



Part 133 (Australian Air Transport Operations—Rotorcraft) Manual of Standards 2020 (as amended)

made under the *Civil Aviation Safety Regulations 1998*.

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Contents

Chapter 1 — Preliminary	1
1.01 Name	1
1.03 Authority	1
1.04 Definitions and abbreviations.....	1
1.05 Meaning of <i>medical transport operating site</i>	3
1.06 References to ICAO documents	4
1.07 References to AS/NZS standards, TSOs, ETSOs etc.....	4
1.08 Applied, adopted or incorporated documents.....	5
Chapter 2 — Operational limitations	6
2.01 Permitted categories of rotorcraft.....	6
2.02 Requirement, or limitation, in flight manual.....	6
Chapter 3 — Carriage of documents and information	7
Division 1—Flight-related documents	7
3.01 Carriage of documents.....	7
3.02 Carriage of documents—flights that begin, or end, outside Australian territory.....	8
3.03 Keeping and updating documents etc.....	8
Division 2—Emergency and survival equipment	8
3.04 Information about emergency and survival equipment.....	8
Chapter 4 — Operational flight plans	10
4.01 Pre-flight content of operational flight plan.....	10
4.02 End of flight information for operational flight plans.....	11
Chapter 5 — Medical transport operations	12
Division 1—External load operation conducted during medical transport operation	12
5.01 Definitions for Division 1.....	12
5.02 Purpose of sections 5.03 to 5.06.....	12
5.03 Requirements generally.....	12
5.04 Pilot in command to consider risk etc.....	13
5.05 Ongoing risk-monitoring.....	13
5.06 Compliance with, or approval under, Part 21 of CASR.....	13
5.07 Operator’s exposition	13
Division 2—Minimum height rules for medical transport operation	14
5.08 Prescribed circumstances	14
5.09 Purpose of sections 5.10 to 5.12.....	14
5.10 Requirements for IFR flight, or VFR flight at night, during medical transport operation	14
5.11 Requirements for flight over populous area or public gathering.....	15
5.12 Requirements for flight other than over a populous area or public gathering.....	16
Chapter 6 — Fuel requirements	17
6.01 Purpose of Chapter 6	17
6.02 Definitions for Chapter 6.....	17
6.03 General requirements	19
6.04 Amounts of fuel to be carried on board for a flight.....	20
6.05 Requirements for determining fuel before, and monitoring fuel during, flight	21
6.06 Procedures if fuel reaches specified amount	21

6.07 Operational variations—fuel calculations	22
Chapter 7 — Safety briefings, instructions and demonstrations	24
7.01 Safety briefing card	24
7.02 Safety briefings, instructions, or demonstrations, before take-off	24
7.03 Safety instructions during flight	27
Chapter 7A — Head-up display, enhanced vision system and synthetic vision system	28
7A.01 Requirements for use of head-up display, enhanced vision system and synthetic vision system	28
Chapter 8 — NVIS flights	29
Division 1—Purpose, application and definitions	29
8.01 Purpose	29
8.01A Application	29
8.02 Definitions	29
Division 2—Requirements for an NVIS flight	31
8.03 General requirements for NVIS flights	31
8.04 HLS-NVIS standard	31
8.05 HLS-NVIS basic.....	31
8.06 No formation flights for NVIS flights.....	32
8.07 Alternate lighting requirements for NVIS flights.....	32
Division 3—Additional requirements for NVIS operations	32
8.08 Helicopter lighting.....	32
8.09 Minimum height under the NVFR or the IFR.....	33
8.10 Weather requirements — cloud.....	34
Chapter 9 — Wearing of seatbelt, safety harness or restraint strap etc.	35
9.01 Exemption	35
9.02 Restraining of persons on a flight of a rotorcraft	35
9.03 Fastening of seatbelt or shoulder harness — passengers	35
9.04 Wearing of safety harness and restraint strap, or restraining on stretcher etc. — medical transport operation	35
9.05 Wearing of safety harness and restraint strap — certain crew members	37
Chapter 10 — Performance	39
Division 1—Preliminary	39
10.01 Definitions for Chapter 10.....	39
10.02 Meaning of <i>adequate vertical margin</i>	41
10.03 Meaning of <i>take-off distance required – rotorcraft</i>	41
10.04 When a rotorcraft is flown in <i>performance class 1</i>	42
10.05 When a rotorcraft is flown in <i>performance class 2</i>	42
10.06 When a rotorcraft is flown in <i>performance class 2 with exposure</i>	43
10.07 When a rotorcraft is flown in <i>performance class 3</i>	43
Division 2—Flight in performance class 1 or 2 or performance class 2 with exposure	43
10.08 Requirement to be a Category A rotorcraft.....	43
Division 3—Flight in performance class 2 with exposure	44
Subdivision 1—Preliminary	44
10.09 Definitions for Division 3.....	44

Subdivision 2—Requirements to be complied with	44
10.10 Purpose of Subdivision 2.....	44
10.11 Maximum permitted exposure time	44
10.12 Take-off weight limitations.....	45
10.13 Preventative maintenance.....	45
10.14 Risk assessments	45
10.15 Flight manual and exposition	46
10.16 Flight crew training and checking requirements	46
Subdivision 3—Information to be included in application for approval	46
10.17 Purpose of Subdivision 3.....	46
10.18 Reliability and sudden power loss.....	46
10.19 Type certificate holder’s modification standard.....	47
10.20 Preventative maintenance.....	47
10.21 Risk assessment.....	47
10.22 Usage monitoring system.....	48
10.23 Flight manual and operator’s exposition	48
10.24 Flight crew training and checking	48
10.25 Incident reporting	49
Division 4—Flight in performance class 3	49
10.26 Flight in performance class 3 over populous areas	49
Division 5—Rotorcraft performance — exposition — procedures for stages of flight	49
10.27 Exposition procedures for operations — rotorcraft flown in performance class 1	49
10.28 Exposition procedures for operations — rotorcraft flown in performance class 2 or performance class 2 with exposure	50
10.29 Exposition procedures for operations — rotorcraft flown in performance class 3	51
10.30 Exposition procedures for operations — general	52
Division 6—Rotorcraft performance — pre-flight	52
10.31 Pre-flight determination of performance.....	52
10.32 Pre-flight identification of relevant obstacles	52
Division 7—Rotorcraft performance — performance class 1	56
10.33 Performance class 1 — take-off.....	56
10.34 Performance class 1 — take-off and initial climb.....	57
10.35 Performance class 1 — en route.....	57
10.36 Performance class 1 — approach and landing, or baulked landing	59
Division 8—Rotorcraft performance — performance class 2	60
10.37 Performance class 2 — take-off.....	60
10.38 Performance class 2 — take-off and initial climb.....	60
10.39 Performance class 2 — en route.....	60
10.40 Performance class 2 — approach and landing, or baulked landing	61
Division 9—Rotorcraft performance — performance class 3	61
10.41 Performance class 3 — take-off.....	61
10.42 Performance class 3 — take-off and initial climb.....	62
10.43 Performance class 3 — en route.....	63
10.44 Performance class 3 — approach and landing, or baulked landing	63
Chapter 11 — Equipment	64
Division 1—General	64
11.01 Purpose of Chapter 11 etc.	64

Division 2—Approvals, visibility and inoperability	64
11.02 Approval of rotorcraft equipment.....	64
11.03 Visibility and accessibility of equipment	65
11.04 Serviceability of equipment.....	65
Division 3—Flight instruments	66
11.05 Day VFR flight instrument requirements.....	66
11.06 Night VFR flight instrument requirements	67
11.07 IFR flight instruments	69
Division 4—Operational equipment	71
11.08 Radiocommunication systems.....	71
11.09 Navigation equipment	72
11.10 Automatic pilot.....	73
11.11 Survival equipment.....	74
Division 5—Lighting systems	74
11.12 Cockpit, and cabin, lighting requirements.....	74
11.13 Anti-collision lights.....	75
11.14 Landing lights.....	75
11.15 Navigation lights	76
Division 6—Alerting and warning system requirements	76
11.16 Altitude alerting equipment and assigned altitude indicator	76
11.17 Rotorcraft flown with inoperative altitude alerting equipment or assigned altitude indicator	76
11.18 Terrain awareness and warning system (TAWS).....	76
11.19 Flight with inoperative TAWS equipment.....	77
11.20 Airborne weather radar equipment.....	77
11.21 Flight with inoperative airborne weather radar equipment	77
Division 7—Flight recorders	78
11.22 Definitions for Division 7.....	78
11.23 Flight data recorder	78
11.24 Cockpit voice recorder.....	78
11.25 Combination recorders	78
11.26 FDR, CVR and combination recorder technical requirements.....	78
11.27 Use of FDR, CVR and combination recorders.....	79
11.28 Flight with an inoperative FDR, CVR or combination recorder	80
11.29 Data link recorder.....	80
Division 8—Rotorcraft interior communication systems	80
11.30 Flight crew intercommunication system	80
11.31 Crew interphone system	81
11.32 Public address system.....	81
Division 9—Oxygen equipment and oxygen supplies	82
11.33 Definitions for Division 9.....	82
11.34 Supplemental oxygen — pressurised rotorcraft	82
11.35 Supplemental oxygen — unpressurised rotorcraft	84
11.36 Oxygen mask — pressurised rotorcraft.....	85
11.37 Oxygen dispensing units for passengers in a pressurised rotorcraft	85
11.38 Protective breathing equipment — flight crew members.....	86
11.39 Portable protective breathing equipment.....	86
11.40 First aid oxygen equipment — pressurised rotorcraft	87

Division 10—Emergency locator transmitters	88
11.41 Carriage of ELTs	88
11.42 ELT — basic technical requirements	89
11.43 Requirements to be classed as an automatic ELT	89
11.44 Requirements to be classed as a survival ELT	90
11.45 Transitional requirements for ELTs	90
Division 11—Portable emergency equipment	90
11.46 Hand-held fire extinguishers	90
11.47 First-aid kits.....	91
Division 12—Equipment for flights over water	91
11.48 Sea anchors etc. and sound signals — certain rotorcraft.....	91
11.49 Life jackets and infant flotation cots	92
11.50 Life raft carriage requirements	92
11.51 Emergency flotation equipment	94
Division 13—Surveillance equipment	95
11.52 Definitions for Division 13.....	95
11.53 Carriage of surveillance equipment.....	97
11.54 Operation of surveillance equipment — general requirements.....	99
11.55 Mode S transponders and ADS-B OUT — specific requirements.....	100
11.56 Alternate GNSS position source for ADS-B OUT — requirements.....	102
11.57 Alternate ADS-B OUT equipment configuration — requirements.....	102
11.58 Rotorcraft flown with inoperative surveillance equipment.....	103
Division 14—Equipment for NVIS flights	103
11.59 Purpose	103
11.59A Application	103
11.60 Definitions	103
11.61 General and lighting standards for NVIS flights.....	104
11.62 Performance and other specifications for NVG image intensifier tubes.....	104
11.63 Maintenance of the NVIS and its components.....	107
11.64 Minimum equipment for NVIS flight	109
Chapter 12 — Flight crew member training and checking	110
Division 1—Preliminary	110
12.01 Definitions for Chapter 12.....	110
Division 2—Flight crew member training and checking events	110
12.02 Purpose of Division 2	110
12.03 Training and checking requirements	110
12.04 General emergency training	111
12.05 Conversion training and flight crew member proficiency check	111
12.06 Line training and flight crew member line check.....	111
12.07 Differences training.....	112
12.08 Recurrent training and checking.....	112
12.09 Remedial training	113
Division 3—Individuals who conduct training and checking	114
12.10 Purpose of Division 3	114
12.11 Requirements for individual conducting training and checking	114
12.12 CASA may test nominated individual.....	114

Division 4—Use of available approved flight simulator	116
12.13 Use of available approved flight simulator for training or checking etc.....	116
Division 5—Command training for pilot in command	117
12.14 Command training requirements	117
Division 6—Pilot in command in non-command seat	118
12.15 Non-command seat proficiency check requirements	118
Chapter 13 — Cabin crew member training and checking	119
13.01 Prescribed circumstances and number	119
13.02 Training and checking requirements	119
13.03 Who may conduct training and checking etc.	119
Chapter 14 — Air crew member training and checking	120
Division 1—Preliminary	120
14.01 Definitions for Chapter 14.....	120
Division 2—Air crew member training and checking events	120
14.02 Purpose of Division 2	120
14.03 Training and checking requirements	120
14.04 General emergency training	121
14.05 Conversion training and air crew member proficiency check.....	121
14.06 Line training and air crew member line check	121
14.07 Differences training.....	122
14.08 Recurrent training and checking.....	122
14.09 Remedial training	123
Division 3—Individuals who conduct training and checking	123
14.10 Application of Division 3	123
14.11 Requirements for individual conducting training and checking	123
14.12 CASA may test nominated individual.....	124
Chapter 15 — Medical transport specialist training and checking	125
Division 1—Preliminary	125
15.01 Definitions for Chapter 15.....	125
Division 2—Medical transport specialist training and checking events	125
15.02 Purpose of Division 2	125
15.03 Training and checking requirements	125
15.04 General emergency training	126
15.05 Conversion training and medical transport specialist proficiency check.....	126
15.06 Line training and medical transport specialist line check	126
15.07 Differences training.....	127
15.08 Recurrent training and checking.....	127
15.09 Remedial training	128
Division 3—Individuals who conduct training and checking	128
15.10 Application of Division 3	128
15.11 Requirements for individual conducting training and checking	129
15.12 CASA may test nominated individual.....	129
Notes to Part 133 (Australian Air Transport Operations—Rotorcraft) Manual of Standards 2020.....	130

Chapter 1 — Preliminary

1.01 Name

- (1) This instrument is the *Part 133 (Australian Air Transport Operations—Rotorcraft) Manual of Standards 2020*.
- (2) This instrument may be cited as the *Part 133 Manual of Standards*.
- (3) Unless the contrary intention appears, references in this instrument to “this Manual of Standards”, “this MOS” or “this instrument” are references to the *Part 133 Manual of Standards*.

1.03 Authority

This instrument is made under the *Civil Aviation Safety Regulations 1998*.

Note: Regulation 133.020 of CASR provides a general power for CASA to issue a Manual of Standards for the purposes of Part 133 of CASR (Australian air transport operations — rotorcraft).

1.04 Definitions and abbreviations

Note: Some expressions used in this instrument are defined in section 3 of the *Civil Aviation Act 1988*, the Dictionary of the *Civil Aviation Safety Regulations 1998* or subregulation 2(1) of the *Civil Aviation Regulations 1988*.

- (1) In this instrument, a reference to a class of airspace means the volumes of airspace of that class, as determined by CASA in or under the *Determination of Airspace and Controlled Aerodromes Etc. (Designated Airspace Handbook) Instrument*, as in force from time to time.

Note: The *Determination of Airspace and Controlled Aerodromes Etc. (Designated Airspace Handbook) Instrument* is a legislative instrument that is revised and reissued by CASA approximately every 6 months. Airspace details from the Determination in force at any particular time are also published by Airservices Australia in the Designated Airspace Handbook available free online at www.airservicesaustralia.com.

- (2) In this instrument:

alternate aerodrome has the same meaning as in Annex 2 to the Chicago Convention.

Note: At the commencement of this instrument, Chapter 1 of Annex 2 to the Chicago Convention included the following definition:

“***Alternate aerodrome.*** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at an aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.”

APU means auxiliary power unit.

ATC means air traffic control.

ATS means Air Traffic Services.

Note: The term *Air Traffic Services* is defined in the Dictionary.

automatic ELT: see section 11.43.

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.

destination alternate aerodrome means an alternate aerodrome that is a destination alternate (within the meaning of Annex 2 to the Chicago Convention).

ELT: see section 11.42.

en route alternate aerodrome means an alternate aerodrome that is an en-route alternate (within the meaning of Annex 2 to the Chicago Convention).

(E)TSO means ETSO or TSO.

final approach and take-off area, for a rotorcraft at an aerodrome, means the area of the aerodrome:

- (a) from which a take-off of the rotorcraft is commenced; or
- (b) over which the final phase of approach to hover is completed by the rotorcraft.

GNSS means global navigation satellite system.

headset includes a flying helmet that incorporates a headset.

landing performance requirements, for a rotorcraft, means the landing performance requirements for the rotorcraft stated in its flight manual.

LSALT means lowest safe altitude.

minimum flight altitude, for a point on the route, or a route segment, of a flight of a rotorcraft, means:

- (a) for an IFR flight, or VFR flight at night:
 - (i) the published LSALT for the route or route segment; or
 - (ii) if subparagraph (i) does not apply — the LSALT for the route or route segment; or

-
- (b) for a VFR flight at night, when not using the LSALT determined under paragraph (a) — 1 000 ft above the highest feature or obstacle on the ground or water within 10 nautical miles ahead, and to either side, of the rotorcraft at that point; or
 - (c) for a VFR flight by day over a populous area — 1 000 ft above the highest feature or obstacle within a horizontal radius of 300 m of that point on the ground or water immediately below the rotorcraft; or
 - (d) for a VFR flight by day, other than over a populous area — 500 ft above the highest feature or obstacle within a horizontal radius of 300 m of that point on the ground or water immediately below the rotorcraft.

MTOW means maximum take-off weight.

NAA means national aviation authority.

NVIS means night vision imaging system.

NVIS operation has the meaning given by subsection 8.02(1) of this MOS.

operative, for anything, means the thing is not inoperative.

Note: The term **inoperative** is defined in the Dictionary.

passenger list, for a flight, means a passenger list for the flight, or other document, stating the information stated in subregulation 133.080(2) of CASR.

performance class 1: see section 10.01.

performance class 2: see section 10.01.

performance class 2 with exposure: see section 10.01.

performance class 3: see section 10.01.

recognised foreign State has the meaning given by regulation 61.010 of CASR.

survival ELT: see section 11.44.

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.

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- (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.

1.06 References to ICAO documents

- (1) In this instrument, unless the contrary intention appears, a reference to an ICAO document, however described, is a reference to the document as in force or existing from time to time.
- (2) In this instrument, a reference to a numbered ICAO Annex is a reference to the Annex of that number, as in force or existing from time to time, and as included in the Chicago Convention.
- (3) In this instrument, a reference to a numbered ICAO Manual is a reference to the Manual of that number, or later version, as in force or existing from time to time and issued by ICAO.
- (4) In this instrument, a reference to a numbered ICAO Circular is a reference to the Circular of that number, or later version, as in force or existing from time to time and issued by ICAO.
- (5) If a provision of this instrument refers to an ICAO document, then, unless the contrary intention appears, the document, as in force or existing from time to time, is taken to be applied, adopted or incorporated by, into or for this instrument, as the case requires.

Note 1: Relevant ICAO documents for this MOS may be accessed by navigating from the following link: <http://www.icao.int/publications/Pages/default.aspx>.

Note 2: A reference to an ICAO document, including an ICAO Annex, which only occurs in a Note to a provision does not have the effect that the document is taken to be applied, adopted or incorporated for this instrument, unless the contrary intention appears. Such references in Notes are to documents that may be used as guidance or background information.

1.07 References to AS/NZS standards, TSOs, ETSOs etc.

- (1) In this instrument, unless a contrary intention appears, a reference to a particular AS/NZS standard is a reference to the particular joint Australian and New Zealand Standard, as in force or existing from time to time.

Note: For example, the joint Australian and New Zealand Standard AS/NZS 1754:2004, *Child restraint systems for use in motor vehicles*.

- (2) In this instrument, unless a contrary intention appears, a reference to a particular TSO is a reference to that TSO or a later version of that TSO.

(3) In this instrument, unless a contrary intention appears, a reference to a particular ETSO is a reference to that ETSO or a later version of that ETSO.

Note 1: The first version of a TSO may have been issued with, or without, the notation “(0)” at the end (for example only, the citations of TSO-C129 and TSO-129(0) would refer to the same document). Therefore, for first version TSOs, either form is an acceptable citation.

Note 2: TSO later versions are identified by an alphabetical letter (for example only, TSO- C129 (or TSO-C129(0) versus TSO-C129a). Unless the contrary intention appears, a reference to (for example only) TSO-C129 (or TSO-C129(0)) means that version or a later version. A reference to TSO-C129a means that version or a later version, but not the earlier version, unless a contrary intention appears.

