Australian Government
Civil Aviation Safety Authority

ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL

Australian air transport operations - rotorcraft

Part 133 of CASR

File ref: D23/488961

May 2025

Acknowledgement of Country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and their continuing connection to land, water and community, and pays respect to Elders past, present and emerging.

Inside front cover artwork: James Baban.

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

Audience

This acceptable means of compliance (AMC) and guidance material (GM) applies to:

- Air Operator's Certificate (AOC) holders who are conducting, or wish to be authorised to conduct, Australian air transport operations using rotorcraft
- pilots, cabin crew members, air crew members and medical transport specialists who are crew members, or training to be crew members, on rotorcraft operated in an Australian air transport operation
- Part 142 of CASR operators who are conducting, or seeking to conduct, contracted training and checking for pilots of rotorcraft for an Australian air transport operator
- current and future aerodrome and heliport operators and designers of facilities used by rotorcraft conducting Australian air transport operations.

Purpose

The purpose of this AMC and GM is to provide advice in the form of GM and, where relevant, specify AMC for Part 133 of the Civil Aviation Safety Regulations 1998 (CASR) and its associated Part 133 Manual of Standards (MOS).

The intention is to assist regulated persons to understand the requirements of the regulations and MOS by clarifying intent and using language that is easily understood.

This AMC and GM should be read in conjunction with Part 133 of CASR and the Part 133 MOS to ensure maximum understanding.

Any specified AMC will enable an Air Operator's Certificate (AOC) holder to satisfy the Civil Aviation Safety Authority (CASA) of the regulatory requirement if they choose to use and follow the AMC material, however AOC holders may also propose alternative means of compliance to the AMC if they so desire. This alternative means will need to be assessed and found acceptable for the purpose by CASA.

For further information

For further information or to provide feedback on this AMC and GM, visit CASA's contact us page.

Status

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

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

Table 1: Status

Version	Date	Details
v2.5	May 2025	Notable changes include: • added content to AMC 133.125 and GM 133.125 on exercising operational control, inflight decision making and avoidance of inadvertent IMC and the immediate initiation of a search and rescue (SAR) response • added content to GM 133.135 on flight planning and in-flight decision making • added a cross-reference to AC 1-02 in GM 133.180 to remind readers that Annex C to this AC contain significant exposition

Version	Date	Details
		fuel policy guidance • changed AMC 133.195 so that it does not apply to fuelling with persons on board with highly volatile fuels • added more information to GM 133.195 about fuelling with highly volatile fuels when persons onboard • moved some GM 133.195 content to AC 91-25 v2.0 (to be published shortly after this AMC/GM amendment) • added cross-reference in GM 133.195 to AC 91-25 v2.0 (to be published shortly after this AMC/GM amendment) • various editorial amendments to standardise format and content (where appropriate) across the AMC/GM documents for Parts 121, 133 135 and 138 regarding fuelling safety procedures • additional GM 133.340 content on the PC3 requirements relating to availability of suitable forced landing areas • new AMC 133.360 to cross-refer to acceptable pressure altimeter technical standards mentioned in AC 21-45 • minor changes to GM 133.360 regarding navigation equipment • added new guidance to GM 133.360 about the carriage of life raft rules • added new guidance to GM 133.360 about the serviceability of aircraft equipment and information on the new exemption CASA EX14/24 • information added to GM 133.370 about the use of flight simulators, and also about foreign training organisations • new CASA style template applied.
v2.4	November 2023	• Added information to: • GM 133.130 about pre-flight risk assessment tools • GM 133.175 about rotor downwash and outwash safety distances.
v2.3	September 2023	Added information about forms. Added information regarding the legal instruments which determine that training and checking events completed prior to the commencement of Parts 119 and 133 are taken to have met certain new training and checking requirements. Added information regarding approvals mentioned in CASA exemptions and directions instruments and how these relate to the significant change approval rules. Added reference to new heliport design AC and removed reference to old helicopter CAAPs. Added information about multiple short flights. Amended information regarding medical transport operating sites. Added information about stabilised heading flight instruments.
v2.2	December 2021	Added references to additional exemptions incorporated into EX84/21 by EX149/21. Added additional guidance material to the References section.
v2.1	December 2021	Added references and entries related to recently made exemptions. Added information on flight manuals to GM 133.030.
v2.0	October 2021	Addition of new guidance material, clarification of policy matters and editorial changes.
v1.0	December 2020	Initial AMC and GM.

1 Reference material

1.1 Acronyms

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

Table 2: Acronyms

Acronym	Description
AC	advisory circular
AIP	aeronautical information publication
ALA	aircraft landing area
AMSA	Australian Maritime Safety Authority
ATC	air traffic control
ATSB	Australian Transport Safety Bureau
CAR	*Civil Aviation Regulations 1988*
CASA	Civil Aviation Safety Authority
CASR	*Civil Aviation Safety Regulations 1998*
CofA	certificate of airworthiness
DVE	degraded visual environment
EFB	electronic flight bag
EHEST	European Helicopter Safety Team
ELT	emergency locator transmitter
ERSA	En-Route Supplement Australia
ESPN-R	European Safety Promotion Network Rotorcraft
EVS	enhanced vision system
FATO	final approach and take-off area
FIR	flight information region
HLS	helicopter landing site
HOFO	Head of Flying Operations
HUD	head-up display
HV	height velocity
IFR	instrument flight rules
IIMC	inadvertent instrument meteorological conditions
IMC	instrument meteorological conditions

Acronym	Description
IRM	immediately reportable matter
LMC	last-minute change
LVTO	low visibility take-off
MEL	minimum equipment list
MMEL	master minimum equipment list
MLW	maximum landing weight
MOPSC	maximum operational passenger seat configuration
MOS	manual of standards
MTO	medical transport operation
MTOS	Medical transport operating site
MTOW	maximum take-off weight
NASA	National Aeronautics and Space Administration of the United States of America
OEI	one-engine-inoperative
OEM	original equipment manufacturer
OFP	operational flight plan
PC1	performance class 1
PC2	performance class 2
PC2WE	performance class 2 with exposure
PC3	performance class 3
PED	personal electronic device
PIC	pilot in command
RFM	rotorcraft flight manual
R/r	Rotor/radii
RRM	routinely reportable matter
SAR	search and rescue
SMS	safety management system
SOP	standard operating procedures
SVS	synthetic vision system
TSO	technical standard order
VAI	Vertical Aviation International
VFR	visual flight rules

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.

Table 3: Definitions

Term	Definition
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.
avoid area of the HV envelope	of a rotorcraft, means the area delineated on the height-velocity envelope diagram in the rotorcraft's flight manual that shows the parameters within which operations of the rotorcraft should be avoided.
cabin crew member	means a crew member who performs, in the interests of the safety of an aircraft's passengers, duties assigned by the operator or the pilot in command of the aircraft, but is not a flight crew member.
cargo	means things other than persons carried, or to be carried, on an aircraft.
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).
Category A	in relation to a rotorcraft, means a multi-engine rotorcraft that is: a. designed with engine and system isolation features stated for Category A requirements in any of the following: i. Part 27 of the FARs ii. Part 29 of the FARs iii. EASA CS — 27 iv. EASA CS — 29 v. an equivalent airworthiness certification code of a Contracting State, and b. capable of operation using scheduled take-off and landing data under a critical engine failure concept, which assures adequate designated ground or water area and adequate performance capability for continued safe flight or safe rejected take off in the event of engine failure, as mentioned in the rotorcraft's flight manual.

Term	Definition
	Note: This definition is based on the ICAO, FAA and EASA definitions of the term Category A in relation to rotorcraft.
Category A rotorcraft	means a rotorcraft that: a. meets the requirements as stated in the definition Category A; and b. is type-certificated in accordance with any of the following: i. Part 27 of the FARs ii. Part 29 of the FARs iii. EASA CS — 27 iv. EASA CS — 29 v. an equivalent airworthiness certification code of a Contracting State.
crew member	A person is a crew member of an aircraft if the person is carried on the aircraft and is: 1. a person: a. who is authorised by the operator of the aircraft to carry out a specified function during flight time relating to the operation, maintenance, use or safety of the aircraft, the safety of the aircraft's passengers or the care or security of any cargo which may affect the safety of the aircraft or its occupants, and b. who has been trained to carry out that function, or 2. a person who is on board the aircraft for the purpose of: a. giving or receiving instruction in a function mentioned in 1(a), or b. being tested for a qualification associated with a function mentioned in 1(a), or 3. a person authorised by CASA under these regulations, or by the operator, to carry out an audit, check, examination, inspection or test of a person mentioned in item 1 or 2.
crew station	for a crew member of an aircraft, means a position on the aircraft that is designed and equipped to enable the crew member to carry out their assigned duties on the aircraft.
maximum operational passenger seat configuration	for an aircraft, means the maximum passenger seat capacity of the aircraft, excluding crew stations: a. approved by CASA for the operator of the aircraft: i. for an operator that is not an Australian air transport operator—under regulation 201.030, or ii. for an Australian air transport operator—as part of the approval of the operator's exposition under Part 119, and b. specified in the operator's operations manual (if any).
medical transport operation	means an operation: a. the primary purpose of which is to transport one or more of the 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. Despite the above, 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.

Term	Definition
	Note: At the time of publication of v2.5 of this Part 133 AMC/GM document, no operations had been prescribed in the Part 119 Manual of Standards for the purposes of this definition.
multi-flight journey	means a journey to a destination that involves more than one flight, if all the flights are conducted by the same operator, using the same aircraft.
medical transport operating site	Refer to section 1.05 of the Part 133 Manual of Standards.
medical transport specialist	means: a. 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: i. a flight crew member for the flight; or ii. an air crew member for the flight; or b. 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 v2.5 of this Part 133 AMC/GM document, no operations had been prescribed in the Part 119 Manual of Standards for the purposes of this definition.
operational control	for a flight of an aircraft, means control over the initiation, continuation, diversion or ending of the flight, in the interests of the safety of the aircraft as well as the regularity and efficiency of the flight.
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 f. for which no payment or reward is made or given in relation to the carriage of the other passengers or cargo.
performance class	means: a. performance class 1 b. performance class 2 c. performance class 2 with exposure, or d. performance class 3.
performance class 1	for a stage of flight of a rotorcraft, has the meaning given by the Part 133 Manual of Standards.
performance class 2	for a stage of flight of a rotorcraft, has the meaning given by the Part 133 Manual of Standards.
performance class 2 with exposure	for a stage of flight of a rotorcraft, has the meaning given by the Part 133 Manual of Standards.

Term	Definition
performance class 3	for a stage of flight of a rotorcraft, has the meaning given by the Part 133 Manual of Standards.

1.3 References

Legislation

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

Table 4: Legislation references

Document	Title
Civil Aviation Act	*Civil Aviation Act 1988* (the Act)
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 27 of CASR	Airworthiness standards for rotorcraft in the normal category
Part 29 of CASR	Airworthiness standards for rotorcraft 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 133 of CASR	Australian air transport operations—rotorcraft
Part 133 MOS	Part 133 (Australian air transport operations—rotorcraft) Manual of Standards 2020
Part 135 of CASR	Australian air transport operations—smaller aeroplanes
CASR Dictionary	Part 1, Part 2, Part 3 of the CASR Dictionary
	Radiocommunications Act 1992

Document	Title
	Transport Safety Investigation Act 2003
CAO 48.1	Instrument 2019 **Note:** This CAO contains the flight crew member fatigue requirements.
CAO 100.7	Instrument 2015 **Note:** This CAO contains the weighing and related requirements for aircraft.
CASA 92/21	Training and Checking (CASR Part 133) Determination 2021
CASA 152/12	Direction – Personal Electronic Devices used as Electronic Flight Bags or provided as In Flight Entertainment devices
CASA EX56/23	Implementation of Drug and Alcohol Management Plans (Micro-businesses and DAMP Organisations) Exemption 2023
CASA EX67/24	Part 91 of CASR - Supplementary Exemptions and Directions Instrument 2024
CASA EX68/24	Part 119 of CASR - Supplementary Exemptions and Directions Instrument 2024
CASA EX70/24	Part 133 and Part 91 of CASR – Supplementary Exemptions and Directions Instrument 2024
CASA EX73/24	Flight Operations Regulations - SMS, HFP&NTS and T&C Systems - Supplementary Exemptions and Directions Instrument 2024
CASA EX77/24	Transitional Training and Checking Requirements for Crew Members in Part 133 Operations – Exemption Instrument 2024

Advisory material

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

Table 5: Advisory material references

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 21-45	Airworthiness approval of airborne automatic dependent surveillance broadcast equipment
AC 60-02	Flight simulator approvals
AC 91-03	Carriage of assistance animals
AC 91-07	Cabin electronic flight bags

Document	Title
AC 91-11	Approval to conduct low visibility operations
AC 91-15	Guidelines for aircraft fuel requirements
AC 91-17	Electronic flight bags
AC 91-18	Restraint of infants and children
Multi-Part AC 91-19, AC 121-04, AC 133-10, AC 135-12 and AC 138-10	Passenger safety information
AC 91-22	Aircraft checklists
AC 91-25	Fuel and oil safety
AC 91-28	Crew safety during turbulence
AC 91-29	Guidelines for helicopters - suitable places to take off and land **Note:** This AC is primarily focused on Part 91 helicopter operations. AC 133-01 and 133-02 are focused on Part 133 rotorcraft operations.
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 92-01	Dangerous goods training for employees
AC 92-03	Dangerous goods training courses and instructors
Multi-Part AC 119-11 and 138-02	Training and checking systems
AC 119-12	Human factors principles and non-technical skills training and assessment for air transport operations
Multi-Part AC 121-05, AC 133-04 and AC 135-08	Passengers, crew and baggage weights
Multi-Part AC 121-08, AC 133-08 and AC 135-06	Carry-on Baggage
Multi-Part AC 121-09, AC 133-06 and AC 135-10	Carriage of special categories of passenger
Multi-Part AC 121-10, AC 133-07 and AC 135-11	Passengers seated in emergency exit row seats
AC 133-01	Performance class operations
AC 133-02	Performance Class 2 with exposure operations

Document	Title
AC 139.R-01	Guidelines for heliports - design and operation **Note:** This AC contains modernised content that was previously contained in CAAPs 92-2(2) and 92-4(0).
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

Other documents include those produced by CASA that are not regulatory or advisory in nature and those published by external parties.

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

Table 6: Other material references

Document	Title
ICAO Annex 2	Rules of the Air
ICAO Annex 6 Part III	International Operations — Helicopters
ICAO Doc 9261	Heliport Manual
ICAO Doc 9976	Flight Planning and Fuel Management Manual
EASA Air OPS Easy Access Rules	Commission Regulation (EU) No 965/2012 on air operations and related EASA Decisions (AMC & GM and CS-FTL.1)
Decision making and IIMC	Vertical Aviation International White Paper from VAI Flight Operations Industry Advisory Council - Decision making and IIMC – A training Guide for Aircrew
OPS.133 protocol suite	Australian air transport operations - rotorcraft
	CASR flight operations sample exposition / operations manual and associated guide **Notes:** 1. This sample applies to Part 133, Part 135 and Part 138 operators. 2. This package consists of 2 documents: the sample exposition / operations manual itself, and the Guide that explains to operators how to use the sample.

1.4 Forms

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

Table 7: Forms

Form number	Title
	Application - Air operator's certificate / Associated approvals (CASR Part 119) **Notes:** 1. This form is used to apply for, vary and review an AOC for Australian air transport operations, as well as apply for significant changes and also apply for various approvals under Parts 91, 119 and 133 of CASR that relates to operations conducted by an Australian air transport operator. 2. 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 133.A—Preliminary

There is an exemption in force to put it beyond doubt that where a law of a foreign country is more restrictive that a Part 133 rule, the foreign country law must be followed. It is recommended that operators review section 5 of CASA EX70/24.

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 EX67/24.

AMC 133.005 Application of Part 133

Reserved.

GM 133.005 Application of Part 133

Part 133 of CASR applies to air transport operations in rotorcraft. A rotorcraft is defined as an aircraft that is a helicopter, a gyroplane or a powered-lift aircraft.

The following CASR Dictionary definitions are fundamental to Part 133:

- Australian air transport operation
- maximum operational passenger seat configuration (MOPSC).

Part 133 establishes a regulatory framework for air transport operations in rotorcraft, the primary purpose of which is to ensure the safety of passengers carried by these operations and the protection of third-party persons on the ground, over which rotorcraft air transport operations may occur. The organisational aspects of air transport operators are covered by Part 119 of CASR. Part 133 further provides the safety of other airspace users and property on the ground that could potentially be impacted by these operations.

When a flight is not one of the three operations under the definition of air transport operation, the flight is not, by definition, an air transport operation, so the requirements of Part 133 do not apply. In such circumstances, the operator and flight crew must ensure the regulations prescribed by Parts 91, 138, 141 and 142 of CASR are adhered to, as applicable.

Relationship with Part 91 of CASR

Part 91 of CASR prescribes the general operating and flight rules, which are the regulatory requirements that apply by default to all operations. Part 133 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 133 are such that they impose requirements over and above the standards in Part 91, but if the table within regulation 91.035 of CASR does not state that a Part 133 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 air transport procedures or may, if the Part 133 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 rotorcraft needs to be flown (with crew only) to another aerodrome to be refuelled. That flight to the refuel location is not an air transport operation, and therefore is not required to comply with Part 133 regulations.

Classification of operations and medical transport

It should be noted that the definition of medical transport operation requires consideration of the 'primary purposes of the operation'. The purpose of an operation is determined at the start of the first flight forming part of that operation. If it is determined that that the primary purpose of the operation is medical transport, this will include the flights or sectors from an operator's home base to the location from which a patient is intended to be retrieved, to a drop-off location for a patient, and return to the operator's home base. It should also be noted that the transport of non-crew member medical personnel is a medical transport purpose. However, the transport of medical transport specialist crew members is not a medical transport purpose as these crew members are assigned by the operator to perform a specific role on the aircraft and their transport is incidental to the operation not the primary purpose.

Further explanation of term operation is contained in section 6.5 of AC 1-01 Understanding the legislative framework. For further explanation of medical transport operations including specific scenarios see the GM 119.010 entry in the Part 119 AMC/GM document

AMC 133.010 Definition of suitable forced landing area for rotorcraft flights

Reserved.

GM 133.010 Definition of suitable forced landing area for rotorcraft flights

With respect to rotorcraft operations, suitable forced landing areas can be either areas of ground or areas of water.

The availability of suitable forced landing areas is used in Part 133 to enhance the safety risk management of operations where a rotorcraft cannot continue safe flight to a suitable destination for the flight, following an incident.

The definition of a forced landing is one in which it is considered the pilot has no other options and is forced to land, as continued safe flight is not possible. For example, an engine failure in a single-engine rotorcraft would lead to the need for an immediate forced landing. Also, in some cases, a heavily laden multi-engine rotorcraft could also be forced to land if one of its engines were to fail, even with some performance available from the remaining operating engine. In such situations, this additional performance can be utilised to miss obstacles and have the potential to reach a larger number of suitable forced landing areas if they are available to them.

The definition outlines that an area of ground, or water, is a suitable forced landing area for the purposes of an operation if the rotorcraft can make a forced landing into the area with a reasonable expectation that, as a result of the forced landing, there would be no injuries to persons in the rotorcraft or on the ground. When suitable forced landing areas are required, an operator must consider how they determine this reasonable expectation can be assumed for the area and build this into their policy and procedures for operations.

Areas of ground as suitable forced landing areas

The hazards associated with a forced landing onto an area of ground range from those affecting the occupants of the rotorcraft to those affecting people on the ground. Injuries to passengers on board include impact injuries, or those suffered from post-crash hazards such as fire. Hazards to people on the ground, such as rotor strike or flying debris, require an equal amount of consideration.

Logically, to ensure suitability, an operator will at least need to consider:

- the location and size of the area
- the surface structure
- obstacle environment
- the surroundings
- proximity to populous areas
- public use areas, and
- the potential for a forced landing to interact with third parties.

Water areas as suitable forced landing areas

Subregulation 133.010 (2) further outlines that some areas of water can be suitable forced landing areas, provided the rotorcraft is suitably equipped to land on water surface conditions permit reasonable expectation of no injuries to persons.

In this regard, the definition also adds specific requirements for operators to consider when deciding if a place is a suitable forced landing area for their operations if they are conducting passenger or medical transport operations.

