing card is available to each passenger.

The safety briefing card provides information on exit locations and the use and location of emergency equipment. Information is presented in a visual and pictorial format, which assists passengers in responding to emergency situations as quickly and effectively as possible.

The safety briefing card is designed to supplement the passenger safety briefing and can also be used to individually brief passengers during normal and non-normal procedures.

For further guidance, refer to AC 135-12 - Passenger safety information.

AMC 135.280 Safety briefings, instructions and demonstrations

Reserved

GM 135.280 Safety briefings, instructions and demonstrations

There is an exemption in force in relation to regulation 135.280 and regulation 91.565 of CASR that effectively permits operators to comply with regulation 135.280 instead of regulation 91.565 during a private operation conducted by the operator. It is recommended that operators review section 13 of CASA EX85/21.

The MOS content for subregulation 135.280 (1) is contained in sections 9.02 and 9.03 of the Part 135 MOS.

The intent of this regulation is for the operator and PIC to take responsibility for providing safety information to every passenger on board. This can be in the form of a briefing, instruction or demonstration.

Passenger safety briefings must be given to each passenger on board.

The content of a safety briefing is prescribed in the Part 135 MOS. It is limited to the safety of the aeroplane and passengers, and must be relevant to the specific type and model of aeroplane for the flight.

Passengers with reduced mobility may require unique assistance during an emergency, and crew are required to discuss this with the passenger or a person accompanying or assisting the passenger before the flight.

The nature of medical transport operations makes the provision of a safety briefing to patients impractical. Safety briefings to patients are not required during medical transport operations.

Additional guidance can be found in:

- AC 135-12 - Passenger safety information for guidelines on content and standard of safety information to be provided to passengers by aircraft operators, and
- ICAO Doc 10086 *Manual on Information and Instructions for Passenger Safety.*

AMC 135.285 Safety briefing in the event of an emergency

Reserved

GM 135.285 Safety briefing in the event of an emergency

In developing their procedures, operators should focus on ensuring that specific and accurate safety information is provided, and that instructions are able to be conveyed to passengers in a variety of ways to facilitate understanding. In considering the most suitable method, operators will need to account for the configuration and size of the aircraft cabin as not all methods will be considered practical in the confined environment of some aircraft. These methods include verbal briefings and visual safety information, such as passenger safety briefing cards, audio visual presentations, signs, placards, emergency lighting systems, and physical demonstrations provided by crew members.

Operators must provide safety information and instructions to passengers during normal operations, and also in the event of an abnormal or emergency situation (e.g., preparation of the cabin for an anticipated emergency landing or ditching).

Abnormal and emergency situations include the following:

- fire, smoke or fumes
- cabin pressurisation problems and decompression
- anticipated and unanticipated emergency landing or ditching
- evacuation on land or water
- crew member incapacitation

- rapid disembarkation.

Standard information and instructions specific to each of these situations should be included in the exposition, e.g., crew checklists for preparing for an emergency landing.

During medical transport operations, the safety briefing must be given to passengers who do not have the sole attention of a suitable person.

For further guidance, refer to AC 135-12 - Passenger safety information.

AMC 135.290 Flights over water for single-engine aeroplanes

Reserved

GM 135.290 Flights over water for single-engine aeroplanes

This regulation does not apply to cargo transport operations.

It is critical that persons understand the definition of *suitable forced landing area* in regulation 135.015, and how that definition interacts with this flight over water rule. Regulation 135.015 allows 2 groups of aeroplanes to use an area of water as a suitable forced landing area provided the conditions applicable to each group in the regulation are met. The 2 groups are: prescribed single-engine aeroplanes (PSEA), and aeroplanes that **have** a type certificate or supplemental type certificate for landing on water.

As explained in GM 135.015, regulation 135.015 has the following outcomes:

- For non-PSEA aeroplanes that **do not have** a type certificate or supplemental type certificate for landing on water, a suitable forced landing area must be on land, and there must be a reasonable expectation that there would be no injuries to persons in the aeroplane or on the ground.
- For PSEA aeroplanes that **do not have** a type certificate or supplemental type certificate for landing on water, a suitable forced landing area can be on land or an area of water, but for an area of water the conditions in subregulations 135.015(3) and (4) must be met.
- For aeroplanes **with** a type certificate or supplemental type certificate for landing on water, a suitable forced landing area can be on land or an area of water, but for an area of water the conditions in subregulations 135.015(3) and (4) must be met.

Regulation 135.290 specifically covers flights over water in single-engine aeroplanes, and has the following outcomes:

- A non-PSEA single-engine aeroplane, that **does not have** a type certificate or supplemental type certificate for landing on water, cannot operate more than 25 nm over water from a suitable forced landing area on land (due to the limitations on what kind of area can be a suitable forced landing area for these aeroplanes).
- A PSEA single-engine aeroplane, that **does not have** a type certificate or supplemental type certificate for landing on water, cannot operate more than 25 nm over water from a land or water based suitable forced landing area (remembering

that water based suitable forced landing areas must meet the requirements in subregulations 135.015(3) and (4)).

Note: The other PSEA rules in Chapter 8 of the Part 135 MOS limit the maximum time an aeroplane can be outside the glide range of a suitable forced landing area to 15 minutes at normal cruising speed. This requirement is subject to the conditions listed in Chapter 8 of the MOS.

- An aircraft that has a type certificate or supplemental type certificate for landing on water can operate more than 25nm from land, provided that the flight complies with the conditions within subregulations 135.015(2) to (4) about suitable forced landing areas that are areas of water for these aircraft.

Refer to Division 12 of Chapter 11 of the Part 135 MOS for the circumstances that require life jackets and/or life rafts to be carried by single-engine aeroplanes.

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.

4.8 Division 135.D.8—Instruments, indicators, equipment and systems

AMC 135.295 Airborne weather radar equipment

Reserved

GM 135.295 Airborne weather radar equipment

For a flight of an aeroplane that is equipped with weather radar, the intent of this regulation is for the exposition to include procedures not only for using the equipment, but also specifying how a flight is to be conducted if the equipment is unserviceable.

It is recommended that the procedures include reference to:

- the weather radar OEM manual where appropriate
- the aircraft MEL regarding aircraft dispatch with or without weather radar.

The two scenarios where this regulation applies are where Subpart 135.K requires the aeroplane to be fitted with airborne weather radar equipment, or where the aeroplane is fitted with airborne weather radar equipment regardless of whether Subpart 135.K requires such equipment to be fitted to the aeroplane.

In formulating the exposition material, the operator should consider applicable State rules for both domestic and international operations, e.g., the relevant Aeronautical Information Product(s).

The regulation specifies that the operator's exposition must include procedures applicable to the conduct of flight with or without airborne weather radar being serviceable. These procedures should, as a minimum, consider:

- use of the equipment

- the dispatch of an aeroplane with a failed weather radar system
- the in-flight failure scenario of a weather radar system.

In developing procedures for the weather radar failure scenario, operators should include consideration of:

- the forecast weather for the flight, including the probability of thunderstorms or cloud formations associated with severe weather / turbulence conditions
- the light conditions for the flight, e.g., while it is possible for a flight in daylight to see cloud formations and apply a 'see and avoid' technique, it would be difficult to apply a similar technique at night.

Operator policy guidance should also be provided on avoiding severe weather and any other general use 'tips' that would be useful to the flight crew. While most modern aeroplane weather radar manuals are quite detailed in the use of the equipment, this is not always the case and operators should ensure that the exposition contains specific procedures for their flight crew to follow when manipulating the weather radar.

Refer to regulation 135.370 for requirements relating to equipment, and to regulation 135.045 for an operator's minimum equipment list for certain flights.

AMC 135.300 Head-up displays, enhanced vision systems and synthetic vision systems

Reserved

GM 135.300 Head-up displays, enhanced vision systems and synthetic vision systems

Irrespective of whether an operator has gained operational credit for the use of head-up displays (HUDs), enhanced vision systems (EVS) or synthetic vision systems (SVS), the regulation requires an operator to have procedures in place for this equipment (if fitted) to describe its use.

These procedures will mitigate the risk of untrained flight crew using these systems, especially during component failure scenarios.

AMC 135.305 Survival equipment procedures

Reserved

GM 135.305 Survival equipment procedures

The regulation applies to a flight in a remote area or when a life raft is required to be carried. The Part 91 MOS provides the definition of a 'remote area'. The regulation requires the exposition to include procedures for determining the survival equipment and pyrotechnic signalling devices required for the flight.

The reason that the exposition needs to contain these procedures is that the requirements related to survival equipment within the Part 135 MOS are not specific, but are instead outcome-based. This provides flexibility for the operator to respond to changing

environments and changing circumstances; however, it also places the onus on the operator to assess the environments, locations and circumstances in which they are operating, and to decide what survival equipment is appropriate to be carried. The exposition procedures will outline the factors and risks the operator will take into account when determining the specific items of survival equipment required to be carried on different kinds of flights, to different locations, or any other variation assessed as relevant to the individual operator.

The relevant equipment information is available in the Part 135 MOS.

Appendix 1 of Annex 2 to the Chicago Convention, Rules of the Air, also contains some valuable information regarding pyrotechnic signalling devices. Certain signals have an internationally standardised meaning such as the following signals which, when used either together or separately, mean that grave and imminent danger threatens and that immediate assistance is requested:

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

4.9 Division 135.D.9—Miscellaneous

AMC 135.310 Procedures relating to ice

Reserved

GM 135.310 Procedures relating to ice

The basic requirements for flight in icing conditions and the responsibilities of the PIC are set out in regulations 91.705 and 91.710. These remain applicable to all Part 135 operations.

This regulation requires an operator's exposition to describe the procedures for:

- inspection of the aircraft prior to flight if frost, freezing or icing conditions exist
- removal and prevention of ice and frost prior to flight, and
- the use of aircraft equipment during flight in icing conditions.

If applicable, an operator's exposition must include policy, procedures and training relating to airframe and engine icing which are consistent with the relevant aeroplane flight manual. Under no circumstances will the policy, procedure and training be less limiting than the aeroplane flight manual limitations and guidance.

In Australia, ground icing is not often experienced; however, it is not uncommon for ice (in the form of hoar frost) to affect aeroplanes parked overnight in temperatures below zero degrees.

For operators who do not intend to conduct operations from aerodromes that are regularly exposed to ground icing, the 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; for example, 'operations will not be conducted during icing conditions that could cause

contamination to the external surfaces of an aircraft while the aircraft is on the ground'

- advice on conditions that will allow operations to commence
- precautions that must be taken prior to operations commencing.

AOC holders with operations in colder climates will need to evaluate and document appropriate company processes applicable to the removal of ice and snow. The successful treatment of ice and snow deposits on aeroplanes on the ground is an absolute necessity to safety in winter operations.

The PIC has the responsibility to ensure compliance with the 'Clean Aircraft' concept. The ground de-icing crew share this responsibility by providing an aeroplane that complies with the 'Clean Aircraft' concept.

Additional Information is available in AC 135-09 - Aircraft ground de-icing and anti-icing operations[16].

AMC 135.315 Procedures relating to portable electronic devices

Reserved

GM 135.315 Procedures relating to portable electronic devices

PIC and operators are advised that there is a non-legislative instrument (Instrument Number CASA 152/12) in force that determines certain personal electronic devices to not be aircraft components for CAR.

This regulation requires the operator to have procedures in their exposition for the use of portable electronic devices for both passengers and crew.

Portable electronic device (PED)

The definition of a 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 hand-held, lightweight electronic devices, such as laptops, tablets, e-readers, and smart phones to small devices such as electronic games.

Note: The definition of PED encompasses both transmitting and non-transmitting PEDs.

PED vs EFB

All portable EFBs are considered to be PEDs, but the use of the term EFB recognises that the operator has specifically elected to use a PED for a crew-provisioning purpose. Electing to use an EFB for operations still requires consideration of Division 91.C.8, which addresses the carriage and use of PEDs in aircraft.

Additional information on the use of EFBs is available in AC 91-07 - Cabin electronic flight bags and AC 91-17 - Electronic flight bags.

[16] At the time of publication of this document, this AC is under development. Once published, it will be available from the CASA website.

There is a Part 11 direction in force in relation to the use of Electronic Flight Bags (EFB) by Australian air transport operators. It is recommended that operators review section 5 of CASA EX82/21. The approval mentioned in the direction is a significant change due to it activating paragraph 119.020(c) of CASR. Operators are to apply for this approval by applying for a significant change via the Air Operator's Certificate/Associated Approvals form available on CASA's website. Operators who held an AOC prior to 2 December 2021, and who were already compliant with Appendix 9 of CAO 82.0 as in force on 1 December 2021, do not need to obtain this approval since they are taken to already be using EFBs.

PED interference event

A PED interference event can be defined as unusual behaviour of onboard electronic systems and equipment which may be suspected as originating from PED use. This may also be referred to as an electromagnetic interference (EMI) event.

Transmitting portable electronic device (TPED)

A TPED can be defined as a PED that contains an intentional transmitter, where some or all of the device's radio frequency transmitting functions are turned on. Intentional transmitters may include devices enabled with cellular technology, wireless radio frequency network devices, and other wireless-enabled devices, such as mobile telephones, tablets, laptop computers, and radio transmitters and receivers. Many TPEDs allow the user to disable the transmitting function (e.g., flight mode, flight safe mode). When disabled, the TPED becomes a non-transmitting device.

Policy

Operators must determine policy in relation to the use of PEDs (in conjunction with legislative requirements) and develop operational procedures after conducting an appropriate risk assessment. The risk assessment should be undertaken in the context of the individual operator's particular type of operations, and it may consider a number of areas including:

- types of PEDs that can be used, and at which stages of flight
- limitations on use, including charging of devices during critical stages of flight
- procedures during normal, abnormal and emergency situations, e.g., fuelling, turbulence, PED smoke or fire events
- EMI events
- securing and stowage
- passenger information and education
- passenger non-compliance with PED policy
- staff use of personal and company-issued PEDs.

Operators must ensure the following:

- Large PEDs (such as full-size laptop computers) must be stowed in an approved carry-on stowage location and not present an undue hazard in the event of severe turbulence, crash forces or emergency egress. Large PEDs are those that the operator has determined have a mass more than 1 kg or are of a size that would impede egress.

- Small PEDs must be stowed or secured at all times when seat belts are required to be worn. Passengers who do not wish to stow their PEDs should be encouraged to secure them on their person, such as in a garment pocket. Passengers may also secure small PEDs by placing them in seat pockets or holding them in their hands. A PED should not be left unsecured on an empty seat. Additionally, on larger aircraft, if a passenger cannot locate their PED, they should not move their seat and be encouraged to contact a crew member for assistance. This is to avoid the possibility of the device being crushed and creating a fire hazard.

Seat back pockets are generally designed to hold a maximum of 1.5 kg. The passenger safety information card, magazines, other literature and air sickness bag account for approximately 0.5 kg. When an operator conducts a safety risk assessment to determine an acceptable weight limit for the seat pocket, these items should be taken into account. As a general rule, small PEDs and any other personal items placed in the seat back pocket should not exceed a total mass of 1 kg and should not protrude to the point of impeding egress.

PED cords or accessories must not impede emergency egress.