1.08 Applied, adopted or incorporated documents

In this instrument, a reference in a provision to a document that is applied, adopted or incorporated for the purposes of the provision is a reference to the document as it exists or is in force from time to time, unless the contrary intention is expressly stated by the reference being to a specifically dated version of the document.

Chapter 2 — Operational limitations

2.01 Permitted categories of rotorcraft

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2.02 Requirement, or limitation, in flight manual

- (1) For paragraph 133.030(2)(a) of CASR, each of the following circumstances are prescribed:
 - (a) a rotorcraft is conducting a medical transport operation at a medical transport operating site, and the rotorcraft's operator has risk-assessed the operation and found the site to be a suitable place to operate the rotorcraft safely;
 - (b) a rotorcraft is conducting an external load operation, during a medical transport operation, involving winching a person or load, and the rotorcraft's operator has applied the risk assessment and management processes stated in the operator's exposition to the external load operation;
 - (c) a rotorcraft is being flown in performance class 2 with exposure during the take-off stage, or approach and landing, or baulked landing stage, of a flight.
- (2) For paragraph 133.030(2)(b) of CASR, the kind of requirement or limitation that is prescribed is a limitation stated in the rotorcraft's flight manual that restricts the operation of the rotorcraft, by its pilot in command, inside the rotorcraft's avoid area of the HV envelope.
- (3) In this section:

winching means the pick-up, or lowering, of an object or person to, or from, the rotorcraft by means of a winch or hoist fitted to the rotorcraft.

Chapter 3 — Carriage of documents and information

Division 1—Flight-related documents

3.01 Carriage of documents

- (1) For paragraph 133.055(1)(a) of CASR, the following documents are prescribed:
- (a) the rotorcraft's aircraft flight manual instructions;
 - (b) either:
 - (i) the rotorcraft's flight technical log; or
 - (ii) if Part 42 of CASR does not apply to the rotorcraft — the maintenance release for the rotorcraft;
 - (c) if there is required to be a minimum equipment list for the rotorcraft under regulation 133.035 of CASR — the rotorcraft's minimum equipment list;
 - (d) if an operational flight plan for the flight is required under regulation 133.135 of CASR — the operational flight plan for the flight;
 - (e) the journey log for the flight;
 - (f) the authorised aeronautical information for the flight;
 - (g) the weight and balance documents for the flight.

Note 1: These documents are in addition to documents that are required to be carried on the rotorcraft, as stated in subregulations 133.055(2) and (3), and regulation 133.065, of CASR.

Note 2: Other documents may also be required to be carried on the rotorcraft under other legislation. For example, documentation relating to the carriage of dangerous goods under Part 92 of CASR, or documentation relating to aircraft disinsection requirements and procedures under the *Biosecurity Act 2015*.

- (2) Despite paragraph (1)(a), if:
- (a) the information and instructions that are required under the relevant airworthiness standards for the rotorcraft to be included in the rotorcraft's flight manual are contained in another document; and
 - (b) the other document is carried on board the rotorcraft; and
 - (c) that document does not alter, or contain anything that would conflict with, the information, or instructions, mentioned in paragraph (a);

the document may be carried on board the rotorcraft in place of the flight manual.

Note: An exposition that meets the requirements in subsection (2) could be carried on board instead of the flight manual.

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- (3) Also, despite paragraph (1)(a), if:
- (a) a checklist of the rotorcraft's normal, abnormal and emergency procedures mentioned in paragraph (b) of the definition of *aircraft flight manual instructions* in the Dictionary is contained in another document; and
 - (b) the other document is carried on board the rotorcraft; and
 - (c) that document does not alter, or contain anything that would conflict with, the information or instructions in the checklist;
- then the document may be carried on board the rotorcraft in place of the checklist.

3.02 Carriage of documents—flights that begin, or end, outside Australian territory

For paragraph 133.065(3)(a) of CASR, the following documents are prescribed:

- (a) the rotorcraft's certificate of registration;
- (aa) for a registered rotorcraft — the rotorcraft's certificate of airworthiness;
- (ab) for a foreign-registered rotorcraft — the rotorcraft's authorisation (however described) that is equivalent to a certificate of airworthiness;
- (b) if the rotorcraft has a radio station licence — a copy of the licence;
- (c) if the flight is a passenger transport operation or medical transport operation — a document containing the information required by regulation 133.080 of CASR (Passenger lists);
- (d) if the rotorcraft is carrying cargo, other than passenger baggage:
 - (i) a manifest and detailed declaration of the cargo; and
 - (ii) a statement about whether any of the cargo may require special, or unusual, handling;
- (e) a certified true copy of the operator's Australian air transport AOC;
- (f) a copy of the operations specifications issued to the operator in relation to the operator's Australian air transport AOC.

Note 1: These documents are in addition to documents that are required to be carried on the rotorcraft, as stated in regulation 133.055 of CASR.

Note 2: For paragraph (b): see the definition of *radio station licence* in the Dictionary.

3.03 Keeping and updating documents etc.

For paragraph 133.070(a) of CASR, if the flight is a passenger transport operation, a copy of the passenger list for the flight is prescribed.

Division 2—Emergency and survival equipment

3.04 Information about emergency and survival equipment

For subregulation 133.105(1) of CASR, if equipment listed in column 1 of an item of the Table 3.04 is required to be carried for the flight under the civil aviation legislation, the information mentioned in column 2 of the item is prescribed for the equipment.

Table 3.04—Information about emergency and survival equipment

Item	Column 1 Equipment	Column 2 Information
1	A life raft	The number, colour and type of each life raft carried on the rotorcraft
2	A signalling device	The number, colour and each type of signalling device carried on the rotorcraft
3	A first-aid kit	Details of the emergency medical supplies in the first-aid kit
4	A survival ELT	The type and frequency of each survival ELT carried on the rotorcraft
5	Water supplies carried as an item of survival equipment	Details of water supplies carried on the rotorcraft

Chapter 4 — Operational flight plans

4.01 Pre-flight content of operational flight plan

- (1) This section prescribes the information for paragraph 133.135(2)(b) of CASR.

General information requirements

- (2) The operational flight plan must include the following information:
- (a) the rotorcraft's registration mark;
 - (b) the flight number of the flight, if any;
 - (c) the date of the flight;
 - (d) the name, or identification, of the departure aerodrome, and planned destination aerodrome, for the flight;
 - (e) whether the flight is planned, whether in whole or part, to be a VFR flight at night, an IFR flight or both;
 - (f) the amount of fuel required to be carried on board the rotorcraft for the flight under regulation 133.190 of CASR, and the actual amount of fuel carried on board the rotorcraft for the flight;
 - (g) for the planned flight route for the flight:
 - (i) the route and route segments of the flight, including waypoints, distances and tracks; and
 - (ii) for a VFR flight at night or IFR flight — the published LSALT, or LSALT, for the flight (whichever is applicable), for each route segment of the flight; and
 - (iii) the planned cruising speed, and flying times between waypoints, for the flight; and
 - (iv) the planned altitudes or flight levels during the flight.

Information about alternate aerodromes

- (3) If a destination alternate aerodrome is required for the flight, the operational flight plan must include details of the destination alternate aerodrome, and the routes, or route segments, required for the flight to the destination alternate aerodrome, unless:
- (a) there is a last-minute change:
 - (i) to the destination alternate aerodrome required for the flight; or
 - (ii) requiring a destination alternate aerodrome to be planned for the flight; and
 - (b) it is not reasonably practicable in the circumstances to update the flight plan to include either or both matters; and
 - (c) in the case where the information identifying the destination alternate aerodrome is not included — there are procedures in the rotorcraft operator's exposition to ensure the pilot in command is notified of the details of the destination alternate aerodrome before the rotorcraft takes-off for the flight.

4.02 End of flight information for operational flight plans

For paragraph 133.135(3)(a) of CASR, the following information is prescribed:

- (a) if waypoints detailed in the flight plan are required, under regulation 91.630 of CASR, to be reported to ATS — the estimated time the rotorcraft flew over each waypoint;
- (b) the fuel calculations made in compliance with the fuel requirements under Chapter 6;
- (c) the aerodrome of final landing for the flight.

Chapter 5 — Medical transport operations

Division 1—External load operation conducted during medical transport operation

5.01 Definitions for Division 1

In this Division:

external load operation includes a series of external load operations carried out at a site.

risk considerations, for an external load operation, means the following considerations:

- (a) the potential for exposure of other persons, or property, to injury or damage because of the operation;
- (b) the potential for exposure of any flight crew member, air crew member, or medical transport specialist, for the flight, or medical patient on the flight, to injury because of the operation;
- (c) the nature of the operation, and its characteristics;
- (d) the nature of the location of the operation, and its characteristics;
- (e) the nature of the rotorcraft to be used in the operation, its characteristics, and its performance class capabilities, if applicable;
- (f) the nature and extent of the qualifications and experience of the flight crew members, air crew members, and medical transport specialists, for the flight;
- (g) the hazards, external to the rotorcraft, which may be encountered during the operation.

safe risk strategies, for an external load operation, means risk and hazard elimination, reduction, or mitigation, strategies for the operation.

5.02 Purpose of sections 5.03 to 5.06

Sections 5.03 to 5.06 prescribe requirements for paragraph 133.295(1)(b) of CASR in relation to an external load operation, conducted during a medical transport operation, involving winching a person.

5.03 Requirements generally

- (1) The rotorcraft must have a performance capability that allows it, with 1 engine inoperative from 300 ft above the site, to carry out a positive climb of at least 150 ft per minute at 1 000 ft above the medical transport operating site for the external load operation, and clear any obstacles in the flight path until it reaches the minimum flight altitude for a point on the route for the flight.
- (2) During the flight, the person must be carried outside the rotorcraft only for the minimum time necessary to achieve the operation's objective.

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- (3) The operation must meet the risk assessment requirements stated in this Division.

5.04 Pilot in command to consider risk etc.

- (1) Before and during the external load operation, the pilot in command must identify, and consider, the risks of the operation, having regard to the risk considerations.
- (2) Risks must be considered in the context of the nature, size and complexity of the operation, and reasonably satisfy the pilot in command that the operation:
- (a) is within the capability of the rotorcraft; and
 - (b) does not involve an unacceptable level of risk, as specified in the operator's exposition.
- (3) As a result of identified risks, the pilot in command must develop appropriate safe risk strategies for the operation.

5.05 Ongoing risk-monitoring

The pilot in command must, during the external load operation:

- (a) actively monitor the hazards and risks relevant to the operation; and
- (b) identify the following:
 - (i) any new operationally-relevant information;
 - (ii) any changed considerations, assessments or circumstances arising during the operation;
 - (iii) any unforeseen matters arising during the operation;
 - (iv) any new, or emerging, hazards and risks relevant to the operation, identified by the pilot in command, or that the pilot in command has been informed of by another crew member for the flight; and
- (c) after liaising with the other crew members for the flight, modify the safe risk strategies for the operation, if necessary, to take account of the matters mentioned in paragraphs (a) and (b); and
- (d) as part of the ongoing risk-monitoring carried out by the pilot in command under paragraphs (a) to (c), determine whether the operation is safe to continue.

5.06 Compliance with, or approval under, Part 21 of CASR

The external load equipment, fittings, lines, safety harnesses, restraint straps and rescue harnesses must meet the requirements of, or be approved under, Part 21 of CASR.

5.07 Operator's exposition

- (1) This section applies to an external operation, conducted during a medical transport operation, involving winching a person.

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- (2) For paragraph 119.205(1)(h) of CASR, the rotorcraft operator's exposition must state the following:
- (a) procedures to ensure the safe conduct of the operation;
 - (b) the processes to be followed by the pilot in command in complying with the requirements, for the operation, stated in sections 5.04 and 5.05;
 - (c) procedures to ensure the flight crew members, air crew members, and any medical transport specialists, for the flight, are familiar with the risks considered, and safe risk strategies developed, for the operation, under sections 5.04 and 5.05.

Division 2—Minimum height rules for medical transport operation

5.08 Prescribed circumstances

The circumstances prescribed for paragraph 133.167(a) of CASR are the circumstances stated in subregulation 91.265(4), 91.267(3), 91.277(3), or 91.305(3), of CASR, as the case requires.

5.09 Purpose of sections 5.10 to 5.12

Sections 5.10 to 5.12 prescribe requirements for paragraph 133.167(b) of CASR.

5.10 Requirements for IFR flight, or VFR flight at night, during medical transport operation

- (1) This section applies to the pilot in command of a rotorcraft that is flown as an IFR flight, or VFR flight at night, during a medical transport operation.
- (2) The minimum height rules stated in subregulation 91.277(2), or 91.305(2), of CASR, as the case requires, do not apply to the flight if the requirements stated in this section are complied with.
- (3) For subsection (2), the requirements are the following:
 - (a) the rotorcraft must be operated in VMC;
 - (b) subject to paragraph (g), only essential crew members may be carried;
 - (c) before descent, the pilot in command must be satisfied that the area in which the rotorcraft is to operate is clear of obstructions and obstacles that may endanger the rotorcraft;
 - (d) if conditions below VMC are encountered, the rotorcraft must immediately commence a climb to resume operations above the minimum height;
 - (e) other than at a medical transport operating site — the rotorcraft must be operated in performance class 2 with exposure or a higher performance class;
 - (f) at a medical transport operating site:
 - (i) the rotorcraft's operator must ensure risk consideration, risk monitoring, and risk management, procedures for such operations are stated in the operator's exposition; and

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- (ii) the operator and the pilot in command must ensure the procedures are followed for the operation;
 - (g) a medical patient, or a person who is one of the medical personnel, on the flight may only be carried below the minimum height:
 - (i) for the time necessary for the rotorcraft to descend below, or climb away from below, the minimum height at a location where the purpose of the operation is to disembark, or embark, the patient or person; or
 - (ii) for medical reasons if the pilot in command is satisfied it is operationally safe to do so;
 - (h) the flight below the minimum height must:
 - (i) be essential for conducting the operation; and
 - (ii) be planned to minimise the time the rotorcraft is unable to achieve a suitable forced landing, or safe continuation of flight, if an engine failure occurs; and
 - (iii) not create a hazard to other persons not involved in the operation;
 - (i) for night operations — the flight must be conducted in accordance with the requirements under this MOS for an NVIS operation.

5.11 Requirements for flight over populous area or public gathering

- (1) Without limiting the other provisions in this Division, this section applies to the operator, and pilot in command, of a rotorcraft that is flown, during a medical transport operation, over a populous area or public gathering.
- (2) The minimum height rules stated in paragraph 91.265(3)(a) of CASR do not apply to the flight if the requirements stated in this section are complied with.
- (3) For subsection (2), the requirements are the following:
 - (a) there must be a pre-flight risk assessment, or, for an urgent medical transport operation, an in-flight risk assessment, for the operation;
 - (b) the flight must be conducted in VMC and, if the operation is conducted at night, the pilot in command must use NVIS if the pilot in command is qualified to use NVIS and it is safe to do so;
 - (c) the rotorcraft must be operated so that it does not create a hazard to a person, or property, on the ground or water under the rotorcraft's flight path in the event of an engine failure or other emergency;
 - (d) the rotorcraft must be flown in performance class 2 with exposure or a higher performance class, other than at a medical transport operating site;
 - (e) if the flight involves an external load operation, conducted during a medical transport operation, involving winching a person or load, and the rotorcraft cannot be operated in performance class 2 with exposure or a higher performance class — the rotorcraft must only be flown over an area where a forced landing area is available, which, if used for a forced landing, will not create a hazard to a person, or property, on the ground or water under the rotorcraft's flight path.

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- (4) For paragraph 3(a), the risk assessment must be appropriate to the nature, size and complexity of the operation, and confirm the operation can be conducted safely and is within the capability of the operator's operation.

5.12 Requirements for flight other than over a populous area or public gathering

- (1) Without limiting the other provisions in this Division, this section applies to the operator, and pilot in command, of a rotorcraft that is flown, during a medical transport operation, other than over a populous area or public gathering.
- (2) The minimum height rules stated in paragraph 91.267(2)(a) of CASR do not apply to the flight if the requirements stated in this section are complied with.
- (3) For subsection (2), there must be a pre-flight risk assessment, or, for an urgent medical transport operation, an in-flight risk assessment, for the operation.
- (4) For subsection (3), the risk assessment must be appropriate to the nature, size and complexity of the operation, and confirm the operation can be conducted safely and is within the capability of the operator's operation.
- (5) Also, for subsection (2), the rotorcraft must be operated so that it does not create a hazard to a person, or property, on the ground or water under the rotorcraft's flight path in the event of an engine failure or other emergency.

Chapter 6 — Fuel requirements

6.01 Purpose of Chapter 6

This Chapter prescribes requirements for subregulation 133.190(1) of CASR.

6.02 Definitions for Chapter 6

In this Chapter:

additional fuel means the supplementary amount of fuel required to allow a rotorcraft that suffers engine failure, or loss of pressurisation, at the critical point along the route (whichever results in the greater subsequent fuel consumption) to:

- (a) proceed to an alternate aerodrome for the flight of the rotorcraft; and
- (b) fly for 15 minutes at the holding speed, for the rotorcraft, at 1 500 ft above the aerodrome elevation in ISA conditions; and
- (c) make an approach and landing.

contingency fuel, for a rotorcraft and flight, means the amount of fuel required to compensate for unforeseen factors, which must not be less than the greater of the following amounts:

- (a) 10% of the trip fuel amount for the flight;
- (b) an amount of fuel required to fly, in ISA conditions, for 5 minutes at the holding speed, for the rotorcraft, at 1 500 ft above the planned destination aerodrome.

destination alternate fuel means the amount of fuel required to enable a rotorcraft to do the following in a sequence:

- (a) perform a missed approach at the destination aerodrome;
- (b) climb to the expected cruising altitude;
- (c) fly the expected routing to the destination alternate aerodrome;
- (d) descend to the point where the expected approach is initiated;
- (e) conduct the approach;
- (f) land at the destination alternate aerodrome.

established, for the definition of **holding fuel** in this section, means any of the following:

- (a) established by the rotorcraft's manufacturer, and published in the rotorcraft's flight manual;
- (b) established by the use of a fuel consumption monitoring system;
- (c) established by the rotorcraft's operator and published in the operator's exposition, along with:
 - (i) the relevant data and methodology used; or
 - (ii) references to another accessible location of the data and methodology used.

final reserve fuel means the amount of fuel:

- (a) that is required to fly a rotorcraft:
 - (i) for the kind of flight mentioned in column 1 of an item in the following table:
 - (A) for the period of the flight mentioned in column 3 of the item; and
 - (B) at the speed mentioned in column 2 of the item for the period of the flight mentioned in column 3 of the item; and
 - (ii) at 1 500 ft above aerodrome elevation in ISA conditions; and
 - (iii) at the rotorcraft's estimated weight on arrival at the destination aerodrome (the **relevant aerodrome**) for the flight of the rotorcraft, or the destination alternate aerodrome (also the **relevant aerodrome**) for the flight, if required; and
- (b) that is usable fuel remaining in the rotorcraft's fuel tanks on completion of the final landing at the relevant aerodrome.

Table—Final reserve fuel requirements

Item	Kind of flight (by flight rules) Column 1	Speed Column 2	Final reserve fuel flight time Column 3
1	IFR flight	the holding speed for the rotorcraft	30 minutes
2	VFR flight	the range speed for the rotorcraft	20 minutes
3	VFR flight by day	the range speed for the rotorcraft	20 minutes

holding fuel means the amount of fuel required by a rotorcraft to fly for the period anticipated for holding (taking into account the operating conditions), calculated at the holding fuel consumption rate established for the rotorcraft for the anticipated meteorological conditions, or ISA conditions.

Note: See the definition of **established** in this section.

ISA means International Standard Atmosphere.

point of in-flight replanning means a point en route during a flight of a rotorcraft, determined by the operator or pilot in command for the flight before the flight commences, at which a rotorcraft can:

- (a) if the flight arrives at the point with adequate fuel to complete the flight to the planned destination aerodrome while maintaining the fuel required by subsection 6.04 (2) —continue to that aerodrome; or
- (b) otherwise — divert to an en route alternate aerodrome while maintaining the fuel required by subsection 6.04 (3).

taxi fuel means the amount of fuel expected to be used for start, hover and taxi operations before commencement of the take-off stage of a flight, taking into account:

- (a) local conditions at the departure aerodrome; and
- (b) APU consumption, if applicable.

trip fuel means the amount of fuel required to enable a rotorcraft to fly from any point along the route until landing at a destination aerodrome, including the following:

- (a) fuel for take-off and climb from the departure aerodrome to initial cruising level or altitude, taking into account the expected departure routing;
- (b) fuel for cruise from top of climb to top of descent, including any step climb or descent;
- (c) fuel from top of descent to the point where the approach is initiated, taking into account the expected arrival procedure;
- (d) fuel for executing an approach and landing.

unforeseen factors means factors that could have an influence on a rotorcraft's fuel consumption to the destination aerodrome, for the flight, including the following:

- (a) the rotorcraft's deviation from the expected fuel consumption data for a rotorcraft of that type;
- (b) extended delays and deviations from planned routings or cruising levels.