Due to the additional survival issues associated with landing on water, even in a properly equipped rotorcraft, the definition requires the operator to consider when developing their operational procedures that, for an area of water to be suitable, the persons in the rotorcraft should survive in the area of water for the time that it would take to be rescued. In many cases this may require consideration of additional survival strategies for the occupants of the rotorcraft related to environmental conditions of the area. For example, 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.

Because of the short time it could take for a rotorcraft to submerge, it is a requirement that effective certified rotorcraft emergency flotation equipment be fitted, or the rotorcraft hold a type certification for landing on water. All passengers, particularly new and infrequent passengers, will be unfamiliar with the configuration of the rotorcraft and will, therefore, require a thorough briefing on means of egress.

In survivable water impacts, analysis of accidents consistently shows that, where the cause of death is known, most fatalities are due to drowning rather than impact injuries. Loss of consciousness or incapacitation due to injury can prevent or impede escape, so all reasonable steps should be taken to minimise impact injuries.

In the event of the rotorcraft capsizing and/or sinking, occupants will usually have to make an underwater escape, often in very difficult circumstances (e.g., disorientation due to inversion of the rotorcraft, poor visibility underwater exacerbated at night, shock, panic and possibly injuries). For information regarding underwater escape training, refer to UK CAA CAP1243: Offshore Helicopter Review Progress Report.

AMC 133.015 Approvals by CASA for Part 133

Reserved.

GM 133.015 Approvals by CASA for Part 133

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

Where a provision of Part 133 or the Part 133 MOS makes explicit reference to a CASA approval issued under regulation 133.015, this regulation authorises CASA to issue that approval. All approvals granted by CASA under Part 133 are subject to the procedural requirements of Part 11 of CASR. Subregulation 11.055 (1B) of CASR specifies that approvals shall only be granted if they preserve a level of aviation safety that is at least acceptable.

For the purposes of paragraphs 11.030(1)(a) and (aa) of CASR, all application for 133.015 approvals are to be made using the form titled Air Operator's Certificate / Associated Approvals, which is available from CASA's website. Section E4 of the form lists the specific information required to be provided for each 133.015 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.

In addition to approvals of significant changes under regulation 119.095, there are several specific CASA approvals available under regulation 133.015. These approvals are also considered to be a significant change in accordance with paragraph 119.020 (c) of CASR. An exception applies in relation to the reissue or replacement of an instrument previously issued by CASA in which 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.

Since a 133.015 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 133.015 approval will need to be accompanied by a copy of the part of the operator's exposition affected by the 133.015 approval (i.e. the significant change), clearly identifying the change.

AMC 133.020 Issue of Manual of Standards for Part 133

Reserved.

GM 133.020 Issue of Manual of Standards for Part 133

This provision provides the authority for CASA to issue a Manual of Standards (MOS) for Part 133.

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 of CASR sets out procedural requirements for the issue, amendment or revocation of a MOS, including consultation requirements.

3 Subpart 133.C—General

3.1 Division 133.C.1—General flight limitations

AMC 133.025 Permitted categories of rotorcraft

Reserved.

GM 133.025 Permitted categories of rotorcraft

If the rotorcraft for the flight is not type certificated in one of the categories outlined in the regulation, the regulation makes it an offence for an operator to begin a flight that is a Part 133 operation.

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 the two discrete areas of 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.

Standard CofA may be issued in the following categories:

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

The regulation provides that Part 133 operations may only be conducted in a rotorcraft that is type certificated in the following categories:

- transport
- normal
- a category prescribed in the Part 133 MOS

Note: Currently the MOS does not prescribe any additional categories.

The regulation allows for other categories to be prescribed in the Part 133 MOS as rotorcraft technology advances and/or a new category is required for safety or operational reasons. For example, the tiltrotor which is in the powered lift category will (when certificated) fall into the '"special class category' for issue of a standard CofA and can be subsequently prescribed for operations under Part 133 under this MOS provision.

Rotorcraft air transport operations are primarily limited to the use of rotorcraft certificated in either transport or normal categories. Among other categories, transport and normal category rotorcraft are issued a standard Certificate of Airworthiness (CofA).[1]

A transport category rotorcraft is certificated in accordance with Part 29 of the United States Federal Aviation Regulations (FARs), European Union Aviation Safety Authority (EASA) CS-29, or an equivalent airworthiness certification code of another ICAO Contracting State.

A normal category rotorcraft is certificated in accordance with Part 27 of the FARs, EASA CS-27, or an equivalent airworthiness certification code of another ICAO Contracting State.

A rotorcraft's type certificate data sheet (TCDS) will describe its airworthiness category, certification basis and its state of design authority.

Additional information on aircraft categories is available in AC 21.1 - Aircraft airworthiness certification categories and designations explained

3.2 Division 133.C.2—Operational documents

AMC 133.030 Compliance with flight manual

Reserved.

GM 133.030 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 (the Act), even though multiple flight manual requirements apply before a flight technically begins and after a flight ends. It is recommended that operators review section 20 of CASA EX70/24.

Transitional regulation 202.416A, item 20 of the table (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 MOS content for subregulation 133.030 (2) is contained in Chapter 2 of the Part 133 MOS.

The operator and the pilot in command (PIC) are required to ensure that the aircraft is operated in accordance with the aircraft flight manual instructions (defined term - see below) for the aircraft. This regulation does not provide CASA the ability to give any concession to a limitation or procedure that is set out in the flight manual.

The definition of aircraft flight manual instructions is:

[1] Refer to the CASA certificates of airworthiness manual for more information on this subject, which can be found on the Certificates of Airworthiness Manual page on the CASA website.

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 aircraft. Refer to the definition of "flight manual" in the CASR Dictionary.

The flight manual is as important as any other critical part of the aircraft. The flight manual is a part of the type design. If a flight manual, flight manual amendment or flight manual supplement has already been approved by the national aviation authority (NAA) responsible for issuing the type certificate (TC) for an aircraft, there is no requirement for additional approval by CASA.

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 133.030 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, 135 and 138.

Should it become apparent that there is a conflict between the flight manual and the operator's procedures, the flight manual is to take precedence.

Alleviation of limitations in flight manual

Chapter 2 of the Part 133 MOS enables the PIC to operate contrary to the flight manual under certain circumstances. Additionally, the avoid area of the height velocity (HV) envelope is in the limitations section of a transport category certificated rotorcraft flight manual and, thus, is mandated by the original equipment manufacturer (OEM) for compliance. Currently, entry into the rotorcraft HV area needs to be permitted under some circumstances as prescribed by the Part 133 MOS.

This is to enable medical transport operations (MTO) to operate into medical transport operating sites and also for MTO involving winching, which are conducted in unpredictable locations, often with the rotorcraft needing to operate in the avoid area of the HV envelope for short periods to achieve a safe outcome for the operation.

Other times when transport category rotorcraft operations incur momentary penetration of the avoid area of the HV envelope include when the rotorcraft is being flown in performance class 2 with exposure during the take-off, approach and landing stage, or baulked landing stage, of a flight.

AMC 133.035 Operator to have minimum equipment list for certain flights

Reserved.

GM 133.035 Operator to have minimum equipment list for certain flights

There is an exemption in relation to this regulation. It is recommended that operators review section 6 of CASA EX70/24. 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.

If there is a master minimum equipment list (MMEL) for a rotorcraft, this regulation states that it is an offence for an operator of the rotorcraft to allow the flight to commence without a minimum equipment list (MEL) for the rotorcraft if operating an IFR flight or a flight that begins or ends at an aerodrome outside of Australian Territory.

The MEL should always remain with the rotorcraft, and must be carried on the flight so that it can be accessed by the flight crew – refer to subregulation 133.055 (1) and Chapter 3 of the Part 133 MOS. The MEL should be based on the MMEL, consider all items specified by the rotorcraft manufacturer, and include all operational requirements relevant to the AOC holder's operations.

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 133.040 Availability of checklists

Reserved.

GM 133.040 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.

The requirement under this regulation is a corollary of regulation 133.030, which provides that a rotorcraft must be operated in accordance with the requirements and limitations set out in the aircraft flight manual instructions[2]. The requirement is fundamental to flight safety, as the certification of an aircraft's airworthiness is conditional on the aircraft being operated in accordance with flight manual requirements and limitations. Accordingly, checklists should include, without modification, the procedural steps of the normal, abnormal and emergency procedures of the flight manual.

To meet the requirement, an operator must have processes and instructions published in the exposition for establishing, using and maintaining checklists[3].

Establishing checklists

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

[2] The term *aircraft flight manual instructions* is defined in the CASR Dictionary.

[3] See paragraph 119.205 (1) (h).

for ensuring the checklists meet the requirement of regulation 133.030 and should include in the exposition 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 or exposition.

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

Accessibility of checklists should be managed by operators to minimise the risk associated with loose articles jamming controls or falling from the aircraft.

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, e.g. 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.

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 prescribed by Subpart 119.C of CASR. To ensure implementation of flight manual procedural changes, an operator should have arrangements in place for receipt of these amendments.

Distribution to 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 133.C.3—Flight related documents

There is an exemption in force in relation to Division 133.C.3 and Division 91.C.3 of CASR that effectively permits operators to use the Part 133 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 EX70/24.

AMC 133.045 Electronic documents

Reserved.

GM 133.045 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 a requirement to carry a document may be satisfied by using an electronic format. Where electronic documents are stored 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 133.050 Availability of parts of exposition

Reserved.

GM 133.050 Availability of parts of exposition

This regulation requires that relevant sections of the exposition are available to crew members before a flight. The exposition includes any defined subsidiary manuals, such as an operations manual, ground operations manual, cargo handling manuals etc.

Having the exposition available during the planning and preparation phases prior to the flight enables the crew member to review and refresh their knowledge related to those elements of the exposition with which they are legally required to comply. It is recommended that operators consider the usability and accessibility of the exposition, as these factors will impact on the time taken by a crew member to review and refresh their knowledge of the exposition prior to flight.

Full exposition requirements can be found in Subpart 119.H of CASR. Operators should give particular consideration to regulation 119.205 and the very broad context of paragraph 119.205 (1) (h) when constructing their policy for this requirement.

Crew members are legally required to comply with the exposition elements related to the safe conduct of the operator’s Australian air transport operations (refer to regulation 119.220.)

AMC 133.055 Carriage of documents

Reserved.

GM 133.055 Carriage of documents

The MOS content for paragraph 133.055 (1) (a) is contained in section 3.01 of the Part 133 MOS.

Subregulation 133.055 (1) requires both the operator and the PIC to ensure that all of the required documents listed in the Part 133 MOS are carried on the rotorcraft for a flight. The list in the Part 133 MOS only considers regulations in Part 133; 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 133.055 (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 133.055 (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 133.060 Availability or carriage of documents for certain flights

Reserved.

GM 133.060 Availability or carriage of documents for certain flights

Reserved

AMC 133.065 Carriage of documents—flights that begin or end outside Australian territory

Reserved.

GM 133.065 Carriage of documents—flights that begin or end outside Australian territory

The MOS content for paragraph 133.065 (3) (a) is contained in section 3.02 of the Part 133 MOS.

AMC 133.070 Keeping and updating documents etc.

Reserved.

GM 133.070 Keeping and updating documents etc.

The intent of this regulation is for operators to ensure that the document(s) prescribed in section 3.03 of the Part 133 MOS are accessible to a person on the ground for the duration of a flight. Currently the only document specified in the Part 133 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/transmission of a form or by other suitable electronic means, such as email/radio/datalink etc.

For paragraph 133.070 (b), the exposition needs to contain procedures[4] describing how this information will be updated.

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

AMC 133.075 Journey logs

Reserved.

GM 133.075 Journey logs

There are 2 exemptions in relation to this regulation. It is recommended that operators review sections 7 and 8 of CASA EX70/24.

The operator is required to have procedures 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 rotorcraft.

Subregulations 133.075 (3) and (6) require that the following information be recorded:

- rotorcraft registration mark and flight number (if any)
- 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 refuelling (if any)
- the total fuel on board the rotorcraft 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 that 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

[4] See paragraph 119.205 (1) (h).

completing the journey log if the PIC is satisfied that the safety of the flight will not be compromised. The journey log must be completed as soon as practicable after the flight ends.

AMC 133.080 Passenger lists

Reserved.

GM 133.080 Passenger lists

The purpose of a passenger list is to confirm who is on board for search and rescue (SAR) purposes. When conducting a passenger transport operation, the regulation prescribes that the following information must be recorded by the operator:

- rotorcraft registration mark and flight number (if any)
- 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, such as a journey log. 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 133.065 and section 3.02 of the Part 133 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 133.070.

AMC 133.085 Flight preparation forms for flights that begin or end outside Australian territory

Reserved.

GM 133.085 Flight preparation forms for flights that begin or end outside Australian territory

This regulation applies to a flight of a rotorcraft 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.

Subregulation 133.085 (2) provides that flight preparation forms are not required for flights that originate in Australia and fly to helidecks outside of Australian territory, or that originate from a helideck outside of Australian territory and return to Australia, such as flights servicing oil and gas facilities.

3.4 Division 133.C.4—Reporting and recording defects and incidents etc.

AMC 133.090 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 rotorcraft 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 133.090 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 of CASR or Part 4A of CAR. Defects are to be recorded in the rotorcraft flight technical log or maintenance release, whichever is in use.

Examples of abnormal flight conditions that may influence the safe operation of a rotorcraft include encounters with severe turbulence, a hard landing, a bird strike or a lightning strike.

The requirements of this regulation also apply to any item of operational or emergency equipment fitted to the rotorcraft, regardless of whether it is required by the approved design for the rotorcraft or the regulations for the flight.

The operator’s procedures must also ensure the rotorcraft flight technical log or maintenance release (as applicable) is carried on the aeroplane during a flight, as required by the Part 133 MOS (Division 1 of Chapter 3).

AMC 133.095 Procedures for reporting and recording incidents

Reserved.

GM 133.095 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.

Where the procedures in regulation 133.090 are focused on entries to technical logs and maintenance releases, this regulation outlines the requirements for reporting incidents relating to a flight of a rotorcraft that endangers, or could endanger, the safe operation of the rotorcraft.

This regulation does not replace any report that may be needed by other authorities, such as Airservices Australia, ATSB, Australian Border Force, Australian Maritime Safety Authority (AMSA) or other agencies applicable to the activity.

3.5 Division 133.C.5—Search and rescue services and emergency and survival equipment

AMC 133.100 Information about search and rescue services

Reserved.

GM 133.100 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 proposed commencement.

The ERSA is the primary source of this information in the Australian flight information region (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 133.050 also considers availability of the exposition.

Further information on search and rescue can be found in the National Search and Rescue (NATSAR) manual, available on the NATSAR website (natsar.amsa.gov.au) under Manuals & Publications.

AMC 133.105 Information about emergency and survival equipment

Reserved.

GM 133.105 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 133 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 133 requirements for the carriage and use of life jackets, life rafts and first-aid kits are set out under Subpart 133.K.

For the entry in Table 3.04 of the Part 133 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 133.C.6—Miscellaneous requirements

AMC 133.110 Crew activities necessary for safe operation

Reserved.

GM 133.110 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 any such activity. This is colloquially known as the “sterile cockpit or 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 rotorcraft, 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[5].

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.

Subregulation 133.110 (2) prohibits crew members from performing activities that are not specific to the safe operation of the flight during the take-off, initial climb, final approach or landing.

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, however the Part 133 MOS considers the limits of the take-off and initial climb stage of the flight. 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 rotorcraft types.

Typical altitude examples of the selected "sterile cockpit" phase could be:

- for a rotorcraft that operates day VFR, operations that are below cruise altitude or 1,000 ft AGL above the departure aerodrome
- for all IFR aircraft during instrument departure and approach operations.

During the sterile cockpit 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
- other crew (if carried) are not to contact the flight crew unless it is for an operational or safety related matter

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

- no consumption of food or drink.

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

- signs of fire
- a burning smell, or the presence of smoke inside or outside
- fuel or fluid leakage
- extreme cabin temperature changes
- equipment or furniture malfunction/breakage which poses a hazard to the occupants
- disruptive passengers
- abnormal vibration or noise
- medical emergency, or
- any other condition deemed significant by a cabin/other crew member.

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 levelling off (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 133.110 (2)).

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 133.115 Competence of ground support personnel

Reserved.

GM 133.115 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 EX70/24.
- 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 EX70/24.

- 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, cabin 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 EX68/24.

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)

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

- aircraft fuelling
- passenger acceptance and embarking (where this relates to the safe conduct of the Australian air transport operation)
- passenger transport to and from the aircraft (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 aircraft)
- operation of passenger loading devices
- loading and unloading aircraft
- aircraft receipt and dispatch
- preparing baggage and cargo for flight
- preparation of aircraft weight and balance documentation
- 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 this regulation (133.115), 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[6].

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 133.120 Crew station authorisation and briefing

Reserved

GM 133.120 Crew station authorisation and briefing

Subregulation 133.120 (2) sets out the persons permitted to occupy a crew station during a flight. Refer to the CASR Dictionary for the definition of crew station. Paragraph 133.120 (2) (d) provides that this can be a person who is permitted by the operator's exposition to do so. Therefore, if an operator wishes to permit persons other that those mentioned in paragraphs 133.120 (2) (a) to (c) to occupy a crew station, then it is mandatory that the operator's exposition describes who these persons are for the purposes of the operator's operations.

This could for example include passengers, and the exposition must ensure it permits this for the operator. This simple but fundamental requirement establishes the operator's crew station occupancy policy, which can then lead to the development of further safety processes, such as development of a safety briefing relevant to the crew station.

Unlike aeroplanes, rotorcraft crew stations (other than flight crew stations), such as air crew member rear cabin seats with access to audio panels and door latches etc., are utilised regularly for passenger seating. So, prior to occupying a crew station, the person who is to occupy the crew station must be briefed on the relevant safety procedures for that seat.

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

The PIC must be satisfied that the person occupying the station will not cause a distraction for any crew member, and will not interfere with a crew member carrying out their duties or the operation of the rotorcraft.

Matters that should be included in the safety brief for persons occupying a crew station include:

- the acceptable method to enter and exit the crew station/cockpit and when to do so
- the location, and importance of remaining clear of, rotorcraft controls, switches and other equipment
- 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, and
- the acceptable method for communicating with the crew, and
- the requirements relating to sterile cockpit procedures developed by the operator to comply with regulation 133.110.

See regulation 133.240 and Chapter 7 of the Part 133 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 133.D—Operational procedures

4.1 Division 133.D.1—Operational control

AMC 133.125 Operational control

Section 11.50 of the Part 133 Manual of Standards – lift raft carriage alleviation if operational control is available

The following elements of section 11.50 of the Part 133 MOS can be used if "operational control would enable, in the event of an emergency, an immediate initiation of a response to the emergency by a search and rescue body":

- paragraph 11.50(1)(b) of the Part 133 MOS
- paragraph 11.50(2)(c) of the Part 133 MOS.

> **Note:** Refer to the GM 133.125 and GM 133.360 entries for more guidance and information on this topic.

It is an acceptable means of compliance with the requirement for "operational control would enable, in the event of an emergency, an immediate initiation of a response to the emergency by a search and rescue body" if:

- the operator's operational control system has **all** the following capabilities:
  - continuously monitoring the flights' progress during the overwater stage
  - detecting an emergency situation has occurred (if one eventuates) without unnecessary communications with the aircraft's flight crew member(s)
  - immediately on detection of the emergency, contacting one of the defined search and rescue bodies to initiate a response to the emergency situation

  and
- the operator's exposition specifies the relevant processes, procedures and plans (however described) that implement, control and execute these capabilities.

GM 133.125 Operational control

Operational control is defined 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 on behalf of 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 133.380 regarding the assignment to duty of the PIC, nor regulation 133.140 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 will provide 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 easier access to the information regarding non-weather factors. This means they are in a position to make a decision to divert a flight to another aerodrome, or to terminate a flight and instruct that it return to home base. At all times in all these cases, the PIC retains ‘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 of, via information from ground crews at the medical transport operating site, critical information such as hazards at the site. The operations officer passes this information onto the crew so the crew can conduct an in-flight operational risk assessment for go/no-go decision-making processes.
- An offshore operator conducting 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.

Exercising operational control

A large majority of rotorcraft air transport operations occur by day in VMC and are operated under the VFR. PICs of these flights need to consider how they will use their decision-making processes proactively to ensure the application of operational control to their flights and the VFR is maintained.