Documentation

Information relating to PEDs should be included in the applicable sections of the exposition including the following:

- operations manuals
- training material
- internal checklists
- passenger safety information cards
- passenger briefing materials.

Training programs should include:

- management of suspected or confirmed electromagnetic interference
- smoke or fire from a PED or a battery and other similar scenarios
- passenger use of PEDs during emergencies.

Airside considerations in relation to PEDs

Passengers transiting to or from an aircraft can experience cognitive distraction from mobile phone or other PED use. This reduces situational awareness, increases unsafe behaviour and puts the passenger at greater risk of accidents.

Hazardous conditions that may need to be considered include:

- other aircraft movements in close proximity and ground service or fuelling vehicles
- night operations at remote aerodromes without adequate airside lighting may also present hazards that should be considered.

It is recommended that operational procedures do not permit the use of PEDs during this time. If the aircraft is being refuelled, passengers must not be permitted to utilise their device(s) on the tarmac, and a staff member that has been appropriately trained should be

present to ensure compliance.

AMC 135.320 Procedures relating to carriage of animals

Reserved

GM 135.320 Procedures relating to carriage of animals

This regulation includes all animals and is not limited to assistance animals.

Regulation 91.620 places the responsibility on the PIC and the operator for ensuring the safety of the flight when an animal is carried on an aircraft. It also allows the PIC or the operator discretion as to whether to carry an animal; however, for assistance animals, the *Disability Discrimination Act 1992* will apply if there is refusal to carry an assistance animal for reasons other than aviation safety. If required, further material is available in the Explanatory Statement for Part 91 (F2018L01783) which provides some clarification on this matter.

Ultimately, responsibility for the safety of an aircraft, its occupants, and people and property on the ground lies with the operator and PIC of the aircraft. Where safety concerns exist, the operator and the PIC have the authority to remove a person, animal or thing from the aircraft[17].

In general, carrying an animal is no different to carrying cargo. When giving permission, consideration should be given to:

- the type of animal
- how it is being carried, contained and/or restrained
- its reaction to noise and being out of its natural environment
- nuisance to other passengers
- distraction to flight crew
- how excrement or fluids will be contained.

This regulation requires that an operator document procedures in the exposition applicable to the carriage of animals, including any limitations or requirements the operator expects personnel to observe. In considering this item, both the operator and PIC should also review the relevant matters detailed in Division 91.D.7.

Animals carried by air generally fall into two categories:

- animals such as livestock, horses, domestic pets and snakes
- an assistance animal in the company of a person with a disability.

The regulations allow the operator and PIC to decide whether an animal may be carried without risking the safety of an aircraft, passengers on board and cargo on board. Before permitting an animal on board a flight, the operator and PIC of the aircraft should consider the following:

[17] Regulation 91.220.

- **Containerisation:** Where possible, animals should be carried in individual containers, secured in accordance with regulations pertaining to the carriage of cargo. Containers provide a form of restraint and a means to ensure the containment of excreta.
- **Escape:** The size and nature of some animals means that their escape from a container or handlers could place the safety of the aircraft in jeopardy. Consideration should be given to methods of regaining control of the animal or, if ultimately necessary, of destroying the animal in the most humane way possible.

Note: For the carriage of firearms on board an aircraft, refer to Division 91.C.7.

- **Co-location with sensitive cargo:** Like humans, animals are sensitive to toxic and infectious substances. Furthermore, they could pose a threat to the cleanliness of food intended for human consumption.
- **Adverse reaction to aircraft:** Aircraft noise and vibration may cause distress to an animal. Whenever possible, animals should be restrained, muzzled or located in such a way that any reaction to such conditions does not pose a threat to the safety of the aircraft.
- **Consideration of passengers on board:** Passengers with allergies to, or a phobia of, animals must be taken into account when deciding on the carriage of animals. Excreta containment, restraint and access to emergency exits should also be considered. The fitment of a muzzle should also be considered as applicable to the animal type.
- **Carriage of associated dangerous goods:** The carriage of live fish and other aquatic animals as cargo may require a separate permission from CASA if cylinders of compressed air or oxygen are required. Part 92 regulates the carriage of dangerous goods and AC 92-05 discusses the use of compressed oxygen or air in support of the consignment and carriage of live aquatic animals by air.

Assistance animals

Carriage of assistance animals should be considered a special case due to the reliance placed on them by the accompanying passenger.

For detailed guidance on the carriage of assistance animals in the aircraft cabin, refer to AC 91-03 - Carriage of assistance animals.

AMC 135.325 Polar operations

Reserved

GM 135.325 Polar operations

This regulation requires operators that conduct flights to or from an aerodrome within a polar region to include relevant procedures in their exposition. A polar region is a defined term in the CASR Dictionary and is the area:

- north of 78° N

  or

- south of 60° S.

When developing the exposition, the operator should also consider the applicability of the following for inclusion:

- suitability of the weather at the nominated alternate and the ability to:
  - offload the passengers and crew in a safe manner during adverse weather conditions
  - provide for the physiological needs of the passengers and crew for the duration of the stay at the diversion airport until safe evacuation is possible
  - safely extract passengers and crew as soon as possible (execution and completion of passenger recovery is expected as soon as possible within 48 hours following diversion).
- **Passenger recovery plan:** Document how the operator will safely recover the passengers and crew to their nominated destination or departure airfield in the event of diversion and subsequent unserviceability of the original aircraft.
- **Fuel freeze strategy and monitoring:** Considerations for alternate fuel freeze point temperature determination based on actual measurements of uploaded fuel, in lieu of using the standard minimum fuel freeze temperatures for specific types of fuel used. In considering this item, the operator should establish procedures that require coordination between maintenance, dispatch, and assigned flight crew to convey the determined fuel freeze temperature of the fuel load on board the aeroplane.
- **Voice communications:** Review of the required communications facilities (voice/data link) available for all portions of the flight route. Possible options include using high frequency (HF) voice, HF data link, satellite communication (SATCOM) voice, or SATCOM data link. Because of the limitations of VHF and satellite-based voice communications, ATC communications will probably require HF voice over portions of these routes. It is recognised that SATCOM may not be available for short periods during flight over the poles. Communication capability with HF radios may also be affected during periods of solar flare activity. The operator should consider predicted solar flare activity and its effect on communications for each flight that is dispatched for operations into these areas.
- **MEL considerations:** The MEL may need to be amended to cater for polar routes. Specific consideration should be given to:
  - fuel quantity indicating system, including the fuel tank temperature indicating system
  - APU serviceability, including the electrical and pneumatic supply to its designed capability
  - autothrottle system
  - communication systems relied on by the flight crew to satisfy the requirement for communication capability
  - an expanded medical kit to include automated external defibrillators (AED).
- training for flight crew and operational support staff roles applicable to all parts of the polar operations.

AMC 135.325 Cosmic radiation

Reserved

GM 135.330 Cosmic radiation

This regulation requires the operator exposition to detail processes and procedures for managing crew exposure to cosmic radiation. In complying with the regulation, the operator must ensure that:

- a cosmic radiation exposure limit is specified, and
- records are maintained of the total cosmic radiation dose received by crew.

When considering cosmic radiation in the aviation environment, the basic principle is that every reasonable effort should be made to minimise exposure to cosmic radiation, staying as far below the dose limits as is practical and consistent with the activity while taking into account:

- the state of technology
- the economics of improvements in relation to the state of technology
- the economics of improvements in relation to benefits to public health and safety
- other societal and socioeconomic considerations.

In aviation, radiation from natural sources is considered to be occupational exposure because of the high levels of galactic cosmic radiation at commercial cruise altitudes. In its 2000 report, the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) ranked aircrews as the fourth most exposed group of employees, with an average annual effective dose of 3 millisieverts (mSv).

Less radiation will be received on a lower-latitude flight because of the greater amount of radiation shielding provided by the Earth's magnetic field. This shielding is greatest near the equator and gradually decreases to zero as one goes north or south. Galactic cosmic radiation levels over the polar regions are about twice those over the geomagnetic equator at the same altitudes. Because solar particle peak energies are much lower than galactic particle peak energies, solar cosmic radiation dose rates are negligible near the geomagnetic equator. A map of high-latitude areas of concern is available on the following FAA website:

The Solar Radiation Alert System developed by the FAA's Civil Aerospace Medical Institute (CAMI), with data provided by the Space Weather Prediction Center of the National Oceanic and Atmospheric Administration (NOAA), alerts users of the beginning of a disturbance on the Sun that can lead to high dose rates of ionizing radiation in the Earth's atmosphere. Solar radiation alerts are sent worldwide to subscribers to the NOAA Weather Wire Service (NWWS). A message is sent at the beginning and end of an alert, along with status updates during the alert period. A test message is sent daily if no alert is ongoing. Responding to an alert by flying at a lower altitude can significantly reduce radiation exposure in high-latitude areas of concern. The latest space-weather-related NWWS messages are found on the Space Weather Prediction Center website.

The Australian Bureau of Meteorology also provides information on Space Weather advisories, and this can be found on the Space Weather Advisories (bom.gov.au) website.

Managing exposure

The internationally accepted recommendation is that the occupational exposure limit for ionizing radiation is a 5-year average effective dose of 20 mSv per year, with no more than 50 mSv in a single year. Radiation exposure as part of a medical or dental procedure is not subject to recommended limits. It is important to note that these limits are not thresholds beyond which the dose is intolerable, but instead are upper limits of acceptability based on the current risk coefficients, and the desire to limit doses such that the health risks associated with exposure do not exceed those of what is normally considered a safe industry.

A number of web-based calculators are available for calculating radiation exposure, however there are no programs, websites or applications currently available for estimating the effective dose received from a solar particle event. The dose of ionizing radiation that an individual might receive during a solar particle event cannot be estimated in advance. Research is ongoing on how best to estimate flight doses on the basis of satellite and ground-level measurements taken during an event. For analysis purposes, the FAA provides applications CARI-6 and CARI-6M, which can be used to estimate the effective dose of galactic cosmic radiation:

- **CARI-6** – This web application calculates the effective dose of galactic cosmic radiation received by an individual (adult) on an aircraft flying a great-circle route between any two airports in the world. The web application takes into account changes in altitude and geographic location during the course of a flight, as derived from the flight profile entered by the user. Based on the date of the flight, appropriate databases are used to account for effects of changes in the Earth's magnetic field and solar activity on galactic radiation levels. The web application also calculates the effective dose rate from galactic cosmic radiation at any location in the atmosphere at altitudes up to 60 000 ft. CARI-6 can be found on the FAA website.
- **CARI-6M** – This web application does not require a great-circle route between origin and destination airports; it allows the user to specify the flight path by entering the altitude and geographic coordinates of waypoints. CARI-6M can be found on the FAA website.

Reducing exposure

The amount of galactic 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 one approaches the poles. For any location at commercial flight altitudes, a higher altitude will incur a higher dose rate. Responding to a solar radiation alert by flying at a lower altitude can significantly reduce radiation exposure in high-latitude areas of concern, particularly if the response is rapid.

AMC 135.335 Exceeding cosmic radiation limits

Reserved

GM 135.335 Exceeding cosmic radiation limits

Reserved

5 Subpart 135.F—Performance

There is an exemption in force in relation to Subpart 135.F and Subpart 91.F that effectively permits operators to use the Part 135 performance requirements instead of the Part 91 performance requirements during a private operation conducted by the operator. It is recommended that operators review section 14 of CASA EX85/21.

AMC 135.340 Performance data

Reserved

GM 135.340 Performance data

For the use of third-party performance data calculation providers, operators are reminded that they must comply with the Part 11 directions contained in section 5 of exemption CASA EX82/21. Operators who previously complied with section 9 of CAO 82.0, as in force before 2 December 2021, are reminded that they must still comply with subsection 5(3) of EX82/21, in relation to the requirement to have certain procedures and processes in their exposition.

Operators are advised to read the GM 121.425 entry in the Part 121 AMC/GM document for an indication of CASA's intent regarding performance data calculation devices and their categorisation as electronic flight bags (EFBs). This advice applies to all air transport operations, not just Part 121 operations.

Regulation 135.340 requires that a calculation relating to the aeroplane's performance for the flight must use data from either the performance data set out in the aircraft flight manual instructions for the aeroplane, or performance data for which the operator holds an approval under regulation 135.020.

The first option relies on the definition of *aircraft flight manual instructions* which is:

> ***aircraft flight manual instructions***, for an aircraft, means the following documents and information provided by the aircraft's manufacturer or issued in accordance with a Part 21 approval:
>
> (a) the aircraft's flight manual;
> (b) checklists of normal, abnormal and emergency procedures for the aircraft;
> (c) any operating limitation, instructions, markings and placards relating to the aircraft.

For the second option, the intent of the subregulation135.020 approval mentioned in this regulation is that it will be a reserve power, not anticipated to be frequently used, that would enable CASA to approve performance data that is not in accordance with, or different from, the performance data contained in the aircraft flight manual instructions.

Operators considering applying for this approval are advised that for CASA to determine whether operations conducted under the desired approval would maintain the necessary level of aviation safety (see AC 11-04 for an explanation of the level of safety under this approval), CASA would consider the following matters:

- performance data needs to comply with the applicable aircraft certification standards

- although permitted and possible for operators to use data from sources other than the OEM, CASA expects the data to be formalised through a Part 21 of CASR approval as meeting the applicable airworthiness standards
- operators can engage the services of an approved design organisation, Part 21 authorised person, or CASA to achieve such approvals
- Part 21 of CASR automatically accepts a range of other approvals from recognised countries.

The approval mentioned in the regulation is taken to be a significant change due to it activating paragraph 119.020(c) of CASR. Operators are to apply for this approval by applying for a significant change via the Air Operator's Certificate / Associated Approvals form available on CASA's website.

This approval is not needed for an operator's use of third-party performance data calculation programs that use the unvaried and unchanged data that is set out in the aircraft flight manual instructions.

Note: Some performance information presented in AFM or AFM supplements may be advisory information only and should not be used to determine performance in compliance with the provisions of regulations 135.345 and 135.350. Caution should be exercised when using advisory material or when using third-party performance calculations as the results may not be based on the required AFM provided certification data.

AMC 135.345 Take-off performance

Take-off performance calculations – matters to take into account (section 10.07 of the Part 135 MOS)

This acceptable means of compliance applies to the aeroplanes that are subject to Division 1 of Chapter 10 of the Part 135 MOS. These aeroplanes are:

- propeller-driven aeroplanes with an MTOW of not more than 5 700 kg
- jet-driven, single-engine aeroplanes with an MTOW of not more than 5 700 kg
- jet-driven, multi-engine aeroplanes with an MTOW of not more than 2 722 kg.

This acceptable means of compliance relates to the requirements in paragraphs 10.07(2)(b) through (2)(e) inclusive of the Part 135 MOS to take into account the following matters when determining take-off performance:

- pressure altitude
- presumed temperature (note *presumed temperature* is a term defined in section 10.02 o of the Part 135 MOS)
- type of runway surface
- runway surface condition
- runway slope in the direction of take-off
- headwind or tailwind.

This acceptable means of compliance **does not apply** if the aircraft flight manual contains specific data that accounts for the matters mentioned above. For example, the flight manual data specifically states how to account for a wet runway versus a dry runway.