6.03 General requirements

Fuel consumption data

- (1) When determining the quantity of usable fuel required under this Chapter for a flight of a rotorcraft, the operator, and pilot in command, must each use the following fuel consumption data sources:
 - (a) the most recent rotorcraft-specific fuel consumption data derived from a fuel consumption monitoring system used by the operator, if available;
 - (b) the rotorcraft's manufacturer's data for the rotorcraft.

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

Operational conditions etc.

- (2) In determining the quantity of usable fuel required under this Chapter, the operator, and pilot in command, must each consider the effect of the following matters:
 - (a) the operating conditions for the proposed flight, including the following:
 - (i) the actual (if known or available), or anticipated, weight of the rotorcraft;
 - (ii) relevant NOTAMs;
 - (iii) relevant meteorological reports and forecasts;

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- (iv) relevant ATS procedures, restrictions and anticipated delays;
 - (v) the effects of deferred maintenance items and configuration deviations;
- (b) the potential for deviations from the planned flight because of unforeseen factors.

6.04 Amounts of fuel to be carried on board for a flight

- (1) The operator, and pilot in command, of a rotorcraft must each ensure that, when a flight of the rotorcraft commences, the rotorcraft is carrying on board at least the total of the following amounts of usable fuel:
 - (a) taxi fuel;
 - (b) trip fuel;
 - (c) destination alternate fuel, if required;
 - (d) holding fuel, if required;
 - (e) contingency fuel;
 - (f) final reserve fuel;
 - (g) additional fuel, if applicable.
- (2) The operator, and pilot in command, must each ensure, at any point of in-flight replanning, the rotorcraft is carrying on board at least the following amounts of usable fuel:
 - (a) trip fuel from that point;
 - (b) destination alternate fuel, if required;
 - (c) holding fuel, if required;
 - (d) contingency fuel;
 - (e) final reserve fuel;
 - (f) additional fuel, if applicable.
- (3) The operator, and pilot in command, must each ensure the rotorcraft is carrying on board at least the following amounts of usable fuel, required at any time to continue the flight safely:
 - (a) trip fuel from that time;
 - (b) destination alternate fuel, if required;
 - (c) holding fuel, if required;
 - (d) final reserve fuel;
 - (e) additional fuel, if applicable.
- (4) If, after the commencement of the flight, fuel is used for a purpose other than that originally intended during pre-flight planning, the pilot in command must re-analyse the planned use of fuel for the remainder of the flight, and adjust the parameters of the flight if that is necessary to continue to meet the requirements of this Chapter.
- (5) Subsection (6) applies if a rotorcraft:
 - (a) has been unable to land at the planned destination aerodrome; and

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- (b) is diverting to the planned destination alternate aerodrome.
 - (6) Despite subsection (3), the operator, and pilot in command, must each ensure the rotorcraft is carrying at least the following amounts of usable fuel:
 - (a) destination alternate fuel from that time;
 - (b) holding fuel, if required;
 - (c) final reserve fuel.

6.05 Requirements for determining fuel before, and monitoring fuel during, flight

- (1) The operator, and pilot in command, of a rotorcraft must each ensure that for a flight of the rotorcraft:
 - (a) the amount of usable fuel on board the rotorcraft is determined before the flight commences, and recorded; and
 - (b) regular in-flight fuel amount checks are conducted.

Note: Procedures to ensure that a flight of the rotorcraft is conducted in accordance with the fuel requirements in this Chapter, including procedures for how regular in-flight fuel amount checks will be conducted for a flight, must be included in the operator's exposition: see regulation 133.180, and paragraphs 119.205(1)(h) and (o), of CASR.

- (2) The pilot in command must do all the following at each in-flight fuel amount check:
 - (a) determine the amount of usable fuel remaining;
 - (b) compare planned fuel consumption with actual fuel consumption;
 - (c) determine whether the remaining usable fuel is sufficient to meet:
 - (i) if a point of in-flight replanning has been specified by the operator for the flight and the flight has not proceeded past the point — the requirements of subsection 6.04(2); and
 - (ii) otherwise — the requirements of subsection 6.04(3);
 - (d) determine the amount of usable fuel expected to be remaining when the rotorcraft lands at the destination aerodrome.

6.06 Procedures if fuel reaches specified amount

- (1) If the pilot in command of a rotorcraft for a flight becomes aware that the amount of usable fuel in the rotorcraft on landing at the destination aerodrome would be less than the fuel required under subsection 6.04(3), the pilot in command must:
 - (a) take into account the traffic and operational conditions likely to be prevailing on arrival at:
 - (i) the destination aerodrome; and
 - (ii) if a destination alternate aerodrome is required for the flight — the destination alternate aerodrome; and
 - (iii) any en-route alternate aerodrome; and
 - (b) proceed to an aerodrome mentioned in paragraph (a) that enables the pilot in command to continue to meet the requirements in section 6.04.

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- (2) The pilot in command must request from ATS the duration of any likely delay in landing if unforeseen factors could result in the rotorcraft landing at the destination aerodrome with less than the following amounts of fuel remaining:
 - (a) final reserve fuel;
 - (b) destination alternate fuel, if required.
 - (3) The pilot in command must declare to ATS a “minimum fuel” state if:
 - (a) the pilot in command is committed to land the rotorcraft at an aerodrome in accordance with this section; and
 - (b) it is calculated that if there is any change to the existing air traffic control clearance issued to the rotorcraft in relation to that aerodrome, the rotorcraft will land with less than the final reserve fuel remaining.

Note 1: The declaration of “minimum fuel” informs ATS that all planned aerodrome options have been reduced to a specific aerodrome of intended landing and any change to the existing clearance may result in landing with less than final reserve fuel. This is not an emergency situation, but an indication that an emergency situation is possible should any additional delay happen.

Note 2: Pilots in command should not expect any form of priority handling because of a “minimum fuel” declaration. ATS will, however, advise the flight crew of any additional expected delays, and coordinate when transferring control of the rotorcraft to ensure other ATS units are aware of the flight’s fuel state.

- (4) If the pilot in command of a rotorcraft for a flight becomes aware that the amount of useable fuel remaining on landing at the nearest aerodrome where a safe landing can be made would be less than the final reserve fuel, the pilot in command must declare a situation of “emergency fuel” by broadcasting “MAYDAY, MAYDAY, MAYDAY FUEL”.

Note: The fuel emergency declaration is a distress message.

6.07 Operational variations—fuel calculations

- (1) Despite sections 6.03 and 6.04, a rotorcraft operator may use an operational variation, stated in the operator’s exposition for the purpose of this section, that relates to the calculation of any of the following, if the requirements in subsections (3) and (5) are met:
 - (a) taxi fuel;
 - (b) trip fuel;
 - (c) contingency fuel;
 - (d) destination alternate fuel;
 - (e) additional fuel.
- (2) To avoid doubt, an operational variation mentioned in subsection (1) cannot relate to the calculation of holding fuel or final reserve fuel.

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- (3) The operator must have submitted to CASA, at least 28 days before using an operational variation:
- (a) evidence of at least one of the following, that demonstrates how the operational variation will maintain, or improve, aviation safety:
 - (i) documented in-service experience;
 - (ii) the results of a specific safety risk assessment conducted by the operator that meets the requirements of subsection (4); and
 - (b) details of the operational variation, including procedures in relation to the use of the operational variation, proposed for inclusion in the operator's exposition.

Note: Under regulation 119.105 of CASR, CASA may direct the operator to remove from the operator's exposition, or revise in the exposition, the operational variation if CASA were to find there was insufficient evidence the operational variation would maintain, or improve, aviation safety.

- (4) For the purposes of subparagraph (3)(a)(ii), the specific safety risk assessment must include at least the following:
- (a) flight fuel calculations;
 - (b) the capabilities of the operator, including:
 - (i) a data-driven method that includes a fuel consumption monitoring program; and
 - (ii) the use of sophisticated techniques for determining the suitability of alternate aerodromes; and
 - (iii) specific risk-mitigating measures.
- (5) For the purposes of subsection (1), the operator's exposition must include procedures in relation to the use of the operational variation.

Chapter 7 — Safety briefings, instructions and demonstrations

7.01 Safety briefing card

- (1) For paragraph 133.235(4)(a) of CASR, the following information is prescribed:
 - (a) how to use and adjust seatbelts (other than extension belts);
 - (b) if the rotorcraft's seats are adjustable — when to adjust the back of the seat to an upright position, or other position permitted by the rotorcraft's aircraft flight manual instructions;
 - (c) if the rotorcraft's seats have attachments (for example, tray tables or footrests) — when the attachment must be in its stowed position;
 - (d) if the rotorcraft has an attachment, permanently fixed on an interior cabin structure, which is intended to be manipulated, or used, by passengers during flight (for example, a tray table or bassinet) — when the attachment must be in its stowed position;
 - (e) where to stow, or otherwise secure, carry-on baggage and personal effects, and the periods during flight when these items must be stowed or secured;
 - (f) where the emergency exits are located, and how to use them;
 - (g) if the rotorcraft is equipped with an escape path lighting system — the form, function, colour, and location, of the system;
 - (h) how to assume the brace position, including the position for passengers with infants;
 - (i) the information mentioned in subsection (2) in relation to equipment mentioned in the provision that is required to be carried on the rotorcraft for the flight under Chapter 11;
 - (j) that smoking is not permitted during the flight.
- (2) For the purposes of paragraph (1)(i), the information is:
 - (a) if passenger-operated equipment to dispense oxygen is required to be carried under Division 9 of Chapter 11 — the location of the equipment and how to use it; and
 - (b) if life jackets are required to be carried, and worn, on the rotorcraft under section 11.49:
 - (i) where life jackets (other than infant life jackets) are located; and
 - (ii) how to use life jackets (including infant life jackets); and
 - (c) if life rafts are required to be carried on the rotorcraft under section 11.50 — where they are located and how to use them during an initial evacuation of the rotorcraft.

7.02 Safety briefings, instructions, or demonstrations, before take-off

- (1) This section prescribes requirements for subregulation 133.240(1) of CASR.

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- (2) A safety briefing, instruction or demonstration mentioned in this section must be given to a passenger as follows:
 - (a) before the passenger boards the rotorcraft — following the operator’s pre-flight boarding procedures; or
 - (b) with the passenger on board the rotorcraft — before the rotorcraft’s engines are started for the flight; or
 - (c) with the passenger on board the rotorcraft and the rotorcraft’s engines started for the flight — before take-off but only if the rotorcraft is carrying a crew member (other than the pilot in command) who can give the safety briefing, instruction or demonstration without otherwise affecting the safety of the rotorcraft.
 - (3) The safety briefing, instruction or demonstration must be given in a form that facilitates the application of the procedures applicable in the event of an emergency.
 - (4) A specific safety briefing must be provided directly to any passenger with reduced mobility on the flight, and any person (the *accompanying person*) accompanying, or assisting, the passenger, and the safety briefing must:
 - (a) include what to do if an emergency evacuation of the rotorcraft is necessary; and
 - (b) be given in a form appropriate to the passenger and accompanying person.
 - (5) A specific safety briefing must be provided directly to any passenger responsible for an infant on the flight which outlines:
 - (a) when, and how, the infant must be restrained; and
 - (b) the location of infant life jackets, if required to be carried under section 11.49.
 - (6) Subject to subsection (7), a specific safety briefing must be provided directly to any passenger on the flight who is seated in an emergency exit row, which outlines what to do if it becomes necessary to use the exit.
 - (7) Subsection (6) does not apply if:
 - (a) a crew member who has been assigned to the flight is seated in a crew station adjacent to the exit; and
 - (b) the crew member has been assigned emergency evacuation responsibilities for the exit in accordance with the operator’s exposition.
 - (8) If life jackets are required to be carried, and worn, on the rotorcraft under section 11.49, there must be a demonstration of the method of donning, and inflating, a life jacket.
 - (9) A safety briefing that addresses the following matters must be given:
 - (a) when seatbelts must be worn during the flight, and how to use them;
 - (b) if the rotorcraft’s seats are adjustable — when to adjust the back of the seat to an upright position, or other position permitted by the rotorcraft’s aircraft flight manual instructions;
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- (c) if the rotorcraft's seats have attachments (for example, tray tables or footrests) — when the attachment must be in its stowed position;
 - (d) if the rotorcraft has an attachment, permanently fixed on an interior cabin structure, which is intended to be used, or manipulated, by passengers during flight (for example, a tray table or bassinet) — when the attachment must be in its stowed position;
 - (e) where to stow, or otherwise secure, carry-on baggage and personal effects, and the periods during flight when these items must be stowed or secured;
 - (f) where the emergency exits are located;
 - (g) if the rotorcraft is equipped with an escape-path lighting system — where it is;
 - (h) if equipment to dispense supplemental oxygen is required to be carried on the rotorcraft for the flight under Division 9 of Chapter 11 — the location of the equipment and how to use it;
 - (i) if life jackets are required to be carried, and worn, on the rotorcraft for the flight under section 11.49:
 - (i) where they are located and how to use them; and
 - (ii) the giving of a warning that life jackets must not be inflated inside the rotorcraft;
 - (j) if life rafts are required to be carried on the rotorcraft for the flight under section 11.50:
 - (i) where they are located; and
 - (ii) if a life raft is intended to be used by a passenger without instructions at the time of use — how to deploy it;
 - (k) that smoking is prohibited on board the rotorcraft under legislation;
 - (l) that carry-on baggage must be left behind in the event of an emergency evacuation;
 - (m) the requirement to comply with any safety directions and instructions given by a crew member;
 - (n) if a safety briefing card, for the rotorcraft, is required to be available to each passenger under subregulation 133.235(2) of CASR:
 - (i) where to find it; and
 - (ii) if it sets out different seating configurations for the rotorcraft — which configuration is in use for the flight;
 - (o) if special survival equipment relevant to a specific environment is intended to be used by a passenger — the location of the equipment and location of written instructions for its use;
 - (p) when, and how, to assume the brace position, including the position for passengers with infants.

Note 1: Smoking on the rotorcraft during the flight is prohibited under section 37 of the *Air Navigation Regulations 2016*.

Note 2: Certain directions to passengers, in relation to seats, are required to be given under regulation 91.570 of CASR.

7.03 Safety instructions during flight

- (1) This section prescribes requirements for subregulation 133.240(1) of CASR.
- (2) The safety instructions mentioned in this section must be given to a passenger at a time, before the landing of the rotorcraft, at which the passenger could be reasonably expected to remember the instructions before the flight ends.
- (3) A safety instruction that addresses the following must be given:
 - (a) that seatbelts and restraint systems must be securely fastened for landing;
 - (b) that seat backs must be in the upright position or, for a person who is ill or incapacitated, another position approved by the pilot in command;
 - (c) that any attachments to a seat, including a tray table or footrest, must be stowed;
 - (d) that any attachment on an interior cabin structure that is intended to be used, or manipulated, by passengers during flight (for example, a tray table or bassinet) must be stowed.

Note 1: Regulation 133.215 of CASR requires a rotorcraft operator's exposition to include procedures for giving instructions to passengers about securely stowing carry-on baggage, including before the landing of the rotorcraft.

Note 2: Regulation 133.280 of CASR requires a rotorcraft operator's exposition to include procedures for the operation of portable electronic devices for a flight of the rotorcraft. Regulation 91.170 of CASR makes provision in relation to the operation of such devices during a flight.

Chapter 7A — Head-up display, enhanced vision system and synthetic vision system

7A.01 Requirements for use of head-up display, enhanced vision system and synthetic vision system

RESERVED

Note Regulation 133.255 of CASR permits the Part 133 MOS to prescribe requirements for the use of a head-up display, enhanced vision system or synthetic vision system for a flight of a rotorcraft. This section has been reserved for any future provisions that would be appropriate following consultation.

Chapter 8 — NVIS flights

Division 1—Purpose, application and definitions

8.01 Purpose

For subregulation 133.265(3), this Chapter prescribes requirements for the use of an NVIS for a flight of a rotorcraft.

8.01A Application

- (1) This Chapter applies in relation to the use of NVIS by a flight crew member of an aircraft in an NVIS flight.
- (2) This Chapter does not apply in relation to the use of NVIS by a person on an NVIS flight who is not a flight crew member, unless the person is involved in air navigation or terrain avoidance functions.

8.02 Definitions

- (1) In this Chapter:

final approach and take-off area, or ***FATO***, has the meaning given by the CASR Dictionary.

HLS means helicopter landing site.

HLS-NVIS basic means an HLS that does not conform to the requirement of an HLS-NVIS standard.

HLS-NVIS standard has the same meaning as in section 8.05.

IFR capable, for a rotorcraft, describes a circumstance in which the rotorcraft is:

- (a) equipped for IFR flight in accordance with the regulations; and
- (b) operated by a crew who meet the relevant requirements for IFR flight under Part 61 of CASR.

MOS is short for Manual of Standards.

NVFR capable, for a rotorcraft, describes a circumstance in which the rotorcraft is:

- (a) equipped for flight at night under the VFR in accordance with the regulations; and
- (b) operated by a crew, each member of which meets the relevant requirements for a VFR flight by night under Part 61 of CASR.

NVIS is short for night vision imaging system.

NVIS air crew member, for a particular NVIS operation, means an air crew member:

- (a) of an NVIS operator who holds an AOC for the NVIS operation; and
- (b) who is qualified (however described) to carry out the person's assigned functions as an air crew member for the operation in accordance with this Chapter.

NVIS crew member means an NVIS pilot or an NVIS air crew member.

NVIS endorsement means an endorsement mentioned in column 2 of item 1 or item 2 in Table 61.1025 of CASR.

NVIS flight has the meaning given by the CASR Dictionary.

Note NVIS flight means a flight conducted using a night vision imaging system.

NVIS operation means an NVIS flight that is a medical transport operation.

NVIS operator means the operator for an NVIS operation.

NVIS pilot, for an NVIS flight, means a pilot who:

- (a) holds each of the licences, ratings and endorsements required for the NVIS flight by Part 61 of CASR; or
- (b) if the rotorcraft is a foreign-registered rotorcraft — is authorised by the rotorcraft's State of registry to pilot the rotorcraft for the NVIS flight.

NVIS proficiency check has the meaning given by regulation 61.010 for **night vision imaging system proficiency check**.

NVIS rating means a rating mentioned in column 2 of item 4 in Table 61.375 of CASR.

operator has the meaning given by the CASR Dictionary.

Note Operator, of a rotorcraft, means:

- (a) if the operation of the rotorcraft is authorised by an AOC, a Part 141 certificate or an aerial work certificate — the holder of the AOC or the certificate; or
- (b) otherwise — the person, organisation or enterprise engaged in rotorcraft operations involving the rotorcraft.

safety area means an area:

- (a) that is free of obstacles, other than those:
 - (i) with a height not exceeding 25 cm above the surface level of the area; or
 - (ii) that are required for air navigation purposes; and

Note Obstacles required for air navigation include, for example, a wind direction indicator.

- (b) whose purpose is to reduce the risk of damage to a rotorcraft if it accidentally diverges from the load-bearing area primarily intended for landing or take-off.

Note The safety area does not need to be a solid surface. For example, a perforated metal deck may constitute part, or all, of a safety area.

used, using or uses, in relation to the use of NVIS, means used as the primary means of terrain avoidance for safe air navigation by means of visual surface reference external to the rotorcraft conducting the operation.

- (2) Subject to subsection (1), in this instrument words and phrases have the same meaning as in CASR.

Division 2—Requirements for an NVIS flight

8.03 General requirements for NVIS flights

- (1) A rotorcraft in an NVIS flight may only take off from and land on:
- (a) an HLS-NVIS standard; or
 - (b) subject to section 8.05 — an HLS-NVIS basic.
- (2) A pilot in an NVIS flight must be an NVIS pilot.
- (3) Each air crew member who uses NVIS in an NVIS flight must be:
- (a) an NVIS air crew member; or
 - (b) a person, otherwise qualified for the flight, who is under flight training or flight testing to become an NVIS air crew member.