As with all operations, comprehensive preflight planning focused on flight preparation key areas (see the GM 133.135 entry under the subheading 'Flight planning and in-flight decision making') will give a pilot the best opportunity to proactively exercise operational control over their flight and avoid encountering conditions which may not be VMC, such as low cloud ceiling and low visibility.

Pilots need to project their decision making and flight management processes, both proactively during preflight **and** throughout the flight, along the intended flight path ahead of the aircraft, thereby enabling operational control decisions to be made early and effectively to ensure ongoing flight safety.

Additionally, in degraded visual environments (DVE), emergency situations such as inadvertent instrument meteorological conditions (IIMC) may also be encountered. **IIMC are an emergency situation.** Such encounters in rotorcraft which are not certified for instrument flight, or which are being flown by pilots not qualified and recent for instrument flight, can quickly lead to spatial disorientation and a fatal accident outcome.

The uniqueness of a pilot's in-flight operational control actions will vary based on their operator's procedures, and their training, experience, qualifications, proficiency and equipment capability. However, in any instance, and dependant on these factors above, if unplanned or unexpected conditions are encountered, pilots are strongly recommended to always consider one of the following operational control options:

- make an early decision TO DIVERT to KNOWN improving weather conditions (the objective is to maintain VMC)

  or

- make an early decision to LAND (if a safe landing can be assured)

  or

- if IFR qualified and in an IFR rotorcraft, transition to instrument flight and IFR operations and request ATS assistance if necessary

Note: See the Important CASA Safety Advice at the beginning of this GM entry. CASA will not take action against a PIC who in exercising their operational control over the flight, carries out a safe precautionary landing due to a weather-related event, or to avoid a possible IIMC encounter or for any other reasonable operational safety reason.

Vertical Aviation International (VAI) has published a white paper (prepared by the VAI flight operations industry advisory panel and titled Decision Making and Inadvertent IMC – A Training Reference Guide for Aircrew) on inflight decision making and IIMC.

This white paper is recommended to operators and their flight crews for further reading and discussion at operator scheduled pilot safety meetings.

Operational Control and the immediate initiation of a search and rescue (SAR) response

The Part 133 MOS, in paragraphs 11.50(1)(b) and (2)(c), permits operations without the carriage of life rafts in circumstances where in the event of an emergency, an immediate initiation of a response to the emergency by a search and rescue body is available for the flight.

A search and rescue body is defined in the CASR dictionary as:

search and rescue body means any of the following:

(a) a State or Territory police service or the Australian Federal Police;

(b) the Australian Defence Force;

(c) the Australian Maritime Safety Authority.

For an operator to utilise these relief provisions of the MOS, the operator's operational control system will be integral to the establishment and implementation of suitable procedures. In addition to this guidance, also refer to the AMC 133.125 entry and the GM 133.360 entry.

Operational control system example for life raft rule alleviation

An operational control system could be based on a satellite-based flight following system which:

- is continuously monitored by the operator's personnel during the overwater operation

and

- can trigger an emergency situation alarm usable by the operator as a trigger to contact the SAR body.

4.2 Division 133.D.2—Flight preparation

AMC 133.130 Flight preparation requirements

Reserved.

GM 133.130 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).

The requirements associated with these regulations are expanded in Chapters 7 and 8, respectively, of the Part 91 MOS.

The diverse nature of possible Part 133 operations means that each operator must tailor their exposition procedures in this area to suit their individual circumstances and to also meet the requirements of Chapters 7 and 8 of the Part 91 MOS.

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. This process should outline to flight crew members the operator's recommended methods of obtaining, using and updating this information, particularly in regard to any other reasonably available weather information, in accordance with paragraph 7.02 (1) (b) of the Part 91 MOS.

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 regulatory requirements.

This regulation does not alter or replace the requirements of regulation 133.165 regarding IFR flights without destination alternate aerodromes.

4.3 Division 133.D.3—Flight planning

AMC 133.135 Operational flight plans

It is an acceptable means of compliance with this regulation if an 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 133.135 Operational flight plans

Chapter 4 of the Part 133 MOS prescribes the minimum information to be included in an operational flight plan (OFP).

ICAO states that 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 (ICAO).

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[7] 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[8]. 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 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.

Multiple short flights

Operations that require multiple short flights, for example, where a passenger is carried from one landing site to another to collect samples or other information, may not require the preparation of separate operational flight plans and associated pre-flight planning.

While a flight can be considered to have ended the moment the rotorcraft comes to rest after being airborne, this situation does not necessarily require another operational flight plan and associated pre-flight planning for the next flight in the series.

An operational flight plan that meets the requirements mentioned in subregulation 133.135(2) is required to have been prepared for the flight when the flight begins. This may be done at the initial preparation and operational flight planning stage prior to the first flight of the series. This then ensures, for the subsequent flights an operational flight plan has been prepared for those flights prior to their commencement, which meets the requirements in 133.135 of CASR.

Alternatively, for ad hoc destinations, where such pre-flight planning is more difficult, subparagraph 133.135(1)(a)(iii) outlines provided that the rotorcraft remains within 50 nm of the departure aerodrome, an operational flight plan is not required. This means that even though the first flight to the first landing site might be further than 50 nm and requires an operational flight plan. Once the rotorcraft has landed that flight is complete the following flight(s) within the 50 nm range of the new departure aerodrome(s) have no requirement for a separate operational flight plan to be completed.

When carrying out the pre-flight preparation and management of operations which include multiple short flights, the flight preparation (weather assessments) requirements in Chapter 7 of the Part 91 MOS also need to be considered. Subsection 7.02 (1) of that chapter require a pilot before commencing a flight to "study" authorised weather forecasts and authorised weather reports for the route to be flown, the departure, planned destination and any planned alternate aerodrome.

For compliance with this Part 91 MOS requirement, operations which include multiple short flights can be considered to occur within an operational planning area which can be covered by the pilot's initial assessment of the weather for the area of operation prior to departure on the first flight. These assessments can then be updated by actual observation and replanning during the flight for subsequent destinations and departure aerodromes as is necessary for the continued safety of the operation.

[7] See paragraph 119.205 (1) (h) of CASR.

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

For added flexibility in multiple short flight operations, section 7.03 of the Part 91 MOS allows a flight to depart without an authorised weather forecast if the pilot considers that the weather conditions will allow a safe return to the departure aerodrome within 1 hour after take-off.

For all flights, effective and accurate pre-flight planning, preparation and weather assessment in accordance with the operator's exposition requirements is essential, however these provisions may be of assistance in ensuring pre-flight planning and preparation can be made more efficient in the multiple short flight operational situation.

En-route performance considerations

VFR flights by day are required to operate to at least performance class 3. Performance Class 3 en-route operations require a rotorcraft to be operated at a weight that will allow the rotorcraft to achieve the minimum flight altitude for the flight. For a VFR flight by day that is not over a populous area, the minimum flight altitude is 500 ft above the highest feature or obstacle within a horizontal radius of 300 metres on the ground or water immediately below the rotorcraft.

This is a pre-flight planning consideration for the pilot and will be carried out in accordance with the operator's pre-flight planning and preparation and PC3 procedures.

From an operational perspective, the rotorcraft must be operated at a weight/performance capability that would allow it to be able to achieve the minimum flight altitude. Provided the rotorcraft retains this capability throughout a series of flights which make up the multiple short flight operation, it remains up to pilot to consider based on the operator's policies and procedures as outlined in the exposition, what cruising level is appropriate for each short flight within the operational area.

Flight planning and in-flight decision making

A large majority of rotorcraft air transport operations occur by day in VMC and are operated under the VFR. Operators need to ensure, and PICs need to consider, how they will use their pre-flight planning, their operational flight plan and their inflight replanning decision-making processes to proactively to ensure the application of safe and effective operational control to their flights.

As with all operations, comprehensive preflight planning and the construction of a robust and accurate operational flight plan will give a pilot the best opportunity to proactively exercise operational control over their flight, either before departure (a go/no-go decision) or in-flight, to avoid encountering conditions where low cloud and low visibility is more likely. These conditions are where an emergency event such as an inadvertent instrument meteorological conditions (IIMC) encounter could occur.

Understanding these key variables and adjusting the focus of the preflight planning will give pilots the highest likelihood of completely avoiding IIMC and its resultant spatial disorientation. One methodology for doing this is the Enroute Decision Trigger and these can be built into your operational flight plan and pre-flight risk assessment as hazard mitigators for your flight.

The United States Helicopter Safety Team Helicopter (USHST) Safety Enhancement No. 127A Output No. 2 outlines preflight planning can be broken down into six areas:

- Flight Activity Analysis
- Weather Brief
- Route Planning
- Enroute Decision Trigger
- Risk Analysis
- Crew/Passenger Brief.

With respect to exercising in-flight decision-making processes, route planning and enroute decision triggers offer critical situational awareness and decision-making tools.

Route Planning

For Part 133 operations, route selection should be developed from the operator's written, thorough, and defined process outlined in the exposition. Much like the weather planning phase, the route selection process should incorporate the Enroute Decision Triggers relevant to the pilot assigned for the flight and which are generic to the organisation's procedures. Proper route planning allows pilots to familiarise themselves with the area in which they will be operating. This can help identify possible terrain choke points that create elevated risks, unique or complex airspace, or terrain that might result in weather development and hazards.

In the event that the weather or conditions are not as predicted, it is essential for flight crews to know the terrain requirements and its limitations along the route of flight, as well as the availability of suitable places to land if needed. Good tools for this are the data for the highest terrain feature and the grid or route lowest safe altitudes depicted on the IFR enroute low altitude charts. Several commercial GPS and navigation programs provide this data as an optional display field. As mentioned, an additional tool to include in thorough route planning is, considering the versatility of the rotorcraft, enroute alternate aerodromes or landing areas.

Knowing these references for each leg of the flight will ensure a pilot can easily divert to a suitable location or maintain or climb to a safe altitude while addressing any unexpected situation.

Enroute Decision Trigger

Enroute Decision Triggers should be planned and discussed for every flight, not just the flights in which you anticipate weather to be an issue. This is necessary as they can be useful if a land as soon as possible non-normal situation of any cause is encountered.

Enroute Decision Triggers can best be defined as a PRE-DETERMINED set of conditions that trigger a decision point in the flight where an action is carried out to ensure the continued safety of the flight from that point. When a preset Enroute Decision Trigger is reached, the pilot executes a predetermined action that was planned, briefed, and reviewed at the preflight preparation and flight planning table. Previous research has been conducted by groups including the USA National EMS Pilots Association (NEMSPA) and the NASA Ames Research Institute which indicates that the Enroute Decision Trigger process should be part of every flight. An analogy put forward by the US Helicopter Safety Team (USHST) regarding this is - "…not having your Enroute Decision Triggers planned is like taking off before you have completed a preflight…"

The USHST outlines a process similar to CAUTION or WARNING lights applied to aircraft systems, the same can be implemented for weather through the Enroute Decision Trigger process. The USHST also recommend adding weather emergency procedures under the quick reference emergency checklist tab, PILOT INDUCED EMERGENCY – FIND SAFEST METHOD TO DISCONTINUE FLIGHT.

However, operators should be aware that each pilot’s Enroute Decision Triggers will be different based on their training, experience, qualifications, proficiency and equipment capability.

Some example Enroute Decision Triggers:

- Weather CAUTION (example using VFR minimums)
  - If visibility drops below 5,000 m visibility we will…
  - If ceilings fall below 1,000 ft, we will…
  - if moderate turbulence is encountered, we will…
- Route CAUTION:
  - If we divert more than ## miles from our planned route we will…
  - If we lower the collective more than ## times we will…
- Airspeeds WARNING:

  - If we slow below ## KIAS due to reduced visibility we will…
  - If decrease airspeed by ## KIAS of our planned airspeed we will…
- Altitude WARNING:
  - If we descend below ### AGL/MSL we will…
  - If we descend more than ### below our planned altitude we will…

Much like the uniqueness of Enroute Decision Triggers a pilot's action will vary based on their training, experience, qualifications proficiency and equipment capability.

Some examples of actions when an Enroute Decision Trigger is reached:

- Make an early decision to turn to KNOWN improving weather conditions (maintain VMC, use standard rate turns, keeping a good lookout for other traffic who may be also avoiding the developing weather situation.)
- Make an early decision to LAND (if a safe landing can be assured).
- If IFR qualified and in an IFR rotorcraft - transition to instrument flight and IFR operations, request ATS or ATC assistance as necessary for traffic and airways clearance information.

An operator with procedures which place the decision-making process in the preflight preparation and operational flight planning development processes reduces the likelihood of errors, reduces the impact of flight pressures, and keeps all crewmembers more engaged in flying the aircraft when operating the flight.

It also allows for no-go decisions to be made prior to departure, where the operator and passengers can be informed and alternative travel arrangements made as required.

Land and Live

CASA notes the proactive safety program that Vertical Aviation International (VAI) (formerly the Helicopter Association International (HAI)) has introduced titled "Land and Live". This program encourages early in-flight decision making where the PIC, in choosing to land, is stopping the accident chain before the emergency. The VAI outline "they (pilots) are living up to their most important responsibility which is the safety of their passengers, aircraft, and people on the ground".

For further information on this program is on the VAI website.

GM exposition content

The VAI website advises the following operations manual insertion, which CASA supports for insertion into the operator's Part 133 exposition:

- Updating Policies -

Whether it's part of your FAA-approved operations manual, your company standard operating procedures or safety management system manuals, or posted as a policy letter, a written declaration that you support precautionary landings as a safety measure will assure your flight crews that they can use the maneuver without fear of retribution.

Here is a suggestion from the HAI Operations Department of how such a statement might look:

Section 1.0 – Company Support of Precautionary Landings

[Insert Company or Organization Name Here] supports the decision of pilots to execute precautionary landings when continued safety of flight is in perceived or actual jeopardy. Examples of situations include, but are not limited to, deteriorating or unsafe weather conditions, uncertainty of aircraft integrity, or potential incapacitation of a required crew member.

[Insert Company or Organization Name Here] affirms by this policy that all decisions to execute precautionary landing for any cause and performed with reasonable care will be supported and will not result in any personnel action that could be considered punitive. As part of [Insert Company or Organization Name Here]'s just culture, this affirmation extends even to cases where the precautionary landing was made as a result of inadequate planning or preparation, or even in cases of questionable judgment.

Accident prevention is the objective of this policy. Therefore [Insert Company or Organization Name Here] accepts that any inconvenience, loss of business, or costs associated with precautionary landings is in the best interests of [Insert Company or Organization Name Here] and the health and well-being of all of its employees.

Another way to show support for your pilots who may face the decision to make a precautionary landing is to sign the Land & LIVE operator's pledge.

Source: Extract from VAI website

Note: As outlined in GM 133.125 entry, CASA will not take action against a PIC who in exercising their operational control over the flight, carries out a safe precautionary landing due to a weather-related event, or to avoid a possible IIMC encounter or for any other reasonable operational safety reason.

Flight risk assessment tools

Several aircraft manufacturers and software developers have worked with industry participants to provide useful safety applications (app(s)) to all pilots and operators free of any commercial interest and are designed especially with pilots and smaller operators in mind.

These apps are designed to help pilots understand and mitigate the risks they might face during a flight. The goal is to reduce the number of accidents and incidents that occur due to operational factors.

Operators may wish to integrate the use of these tools into their pre-flight risk assessment procedures. The following sections provide a brief outline of some of the risk assessment tools which CASA is aware of and that were publicly available at the time this GM was published.

Airbus Helicopters - 'Before Your Flight'

Airbus Helicopters has developed a flight risk assessment app called 'Before Your Flight' that is now available free of charge to anyone, both customers and non-customers. Updates are also provided free of charge.

The app provides a structured way for pilots to assess and control risks before a flight. It evaluates the risk profile of a flight and then prompts the pilot or operator to take the appropriate mitigation actions. In extremely challenging situations, the app may help with decision making on whether it is safe to conduct the flight at all. Informing a customer of the need to cancel a flight when the risks are

too high, for instance in bad weather, is much easier with the back-up of a tool like this to help explain the decision.

The app is based on the pre-flight risk assessment checklist that was previously developed by the European Helicopter Safety Team (EHEST), now the European Safety Promotion Network Rotorcraft (ESPN-R). This means there is the endorsement of the industry and regulators behind the app.

The app has an operations-friendly interface, features automatic save and send functions and contains a library of hyperlinks to rotorcraft safety publications. It can be used on smartphones and tablets and is compatible with iOS and Android operating systems. It also includes an optional back office so that SMS managers can review the reports from their company.

Contact aviation safety for Airbus or download it from the Apple App Store or Google Play to your device if you wish to review its potential for use in your operations.

Leonardo Helicopters - 'Skyflight'

Leonardo Helicopters has developed a mobile solution called 'Skyflight'. According to the developers, this is designed to ease daily operations, increase operational effectiveness, optimise costs, reduce flight crew workload and to help pilots and operators to perform an effective flight risk assessment. Human Factors and other factors known to impact safety are combined into a total risk picture for ease of use.

The Skyflight risk assessment tool is also based on the EHEST risk assessment checklist and on aeronautical risk management factors with respect to the pilot, environment, aircraft and external pressures. It keeps a history of completed and planned risk assessments, stores data and allows future review of answers to risk assessment queries at a later stage.

Various functionalities are provided, such as selecting operation specific checklists, inserting mitigations, accessing the flight plan and checking relevant weather, displaying the total risk score before and after mitigation, saving checklists, sharing information with other users and printing and sending out PDF files.

Skyflight risk assessment is also customisable. For example, it allows you to create your own checklists, define mitigations, inform decision to go or not to go fly, send automatic emails to managers, view who performed the checklists and when they were performed.

Various pre-flight checklists are provided for different types of operations, such as recreational private flights, Degraded Visual Environment (DVE), maintenance, training and check flights, Medical Transport Operations for single pilot and multi crew operations and passenger transport single pilot and multi crew operations.

For a quick analysis of the operation Skyflight also provides in-flight and post-flight checklists.

Skyflight app is available for free in the Apple App Store. It can be used on iPad tablets and is compatible with iOS operating system. A Skyflight app compatible with Android is also available, limited to risk assessment (only).

Contact Skyflight.support@leonardocompany.com if you wish to review its potential for your operations.

Consulting Switzerland - 'Next Generation Flight Training'

Next Generation Flight Training (NGFT) Consulting Switzerland has developed a safety app called 'Safety Tools' which is geared to the needs of small operators and General Aviation.

The operator can choose to use as little or as much of the functionality of the app as they require. It is not limited to only the flight risk assessment tool (however, they may only wish to use that element) and they can incorporate as much of the safety tool capability into the operation as they wish. The extent that the app is used by an operator should be detailed in their operation's manual procedures.

Various additional functions are provided such as 'TST Briefing' ('TST' meaning 'Task Specialist Third Party') targeted for aerial work operators (refer to Part 138 of CASR for further information) that need

to perform and document briefings with task specialists from third parties before commencing an operation. It includes 'safety reporting' for sending safety reports to a safety manager for review and analysis. NGFT has produced a video tutorial published on their YouTube channel.

Go to AC 138-05 – Aerial work risk management if you wish to download this App and review its potential for your operations.

AMC 133.140 Availability of flight planning information

Reserved.

GM 133.140 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.

If international operations are conducted the procedures must include how flight planning information is accessed when operating at the international locations.

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.

Selection of destination aerodromes

Aerodrome is defined by the Civil Aviation Act 1988 as:

> ***aerodrome*** means an area of land or water (including any buildings, installations and equipment), the use of which as an aerodrome is authorised under the regulations, being such an area intended for use wholly or partly for the arrival, departure or movement of aircraft.

Paragraph 91.410(2)(b) and subregulation 91.410(3) of CASR, which are applicable to Part 133 operations, ensure that any place the aircraft can land at, or take off from safely, having regard to all the circumstances of the proposed landing or take off (including the prevailing weather conditions), is an aerodrome for the purposes of the operational rules.

As a general principle all flights must be planned to a destination aerodrome and the pre-flight planning phase of the flight must consider:

- the weather for the route or area of operations and at the expected (planned) destination aerodrome
- any alternate aerodrome requirements which may be applicable because of the weather or other cause: and

- whether the flight will have sufficient fuel on board for the flight to be carried out safely with applicable reserves intact.

For Part 133, pre-flight planning has a series of requirements contained in regulations 133.140 and 133.170 of CASR, and section 4.01 of the Part 133 MOS.

Unless subregulation 133.140(4) applies, the operator is required to ensure the pilot in command (PIC) has access, before and during the flight, to information about the weather, NOTAMS and the suitability for take-off and landing of the destination aerodrome for the flight.