It is an acceptable means of compliance, if the aircraft flight manual does not include specific data encompassing any of the matters mentioned in the bullet points listed above, for the impact of these matters on the take-off performance of the aeroplane to be determined using the, relevant to each specific take-off, recommended additional take-off allowances found in Table 2 of Chapter 7 of AC 91-02.

Clearing obstacles by a safe margin (section 10.08 of the Part 135 MOS)

This acceptable means of compliance applies to the aeroplanes that are subject to Division 1 of Chapter 10 of the Part 135 MOS. These aeroplanes are:

- a propeller-driven aeroplane with an MTOW of not more than 5 700 kg
- a jet-driven, single-engine aeroplane with an MTOW of not more than 5 700 kg
- a jet-driven, multi-engine aeroplane with an MTOW of not more than 2 722 kg.

It is an acceptable means of compliance with the requirement to clear obstacles by a safe margin from section 10.08 of the Part 135 MOS if the following criteria are met:

- the requirements of an authorised instrument departure procedure are met, with the aircraft climb gradient (critical engine-out for multi-engine aeroplanes) under ambient conditions specified in the manufacturer's data being at least 0.3% greater than the gradient specified in the procedure; or
- all of the following:
  - the aircraft climb gradient (critical engine-out for multi-engine aeroplanes) under ambient conditions specified in the manufacturer's data is at least 0.3% greater than the obstacle free gradient for the runway length required; and
  - either:
    - published obstacle free gradients are only used if such gradients are surveyed to at least a distance of 7 500 m from end of TODA;

      or
    - an operator-established obstacle free gradient is used only if:
      (1) the gradient (having a 150 m baseline at the end of TODA), 12.5% splays, and at least 7 500 m distance) is established not more than 30° from runway heading
      (2) the procedures involve not more than 15° of bank to track within the splay; or

Note: For Australian runways listed in the AIP-ERSA, a particular aerodrome runway has a surveyed area if the aerodrome and the specific runway have a specified *code number* (labelled as CN and either 1, 2, 3 or 4) in the ERSA Runway Distance Supplement (RDS) section (at the time of publishing this content was at the end of the AIP-ERSA document). The interpretation of the RDS information is explained in the 'Runway distances legend' section of the AIP-ERSA Introduction. The length (or distance) of the surveyed area for different CNs is specified in section 1.6 (Take off runway survey areas) of the AIP-ERSA Introduction.

- a minimum of 50 ft vertically within a lateral distance of:
  - 45 m plus 0.10D (where D is the horizontal distance the aircraft will travel from the end of the take-off distance available);
  - to a maximum of:
    - where the intended flight path does not require a track change exceeding 15°:
      (1) 600 m

or

(2) 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—a maximum of 300 m;

- where the intended flight path requires a track change exceeding 15°:
  (1) 900m

  or

  (2) 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—a maximum of 600 m.

GM 135.345 Take-off performance

The MOS content for subregulation 135.345(1) is contained in Division 1 of Chapter 10 and section 10.17 of the Part 135 MOS. Some aeroplanes are required by Division 2 of Chapter 10 to comply with Chapter 9 of the Part 121 MOS.

For the purposes of applying the correct take-off performance requirements, where an aeroplane is modified by an STC that increases the MTOW to being greater than 5,700 kg, the aeroplane operation must be in accordance with Chapter 9 of the Part 121 MOS irrespective of the actual take-off weight of the aeroplane.

Example:

A Model B200, Super King Air (Normal Category), is modified by an STC that increased the MTOW to >5,700kg. The performance data and performance requirements that now apply are those relevant to the increased MTOW. This aircraft can no longer use the performance rules in Division 1 of Chapter 10 of the Part 135 MOS and must instead comply with the rules of Division 2 of Chapter 10 (which requires compliance with Chapter 9 of the Part 121 MOS).

Take-off performance for Part 135 operations is split into 2 sets of requirements as outlined in the table below.

Table 1: Requirements for take-off performance

Which rules?	Propeller-driven aeroplane	Jet-driven, single-engine aeroplane	Jet-driven, multi-engine aeroplane
Division 1 of Chapter 10 of the 135 MOS	MTOW <= 5 700 kg	MTOW <= 5 700 kg	MTOW <= 2 722 kg
Division 2 of Chapter 10 of the 135 MOS	MTOW > 5 700 kg	N/A	MTOW > 2 722 kg

Requirement to clear obstacles by a safe margin (section 10.08 of the Part 135 MOS)

In relation to the requirement in section 10.08 of the Part 135 MOS that all take-offs, until reaching the Part 91 minimum height, are required to clear obstacles by a safe margin, operators are recommended to consider whether or not obstacles can be visually avoided when conducting operations by day. If a departure from an aerodrome is to be conducted

where obstacles are visually cleared by a safe margin, then operators might need to consider establishing a minimum ceiling value for the take-off. To establish a ceiling value, subtract the aerodrome elevation from the altitude that must be reached to clear the obstacle by a safe margin (as per the below). It is recommended for ease of use to round up to the next higher 100 ft increment.

Ceiling = (Height AMSL of obstacle + safe margin) – aerodrome elevation).

For example:

Obstacle height 1242 ft AMSL + 50 ft – aerodrome elevation 214 ft AMSL = 1078 = ceiling of 1100 ft.

Approved take-off factors (section 10.05 of the Part 135 MOS)

The recommended minimum standard safety factors outlined in Table 1 of Chapter 7 of AC 91-02 do not apply to Part 135 operations as they are replaced by the legally mandatory standard take-off factor or approved take-off factor explained in the following paragraph.

Paragraph 10.07(1)(a) of the Part 135 MOS requires the *factored take-off run* to not be more than the take-off run available. *Factored take-off run* is the take-off run required for the aeroplane multiplied by the take-off factor specified in the table in section 10.04. The factor required to be used is either the *standard take-off factor* (between 1.15 and 1.25 depending on MTOW – as defined in section 10.01) or an *approved take-off factor*. The standard take-off factors used in Part 135 only provide modest safety margins. Section 10.05 specifies that CASA may approve an operator to use a take-off factor lower than the standard take-off factor.

This approval, like others available to be issued under Part 135, is subject to regulation 11.055(1B) and associated other Subpart 11.A regulations. In relation to paragraph 11.055(1B)(b) whereby CASA may only grant the authorisation (approval) if it preserves a level of aviation safety that is at least acceptable – operators are advised that CASA's interpretation of this is that the level of safety would need to be equivalent to the general level of safety established by Part 135 for the conduct of an Australian air transport operation. It is recommended that operators develop a risk assessment that demonstrates the operation will achieve this level of safety. See AC 11-04 for an explanation of the criteria applied by CASA when assessing approvals for the flight operations regulations.

Under regulation 11.040, CASA may request an applicant to give it information or copies of documents if the information or documents is reasonably needed to consider the application.

Under the majority of circumstances, noting that this GM cannot cover every possible circumstance, operations with reduced take-off factors would need to demonstrate that there is a public interest and operational necessity for the operation, either due to the remoteness of the aerodrome or to physical limitations relating to the extension of the runway.

It is recommended that operators implement the following controls for reduced take-off factor operations:

- that the following environmental conditions are met:
  - no tailwind is acceptable for the take-off
  - take-offs on wet or contaminated runways are not permitted

  - night take-offs are not permitted
  - minimum cloud ceiling of 300 ft and flight visibility of 2000 m.

Note: Cloud ceiling in this context is no cloud greater than SCT below this height and no cloud below this height in the take-off direction.

- operational procedures are established to ensure that:
  - reduced thrust operations are not permitted
  - the runway distance used as part of lining up on the runway is taken into account for all take-offs
  - during the take-off roll the flight crew can determine whether or not the required acceleration is being achieved – thereby enabling an abort to be conducted with sufficient runway remaining
  - all the equipment that affects take-off performance is operative before commencing the flight (the operator must have a process for ensuring the assessment of deferred defects or MEL provisions that may affect the operation).
- specific flight crew training and checking, and recency requirements, are established for the aerodrome and the flight crew meets these requirements
- any additional conditions relevant to a specific aerodrome that may be necessary.

Note: Operators are reminded that other factors, such as aircraft flight manual limitations / mandatory procedures or other regulatory performance requirements such as obstacle clearance, might impact on the ability to conduct an operation using an approved take-off factor in place of a standard take-off factor.

Obstacle assessment areas for aeroplanes required to comply with Chapter 9 of the Part 121 MOS

Operators of these aeroplanes are advised to also read the AMC/GM associated with regulations 121.395 and 121.420 in the Part 121 AMC/GM document since those AMC and/or GM entries are associated with Chapter 9 of the Part 121 MOS.

One element of determining whether the performance requirements can be met is the identification of the obstacle assessment area after take-off. This obstacle assessment area begins at the end of the take-off distance available at the aerodrome or, 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 (see the definition of D in subsection 9.04(5) of the Part 121 MOS).

The width at the beginning of the obstacle assessment area is set by subsection 9.04(2) of the Part 121 MOS, or, if the transitional provision in subsection 9.04(5A) of the Part 121 MOS is being used, by subsection 12A of the old CAO 20.7.1B.

This width is not the same as the beginning width of an obstacle limitation surface (OLS) calculated by the operator of a certified aerodrome in accordance with the requirements of Part 139 of CASR. In a case where the OLS width is less than the Part 121 obstacle assessment width, the operator and pilot in command are required to determine any obstacles outside the OLS width but within the Part 121 obstacle assessment width. This activity would be conducted in a similar manner to how an operator would determine the presence of obstacles which are relevant to an operation at an uncertified aerodrome.

For code 3 or 4 runways, the minimum OLS width is normally 180 m, with some runways grandfathered at 90 m. Below is one example of the initial width of a Part 121 obstacle assessment area for a potential Part 135 aeroplane which has a wingspan less than 60 m and therefore fit within paragraphs 9.04(2)(b) of the Part 121 MOS:

> A King Air 350 turboprop aeroplane has a wingspan of 17.65 m. Its initial obstacle assessment width would be [(0.5 x 17.65) + 60] x 2 = 137.65 m.

AMC 135.350 Landing performance

Landing distance calculations – matters to take into account (section 10.14 of the Part 135 MOS)

This acceptable means of compliance applies to the aeroplanes that are subject to Division 1 of Chapter 10 of the Part 135 MOS. These aeroplanes are:

- propeller-driven aeroplanes with an MTOW of not more than 5 700 kg
- jet-driven, single-engine aeroplanes with an MTOW of not more than 5 700 kg
- jet-driven, multi-engine aeroplanes with an MTOW of not more than 2 722 kg.

This acceptable means of compliance relates to the requirements in paragraphs 10.14(2)(c)through (2)(f) inclusive of the Part 135 MOS to take into account the following matters when determining take-off performance:

- aerodrome elevation
- type of runway surface
- runway surface condition
- runway slope in the direction of landing
- headwind or tailwind.

This acceptable means of compliance **does not apply** if the aircraft flight manual contains specific data that accounts for the matters mentioned above. For example, the flight manual data specifically states how to account for a wet runway versus a dry runway.

It is an acceptable means of compliance, if the aircraft flight manual does not include specific data encompassing any of the matters mentioned in the bullet point list above, for the impact of these matters on the landing distance of the aeroplane to be determined using the, relevant to each specific take-off, recommended additional landing allowances found in Table 3 of Chapter 7 of AC 91-02.

Clearing obstacles in the missed approach path by a safe margin (section 10.13 of the Part 135 MOS)

This acceptable means of compliance applies to the aeroplanes that are subject to Division 1 of Chapter 10 of the Part 135 MOS. These aeroplanes are:

- a propeller-driven aeroplane with an MTOW of not more than 5700 kg
- a jet-driven, single-engine aeroplane with an MTOW of not more than 5 700 kg
- a jet-driven, multi-engine aeroplane with an MTOW of not more than 2 722 kg.

It is an acceptable means of compliance with the requirement to clear obstacles in the vicinity of the missed approach path by a safe margin from section 10.13 of the Part 135 MOS if the

following criteria are met:

- the aircraft climb gradient (critical engine-out for multi-engine aeroplanes) under ambient conditions specified in the manufacturer's data being is at least 0.3% greater than the gradient specified for the missed approach procedure of the authorised instrument approach procedure being conducted

  or
- in the case that the missed approach is conducted from after the missed approach point, the requirements of AMC 135.345 are met.

GM 135.350 Landing performance

For the purposes of applying the correct landing performance requirements, where an aeroplane is modified by an STC that increases the MTOW to being greater than 5 700 kg, the aeroplane operation must be in accordance with Chapter 9 of the Part 121 MOS irrespective of the actual take-off weight of the aeroplane.

Approved landing factors (section 10.12 of the Part 135 MOS)

This information outlines how an operator can obtain the approval required by section 10.12 of the Part 135 MOS to use an *approved landing factor* for propeller-driven aeroplanes with a MTOW not greater than 5 700 kg.

Subdivision 3 of Chapter 10 of the Part 135 MOS specifies the landing performance requirements for the following aeroplanes:

- propeller-driven, multi-engine aeroplanes with an MTOW of 5 700 kg or less; and
- jet-driven, multi-engine aeroplanes with an MTOW of 2 722 kg or less.

Subsection 10.14 requires the factored landing distance to not be more than the landing distance available. *Factored landing distance* is the landing distance required for the aeroplane multiplied by the safety factor specified in the table in section 10.11. When LAHSO is being conducted the landing factor is either 1.67 (for dry) or 1.92 (for wet). However, when LAHSO is not being conducted, jet-driven aeroplanes (with MTOW <= 2722 kg) are required to use a landing factor of 1.67 and propeller-driven aeroplanes are required to use a landing factor of either a *standard landing factor* (between 1.15 and 1.43 depending on MTOW) or an *approved landing factor*.

For an operator to be able to use an *approved landing factor*, section 10.12 states they must receive an approval from CASA.

CASA will not issue this approval if an operator's procedures for the operation require the conduct of approaches outside the operator's stabilised approach criteria (established by the operator under regulation 135.175).

This approval, like others available to be issued under Part 135, is subject to regulation 11.055(1B) and associated other Subpart 11.A regulations. In relation to paragraph 11.055(1B)(b) whereby CASA may only grant the authorisation (approval) if it preserves a level of aviation safety that is at least acceptable – operators are advised that CASA's interpretation of this is that the level of safety would need to be equivalent to the general

level of safety established by Part 135 for the conduct of an Australian air transport operation. It is recommended that operators develop a risk assessment that demonstrates the operation will achieve this level of safety. See AC 11-04 for an explanation of the criteria applied by CASA when assessing approvals for the flight operations regulations.

Under regulation 11.040, CASA may request an applicant to give it information or copies of documents if the information or documents is reasonably needed to consider the application.

Under the majority of circumstances, noting that this GM cannot cover every possible circumstance, operations with reduced landing factors would need to demonstrate that there is a public interest and operational necessity for the operation, either due to the remoteness of the aerodrome or to physical limitations relating to the extension of the runway.