8.04 HLS-NVIS standard

- (1) Subject to subsection (2), an HLS-NVIS standard is an HLS that meets all of the following requirements:
- (a) the FATO must at least:
 - (i) be capable of enclosing a circle with a diameter equal to one and a half times the D-Value ($1.5 \times D$) of the rotorcraft; and
 - (ii) be free of obstacles likely to interfere with the manoeuvring of the rotorcraft; and
 - (iii) incorporate a safety area of $0.25 \times D$, or 3 m around the FATO, whichever is larger;
 - (b) a TLOF must be at least:
 - (i) a cleared and stable area capable of bearing the dynamic loads which may be imposed by the rotorcraft; and
 - (ii) an area of $0.83 \times D$.
- (2) For an NVIS operation only, an HLS-NVIS standard also includes an HLS that meets the FATO and TLOF criteria determined by the NVIS operator through a risk assessment, provided that the FATO and the TLOF so determined will deliver a level of safety that is at least equivalent to that which would otherwise arise from compliance with paragraphs (1)(a) and (b).

8.05 HLS-NVIS basic

- (1) A rotorcraft for an NVIS flight must not land on or take off from an HLS-NVIS basic except in the course of an NVIS operation.

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- (2) For subsection (1), the NVIS crew must consist of:
- (a) at least 2 NVIS pilots; or
 - (b) 1 NVIS pilot and at least 1 NVIS air crew member; or
 - (d) 1 NVIS pilot, but only if the flight is conducted by an operator who holds a CASA approval under regulation 133.015 that is based on the applicant's detailed risk assessment.

8.06 No formation flights for NVIS flights

The pilot in command of an aircraft for an NVIS flight must not engage in formation flight with another aircraft.

8.07 Alternate lighting requirements for NVIS flights

- (1) Subject to subsection (2), if an NVIS flight is conducted to a planned destination aerodrome that does not have runway or HLS lighting, then the pilot must nominate a destination alternate aerodrome with lighting for the runway or HLS.
- (2) Subsection (1) does not apply if the NVIS flight is:
- (a) an NVIS operation; and
 - (b) conducted by:
 - (i) at least 2 NVIS pilots; or
 - (ii) 1 NVIS pilot and 1 NVIS trainee pilot; or
 - (iii) 1 NVIS pilot and at least 1 NVIS air crew member.

Division 3—Additional requirements for NVIS operations

Note An NVIS operation means an NVIS flight that is a medical transport operation — see subsection 8.02(1).

8.08 Helicopter lighting

If, in an NVIS operation, the optimum performance of the NVIS is affected, or is likely to be affected, by the rotorcraft's exterior lighting, the pilot in command must:

- (a) if satisfied that there is no risk of collision with another aircraft — turn off the exterior lighting; or
- (b) if satisfied that there is such a risk — immediately cease the NVIS operation.

Note 1 On ceasing the relevant NVIS operation, the pilot in command, if at a lower altitude, must immediately climb to at least the minimum altitude for a VFR flight at night, or an IFR flight, conducted without the use of NVIS.

Note 2 See also Division 5 of Chapter 11 for rules relating to the fitment and use of rotorcraft exterior lighting.

8.09 Minimum height under the NVFR or the IFR

Note Section 5.10 in Division 2 of Chapter 5 of this MOS outlines the requirements for helicopter IFR flight and VFR flight at night below the minimum height.

- (1) If an NVIS operation is conducted at a height below that prescribed under regulation 91.277 or 91.305 (as applicable to the flight) then, subject to subsections (4) and (5), NVIS must be used by each NVIS pilot and each NVIS air crew member who is involved in the operation.
- (2) If a single NVIS pilot is the only NVIS crew member in an NVIS operation then, subject to subsection (3), the operation must be conducted at or above 1 000 ft AGL (except for manoeuvres necessary for take-off and landing).
- (3) Except for manoeuvres necessary for take-off and landing, an NVIS operation mentioned in subsection (2) may be conducted below 1 000 ft AGL only if it is:
 - (a) operationally necessary; and
 - (b) not conducted below 500 ft AGL; and
 - (c) the subject of the operator's detailed risk assessment given to CASA; and
 - (d) conducted by an AOC holder who holds a CASA approval for the operation under regulation 133.015 that is based on the risk assessment.
- (4) If, for subsection (1), an NVIS operation (other than one conducted by a single NVIS pilot as the only NVIS crew member) is conducted below 500 ft AGL in the hover then, despite any other provision in this Chapter, the pilot in command may do any of the following:
 - (a) degoggle as an individual;
 - (b) permit all or any particular NVIS air crew member to degoggle;but only if, and for so long as, the degoggling enhances operational safety.
- (5) If, for subsection (1), in an NVIS operation (other than one conducted by a single NVIS pilot as the only NVIS crew member):
 - (a) the performance of the NVIS used by an NVIS pilot or NVIS air crew member is degraded because of extensive illumination in the area being overflown; and
 - (b) the continued use of the NVIS in such circumstances is likely to affect operational safety; and
 - (c) terrain and obstacles in the area may be visually identified and avoided;then the pilot in command may do any of the following in accordance with procedures in the operations manual:
 - (d) degoggle as an individual;

- (e) permit all or any particular NVIS pilot or NVIS air crew member to degoggle;
but only if, and for so long as, the degoggling enhances operational safety.

8.10 Weather requirements — cloud

- (1) The pilot in command of a rotorcraft for an NVIS operation must comply with 1 of the following for the operation:
- the in-flight cloud requirements set out in Table 8.10(1) of this MOS;
 - the in-flight cloud requirements approved by CASA under subsection (3).
- (2) For Table 8.10(1), for an NVIS helicopter and crew mentioned in an item of column 1 of the Table, that is conducting an NVIS operation of a kind mentioned in column 2 of the item, the minimum in-flight cloud requirements are set out in column 3 of the item.

Item	Column 1 NVIS rotorcraft and crew	Column 2 Kind of NVIS operation	Column 3 Minimum in-flight cloud requirement
1	NVFR capable with 2 NVIS crew members	Under the VFR	No more than scattered cloud up to 2 000 ft AGL within 2 NM either side of track.
2	IFR capable	Under the VFR	No more than scattered cloud up to 1 000 ft AGL within 2 NM either side of track
3	IFR capable	Under the IFR below LSALT	No more than scattered cloud up to 1 000 ft AGL within 2 NM either side of track.

Note *NVFR capable* and *IFR capable* are defined in section 8.02, Definitions.

- (3) An NVIS operation may comply with in-flight cloud requirements lower than those provided for under paragraph (1)(a) (***reduced in-flight cloud requirements***) but only if the lower requirements are:
- operationally necessary; and
 - the subject of a detailed risk assessment given to CASA; and
 - the AOC operator holds a CASA approval under regulation 133.015.
- (4) If:
- an NVIS operation is NVFR capable; but
 - the NVIS crew is only a single NVIS pilot;
- then the NVIS pilot must comply with night VFR weather minima.

Chapter 9 — Wearing of seatbelt, safety harness or restraint strap etc.

9.01 Exemption

- (1) Subject to subsection (2), a crew member for a flight of a rotorcraft is exempt, under regulation 11.160 of CASR, from compliance with subregulation 91.555(1) of CASR.
- (2) Subsection (1) does not apply to an air crew member who is assigned duties, during the flight, requiring the air crew member to occupy a crew station in the rotorcraft's cockpit.
- (3) The exemption is repealed at the end of 1 December 2024.

9.02 Restraining of persons on a flight of a rotorcraft

- (1) Each person on a flight of a rotorcraft must be restrained or carried (as applicable), in accordance with section 9.03, 9.04 or 9.05, when:
 - (a) for a VFR flight by day — the rotorcraft flies below 1 000 ft AGL; or
 - (b) for a VFR flight at night — the rotorcraft is flown along a route, or route segment, at a height lower than the minimum height mentioned in subregulation 91.277(2) of CASR; or
 - (c) for an IFR flight — the rotorcraft is flown along a route, or route segment, at a height lower than the minimum height mentioned in subregulation 91.305(2) of CASR; or
 - (d) the pilot in command of the rotorcraft, acting in accordance with the rotorcraft operator's exposition, directs that the person be restrained.
- (2) The requirements stated in this section are directions to the person for the purposes of regulation 11.245 of CASR.
- (3) The directions cease to be in force at the end of 31 January 2027.

9.03 Fastening of seatbelt or shoulder harness — passengers

A passenger of a rotorcraft for a flight is taken to comply with section 9.02 if the passenger fastens the passenger's seatbelt or shoulder harness, and keeps it fastened, during the period the passenger must be restrained under the section.

9.04 Wearing of safety harness and restraint strap, or restraining on stretcher etc. — medical transport operation

- (1) Subject to subsection (2), a medical patient, a person who is one of the medical personnel, or a crew member on a flight of a rotorcraft that is a medical transport operation is taken to comply with section 9.02 if the medical patient, person, or crew member is restrained or carried (as applicable) in accordance with this section.

Note Being restrained refers to use of a safety harness and a restraint strap, or stretcher straps.

- (2) A medical patient, a person who is one of the medical personnel, or a crew member on a flight of a rotorcraft that is a medical transport operation must, during the operation:
- (a) for a crew member, other than a flight crew member or an air crew member who is assigned duties, during the operation, requiring the air crew member to occupy a crew station in the rotorcraft's cockpit — wear a safety harness and a restraint strap; or
 - (b) for a medical patient for whom paragraph (a) is not practicable — be restrained on a stretcher, in accordance with the procedures mentioned in the rotorcraft operator's exposition; or
 - (c) for a medical patient who is an infant, for whom paragraph (a) is considered by the medical or nursing authority responsible for conducting the transport to be detrimental to the infant's medical condition or the general situation inside the rotorcraft — be carried inside an incubator, humidicrib or other neonatal transport unit, or in the arms or on the lap of an adult occupying a seat or stretcher, in accordance with the procedures mentioned in the rotorcraft operator's exposition; or
 - (d) for a medical patient who is a child under the age of 6, for whom paragraph (a) is considered by the medical or nursing authority responsible for conducting the transport to be detrimental to the child's medical condition or the general situation inside the rotorcraft — be carried in the arms, or on the lap, of an adult occupying a seat or stretcher, in accordance with the procedures mentioned in the rotorcraft operator's exposition.
- (3) For paragraph (2)(b), before the medical transport operation commences, a crew member, for the flight, who fits the restraint equipment to the medical patient must ensure the requirements stated in the rotorcraft operator's exposition about the fitting of the restraint equipment to the medical patient are complied with.
- (4) For paragraph (2)(b), before the medical transport operation commences, the rotorcraft's operator must ensure that, except in relation to any potential flammability of cushioning material, the equipment for the restraint of a person on a stretcher:
- (a) is fit for the particular purpose of the operation; and
 - (b) meets the requirements of, or is approved under, Part 21 of CASR; and
 - (c) is serviceable.
- (5) For subsection (3), before the medical transport operation commences, the rotorcraft's operator must ensure the crew member has been trained in the fitting of the equipment and assessed as competent to fit the equipment.
- (6) The requirements stated in subsections (2) to (5) are directions to the affected person for the purposes of regulation 11.245 of CASR.

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- (7) The directions cease to be in force at the end of 1 December 2024.

9.05 Wearing of safety harness and restraint strap — certain crew members

- (1) A crew member for a flight of a rotorcraft, other than a flight crew member or an air crew member who is assigned duties, during the operation, requiring the air crew member to occupy a crew station in the rotorcraft's cockpit, is taken to comply with section 9.02 if the crew member wears a safety harness and a restraint strap (the *equipment*) during the period the crew member must be restrained under the section.
- (2) Before the operation commences, the crew member must ensure the requirements stated in the rotorcraft operator's exposition about the wearing of the equipment are complied with.
- (3) Without limiting subsection (2), before the operation commences, the crew member must ensure the equipment is:
 - (a) correctly fitted, worn, and adjusted, to prevent injury to the crew member; and
 - (b) correctly adjusted to prevent the crew member, while wearing the equipment, from completely exiting the rotorcraft; and
 - (c) secured, via the restraint strap, to a hard point of the rotorcraft in accordance with the relevant approved data; and
 - (d) available always to be worn by the crew member.
- (4) Before the operation commences, the pilot in command, of the rotorcraft, must confirm the requirements stated in subsection (3) have been complied with.
- (5) Before the operation commences, the rotorcraft's operator must ensure the equipment:
 - (a) is fit for the particular purpose of the operation; and
 - (b) meets the requirements of, or is approved under, Part 21 of CASR; and
 - (c) is serviceable.
- (6) Before the operation commences, the rotorcraft's operator must ensure the crew member has been trained in the use of the equipment and assessed as competent to use the equipment.
- (7) If the crew member intends, in-flight, to transfer from a seatbelt to the equipment, the crew member must be secured by the equipment before the crew member unfastens the seatbelt.
- (8) The pilot in command, of the rotorcraft, must not manoeuvre the rotorcraft, in-flight, in a way that subjects the crew member to additional flight loads, unless the crew member has been briefed on the manoeuvre by the pilot in command beforehand.
- (9) The crew member must:
 - (a) advise the pilot in command, of the rotorcraft, of the crew member's proposed movements in the cabin in-flight; and

-
- (b) not adversely affect the rotorcraft's centre of gravity or controllability during any movements by the crew member in the cabin in-flight.
 - (10) The requirements stated in subsections (2) to (9) are directions to the affected person for the purposes of regulation 11.245 of CASR.
 - (11) The directions cease to be in force at the end of 1 December 2024.
 - (12) In this section:

relevant approved data means:

- (a) the manufacturer's fitment and use instructions for the equipment; and
- (b) any instructions in the rotorcraft's flight manual about hard points, and securing mechanisms, of the rotorcraft.

Chapter 10 — Performance

Division 1—Preliminary

10.01 Definitions for Chapter 10

In this Chapter:

adequate vertical margin: see section 10.02.

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 take-off and landing data scheduled 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.

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 stated in the definition of **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.

D, for a rotorcraft, means the maximum dimension of the rotorcraft.

defined point before landing, for a rotorcraft flying in performance class 2 or performance class 2 with exposure, means the point in the approach and landing stage of the flight after which:

- (a) the rotorcraft may not be able to continue the flight safely with 1 engine inoperative; and
- (b) a forced landing may be required.

exposure time, for a rotorcraft that is flying in still air, means the period during which the rotorcraft, with 1 engine inoperative, may not be able to achieve a safe forced landing or continue the flight safely.

landing decision point, for a landing of a rotorcraft at an aerodrome, means the last point, mentioned in the rotorcraft's flight manual, from which, if an engine failure is recognised:

- (a) a baulked landing may be initiated; or
- (b) the landing may be continued safely.

landing distance available, for a landing of a rotorcraft at an aerodrome, means the total of the following that are available for the rotorcraft to complete the landing from the height, mentioned in the rotorcraft's flight manual for the landing procedure being used, above the final approach and take-off area for the aerodrome:

- (a) the length of the final approach and take-off area;
- (b) the length of the area that is available and suitable for the rotorcraft to complete a landing on.

landing distance required, for a landing of a rotorcraft at an aerodrome, means the horizontal distance required for the rotorcraft to land and come to a full stop from a point 50 ft above the aerodrome.

performance class 1, for a stage of a flight of a rotorcraft: see section 10.04.

performance class 2, for a stage of a flight of a rotorcraft: see section 10.05.

performance class 2 with exposure, for a stage of a flight of a rotorcraft: see section 10.06.

performance class 3, for a stage of a flight of a rotorcraft: see section 10.07.

R, for a rotorcraft, means the largest radius of the rotorcraft's main rotor disc, as mentioned in the rotorcraft's flight manual.

rejected take-off distance available – rotorcraft, for a take-off of a rotorcraft at an aerodrome, means the total of the following that are available for the rotorcraft to use to stop following an engine failure and rejection of the take-off at the take-off decision point for the take-off:

- (a) the length of the final approach and take-off area for the aerodrome;
- (b) the length of the area that is available and suitable for the rotorcraft to complete a landing on.

rejected take-off distance required – rotorcraft, for a take-off of a rotorcraft at an aerodrome, means the horizontal distance required to fully contain the rotorcraft from the start of the take-off to the point where the rotorcraft comes to a full stop following an engine failure and rejection of the take-off at the take-off decision point for the take-off.

relevant obstacle, for the take-off stage, or the approach and landing, or baulked landing stage, of a flight of a rotorcraft flying in performance class 1 or 2, or

performance class 2 with exposure, means an obstacle that is relevant, within the meaning of section 10.32, to that stage of the flight.

S, for a point in a flight of a rotorcraft, means:

- (a) for the take-off and initial climb stage of the flight — the horizontal distance the rotorcraft has travelled from the end of the take-off distance available – rotorcraft, for a take-off of the rotorcraft at an aerodrome, to that point; or
- (b) for the approach and landing, or baulked landing stage of a flight — the horizontal distance the rotorcraft (the **relevant rotorcraft**) has travelled from the end of the take-off distance available – rotorcraft, for a take-off of a rotorcraft at an aerodrome at which a baulked landing of the relevant rotorcraft is being conducted, to that point.

take-off decision point, for a take-off of a rotorcraft at an aerodrome, means the point mentioned in the rotorcraft's flight manual, if an engine failure is recognised:

- (a) up to, and at, which the take-off may be safely rejected; or
- (b) at, and after, which the take-off may be continued safely.

take-off distance available – rotorcraft, for a take-off of a rotorcraft at an aerodrome, means the total of the following that are available for the rotorcraft to complete the take-off:

- (a) the length of the final approach and take-off area for the aerodrome;
- (b) the length of any additional area, in relation to the aerodrome, that is suitable for the rotorcraft to overfly after the take-off decision point, for the take-off, and accelerate.

take-off distance required – rotorcraft: see section 10.03.

transition point, for a flight of a rotorcraft that begins in VMC but is not conducted wholly in VMC, means the point in the flight at which the rotorcraft stops flying in VMC and starts to fly in IMC.

V_{TOSS} , for a rotorcraft, means the minimum speed at which climb of the rotorcraft is achieved with 1 engine inoperative and the remaining engines operating within the operating limits mentioned in the rotorcraft's flight manual for a take-off.

10.02 Meaning of **adequate vertical margin**

The **adequate vertical margin**, for a rotorcraft, is the minimum vertical distance the rotorcraft must be from an object during a stage of a flight mentioned in:

- (a) the rotorcraft's flight manual; or
- (b) if paragraph (a) does not apply — the rotorcraft operator's exposition.

10.03 Meaning of **take-off distance required – rotorcraft**

- (1) For a take-off of a multi-engine rotorcraft, the **take-off distance required – rotorcraft** is the distance, calculated in accordance with the factors mentioned in

subsection (2), from the start of the take-off to the point at which the rotorcraft achieves all of the following:

- (a) VTOSS for the rotorcraft;
- (b) a height of 35 ft above the take-off aerodrome;
- (c) a positive climb gradient.

(2) For subsection (1), the factors are that:

- (a) 1 engine of the rotorcraft is inoperative at the take-off decision point for the take-off; and
- (b) the remaining engines of the rotorcraft are operating within the operating limits mentioned in the rotorcraft's flight manual for a take-off.

10.04 When a rotorcraft is flown in *performance class 1*

A multi-engine rotorcraft is flown in *performance class 1*, during the stage of flight mentioned in column 1 of an item in the following table, if the rotorcraft is flown, during the stage, in accordance with the requirements stated in the provision mentioned in column 2 of the item.

Table — Performance class 1 requirements

Item	Column 1 Stage of flight	Column 2 Provision
1	Take-off	section 10.33
2	Take-off and initial climb	section 10.34
3	En route	section 10.35
4	Approach and landing, or baulked landing	section 10.36

10.05 When a rotorcraft is flown in *performance class 2*

A multi-engine rotorcraft is flown in *performance class 2*, during the stage of flight mentioned in column 1 of an item in the following table, if the rotorcraft is flown, during the stage, in accordance with the requirements stated in the provision mentioned in column 2 of the item.