Noting the operational flexibility of rotorcraft in relation to places for take-off and landing, subregulation 133.140(4) permits the relevant persons to **not** have the required information concerning the suitability of the destination aerodrome if:

- when the flight begins, the rotorcraft is carrying sufficient fuel to allow the flight to be continued to another aerodrome that is known to be suitable for the safe landing of the rotorcraft if the rotorcraft cannot land at the planned destination aerodrome

  and

- before starting an approach to land at the planned destination aerodrome, the pilot in command for the flight determines, in accordance with the procedures included in the operator's exposition under regulation 133.170, that the planned destination aerodrome is suitable to land at.

This flexibility provision might be especially useful for operators conducting a flight to a remote or other sparsely populated area where the exact landing location is not known in advance but selected upon arrival in the area.

All the above requirements were relevant only to the pre-flight planning phase. Even the operational plan content required by section 4.01 of the Part 133 MOS (if necessary) is only applicable to the pre-flight content.

Once a flight begins, a pilot in command is entirely able to change the planned destination to a different location, provided that the new location is also safe to land at, the route is safe to divert along and the aircraft continues to have enough fuel to reach that location with minimum fuel reserves left intact.

Aeromedical example

The aircraft departs from the operator's base with the plan to not refuel before arriving back at the operator's base. The operator's base is therefore the final planned destination for fuel and pre-flight planning purposes, but the operational plan for the flight is to stop at several places (the accident site to pick up the patient via a winch retrieval and then the hospital heliport to drop off the patient) before landing back at the operator's base.

The winch retrieval occurs in a MTO operating site using the operator's risk assessment and management processes and winching standard operating procedures (SOP). The weather and alternate requirements are covered by a return to base if needed.

The hospital arrival and departure are conducted PC2WE using the operator's PC2WE risk assessment procedures for the heliport and the crew using the operator's PC2WE SOPs. The weather and alternate requirements are again covered by a return to base if needed with an associated ground transport plan for the patient.

If things change during the flight, for example more fuel may have been used positioning and conducting the winch, then the final destination can always be altered in-flight provided that the aircraft still has sufficient fuel onboard to safely land at the alternative final location with minimum required fuel reserves remaining. In deciding this, consideration would need to be given to the weather for the route or area of operations and at the expected new destination

aerodrome, and any alternate aerodrome requirements which may be applicable because of the weather or other cause.

Also refer to the GM 133.170 entry.

4.4 Division 133.D.4—Flight rules

AMC 133.145 Take-off and landing minima

Reserved.

GM 133.145 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.

Another phrase for take-off and landing minima, used in the AIP and international publications, is Aerodrome Operating Minima (often abbreviated to AOM).

This regulation requires the operator's exposition to 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 133.145 (2) (a) and subregulation 133.145 (3)).

The general take-off and landing minima for an IFR flight are empowered by regulation 91.305 of CASR and prescribed in Chapter 15 of the Part 91 MOS.

Flight crew experience, ability and rotorcraft performance may affect the selection of take-off and landing minima. Relatively inexperienced flight crew operating light multi-engine rotorcraft will benefit from the added visual segment provided by higher take-off and landing minima. During normal operations, flight crew will be better prepared to enter IMC, or to conduct a stabilised final approach segment with the extra time provided. During one-engine-inoperative (OEI) operations, the availability of a visual reference is important for the safe control and navigation of the rotorcraft during the resulting high stress periods.

Subregulations (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 an operator is constructing its exposition procedures, it is recommended to consider:

- the type, performance and handling characteristics of the rotorcraft and any conditions or limitations stated in the flight manual
- the composition of the flight crew, their competence and experience
- the physical characteristics of the aerodrome and direction of approach
- the adequacy and performance of the available visual and non-visual ground aids
- the equipment available on the rotorcraft 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[9]
- any conditions prescribed in the operations specifications
- any minima that may be promulgated by the State of the Aerodrome.

The factors above are aligned with the standards in ICAO Annex 6 Part III.

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, then the operator's exposition should detail how the amended criteria have been used to establish the operator's minima (refer also to regulation 133.140).

AMC 133.150 Flights to or from foreign countries that do not use ICAO procedures

Reserved.

GM 133.150 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 true in respect of circling approaches where the assumed radius of turn and minimum obstacle clearance are markedly different[10].

AMC 133.155 Authorised instrument approach procedures not in the AIP

Reserved.

GM 133.155 Authorised instrument approach procedures not in the AIP

This regulation establishes that, for an IFR flight, the instrument approach procedure for an aerodrome must be published in the AIP, or an authorised instrument approach procedure must be included in the operator's exposition.

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

[9] The operating environment includes the location and height of critical obstacles at the aerodrome relevant to the flight. Refer to AC 133-01 and AC 133-02 for more information on operating in performance class 1, 2 and 2 with exposure, as these are specifically mentioned in the provision.

[10] Circling approach - difference between ICAO PANS-OPS and US TERPS - SKYbrary Aviation Safety

Note: In addition to the IAP, the flight crew techniques should also be outlined in the exposition for offshore ARAs as outlined in MOS 173. This informs the flight crew of the expected procedures to be followed and also adds a compliance requirement to the IAL under regulations 119.210 as Part 173 does not do this.

Once an instrument approach procedure has been authorised, a Part 133 operator may use the procedure if it is included in their exposition.

AMC 133.160 Exposition requirements for low-visibility operations

Reserved.

GM 133.160 Exposition requirements for low-visibility operations

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

- 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.

AMC 133.165 IFR flights without destination alternate aerodrome

Reserved.

GM 133.165 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 6 of the Part 133 MOS.

Chapter 6 requires, amongst other things, the PIC to:

- determine the fuel remaining during the flight and compared planned versus actual fuel consumption (section 6.05)
- ensure at any time during the flight that the rotorcraft has destination alternate fuel (if required) (section 6.04).

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 6 of the 133 MOS and subregulation 133.165(2), a diversion to an en-route alternate would be necessary.

However, subregulation 133.165(2) does not apply if subregulations 133.165(3) or (4) apply to the flight.

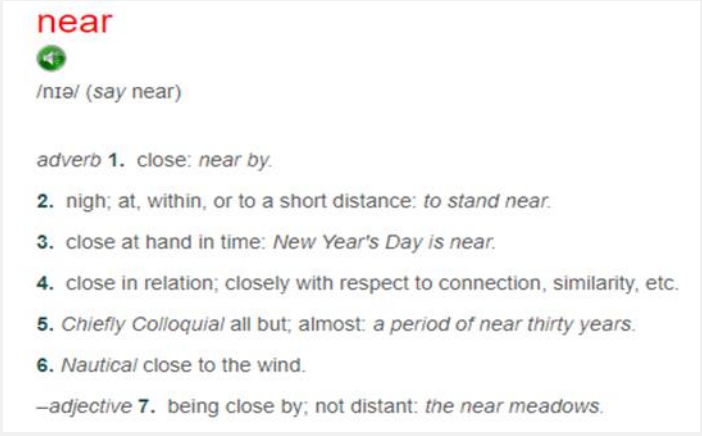
Where the rotorcraft is within 30 minutes of the destination, the landing minima, instead of the alternate minima, can be used to determine if an alternate is required. Hence, in summary, when in-flight the flight may continue to the planned destination aerodrome with no diversion required if the weather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

- above the alternate minima
- 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: Dot point 3 is based on subregulation 133.165(4) which states holding is possible if the rotorcraft is carrying sufficient fuel to hold near the planned destination. In this provision near is defined by its natural meaning:



near

/nɪə/ (*say* near)

adverb **1.** close: *near by.*

2. nigh; at, within, or to a short distance: *to stand near.*

3. close at hand in time: *New Year's Day is near.*

4. close in relation; closely with respect to connection, similarity, etc.

5. *Chiefly Colloquial* all but; almost: *a period of near thirty years.*

6. *Nautical* close to the wind.

–*adjective* **7.** being close by; not distant: *the near meadows.*

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.

AMC 133.167 Minimum height rules for medical transport operations

Reserved.

GM 133.167 Minimum height rules for medical transport operations

The MOS content for paragraphs 133.167 (a) and (b) is contained in Division 2 of Chapter 5 of the Part 133 MOS.

4.5 Division 133.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 EX67/24.

AMC 133.170 Procedures to determine information about aerodromes

Reserved.

GM 133.170 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 EX67/24.

This regulation contains additional safety requirements for operator exposition procedures designed to ensure that a pilot gains the necessary knowledge of planned destination(s) required to meet air transport operational safety standards.

This regulation does not specify what these procedures must be, just what they must consider (where that item is relevant to the flight), thereby permitting flexible alternative methods of establishing that the requirements of paragraph 91.410(2)(b) of CASR are met for the place at which the landing or take-off will occur.

For example, these procedures may include in-flight assessments of the requirements required to be met under this regulation using the operator's exposition procedures for such in-flight assessments, including the ability to conduct a detailed risk assessment of potential landing places in order to accept or reject a place as being suitable for a safe landing and subsequent departure.

Part 133 also mandates this same requirement for medical transport operations into medical transport operating sites which must be carried out using the operator's risk assessment and management procedures.

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.

> **Note:** A further explanation of the term aerodrome, which is particularly relevant for rotorcraft operators, can be found in the Part 91 AMC and GM (section 91.410).

Other aerodromes, such as aircraft landing areas (ALAs) or certain helicopter landing sites (HLS), 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.

CASA recommends the compilation of an HLS register (in some format) to include this information in the exposition. In meeting this requirement for certified, registered and 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 in the regulation.

Water aerodromes

The reference in paragraph 133.170(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 therefore is a safety issue for the operator and the PIC to assess.

Contact person

Paragraph 133.170(2)(j) 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.

AMC 133.175 Procedures for safety at aerodromes

Reserved.

GM 133.175 Procedures for safety at aerodromes

An operator must ensure that all personnel whose duties include working in the vicinity of a rotorcraft 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.[11]

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 clear and unambiguous. Operators should also consider the requirements of the *Aviation Transport Security Regulations 2005*. Refer to www.homeaffairs.gov.au for more information for aircraft operators on reporting security incidents.

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

[11] Regulation 133.115.

- 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.

Rotorcraft often operate outside of the controlled environment of certified aerodromes, such as medical transport operating sites during medical transport operations. In developing their procedures, operators should pay particular attention to how they will manage the safety risks associated with such situations.

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.

Refer to AC 139.R-01 for information on heliport design and operation.

Consideration of rotorcraft downwash and outwash (surface level heliports)

Introduction

Conducting aviation near the general public introduces inherent risk. The nature and level of the risk will vary depending on the site location and type and size of rotorcraft. The range of rotorcraft fulfilling air transport roles at present vary from light helicopters through to complex, medium to heavy multi-engine helicopters.

The use of more sophisticated helicopters, specifically equipped for medical transport operations (MTO), and operating in Performance Class (PC) 1, PC2 or PC2 with exposure (PC2WE), has resulted in an increase in helicopter size and mass for these operations in general terms.

Incidents and accidents associated with the downwash/outwash (as these two components need to be considered to ensure safety) of rotorcraft conducting MTO and involving the general public have been recorded in a number of ATSB reports. Refer to the ATSB report Safety Risks from Rotor Wash at Hospital Helicopter Landing Sites (AD-2022-001).

To avoid or reduce such incidents and accidents, downwash protection safe distances around take-off and landing sites in the form of boundaries, or areas of restriction or control on the movement of persons during rotorcraft air transport operations, must be considered by the rotorcraft operator and also should be discussed and considered by the aerodrome owner/operator at heliports and helicopter landing sites in public and other locations.

Rotorcraft downwash/outwash

Note: This information is relevant to rotorcraft that are helicopters.

In producing the lift forces required to fly, a powerful downdraft of air is generated below the helicopter which is known as rotor wash. Rotor wash is a complex phenomenon which for the purposes of this guidance material will be considered to consist of downwash and outwash.

The mass of the helicopter in relation to the area of rotor disc is known as disc loading and will vary between helicopters. Disc loading is critical to determining downwash velocity, the greater the disc loading, the higher the induced velocity and hence downwash velocity. Decreasing the disc loading, by reducing mass or increasing the disc area, will reduce the induced velocity required to hover. Induced velocities are also dependent on the temperature, altitude and/or pressure conditions, via the air density.

When a helicopter is operating in ground effect (Figure 1), the downwash airflow is modified by the effect of the surface in the following 2 ways:

- Part of the downwash recirculates.
- The remainder propagates in all directions, this is known as the outwash region.

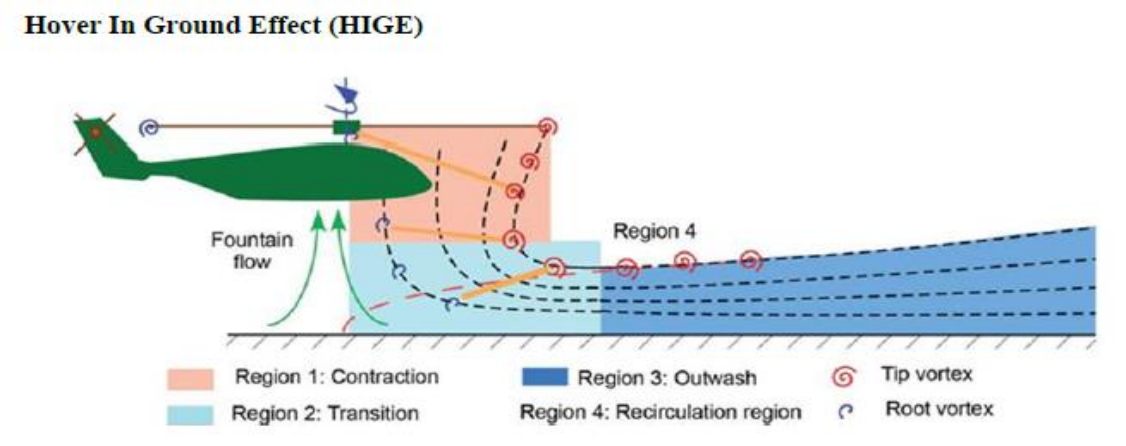


Figure 1: Hover in ground effect (HIGE)

The outwash flow field is created when high velocity downwash exits the plane of the rotor, impinges on the ground, changes direction, and accelerates radially; it is not a laminar flow. The wall jet of the outwash flow field exhibits vorticity with the greatest potential for creating hazards.

The highest outwash velocity is seen at approximately two Rotor/radii (R/r) from the rotor's axis of rotation at the beginning of the outwash region. At all locations beyond the start of the outwash region, the mean velocity decreases exponentially with increasing distance.

The characteristics of downwash/outwash from some helicopters are known to exhibit a localised hard jet effect, as opposed to a disturbance that occurs over a larger area. Although more localised in its impact, a hard jet tends to be more intense and disruptive on the surface. The intensity of the downwash/outwash may be affected by the dissipating action of any wind present or by the screening effect of local features such as buildings, trees, hedges etc.

The downwash/outwash in an area beneath medium and large helicopters, and beneath even a small helicopter operating at high power settings (such as are used during the upwards and rearwards portion of a back-up or vertical take-off manoeuvre, which are needed to avoid obstacles at some locations) can be intense, impacting persons, displacing loose objects and blowing grit and debris at persons, property or vehicles in the vicinity of the helicopter landing or take-off site.

The operator’s exposition procedures must ensure these effects and their impact on safety are minimised at the aerodromes they operate.

Effect of downwash/outwash on people

With respect to the effect of sudden gusts, Jordan et al[12] state that 50% of average test subjects were displaced by a sudden 40 km/h gust and 100% were displaced by a 55 km/h gust. For people > 50 years old, gusty winds above 30 km/h were shown to have a quantifiable effect on body stability.

Ferguson[13], in an examination of personnel rotor wash hazards, provides an extensive discussion on the effect of wind on personnel, both military and civil, citing many reports. His conclusions from this research are summarised in the following table:

Table 8: Personnel rotor wash hazards (Ferguson)

	Peak Wind Velocity		
	m/s	Kts	km/h
Overturning Forces & Moments			
Caution Limit	15	29.2	54
Hazard Limit	20	38.9	72

Establishing a downwash/outwash protection zone distance

> **Note:** The protection zone addresses the outwash region as shown in Figure 1, trained and competent essential personnel only should be within the transition region.

Subparagraph 133.175(b)(iii) of CASR requires an operator to ensure their exposition includes procedures to determine the minimum distance that a person, animal, or thing must be kept from a hazard created by the downwash of their rotorcraft. These procedures are to ensure, when the operator's rotorcraft are operating at an aerodrome, the safety of the person, animal or thing is maintained throughout the operation.

In this requirement the term aerodrome is defined in the Civil Aviation Act 1988 (the Act) as:

> ***aerodrome*** means an area of land or water (including any buildings, installations and equipment), the use of which as an aerodrome is authorised under the regulations, being such an area intended for use wholly or partly for the arrival, departure or movement of aircraft.

In this regard subregulation 91.410(3) of CASR outlines:

> (3) For the purposes of the definition of ***aerodrome*** in the Act, a place mentioned in subparagraph (2)(a)(iv) is authorised to be used as an aerodrome.

This means that the provision of these procedures must include consideration for ensuring the safety of the person, animal, or thing from the effects of rotor downwash **at any place** the rotorcraft can land at, or take-off from, safely and compliantly during air transport operations.

Practical trials have demonstrated that the onset of helicopter downwash/outwash on individuals can be extremely rapid, is unpredictable, does not remain constant in strength, and can be destructive in force.

Considering this, Table 9 contains as boundary limits the peak wind velocities of 15 m/s (54 km/h) and 20m/s (72 km/h), as concluded by Ferguson, 'Rotorwash Operational Footprint Modelling[14]' for several helicopter types in common use.

In recognition of the unique circumstances associated with existing hospital surface-level heliports, many of which are in the vicinity of car parks or access paths/roads for pedestrians (some of whom may be patients or elderly persons), a further boundary of 40 km/h has been introduced. This additional boundary may need to be considered in the risk assessment and review of locations where such persons may be impacted by downwash events.

Table 9: HIGE outwash estimates

Helicopter Data				Peak Wind Velocity					
Type	RD	Mass	D/L	Radius at 72 (km/h)		Radius at 54 (km/h)		Radius at 40 (km/h)	
	(m)	(kg)	(kg/m^2)	R/r (radii)	(m)	R/r (radii)	(m)	R/r (radii)	(m)
AW101	18.6	15600	57.47	5.4	51	7.2	67	8.9	83
S92	17.2	12565	54.27	5.2	45	7.0	60	8.8	75
H225	16.2	11200	54.34	5.2	42	7.0	57	8.8	71
B525	16.6	9299	42.91	4.5	37	6.4	53	8.3	69
AW189	14.6	8300	49.58	4.9	36	6.8	49	8.6	63
H175	14.8	7800	45.34	4.7	34	6.5	48	8.4	62
AW139	13.8	6800	45.46	4.7	32	6.5	45	8.4	58
H160	13.4	6050	42.90	4.5	30	6.4	43	8.3	55
Bell 412	14.0	5398	34.97	4.0	28	5.9	41	7.9	55
S76	13.4	5306	37.57	4.1	28	6.0	40	8.0	54
AW169	12.1	4800	41.61	4.4	27	6.3	38	8.2	50
H145	11.0	3800	39.99	4.3	24	6.2	34	8.1	45
Bell 429	11.0	3175	33.41	3.9	21	5.7	32	7.8	43
EC135	10.4	2980	35.08	4.0	21	5.9	30	7.9	41

These peak wind velocity distances can be used as reference distances by operators of these rotorcraft types for development of the exposition procedures for ensuring the safety of their operations and establishment of downwash/outwash protection zone distances for the purposes of subparagraph 133.175(b)(iii) of CASR.

Risk assessment and review

The procedures and distances should also be risk assessed and reviewed against the known operational criteria associated with aerodrome in question. Factors such as (but not limited too):

- landing site location
- proximately of third-party persons and public infrastructure to the site
- type, size and mass of rotorcraft used for the operation
- type of landing and take-off procedures used at the site
- public access controls

[12] Jordan, S. C.; Johnson T.; Sterling M.; and Baker, C. J., "Evaluating and Modeling the Response of an Individual to a Sudden Change in Wind Speed," Building and environment, Vol. 43, 2008.

[13] J Preston, Steven Troutman, Ernie Keen, Mark J Silva, N Whitman, M Calvert, M Cardamone, Marvin A Moulton, Sam Ferguson. "Rotorwash Operational Footprint Modeling", Technical Report RDMR-AF-14-02.