It is recommended that operators implement the following controls for reduced landing factor operations:

- that the following environmental conditions are met:
  - no tailwind is forecast at the expected time of arrival
  - landing on contaminated runways is not permitted.
- a specific touchdown area is specified in the operator's exposition and the operator procedures include adequate go-around instructions if a touchdown in the defined area cannot be achieved
- operational procedures are established to ensure that:
  - all the equipment that affects landing performance is operative before commencing the flight (the operator must have a process for ensuring the assessment of deferred defects or MEL provisions that may affect the operation)
  - deceleration devices are correctly used by the flight crew
  - if the runway is forecast to be wet at the expected time of arrival, the landing distance available prior to take-off shall be at least 115 % of the landing distance determined for dry runways, or the flight manual landing distance for a wet runway
- specific flight crew training and checking, and recency requirements, are established for the aerodrome and the flight crew meets these requirements
- specific maintenance instructions and operational procedures are established for the aeroplane's deceleration devices to enhance the reliability of those systems
- the final approach and landing are conducted under visual meteorological conditions (VMC) only
- any additional conditions relevant to a specific aerodrome that may be necessary due to matters such as the orographic characteristics of the approach area, available approach aids, whether the runway is one-way for landing or missed-approach considerations.

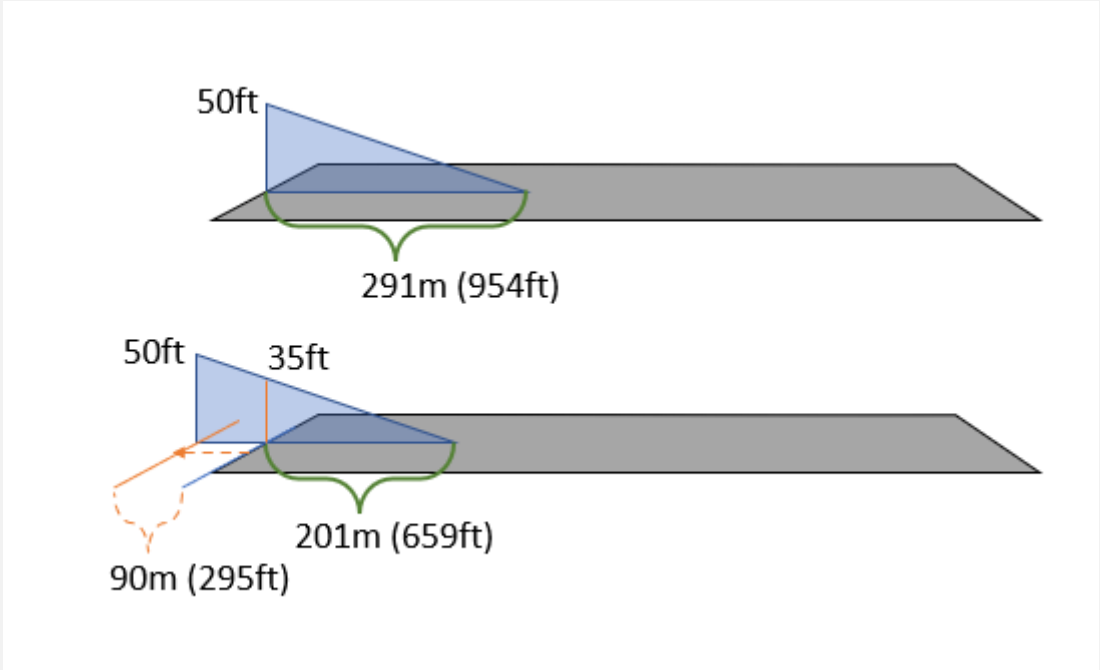
Short landing operations (section 10.15 of the Part 135 MOS)

This approval, like others available to be issued under Part 135, is subject to regulation 11.055(1B) and associated other Subpart 11.A regulations. An operator must meet all the conditions specified in subsection 10.15(3) of the Part 135 MOS to obtain approval to conduct a *short landing operation*. In relation to paragraph 11.055(1B)(b) whereby CASA

may only grant the authorisation (approval) if it preserves a level of aviation safety that is at least acceptable – operators are advised that CASA's interpretation of this is that the level of safety would need to be equivalent to the general level of safety established by Part 135 for the conduct of an Australian air transport operation. See AC 11-04 for an explanation of the criteria applied by CASA when assessing approvals for the flight operations regulations.

The effect of paragraph 10.14(1)(b) of the Part 135 MOS is that when and operator and pilot in command are ensuring that the factored landing distance for a landing does not exceed the landing distance available, they must take into account that, unless a short landing operation is being conducted under a section 10.15 approval, the aeroplane will cross the runway threshold at a height of 50 ft.

Obtaining an approval to conduct short landing operations permits the operator and pilot in command to instead calculate their performance based on the aircraft passing a height of 50 ft no more than 90 m before the runway threshold (depending on the obstacle environment). The descent profile of the aeroplane will determine the effect that this change has on the planned touchdown point of the aeroplane. For a 3-degree descent profile, the following picture illustrates the changes in touchdown point:



Actual landing distance

In response to recommendations of the FAA's Take-off and landing performance assessment aviation rule making committee (TALPA ARC), the manufacturers of some jet-engine aeroplanes now supply actual landing distance information to help pilots make more accurate in-flight assessments of the landing distance required in unusual situations. Actual landing distance information takes into account: reported meteorological and runway surface conditions, runway slope, aircraft configuration, planned approach speed, thrust reversers and any other deceleration devices planned to be used for the landing. The FAA's Safety Alert For Operators (SAFO 19001) contains useful information about the recommendations of the TALPA ARC.

Actual landing distance information is intended to show landing performance that can realistically be achieved by flight crews in commercial operations. This is distinct from landing performance demonstrated by test pilots during flight tests for aircraft type certification. The safety factor applicable to in-flight actual landing distance information is 1.15. The safety factor applied to aircraft type certification for pre-flight planning landing distance is 1.67. Pilots of jet-engine aeroplanes that do not have actual landing distance information should continue to make in-flight assessment of landing distance required using the manufacturers landing distance information with an applicable safety factor.

Two major manufacturers, Boeing and Airbus, have introduced a new reference for in-flight landing distance performance, catering for both normal and abnormal system operations. The new distances are referred to by Airbus as Operational Landing Distances (OLD) and In-flight Landing Distance (IFLD) whereas Boeing incorporates the actual landing distance in the Performance In-flight section of the Quick Reference Handbook. Both manufacturers have included this data in their respective performance applications. The actual landing distances are a realistic representation of operationally achievable landing performance. The representation of this information is generally “unfactored” unless otherwise stated. The Part 121 performance rules (which also apply to certain aeroplanes used in Part 135 and Part 138 operations) facilitate the adoption of manufacturers’ performance applications along with the application of the 1.15 safety factor. The FAA and EASA have adopted the in-flight landing distance factoring as policy, along with ICAO.

Landing in very wet conditions

Operators and flight crews should be aware that landing distance factors – whether based on type certification testing or actual landing distance data provided by OEMs separately – may not provide adequate stopping distance in very wet but not yet contaminated runway surface conditions.

Issues that contribute to such incidents include runway conditions such as texture (polished or rubber contaminated surfaces), drainage, puddling in wheel tracks and active precipitation. For un-grooved runways, wheel braking may be degraded when the runway is very wet. Research conducted by the FAA has indicated that 30 to 40 percent of additional stopping distance may be required in certain cases where the runway is very wet, but not yet classified as contaminated.

In order to manage some of the risks associated in operating to very wet runways, it is recommended that operators consider the landing safety factor of 1.15 (which is the difference between 1.67 and 1.92 for type certification data and the value mentioned in the actual landing distance data) to be a minimum value.

If moderate or heavy precipitation is expected at the time of landing, operators and flight crews should consider assuming a braking action of medium or fair, or increasing the landing safety factor used during in-flight landing performance calculations. The FAA’s Safety Alert For Operators (SAFO 19003) contains useful information about the recommendations on landing safety factors.

6 Subpart 135.J—Weight and balance

There is an exemption in force in relation to Subpart 135.J and Subpart 91.J that effectively permits operators to use the Part 135 weight and balance requirements instead of the Part 91 weight and balance requirements during a private operation conducted by the operator. It is recommended that operators review section 15 of CASA EX85/21.

AMC 135.355 Loading of aeroplane

Reserved

GM 135.355 Loading of aeroplane

This regulation requires the operator and the PIC to ensure the aeroplane is flown within weight and balance limits throughout all stages of a flight.

The default system for weight and balance calculations is the aeroplane flight manual. If the operator chooses 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. Aircraft PIC must not commence a flight unless they have received evidence and taken the necessary actions to ensure compliance with the loading data.

AMC 135.360 Procedures for loading aeroplane etc.

Reserved

GM 135.360 Procedures for loading aeroplane etc.

This regulation requires an operator to have procedures in their exposition for the loading of the aeroplane.

The procedures must make it clear how the operator calculates the respective weights applicable to crew, passengers, all deadload including baggage and cargo, varying catering configurations, any service weight adjustments, fuel as loaded on the aeroplane, and their influence on the aircraft's centre of gravity.

The procedures must cover all staff associated with the loading process, including those responsible for producing the notification documents provided to the PIC and other parts of the organisation[18].

Refer also to:

- regulation 135.040 regarding compliance with flight manual
- Part 92 regarding consignment and carriage of dangerous goods by air
- regulation 91.215 regarding authority and responsibilities of PIC.

Further information about passenger, crew and baggage weights is available in AC 135-08 -

[18] Paragraph 119.205 (1) (h).

> Passenger, crew and baggage weights.

AMC 135.365 Weight and balance documents

Reserved

> **GM 135.365 Weight and balance documents**
>
> Reserved

7 Subpart 135.K—Equipment

There is an exemption in force in relation to Subpart 135.K and Subpart 91.K that effectively permits operators to use the Part 135 equipment requirements instead of the Part 91 equipment requirements during a private operation conducted by the operator. It is recommended that operators review section 16 of CASA EX85/21.

AMC 135.370 Requirements relating to equipment

Sections 11.05, 11.06 and 11.07 of the Part 135 Manual of Standards – accuracy of time measurement

Item 3 of table 11.05(3) and item 4 of tables 11.06(3) and 11.07(5) of the Part 135 MOS require the fitment or carriage of equipment to measure time. The requirement in relation to accuracy is that the equipment must

> ..display accurate time in hours, minutes and seconds.

Multiple legislative requirements rely on the accuracy of the time equipment used for aircraft flights.

It is an acceptable means of compliance with the requirement for time equipment to 'display accurate time' if the accuracy of the equipment is to within plus or minus 30 seconds.

Section 11.08 of the Part 135 Manual of Standards – radiocommunication systems

Subsection 11.08(1) of the Part 135 MOS requires the aeroplane radiocommunication system to be capable of collectively communicating on the frequencies necessary to meet the reporting, broadcast and listening watch requirements under regulations 91.630, 91.635, 91.640 and 91.675, from any point on the route of the flight, including in the event of any diversions.

Radiocommunication systems – HF (section 11.08 of the Part 135 MOS)

If an HF radio is fitted to an aeroplane to comply with subsection 11.08(1) or (2) of the Part 135 MOS (generally this would be in geographical areas where a VHF radio cannot ensure the required communications), then the radio must, in order to be fitted as an acceptable means of compliance:

- take into account the expected radio propagation conditions during the period of operation
- be capable of delivering a peak envelope power to the antenna transmission line of at least 100 watts and not greater than 400 watts under standard conditions.

Radiocommunication systems – SATCOM (section 11.08 of the Part 135 MOS)

Where 2-way communications cannot be maintained using a VHF radio in the event of emergency and/or abnormal operations en route, it is an acceptable means of compliance to use SATCOM telephone that is fitted to the aeroplane in accordance with Part 21, instead of an HF radio, provided that all of the following conditions are met:

- routes are selected so that the anticipated period beyond VHF coverage, in the event of emergency and/or abnormal operation, does not exceed 30 minutes

- appropriate checks have been incorporated into the pre-flight check list and form part of the company's operating procedures
- the system is equipped with an external antenna and operated via a common VHF headset/microphone
- SATCOM telephone transmissions will be recorded by the Cockpit Voice Recorder
- the system is inter-operable with existing NAV systems
- power can be removed from the system
- defect reports will be issued and dispatched as for other COM systems
- the system has been incorporated in the Minimum Equipment List if there is one for the aircraft.

Note: SATCOM telephone contact procedures are described in AIP ERSA. Additionally, to facilitate ATC initiated calls to the aircraft during contingencies, it is recommended that the phone number of the aircraft be included in Field 18 of the flight plan. Any pre-flight radio check of the SATCOM telephone should not be made to ATS to avoid congesting ATS phone lines.

Section 11.15 of the Part 135 Manual of Standards – independent portable lights

The information in this section outlines acceptable means of compliance regarding what constitutes "an independent portable light" for a flight crew member as required by paragraph 11.15(1)(c) of the Part 135 MOS.

For the purposes of the previously mentioned MOS paragraph, 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
- has sufficient light output to properly illuminate any control, switch or display within the cockpit that the flight crew member would be required to view, manipulate or action during normal, abnormal or emergency situations.

Division 9 of the Part 135 Manual of Standards – oxygen equipment and oxygen supplies

Note: This acceptable means of compliance continues the previous standards specified in subsection 3 of 108.26 prior to 2 December 2021 when this CAO was repealed.

It is an acceptable means of compliance if a gaseous oxygen system complies with one of the following specifications:

- C.I.G. Gas Code 420 or 430
- RAAF Specification G172
- U.K. Ministry of Defence DEF STAN 68-2 1/1
- U.S. Military Specification MIL-0-272 10.

It is an acceptable means of compliance if oxygen produced through chemical means in an oxygen system complies with one of the following specifications:

- U.S. Military Specification MIL-E-83252
- Scott Engineering Report 1024.

Sections 11.40, 11.41 and 11.43 of the Part 135 Manual of Standards – supplemental oxygen and oxygen dispensing unit requirements

Note: This acceptable means of compliance continues previous standards specified in paragraph 8.2 of CAO 20.4 and subsections 5 and 6, and Appendix II, of 108.26 prior to 2 December 2021 when these CAOs were repealed.

The information in this section outlines acceptable means of compliance regarding the fitment of supplemental oxygen equipment, the means of calculating the supplemental oxygen supply and the dispensing units for supplemental oxygen, including the minimum mass flow requirements, in relation to the requirements of sections 11.40, 11.41 and 11.43 of the Part 135 MOS. None of these requirements override a higher requirement imposed by a design standard (however described) related to the type certification, or supplemental type certification, of the aircraft.

In determining the amount of oxygen required to be carried, the amount is determined on the basis that:

- a cabin pressurisation failure will occur at a point on the planned flight route which is most critical from the standpoint of oxygen need
- after the failure, the aircraft will descend in accordance with the emergency procedures specified in the aircraft's flight manual (without exceeding its normal operating limitations) to a flight altitude or a Flight Level, as the case may be, that will allow the safe termination of the flight.

In relation to the requirements of subsection 11.40(1) and 11.41(1) of the Part 135 MOS that certain aircraft must be 'fitted with' supplemental oxygen equipment, it is acceptable that portable oxygen units can be carried to meet this requirement.