Table — Performance class 2 requirements

Item	Column 1 Stage of flight	Column 2 Provision
1	Take-off	section 10.37
2	Take-off and initial climb	section 10.38
3	En route	section 10.39
4	Approach and landing, or baulked landing	Section 10.40

10.06 When a rotorcraft is flown in *performance class 2 with exposure*

- (1) A multi-engine rotorcraft is flown in *performance class 2 with exposure* during the take-off stage, or take-off and initial climb stage, of a flight if, whilst it is being flown in accordance with the requirements stated in section 10.37, other than paragraph 10.37(3)(b), a suitable forced landing area, for the flight, is not available to the rotorcraft from the beginning of the take-off to the lower of the following:
 - (a) the defined point after take-off;
 - (b) 300 ft above the departure aerodrome for the flight.
- (2) Also, a multi-engine rotorcraft is flown in *performance class 2 with exposure* during the approach and landing, or baulked landing stage of a flight if, whilst it is being flown in accordance with the requirements stated in section 10.40, other than subsection 10.40(5), a suitable forced landing area, for the flight, is not available to the rotorcraft after the defined point before landing to the point at which a safe landing is assured.

10.07 When a rotorcraft is flown in *performance class 3*

A rotorcraft is flown in *performance class 3*, during the stage of flight mentioned in column 1 of an item in the following table if the rotorcraft is flown, during the stage, in accordance with the requirements stated in the provision mentioned in column 2 of the item.

Table — Performance class 3 requirements		
Item	Column 1 Stage of flight	Column 2 Provision
1	Take-off	section 10.41
2	Take-off and initial climb	section 10.42
3	En route	section 10.43
4	Approach and landing, or baulked landing	section 10.44

Division 2—Flight in performance class 1 or 2 or performance class 2 with exposure

10.08 Requirement to be a Category A rotorcraft

For subregulation 133.320(2) of CASR, a Category A rotorcraft is prescribed.

Division 3—Flight in performance class 2 with exposure

Subdivision 1—Preliminary

10.09 Definitions for Division 3

In this Division:

PC2WE flight means a flight, of a rotorcraft, in performance class 2 with exposure during the take-off stage, take-off and initial climb stage, or approach and landing, or baulked landing stage, of the flight.

preventative maintenance actions means any of the following:

- (a) engine oil spectrometric, and debris, analysis;
- (b) engine-trend monitoring, based on available power assurance checks;
- (c) vibration analysis;
- (d) oil-consumption monitoring.

Subdivision 2—Requirements to be complied with

10.10 Purpose of Subdivision 2

This Subdivision prescribes requirements for paragraph 133.325(2)(a) of CASR.

10.11 Maximum permitted exposure time

- (1) The rotorcraft may only be flown during each of the following stages of the flight if the exposure time is not more than the time, in seconds, stated in the approval under regulation 133.015 of CASR for the rotorcraft to be flown during that stage of the flight:
 - (a) take-off;
 - (b) take-off and initial climb;
 - (c) approach and landing, or baulked landing.
- (1A) The exposure time, determined by CASA under the approval, must not be more than 36 seconds.
 - Note 1: In determining the exposure time, CASA takes into account the engine reliability data, for the rotorcraft, provided by the original equipment manufacturer, or type certificate holder, for the rotorcraft.
 - Note 2: CASA may determine an exposure time of more than 9 seconds, but not more than 36 seconds, on the basis of proportional reductions in engine failure rates for the rotorcraft of less than 1 for 100 000 engine hours.
- (2) For paragraphs (1)(a) and (b), the exposure time in relation to the take-off, and take-off and initial climb, stages of the flight must be measured from the point during the flight where the rotorcraft is no longer able to land in a suitable forced landing area, for the flight, until the rotorcraft's gradient of climb with 1 engine inoperative is equal to the gradient of the obstacle-clear take-off surface.

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- (3) For paragraph (1)(c), the exposure time in relation to the approach and landing, or baulked landing stage of the flight must be measured from the defined point before landing, for the rotorcraft, until the rotorcraft is able to make a safe landing.

10.12 Take-off weight limitations

The rotorcraft must have a maximum weight at take-off, for the flight, which does not exceed the lowest of the following weights:

- (a) the MTOW for the rotorcraft;
- (b) the all engines operative (AEO) hover out of ground effect (HOGE) weight that would allow acceleration from a vertical take-off profile for the environment;
- (c) the weight at which the rate of climb with 1 engine inoperative would be 150 ft per minute at a height of 1 000 ft above the departure aerodrome for the flight;
- (d) the weight at which, with 1 engine inoperative:
 - (i) at the defined point after take-off for the rotorcraft; or
 - (ii) at a height of 300 ft;
the gradient of climb would be equal to the gradient of the obstacle-clear take-off surface;
- (e) the weight that, with 1 engine inoperative in the en route configuration, would allow a rate of climb of 50 ft per minute at the minimum flight altitude for each point in the en route stage of the flight;
- (f) the weight that, allowing for normal consumption of fuel in-flight to the planned destination aerodrome for the flight or destination alternate aerodrome, if required, for the flight, would allow the following with 1 engine inoperative:
 - (i) a rate of climb of 150 ft per minute at a height of 1 000 ft above the planned destination aerodrome or destination alternate aerodrome;
 - (ii) the landing distance required, for a landing of the rotorcraft, to equal the landing distance available, for a landing of the rotorcraft, at the planned destination aerodrome or destination alternate aerodrome.

10.13 Preventative maintenance

The rotorcraft must have had all preventative maintenance actions completed for the rotorcraft and its engines, before the flight, as recommended, or required, for the rotorcraft and its engines by the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines.

10.14 Risk assessments

The rotorcraft may only be flown in accordance with:

- (a) the rotorcraft operator's risk assessment procedures for PC2WE flight risks relevant to the rotorcraft; and

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- (b) the rotorcraft operator's operational and airworthiness measures, which are used to mitigate identified risks.

10.15 Flight manual and exposition

The rotorcraft may only be flown in accordance with:

- (a) the rotorcraft's flight manual procedures, if any, for PC2WE flights; and
- (b) the operator's exposition procedures for PC2WE flights.

10.16 Flight crew training and checking requirements

- (1) The rotorcraft may only be flown with flight crew members who have successfully completed all approved flight crew training and competency checking requirements.
- (2) In this section:

approved flight crew training and competency checking requirements means flight crew training and competency checking requirements for PC2WE flights with the rotorcraft, based on which CASA issued its approval to the rotorcraft's operator to conduct PC2WE flights with the rotorcraft.

Subdivision 3—Information to be included in application for approval

10.17 Purpose of Subdivision 3

This Subdivision states the information that must be included in an application by a rotorcraft's operator for an approval, under regulation 133.015 of CASR, to conduct PC2WE flights with the rotorcraft.

10.18 Reliability and sudden power loss

- (1) Subject to subsection (4), the information to be provided must be the information mentioned in subsection (2) or (3).
- (2) The information is that:
 - (a) an assessment has been made of the incidence of sudden power loss in rotorcraft of the same type and in engines of the same type; and
 - (b) as a result of the assessment, rotorcraft of the same type, with engines of the same type, have been approved to conduct a PC2WE flight by:
 - (i) CASA under regulation 133.015 of CASR, or
 - (ii) the NAA of a recognised foreign State under EASA-OPS Part CAT (EU Regulation n 965/2012), AMC1 CAT.POL.H.305 or an equivalent standard.
- (3) The information is power plant reliability statistics for rotorcraft of the same type, and engines of the same type, which demonstrate:
 - (a) the incidence of sudden power loss in the 5-year period ending on the day of the application does not exceed 1 for 100 000 engine hours; or

(b) the incidence of sudden power loss in the 5-year period ending on the day of the application does not exceed 3 for 100 000 engine hours, and the incidence is trending downwards.

- (4) This section does not apply if neither the information mentioned in subsection (2) nor the information mentioned in subsection (3) exists.

Note: If this section does not apply, CASA will conduct a risk assessment of the power plant reliability of the rotorcraft and its engines when dealing with the application for the approval.

10.19 Type certificate holder's modification standard

- (1) The information to be provided must be the information mentioned in subsection (2) or (3).
- (2) The information is a statement from the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines, of the modification standard designated by the holder or holders to enhance the reliability of the rotorcraft and its engines during an operation.
- (3) The information is a statement from the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines, that no modification standard has been designated to enhance the reliability of the rotorcraft and its engines during an operation.
- (4) If the information mentioned in subsection (2) is provided, the applicant must also provide information demonstrating that the rotorcraft, or the rotorcraft and its engines, conform to the designated modification standard.

10.20 Preventative maintenance

The information to be provided must be:

- (a) details of the preventative maintenance actions recommended, or required, for the rotorcraft and its engines by the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines; and
- (b) information demonstrating that details of the preventative maintenance actions are included in the rotorcraft's approved system of maintenance.

10.21 Risk assessment

- (1) The information to be provided must be a statement of the operator about the following:
- (a) risk assessment procedures for PC2WE flight risks relevant to the rotorcraft;
- (b) the operational measures used to mitigate the identified risks;
- (c) the airworthiness measures used to mitigate the identified risks.

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- (2) For paragraph (1)(b), the information about the measures must include information about the following:
 - (a) appropriate PC2WE flight procedures;
 - (b) flight crew training and competency checking.
 - (3) For paragraph (1)(c), the information about the measures must include information about the following:
 - (a) compliance with the rotorcraft manufacturer's safety modifications;
 - (b) compliance with the operator's incident reporting procedures;
 - (c) implementation of the operator's usage monitoring system.

10.22 Usage monitoring system

The information to be provided must be the following:

- (a) a detailed description of the operator's usage monitoring system that is used to record and store data relating to:
 - (i) the rotorcraft's engines; and
 - (ii) its transmission systems (where applicable);
- (b) information demonstrating that the usage monitoring system is, and is likely to remain, a reliable, accurate, comprehensive and continuously-operating system unless modified to enhance it.

10.23 Flight manual and operator's exposition

- (1) The information to be provided must be:
 - (a) a copy of the rotorcraft's flight manual, stating procedures for a PC2WE flight with the rotorcraft; and
 - (b) relevant excerpts from the operator's exposition in which the procedures mentioned in paragraph (a) are clearly referenced.
- (2) However, if procedures for a PC2WE flight with the rotorcraft are not stated in the rotorcraft's flight manual, the information to be provided must be relevant excerpts from the operator's exposition in which the procedures are stated.

10.24 Flight crew training and checking

- (1) The information to be provided must be details of the procedures of the operator, or a Part 142 operator engaged by the operator, for the mandatory training and competency checking of each flight crew member who performs, or is likely to perform, a PC2WE flight with the rotorcraft.
- (2) For subsection (1), the training and competency checking must include training in, and competency checking of, flight crew techniques required to minimise risks when conducting PC2WE flights.

10.25 Incident reporting

- (1) The information to be provided must be details of the operator's mandatory procedures for reporting to the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines, any of the following arising during a PC2WE flight with the rotorcraft:
 - (a) loss of power control;
 - (b) engine shutdown, including a precautionary shutdown;
 - (c) power unit failure for any cause, but excluding simulation of power unit failure during training.
- (2) The information mentioned in subsection (1) must demonstrate that the procedures are, and are likely to remain, reliable, accurate, comprehensive and continuous, unless modified to enhance them.

Division 4—Flight in performance class 3

10.26 Flight in performance class 3 over populous areas

For paragraph 133.340 (1)(c) of CASR, the following requirements are prescribed:

- (a) for flight over a populous area, the pilot in command must operate the rotorcraft to maximise the availability of suitable forced landing areas;

Note Regulation 91.055 of CASR also requires the pilot in command to ensure that the rotorcraft is operated in a manner that does not create a hazard to another aircraft, a person or property.

- (c) the rotorcraft must be equipped with a particle detection system that:
 - (i) monitors the main and tail rotor transmission gearboxes; and
 - (ii) from the beginning of 2 December 2023 — includes a flight deck caution indicator for each gearbox mentioned in subparagraph (i).

Division 5—Rotorcraft performance — exposition — procedures for stages of flight

10.27 Exposition procedures for operations — rotorcraft flown in performance class 1

- (1) This section applies if a rotorcraft is, or will be, used to conduct a flight during a stage of which it is flown in performance class 1, whether or not Part 133 of CASR, or this Manual of Standards, requires it to be flown in performance class 1 during that stage of the flight.
- (2) For paragraph 119.205(1)(h) of CASR, the rotorcraft operator's exposition must state the procedures mentioned in subsection (3) that relate to each stage of flight during which the rotorcraft is flown in performance class 1.

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- (3) For subsection (2), the procedures are the following:
- (a) procedures for the pilot in command of the rotorcraft for a flight to determine whether the rotorcraft's take-off weight for the flight is within the limits required to comply with the requirements stated in Division 7;
 - (b) procedures for the pilot in command to determine the following for the flight:
 - (i) the most suitable flight path and track for take-off;
 - (ii) take-off obstacle clearance requirements;
 - (iii) the take-off decision point for the take-off of the rotorcraft;
 - (iv) en route obstacle clearance requirements;
 - (v) the most suitable flight path and track for the approach and landing, or baulked landing of the rotorcraft;
 - (vi) baulked landing obstacle clearance requirements;
 - (vii) the landing decision point for the landing of the rotorcraft.

10.28 Exposition procedures for operations — rotorcraft flown in performance class 2 or performance class 2 with exposure

- (1) This section applies if a rotorcraft:
- (a) is, or will be, used to conduct a flight during a stage of which it is flown in performance class 2, whether or not Part 133 of CASR, or this Manual of Standards, requires it to be flown in performance class 2 during that stage of the flight; or
 - (b) is, or will be, used to conduct a flight during a stage of which it is flown in performance class 2 with exposure.
- (2) For paragraph 119.205(1)(h) of CASR, the rotorcraft operator's exposition must state the procedures mentioned in subsection (3) that relate to each stage of flight during which the rotorcraft is flown in performance class 2 or performance class 2 with exposure.
- (3) For subsection (2), the procedures are the following:
- (a) procedures for the pilot in command of the rotorcraft for a flight to determine whether the rotorcraft's take-off weight for the flight is within the limits required to comply with the requirements stated in Division 8;
 - (b) procedures for the pilot in command to identify relevant obstacles for the flight under subsection 10.32(6);
 - (c) procedures for the pilot in command to determine the following for the flight:
 - (i) the most suitable flight path and track for take-off;
 - (ii) take-off obstacle clearance requirements;
 - (iii) the defined point after take-off for the rotorcraft;
 - (iv) en route obstacle clearance requirements;
 - (v) the most suitable flight path and track for the approach, landing and baulked landing, if any;
 - (vi) baulked landing obstacle clearance requirements;

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- (vii) the defined point before landing for the rotorcraft;
 - (d) for a rotorcraft flown in performance class 2 — procedures for the pilot in command to determine a contingency plan for the failure of an engine during the take-off stage, take-off and initial climb stage, or approach and landing, or baulked landing stage, of the flight, including a procedure to identify a suitable forced landing area for the flight:
 - (i) for an engine failure during take-off — before the defined point after take-off for the rotorcraft; and
 - (ii) for an engine failure during landing — after the defined point before landing for the rotorcraft;
 - (e) for a rotorcraft flown in performance class 2 with exposure:
 - (i) procedures for the take-off stage, the take-off and initial climb stage, or approach and landing, or baulked landing stage, of the flight, which meet the requirements stated in Division 3, Subdivision 2; and
 - (ii) a procedure for the operator to ensure the rotorcraft is operated within the maximum permitted exposure time, for the rotorcraft, stated in section 10.11.

10.29 Exposition procedures for operations — rotorcraft flown in performance class 3

- (1) Subsection (2) applies if a rotorcraft is, or will be, used to conduct a flight during a stage of which it is flown in performance class 3.
- (2) For paragraph 119.205(1)(h) of CASR, the rotorcraft operator's exposition must state the following:
 - (a) procedures for the pilot in command of the rotorcraft for a flight to determine whether the rotorcraft's take-off weight is within the limits required to comply with the requirements stated in Division 9;
 - (b) procedures for the pilot in command to determine the following for the flight:
 - (i) the most suitable flight path and track for take-off;
 - (ii) take-off obstacle clearance requirements;
 - (iii) the location of suitable forced landing areas for the flight;
 - (iv) en route obstacle clearance requirements;
 - (v) the most suitable flight path and track for the approach and landing, or baulked landing, if any;
 - (vi) baulked landing obstacle clearance requirements.
- (3) Subsection (4) applies if a rotorcraft is, or will be, used to conduct a flight during a stage of which it is flown in performance class 3 over a populous area, and a suitable forced landing area is not available to the rotorcraft.
- (4) For paragraph 119.205(1)(h) of CASR, the rotorcraft operator's exposition must state the following:
 - (a) risk assessment, and risk management, procedures for flights over populous areas;

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- (b) details of training for the operator's pilots in conducting autorotative descents with the rotorcraft to locations with limited access to a suitable forced landing area for a flight of the rotorcraft.

10.30 Exposition procedures for operations — general

If a rotorcraft's flight manual does not state details of the minimum distance the rotorcraft must be from an object during a stage of flight, for paragraph 119.205(1)(h) of CASR, the rotorcraft operator's exposition must state the details.

Division 6—Rotorcraft performance — pre-flight

10.31 Pre-flight determination of performance

- (1) Before a rotorcraft begins a take-off from, or landing at, an aerodrome, the pilot in command must be satisfied the take-off or landing can be carried out safely, having regard to:
 - (a) the factors mentioned in subsection (2); and
 - (b) any calculations made under subsection (4).
- (2) For paragraph (1)(a), the factors are the following, for the aerodrome:
 - (a) pressure altitude;
 - (b) temperature, according to an authorised weather report;
 - (c) wind speed and wind direction.
- (3) For the factor mentioned in paragraph (2)(c), the details of the wind speed and direction must be from an authorised weather report provided by an entity mentioned in subparagraph (i), (ii), (iii), (iv) or (v) of paragraph (a) of the definition of *authorised weather report*.
- (4) For paragraph (1)(b), the pilot in command must calculate:
 - (a) if the headwind is more than 5 knots — a headwind component of not more than 50% of the headwind; and
 - (b) if a tailwind component is permitted, in the rotorcraft's flight manual, for take-off or landing — a tailwind component of at least 150% of the tailwind.

10.32 Pre-flight identification of relevant obstacles

- (1) This section applies to a rotorcraft that under, Subpart 133.F of CASR and section 10.08 must be flown in performance class 1 or 2, or performance class 2 with exposure.
- (1A) However, this section does not apply to a rotorcraft that:
 - (a) is taking off from, or landing at, a certified aerodrome or registered aerodrome; and;

- (b) while taking off or landing at the aerodrome, is flying within the aerodrome's obstacle-protected-environment, as determined under Chapter 7 of the Part 139 Manual of Standards.
- (2) In determining whether an obstacle is **relevant** to the take-off stage of a flight, or the baulked landing component of the approach and landing, or baulked landing stage of a flight, either subsection (3) or (5) must be applied.
- Note: An obstacle is not relevant to the stage of the flight if the obstacle's position is outside the relevant area determined under subsection (3) or (5).
- (3) An obstacle is **relevant** to the take-off stage of a flight, or the baulked landing component of the approach and landing, or baulked landing stage of a flight, if:
- (a) during the stage of the flight, the flight is of the kind mentioned in column 1 of an item in the following table; and
 - (b) the shortest distance between the obstacle and a point on the ground or water below the intended flight path for the flight is not more than the distance calculated in accordance with column 2 of the item; and
 - (c) at a stage of the flight, the obstacle is not less limiting to the flight than another obstacle along the planned flight path at that stage of the flight.
- (4) When considering whether an obstacle is **relevant** to the baulked landing component of the approach and landing, or baulked landing stage of a flight, the divergence of the area, as determined under paragraph (3)(b), for the planned destination aerodrome for the flight only applies after the end of the take-off distance available – rotorcraft for a take-off of a rotorcraft at the aerodrome.