[14] J Preston, Steven Troutman, Ernie Keen, Mark J Silva, N Whitman, M Calvert, M Cardamone, Marvin A Moulton, Sam Ferguson. "Rotorwash Operational Footprint Modelling", Technical Report RDMR-AF-14-02.

- the potential for persons who may be more easily impacted by downwash/outwash effects to be at the location
- availability of rotorcraft operations "site in use" landing and take-off site warning systems
- notification times and procedures required to ensure safety distance requirements can be established at the location prior to operations.

After a review of the relevant Table 9 data and a risk assessment and review of these additional dot points an operator should be able to determine a suitable and safe distance for the purposes of subparagraph 133.175(b)(iii) of CASR.

Other Methods (if rotorcraft not listed in Table 9)

Note: Regardless of method used, the established distance must be appropriate to ensure, when the operator's rotorcraft are operating at an aerodrome, the safety of the person, animal or thing is maintained throughout the operation from the hazards associated with rotor downwash.

AC 139.R-01 Guidelines for heliport design and operation

CASA AC 139.R-01 Appendix A contains similar information to that outlined in Table 9 for heliport designers on the effects of rotor downwash.

Operators should establish effective operational information communication systems with their heliport, helicopter landing site and landing location owners and operators. These systems should ensure these distances and any necessary additional safety procedures for downwash/outwash hazard minimisation at their facility are put in place.

UK CAA CAP 1264

As outlined in ATSB report AD-2022-001, new hospital HLS builds in the UK, since 2016, have been designed to the standards of UK Civil Aviation Publication (CAP) 1264 – Standards for helicopter landing areas at hospitals, which incorporates sections on downwash guidance as follows:

> For a surface level heliport operating exclusively light air ambulance helicopters it is recommended that a minimum 30m downwash zone be established around the heliport which is kept clear of people, property or parked vehicles (typically 2 to 3 rotor diameters of the helicopter). The downwash zone, to account for the approach to land and take-off manoeuvres, may need to be extended in the portion below the helicopter flight path to account for operating techniques which promote local disturbances, such as when a helicopter pilot applies full power during the rearward portion of the take-off. If heavy or extra heavy helicopters are to be utilised at surface level, the downwash zone established around the heliport should be considerably larger; typically, between 50m and 65m for the largest helicopters.

Whilst these distances are related to hospital landing areas, they remain relevant for the same rotorcraft operating at any location in air transport operations, provided the related risk assessment and review considerations have been positively determined to ensure the hazard minimisation of rotor downwash and outwash.

4.6 Division 133.D.6—Fuel requirements

AMC 133.180 Fuel procedures

Reserved.

GM 133.180 Fuel procedures

Ensuring that flight crew members and other operational safety-critical personnel (if any) follow a procedure for conducting flight planning will assist in ensuring all the variables associated with fuel calculations are addressed. This regulation requires an operator to include such procedures in its exposition.

Operators are recommended to read Annex C to AC 1-02 Guide to the development of expositions and operations manuals as this Annex contains significant guidance about exposition fuel policy content.

AMC 133.185 Oil requirements

Reserved.

GM 133.185 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 include items such as:

- length of the intended flight
- historical oil consumption data for all rotorcraft 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 133.190 Fuel requirements

Reserved.

GM 133.190 Fuel requirements

There is an exemption in force in relation to regulation 133.190 and regulation 91.455 of CASR that effectively permits operators to use the Part 133 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 EX70/24.

This regulation requires the operator and the PIC to comply with the fuel requirements in Chapter 6 of the Part 133 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 133 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 6.07(3) of the Part 133 MOS.

AMC 133.195 Fuelling safety procedures

Paragraph 133.195 (b) – procedures relating to the safety of passengers

Except for fuelling with highly volatile fuel, such as AVGAS or MOGAS, it is an acceptable means of compliance with paragraph 133.195 (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.

Note: The more volatile the fuel, the greater its tendency to form an explosive mixture in the atmosphere. Fuelling with highly volatile fuels with persons onboard an aircraft engenders significant safety risks. Refer to AC 91-25 Fuel and Oil Safety for further information.

When fuelling with passengers on board, ground servicing activities and work inside the aircraft, such as cleaning or reconfiguring of the rotorcraft, must be conducted in such a manner that they do not create a hazard and do not obstruct the ability for an emergency evacuation to take place through those exits intended for such a purpose.

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 should 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 person on board the aircraft must be established. This may be by using the aircraft's intercommunication system (if appropriate/capable) or other suitable means.
- Crew, personnel and passengers must be warned that fuelling is taking/will take place.
- Seat belt signs must be off.
- Passengers must be instructed to unfasten their seat belts.
- No smoking signs must be on, together with interior lighting to enable emergency exits to be identified.
- Passengers must be briefed on the use of electronic devices when boarding, on board or disembarking the aircraft.
- 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 rotorcraft, or any other hazard arises during fuelling, fuelling must be stopped immediately.
- Provision must be made for a safe and rapid evacuation of the aircraft.

GM 133.195 Fuelling safety procedures

Regulation 133.195 takes precedence over regulation 91.510 during a Part 133 operation.

There is an exemption in force in relation to regulation 133.195 and regulation 91.510 of CASR that effectively permits operators to comply with regulation 133.195 instead of regulation 91.510 during a

private operation conducted by the operator. It is recommended that operators review section 12 of CASA EX70/24.

Fuelling means both refuelling and de-fuelling (see the CASR Dictionary).

Paragraph 133.195(a) of CASR

Paragraph 133.195(a) provides that an operator's exposition must include procedures to ensure that fuelling operations are safe. The operator's obligations under regulation 119.205 of CASR to include details of each plan, process, procedure, program and system implemented by the operator to safely conduct and manage their Australian air transport operations in compliance with the civil aviation legislation means that operators need to consider the inclusion of exposition procedures to address the requirements of the following regulations (which apply to Australian air transport operations):

- 91.465 Contaminated, degraded or inappropriate fuels
- 91.470 Fire hazards
- 91.480 Fuelling aircraft—electrical bonding
- 91.485 Equipment or electronic devices operating near aircraft
- 91.490 Fuelling turbine-engine aircraft—low-risk electronic devices
- 91.495 Only turbine-engine aircraft to be hot fuelled (if the operator allows hot fuelling)
- 91.500 Hot fuelling aircraft—general (if the operator allows hot fuelling)
- 91.505 Hot fuelling aircraft—procedures etc. (if the operator allows hot fuelling)
- 91.515 Fuelling aircraft if fuel vapour detected.

> **Note:** Regulation 91.510 is disapplied for Part 133 operators.

If an operator conducts 'hot fuelling' of a turbine engine aircraft with Jet A1 turbine fuel ('AVTUR') using a system of fuelling that does not allow fuel to be exposed to the atmosphere, and the aircraft is permitted to be hot fuelled by the AFM, the operator needs to closely consider all requirements of regulations 91.500 and 91.505.

> **Note:** If a rotorcraft during fuelling is operating its APU in accordance with the aircraft flight manual it is not considered to be being "hot fuelled".

Paragraph 133.195(b) of CASR

Paragraph 133.195(b) requires the operator's exposition procedures to include procedures for passenger safety, including the normal, emergency and communications procedures to be followed by crew members and operator personnel (if any) who carry out ground support duties.

The operator's procedures are recommended to require a crew member to conduct a briefing when the aircraft is being fuelled with passengers on board or embarking/disembarking (refer to AC 133-10 - Passenger safety information, for more information).

An operator could adopt a policy to **not** conduct fuelling with passengers on board, embarking or disembarking. This would be consistent with most rotorcraft air transport operations, as rotorcraft fuelling points and fuel vents, unlike aeroplanes, are not distant from the passenger cabin. The fuel tanks are often located under the cabin floor, or adjacent to the cabin structure increasing the risk of a fuelling accident.

An exception to this policy could be a situation during a medical transport operation (MTO), where a patient cannot, for medical reasons, be removed from the rotorcraft without considerable risk to their wellbeing or delay to their ongoing treatment. The MTO operator's SMS should review this situation and provide for appropriate risk mitigations as necessary for these situations.

As regulation 91.510 is disapplied for Part 133 operations, it is potentially open for an operator to submit draft procedures to CASA which could provide for the fuelling of a turbine engine rotorcraft with wide cut or highly volatile fuel such as Jet-B or AVGAS with passengers on board. This assumes such fuels are permitted for use in the rotorcraft by the flight manual. However, to be acceptable, the procedures must mitigate the very significant safety risks associated with such an operation. Operators are advised that they should expect CASA to closely review any procedures put forward by the operator to this end. Refer to AC 91-25 - Fuel and oil safety for more information.

Paragraph 133.195(c) of CASR

Paragraph 133.195(c) requires the operator's exposition to include either a statement that emissions from the devices will not affect systems on the rotorcraft, or procedures that require any effects of the emissions to be corrected before an engine is started.

An important element of this provision is that it is not limited to passengers and would include crew members using such devices. The exposition procedures should include reference to how this is to be carried out by the crew members. This is in addition to the required statement regarding the impact of radio frequency emissions on the rotorcraft and the procedures regarding the effects of any emissions being corrected before engine start.

Ensuring procedural compliance with this paragraph will mainly affect MTOs in the air transport sector.

Ground personnel fuelling safety procedures

The operator's procedures are recommended to outline any requirements for ensuring the safety during fuelling operations of ground personnel working around an aircraft. Consideration should be given to exposition content for inclusion of safe distances for fuelling equipment, electronic devices being operated near an aircraft being fuelled and low-risk electronic devices, which meet the requirements of the Part 91 provisions mentioned earlier in this GM entry.

The procedures are recommended to cover:

- how bonding should be carried out
- requirements for fuelling vent zones
- procedures for fuel spills
- what actions should be undertaken by ground personnel in an emergency situation, including an emergency evacuation of an aircraft, or the need to rapidly move the aircraft from the fuelling position.

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

4.7 Division 133.D.7—Passenger transport and medical transport

AMC 133.200 Application of Division 133.D.7

Reserved.

GM 133.200 Application of division 133.D.7

This regulation applies Division 133.D.7 to passenger transport and medical transport operations only. The division does not apply to cargo transport operations.

Note: Some regulations in this division do not apply to medical transport operations, specifically 133.215, 133.225 and 133.235.

AMC 133.205 Simulation of emergency or abnormal situations

Reserved.

GM 133.205 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 rotorcraft configuration, or the position of controls, switches or settings from normal operations. It does not prevent the crew from referencing the rotorcraft checklists and publications and conducting general technical and scenario-based discussions provided they are not distracted from maintaining the safety of the primary purpose of the operation.

AMC 133.210 Carriage of restricted persons

Reserved.

GM 133.210 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 in 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 exposition is required to contain procedures for this activity.

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 133-10 - Passenger safety information and AC 133-06 - Carriage of special categories of passenger.

AMC 133.215 Carry-on baggage

Reserved.

GM 133.215 Carry-on baggage

The regulation requires that an operator include in their exposition procedures applicable to the carriage of passenger and crew carry-on baggage,

Carry-on baggage is defined in section 8 of Part 1 of the CASR Dictionary as:

> ***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).

By definition this will include other items that might be brought on board and kept in the aircraft cabin for a flight, such as cameras, food containers, drink bottles and additional clothing.

The operator's procedures must, as a minimum, address what is acceptable to be carried on the rotorcraft and the amount, size and weight of carry-on baggage permitted for each passenger and crew member and where it should be stowed.

Specific risk factors such as maintenance of cockpit organisation, the avoidance of clutter and interference with controls and switches should also be addressed as necessary for crew members in the rotorcraft types operated.

The exposition should also detail the training requirements applicable to this topic for the organisation's personnel which, due to the unique configurations of many rotorcraft, may also need to be type and model specific.

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 should only be placed into stowage locations determined suitable by the operator, such as:

- in a locker which has been designed to contain solid articles in flight in accordance with the design weight limitation of the locker

  or

- other secure stowage location appropriate to the size and weight of the item.

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

- the requirements of Part 92 of CASR must be met (carriage of dangerous goods)
- the identification and management of excess carry-on baggage
- checks should be made to ensure adherence to the requirements, including regulation 133.220 (obstruction of emergency exits).

Noting that carry-on baggage in rotorcraft can be very limited due to the available space and the design of the cabin environment, operators should consider the risks associated with excessive amounts of carry-on baggage and establish procedures for how it should be managed by the operator's personnel. Any flight manual instructions related to carriage and security of items in the rotorcraft must be complied with and CASA recommends that any OEM advisory material on such matters is also followed by the operator when developing their policies.

As required under Subpart 133.J of CASR, the weight of carry-on baggage must be accounted for in the weight and balance of an aircraft. This should include procedures for the recording of baggage which is moved from the passenger compartment 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 rotorcraft or its occupants[15].

If the configuration of the rotorcraft being operated means that carry-on baggage cannot be safely and securely stowed in appropriate locations in the cabin, operators should consider adopting a policy of placing all passenger baggage in approved cargo compartments.

Refer to AC 133-08 - Carry-on baggage for further information.

AMC 133.220 Obstruction of emergency exits

Reserved.

GM 133.220 Obstruction of emergency exits

This provision ensures the safety requirement to not obstruct emergency exits during a flight is supported and mandated. Operators should outline this specific policy within their exposition to ensure clarity for their crew members during flight operations.

Subregulation 133.220(2) works in conjunction with regulation 133.225 in that it provides that an emergency exit adjacent to a seat or row of seats is not obstructed if the seat is occupied by a passenger. However, 133.225(2) outlines the conditions with which the PIC must be satisfied to allow a person to occupy a seat adjacent to the emergency exit. Refer to the GM below for 133.225 for more information on this issue.

Subregulation 133.220(3) disapplies the requirements of subregulation (1) in relation to ambulance configuration stretcher fit outs for medical transport operations. Note any obstruction of an emergency exit may limit the passenger seating capabilities of the aircraft and operators should refer to any conditions associated with any supplemental type certificate for such fit outs.

AMC 133.225 Passengers in seats adjacent to emergency exits

Reserved.

GM 133.225 Passengers in seats adjacent to emergency exits

Subsection 98 (6B) of the Act 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

[15] See regulation 91.215.

would allow passengers to self-identify if they cannot meet the selection criteria, and allow reseating to occur.

For further guidance, refer to AC 133-07 - Passengers in emergency exit row seats.

AMC 133.230 Carriage of passengers with reduced mobility

Subregulation 133.230 (1) of CASR

It is an acceptable means of compliance with subregulation 133.230(1) of CASR 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, then no further consideration is necessary.

Provision of safety information

- when and how safety information is to be provided to PRMs.

GM 133.230 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 adjacent to an emergency exit, the passenger will require an additional person (an assistant who is a suitable person as defined by the CASR Dictionary) who is responsible to assist them and who needs to be willing and able to operate the emergency exit.

While a general safety briefing is given to all passengers prior to departure, an individual briefing may be more appropriate for a passenger with reduced mobility 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 rotorcraft type and configuration. Consideration may be given to

pre-boarding such passengers (and their assistant if they are accompanied by one) to allow passengers with reduced mobility more time to be seated and stow carry-on baggage. Subregulation 133.240(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 133-10 - Passenger safety information.

AMC 133.235 Safety briefing cards

Reserved.

GM 133.235 Safety briefing cards

The MOS content for paragraph 133.235 (4) (a) is contained in Chapter 7 of the Part 133 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.

The operator of a rotorcraft with a maximum operational passenger seat configuration (MOPSC) of more than two must provide passenger safety briefing cards. In rotorcraft with a MOPSC of one or two, the passenger is seated next to the PIC, who is able to direct and brief the passenger where required.

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 133-10 - Passenger safety information.

AMC 133.240 Safety briefing, instructions and demonstrations

Reserved

GM 133.240 Safety briefing, instructions and demonstrations

There is an exemption in force in relation to regulation 133.240 and regulation 91.565 of CASR that effectively permits operators to comply with regulation 133.240 instead of regulation 91.565 during a private operation conducted by the operator. It is recommended that operators review section 13 of CASA EX70/24.

The MOS content for subregulation 133.240 (1) is contained in sections 7.02 and 7.03 of the Part 133 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 who will be carried on the flight.

A safety briefing, instruction or demonstration mentioned in this section must be given to a passenger before the rotorcraft's engines are started for a flight, unless the briefing, instruction or demonstration has been given to the passenger before boarding the rotorcraft, following the operator's pre-flight boarding procedures.

The content of the safety briefing:

- is prescribed in Chapter 7of the Part 133 MOS
- is limited to the safety of the rotorcraft and its passengers
- must be relevant to the type and model of the rotorcraft (refer to paragraph 133.240 (3) (a)).

Passengers with reduced mobility may require unique assistance during an emergency, and the type of assistance required must be discussed before take-off.

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 133-10 - Passenger safety information: guidelines on content and standard of safety information to be provided to passengers by aircraft operators
- ICAO Doc 10086 Manual on Information and Instructions for Passenger Safety.

AMC 133.245 Safety briefing in the event of an emergency

Reserved.

GM 133.245 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 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 unique operational situations associated with rotorcraft operations, which often mean considerable pre-briefing of this information is required due to the short timeframes associated with emergency procedures. The briefing process will also need to consider 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 (i.e. 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 133-10 - Passenger safety information.

4.8 Division 133.D.8—Instruments, indicators, equipment and systems

AMC 133.250 Airborne weather radar equipment

Reserved.

GM 133.250 Airborne weather radar equipment

For a flight of an aircraft that is equipped with weather radar, the intent of this regulation is the exposition should 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
- aircraft MEL regarding aircraft dispatch with or without weather radar.

The two scenarios where this regulation applies are where Subpart 133.K requires the rotorcraft to be fitted with airborne weather radar equipment, or where the rotorcraft is fitted with airborne weather radar equipment regardless of whether Subpart 133.K requires such equipment to be fitted to the rotorcraft.

In formulating the exposition material, the operator should consider applicable State operational requirements for both domestic and international operations (i.e. the relevant AIP).

The regulation specifies that the operator exposition shall include procedures for use of the equipment, and procedures for conducting the flight when the equipment is inoperative These procedures should, as a minimum, consider:

- use of the equipment
- the dispatch of an aircraft with a failed weather radar system
- a scenario involving in-flight failure of a weather radar.

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 regarding severe weather avoidance. While most modern aircraft 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 section 11.04 of the Part 133 MOS for when a rotorcraft may be flown with inoperative instruments, indicators, equipment or systems, and to regulation 133.035 for an operator’s minimum equipment list for certain flights.

AMC 133.255 Head-up displays, enhanced vision systems and synthetic vision systems

Reserved.

GM 133.255 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 133.260 Survival equipment procedures

Reserved.

GM 133.260 Survival equipment procedures

This regulation applies to a flight in remote areas or when a life raft is to be carried. Section 26.65 of the Part 91 MOS provides the definitions of locations considered 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 133 MOS are outcome based. This provides flexibility for the operator to respond to changing environments and changing circumstances; however, it does also place the onus on the operator to not only assess the environments, locations and circumstances in which they are operating, but also 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 permutation assessed as relevant to the individual operator.

The relevant equipment information is available in Chapter 11 of the Part 133 MOS.

Appendix 1 to ICAO Annex 2 Rules of the Air also contains some valuable information regarding pyrotechnic signalling devices. The appendix outlines certain signals have an internationally standardised meaning, e.g. the following signals, 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.

These are the devices required by paragraph 133.260(2)(b).

AMC 133.265 NVIS flights

Reserved.

GM 133.265 NVIS flights

There is a direction in force in relation to Part 133 operators and the approval required before conducting an NVIS operation for the first time in a Part 133 operation. It is recommended that operators review section 6A of CASA EX68/24. The approval mentioned in the direction 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.

The legal interrelationship between CASR Parts 91, 133 and 138 results in a significant amount of duplicated NVIS content across the Part 91, 133 and 138 MOS's. This duplication requires a solid understanding of when the rules contained in a particular MOS apply to a particular kind of flight that where NVIS is used. Multi-Part AC 91-13, 133-09 and 138-06 contains guidance regarding the use of NVIS and section 2.3 of the AC is a detailed description of the application of the rules within the 3 MOS's.

The MOS content for subregulation 133.265(3) is contained in Chapter 8 of the Part 133 MOS.

AMC 133.270 Securing moveable equipment

Reserved.

GM 133.270 Securing moveable equipment

The exposition should include procedures on when and how to identify and securely stow moveable equipment. This is particularly important for medical transport operations that naturally carry a variety of equipment for potential tasks.