Dispensing units must meet the following requirements, in addition to those requirements mentioned in section 11.43 of the MOS:

- An individual dispensing unit must be installed for each occupant for whom supplemental oxygen is to be supplied.
- A unit must be equipped with a suitable means to retain the unit in position on the face.
- A unit:
  - must not, while being used, adversely affect a person's ability to use the crew intercommunications equipment or radiocommunication equipment required to be fitted to the aircraft by the civil aviation legislation

    or
  - must provide alternative communication equipment that can achieve equivalent communication outcomes for a person using the unit.
- The units provided in an aircraft operating at or below flight level 180 must include at least 1 unit designed to cover the nose and mouth for every 15 units provided.
- Every unit provided in an aircraft operating above flight level 180 must be designed to cover the nose and mouth.
- Every unit installed in an unpressurised aircraft must have all of the following information clearly visible on it:
  - a notice prohibiting smoking while the unit is used
  - an illustration showing how to put the unit on

  - a notice describing the dangers of flying with any kind of nasal obstruction or congestion.
- For flight crew members or assisting crew members – they must be provided with oxygen demand equipment with the oxygen dispensing unit connected to an oxygen supply terminal which is immediately available to each of these crew members when seated at their crew station.

The following minimum mass flow requirements must be met:

- If continuous flow equipment is installed for the use by flight crew members, either:
  - the minimum mass flow of supplemental oxygen available for each crew member must not be less than the flow required to maintain, during inspiration, a mean tracheal oxygen partial pressure of 149 mm Hg when breathing 15 litres per minute, body temperature and pressure saturated (BTPS) and with a maximum tidal volume of 700 cc with a constant time interval between respirations

    or
  - the flow rates and mask efficiencies in Figure 1 below may be used instead of the above flow rates.
- If demand equipment is installed for use by flight crew members, the minimum mass flow of supplemental oxygen available for each flight crew member must not be less than the flow required to maintain, during inspiration, a mean tracheal oxygen partial pressure of 122 mm Hg, up to and including a cabin pressure altitude of 35 000 ft and 95 per cent oxygen between cabin pressure altitudes of 35 000 ft and 40 000 ft, when breathing 20 litres per minute BTPS. In addition, there must be means to allow the crew to use undiluted oxygen at their discretion.
- For passengers or cabin crew members using masks, the minimum mass flow of supplemental oxygen available for each person at various cabin pressure altitudes must not be less than the flow required to maintain, during inspiration and while using the oxygen equipment provided, the following mean tracheal oxygen partial pressures:
  - at cabin pressure altitudes above 10 000 ft up to and including 18 500 ft – a mean tracheal oxygen partial pressure of 100 mm Hg when breathing 15 litres per minute, BTPS, and with a tidal volume of 700 cc with a constant time interval between respirations
  - at cabin pressure altitudes above 18 500 ft up to and including 40 000 ft – a mean tracheal oxygen partial pressure of 83.8mm Hg when breathing 30 litres per minute, BTPS, and with a tidal volume of 1100 cc with a constant time interval between respirations. The flow rates and mask efficiencies specified in Figure 1 below may be used at cabin pressure altitudes up to 25 000 ft instead of the above flow rates.
- For passengers or cabin crew members using nasal cannulas manufactured under the name “Oxymizer”, the minimum flow of supplemental oxygen available for each person at various cabin pressure altitudes must not be less than 0.3 litre per minute at 10 000 ft altitude, increasing by 0.1 litre per minute for every 2 000 ft up to 18 000 ft altitude.

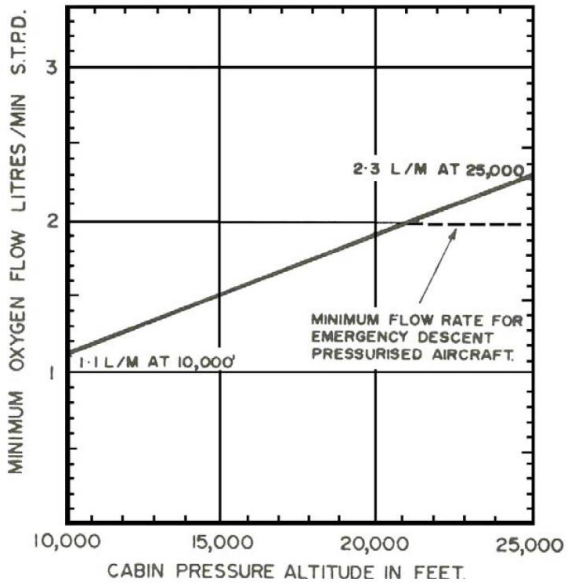


Figure 1: Minimum oxygen flow rates for flight altitudes not exceeding FL250 when using masks with efficiencies equal to, or better than, the A 8 B oronasal mask, the Scott 28302–11 semi-disposable mask or the K–S disposable mask

Sections 11.44 and 11.45 of the Part 135 Manual of Standards – protective breathing equipment

Note: This acceptable means of compliance continues previous standards specified in subsection 10 of CAO 20.4 and subsection 7 of 108.26 prior to 2 December 2021 (when these CAOs are expected to be repealed).

The information in this section outlines acceptable means of compliance related to the protective breathing equipment required by sections 11.44 and 11.45 of the Part 135 MOS.

Except for the portable protective breathing equipment required by subsection 11.45(4) of the MOS which may, in relation to the 15 minute supply requirement of paragraph 11.45(3)(c) of the MOS, comply with (E)TSO-C116 (or any later version), the 15 minute supply requirement of paragraphs 11.44(2)(c) and 11.45(3)(c) must be calculated in reference to a pressure altitude 0 feet with a respiratory minute volume of 30 litres per minute, body temperature and pressure dry (BTPD) with the acceptable means of compliance being:

- if a demand oxygen system is used, a supply of 300 litres of free oxygen at 20°C and 760 mm Hg pressure is considered to be of 15-minute duration at the prescribed altitude and minute volume
- if a continuous flow protective breathing system is used (including a mask with a standard rebreather bag) a flow rate of 60 litres per minute at 8 000 ft (45 litres per minute at sea level) and a supply of 600 litres of free oxygen at 20°C and 760 mm Hg pressure is considered to be of 15-minute duration at the prescribed attitude and minute volume.

Section 11.52 of the Part 135 Manual of Standards - Hand-held fire extinguishers

Section 11.52 of the Part 135 MOS require an aeroplane to carry a certain number of hand-held fire extinguishers. The MOS does not specify a fire extinguisher standard that must be met. It is

an acceptable means of compliance if the hand-held fire extinguisher meets any of the following standards:

- Civil Aviation Safety Authority Australia, Australian Technical Standard order (ATSO)
- Civil Aviation Safety Authority Australia, Civil Aviation Order CAO 103.16
- Australian Department of Defence Specifications (DEF (Aust))
- Standards Association of Australia Australian Standards (AS)
- United States of America Federal Aviation Administration Technical Standard Order (TSO)
- United States of America, Federal Services Administration Federal Specifications
- United States of America, Air Force-Navy Aeronautical Standards (AN)
- United States of America, Military Standards (MS)
- United States of America, Military Specifications (MIL)
- US Coast Guard
- American Society of Automotive Engineers, Aerospace Material Specifications (AMS)
- Aerospace Industries Association of America, National Aerospace Standards (NAS)
- Underwriters Laboratories
- United Kingdom Ministry of Technology, Aircraft Material Specifications (DTD)
- British Standards Institution Specifications (BSI)
- Society of British Aerospace Companies Standards (AS)
- Society of British Aerospace Companies Aircraft General Standards (AGS).

Section 11.56 of the Part 135 Manual of Standards - Life jacket stowage

Subsections 11.56(2) and (3) of the Part 135 MOS, in combination, require a life jacket to be 'readily accessible' for each person unless, in the case of infants or a second child in a single seat, the operator has procedures that provide for the distribution of life jackets (or flotation devices if the law allows for this) to these persons.

It is an acceptable means of compliance with 'readily accessible' if the relevant life jackets (or flotation devices if the law permits this) are permanently installed within reach of the person responsible for retrieving and fitting the lifejacket.

In relation to the use of operator's procedure to avoid permanent installation within reach of the person responsible, it is an acceptable means of compliance if the operator's procedures for distribution of the life jacket (or flotation device if the law permits) address the following:

Distribution of life jackets before departure:

- when the life jackets are to be distributed
- the briefing to be provided to the person(s) responsible for the infant/child
- acceptable stowage locations that ensure the life jacket remains easily accessible to the responsible person, and retrieval of the life jacket in an unanticipated ditching or inadvertent water contact does not hinder egress

Note: The stowage locations, and method of restraint, of the life jackets and/or flotation devices will need to ensure compliance with regulations 91.585 and 91.600. These items of equipment are encompassed by the definition of cargo for the purposes of these regulations.

- life jackets are returned to their designated stowage at the end of the flight and are checked for damage before re-stowing

- life jackets are checked to ensure they are onboard and available in the required numbers for a given flight.

Distribution of lifejackets when preparing for an anticipated evacuation on water:

- when the life jackets are to be distributed to responsible persons as part of aeroplane preparation procedures
- the briefing to be provided to the person(s) responsible for the infant/child
- how correct fitment of the lifejackets will be guided by crew
- instructions to responsible persons on when to inflate the life jacket.

Distribution of lifejackets in an unanticipated evacuation on water or inadvertent water contact

It is unlikely that crew will have time to distribute life jackets in an unanticipated water contact occurrence, and as a result, responsible persons may not have immediate access to infant or additional life jackets. The operator's procedures must include the means for the distribution of infant and additional life jackets in these circumstances.

GM 135.370 Requirements relating to equipment

The MOS content for subregulation 135.370(1) is contained in Chapter 11 of the Part 135 MOS. This regulation enables the Part 135 MOS to prescribe requirements relating to fitment and carriage of equipment on an aeroplane.

For equipment required by Subpart 135.K, an approved item of equipment is defined by the relevant airworthiness requirements (refer to regulations 21.305 and 21.305A for additional information).

The prescribed equipment provisions are the minimum required equipment level and do not prevent an operator from fitting or carrying additional items of equipment if they comply with the rule about additional equipment in subsection 11.02(4) of the MOS.

TSO and ETSO version references in the MOS (section 1.06 of the Part 135 MOS)

Many equipment rules require equipment to meet certain TSO or ETSO standards. However, in most cases both the specific version of the TSO or ETSO mentioned in the rule **and** later version of the TSO or ETSO is acceptable. To avoid significant duplication throughout the MOS of the words 'or a later version' or similar, there are rules in section 1.06 of the MOS describing how mentions of TSO or ETSO versions in the MOS are to be treated. The basic rule is that, unless an individual MOS rules states otherwise, any references to a particular TSO or ETSO version is to be taken as a reference to that TSO or ETSO version or any later versions.

Visibility of installed equipment (section 11.03 of the Part 135 MOS)

Cockpits designed specifically for single pilot operations need to be carefully assessed for adequacy of instrument visibility, interpretation and useability when being considered for use in training (including line training) and checking or testing operations, particularly in degraded visual cue operational situations.

Operators who operate aircraft with cockpits configured for single pilot operations should conduct a risk assessment and if necessary, an in-flight assessment of the readability of analogue or EFIS based attitude and performance instrumentation critical for flight path management, before considering the use of the aircraft in line supervision, training, checking, or testing operations which require additional flight path monitoring by a second pilot.

In cases were adequate attitude and performance instrument readability from the non-command or training pilot seat is not available or marginal, training, check or PICUS flights may need to be limited to the VFR with the availability of an adequate visual cue environment to avoid the potential for introducing hazardous flight path management issues.

Any risk assessment and/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) is able to be utilised by the trainer/checker operating from the non-command or training pilot seat for flight path monitoring.

Refer to section 11.03 of the Part 135 MOS – Visibility, and accessibility, of equipment.

Stabilised heading (sections 11.06 and 11.07 of the Part 135 MOS)

A stabilised heading flight instrument is required to be fitted to aeroplanes conducting IFR and night VFR flights by sections 11.06 and 11.07 of the Part 135 MOS. The requirements for this flight instrument are different between IFR and night VFR. These differences were present in the pre-2 December 2021 rules in place before the Part 135 rules commenced and have been carried across into the new Part 135 rules.

Queries have been made to CASA whether the heading displayed in the Garmin GNS 430 equipment satisfies any of these stabilised heading requirements. At the time of publishing, a Garmin GNS 430 is **not approved** under Part 21 (either by CASA or the FAA) as an HSI instrument, i.e., as an approved source of stabilised heading information.

Typical (acceptable) in-cockpit sources of stabilised heading flight information are either:

- an analog (gyroscopic) DI or HSI gauge

  or
- an equivalent electronic HSI display (for example, a Garmin GI 275 HSI, or the HSI component of an integrated EFIS/PFD display).

These instruments have been approved under Part 21 of CASR for the purpose of providing stabilised heading flight information. Such an approval is conveyed in one of several ways:

- a stand-alone approval as an HSI instrument, whether OEM-installed or retrofitted, under an appropriate TSO (e.g., TSO-C5f for a non-magnetic HSI)
- approved under the TC (type certificate) of the OEM (which would require a demonstration of performance equivalent to the TSO standard),most commonly the case for integrated flight deck systems in larger transport category aircraft
- approved, as a retrofitted instrument, under an STC with an associated AML (approved model list), such as the newer Garmin electronic ‘multi-function’ instruments e.g., the GI 275 in HSI mode); which again would have required a demonstration of compliance (by Garmin to the FAA in this case) to the equivalent HSI performance standard.

For the case of a non-magnetic HSI, the performance standard referenced in TSO-C5f is AS8021 Minimum Performance Standard for Direction Instrument, Non-Magnetic (Gyroscopically Stabilized). There are additional requirements beyond simply the presentation of a heading figure to be an approved stabilised heading instrument. For example, the above standard has requirements for the following matters (this is not a complete list and is just indicative as an example):

- malfunction indication (section 3.6)
- indicating method (section 3.8) [i.e., an appropriate dial presentation and visual cueing by display of rotating dial display or horizontal scale display with moving graduations during the turn]
- dial markings (3.10) (requirements for numerically marked graduations)
- course setting input knob (3.11).

GNSS displays of heading value do not meet any of these broader requirements, which is why many are not approved by regulators for this purpose.

Navigation equipment (section 11.09 of the Part 135 MOS)

In part, subsection 11.09(5) of the Part 135 MOS requires that, in the event of the failure of any navigation equipment at any stage of a flight, sufficient navigation equipment remains to enable the aeroplane to navigate in accordance with the operational flight plan.The intent of this rule is that appropriate redundancy exists in relation to navigation equipment during an air transport operation. It is a modernised version of the old charter and RPT requirements that were in the AIP before 2 December 2021. Under those old AIP rules, charter and RPT aircraft were required to have duplicative onboard navigation equipment if only one navigation aid was available at the destination or alternate aerodromes, or one each of different kinds of navigation equipment if there were multiple navigation aids at the destination or alternate aerodromes. These AIP rules were removed when the new Part 121, 133 and 135 air transport rules were introduced.

Many modern GNSS units incorporate a VHF navigation aid function within the same physical unit. This kind of singular unit does not qualify as two separate items of navigation equipment and there would need to be another separate head unit that could control the VHF navigation aids instead of the GNSS head unit. If a unit required to be fitted or carried fails in flight, the pilot and operator must ensure the flight is continued in a manner consistent with their obligations to ensure the safety of the flight.