Table — Relevant obstacles — distance requirements

Item	Column 1 Kind of flight	Column 2 Distance
1	A VFR flight by day	The total of: (a) either: (i) if the rotorcraft's flight manual defines the final approach and take-off area for the rotorcraft — 0.5 of the minimum width of the final approach and take-off area; or (ii) if subparagraph (i) does not apply — $0.75 \times D$, for the rotorcraft; and (b) the greater of the following: (i) $0.25 \times D$, for the rotorcraft; (ii) 3 m; and (c) $0.10 \times S$, for the point
2	A VFR flight at night	The total of: (a) either: (i) if the rotorcraft's flight manual defines the final approach and take-off area for the rotorcraft — 0.5 of the minimum width of the final approach and take-off area; or

Table — Relevant obstacles — distance requirements		
Item	Column 1 Kind of flight	Column 2 Distance
		(ii) if subparagraph (i) does not apply — $0.75 \times D$, for the rotorcraft; and (b) the greater of the following: (i) $0.25 \times D$, for the rotorcraft; (ii) 3 m; and (c) $0.15 \times S$, for the point
3	An IFR flight using precision instrument navigation guidance	The total of: (a) the greater of the following: (i) $1.5 \times D$, for the rotorcraft; (ii) 30 m; and (b) $0.10 \times S$, for the point
4	An IFR flight using non-precision instrument navigation guidance	The total of: (a) the greater of the following: (i) $1.5 \times D$, for the rotorcraft; (ii) 30 m; and (b) $0.15 \times S$, for the point
5	An IFR flight not mentioned in item 3 or 4	The total of: (a) the greater of the following: (i) $1.5 \times D$, for the rotorcraft; (ii) 30 m; and (b) $0.30 \times S$, for the point
6	A flight in VMC up to the transition point for the flight	Either: (a) for a VFR flight by day — the distance calculated in accordance with item 1; or (b) for a VFR flight at night — the distance calculated in accordance with item 2
7	A flight in IMC after the transition point for the flight	Whichever of the following is applicable: (a) for an IFR flight using precision instrument navigation guidance — the distance calculated in accordance with item 3; (b) for an IFR flight using non-precision instrument navigation guidance — the distance calculated in accordance with item 4; (c) for an IFR flight not mentioned in paragraph (a) or (b) — the distance calculated in accordance with item 5
8	For a flight involving a back-up take-off procedure, or with a lateral transition take-off procedure — the back-up take-off procedure, or lateral transition take-off procedure, part of the flight	The total of: (a) either: (i) if the rotorcraft's flight manual defines the final approach and take-off area for the rotorcraft — 0.5 of the minimum width of the final approach and take-off area; or (ii) if subparagraph (i) does not apply — $0.75 \times D$, for the rotorcraft; and (b) the greater of the following: (i) $0.25 \times D$, for the rotorcraft;

Table — Relevant obstacles — distance requirements

Item	Column 1 Kind of flight	Column 2 Distance
		(ii) 3 m; and (c) either: (i) for a VFR flight by day — 0.10 of the distance travelled from the back of the final approach and take-off area to the take-off decision point for the flight; or (ii) for a VFR flight at night or the visual departure phase of an IFR flight — 0.15 of the distance travelled from the back of the final approach and take-off area to the take-off decision point for the flight

- (5) An obstacle is **relevant** to the take-off stage of a flight, or the baulked landing component of the approach and landing, or baulked landing stage of a flight, if the shortest distance between the obstacle and a point on the ground or water below the intended flight path for the flight, as determined by the pilot in command of the rotorcraft, is not more than:
- (a) for a flight by day in which navigational accuracy can be achieved by reference to visual cues during the climb or landing of the rotorcraft — 7 x R, for the rotorcraft; or
 - (b) for a flight at night in which navigational accuracy can be achieved by reference to visual cues during the climb or landing of the rotorcraft — 10 x R, for the rotorcraft; or
 - (c) for a flight in which navigational accuracy can be achieved by navigation aids — 300 m; or
 - (d) for any other flight — 900 m.
- (6) For a flight of a rotorcraft in performance class 2, or performance class 2 with exposure, the pre-flight identification of relevant obstacles may be carried out by a pilot survey using an operator's risk-based obstacle survey process, which includes the following risk control measures for operations beyond the defined point after take-off for the rotorcraft:
- (a) for an IFR flight — that no entry into IMC is planned below the LSALT, unless flying in IMC can be carried out safely, using the operator's risk-assessed procedures for obstacle avoidance stated in the operator's exposition, until the rotorcraft reaches the minimum flight altitude for a point on the route for the flight;
 - (b) unless the flight is conducted as an NVIS flight, that the flight can only be flown at night if the survey for the location was, or has been previously, completed by day;
 - (c) the use of maps or visual observation to identify the climb track that provides the shallowest obstacle-free gradient from the final approach and take-off area, for the relevant aerodrome, and from the defined point after take-off for the rotorcraft;
 - (d) the use of maps, or visual observation, to identify the height, distance and gradient of the critical obstacle for the climb;

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- (e) if a turn is needed to align with the best 1-engine-inoperative departure track, a turn is permitted once at 200 ft above obstacles by day in VMC, or at night if the flight is an NVIS flight, or 500 ft above obstacles at night, provided the pilot in command of the rotorcraft is satisfied the rotorcraft can clear further terrain, as necessary, to reach the LSALT.

Division 7—Rotorcraft performance — performance class 1

10.33 Performance class 1 — take-off

- (1) For item 1 of the table in section 10.04, the requirements for the take-off stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:
 - (a) for the type of take-off procedure to be used; and
 - (b) to achieve the following rates of climb, with 1 engine inoperative:
 - (i) 100 ft per minute at 200 ft above the departure aerodrome, for the flight, at V_{TOSS} for the rotorcraft;
 - (ii) 150 ft per minute at 1 000 ft above the departure aerodrome.
- (3) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required to ensure:
 - (a) the rejected take-off distance required – rotorcraft, for the take-off, does not exceed the rejected take-off distance available – rotorcraft for the take-off; and
 - (b) either:
 - (i) the take-off distance required – rotorcraft does not exceed the take-off distance available – rotorcraft for the take-off; or
 - (ii) if the take-off distance required – rotorcraft exceeds the take-off distance available – rotorcraft for the take-off:
 - (A) the rotorcraft must be able to clear an obstacle from the take-off decision point, for the take-off, with 1 engine inoperative, by at least 35 ft; and
 - (B) if the take-off is from an elevated aerodrome, the rotorcraft must be able to clear the edge of the aerodrome by at least 4.5 m.
- (4) If an engine becomes inoperative before the take-off decision point for the take-off, the rotorcraft must be able to safely land and stop within the rejected take-off distance available – rotorcraft for the take-off.
- (5) If an engine becomes inoperative while the rotorcraft is conducting a back-up take-off procedure or a lateral transition take-off procedure, the rotorcraft must be able to clear a relevant obstacle under the flight path for the procedure or transition by at least the adequate vertical margin, for the rotorcraft, for the take-off stage of the flight.

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- (6) The dimensions of the final approach and take-off area, for the aerodrome, must be at least the larger of the following:
 - (a) the dimensions of the final approach and take-off area, as mentioned in the rotorcraft's flight manual;
 - (b) 1.5 x D, for the rotorcraft.
 - (7) In this section:

elevated aerodrome means an aerodrome situated on a raised structure.

10.34 Performance class 1 — take-off and initial climb

- (1) For item 2 of the table in section 10.04, the requirements for the take-off and initial climb stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) If an engine becomes inoperative after the take-off decision point, for the take-off, the rotorcraft must be able to achieve the rates of climb stated in paragraph 10.33(2)(b).
- (3) If an engine becomes inoperative after the take-off decision point, for the take-off, the rotorcraft must be able, from the end of the take-off distance required – rotorcraft for the take-off until the rotorcraft reaches the minimum flight altitude for each point in the take-off and initial climb stage of the flight, to clear a relevant obstacle under the flight path by a margin of at least:
 - (a) for a VFR flight — 35 ft; and
 - (b) for an IFR flight — the total of:
 - (i) 35 ft; and
 - (ii) 0.01 x S, for the point.
- (4) For subsection (3), if a change of direction of more than 15 degrees is required to achieve the margin, the rotorcraft must be able, during the change of direction, to clear the relevant obstacle by at least the total of:
 - (a) the margin; and
 - (b) 15 ft.
- (5) For subsection (4), the rotorcraft may change direction by more than 15 degrees only if the rotorcraft is permitted to do so under its flight manual.

10.35 Performance class 1 — en route

- (1) For item 3 of the table in section 10.04, the requirements for the en route stage of a flight of a rotorcraft are, if an engine becomes inoperative during that stage of the flight:
 - (a) the rotorcraft must be able to achieve and maintain a rate of climb of at least 50 ft per minute at the minimum flight altitude for each point in the en route stage of the flight; or
 - (b) the requirements stated in subsection (2), as applicable.

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- (2) For paragraph (1)(b), the requirements are:
 - (a) the pilot in command of the rotorcraft for the flight must be permitted under subsection (3) to conduct a drift-down manoeuvre; and
 - (b) the rotorcraft must be able to comply with the requirements for conducting a drift-down manoeuvre mentioned in:
 - (i) for an IFR flight — subsection (4); or
 - (ii) for a VFR flight at night — subsection (5); or
 - (iii) for a VFR flight by day — subsection (6); and
 - (c) the rotorcraft must be able to approach and land, or conduct a baulked landing, in accordance with the requirements stated in section 10.36.
 - (3) For paragraph (2)(a), the pilot in command is permitted to conduct a drift-down manoeuvre if:
 - (a) the flight planning for the flight has taken into account the effect of wind on the flight path; and
 - (b) navigational accuracy for the rotorcraft's track for the drift-down manoeuvre can be maintained:
 - (i) for an IFR flight, or a VFR flight at night — using navigation aids; or
 - (ii) for a VFR flight by day — using visual navigation and navigation aids, if any; and
 - (c) for a VFR flight — VMC exist.
 - (4) For subparagraph (2)(b)(i), the requirements for conducting a drift-down manoeuvre for an IFR flight are that the rotorcraft must be able to:
 - (a) descend to a height of 1 500 ft above an aerodrome that is suitable for the rotorcraft to land at; and
 - (b) fly at a height that ensures that the pilot in command does not contravene any provision of Part 91 of CASR dealing with minimum heights for IFR flights for the rotorcraft's track for the drift-down manoeuvre to the aerodrome.
 - (5) For subparagraph (2)(b)(ii), the requirements for conducting a drift-down manoeuvre for a VFR flight at night are that the rotorcraft must be able to:
 - (a) descend to a height of 1 500 ft above an aerodrome that is suitable for the rotorcraft to land at in VMC; and
 - (b) fly at a height that ensures that the pilot in command does not contravene any provision of Part 91 of CASR dealing with minimum heights for VFR flights at night for the rotorcraft's track for the drift-down manoeuvre to the aerodrome.
 - (6) For subparagraph (2)(b)(iii), the requirements for conducting a drift-down manoeuvre for a VFR flight by day are that the rotorcraft must be able to:
 - (a) descend to a height of 1 000 ft above an aerodrome that is suitable for the rotorcraft to land at; and
 - (b) fly at least 1 000 ft above the highest obstacle on the ground or water within 900 m ahead of, and to either side of, the rotorcraft at each point on the rotorcraft's track for the drift-down manoeuvre to the aerodrome.
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10.36 Performance class 1 — approach and landing, or baulked landing

- (1) For item 4 of the table in section 10.04, the requirements for the approach and landing, or baulked landing stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) The landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:
 - (a) for the type of approach procedure to be used; and
 - (b) to achieve the following rates of climb with 1 engine inoperative:
 - (i) 100 ft per minute at 200 ft above the aerodrome;
 - (ii) 150 ft per minute at 1 000 ft above the aerodrome.
- (3) The landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required for the rotorcraft to safely land and stop with 1 engine inoperative within the landing distance available for a landing of the rotorcraft at the aerodrome.
- (4) If an engine becomes inoperative before, or at, the landing decision point for the landing, the rotorcraft must be able to:
 - (a) safely land and stop within the final approach and take-off area for the aerodrome; or
 - (b) both:
 - (i) conduct a baulked landing; and
 - (ii) clear a relevant obstacle, if any, under the baulked landing climb flight path by a margin of at least:
 - (A) for a VFR flight — 35 ft; and
 - (B) for an IFR flight — the total of 35 ft and $(0.01 \times S)$, for the point).
- (5) For subsection (4), if a change of direction of more than 15 degrees is required to achieve the margin, the rotorcraft must be able, during the change of direction, to clear the relevant obstacle by at least the total of:
 - (a) the margin; and
 - (b) 15 ft.
- (6) If an engine becomes inoperative at or after the landing decision point for the landing, the rotorcraft must be able to safely land and stop within the final approach and take-off area for the aerodrome.
- (7) The dimensions of the final approach and take-off area, for the aerodrome, must be at least the larger of the following:
 - (a) the dimensions of the final approach and take-off area, as mentioned in the rotorcraft's flight manual;
 - (b) $1.5 \times D$, for the rotorcraft.

Division 8—Rotorcraft performance — performance class 2

10.37 Performance class 2 — take-off

- (1) For item 1 of the table in section 10.05, the requirements for the take-off stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:
 - (a) for the type of take-off procedure to be used; and
 - (b) to achieve a rate of climb, with 1 engine inoperative, of 150 ft per minute at 1 000 ft above the departure aerodrome for the flight.
- (3) If an engine becomes inoperative before the defined point after take-off, the rotorcraft must be able to do one of the following without creating a hazard to a person under the flight path:
 - (a) safely continue the climb out;
 - (b) safely land on a suitable forced landing area for the flight.

10.38 Performance class 2 — take-off and initial climb

- (1) For item 2 of the table in section 10.05, the requirements for the take-off and initial climb stage of a flight of a rotorcraft are that, if an engine becomes inoperative at the lower of the following:
 - (a) the defined point after take-off for the rotorcraft;
 - (b) 300 ft above the departure aerodrome for the flight;the rotorcraft must be able to achieve the rate of climb stated in paragraph 10.37(2)(b), and clear a relevant obstacle, if any, under the flight path by a margin of at least:
 - (i) for a VFR flight — 35 ft; or
 - (ii) for an IFR flight — the total of:
 - (A) 35 ft; and
 - (B) $0.01 \times S$, for the point.
- (2) For subsection (1), if a change of direction of more than 15 degrees is required to achieve the margin, the rotorcraft must be able, during the change of direction, to clear the relevant obstacle by at least the total of:
 - (a) the margin; and
 - (b) 15 ft.

10.39 Performance class 2 — en route

For item 3 of the table in section 10.05, the requirements for the en route stage of a flight of a rotorcraft are, if an engine becomes inoperative during that stage of the flight, the same requirements as those stated in subsection 10.35(1).

Note: Subsection 10.35 (1) states the performance class 1 requirements for the en route stage of a flight of a rotorcraft if an engine becomes inoperative during that stage of the flight.

10.40 Performance class 2 — approach and landing, or baulked landing

- (1) For item 4 of the table in section 10.05, the requirements for the approach and landing, or baulked landing stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) The landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:
 - (a) for the type of approach procedure to be used; and
 - (b) to achieve a rate of climb, with 1 engine inoperative, of 150 ft per minute at 1 000 ft above the landing aerodrome; and
 - (c) for the rotorcraft to safely land within the landing distance available for a landing of the rotorcraft at the aerodrome.
- (3) If an engine becomes inoperative before the defined point before landing for the rotorcraft, the rotorcraft must be able to:
 - (a) conduct a baulked landing; and
 - (b) clear a relevant obstacle, if any, under the baulked landing climb flight path by a margin of at least:
 - (i) for a VFR flight — 35 ft; or
 - (ii) for an IFR flight — the total of:
 - (A) 35 ft; and
 - (B) $0.01 \times S$, for the point.
- (4) For subsection (3), if a change of direction of more than 15 degrees is required to achieve the margin, the rotorcraft must be able, during the change of direction, to clear the relevant obstacle by at least the total of:
 - (a) the margin; and
 - (b) 15 ft.
- (5) During the part of the flight after the defined point before landing for the rotorcraft until the point of landing, a suitable forced landing area for the flight must be available to the rotorcraft.

Division 9—Rotorcraft performance — performance class 3

10.41 Performance class 3 — take-off

- (1) For item 1 of the table in section 10.07, the requirements for the take-off stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:
 - (a) for the type of take-off procedure to be used; and

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- (b) to:
 - (i) hover in ground effect, with the rotorcraft's engines operating at the power required for hover in ground effect, in the meteorological conditions existing at the time of take-off; or
 - (ii) if the rotorcraft cannot hover in ground effect due to the location of, or the terrain at, the departure aerodrome for the flight — hover out of ground effect, with the rotorcraft's engines operating at the power required for hover out of ground effect, in the meteorological conditions existing at the time of take-off; and
 - (c) to have enough additional power available for the type of take-off procedure to be used while hovering in ground effect or out of ground effect.
- (3) The rotorcraft must:
- (a) remain outside the rotorcraft's avoid area of the HV envelope; or
 - (b) if it is necessary for the rotorcraft to enter the rotorcraft's avoid area of the HV envelope to avoid an accident or incident — not remain inside that area for longer than the minimum period necessary to avoid the accident or incident.

10.42 Performance class 3 — take-off and initial climb

- (1) For item 2 of the table in section 10.07, the requirements for the take-off and initial climb stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) The rotorcraft must clear an obstacle, if any, under the take-off flight path by at least the adequate vertical margin, for the rotorcraft, for the take-off and initial climb stage of the flight.
- (3) If:
 - (a) the rotorcraft is operating over a populous area and the requirements stated in section 10.26 are not met; and
 - (b) an engine becomes inoperative;

then, until the rotorcraft reaches the minimum safe height for the flight under Part 91 of CASR or the Part 91 Manual of Standards, the rotorcraft must clear an obstacle, if any, under the flight path to a suitable forced landing area for the flight by at least the adequate vertical margin for the rotorcraft for the take-off and initial climb stage of the flight.

- (4) The rotorcraft must:
 - (a) remain outside the rotorcraft's avoid area of the HV envelope; or
 - (b) if it is necessary for the rotorcraft to enter the rotorcraft's avoid area of the HV envelope to avoid an accident or incident — not remain inside that area for longer than the minimum period necessary to avoid the accident or incident.

10.43 Performance class 3 — en route

For item 3 of the table in section 10.07, the requirements for the en route stage of a flight of a rotorcraft are the following:

- (a) the weight of the rotorcraft must allow the rotorcraft, with all engines operating, to achieve the minimum flight altitude for each point in the en route stage of the flight;
- (b) the rotorcraft must be flown in a way that minimises the time during the en route stage of the flight in which a suitable forced landing area, for the flight, is not available.

10.44 Performance class 3 — approach and landing, or baulked landing

- (1) For item 4 of the table in section 10.07, the requirements for the approach and landing, or baulked landing stage of a flight of a rotorcraft are the requirements stated in this section.
- (2) The landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:
 - (a) for the type of approach procedure to be used; and
 - (b) to achieve:
 - (i) a hover in ground effect, with the rotorcraft's engines operating at the power required for landing; or
 - (ii) if the rotorcraft cannot achieve a hover in ground effect due to the location of, or the terrain at, the aerodrome — a hover out of ground effect, with all engines operating; and
 - (c) to achieve a baulked landing, with all the rotorcraft's engines operating, at any point of the flight path for the approach and landing; and
 - (d) to clear an obstacle, if any, by at least the adequate vertical margin, for the rotorcraft, for the approach and landing, or baulked landing stage of the flight.
- (3) If:
 - (a) the rotorcraft is operating over a populous area and the requirements stated in section 10.26 are not met; and
 - (b) an engine becomes inoperative;

then, until the rotorcraft reaches a point in the flight from which it may land at an aerodrome with the engine inoperative, the rotorcraft must clear an obstacle, if any, under the flight path to a suitable forced landing area for the flight by at least the adequate vertical margin for the rotorcraft for the approach and landing, or baulked landing stage of the flight.

- (4) The rotorcraft must:
 - (a) remain outside the rotorcraft's avoid area of the HV envelope; or
 - (b) if it is necessary for the rotorcraft to enter the rotorcraft's avoid area of the HV envelope to avoid an accident or incident — not remain inside that area for longer than the minimum period necessary to avoid the accident or incident.

Chapter 11 — Equipment

Division 1—General

11.01 Purpose of Chapter 11 etc.

- (1) This Chapter prescribes requirements for subregulation 133.360(1) of CASR.
- (2) The requirements apply to the rotorcraft's operator, unless a provision of this Chapter states that a requirement applies to another person, in which case it applies to the operator and other person.
- (3) In addition to the operator, the requirements stated in the following provisions also apply to the pilot in command of the rotorcraft:
 - (a) subsections 11.13(3) to (5);
 - (b) subsection 11.15(2);
 - (c) paragraph 11.36(3)(b);
 - (d) subsections 11.49(3) and (4);
 - (e) subsections 11.54(1) to (7);
 - (f) subsections 11.55(1) and (2).
- (4) A person other than the operator, or, for the provisions mentioned in subsection (3), the pilot in command, may also be subject to a requirement stated in a provision of this Chapter, as stated in the provision setting out the requirement.
- (5) In this Chapter, unless the contrary intention appears in, or for, a particular provision:
 - (a) a reference to a pilot seeing, or viewing, anything from a pilot's seat is taken to mean that the thing is seen or viewed from the pilot's normal sitting position in the seat; and
 - (b) any mention of feet (or ft) in the context of an altitude is taken to mean feet above mean sea level (AMSL), unless otherwise stated.