The exposition should detail the items of equipment and stowing procedures for each operational configuration, such as neonatal, and general patient transport.

4.9 Division 133.D.9—Miscellaneous

AMC 133.275 Procedures relating to ice

Reserved.

GM 133.275 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 of CASR. These remain applicable to all Part 133 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
- the use of relevant 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 that are consistent with the relevant flight manual. Under no circumstances will the policy, procedure and training be less limiting than the 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 rotorcraft 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, e.g. "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 rotorcraft on the ground is an absolute safety requirement 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 a rotorcraft that complies with the "Clean Aircraft" concept.

Additional information is available in AC 133-05 - Aircraft ground de-icing and anti-icing operations.

AMC 133.280 Procedures relating to portable electronic devices

Reserved.

GM 133.280 Procedures relating to portable electronic devices

Pilots in command 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 1988.

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.

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 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. Operators who held an AOC prior to 2 December 2021, and 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 on-board 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, which has some or all of the device's radio frequency transmitting functions 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/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 during 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. refuelling, turbulence, PED smoke/fire events
- EMI events
- securing and stowing PEDs
- 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 should 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 the 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 nor 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 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 passengers at greater risk of accidents.

Hazardous conditions may need to be considered, including:

- other aircraft movements in close proximity and ground service or fuelling vehicles
- night operations at remote aerodromes without adequate airside lighting.

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 133.285 Procedures relating to carriage of animals

Reserved.

GM 133.285 Procedures relating to carriage of animals

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

Regulation 91.620 of CASR places the responsibility on the PIC 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[16].

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 its 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 reptiles
- 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:

- **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, see regulation 91.160 of CASR.

[16] See regulation 91.220.

- **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 air or oxygen 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 133.290 Polar operations

Reserved.

GM 133.290 Polar operations

This regulation requires operators that conduct flights 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 procedures, 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, and
  - safely extract passengers and crew as soon as possible (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**: Consideration of 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 rotorcraft.

- **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.

AMC 133.295 External load operations involving winching a person

Reserved.

GM 133.295 External load operations involving winching a person

There are 2 exemptions in force in relation to an external load operation winching a person under this regulation and its empowered Part 133 MOS provisions (see Chapter 5 of the Part 133 MOS).

The first exemption ensures that a PIC of the flight does not require the approval mentioned in regulation 91.195 when conducting an external load operation involving winching a person under the 133 MOS provisions arising from this regulation. It is recommended that operators review section 18 of CASA EX70/24.

The second exemption ensures that the operator and PIC are exempted from regulation 91.200 relating to the carriage of persons in certain parts of the rotorcraft. It is recommended that operators review section 19 of CASA EX70/24.

This regulation only applies when winching a person or a thing during a medical transport operation. Related requirements are prescribed in Division 1 of Chapter 5 of the Part 133 MOS.

This regulation effectively permits a PIC of an aircraft for a flight that is a Part 133 medical transport operation to pick up or set down a person or a thing without holding an approval under regulation 91.045, which would otherwise be required under paragraph 91.195 (2) (a).

5 Subpart 133.F—Performance

There is an exemption in force in relation to Subpart 133.F and Subpart 91.F of CASR that effectively permits operators to use the Part 133 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 EX70/24.

There are multiple transitional exemptions in force in relation to rotorcraft performance. It is recommended that operators review Part 6 (sections 21 through 30 inclusive) of CASA EX70/24. The approval mentioned in section 28 of 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.

In September 2024, CASA announced that operators who were using the exemptions in Part 6 of the then CASA EX84/21 (now CASA EX70/24) to defer compliance with the new Part 133 rotorcraft performance requirements needed to submit documentation to CASA by the end of 31 March 2025 associated with their compliance with these requirements and implement their new procedures by the end of 30 June 2025, unless otherwise advised by CASA.

For further information, refer to Chapter 10 of the Part 133 MOS, AC 133-01 - Performance class operations and AC 133-02 - Performance Class 2 with exposure operations.

AMC 133.305 Take-off performance

Reserved.

GM 133.305 Take-off performance

Refer to AC 133-01 - Performance class operations and AC 133-02 - Performance Class 2 with exposure operations.

AMC 133.310 Landing performance

Reserved.

GM 133.310 Landing performance

Refer to AC 133-01 - Performance class operations and AC 133-02 - Performance Class 2 with exposure operations.

AMC 133.315 Flight in a performance class

Reserved.

GM 133.315 Flight in a performance class

See the earlier comment under the Subpart 133.F heading in this document about the transitional exemptions in force relating to Part 133 rotorcraft performance requirements and the deadlines associated with the ending of these exemptions.

The purpose of regulation 133.315 is to require the operator and PIC of a rotorcraft for a flight to each ensure that, during any stage of the flight, the rotorcraft is flown in a performance class unless the

flight is an MTO operating in accordance with subregulation 133.315(2). Operating in the required minimum mandated performance class or a higher performance class ensures that the rotorcraft is operated in circumstances that are appropriate to the purpose and risks of the flight.

For further information, refer to Chapter 10 of the Part 133 MOS, AC 133-01 - Performance class operations and AC 133-02 - Performance Class 2 with exposure operations.

Medical transport operations (MTO) and medical transport operating sites (MTOS)

When an operating location is a MTOS (note the full term is defined in the CASR Dictionary), subregulation 133.315(2) disapplies the requirement to fly in a performance class in relation to the stage of a flight (note stage in this context is also a defined term in the CASR Dictionary) of a MTO over, or at, the site, contingent on the:

- operator's exposition including risk assessment and management procedures that must be complied with if the rotorcraft is not flown in a performance class during such a stage
- crew members for the flight using these procedures to plan and carry out the arrival and departure, or hover, at the location.

The definition of *medical transport operating site* (from section 1.05 of the Part 133 MOS and replicated below) includes the term *aerodrome*. The meaning of this term *aerodrome* and its relationship to subparagraph 91.410(2(a)(iv) and regulation 133.170 of CASR is fundamental to understanding what locations fit within the definition and locations that do not. The definition of MTOS is repeated below:

1.05 Meaning of *medical transport operating site*

(1) Subject to subsections (2) and (3), a ***medical transport operating site***, for a rotorcraft, is a site:

(a) at which a take-off or landing of the rotorcraft is, or is to be, conducted as part of a medical transport operation; or

(b) over which the rotorcraft is required to operate to conduct a medical transport operation.

(2) A ***medical transport operating site***, for a rotorcraft, does not include a place that meets the requirements stated in subregulation 91.410(2) of CASR.

(3) Despite subsection (2), a place mentioned in subparagraph 91.410(2)(a)(iv) of CASR is a ***medical transport operating site*** if the pilot in command of the rotorcraft determines the place is a medical transport operating site, after:

(a) following any procedures mentioned in the rotorcraft operator's exposition under regulation 133.170 of CASR that relate to managing the safety of operations to an unfamiliar aerodrome; and

(b) conducting a risk assessment of the medical transport operation for the place.

The policy intent behind creating the defined term *medical transport operating site* was to recognise the unique aspects of medical transport operations and the impacts of these operations in relation to the new Part 133 performance rules.

The term *aerodrome* is used in the definition as it is relevant to all aircraft in the CASR operational Parts and it is a term defined in the Act under which the CASRs are made. It is defined as:

> *aerodrome* means an area of land or water (including any buildings, installations and equipment), the use of which as an aerodrome is authorised under the regulations, being such an area intended for use wholly or partly for the arrival, departure or movement of aircraft.

In the most general operational sense everywhere that an aircraft takes off from, or lands at, is an aerodrome of some form or type. It could be a runway, a taxiway or the hardstand, or a ground level helicopter landing site or heliport or an elevated HLS or heliport, a helideck on an oil rig or ship or a farmer's paddock.

A medical transport operating site, due to the wording of the definition, cannot be a place that is covered by any of subparagraphs 91.410(2)(a)(i), (ii) or (iii) of CASR. These are locations that are either certified aerodromes, registered aerodromes or aerodromes for which an arrangement under section 20 of the Act is in force. Due to changes in Part 139 of CASR, there are no longer any registered aerodromes in Australia so subparagraph 91.410(2)(a)(ii) is not relevant. At the time of writing this GM[17], there are no aerodromes for which an arrangement under section 20 of the Act is in force, and therefore subparagraph 91.410(2)(a)(iii) is also not relevant.

Ultimately it is the "pilot in command" (PIC) that determines a place to be a medical transport operating site, after:

- following any procedures mentioned in the rotorcraft operator's exposition under regulation 133.170 of CASR that relate to managing the safety of operations to an unfamiliar aerodrome
- conducting a risk assessment of the medical transport operation for the place.

If these 2 requirements are satisfactorily met, then the place is a medical transport operating site.

Intent of the MTOS definition

The definition of MTOS was designed to encompass a site such as a road accident scene, where a confined area operation to land on the road or near the accident may be necessary, or the aircraft has to hover over a place for a winch recovery.

The definition of MTOS was **not** designed to remove the requirement to operate in a performance class during "normal" operational situations.

Example 1 (not an MTOS)

A hospital, or other facility or place, that the operator has procedures for, and for which the PIC **has** the information required by subregulation 133.170(2) , whether it is designed to be a runway shaped piece of tarmac or gravel; or a circle, hexagon, triangle or a square with a final approach and take-off area (FATO) and a touchdown and lift off area (TLOF); or a clearing next to the hospital or facility, is **not** a medical transport operating site, as it can be determined the place is suitable for the take-off or landing of aircraft and it meets the air transport standard for the information available to the PIC for the purposes of subregulation 91.410(2) of CASR for their flight.

Example 2 (could be an MTOS)

Conversely, a place, that the operator **does NOT** have procedures for, and for which the PIC **does NOT** have the information required by subregulation 133.170(2), could be a medical transport operating site (MTOS), if it is determined by the PIC in accordance with the operator's procedures that the place is a MTOS.

Example 3 (could be an MTOS)

In relation to take-off and landing sites, this means the following kinds of *aerodrome* could likely be categorised as MTOS:

[17] July 2023.

- a site that is a clearing or parkland (not purpose-built for aircraft operations) which was not previously known to the operator

or

- a site that is a clearing or parkland previously used by the operator but at which the variability of ground conditions meant that a survey conducted on one occasion could not be relied upon on the next occasion that they used that site.

Operations into these sites would only be reasonably and safely achieved via the use of precautionary risk management processes such as a pre-operational risk assessment and confined area high/low reconnaissance manoeuvres and steep, offset or double angle approaches etc.

Even if the site is a MTOS, CASA recommends, where this is possible, using performance class procedures. For example, if the operator has reliable and up-to-date information regarding the status, usability and obstacles present at the site (i.e., the aerodrome), the flight might be able to confidently apply performance class 2 or performance class 2 with exposure procedures and operate with in accordance with the enhanced safety (compared to not using any performance class) of these procedures.

Refer to AC 133-01 (and its annexes) and AC 133-02 for further information.

AMC 133.320 Rotorcraft permitted to fly in performance class 1 or 2, or performance class 2 with exposure

Reserved.

GM 133.320 Rotorcraft permitted to fly in performance class 1 or 2, or performance class 2 with exposure

See the earlier comment under the Subpart 133.F heading in this document about the transitional exemptions in force relating to Part 133 rotorcraft performance requirements.

The MOS content for subregulation 133.320 (2) is contained in section 10.08 of the Part 133 MOS.

Refer to AC 133-01 - Performance class operations and AC 133-02 - Performance Class 2 with exposure operations for further information on performance classes.

AMC 133.325 Flight in performance class 2 with exposure

Reserved.

GM 133.325 Flight in performance class 2 with exposure

See the earlier comment under the Subpart 133.F heading in this document about the transitional exemptions in force relating to Part 133 rotorcraft performance requirements.

In addition to the requirements prescribed by regulation 133.320 and the requirements in Division 3 of Chapter 10 of the Part 133 MOS, it is a requirement to hold an approval under regulation 133.015. Refer to GM 133.015 and AC 133-02 - Performance Class 2 with exposure operations for more information.

AMC 133.330 Flight in performance class 1 for certain rotorcraft

Reserved.

GM 133.330 Flight in performance class 1 for certain rotorcraft

See the earlier comment under the Subpart 133.F heading in this document about the transitional exemptions in force relating to Part 133 rotorcraft performance requirements.

Refer to Chapter 10 of the Part 133 MOS and AC 133-01 - Performance class operations for further information.

AMC 133.335 Flight in performance class 1 or 2, or performance class 2 with exposure for certain rotorcraft

Reserved.

GM 133.335 Flight in performance class 1 or 2, or performance class 2 with exposure for certain rotorcraft

See the earlier comment under the Subpart 133.F heading in this document about the transitional exemptions in force relating to Part 133 rotorcraft performance requirements.

This regulation states the performance requirements for certain flights and operations other than those outlined in regulation 133.330.

Refer to Chapter 10 of the Part 133 MOS, AC 133-01 - Performance class operations and AC 133-02 - Performance Class 2 with exposure operations for further information.

Subregulation 133.335(4)

Subregulation 133.335(4) of CASR outlines that the performance requirements of subregulation 133.335(2) need not apply, if the flight is an MTO and the stage of the flight is conducted from or at a place, and the operator holds and approval under regulation 133.015 in relation to the place and the operation of the rotorcraft from the place.

See extract of subregulation 133.335(4) below.

(4)Subregulation (2) does not apply in relation to the take-off, take-off and initial climb, the approach and landing, or baulked landing stage of a flight, if:

(a) the flight is a medical transport operation; and

(b) the stage is conducted from or at a place as part of the medical transport operation; and

(c) the operator holds an approval under regulation 133.015 in relation to the place and the rotorcraft.

GM subregulation 133.335(4)

Due to the high level of operational flexibility already associated with PC2WE operations for MTO's, this approval provision was only added to Part 133 to be considered for use in an exceptional circumstance, very high public interest operational situation. It was not to be considered a long-term solution for operations into a place that has inadequate facilities or a compromised obstacle environment for regular rotorcraft MTO's.

For example, this approval may be considered for a limited time, in such an exceptional situation where a hospital or other similar critical public infrastructure has been caused to temporarily have inadequate heliport facilities, or a compromised obstacle environment. However, it is a place which can for operations be determined to retain at least the same level of operational risk to PC2WE. This could be the case where the actual reliability of the rotorcraft operating into the place, exceeds the level required for the current PC2WE maximum exposure time, but which still remains within the required target level of safety (TLS).

Regarding these circumstances, CASA has not considered expanding the current PC2WE TLS requirement of $5x10^{-8}$. Therefore, the ability to obtain such an approval will normally be limited to those operators who operate rotorcraft which significantly exceed the required reliability criteria and who can make an application which ensures that the required operation remains within these established TLS boundaries.

AMC 133.340 Flight performance class 3 over populous areas

Reserved.

GM 133.340 Flight performance class 3 over populous areas

Note: See the earlier comment under the Subpart 133.F heading in this document about the transitional exemptions in force relating to Part 133 rotorcraft performance requirements and the deadlines for the ending of these exemptions.

If a flight is conducted in PC3 over populous areas and suitable forced landing areas are not available, then the requirements of section 10.26 (Flight in performance class 3 over populous areas) of the Part 133 MOS must be met.

The definition of *suitable forced landing area* is fundamental to this regulation - see regulation 133.010 for this definition.

The purpose of regulation 133.340 and section 10.26 of the Part 133 MOS is to permit air transport operations over populous areas using PC3 to occur **without the availability of suitable forced landing areas** provided the requirements of section 10.26 of the Part 133 MOS are met.

Although paragraph 10.26(a) of the MOS states that the PIC must maximise the availability of suitable forced landing areas (SFLA), to understand the intent, it must be read to consider the purpose of regulation 133.340, which is fundamentally about complying with the section 10.26 MOS content where SFLA's are not available, despite the pilot reasonably trying to maximise their availability. For clarity, SFLA's need not be available if the pilot has reasonably tried to maximise their availability, and the required particle chip detection systems are fitted to the rotorcraft.

Additionally, for the purposes of regulation 91.055 of CASR, an aircraft is not considered to be creating a hazard simply by flying over populous areas in the normal course of navigation. This is contingent on the flight adhering to the prescribed circumstances, distances and altitudes outlined in regulation 91.265 of the CASR (which also applies to Part 133 operations) and the distances and general requirements mentioned in sections 10.26, 10.42 and 10.43 of the Part 133 MOS.

The distances described in sections 10.42 and 10.43 of the Part 133 MOS are the 'adequate vertical margin', the 'minimum safe height for the flight under Part 91 or the Part 91 MOS' and 'the minimum flight altitude for each point in the en-route stage of the flight'. Further information on these can be found in section 5.3 and subsection 8.5.6 of AC 133-01.

Also, considerable additional information on these operations is available in section 8.5, Annex B and Annex C of AC 133-01 - Performance class operations.

6 Subpart 133.J—Weight and balance

There is an exemption in force in relation to Subpart 133.J and Subpart 91.J of CASR that effectively permits operators to use the Part 133 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 EX70/24.

GM 133.345 Loading of rotorcraft

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

The default system for weight and balance calculations is the flight manual. If the operator chooses to use a different system, such as a computer program or an application on a handheld device, the system should be approved by a weight control authority.

Section 5 of CAO 100.7 sets out requirements for aircraft load data sheets and loading systems. Aircraft pilots in command must not commence a flight unless they have received evidence and taken the necessary actions to ensure compliance with the loading data.

AMC 133.350 Procedures for loading rotorcraft etc.

Reserved.

GM 133.350 Procedures for loading rotorcraft etc.

This regulation requires the procedures in the operator's exposition for the loading of the rotorcraft to comply with regulation 133.345.

The procedures must ensure compliance with CASR and must make it clear how the operator calculates the respective weights applicable to crew, passengers, carry-on baggage, cargo including baggage, and fuel as loaded on the rotorcraft, and the associated effects on the centre of gravity.

The procedures should include the actions of all personnel associated with the loading process, including production of the notification documents as provided to the PIC in accordance with operational control.

See also:

- regulation 133.030 regarding compliance with flight manual
- 133.215 Carry-on baggage
- Part 92 regarding consignment and carriage of dangerous goods by air
- regulation 91.215 regarding authority and responsibilities of PIC.

Information about passenger, crew and baggage weights is available in AC 133-04 Passenger, crew and baggage weights.

AMC 133.355 Weight and balance documents

Reserved.

GM 133.355 Weight and balance documents

As defined in the CASR dictionary, Weight and balance documents for a flight of an aircraft are the documents that set out the aircraft's load for the flight and the distribution of the load during the flight.

Regulation 133.355 prescribes requirements in relation to weight and balance documents for rotorcraft, including the name of the person who prepared the documents.

7 Subpart 133.K—Equipment

There is an exemption in force in relation to Subpart 133.K and Subpart 91.K of CASR that effectively permits operators to use the Part 133 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 EX70/24.

AMC 133.360 Requirements relating to equipment

Sections 11.05, 11.06 and 11.07 of the Part 133 Manual of Standards – accuracy of time measurement

Item 3 of tables 11.05(3) and 11.06(3), and item 4 of table 11.07(4), of the Part 133 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 133 Manual of Standards – radiocommunication systems

Subsection 11.08(1) of the Part 133 MOS requires the rotorcraft 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 133 MOS)

If an HF radio is fitted to a rotorcraft to comply with subsection 11.08(1) of the Part 133 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 133 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 rotorcraft in accordance with Part 21 of CASR, 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 rotorcraft.

> **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 11.12 of the Part 133 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 133 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, manipulator action during normal, abnormal or emergency situations.

Division 9 of the Part 133 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 11.34, 11.35 and 11.37 of the Part 133 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 11.34, 11.35 and 11.37 of the Part 133 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 11.34(1) and 11.35(1) of the Part 133 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 11.37 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 the 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 2 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 50 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 2 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.