These requirements interlink with the requirements for operational flight plans under regulation 135.145 of CASR. Regulation 135.145 requires the operator and the PIC to ensure that, when a flight begins, the operational flight plan is prepared having regard to the safety of the aircraft and the people on board, the aircraft's performance capabilities, the expected operating limitations and conditions for the flight, and contains the information required by Chapter 4 of the MOS.

Section 4.01 of the MOS outlines the pre-flight content requirements for an operational flight planand is not the in-flight content which is subject to change based on occurrences during a

flight. As an example of how this all ties together with the navigation equipment requirements:

> Subparagraph 4.01(2)(g)(i) of the MOS requires the pre-flight operational flight plan (P-OFP) to include the route and route segments of the flight, including waypoints, distances and tracks.
>
> If your aircraft was fitted with a single (E)TSO-C129 GNSS plus one ADF and one VOR, the pre-flight content of the operational flight plan could contain RNAV waypoints.
>
> However, your P-OFP must also meet the other requirements of subregulation 135.145(2) which are that it must be prepared having regard to safety, performance and the expected operating limitations and conditions (which would include, for example, meteorological conditions).
>
> As part of the pre-flight planning, the operator and pilot would have to consider what the failure of any one of the single navigation systems would mean to the flight and have appropriate contingency strategies in place for such situations. Pre-flight planning would also need to consider subsection 11.09(6) of the MOS which may require the provision of a destination alternate aerodrome that has more than one navigation system instrument approach option.
>
> In flight, the content of the operational flight plan is highly malleable and can be amended to reflect any navigation needs that may have arisen due to the failure of any single navigation system, provided that for IFR flights the requirements of section 14.02 of the Part 91 MOS (general IFR navigation methods) and paragraph 11.09(5)(b) and subsection 11.09(6) of the Part 135 MOS can still be met.

Automatic pilot and the number of pilots required (section 11.10 of the Part 135 MOS)

Subsection 11.10(1) of the Part 135 MOS requires that an aeroplane must have an automatic pilot fitted when the aeroplane is operated by flight crew comprising only one pilot for an IFR flight or a VFR flight at night. The effect of the provision is such that where an automatic pilot is not fitted or is inoperative for an IFR flight or a VFR flight at night, the flight cannot proceed as a single-pilot operation.

If an aeroplane is operated by two pilots for an IFR flight or a VFR flight at night, then there is no civil aviation legislation requirement for automatic pilot equipment to be fitted or operative (unless the flight manual, configuration deviation list or master minimum equipment list specifically require the fitment) but both pilots would need to comply with other relevant Part 135 rules. Notably, regulation 135.380 (Composition, number, qualifications and training) in relation to the flight crew assigned to the duty and the requirements of regulations 135.395 and 135.400 in relation to the minimum requirements for a PIC and a co-pilot. Additionally, the operator's exposition must specify the procedures to be followed by the flight crew in these circumstances. An MEL cannot override the effect of these rules, i.e., an MEL cannot permit single-pilot operation under Part 135 during an IFR flight when this equipment is inoperative except as specified in subsection 11.10(3) of the Part 135 MOS (VMC by day).

In relation to aeroplanes with a MTOW <= 8618 kg and a MOPSC of 10-13 who are operating under the Part 135 rules due to the operator's use of CASA EX97/22, the same guidance applies. The effect of clauses 1 to 3 of Schedule 1 to CASA EX97/22 is to expand the scope of automatic pilot fitment to include day VFR operations and to limit the scope of the existing subsection 11.10(3) of the Part 135 MOS regarding when an automatic pilot can

be inoperative during the circumstances mentioned in clause 3 of Schedule 1 of CASA EX97/22.

Carbon monoxide detectors/warning devices

Crew and passengers in piston engine aircraft have the potential for carbon monoxide (CO) poisoning from cracked exhaust units and unserviceable heat exchange assemblies. This situation can be further exacerbated by unsealed penetration through the firewall and can go unnoticed through the fitment of inadequate or inappropriate CO detection units. The fitment of placards designed to change colour when exposed to CO may not necessarily provide adequate warning to the pilot and passengers of the elevated levels of CO within the cabin. More modern devices which include audible and improved visual warnings are more suited to detect and warn cabin occupants of the elevated levels of CO. Whilst audible/visual CO detectors are not mandated, they are available and they more effectively communicate the presence of CO.

It is strongly recommended that pilots wear personal CO detectors. As not all aircraft are required to have CO detectors fitted, small electronic personal devices are readily available at affordable prices. These devices allow for continual monitoring of CO levels with audible and visual warnings when escalated CO levels are detected. Examples of small electronic personal devices are shown in Figure 1.

Figure 2: Electronic CO detector devices available for personal use

Aircraft certified and hard-wired products are also available that can be installed by approved maintenance repair organisations. Reliance on only the visual CO indicator placard, that changes colour in the presence of CO, is considered suboptimal. If the aircraft is only fitted with the placard type CO indicator, the operator should ensure the placard is placed in the field of view of the pilot, is regularly checked to ensure that the placard is not time-expired and that the indicator is not faded from ultraviolet exposure or contamination.

AWB 02-064 Preventing Carbon Monoxide Poisoning in Piston Engine Aircraft also contains useful information on this topic.

Survival equipment – signalling (section 11.13 of the Part 135 MOS)

In determining whether Electronic Visual Distress Signals (EVDS) meet the requirements of paragraph 11.13(2)(b) of the Part 135 MOS, it is recommended that the operator consider whether:

- using the EVDS would constitute an offence under section 24 of the Civil Aviation Act 1988
- the EVDS meets all relevant safety standards including the requirements within Australian Standard AS 2092-2004 and the International Maritime Organization (IMO) Life Saving Appliance Code
- the light emitted by the EVDS would be recognised and effect an appropriate response in a distress situation, noting that lights of this kind are not internationally approved distress signals
- the use of EVDS is restricted by State and Territory legislation (Australian States and Territories restrict the types of lasers, including laser pointers and other laser signalling devices that can be lawfully used).

Terrain awareness and warning systems (TAWS) (section 11.25 of the Part 135 MOS)

TAWS offer enhanced vertical situational awareness but nuisance alerts can be detrimental and distract a pilot, which sometimes leads to a pilot decision to inhibit the system.

Inhibiting warning systems and/or ignoring warnings can lead to CFIT. Operators must ensure pilots are thoroughly trained and familiar with any TAWS fitted to their aircraft, and that pilots and operators carefully consider decisions to inhibit a TAWS.

Operator expositions should include procedures guiding or directing pilots regarding the appropriate use of any TAWS inhibit switch.

Uncertified terrain alert systems

Many aircraft might be fitted with an uncertified terrain alerting system, for example as an additional function of a GNSS. The use and fitment of these systems is not required by any civil aviation legislation.

These systems can provide enhanced vertical situational awareness provided that the pilot is adequately trained on the use of the system and the database on which the system relies is kept up to date. Similar to a certified TAWS, nuisance alerts can be detrimental and distract a pilot, which sometimes leads to a pilot decision to inhibit the system. Pilots should carefully consider any decision to inhibit a useful alerting system.

Supplemental oxygen – pre-flight considerations

The altitudes at which supplemental oxygen must be carried, as specified in sections 11.40 and 11.41 of the Part 135 MOS, represent the minimum generally acceptable standard of safety for the operations regulated by this rule. However, it is strongly recommended that prior to a flight, operators and pilots carefully consider whether supplemental oxygen should be carried even if not required by the Part 135 MOS. It is recommended that operators and pilots consider the following factors in making this decision:

- Likely causes of hypoxia and their relevance to the planned flight and the persons on board (depressurisation, increased altitude due weather, and the potentially earlier onset of hypoxia for an individual due to either a medical condition, medications, smoking, age, disability, experience in flights at high altitude, altitude of the place of residence or other relevant factors).

- Specific flight characteristics that might affect the onset of hypoxia (altitude, duration of time at that altitude).

It is also recommended that pilots review their knowledge of the following matters:

- Early symptoms of hypoxia (can be subtle and may include diminished mental capacity, rapid breathing, euphoria, slurred speech, headache, drowsiness, nausea or irritability).
- Actions during flight if hypoxia is suspected (use supplemental oxygen and return to a safe altitude).

Regulation 135.280 requires PIC and operators to ensure passengers are given a safety briefing and instructions in accordance with the requirements of the Part 135 MOS. Under paragraph 9.02(9)(h) of the Part 135 MOS, the passenger safety briefing and instructions must cover the location of supplemental oxygen equipment and how to use it when supplemented oxygen equipment is required to be carried by the Part 135 MOS. PIC and operators are recommended to consider whether, depending on the kind of oxygen equipment being carried, part of the passenger briefing needs to include hypoxia symptoms.

Supplemental oxygen – In flight monitoring

The onset of hypoxia can be very insidious, even for pilots that have conducted specific hypoxia symptom awareness training. During flight, it is recommended that the pilots regularly check:

- for early symptoms of hypoxia (subtle changes of crew or passengers in diminishing mental capacity and/or behavioural change including rapid breathing, euphoria, slurred speech, headache, drowsiness, nausea, and irritability)
- if in an unpressurized aircraft:
  - pilot oxygen saturation levels if a finger mounted pulse oximeter or similar device can measure oxygen saturation levels is carried and used (typically 100% oxygen saturation is normal at sea level, 95% is considered a minimum and below 90% is where people usually experience hypoxia)
  - the time spent at higher altitudes, for example above 8000 ft,especially if the flight was not originally planned to be flown at higher altitudes but this has ended up happening).
- if in a pressurized aircraft, the cabin pressure altitude to ensure continued proper functioning of the pressurisation system
- if supplemental oxygen is being used, the quantity of oxygen remaining at regular periods of its use.

Figure 3: Electronic oximeter devices available for personal use

Supplemental oxygen – suspected hypoxia

If hypoxia is suspected, the PIC should immediately:

- Lower the cabin altitude (descend and/or adjust pressurisation)
- Use supplemental oxygen, if available.

Lack of oxygen affects people differently and some people are more sensitive to hypoxia. Any delay can lead to an inability to recognise or react to the danger of hypoxia. **Act immediately if hypoxia is suspected.**

The supplemental oxygen requirements and usage rules in sections 11.40 and 11.41 of the Part 135 MOS do not prevent the use of supplemental oxygen at lower altitudes if hypoxia is suspected.

Supplemental oxygen for cabin crew

Note: It is recognised that there are very few circumstances where cabin crew members might be carried during a Part 135 operation. This guidance is provided to ensure consistency of guidance across the 3 air transport operations CASR Parts.

Supplemental oxygen is provided for cabin crew to help ensure they retain consciousness during an emergency descent following a loss of pressurisation, thus enabling them to provide assistance to passengers (such as the application of first aid oxygen once a safe level is reached and the aeroplane stabilises after the emergency). Operator procedures should consider the different hazards cabin crew are exposed to during an emergency and how different cabin crew actions should be prioritised. Examples of the kinds of actions requiring prioritisation might be securing themselves and other movable items in their immediate vicinity, providing directions to passengers and when to access supplemental oxygen.

Note: It is not envisaged that cabin crew will always be able to provide assistance to passengers during emergency descent procedures which may be required in the event of loss of pressurisation.

Emergency locator transmitters (Division 10 of Chapter 11 of the Part 135 MOS)

Emergency locator transmitters (ELT's) are an essential tool for emergency situations and are required to be fitted to or carried on Australian aircraft under some circumstances.

The Australian Maritime Safety Authority (AMSA), via JRCC Australia, is responsible for co-ordinating search and rescue within Australian territory and maintaining Australia's national

beacon registration system. When a distress beacon is registered, JRCC Australia can quickly investigate critical contact information and determine if assistance is needed. 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.

The process of registering a distress beacon is relatively simple and is 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 and effective rescue operation in the event of an emergency.

Remember to ensure your distress beacons are working correctly by following manufacturers and TSO maintenance requirements, specifically battery replacements.

See Multi-Part AC 91-30, AC 121-12, AC 133-03 and AC 135-14 and www.amsa.gov.au/beacons for more details.

Section 11.52 of the Part 135 Manual of Standards – Hand-held fire extinguishers

The MOS requires that "at least" a certain number of extinguishers be fitted, plus some outcome-based requirements relating to the extinguishing agent type and quantity.

In determining whether additional extinguishers are required, beyond the absolute regulatory minimum, it is recommended that operators consider the following matters:

- the size of the passenger compartment
- the location of any cargo or baggage compartments
- whether each extinguisher is located and installed to be readily accessible for use by crew and/or passengers
- whether the location is clearly evident to persons who may be required to use it
- whether the extinguisher is located in an environment, and mounted in an attitude, that complies with the manufacturer's recommendations
- whether an extinguisher is mounted in a position which might lead to accidental discharge or restrict access to other equipment
- whether additional hand-held fire extinguishers may be required for the protection of other compartments accessible to the flight crew in flight.

Note: These considerations may result in a number of hand-held fire extinguishers greater than the minimum required.

Unless a specific location is required by section 11.52 of the Part 135 MOS, hand-held fire extinguishers are not necessarily exclusive to particular locations. If the location of a cargo/baggage or passenger compartment coincides with each other, and have common agent applicability, the various requirements may be considered common.

Where only one hand-held fire extinguisher is carried in the passenger compartment, it is recommended that this extinguisher be located near a crew member's station. Where two or more hand-held fire extinguishers are carried in the passenger compartment it is recommended that the additional extinguishers are distributed throughout the cabin as evenly as is practicable.

If a hand-held fire extinguisher is not clearly visible, consideration should be given to a placard or sign with appropriate symbols to indicate the location.

In relation to the types of fire extinguishers carried, it is recommended that:

- where 2 or more extinguishers are required in the passenger compartment, at least 2 contain Halon 1211 (BCF) or a CASA accepted equivalent
- extinguishers located in the pilot compartment are suitable for fighting both flammable fluid and electrical fires
- dry chemical or water-based extinguishers are not used in the pilot compartment or any compartment not separated by a partition from the pilot compartment
- water based extinguishers are not located in the passenger compartment of aircraft which do not carry a cabin crew member (this bullet point is highly likely to apply to most Part 135 operations).

Additional information is contained in the following Airworthiness bulletin: AWB Airframes 26 - Fire Protection.

Section 11.58 of the Part 135 Manual of Standards – life raft carriage

At the date of issue of v2.3 of this AMC/GM document, operators and pilots are advised that the reference in subsection 11.58(4) of the Part 135 MOS to paragraph 11.58(3)(a) of the MOS is a typographical error that should refer to subparagraph (3)(b)(i). This error is planned to be amended during the next round of Part 135 MOS amendments.

In relation to the requirements of subparagraph 11.58(3)(b)(ii) of the MOS relating to exposition content, this provision is effectively a limited distance alleviation to the requirement to carry a life raft in a single engine aircraft whenever it is beyond glide range of a suitable forced landing area on land. The alleviation is contingent on the operator conducting a risk assessment and putting in place safety controls that compensate for the absence of the life raft safety control. As broad guidance, it is recommended that as part of the risk assessment, the operator consider the factors mentioned in paragraphs 135.015(3)(b) and (c), and (4)(a), of CASR, which relate to the survivability of persons in water.