Division 2—Approvals, visibility and inoperability

11.02 Approval of rotorcraft equipment

- (1) Before a registered rotorcraft begins a flight, any equipment that is required to be fitted to, or carried on, the rotorcraft under this Chapter must meet the requirements of, or be approved under, Part 21 of CASR.
- (2) Subsection (1) does not apply to any of the following:
 - (a) an item of equipment used to display the time;
 - (b) an independent portable light, for example, a flashlight or torch;
 - (c) a headset;
 - (d) a portable megaphone;

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- (e) a sea anchor and other equipment for mooring;
 - (f) a first-aid kit, an emergency medical kit or a universal precaution kit;
 - (g) survival equipment, including signalling equipment.
- (3) Before a foreign-registered rotorcraft begins a flight, the equipment required by this Chapter to be fitted to, or carried on, the rotorcraft must have been approved by the NAA of the rotorcraft's State of registry.
- (4) If equipment is carried on a rotorcraft, although not required by this Chapter to be fitted or carried, then:
- (a) the equipment need not meet the requirements of, or be approved under, Part 21 of CASR; and
 - (b) for a foreign-registered rotorcraft — the equipment need not have been approved by the NAA of the rotorcraft's State of registry; and
 - (c) no information, or data, provided by the equipment may be used by a flight crew member, of the rotorcraft, to comply with any requirement of the civil aviation legislation in relation to communications or navigation; and
 - (d) the equipment, whether functional or otherwise, must not at any time affect the airworthiness of the rotorcraft; and
 - (e) if the equipment is surveillance equipment — the equipment, whether functional or otherwise, must not at any time adversely affect the safety of other aircraft or interfere with the proper functioning of an air traffic service.

11.03 Visibility and accessibility of equipment

- (1) This section applies in relation to equipment that is required, under this Chapter, to be fitted to, or carried on, a rotorcraft for a flight.
- (2) Any equipment that is for a pilot's manual or visual use in, or from, the cockpit must be visible to, and usable by, the pilot from the pilot's seat in the rotorcraft.
- (3) Emergency equipment that is required under this Chapter to be fitted to, or carried on, a rotorcraft for a flight must be easily accessible for immediate use in the event of an emergency.

11.04 Serviceability of equipment

Any equipment required by this Chapter to be fitted to, or carried on, an aircraft for a flight must be operative unless:

- (a) another section of this Chapter provides otherwise; or

Note: A minimum equipment list (a *MEL*), approved under regulation 91.935 of CASR, may only permit equipment required to be fitted to, or carried on, an aircraft by this Chapter, to be unserviceable within the limits of the requirements stated in this Chapter. For example, section 11.21 provides for an allowable period of 72 hours in relation to flights of a rotorcraft with inoperative altitude alerting equipment. An MEL would not be approved if it contained a maximum period for altitude alerting equipment to be inoperative that was greater than the period specified by either a master minimum equipment list (MMEL) or the legislation.

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- (b) the equipment:
 - (i) is inoperative because of a defect that has been approved as a permissible unserviceability for the aircraft for the flight; and
 - (ii) is fitted, or carried, in accordance with the permissible unserviceability.

Division 3—Flight instruments

11.05 Day VFR flight instrument requirements

- (1) A rotorcraft in an operation under the VFR by day must be fitted with equipment for measuring and displaying the following flight information:
 - (a) indicated airspeed;
 - (b) pressure altitude;
 - (c) magnetic heading;
 - (d) time;
 - (e) slip;
 - (f) outside air temperature.
- (2) A rotorcraft in an operation under the VFR by day, for which 2 pilots are required under the civil aviation legislation or rotorcraft’s flight manual, must be fitted with equipment, separate from, and independent of, the corresponding equipment mentioned in subsection (1), for measuring and displaying the following flight information:
 - (a) indicated airspeed;
 - (b) pressure altitude;
 - (c) slip.
- (3) Despite subsections (1) and (2), for a rotorcraft in an operation under the VFR by day, the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 11.05(3) must meet the requirements mentioned in column 2 of the same item.

Table 11.05(3)—Requirements for flight instruments – VFR flight by day

Item	Column 1 Flight information	Column 2 Requirements
1	Pressure altitude	The equipment must: <ul style="list-style-type: none"> (a) have an adjustable datum scale calibrated in millibars or hPa; and (b) be calibrated in feet, except that, if a flight is conducted in a foreign country that measures flight levels or altitudes in metres, the equipment must be calibrated in metres or fitted with a conversion placard or device.

Table 11.05(3)—Requirements for flight instruments – VFR flight by day

Item	Column 1 Flight information	Column 2 Requirements
2	Magnetic heading	The equipment must be: (a) a direct reading magnetic compass; or (b) a remote indicating compass and standby direct reading magnetic compass.
3	Time	1. The equipment must display accurate time in hours, minutes and seconds. 2. The equipment must be: (a) fitted to the rotorcraft; or (b) worn by, or be immediately accessible to, the pilot for the duration of the flight.

11.06 Night VFR flight instrument requirements

- (1) A rotorcraft in an operation under the VFR at night must be fitted with equipment for measuring, and displaying, the following flight information:

- (a) indicated airspeed;
- (b) pressure altitude;
- (c) magnetic heading;
- (d) time;
- (e) slip;
- (f) attitude;
- (g) standby attitude or turn;
- (h) vertical speed;
- (i) stabilised heading;

Note: A gyro-magnetic type of remote indicating compass meets the requirement to fit equipment in relation to this flight information if it has a primary power supply and alternate power supply.

- (j) outside air temperature;
- (k) whether the supply of power to gyroscopic instruments, if any, is adequate.

- (2) A rotorcraft in an operation under the VFR at night, for which 2 pilots are required under the civil aviation legislation or rotorcraft's flight manual, must be fitted with equipment, separate from, and independent of, the corresponding equipment mentioned in subsection (1), for measuring and displaying the following flight information:

- (a) indicated airspeed;
- (b) pressure altitude;
- (c) turn and slip;
- (d) attitude;
- (e) vertical speed;

(f) stabilised heading.

Note: A gyro-magnetic type of remote indicating compass meets the requirement to fit equipment in relation to the flight information mentioned in paragraph (f) if it has a primary power supply and alternate power supply.

(3) Despite subsections (1) and (2), for a rotorcraft in an operation under the VFR at night, the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 11.06(3) must meet the requirements mentioned in column 2 of the same item.

Table 11.06(3)—Requirements for flight instruments – VFR flight at night

Item	Column 1 Flight information	Column 2 Requirements
1	Pressure altitude	The equipment must: (a) have an adjustable datum scale calibrated in millibars or hPa; and (b) be calibrated in feet, except that, if a flight is conducted in a foreign country that measures flight levels or altitudes in metres, the equipment must be calibrated in metres or fitted with a conversion placard or device.
2	Magnetic heading	The equipment must be: (a) a direct reading magnetic compass; or (b) a remote indicating compass and a standby direct reading magnetic compass.
3	Time	1. The equipment must display accurate time in hours, minutes and seconds. 2. The equipment must be: (a) fitted to the rotorcraft; or (b) worn by, or be immediately accessible to, the pilot for the duration of the flight.
4	Attitude	The equipment power supply must be independent of the power source for the standby attitude or turn (as applicable) information.
5	Standby attitude or turn	The equipment power supply must be independent of the power source for the attitude information.
6	Vertical speed	If the rotorcraft is operated to, or from, vessels or platforms at sea at night, or over an area where the rotorcraft's attitude cannot be maintained by use of visual external surface cues, the system must: (a) be an instantaneous vertical speed indicator (<i>IVSI</i>); or (b) meet performance requirements for acceleration sensitivity equivalent to an IVSI.

11.07 IFR flight instruments

- (1) A rotorcraft in an operation under the IFR must be fitted with equipment for measuring and displaying the following flight information:
 - (a) indicated airspeed;
 - (b) pressure altitude;
 - (c) magnetic heading;
 - (d) time;
 - (e) slip;
 - (f) attitude;
 - (g) vertical speed;
 - (h) stabilised heading;
 - (i) standby attitude;
 - (j) outside air temperature;
 - (k) whether the supply of power to gyroscopic instruments, if any, is adequate.
- (2) A rotorcraft in an operation under the IFR, for which only a single pilot is required under the civil aviation legislation or rotorcraft's flight manual, must be fitted with equipment, separate from, and independent of, the corresponding equipment mentioned in subsection (1), for measuring and displaying pressure altitude.
- (3) A rotorcraft in an operation under the IFR, for which 2 pilots are required under the civil aviation legislation or rotorcraft's flight manual, must be fitted with equipment, separate from, and independent of, the corresponding equipment mentioned in subsection (1), for measuring and displaying the following flight information:
 - (a) indicated airspeed;
 - (b) pressure altitude;
 - (c) slip;
 - (d) attitude;
 - (e) vertical speed;
 - (f) stabilised heading.
- (4) Despite subsections (1) to (3), for a rotorcraft in an operation under the IFR, the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 11.07(4) must meet the requirements mentioned in column 2 of the same item.

Table 11.07(4)—Requirements for flight instruments – IFR flight

Item	Column 1 Flight information	Column 2 Requirements
1	Indicated airspeed	<p>1. The equipment must be capable of being connected to:</p> <ul style="list-style-type: none">(a) an alternate source of static pressure that is selectable by a pilot and includes a selector that can open, or block, the rotorcraft's static source and alternative static source at the same time; or(b) a balanced pair of flush static ports. <p>2. At least 1 unit of equipment for indicated airspeed must include a means of preventing malfunction due to condensation or icing.</p>
2	Pressure altitude	<p>1. The equipment must:</p> <ul style="list-style-type: none">(a) have an adjustable datum scale calibrated in millibars or hPa; and(b) be calibrated in feet, except that, if a flight is conducted in a foreign country that measures flight levels or altitudes in metres, the equipment must be calibrated in metres or fitted with a conversion placard or device. <p>2. The equipment must be capable of being connected to:</p> <ul style="list-style-type: none">(a) an alternate source of static pressure that is selectable by a pilot and includes a selector that can open, or block, the rotorcraft's static source and alternative static source at the same time; or(b) a balanced pair of flush static ports.
3	Magnetic heading	<p>The system must be:</p> <ul style="list-style-type: none">(a) a direct reading magnetic compass; or(b) a remote indicating compass and standby direct reading magnetic compass.
4	Time	<p>1. The equipment must display accurate time in hours, minutes and seconds.</p> <p>2. The equipment must be:</p> <ul style="list-style-type: none">(a) fitted to the rotorcraft; or(b) worn by, or be immediately accessible to, the pilot for the duration of the flight.
5	Attitude	<p>The equipment must have an alternate power supply in addition to its primary power supply.</p>
6	Vertical speed	<p>1. The equipment must be capable of being connected to:</p> <ul style="list-style-type: none">(a) an alternate source of static pressure that is selectable by a pilot and includes a selector that can open, or block, the rotorcraft's static source and alternative static source at the same time; or(b) a balanced pair of flush static ports. <p>2. The equipment must:</p> <ul style="list-style-type: none">(a) be an instantaneous vertical speed indicator (<i>IVSI</i>); or(b) meet performance requirements for acceleration sensitivity equivalent to an <i>IVSI</i>.

Table 11.07(4)—Requirements for flight instruments – IFR flight

Item	Column 1 Flight information	Column 2 Requirements
7	Stabilised heading	The equipment must have an alternate power supply in addition to its primary power supply. Note: A gyro-magnetic type of remote indicating compass meets this requirement if it has a primary power supply and alternate power supply.
8	Standby attitude	The system must: (a) have a source of power independent of the electrical generating system; and (b) operate independently of other attitude systems; and (c) continue to operate, without any action by a flight crew member, for a period of 30 minutes following the failure of the electrical power generating system.

Division 4—Operational equipment

11.08 Radiocommunication systems

- (1) A rotorcraft, for a flight, must be fitted with 1 radiocommunication system that is capable of continuous communication on all frequencies necessary to meet reporting, broadcast and listening-watch requirements under regulations 91.630, 91.635, 91.640, and 91.675 of CASR.
- (2) Subject to subsection (3), and without limiting subsection (1), for a flight in any class of airspace, a rotorcraft must be fitted with at least 2 independent radiocommunication systems:
 - (a) each capable, under normal operating conditions, of communicating with an appropriate ground station from any point on the route, including in the event of any diversion; and
 - (b) each capable of receiving meteorological information at any time during the flight; and
 - (c) at least one of which must have two-way voice communication capability; and
 - (d) at least one of which must provide for communication on the aeronautical emergency frequency 121.5 MHz.
- (3) Despite subsection (2), a rotorcraft for a VFR flight by day must be fitted with the following radiocommunication systems:
 - (a) at least 1 VHF radiocommunication system;
 - (b) if a VHF radiocommunication system would not allow for continuous communication with ATS at all stages of the flight — one of the following:
 - (i) an additional radiocommunication system capable of continuous two-way communications with ATS or the rotorcraft's operator;

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- (ii) an additional radiocommunication system capable of, after activation of the system by a crew member of the rotorcraft, sending an automatic notification to the rotorcraft's operator, or a person nominated by the operator, which:

- (A) notifies the operator or person of an emergency situation during the flight; and

- (B) includes information about the rotorcraft's general location.

Note: The notification may involve a signal from the radiocommunication system being relayed via multiple communication technologies, for example, satellite relays or mobile phone networks.

- (4) If an additional radiocommunication system is fitted to the rotorcraft under paragraph (3)(b), the system must only be used for communications with ATS, the rotorcraft's operator or a person nominated by the operator, during the flight, when VHF communications with ATS are not available.
- (5) If a flight crew member, of a rotorcraft for a flight, is required to wear a headset under section 11.30, the flight crew member must use the headset as the primary device to communicate with ATS.

11.09 Navigation equipment

Note: For an aircraft entering oceanic airspace with RNP 2, RNP 4, or RNP 10, navigation specification capability, see subsections 11.03(1B) and (1C) of the Part 91 Manual of Standards in relation to long-range navigation systems (LRNS) operability requirements. The term *oceanic airspace* is defined in subsection 11.01(2) of the Part 91 Manual of Standards.

- (1) In this section:

approved GNSS means:

- (a) a GNSS system that is authorised in accordance with one of the following:
 - (i) (E)TSO-C129;
 - (ii) (E)TSO-C145;
 - (iii) (E)TSO-C146;
 - (iv) (E)TSO-C196a; or

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

- (b) a multi-sensor navigation system that:
 - (i) includes GNSS and inertial integration; and
 - (ii) is approved, under Part 21 of CASR, as providing a level of performance equivalent to a GNSS system mentioned in subparagraph (a) (ii), (iii) or (iv).

- (2) Without limiting the requirements under subsections (5) and (6), a rotorcraft for a VFR flight at night must be fitted with:
 - (a) an approved GNSS; or
 - (b) an ADF or VOR.

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- (3) Subject to subsections (7) and (8), and without limiting the requirements under subsections (5) and (6), a rotorcraft for an IFR flight must be fitted with at least:
 - (a) 2 approved GNSS; or
 - (b) 1 approved GNSS and either:
 - (i) 1 ADF; or
 - (ii) 1 VOR.
 - (4) For subsections (2) and (3), if an approved GNSS unit is provided with the automatic barometric aiding options stated in any of the following (the **relevant options**):
 - (a) (E)TSO-C129a;
 - (b) (E)TSO-C145a;
 - (c) (E)TSO-C146a;
 - (d) (E)TSO-C196a;

then the relevant options must be connected.

- (5) The navigation equipment fitted to a rotorcraft must 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:
 - (a) the rotorcraft's operational flight plan; and
 - (b) the requirements of:
 - (i) ATS; and
 - (ii) the airspace in which the rotorcraft is planned to be flown.
- (6) For any aerodrome at which it is planned, or intended, that a rotorcraft may land in IMC, the rotorcraft's equipment must be capable of providing guidance to a point from which a safe visual, or instrument, landing may be conducted.
- (7) For paragraph (3)(a), an approved GNSS used to comply with that paragraph may not be authorised in accordance with (E)TSO-C129.
- (8) For paragraph (3)(b), an approved GNSS fitted to the rotorcraft must not be one authorised in accordance with (E)TSO-C129, unless:
 - (a) the rotorcraft was manufactured before 6 February 2014; and
 - (b) the GNSS was installed before 6 February 2014.

11.10 Automatic pilot

A rotorcraft flight that is:

- (a) an IFR flight; or
- (b) a VFR flight at night, which is:
 - (i) operated by a single pilot; and

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- (ii) conducted over an area where the rotorcraft's attitude cannot be maintained by use of visual external surface cues provided by lights on the ground, celestial illumination or lighting fitted to the rotorcraft; must be fitted with an automatic pilot or automatic stabilisation system.

Note: Visual external surface cues can be established by unaided sight or with the use of an aided system, for example, NVIS or an enhanced vision system.

11.11 Survival equipment

- (1) A flight of a rotorcraft that will be conducted in, or through, an area defined by the Part 91 Manual of Standards as a remote area must carry survival equipment that is appropriate for sustaining life in the area in, or through which, the flight will be conducted.
- (2) A flight of a rotorcraft that will be conducted over water where the rotorcraft is required to carry a life raft under Division 11 must carry the following:
 - (a) survival equipment that is appropriate for sustaining life in the area in, or through which, the flight will be conducted;
 - (b) signalling equipment such that the distress signals set out in Appendix 1 to ICAO Annex 2, *Rules of the Air*, can be made, if required.

Division 5—Lighting systems

11.12 Cockpit, and cabin, lighting requirements

- (1) A rotorcraft operating at night must be fitted with (or carry, as applicable) the following lighting equipment:
 - (a) cockpit lighting that meets the requirements mentioned in subsection (2);
 - (b) cabin lighting that enables each occupant of the rotorcraft to see and use:
 - (i) the occupant's seatbelt and oxygen facilities, if any; and
 - (ii) the normal and emergency exits;
 - (c) for each flight crew member — an independent portable light accessible to the flight crew member from the flight crew member's normal seat in the rotorcraft;
 - (d) for each other crew member, if any — an independent portable light accessible to the crew member at the crew member's crew station.
- (2) Cockpit lighting equipment of a rotorcraft operating at night must:
 - (a) illuminate each item of equipment that may be used by a flight crew member; and
 - (b) illuminate the documents that may be used by a flight crew member, including checklists and flight documents; and
 - (c) be compatible with each item of equipment that may be used by a flight crew member; and

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- (d) be arranged in a way that:
 - (i) enables all placards and instrument markings to be read from each flight crew member's normal sitting position in a flight crew member's seat in the rotorcraft; and
 - (ii) each flight crew member's eyes are shielded from direct and reflected light; and
 - (e) be adjustable so that the intensity of the lighting can be varied for the light conditions.
- (3) If natural light does not adequately illuminate the items of equipment and documents mentioned in paragraphs (2)(a) and (b), cockpit lighting equipment of a rotorcraft operating by day must illuminate the items of equipment and documents and be compatible with each item of equipment that may be used by a flight crew member.

11.13 Anti-collision lights

- (1) A rotorcraft operating by day, or at night, must be fitted with anti-collision lights.
- (2) The anti-collision light equipment fitted to a rotorcraft must consist of:
 - (a) at least 1 red beacon light; or
 - (b) at least 2 white strobe lights; or
 - (c) a combination of all of the lights mentioned in paragraphs (a) and (b).
- (3) The anti-collision light lights must be displayed from immediately before the engines are started until the time the engines are shut down at the end of the flight.
- (4) For anti-collision light equipment consisting of a combination of red beacon lights and white strobe lights, the lights must be displayed as follows:
 - (a) when the rotorcraft is taxiing and crossing a runway, or final approach and take-off area for the aerodrome, which is in use for take-offs, or approach and landings;
 - (b) from the time the rotorcraft first enters the runway, or final approach and take-off area for the aerodrome, from which it will take off until the time the rotorcraft leaves the runway, or final approach and take-off area, to which it made its approach for a landing.
- (5) Subsections (3) and (4) do not apply if the pilot in command reasonably believes that, in the circumstances, reflection or glare from the anti-collision lights may cause a hazard to an aircraft.