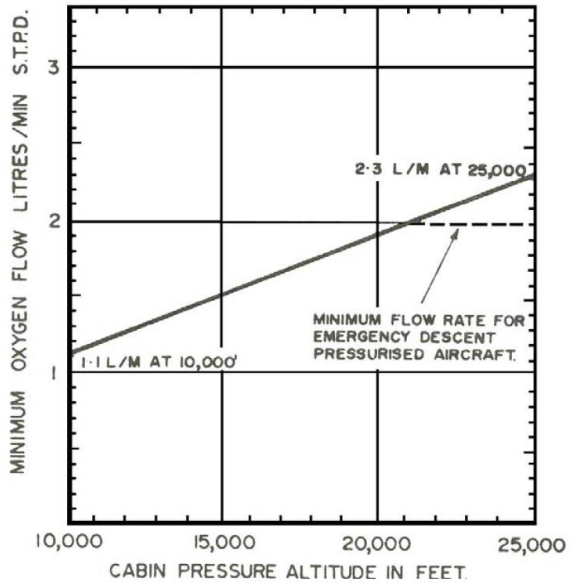


Figure 2: Minimum oxygen flow rates for flight altitudes not exceeding FL250 when using masks with efficiencies equal to, or better than, the A 8 B oronasal mask, the Scott 28302–11 semi-disposable mask or the K–S disposable mask

Sections 11.38 and 11.39 of the Part 133 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 133 MOS.

Except for the portable protective breathing equipment required by subsection 11.39(4) of the MOS, which may, in relation to the 15 minute supply requirement of paragraph 11.39(3)(c) of the MOS, comply with (E)TSO-C116 (or any later version), the 15 minute supply requirement of paragraphs 11.38(2)(c) and 11.39(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 11.46 of the Part 133 Manual of Standards - Hand-held fire extinguishers

Section 11.46 of the Part 133 MOS require a rotorcraft 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).

Subsection 11.54(8) of the Part 133 Manual of Standards – pressure altitude reporting standards

Note: This acceptable means of compliance continues previous standards alluded to in the pre-2 December 2021 CAO 20.18 Appendix XI subsection 5 and Appendix XII subsection 4, and also mentioned in section 3.6.2 of AC 21-45.

For paragraph 11.54(8)(b) of the Part 133 MOS, in relation to other systems approved under Part 21 that have a level of performance equivalent to a system mentioned in paragraph 11.54(8)(a) (which is a barometric encoder of a type authorised in accordance with (E)TSO-C88a), it is an acceptable means of compliance if the other systems meet a standard specified in paragraph 3.6.2 of AC 21-45 *Airworthiness approval of airborne automatic dependent surveillance broadcast equipment*.

GM 133.360 Requirements relating to equipment

The MOS content for subregulation 133.360(1) is contained in Chapter 11 of the Part 133 MOS. This regulation enables the Part 133 MOS to prescribe requirements relating to the fitment and carriage of equipment on a rotorcraft.

For equipment required by Subpart 133.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 1.07 of the Part 133 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 1.07 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 133 MOS)

Section 11.03 of the Part 133 MOS contains overall rules relating to the visibility and accessibility of equipment.

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.

Serviceability of equipment (section 11.04 of the Part 133 MOS)

Any rotorcraft equipment required by the Part 133 MOS be serviceable unless:

- a provision in the Part 133 MOS allows otherwise; or
- the defect has been approved as a permissible unserviceability.

The rotorcraft MEL must not allow a rotorcraft to be dispatched with any equipment required by the MOS unserviceable, unless the MOS permits the operation of the rotorcraft with the equipment unserviceable. Any conditions and/or time limits provided in the MOS for operating with certain equipment unserviceable should be provided for in the rotorcraft MEL and be the equivalent of, or more restrictive than the master minimum equipment list (MMEL) or the MOS requirements.

An exemption is in force providing additional equipment serviceability provisions which may be applied in accordance with the aircraft approved MEL, it is recommended operators review CASA EX14/25 – Serviceability of Equipment under the Part 91, 121, 133 and 135 Manuals of Standards – Exemption Instrument 2025.

Navigation equipment (section 11.09 of the Part 133 MOS)

Subsection 11.09(5) of the Part 133 MOS requires, in part, that the navigation equipment for a rotorcraft be such that, in the event of the failure of any navigation equipment at any stage of a flight, sufficient navigation equipment remains to enable the rotorcraft 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 1 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 2 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 133.135 of CASR. Regulation 133.135 requires the operator and the pilot in command 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 plan – not the in-flight content which is subject to change based on occurrences during a flight.

Example

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 133.135(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 133 MOS can still be met.

Stabilised heading (sections 11.06 and 11.07 of the Part 133 MOS)

A stabilised heading flight instrument is required to be fitted to rotorcraft conducting IFR and night VFR flights by sections 11.06 and 11.07 of the Part 133 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 133 rules commenced and have been carried across into the new Part 133 rules.

Queries have been made to CASA whether the heading displayed in various GNSS equipment satisfies any of these stabilised heading requirements. At the time of publishing, most GNSS equipment-based heading displays are 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 or the HSI component of an integrated EFIS/PFD display.

These instruments have been approved under Part 21 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) – for example, newer electronic ‘multi-function’ instruments in HSI mode which would have

required a demonstration of compliance (by the equipment manufacturer to the certifying NAA) to the equivalent HSI performance standard.

For the case of a non-magnetic HSI, the performance standard referenced in TSO-C5f is the following: 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 (section 3.10) [requirements for numerically marked graduations]
- course setting input knob (section 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.

Automatic pilot and the number of pilots required (section 11.10 of the Part 133 MOS)

Paragraph 11.10(b) of the Part 133 MOS requires a rotorcraft to have an automatic pilot or automatic stabilisation system when the rotorcraft is operated under the VFR at night by a single pilot in certain visual cueing circumstances. The effect of the provision is such that if the required equipment is not fitted or is inoperative for these night VFR flights, the flight cannot proceed as a single-pilot operation.

If a rotorcraft is operated by 2 pilots for these night VFR flights, then there is no civil aviation legislation requirement for the 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 133 rules. Notably, regulation 133.370 (Composition, number, qualifications and training) in relation to the flight crew assigned to the duty and the requirements of regulations 133.385 and 133.390 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 133 during these night VFR flights when the equipment is inoperative.

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 3.

Figure 3: 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 11.11 of the Part 133 MOS)

In determining whether Electronic Visual Distress Signals (EVDS) meet the requirements of paragraph 11.11(2)(b) of the Part 133 MOS, it is recommended that the operator consider whether:

- using the EVDS would constitute an offence under section 24 of the Act
- 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).

Helicopter terrain awareness and warning systems (H-TAWS) (section 11.18 of the Part 133 MOS)

H-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 H-TAWS fitted to their aircraft, and that pilots and operators carefully consider decisions to inhibit a H-TAWS.

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

Supplemental oxygen - pre-flight considerations

The altitudes at which supplemental oxygen must be carried, as specified in sections 11.34 and 11.35 of the Part 133 MOS, represent the minimum generally acceptable standard of safety for the operations regulated by this rule. However, it is strongly recommended that operators and pilots

carefully consider whether supplemental oxygen should be carried even if not required by 133 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 factor)
- 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 133.240 requires pilots-in-command and operators to ensure passengers are given a safety briefing and instructions in accordance with the requirements of the Part 133 MOS. Under paragraph 7.02(9)(h) of the Part 133 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 133 MOS. Pilots-in-command 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 feet – 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 4: Electronic oximeter devices available for personal use

Supplemental oxygen – suspected hypoxia

If hypoxia is suspected, the pilot-in-command should immediately:

- Lower the cabin altitude (descend and/or adjust pressurisation), and
- 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 section 11.34 and 11.35 of the Part 133 MOS do not prevent the use of supplemental oxygen at lower altitudes if hypoxia is suspected.

Supplemental oxygen for cabin crew

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 rotorcraft 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 133 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, 121-12, 133-03 and 135-14 and www.amsa.gov.au/beacons for more details.

The requirements for an ELT to be classified as an automatic ELT and a survival ELT are (repeated from sections 11.43 and 11.44 of the Part 133 MOS):

11.43 Requirements to be classed as an automatic ELT

(1) In this Division:

automatic ELT is an ELT that meets the requirements mentioned in subsection (2).

(2) For subsection (1), the ELT:

(a) must be automatically activated on impact; and

(b) must be one of the following types:

(i) a type authorised by the FAA, or EASA, in accordance with (E)TSO-C126;

(ii) a type authorised by EASA in accordance with:

(A) for operation on 121.5 MHz — ETSO-2C91a; and

(B) for operation on 406 MHz — ETSO-2C126;

(iii) a type approved in writing by CASA as having a level of performance equivalent to a type of transmitter mentioned in subparagraph (i) or (ii).

11.44 Requirements to be classed as a survival ELT

(1) In this Division:

survival ELT is an ELT that meets the requirements mentioned in subsection (2).

(2) For subsection (1), the ELT must be:

(a) removable from the rotorcraft; and

(b) one of the following types:

(i) an emergency position-indicating radio beacon of a type that meets the requirements of AS/NZS 4280.1:2003;

(ii) a personal locator beacon of a type that meets the requirements of AS/NZS 4280.2:2003;

(iii) a type authorised by the FAA, or EASA, in accordance with (E)TSO-C126;

(iv) a type authorised by EASA in accordance with:

(A) for operation on 121.5 MHz — ETSO-2C91a; and

(B) for operation on 406 MHz — ETSO-2C126;

(v) a type approved in writing by CASA as having a level of performance equivalent to a type mentioned in subparagraph (i), (ii), (iii) or (iv).

Incorrect terminology in section 11.41 regarding carriage of ELTs

Note: In section 11.41, the undefined term "maximum operational seating capacity" is a drafting error. It would be correct and lawful to read this expression, in paragraphs 11.41(3)(a) and (6)(a) of the Part 133 MOS, as if it read **maximum operational passenger seat configuration** as intended. This reading would correspond to the relevant correct defined term and which the mistaken phrase most closely aligns in the CASR Dictionary. CASA will correct this typographical error in a forthcoming Part 133 MOS amendment.

Section 11.41 of the Part 133 MOS outlines the requirements for the carriage of ELTs. The MOS specifies that an automatic ELT must be fitted to a rotorcraft if the rotorcraft has a maximum operational seating capacity of more than 3, or the rotorcraft will be flown more than 50 nm from the departure aerodrome regardless of seating capacity.

If a rotorcraft has a maximum operational seating capacity of 3 or less and during a flight is flown 50 nm or less from the departure aerodrome for the flight, the MOS permits a survival ELT to be substituted for the automatic ELT. However, the survival ELT must be carried in one of the following locations on the rotorcraft:

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

Section 11.46 of the Part 133 Manual of Standards – Hand-held fire extinguishers

Note: The MOS hand-held fire extinguisher requirements were written in the context of the rotorcraft being operated in Australia in 2020 or reasonably envisaged to be operated within 3 years of the commencement of the Part 133 rules in December 2021 (i.e., limited numbers of rotorcraft with a MOPSC > 19 and powered-lift aircraft of relatively small size).

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 11.46 of the Part 133 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.

Additional information is contained in the following Airworthiness bulletin: AWB Airframes 26 - Fire Protection for further information on fire protection.

Life raft carriage requirements (section 11.50 of the Part 133 MOS)

The following paragraphs provide guidance about the single-engine rotorcraft life raft carriage rules.

When interpreting which subsection or paragraph of section 11.50 of the Part 133 MOS is relevant to a particular flight of a single-engine rotorcraft, the interpretation is based on the 2 following factors:

- whether operational control is available (see the AMC 133.125 and the GM 133.125 entry)
- whether the distance over water is from a piece of land that meets the definition of suitable forced landing area, (133.010 of CASR).

Under paragraphs 11.50(1)(b) and (c) of the Part 133 MOS, the carriage of life rafts for single engine rotorcraft conducting passenger transport operations is required when the rotorcraft will be flown over water further from the following distances from a suitable forced landing area situated on land:

- 25 nm, but only if operational control is available (see the AMC 133.125 and the GM 133.125 entry) to enable the immediate initiation of a response to an emergency by a search and rescue body

  or

- 5 minutes at normal cruise if operational control is **not** available to enable the immediate initiation of a response by a search and rescue body.

Noting that some smaller rotorcraft may have difficulty accommodating a life raft, the Part 133 MOS includes a further relief provision in subsection 11.50(2) of the MOS. This provision allows smaller rotorcraft with a MOPSC of ≤ 5 to fly up to 10 nm over water, from any piece of land (not just a piece of land that meets the definition of suitable forced landing area) without a life raft provided that there is operational control to enable the immediate initiation of a response to an emergency by a search and rescue body (see the AMC 133.125 and the GM 133.125 entry).

This alleviation is intended to provide a single distance for smaller rotorcraft to comply with, without suffering a penalty in distance associated with variations in normal cruise speed, particularly in relation to scenic flights.

Note: Subsection 11.50(2) disapplies section 11.50 if the rotorcraft has a MOPSC of ≤ 5 **and** will be flown less than 10 nautical miles over water from land; and has operational control that would enable, in the event of an emergency, an immediate initiation of a response by a search and rescue body.

8 Subpart 133.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, where the operator did not take advantage of the exemption contained in Parts 6 and 8 of the now repealed CASA EX87/21 or contemporary CASA EX73/24, 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 133, the relevant instruments are CASA 90/21 (related to Part 119 requirements) and CASA 92/21 (related to Part 133 requirements).

There are exemptions in in force in relation to the training and checking of flight crew members. These exemptions apply to certain operators. It is recommended that operators review Parts 6 and 8 of CASA EX73/24.

In May 2024, CASA announced that operators who were using the exemptions in Part 8 of the then CASA EX87/21 (now CASA EX73/24) to defer compliance with the new Part 119 and 133 training and checking requirements needed to submit documentation to CASA by the end of 31 August 2024 associated with their compliance with these requirements and implement their new procedures by the end of 28 February 2025, unless otherwise advised by CASA.

For these operators, the exemption CASA EX77/24 provides a mix of permanent recognition of prior training events and temporary recognition of prior checking events.

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 EX67/24.

For more guidance on Subpart 133.N, refer to Multi-Part AC 119-11 and 138-02 (note there are Annexes to this AC that are separate downloads).

8.1 Division 133.N.1—General

AMC 133.370 Composition, number, qualifications and training

Reserved.

GM 133.370 Composition, number, qualifications and training

There is an exemption in relation to this regulation, in addition to the broad exemptions mentioned under the Subpart 133.N heading above. It is recommended that operators review section 9 of CASA EX70/24.

This regulation sets out requirements for the crew composition to conduct a Part 133 operation. It also empowers (via subregulation 133.370(4)) Chapter 12 of the Part 133 MOS to prescribe requirements relating to the training and checking that must be completed by a fight crew member for a flight. As a result, the Part 133 MOS describes the detail of a flight crew member's required training and checking and each operator should review Chapter 12 of the Part 133 MOS to identify specific requirements relevant to their operation.

The regulation also outlines multiple general requirements in subregulation (2) and the operator is also required to ensure that:

- as a minimum, the flight crew member(s) meet the qualification requirements of the regulations
- the total crew complement meets both the regulatory, manufacturer and operator requirements

Note: If the operator requires additional flight crew members to be carried on a flight for contractual or other reasons, their exposition must outline the kinds of operations and should outline the methodology utilised for crew co-ordination and SOP.

- any flight in a rotorcraft that has a MOPSC of more than 9 must be operated by a 2-pilot crew, and in such cases the crew must be qualified to carry out the duties assigned to them.

Notes:

1. This does not prevent both flight crew members being qualified under 133.385 provided they are competent to perform the flight crew member role to which they are assigned, and one pilot has been assigned as PIC for the flight.
2. Subregulation 133.370(5) also requires the operator to outline in their exposition any requirements which must be met for new or inexperienced flight crew members assigned to duty on a rotorcraft.

A new requirement (when 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 133.370(2)(e) 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 rotorcraft is an Australian aircraft—be authorised to pilot the rotorcraft under the IFR during the flight by Part 61

  or

- if the rotorcraft is a foreign registered aircraft— be authorised under the law of the rotorcraft's State of registry or the State of the operator of the rotorcraft to pilot the rotorcraft 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 (note there are Annexes to this AC that are separate downloads) for specific guidance on Part 133 flight crew training and checking.

Flight crew member proficiency check (also called OPC)

Chapter 12 of the Part 133 Manual of Standards requires a flight crew member to have successfully completed a flight crew member proficiency check (FCMPC) in regard to the training required by the matters listed in section 12.05. This check is first required to be completed prior to the flight crew member commencing Part 133 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 Operator Proficiency Check (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 flight crew member proficiency checks required for mixed aircraft fleets

Operators conducting day VFR only operations

Operators who conduct day VFR only operation are required to conduct an initial FCMPC, a recurrent check at an interval of less than or up to 6 months from the initial check and thereafter a FCMPC each 12 months.

Operators conducting other operations

Operators who conduct other than day VFR only operations are required to conduct an initial FCMPC, a recurrent check at an interval of less than or up to 6 months from the initial check and thereafter a FCMPC each 6 months after the previous check.

FCMPC's are class or type rating specific.

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

Whilst the provisions of Part 133 allow reasonable flexibility in regard conducting FCMPC's in class rated rotorcraft. Due to the unique nature of helicopter design, operators should use their experience and knowledge of the rotorcraft they operate, common industry practice and supportable evidenced based processes when deciding whether a single check in a specific type within a class, covers the required competency assessment requirements of their operations.

Consideration such as specific flight review requirements should also be considered, as is the case outlined in condition 8 of the Conditions on Flight Crew Authorisation instrument[18].

Example 1 (operator of a blended single engine class rated fleet of R66, EC120/H120 and EC130/H130 rotorcraft)

A FCMPC in any of these types could satisfy the requirement for all these types.

The operator would need to ensure that, in any such check, that the engine management and control and the transmission and rotor system differences of the aircraft would satisfy the requirement for competence in each. However, this could be done as part of an aural review, prior to the flight component.

Example 2 (operator of a mixed single engine class rated fleet of R22, R44 and B407 rotorcraft)

A FCMPC in any of these types could satisfy the requirement for all these types.

However, the operator would need to ensure that, for purposes of regulation 133.375, a check in one of these types would satisfy the requirement for competence in all the others in relation to systems knowledge. Items such as turbine versus piston engine power, fuelling, different rotor systems, engine management and control systems and aircraft specific issues such as engine governor control and susceptibility to environmental issues such as carburettor icing etc. (since all are different).

Additional consideration should also be given to the Conditions on Flight Crew Authorisation instrument as outlined above.

The specific nature of type rating FCMPC's will normally ensure this outcome for these rotorcraft, however noting also the requirements of schedule 14 of the Prescription of Aircraft and Ratings instrument[19], whilst general competency may be demonstrated in any check; FCMPC's for the relevant type rating will not cover the requirements for a FCMPC for a relevant class rating under subsection 12.08(4) of the Part 133 MOS.

Operators of rotorcraft which are included within the Helicopter Multi-Engine Class Rating exemption[20], need to consider carefully how it is applied to their pilot's FCMPC's to ensure they remain compliant with regulation 133.375 of CASR. This is particularly relevant to operators of fleets which contain a mix of the different types of helicopters described in column 3 of Schedule 1 of this exemption.

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 is use at any one time.

Typical differences include:

- fuel systems with varying usable amounts, tanks configurations and drain systems
- variations in loading systems
- different instrument and avionics fitout
- mechanical differences such as different engine type or model
- different performance capability.

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, and 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.

Operators should assess the characteristics of their operation and, if appropriate, conduct a training needs analysis with input from their SMS (if one is 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 and more frequent review or recency to ensure competency is maintained. If an SMS is not in place the Head of Training and Checking (HOTC) may perform this analysis, either themselves or with other senior members of the operator's training and checking system.

Ensuring regulation 133.375 compliance for mixed fleet operations involving type rating required and class rating required rotorcraft needs careful consideration by the operator's training needs analysis.

[18] This instrument is regularly updated. As of publishing v2.5 of this AMC/GM document, Edition 3 of this instrument was in force and was available at this link: Federal Register of Legislation - CASA 62/20 — Conditions on Flight Crew Authorisations (Edition 3) Instrument 2020.

[19] This instrument is regularly updated. As of publishing v2.5 of this AMC/GM document, Edition 10 of this instrument was in force and was available at this link: Federal Register of Legislation - Part 61 Flight Crew Licensing (Prescribed Aircraft and Type Ratings) (Edition 10) Instrument 2025.

[20] As of publishing v2.5 of this AMC/GM document, this instrument was in force and available at this link: Federal Register of Legislation - CASA EX49/22 — Multi-Engine Helicopters Exemption 2022

Use of flight simulators

Section 12.13 of the Part 133 MOS requires the use of an approved flight simulator for the conduct of certain training and checking events.

The effect of this section is dependent on the definitions of *approved flight simulator* and *recognised foreign state*. CASA advises that currently simulator qualification certificates issued by EASA are **NOT** defined as being issued by a recognised foreign State. These definitions can be found in regulation 61.010. The definition of *approved flight simulator* is repeated below.