8 Subpart 135.N—Flight crew

For operators with crew members who were trained and checked prior to the commencement of Parts 91, 121, 133, 135 and 138 of CASR on 2 December 2021, and who transitioned to the new Part 119 and 135 training and checking rules on 2 December 2021, CASA has issued training and checking determination instruments to ensure that the previously completed training and checking of crew members is legally taken to be equivalent to the new training and checking event requirements. For Part 135, the relevant instruments are CASA 90/21 (related to Part 119 requirements) and CASA 93/21 (related to Part 135 requirements).

There are exemptions in force in relation to the training and checking of crew members. These exemptions apply to certain operators. It is recommended that operators review Parts 6 and 9 of CASA EX87/21. The approvals mentioned in these Parts of the exemption are taken to be a significant change due to them activating paragraph 119.020(c) of CASR. Operators are to apply for this approval by applying for a significant change via the Air Operator's Certificate/Associated Approvals form available on CASA's website.

There is a Part 11 direction in force in relation to crew members carrying out audits, checks, examinations etc. Operators and pilots are advised to review section 9 of CASA EX81/21.

8.1 Division 135.N.1—General

AMC 135.380 Composition, number, qualifications and training

Reserved

GM 135.380 Composition, number, qualifications and training

This regulation sets out requirements for the crew composition to conduct a Part 135 operation. It also directs to the Part 135 MOS for further training and checking requirements (refer to Division 2 of Chapter 12 of the MOS).

The operator is required to ensure that:

- as a minimum, the crew member(s) meet the qualification requirements of the regulations and at least one of them is qualified to operate as PIC
- the total crew complement meets both the regulatory, manufacturer and operator requirements
- they have specifically nominated who is to be the PIC (see r. 135.390)
- all crew meet the requirements for the following:
  - route knowledge
  - recency
  - initial training
  - conversion training
  - recurrent training
  - differences training (if applicable).
- all training has been completed by persons qualified under the regulations for that purpose.

A new requirement (compared to the rules that applied prior to 2 December 2021) relates to VFR flights at night that are either a passenger transport operation or a medical transport operation. For these kinds of flights, paragraph 135.380(2)(d) requires at least one of the flight crew members to hold an instrument rating. The intent of this rule is that one of the flight crew members needs to:

- if the aeroplane is an Australian aircraft—be authorised under Part 61 to pilot the aeroplane under the IFR during the flight

  or
- if the aeroplane is a foreign registered aircraft—be authorised under the law of the aeroplane's State of registry or the State of the operator of the aeroplane to pilot the aeroplane under the IFR during the flight.

The relevant flight crew member must be able to actually exercise the privileges of their instrument rating during the flight.

See Multi-Part AC 119-11 and 138-02 for specific guidance on Part 133 flight crew training and checking.

It is recommended that operators assess their operational characteristics and, if appropriate. conduct a Training Needs Analysis with input from the SMS (if in place) during the development of their competency standards. Operations identified by the SMS as having a higher degree of difficulty/risk may require higher competency standards.

The operator's training and checking system will logically need procedures to cover the circumstance where a flight crew member fails to maintain an adequate standard of competency in relation to their specific duties. No specific guidance is provided on what, if any, remedial training might be necessary as this would vary on a case-by-case basis.

Flight crew member proficiency check (also called OPC)

Chapter 12 of the Part 135 MOS requires a flight crew member to have successfully completed a flight crew member proficiency check (FCMPC) in the matters listed in section 12.05. This check is first required to be completed prior to the flight crew member commencing Part 135 operations and recurrent checks are required in accordance with the schedule outlined in subsection 12.08(4) of the MOS.

This check is commonly referred to as an OPC, but operators also need to be aware that this term is used in Part 61 of CASR, where the term has the specific meaning listed in regulation 61.010 and where, under certain circumstances, some Part 61 check events can be achieved through the completion of an OPC conducted by the operator. The regulation 61.010 definition of OPC is:

> *operator proficiency check* means an assessment conducted by an operator in accordance with its training and checking responsibilities under these Regulations of whether a person has the aeronautical skills and knowledge required by the operator.

Number of FCMPC required for mixed aircraft fleets

Operators of piston-engine aeroplanes only

If multiple types in the same class rating are operated, a FCMPC is only required in one of the types provided that the operator is satisfied that the check on one aircraft type would sufficiently ensure the competency of the flight crew member on the other types used by the operator within the same class. Some examples of this would be:

- An operator of a mixed single engine fleet of C210, C206 and PA32 aircraft:
  - A FCMPC in any of these types could satisfy the requirement for all these types.
  - The operator would need to ensure that, for instance, a check in the C206 (fixed gear) would satisfy the requirement for competence in the C210 (retractable gear).
- An operator of a mixed multi-engine fleet of C402, BE58 and PA31 aircraft:
  - A FCMPC in any of these types could satisfy the requirement for all these types.
  - The operator would need to ensure that, for instance, a check in one of these types would satisfy the requirement for competence in all the others in relation to systems knowledge such as emergency gear extension (since all are different).

If multiple types in different class ratings are operated, a FCMPC is required for each class. As above, it need only be in one of the types in each particular class. An example would be:

- An operator of a mixed fleet of C210, C206 and PA32 single-engine aircraft, and C310, BE58 and PA31 multi-engine aircraft:
  - A FCMPC in any of the types in the single engine class and a FCMPC in any of the types in the multi-engine class is needed to operate all the aircraft in the fleet (i.e., two OPC's).
  - The comments in the previous examples regarding competency across differing aircraft equipment and configurations are also relevant.

Operators of turbine-engine aeroplanes only

A FCMPC is required for each turbine-engine type operated. For type-rated aircraft subject to differences training requirements, operators should construct FCMPCs that reflect the composition of a fleet where variants of the same type are operated.

Operators of turbine-engine and piston-engine aeroplanes

If both the piston-engine and turbine-engine aeroplanes are class rated, then a FCMPC in the turbine-engine aeroplane could satisfy the requirement for the other types in that class, provided that the operator is satisfied that a proficiency check on one aircraft type (and kind of engine) would sufficiently ensure the competency of the flight crew member on another type (and kind of engine) within the same class.

Example

The operator would need to ensure that a check in a multi-engine turbine-engine aircraft, in relation to emergency procedures such as performance of engine failure shut-down drills, would also satisfy the requirement for competence in a multi-engine piston-engine aircraft.

Operators of aircraft of the same type with different configurations

Aircraft of the same type may have significantly different equipment, instrumentation and systems, and many operators may have more than one configuration in use at any one time. Typical differences include:

- fuel systems with varying usable amounts and drain systems
- variations in loading systems
- different instrument and avionics fitout
- mechanical differences such as unfeathering accumulators or optional systems such as auto-feather or rudder boost.

The presence or absence of these features needs to be taken into account when operators construct proficiency check content.

It may not be necessary or possible to carry out full proficiency checks in each variant in a fleet. However, operators should consider formal differences training, accounting for the differences during competency checking, to ensure that the competency demonstrated in one particular airframe is transferable to another airframe of the same type but a different configuration.

AMC 135.385 Competence

Reserved

GM 135.385 Competence

The minimum competency standards for every flight crew member, regardless of the kind of operation being conducted, are in Part 61 of CASR.

Regulation 135.385 requires an operator to have assessed a flight crew member as being competent to perform the duties assigned to them before assigning them to duty for a flight. The purpose of this regulation is to require operators to ensure that their flight crew members have been assessed in accordance with the operator's training and checking system as being competent to perform the specific duties assigned to the flight crew member by the operator.

By implication, the specific competencies for different operators and flight crew members assigned different duties may vary depending on the complexity of the air transport operation being performed. Noting that Part 61 of CASR applies to flight crew members in addition to Part 135, the operator's 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.

AMC 135.387 Training and checking to be conducted by certain persons

Paragraph 135.387(2)(a) of CASR and section 12.11 of the Part 135 Manual of Standards – use of foreign training organisations for training and checking

This AMC applies to a circumstance where a Part 135 operator elects to conduct training and/or checking events in a foreign country using a foreign training organisation.

For this kind of operator, it is an acceptable means of compliance with the requirements of section 12.11 if the:

- national aviation authority of the foreign State (the NAA) has approved the training organisation to conduct the required training and/or checking; and
- training organisation has a system under which successful completion of the competency checking is certified on the training organisation's relevant checking form by an employee of the training organisation who is also a delegate of the NAA for certifying flight crew competency of the kind checked; and
- operator's exposition includes the details of the training organisation's syllabus and completion standards for the training and/or checking event(s); and
- foreign State is one recognised by CASA for the purposes of foreign flight simulators under regulation 61.010.

  Note: Advisory Circular AC 60-02 v2.2 states that CASA currently recognises the flight simulator qualification certificates of countries listed under the definition of *recognised foreign State* in regulation 61.010. At the time of issuing v2.1 of this AMC/GM document, those countries were Canada, Hong Kong (Special Administrative Region of China), New Zealand, the United States of America, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

GM 135.387 Training and checking to be conducted by certain persons

The MOS content for subparagraph 135.387 (2) (a) (ii) is contained in Division 3 of Chapter 12 of the Part 135 MOS.

Nomination of training/checking personnel

The regulation and MOS provision set out the requirements for an individual to conduct training and checking activities. One of the requirements is that an individual must be nominated in writing[19]. The nomination must be made by an entry in the operator's exposition, or a document provided by the operator to CASA, and state that the individual meets the requirements[20].

The intent of this provision is that regardless of which notification method is used, either document is considered to be part of an operator's exposition. However, to remove any confusion on the submission format, the MOS makes it clear that the operator may elect to use a simplified submission of a smaller operator nomination document rather than requiring submission of the complete exposition.

[19] Paragraph 12.11(1)(d) of the Part 135 MOS.
[20] Subsection 12.11(2) of the Part 135 MOS.

As with any change for an operator, the nomination of an individual to training and checking duties should be considered against the definition of significant change[21]. For most nominations this would NOT be considered as a significant change.

Note: Operators should particularly review paragraph 119.020 (b) and (c).

For example, an operator could maintain a list of the authorised training and checking individuals. When a change to the nominated individuals occurred, the new list could be attached to the significant change / non-significant change CASA form[22]. As with any change notification, the change to the document should be clearly identified.

Table 2: Sample Aviation –Training and Checking Personnel – Part 135 Operations

Name	ARN	Aircraft type	Authorised duties
Hawk	456712	B200	Flight crew line training and line checks
Goose	123456	B200	All training and checking duties
Finch	562389	B200	General emergency training
Sparrow	987654	C404	Flight crew proficiency checks
Bird	563489	All	Part 61 Flight Examiner duties

AMC 135.390 Assignment to duty of pilot in command

It is an acceptable means of compliance with this regulation if the crew member roster, published crew list and crew declaration forms for the flight clearly identify which member of the crew is assigned as PIC.

GM 135.390 Assignment to duty of pilot in command

The operator's exposition should identify how the assignment of a flight crew member to duty as the PIC is promulgated. Depending on the size scope and complexity of the operation, this may be as simple as a manual tracking tool such as a white board detailing each crew members qualification through to an automated software based rostering system and qualification tracking system that ensures flight crew are qualified for a flight.

When determining whether a manual tracking system is suitable for an operator, CASA will consider the number of flight crew employed and number of different activities conducted by the operator. Generally, 10 flight crew across a simple operation that does not involve multiple would be considered suitable for using a manual tracking tool.

[21] See regulation 119.020 of CASR.
[22] Refer also to AC 119-07 – Management of change for aviation organisations

In the case of complex operators with more than 10 flight crew or multiple types there are multiple software programs designed to manage flight crew rostering available. When determining whether an operator's implementation of a program is suitable, CASA will check that the software is:

- tailored to the operators' requirements
- able to flag a flight crew member approaching and or exceeding a defined qualification or recency requirement
- able to prevent an unqualified flight crew member being rostered for a duty.

AMC 135.395 Pilot in command

Reserved

GM 135.395 Pilot in command

The MOS content for paragraph 135.395 (1) (c) is contained in Division 4 of Chapter 12 of the Part 135 MOS.

The regulation requires that, for an individual to be qualified as PIC, they must have:

- the experience requirements specified in the regulation and the exposition
- successfully completed a command training course
- an authorisation to act as PIC.

In developing the exposition, the operator must include all aircraft types that it will operate under Part 135.

AMC 135.400 Co-pilot

Reserved

GM 135.400 Co-pilot

The regulation requires that, for an individual to be qualified as co-pilot, they must have:

- completed the supervised line flying requirements applicable to a co-pilot in the operator exposition
- an authorisation that permits them to conduct duties as a co-pilot.

In considering the supervised line flying component, ideally this should be conducted over as many of the routes/areas that the co-pilot will be expected to operate on as practicable. It is recognised that, in some organisations, it will not be possible to cover all routes / areas due to the size/nature of the authorised operations, or the location where training is conducted.

AMC 135.405 Pilot in command in non-command pilot's seat

Reserved

GM 135.405 Pilot in command in non-command pilot's seat

The MOS content for paragraphs 135.405 (1) (b) and (2) (b) is contained in Division 5 of Chapter 12 of the Part 135 MOS.

AMC 135.410 Knowledge of route and aerodromes

Reserved

GM 135.410 Knowledge of route and aerodromes

Regulation 135.410 states an aeroplane operator's exposition must include requirements in relation to the knowledge that a PIC of the aeroplane for a flight must have of: (a) the route of the flight; and (b) the departure aerodrome and the planned destination aerodrome for the flight; and (c) any alternate aerodrome required for the flight by the flight preparation (alternate aerodromes) requirements.

Route and aerodrome knowledge requirements for a PIC that could be expressed in the exposition include the following matters:

- terrain and minimum safe altitudes
- relevant departure and arrival procedures
- seasonal meteorological conditions
- meteorological, communication and air traffic facilities, services and procedures
- navigational facilities associated with the route along which the flight is to take place
- search and rescue procedures.

Some common methods of obtaining and/or confirming that a PIC has the required knowledge are:

- self-briefing by the PIC (effectively a reliance on the PIC's ability to conceptualise the route and aerodromes based on that previous training and experience)
- programmed training delivery (pre-developed training that is either self-paced or delivered via some kind of instructor)
- a combination of either of the above with a dedicated determination of competency which could be either theoretical (i.e., a written or oral test of some kind) or practical (i.e. a specific flight test in an aircraft or simulator, or a flight where the PIC is in command under supervision, or a flight where the PIC is accompanied by a pilot experienced in the specific route or aerodrome).

It is up to the operator to determine whether or not the characteristics of a route or an aerodrome necessitate that a PIC demonstrate specific competencies for the route or aerodrome. If a PIC was determined by an operator to require specific competencies, then the operator should also consider the following:

- how should the competency be determined
- by whom should the competency be determined
- whether the competency should be the subject of regular re-evaluation.

Within Australia, relevant information applicable to an intended flight might be obtained through the AIP-DAP, AIP-ERC, AIP-ERSA or AIP-WAC. Information could also be gained from services providers, provided the operator is satisfied with the source.

Outside Australian airspace, common methods of obtaining relevant information would be via the foreign equivalent of AIP-ERSA (i.e., the AD section of the foreign AIP) or a commercially provided product such as the Jeppesen Airways Manual or directly from a foreign Air Navigation Services Provider or foreign aerodrome.

A common method of providing the relevant knowledge to the PIC during a flight is the provision by the operator of a route guide for routinely visited destinations or routinely used routes or airspace volumes.

For operators who primarily conduct ad-hoc services to clients, depending on the variance in routes and destinations that are flown, the provision of route guides could be impractical. In these cases, the operator might choose to develop a kind of checklist that identifies the kinds of information a flight crew should acquire during the planning phase of a task to ensure that fundamental safety risks are sufficiently ameliorated.

Operators might also consider including in their exposition a catalogue of aerodromes showing, in diagrammatic form, the items in the list below. Note that operators might decide to include more than what is in this list depending upon their operational circumstances:

- location by co-ordinates or in reference to prominent geographic features or nearest navigation aid (including a general view of the aerodrome and the surrounding terrain)
- communication/navigation/automatic lighting frequencies/facilities
- aerodrome time zone
- elevation above sea level
- direction of runways
- length and width of runways
- nature and slope (if any) of the surfaces
- tarmac or parking area
- hazards in the area (such as physical obstacles, persistent turbulence, known animal or insect activity, visual or radio limitations etc)
- the approach to each runway used by the operator’s aircraft
- the usual method of instrument or visual approach if there are abnormal features or irregularities in that approach
- any restrictions or specific conditions relating to the use of a particular aerodrome and the name, and method, of contacting the owner or controlling authority.

8.2 Division 135.N.2—Operation of aeroplanes of different type ratings

AMC 135.415 Application of Division 135.N.2

Reserved

> **GM 135.415 Application of Division 135.N.2**
>
> Reserved

AMC 135.420 Assignment of flight crew to aeroplanes of different type ratings

Reserved

> **GM 135.420 Assignment of flight crew to aeroplanes of different type ratings**
>
> Reserved

8.3 Division 135.N.3—Operation of aeroplanes of different types

AMC 135.425 Application of Division 135.N.3

Reserved

> **GM 135.425 Application of Division 135.N.3**
>
> Reserved

AMC 135.430 Assignment as pilot in command on aeroplanes of different types

Reserved

> **GM 135.430 Assignment as pilot in command on aeroplanes of different types**
>
> Reserved

8.4 Division 135.N.4—Recent experience

AMC 135.435 Recent experience requirements—90 days before flight

Reserved

GM 135.435 Recent experience requirements—90 days before flight

The three take-offs and landings must be conducted while the pilot is controlling the aeroplane, i.e. the use of the autopilot to meet these recency requirements would not suffice.

General considerations

The exposition should set out the refresher training requirements for flight crew after they have not flown a particular type of aeroplane for extended periods of time, or when required due to minimal flying duties. Factors such as the type of operations and the number of sectors flown prior to the absence will likely affect an operator's considerations.

Night recency

CASA expects operators to manage their night recency requirements through their exposition procedures. When a PIC has not operated at night for an extended period, this may include a line flight under supervision to an aerodrome where significant challenges exist for a night approach. This should also be the case where aerodromes do not have VASIS, and where circling approaches or visual manoeuvring may be required to align with the landing runway.

All operators are expected to maintain pilot competency for flying at night through their recurrent training and checking system.

Recent experience requirements for pilots operating in mixed fleets

Section 9C of CASA EX85/21 exempts operators from the published requirements of subregulations 135.435 (3) and (4) of CASR in relation to the previous requirement to carry out recency flights in the 'kind' of aeroplane. The exemption has the effect or replacing the term *kind* with the requirement that the recency flights are to be carried out in an "aeroplane of the relevant type or class". Refer to the exemption for full details.

The effect of this change are outlined for class rated aircraft and type rated aircraft below.

<u>Class-rated aircraft</u>

Recency must be maintained for each class (i.e. single-engine and multi-engine class).

An example would be:

> An operator with a single engine fleet comprising C210 and A36 aircraft, and a multi-engine fleet comprising C402 and BE58 aircraft.
>
> A pilot would be required to maintain recency in both the single-engine and the multi-engine classes to be able to fly all the operator's aircraft.
>
> Recency in either the C210 or A36 would meet the single engine requirement, and recency in either the C402 or BE58 would meet the multi-engine requirement.

The three take-offs and landing requirements as in the example above would not need to be

conducted in the same type in the class. For instance, one night take-off and landing in the C210 and 2 night take-offs and landings in the A36 would meet the single engine class night recency requirement.

Type-rated aircraft

Recency must be maintained in each multi-crew type and each single-pilot type.

Type rated aircraft are listed in the following instrument: Part 61 Flight Crew Licensing (Prescribed Aircraft and Type Ratings) (Edition 9) Instrument 2023[23]. Multi-crew types are listed in Schedule 2 of this document, and single-pilot type rated aircraft are listed in Schedule 6.

For an operator with aircraft that are subject to different multi-crew or single-pilot type-ratings, recency will be required for each different type. Recency in a multi-crew type rated aircraft does not meet the recency requirement for a multi-crew aircraft with a different type rating, nor does it meet the recency requirement for any single-pilot type rated aircraft.

Recency gained in a single-pilot type rated aircraft can meet the requirement for single-pilot multi-engine class rated aircraft (since all type-rated aircraft mentioned in Edition 8 of the Prescription Instrument are multi-engine aircraft). Recency gained in multi-crew type-rated aircraft does not meet the recency requirement for a single-pilot aircraft even it is optionally operated with two pilots.

Examples

The following examples are provided of how the recency requirements can be met in a mixed fleet of type-rated and class rated aircraft:

Case 1

A pilot is required to fly an executive configured BE350 and a C208.

Recency must be maintained in the BE350 (single-pilot type rated in the multi-engine class) and the operator elects to use the approved simulator for this.

Recency must be maintained in the C208 as well (single-engine aeroplane requiring training and a flight review but single-engine class rated) and the operator uses regular flight schedules to accomplish this where possible and rosters the pilot for recency flights where needed.

Case 2

A pilot is required to fly an executive configured BE350 and a C441.

Recency must be maintained in the BE350 (single-pilot type rated in multi-engine class) and the operator elects to use a simulator for this.

The recency requirement for the C441 (multi-engine aeroplane requiring training and a flight review but multi-engine class rated) is met if recency is maintained in the BE350.

[23] This instrument is replaced from time to time. At the time of publishing v2.3 of the Part 135 AMC/GM document, Edition 8 was the current instrument.

If the BE350 simulator is unavailable the operator would need to monitor recency in the C441 using the regular flight schedules, however recency in the C441 cannot be used to meet the BE350 recency requirement.

Case 3

A pilot is required to fly a C208 and a C441 and PA31 (class rated aircraft).

Recency must be maintained in both the C208 and either the C441 or PA31 or a combination thereof.

The recency status of the pilot for the multi-engine class could be determined by the operator tracking take-offs and landings according to aircraft class, not type.

In this way the take-off and landing events for the C441 and the PA31 are counted together to determine pilot recency status for the multi-engine class.

The operator uses regular flight schedules to accomplish this where possible and dedicated night recency flights where needed.

9 Subpart 135.P—Crew other than flight crew

For operators with crew members who were trained and checked prior to the commencement of Parts 91, 121, 133, 135 and 138 of CASR on 2 December 2021, CASA has issued training and checking determination instruments to ensure that the previously completed training and checking of crew members is legally taken to be equivalent to the new training and checking event requirements. For Part 135, the relevant instruments are CASA 90/21 (related to Part 119 requirements) and CASA 93/21 (related to Part 135 requirements).

There are exemptions in force in relation to the training and checking of crew members. These exemptions apply to certain operators. It is recommended that operators review Parts 6 and 9 of CASA EX87/21. The approvals mentioned in the Parts of this exemption are taken to be significant changes due to them activating paragraph 119.020(c) of CASR. Operators are to apply for this approval by applying for a significant change via the Air Operator's Certificate / Associated Approvals form available on CASA's website.

There is a Part 11 direction in force in relation to crew members carrying out audits, checks, examinations etc. Operators and pilots are advised to review section 9 of CASA EX81/21.

9.1 Division 135.P.1—General

Reserved

9.2 Division 135.P.2—Air crew

AMC 135.445 Training and checking

Reserved

GM 135.445 Training and checking

This regulation requires an operator to carry out air crew training and checking as prescribed in Chapter 13 of the Part 135 MOS.

Further guidance is contained in AC 119-11 - Training and checking systems.

Nomination of training / checking personnel

The regulation and MOS provision set out the requirements for an individual to conduct training and checking activities. One of the requirements is that an individual must be nominated in writing[24]. The nomination must be made by an entry in the operator's exposition, or a document provided by the operator to CASA, and state that the individual meets the requirements[25].

The intent of this provision is that regardless of which notification method is used, either document is considered to be part of an operator's exposition. However, to remove any confusion on the submission format, the MOS makes it clear that the operator may elect to

24 Paragraph 13.11(1)(d) of the Part 135 MOS
25 Subsection 13.11(2) of the Part 135 MOS

use a simplified submission of a smaller operator nomination document rather than requiring submission of the complete exposition.

As with any change for an operator, the nomination of an individual to training and checking duties should be considered against the definition of significant change[26]. For most nominations this would NOT be considered as a significant change.

Note: Operators should particularly review paragraph 119.020 (b) and (c).

For example, an operator could maintain a list of the authorised training and checking individuals. When a change to the nominated individuals occurred, the new list could be attached to the significant change / non-significant change CASA form[27]. As with any change notification, the change to the document should be clearly identified.

Table 3: Sample Aviation –Training and Checking Personnel – Part 135 Operations

Name	ARN	Aircraft type	Authorised duties
Hawk	456712	B200	Flight crew line training and line checks
Goose	123456	B200	All training and checking duties
Finch	562389	B200 C404	General emergency training
Sparrow	987654	All	Flight crew proficiency checks Part 61 Flight Examiner duties
Bird	563489	All	Medical Transport specialist training and checking duties

AMC 135.450 Competence

Reserved

GM 135.450 Competence

Regulation 135.450 requires an operator to have assessed the crew member as being competent to perform the duties assigned to them before assigning them to duty for a flight. These regulations are not meant to be a one-size-fits-all set of regulations, and it is imperative that operators formulate their own specific set of equal or better standards after thorough assessment of their operational characteristics. Appropriate use of Training Needs Analysis with input from the SMS will be crucial in this development. Operations identified by the SMS as having a higher degree of difficulty/risk may require higher training or checking standards than set out in these regulations.

26 Regulation 119.020
27 Refer also to AC 119-07,138-03 – Management of change for aviation organisations

Procedures should also be incorporated into the training and checking system for crew who fail to maintain an adequate standard of competency in their duties. Regulations cannot prescribe the remedial training required as it will vary on a case-by-case basis, but an operator should take reasonable steps to bring the crew member back to a suitable level of competency.

Further guidance is contained in AC 119-11 - Training and checking systems.

AMC 135.455 English proficiency

Reserved

GM 135.455 English proficiency

The standards for English language proficiency are specified in the Part 61 MOS.

9.3 Division 135.P.3—Medical transport specialists

AMC 135.460 Training and checking

Reserved

GM 135.460 Training and checking

This regulation outlines that the Part 135 MOS may prescribe requirements relating to training and checking that must be completed by medical transport specialist (MTS). These requirements are outlined in Chapter 14 of the Part 135 MOS. Broad guidance on training and checking is contained in AC 119-11 - Training and checking systems.

Part 135 of CASR provides for the carriage on medical transport operations (MTO) of MTS crew members. The definition of MTS is in the CASR Dictionary and replicated in the definitions section of this AMC/GM document.

To establish this crew member relationship to the operator, Part 135 requires MTS to be trained and determined as competent by the operator to perform their role and specified function.

Operators who utilise MTS as part of the crew will need to ensure their exposition describes:

- the role and specified function of MTS as crew members on their MTO's
- the process and procedures for MTS training and competency assessment
- who may carry out these training and assessment functions for the operator.

While MTS are normally also trained medical personnel, it is vital to remember they are authorised by the operator as crew members for a flight and must comply with the operator's exposition requirements for their role.

This crew member relationship is important for operators to consider when writing their procedures, as MTO's often also carry additional medical personnel (general medical

personnel) who are not MTS crew members and as such these persons have **not** received the same level of detailed operator operational training and competency assessment as a MTS. These non-crew member medical personnel must be managed appropriately by the operator's exposition procedures to ensure their safety in the aircraft.

Note: General medical personnel who are not medical transport specialists crew members for the operator do not require the training and competency assessments outlined in Chapter 14 of the Part 135 MOS.

Nomination of training checking personnel

The regulation and MOS set out the requirements for an individual to conduct training and checking activities. One of the requirements is that an individual must be nominated in writing[28]. The nomination must be made by an entry in the operator's exposition, or a document provided by the operator to CASA, and state that the individual meets the requirements[29].

The intent of this provision is that regardless of which notification method is used, either document is considered to be part of an operator's exposition. However, to remove any confusion on the submission format, the MOS makes it clear that the operator may elect to use a simplified submission of a smaller operator nomination document rather than requiring submission of the complete exposition.

As with any change for an operator, the nomination of an individual to training and checking duties should be considered against the definition of significant change[30]. For most nominations this would NOT be considered as a significant change.

Note: Operators should particularly review paragraph 119.020 (b) and (c).

For example, an operator could maintain a list of the authorised training and checking individuals such as that used in Table 4. When a change to the nominated individuals occurred, the new list could be attached to the significant change / non-significant change CASA form[31]. As with any change notification, the change to the document should be clearly identified.

Table 4: Sample Aviation –Training and Checking Personnel – Part 135 Operations

Name	ARM	Aircraft type	Authorised duties
Hawk	456712	B200	Flight crew line training and line checks
Goose	123456	B200	All training and checking duties
Finch	562389	B200 C404	General emergency training
Sparrow	987654	All	Flight crew proficiency

[28] Paragraph 14.11(1)(d) of the Part 135 MOS.
[29] Subsection 14.11(2) of the Part 135 MOS.
[30] Regulation 119.020.
[31] Refer also to AC 119-07 – Management of change for aviation organisations.

			checks Part 61 Flight Examiner duties
Bird	563489	All	Medical Transport specialist training and checking duties

AMC 135.465 Competence

Reserved

GM 135.465 Competence

Regulation 135.465 requires an operator to have assessed the medical transport specialist crew member as being competent to perform the duties assigned to them. These regulations are not meant to be a one-size-fits-all set of regulations, and it is imperative that operators formulate their own specific set of equal or better standards after thorough assessment of their operational characteristics. Appropriate use of Training Needs Analysis with input from the SMS will be crucial in this development. Operations identified by the SMS as having a higher degree of difficulty/risk may require higher training or checking standards than set out in these regulations.

Procedures should also be incorporated into the training and checking system for medical transport specialist crew who fail to maintain an adequate standard of competency in their duties. Regulations cannot prescribe the remedial training required as it will vary on a case-by-case basis, but an operator should take reasonable steps to bring the medical transport specialist crew member back to a suitable level of competency.

Further guidance is contained in AC 119-11 - Training and Checking Systems.