- *approved flight simulator*: a flight simulator is an approved flight simulator for a purpose if:
  - a Part 141 operator's operations manual, or a Part 142 operator's exposition, states that the simulator may be used for the purpose; or
  - the operator of the simulator holds an approval under regulation 60.055 to use the simulator for the purpose; or
  - the simulator is:
    - » qualified (however described) by the national aviation authority of a recognised foreign State; and
    - » approved for the purpose by the national aviation authority.

Therefore, a Part 133 operator intending to use a simulator not qualified by Australia under Part 60 of CASR is advised that this MOS section requires such a simulator to be both qualified by the national aviation authority of a recognised foreign State and approved for the desired purpose by the same national aviation authority.

A Part 133 operator intending to use a simulator qualified under Part 60 of CASR, as opposed to a simulator qualified by a foreign country, are required to apply for and obtain an approval under regulation 60.055 of CASR (referred to as a user approval, which is different to a simulator qualification approval or certificate). Operators are advised to refer to AC 60-02 - Flight simulator approvals for guidance on this approval.

Although an approval equivalent to the regulation 60.055 approval is not specifically required to use a simulator qualified by another country, operators can expect CASA will request information similar to that required to be provided for the regulation 60.055 approval from the operator during an initial AOC application or a later surveillance event.

Operators are reminded that multiple Part 61 rules also require the use of a flight simulator, such as:

- Regulation 61.205 of CASR:
  - Requires that an aircraft with a:
    - » MTOW > 8618kg or with a maximum type certificated seating capacity > 19 to use a simulator for the training listed below if an approved flight simulator (definition further below) is available anywhere in the world
    - » maximum type certificated seating capacity > 9 to use a simulator for the training listed below if an approved flight simulator (definition further below) is available in Australia
  - Listed training:
    - » training for the grant of an aircraft class rating or type rating
    - » differences training for a variant of an aircraft type in relation to training delivered to the holder of a particular type rating
    - » flight training for certain aircraft types within a class rating where those types are specified in an instrument authorised under regulation 61.062.

Note: Regulation 91.745 also requires the use of flight simulators but this only applies to aeroplanes.

Use of foreign training organisations

Operators are advised that despite regulation 133.377 not permitting the use of foreign training organisations that are equivalent to Part 142 training organisations, CASA has issued an exemption in section 9C of CASA 70/24 to permit this kind of contracting out to such an operator to provide contracted training and checking, subject to the conditions specified in the exemption.

Contracting out the entire provision of a service is different to the operator contracting in the specific use of a foreign trainer or examiner utilising the provisions of paragraph 133.377(2)(a) of CASR, provided the requirements of sections 12.11 and 12.12 of the Part 133 MOS are met.

AMC 133.375 Competence

Reserved.

GM 133.375 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 133.375 requires an operator to have assessed a 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 (T&C) 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 nature and complexity of the air transport operation being performed. Noting that Part 61 of CASR applies to flight crew members in addition to Part 133, 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 rotorcraft, or the activity being performed.

AMC 133.377 Training and checking to be conducted by certain persons

Paragraph 133.377(2)(a) of CASR and section 12.11 of the Part 133 Manual of Standards – use of foreign training organisations for training and checking

This AMC applies to a circumstance where a Part 133 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
- 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

- operator's exposition includes the details of the training organisation's syllabus and completion standards for the training and/or checking event(s)
- 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 133.377 Training and checking to be conducted by certain persons

The MOS content for subparagraph 133.377 (2) (a) (ii) is contained in Division 3 of Chapter 12 of the Part 133 MOS.

Nomination of training/checking personnel

The regulation and MOS provisions set out the requirements for an individual to conduct training and checking activities. One of the requirements stipulates an individual must be nominated in writing[21]. The nomination must be made by an entry in the operator's exposition, or a document provided to CASA by the operator, and state that the individual meets the requirements[22].

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[23]. 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, similar to that shown in Table 10. When a change to the nominated individuals occurred, the new list could be attached to the significant change/non-significant change CASA form. As with any change notification, the change to the document should be clearly identified. Refer to AC 119-07 – Management of change for aviation organisations for further information on the management of change.

[21] Paragraph 12.11(1)(d) of the Part 133 MOS.

[22] Subsection 12.11(2) of the Part 133 MOS.

[23] See regulation 119.020 of CASR.

Table 10: Sample Aviation –Training and Checking Personnel – Part 133 Operations

Name	ARN	Aircraft type	Authorised duties
Hawk	456712	BK117	Flight crew line training and line checks
Goose	123456	BK117	All training and checking duties
Finch	562389	BK117 Eurocopter AS350	General emergency training
Sparrow	987654	All	Flight crew proficiency checks Part 61 Flight Examiner duties
Bird	563489	All	Air crew member training and checking duties

AMC 133.380 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 the crew declaration forms for the flight clearly identify which member of the crew is assigned as PIC.

GM 133.380 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 types would be considered suitable for using a manual tracking tool.

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 133.385 Pilot in command

Reserved.

GM 133.385 Pilot in command

The MOS content for paragraph 133.385 (1) (c) is contained in Division 5 of Chapter 12 of the Part 133 MOS.

This regulation sets out the minimum flying experience requirements for flight operations under Part 133 as a PIC. The operator, however, may stipulate higher minima in its exposition.

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
- for multi-crew operations - successfully completed a command training course
- an authorisation to act as PIC.

In developing the exposition, the operator must consider all aircraft types that it will operate under Part 133.

AMC 133.390 Co-pilot

Reserved.

GM 133.390 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 conduct of 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 133.395 Pilot in command in non-command pilot's seat

Reserved.

GM 133.395 Pilot in command in non-command pilot's seat

The MOS content for paragraphs 133.395 (1) (b) and (2) (b) is contained in Division 6 of Chapter 12 of the Part 133 MOS.

AMC 133.400 Knowledge of route and aerodromes

Reserved.

GM 133.400 Knowledge of route and aerodromes

Route and aerodrome knowledge for a PIC is recommended to encompass 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 service 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 and 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 heliports and helicopter landing sites 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 approach and departure paths

- dimensions of the approach and take-off areas
- ground effect area(s)
- nature and slope (if any) of the surfaces
- tarmac or parking area (if any)
- hazards in the area (such as physical obstacles, persistent turbulence, known animal or insect activity, visual or radio limitations etc)
- any restrictions or specific conditions relating to the use of a particular site and the name, and method, of contacting the owner or controlling authority.

8.2 Division 133.N.2—Flight crew training—miscellaneous

Note: There are no regulations currently in this Division of the CASR. The Division has been reserved for any potential future use, which would only occur following appropriate consultation.

8.3 Division 133.N.3—Operation of rotorcraft of different types

AMC 133.410 Application of Division 133.N.3

Reserved.

GM 133.410 Application of Division 133.N.3

Reserved.

AMC 133.415 Assignment of flight crew to different multi-engine rotorcraft

Reserved.

GM 133.415 Assignment of flight crew to different multi-engine rotorcraft

This regulation outlines that an operator must include procedures in their exposition outlining how, when and the circumstances in which flight crew members are required to operate two or more multi-engine rotorcraft within a duty period.

In developing these procedures, it is important to consider:

- how the operation of different rotorcraft can affect each other, such as negative habit transfers, confusion regarding flight parameters, or differences between units of measurement (imperial/metric)
- circumstances when flight crew can operate different multi-engine rotorcraft
- which different multi-engine rotorcraft that flight crew may be required to operate
- what experience, training or checks will be needed prior to operations, and
- how much time will be given to swap between multi-engine rotorcraft in a duty period.

The intent is not for the operator to dictate unrealistic requirements, but rather to consider the safety risks associated with being current on (and potentially swapping between) more than one multi-engine rotorcraft during a "shift", and to set out suitable, repeatable and consistently safe procedures on how flight crew can achieve this.

As there is an increased risk in such assignment, the operator's SMS should conduct a review of the proposal and a risk assessment and ongoing monitoring of proposal in practice. This can be the basis

for deciding in which circumstances a flight crew member can be assigned to duty and whether this is repeatable within a rostering system.

8.4 Division 133.N.4—Recent experience

AMC 133.420 Recent experience requirements—90 days before flight

Reserved.

GM 133.420 Recent experience requirements—90 days before flight

This regulation relies on the definition of 'kind' in the CASR Dictionary, which states:

> *kind*, of an aircraft, means:
>
> a. for an aircraft that is covered by an aircraft type rating—the aircraft type rating; and
>
> b. for an aircraft that is not covered by an aircraft type rating—the type of aircraft.

The reference to 'type' in paragraph (b) of this definition relies on the definition of 'type' in the CASR Dictionary (see below). Rotorcraft are of the same type if they are mentioned on the same type certificate data sheet (TCDS) of the type certificate (TC) of the rotorcraft.

> *type*, for an aircraft, aircraft engine or propeller, means a design and make of aircraft, aircraft engine or propeller and, where appropriate, refers to a group of essentially similar aircraft, aircraft engines or propellers which, although possibly existing in different models, stem from a common basic design.

The similar Part 135 regulation (regulation 135.425) is subject to an exemption (see section 9C of CASA EX71/24) that enables aeroplanes within a class rating to have a common recency period. This exemption was put in place because many similar aeroplanes are on separate type certificate data sheets and type certificates, for example the C172 and the C182 aeroplanes. This is not necessarily the case for rotorcraft.

Application of this regulation to private operations versus air transport operations

The recent experience requirements of this regulation are for the purposes of the pilot conducting a flight that is an air transport operation.

These recency requirements do not apply when a pilot is conducting a flight that is **not** an air transport operation, even such a flight is conducted for an AOC holder.

Example of a flight that is not an air transport operation

A ferry flight or positioning flight would not be an air transport operation if it was not conducted for hire or reward, or did not carry passengers or cargo.

The ways to maintain or regain the pilot recency required by this regulation are:

- 3 take-off and landings, by day or by night as applicable, within the last 90 days in a rotorcraft of that kind, or an approved flight simulator for a rotorcraft of that kind
- pass a flight test for the grant of a pilot licence or a rating on a pilot licence in a rotorcraft of that kind or an approved flight simulator for the rotorcraft
- successfully completed a proficiency check for the rotorcraft that complies with the requirements prescribed by the Part 133 MOS.

The three take-offs and landings must be conducted while the pilot is controlling the rotorcraft, using the autopilot does not satisfy this regulation.

If a pilot has not flown a particular kind of rotorcraft for a period significantly longer than 90 days, it is recommended that operators consider whether the methods of regaining recency outlined above are sufficient. This would be particularly relevant for flights of greater complexity (for example visual manoeuvring such as offset approaches that may be required to align with the approach path to the FATO).

Recent experience requirements for pilots operating in mixed fleets

Mixed fleet operations require the operator to consider how a rotorcraft fits within the defined term 'kind' of aircraft (see the start of this GM entry for the definition of 'kind').

Example 1 (two types with separate TCDS's)

Your pilot flies the R44 and R66 but has not flown the R44 for 4 months due to exclusively flying the R66 during that period. There is an air transport flight in a few days on the R44 for which you need them to be the pilot.

Factors that you would be considering when designing recency programs for these aircraft are:

- look almost identical and have similar flight and handling characteristics (unlike the R22 and the R44), and airframe external inspections
- different engine types (turbine versus piston) and have engine governing systems which are totally different and work on different principles
- different enduring airworthiness directives
- different pre-start, start, after start and shutdown procedures (one has no clutch, the other has a clutch)
- different fuels (you have identified through your SMS that ATSB reports identify R44’s being mistakenly fuelled with JetA1 and then flown with that wrong fuel
- the level of experience and familiarity of your pilots with these types
- your pilot has not flown the R44 for 4 months, but has flown the R66 every duty day for the last 6 months, so is operationally recent
- your pilot has approximately 200 hours PIC on each type
- your pilot is up to date regarding your T&C systems requirements for day VFR operations.

Primary option (based on your exposition procedures for regaining recency):

- The pilot is still within Part 61 recency for the R44 which enables them to regain R44 air transport recency by conducting 3 x 500ft circuits (approximately 0.3 hours) in the R44 as a non-air transport operation under Part 91.

Alternative option:

- Roster the pilot for a training and checking event in the R44.

Note: A similar example would be the EC120 and EC130, or H120 and H130. These rotorcraft (despite their many similarities externally) are listed on separate TCDS, and therefore for the purposes of regulation 133.420 are different kinds of rotorcraft.

Example 2 (blended fleet - aircraft with significant differences on same TCDS)

Upgrades and model developments across a lengthy period can lead to potentially quite different rotorcraft being the same rotorcraft of that "kind". Examples of rotorcraft listed on the same TCDS despite having different characteristics from a recency and competency of operations perspective include:

- All models of the Airbus Helicopters AS350, H125 and H130 can be considered the same type/kind of rotorcraft as they are on the same TCDS (ie. all models from the AS350B to the AS350B3 and the EC130 B4 and EC130 T2).
- All models of the Bell B206 and the B407 can be considered the same type/kind of rotorcraft as they are on the same TCDS.
- The Enstrom helicopter range models F-28A, 280, F-28C, F-28C-2, 280C, F-28F, F-28F-R, 280F, 280FX, 480 and 480B (the 480 and 480B are turbine versions of the same helicopter) have the same TCDS.
- An operator operating these aircraft should carefully consider how they satisfy the competence requirement at regulation 133.375.

9 Subpart 133.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, where the operator did not take advantage of the exemptions contained in Parts 6 and 8 of the now repealed CASA EX87/21 or contemporary CASA EX73/24, 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 133, the relevant instruments are CASA 90/21 (related to Part 119 requirements) and CASA 92/21 (related to Part 133 requirements).

There is an exemption in force in relation to Subpart 133.P and Subpart 91.P of CASR that effectively permits operators to use the Part 133 cabin crew requirements instead of the Part 91 cabin crew requirements during a private operation conducted by the operator. It is recommended that operators review section 17 of CASA EX70/24.

There are also exemptions in in force in relation to the training and checking of cabin crew members. These exemptions apply to certain operators. It is recommended that operators review Parts 6 and 8 of CASA EX73/24.

In May 2024, CASA announced that operators who were using the exemptions in Part 8 of the then CASA EX87/21 (now CASA EX73/24) to defer compliance with the new Part 119 and 133 training and checking requirements needed to submit documentation to CASA by the end of 31 August 2024 associated with their compliance with these requirements and implement their new procedures by the end of 28 February 2025, unless otherwise advised by CASA.

For these operators, the exemption CASA EX77/24 provides a mix of permanent recognition of prior training events and temporary recognition of prior checking events.

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 EX67/24.

9.1 Division 133.P.1—Cabin crew

AMC 133.425 Number, qualifications, experience and training

Reserved.

GM 133.425 Number, qualifications, experience and training

The MOS content for this regulation is contained in Chapter 13 of the Part 133 MOS.

This regulation sets out requirements for the cabin crew composition to conduct a Part 133 operation. It may also prescribe requirements relating to training and checking that must be completed by a cabin crew member for a flight of a rotorcraft.

As a general guide to being cabin safety supervisory personnel refer to CASA's Cabin Safety Supervisory Personnel Guide.

AMC 133.430 Competence

Reserved.

GM 133.430 Competence

Refer to GM 133.460.

AMC 133.435 Minimum age

Reserved.

GM 133.435 Minimum age

Reserved.

AMC 133.440 English proficiency

Reserved.

GM 133.440 English proficiency

Refer to GM 133.465.

AMC 133.445 Assignment to duty as senior cabin crew member

Reserved.

GM 133.445 Assignment to duty as senior cabin crew member

This regulation sets out the requirement for the operator to have a procedure in place that determines who the senior cabin crew member for the flight is.

AMC 133.450 Training and checking requirements for senior cabin crew member

Reserved.

GM 133.450 Training and checking requirements for senior cabin crew member

Reserved.

9.2 Division 133.P.2—Air crew

The Civil Aviation Safety Amendment (Operations Definitions) Regulations 2019 defines the term 'air crew member' to mean; a crew member for a flight of an aircraft (other than a flight crew member) who carries out a function during the flight relating to the safety of the operation of the aircraft, or the safety of the use of the aircraft.

AMC 133.455 Training and checking

Reserved.

GM 133.455 Training and checking

With the absence of any crew licencing regulation, such as Part 61 for flight crew, any training and checking for air crew is captured within the operator's exposition.

Refer to Chapter 14 of the Part 133 MOS.

For more information, refer to AC 119-11 - Training and checking systems (note there are Annexes to this AC that are separate downloads).

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 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 similar to that shown in Table 11. 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.

[24] Paragraph 14.11(1)(d) of the Part 133 MOS.

[25] Subsection 14.11(2) of the Part 133 MOS.

[26] Regulation 119.020. of CASR

[27] Refer also to AC 119-07 – Management of change for aviation organisations.

Table 11: Sample Aviation –Training and Checking Personnel – Part 133 Operations

Name	ARN	Aircraft type	Authorised duties
Hawk	456712	BK117	Air crew line training and line checks
Goose	123456	BK117	All training and checking duties
Finch	562389	BK117 Eurocopter AS350	General emergency training
Sparrow	987654	All	Air crew proficiency checks Part 61 Flight Examiner duties
Bird	563489	All	Air crew member training and checking duties

AMC 133.460 Competence

Reserved.

GM 133.460 Competence

This regulation requires an operator to assess an air crew member in accordance with the operator's training and checking system as competent to perform the duty assigned to them before assigning them to duty for a flight. It should provide standards for the minimum level of competence for air crew operating under this Part. 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.

An SMS will be crucial in this development, and operations identified by an 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 air crew who fail to maintain an adequate standard of competency in their duties. Regulations cannot prescribe the remedial training required, and an operator should take reasonable steps to assist in bringing the air crew member back to a suitable level of competency.

Refer to AC 119-11 - Training and checking systems (note there are Annexes to this AC that are separate downloads) for further guidance.

AMC 133.465 English proficiency

Reserved.

GM 133.465 English proficiency

This regulation sets out the minimum level of English proficiency required prior to carrying out the duties of an air crew person. Further details on the requirements can be found in the Part 61 MOS, on the English language proficiency requirements webpage on the Skybrary website, and on the English language proficiency requirements webpage on the CASA website.

9.3 Division 133.P.3—Medical transport specialists

AMC 133.470 Training and checking

Reserved.

GM 133.470 Training and checking

Part 133 provides for the carriage on medical transport operations (MTO) of medical transport specialists (MTS) crew members.

> **Note:** See GM 133.005 for an explanation of why medical transport specialists are not taken to be medical personnel for the purposes of the definition of medical transport operation.

To establish this crew member relationship to the operator, Part 133 requires that MTS are trained and found competent by the operator to perform this role and specified function for their operations.

Regulation 133.470 outlines that the Part 133 MOS may prescribe requirements relating to training and checking that must be completed by MTS for a flight of a rotorcraft for the operator. These requirements are outlined in chapter 15 of the Part 133 MOS.

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.

Whilst MTS are normally also trained medical personnel, it is vital to remember they are authorised (by the operator) as crew members for the flight and are obligated to follow the operator's exposition requirements for their role in the aircraft.

This crew member relationship is important for operators to consider in their SOPs, 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 MTS. These non-crew member medical personnel must be managed appropriately by the operator's procedures in their exposition 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 15 of the Part 133 MOS.

MTS training and checking

Refer to GM 133.455 and Chapter 15 of the Part 133 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[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 shown in Table 12. When a change to the nominated individuals occurred, the new list could be attached to the significant change/non-significant change CASA form. As with any change notification, the change to the document should be clearly identified. Refer to AC 119-07 – Management of change for aviation organisations for further information on managing change.

Table 12: Sample Aviation –Training and Checking Personnel – Part 133 Operations

Name	ARN	Aircraft type	Authorised duties
Hawk	456712	BK117	Flight crew line training and line checks
Goose	123456	BK117	All training and checking duties
Finch	562389	BK117 Eurocopter AS350	General emergency training
Sparrow	987654	All	Flight crew proficiency checks Part 61 Flight Examiner duties
Bird	563489	All	Air crew member training and checking duties

[28] Paragraph 15.11(1)(d) of the Part 133 MOS

[29] Subsection 15.11(2) of the Part 133 MOS.

[30] Regulation 119.020.

AMC 133.475 Competence

Reserved.

GM 133.475 Competence

Regulation 133.475 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 useful in this development. Operations identified by an 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 members 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 (note there are Annexes to this AC that are separate downloads).