11.14 Landing lights

A rotorcraft operating at night must be fitted with at least:

- (a) 2 landing lights; or
- (b) a single landing light, having 2 independent and separately-energised illumination sources.

11.15 Navigation lights

- (1) A rotorcraft operating at night must be fitted with navigation lights.
- (2) Subject to section 8.08, when required to be fitted, navigation lights must be displayed during a flight or on the movement area of an aerodrome.

Division 6—Alerting and warning system requirements

11.16 Altitude alerting equipment and assigned altitude indicator

- (1) A pressurised rotorcraft must be fitted with altitude alerting equipment in accordance with subsection (3).
- (2) A rotorcraft, other than a pressurised rotorcraft, for an IFR flight, or a VFR flight at night, must be fitted with:
 - (a) an assigned altitude indicator; or
 - (b) altitude alerting equipment in accordance with subsection (3).
- (3) For subsection (1) or paragraph (2)(b), the altitude alerting equipment must:
 - (a) include an assigned altitude indicator; and
 - (b) alert the flight crew if the rotorcraft approaches a preselected altitude; and
 - (c) alert the flight crew, including by an aural or visual warning, if the rotorcraft deviates from a preselected altitude.
- (4) This section applies subject to section 11.17.

11.17 Rotorcraft flown with inoperative altitude alerting equipment or assigned altitude indicator

Altitude alerting equipment (the *equipment*) or an assigned altitude indicator (the *indicator*), fitted to a rotorcraft under section 11.16, may be inoperative at the beginning of a flight of the rotorcraft, but only if the flight begins:

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

11.18 Terrain awareness and warning system (TAWS)

- (1) In this section:

approved HTAWS means a HTAWS that is authorised by CASA, or the NAA of a recognised country, in accordance with (E)TSO-C194.

HTAWS means helicopter terrain awareness and warning system.

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- (2) This section applies to a rotorcraft for an IFR flight:
 - (a) with a maximum operational passenger seat configuration of more than 9; and
 - (b) that is conducting a passenger transport operation.
 - (3) This section also applies to a rotorcraft, for an IFR flight, conducting a medical transport operation.
 - (4) With effect from the beginning of 2 December 2023, a rotorcraft must be fitted with an approved HTAWS.
 - (5) This section applies subject to section 11.19.

11.19 Flight with inoperative TAWS equipment

A HTAWS, fitted to a rotorcraft under section 11.18, may be inoperative at the beginning of a flight of the rotorcraft, but only if the flight begins:

- (a) from an aerodrome at which there is no facility for the HTAWS to be repaired or replaced; and
- (b) within 24 hours of the time the HTAWS was found to be inoperative.

11.20 Airborne weather radar equipment

- (1) This section applies to a rotorcraft, for an IFR flight, which:
 - (a) has an MTOW of more than 5 700 kg; and
 - (b) is a passenger transport operation or medical transport operation.
- (2) A rotorcraft must be fitted with airborne weather radar equipment.
- (3) This section applies subject to section 11.21.

11.21 Flight with inoperative airborne weather radar equipment

- (1) Airborne weather radar equipment, fitted to a rotorcraft under section 11.20, may be inoperative at the beginning of a flight only if none of the relevant forecasts or reports indicate that potentially hazardous weather conditions exist:
 - (a) in the flight path along which the rotorcraft will be flown; or
 - (b) if the operational flight plan for the flight includes a destination alternate aerodrome — in the flight path to that aerodrome.
- (2) In this section:

potentially hazardous weather conditions means such potential weather conditions as can be detected by airborne weather radar equipment.

relevant forecasts or reports means any of the following:

- (a) an authorised weather forecast in relation to the flight;
- (b) an authorised weather report in relation to the flight.

Division 7—Flight recorders

11.22 Definitions for Division 7

In this Division:

combination recorder means a single recording system combining the capabilities and the functions of an FDR and CVR.

CVR means cockpit voice recorder.

FDR means flight data recorder.

11.23 Flight data recorder

One FDR must be fitted to a rotorcraft that has an MTOW of more than 5 700 kg and is:

- (a) turbine-powered; or
- (b) of a type first certificated in its country of manufacture on, or after, 1 July 1965.

11.24 Cockpit voice recorder

One CVR must be fitted to the following:

- (a) a rotorcraft that has an MTOW of more than 5 700 kg and is:
 - (i) turbine-powered; or
 - (ii) of a type first certificated in its country of manufacture on, or after, 1 July 1965;
- (b) a multi-engine turbine-powered rotorcraft that:
 - (i) has an MTOW of 5 700 kg or less; and
 - (ii) is pressurised; and
 - (iii) is type certificated in its country of manufacture for operation with more than 11 seats, including seats specifically designed for the use of crew members; and
 - (iv) was first issued with a certificate of airworthiness after 1 January 1988.

11.25 Combination recorders

If the combined effect of sections 11.23 and 11.24 is that the rotorcraft must be fitted with both 1 FDR and 1 CVR, the requirements may be met by the fitment of 1 combination recorder.

11.26 FDR, CVR and combination recorder technical requirements

- (1) An FDR, or combination recorder, must comply with one of the following:
 - (a) the requirements of *Civil Aviation Order 103.19*;
 - (b) (E)TSO-C124a.

Note: These standards include the minimum recording time requirements.

- (2) A CVR, or combination recorder, must comply with one of the following:
- (a) the requirements of *Civil Aviation Order 103.20*;
 - (b) (E)TSO-C123a.

Note: These standards include the minimum recording time requirements.

- (3) The operator of a rotorcraft that is required to be fitted with any of the following must ensure that, at any time:
- (a) for an FDR or combination recorder — the recorder retains its last 25 hours of flight data recording;
 - (b) for a CVR or combination recorder — the recorder retains its last 30 minutes of cockpit voice recording;
 - (c) for an FDR or combination recorder — the recorder data is preserved from the last 2 occasions on which flight data recording was calibrated.

Note: The purpose of paragraph (c) is to enable the determination of the accuracy of recorded data.

11.27 Use of FDR, CVR and combination recorders

- (1) Subject to subsection (4), an FDR fitted to a rotorcraft under this Division must record continuously from the time when the rotorcraft first begins moving under its own power, until the time the flight is terminated and the rotorcraft can no longer move under its own power.
- (2) Subject to subsection (4), a CVR fitted to a rotorcraft under this Division must:
 - (a) start to record before the rotorcraft first begins moving under its own power for a flight;
 - (b) as far as practicable, if electrical power is available, start to record as early as possible during the cockpit checks before the engines are started at the beginning of the flight; and
 - (c) record continuously until the termination of the flight when the rotorcraft is no longer capable of moving under its own power and the engines have been shut down; and
 - (d) as far as practicable, if electrical power is available, continue recording until as close as possible to the conclusion of the cockpit checks immediately following engine shutdown at the end of the flight.
- (3) The FDR and the CVR within a combination recorder, fitted to a rotorcraft under this Division, must record continuously during the same periods as an FDR and CVR are required to operate under subsections (1) and (2).
- (4) If:
 - (a) there is no APU, or other alternative power source, for the rotorcraft; and
 - (b) it is reasonably necessary to preserve the rotorcraft's primary power source in order to start the rotorcraft's engines; and

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- (c) the FDR is operated continuously during the period beginning just before the engines are started for take-off and ending when the final pilot checklist is completed at the end of the flight;

then, a CVR, fitted to a rotorcraft under this Division, must record continuously during the period:

- (d) beginning after the engines are started for the flight; and
- (e) ending when the final pilot checklist is completed at the end of the flight.

- (5) An FDR or combination recorder, fitted to a rotorcraft under this Division, must not be operated during the maintenance of the rotorcraft or an aeronautical product fitted to the rotorcraft, except if the maintenance is to the recorder or an engine.
- (6) For subsection (5), an APU fitted to the rotorcraft is not an engine, unless it is capable of propelling the rotorcraft.
- (7) This section applies subject to section 11.28.

11.28 Flight with an inoperative FDR, CVR or combination recorder

An FDR, CVR or combination recorder, fitted to a rotorcraft under this Division, may be inoperative at the beginning of a flight only if:

- (a) the flight begins from a departure aerodrome with no facility for the recorder to be repaired or replaced; and
- (b) the rotorcraft is only required to be fitted with 1 CVR or 1 FDR — the inoperative recorder has not been inoperative for more than 21 days; and
- (c) the rotorcraft is required to be fitted with 1 CVR and 1 FDR:
 - (i) the inoperative recorder has not been inoperative for more than 21 days; and
 - (ii) the other recorder is operative; and
- (d) the rotorcraft is fitted with 1 combination recorder — the inoperative recorder must not have been inoperative for more than 3 days; and
- (e) the rotorcraft is fitted with more than 1 combination recorder:
 - (i) an inoperative combination recorder has not been inoperative for more than 21 days; and
 - (ii) at least one combination recorder is operative.

11.29 Data link recorder

RESERVED

Division 8—Rotorcraft interior communication systems

11.30 Flight crew intercommunication system

- (1) Subject to subsections (2) and (3), a rotorcraft must be fitted with a flight crew intercommunication system that consists of 1 headset, and 1 microphone that is not of the hand-held type, for each pilot for the flight.

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- (2) A rotorcraft that is only required, by the civil aviation legislation or rotorcraft's flight manual, to conduct a flight with a single pilot must be fitted with another headset, and another microphone that is not of the hand-held type.
 - (3) A rotorcraft that is only required, by the civil aviation legislation or rotorcraft's flight manual, to conduct a flight with 2 pilots must be fitted with, or carry, another headset, and another microphone that is not of the hand-held type.
 - (4) Subject to subsection (5), a flight crew member of a rotorcraft for a flight must wear a headset at any time when the rotorcraft is operating from the completion of the starting of the engines until the engines are shut down and the flight crew member is occupying the flight crew member's crew station.
 - (5) A flight crew member may remove the headset for a short period if the flight crew member reasonably believes it is not necessary, for the safe operation of the rotorcraft, to wear the headset during the period.

11.31 Crew interphone system

- (1) This section applies if:
 - (a) a cabin crew member is required to be carried on a rotorcraft for a flight; or
 - (b) a crew member occupies a crew station separate to the flight deck compartment.
- (2) A rotorcraft must be fitted with a crew interphone system (the *system*) in accordance with this section.
- (3) The system must be readily accessible for use by:
 - (a) each flight crew member from the flight crew member's seat in the flight crew compartment; and
 - (b) each crew member at the crew member's crew station.
- (4) The system must provide 2-way communication between the flight crew compartment and each crew station in another rotorcraft compartment.

11.32 Public address system

- (1) This section applies to a rotorcraft, for a flight, that has a maximum operational passenger seat configuration of more than 9, unless:
 - (a) the flight crew members and passengers occupy the same compartment; and
 - (b) each flight crew member's voice is clearly audible from all passenger seats during a flight.
- (2) A rotorcraft must be fitted with a public-address system (the *system*), in accordance with this section, to enable crew members to address the passengers whether the rotorcraft is in flight or on the ground.

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- (3) The system, other than handsets, headsets, microphones, selector switches and signalling devices, must operate independently of:
 - (a) the flight crew intercommunication system required by section 11.30; and
 - (b) the crew interphone system required by section 11.31, if any.
 - (4) The system must be readily accessible for use by each flight crew member from the flight crew member's seat in the flight crew compartment.
 - (5) At each emergency exit with an adjacent cabin crew, or air crew member, seat on the same level as a passenger compartment (a **relevant location**), there must be a handset or microphone operable by a cabin crew member, or air crew member, while seated.
 - (6) The system must be operable within 10 seconds of activation by a cabin crew member, or air crew member, at each relevant location.
 - (7) Announcements made using the system must be audible at all passenger seats.

Division 9—Oxygen equipment and oxygen supplies

11.33 Definitions for Division 9

In this Division:

assisting crew member means a crew member who assists flight crew members with the flight crew member's duties.

quick-donning mask means an oxygen mask that:

- (a) is for a flight crew member's personal use; and
- (b) within 5 seconds of it being deployed and ready for use, the flight crew member can, with 1 hand, place over the flight crew member's face, secure and seal.

standard temperature and pressure means 0 degrees Celsius at a pressure of 760 mm Hg.

STPD means standard temperature and pressure dry.

11.34 Supplemental oxygen — pressurised rotorcraft

- (1) A pressurised rotorcraft operated at a pressure altitude above 10 000 ft (a **relevant rotorcraft**) must be fitted with or carry supplemental oxygen equipment capable of storing and dispensing supplemental oxygen to crew members and passengers.
- (2) Subject to subsection (3), a relevant rotorcraft must carry sufficient supplemental oxygen to meet the requirements set out in Table 11.34(2).
- (3) For a flight of a pressurised rotorcraft that:
 - (a) during the flight will be flown above 13 000 ft, but not above FL250; and

- (b) at all points along the route of the flight, the rotorcraft will be able to:
- (i) descend safely to 13 000 ft within 4 minutes; and
 - (ii) complete the planned flight, or land at an aerodrome that is suitable for the rotorcraft to land at;

the amount of supplemental oxygen required for the passengers, if any, is either:

- (c) that which is sufficient to meet the passenger requirements set out in Table 11.34(2); or
 - (d) an amount of supplemental oxygen enough to supply 10% of the passengers for the flight for the period while the rotorcraft's cabin pressure altitude exceeds 10 000 ft and does not exceed 13 000 ft.
- (4) For a person mentioned in column 1 of an item in Table 11.34(2), supplemental oxygen must be made available through an oxygen dispensing unit in accordance with the supply requirements mentioned for the item in column 2.
- (5) Each flight crew member, and any assisting crew member, must use the supplemental oxygen that is made available to each of them, in accordance with the supply requirements mentioned in column 2 of item 1 of Table 11.34(2), when the rotorcraft's cabin pressure altitude exceeds 10 000 ft.

Table 11.34(2) – Supplemental oxygen – requirements for pressurised rotorcraft

Item	Column 1 Person	Column 2 Supplemental oxygen supply requirements
1	Flight crew members or assisting crew members	<p>1. There must be supply for each flight crew member, or assisting crew member, for the period that is the greater of the following:</p> <ul style="list-style-type: none"> (a) 30 minutes; (b) the period while the rotorcraft's cabin pressure altitude exceeds 10 000 ft.
2	Cabin crew members or air crew members	<p>1. For any period exceeding 30 minutes when the cabin pressure altitude exceeds 10 000 ft, but does not exceed 13 000 ft, there must be supply for each cabin crew member, or air crew member, for the entire period.</p> <p>2. There must be supply for each cabin crew member, or air crew member, for the entire period (the <i>relevant period</i>) the cabin pressure altitude exceeds 13 000 ft. There must be at least 30 minutes supply for each cabin crew member, or air crew member, even if the relevant period is less than 30 minutes.</p>

Table 11.34(2) – Supplemental oxygen – requirements for pressurised rotorcraft

Item	Column 1 Person	Column 2 Supplemental oxygen supply requirements
3	Passenger	<p>1. During the period when the rotorcraft’s cabin pressure altitude exceeds 15 000 ft, there must be supply for each passenger for the greater of the following periods:</p> <p>(a) 10 minutes;</p> <p>(b) the period while the rotorcraft’s cabin pressure altitude exceeds 15 000 ft.</p> <p>2. For any period when the cabin pressure altitude exceeds 14 000 ft, but does not exceed 15 000 ft, there must be supply for the entire period for at least 30% of the passengers.</p> <p>3. For any period when the rotorcraft’s cabin pressure altitude exceeds 10 000 ft, but does not exceed 14 000 ft, for more than 30 minutes (the <i>first 30 minutes</i>), there must be supply for the period, for at least 10% of the passengers, after the first 30 minutes.</p>

11.35 Supplemental oxygen — unpressurised rotorcraft

- (1) An unpressurised rotorcraft operated at a pressure altitude above 10 000 ft (a *relevant rotorcraft*) must be fitted with or carry sufficient supplemental oxygen to meet the requirements set out in Table 11.35(1).
- (2) For a person mentioned in column 1 of an item in Table 11.35(1), supplemental oxygen must be made available in accordance with the supply requirements mentioned for the item in column 2.
- (3) Each flight crew member, and each other crew member, must use the supplemental oxygen made available to them under subsection (2):
 - (a) when the rotorcraft’s cabin pressure altitude exceeds 13 000 ft; and
 - (b) if the rotorcraft’s cabin pressure altitude exceeds 10 000 ft for a period of, or periods totalling, 30 minutes — during any further period when the cabin pressure exceeds 10 000 ft.
- (4) A relevant rotorcraft must be fitted with or carry supplemental oxygen equipment capable of storing and dispensing supplemental oxygen to crew members and passengers under this section.

Table 11.35(1) – Supplemental oxygen – requirements for unpressurised rotorcraft

Item	Column 1 Person	Column 2 Supplemental oxygen supply requirements
1	Flight crew members or assisting crew members	For any period when the rotorcraft’s cabin pressure altitude exceeds 10 000 ft, but does not exceed 13 000 ft, for more than 30 minutes (the <i>first 30 minutes</i>), there must be supply for the period, after the first 30 minutes.

Table 11.35(1) – Supplemental oxygen – requirements for unpressurised rotorcraft

Item	Column 1 Person	Column 2 Supplemental oxygen supply requirements
2	Crew members or passengers	There must be supply for each crew member, or passenger, for the entire period the cabin pressure altitude exceeds 13 000 ft.
3	Passengers	For any period when the rotorcraft’s cabin pressure altitude exceeds 10 000 ft, but does not exceed 13 000 ft, for more than 30 minutes (the <i>first 30 minutes</i>), there must be supply for the period, for at least 10% of the passengers, after the first 30 minutes.

11.36 Oxygen mask — pressurised rotorcraft

- (1) This section applies for a flight of a pressurised rotorcraft.
- (2) An oxygen mask, for use by each pilot who is in a pilot seat, must:
 - (a) be fitted to the rotorcraft; and
 - (b) be within immediate reach of a pilot who is in a pilot seat.
- (3) If, during the flight, the rotorcraft will be flown above flight level 250, the following requirements must be met:
 - (a) the oxygen mask fitted to the rotorcraft under subsection (1) must be a quick-donning mask;
 - (b) while the rotorcraft is flown above flight level 250, at least 1 pilot who is in a pilot seat must wear and use a quick-donning mask.

11.37 Oxygen dispensing units for passengers in a pressurised rotorcraft

- (1) This section prescribes the requirements relating to oxygen dispensing units required to be fitted to a pressurised rotorcraft under section 11.34.
- (2) Subsection (3) applies if the rotorcraft:
 - (a) is of a type that was first issued with a certificate of airworthiness, or an authorisation (however described) equivalent to a certificate of airworthiness issued by the NAA of a Contracting State, on, or after, 9 November 1998; and
 - (b) either:
 - (i) is flown at or above FL 250 at any time during the flight; or
 - (ii) if flown below FL 250 — cannot safely descend from its flight level to a cabin pressure altitude of less than 13 000 ft within a period of 4 minutes in the event of a cabin depressurisation.
- (3) For passengers:
 - (a) the oxygen dispensing units must be automatically deployable; and
 - (b) the units must be immediately available to each passenger on the flight, wherever seated; and

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- (c) the number of dispensing units must exceed the number of passenger seats by 10% (the **additional units**); and
 - (d) the additional units must be evenly distributed throughout the rotorcraft's passenger compartments.
- (4) Subsection (5) applies if the rotorcraft is not one mentioned in subsection (2).
- (5) For the passengers:
- (a) the oxygen dispensing units must be immediately available to each passenger on the flight, wherever seated; and
 - (b) the number of dispensing units must exceed the number of passenger seats by 10% (the **additional units**); and
 - (c) the additional units must be evenly distributed throughout the rotorcraft's passenger compartments.

11.38 Protective breathing equipment — flight crew members

- (1) When a pressurised rotorcraft begins a flight, it must be carrying protective breathing equipment (the **PBE**) for each flight crew member in accordance with this section.
 - (2) The PBE must meet the following requirements:
 - (a) it must protect the wearer's eyes, nose and mouth;
 - (b) the part protecting the wearer's eyes:
 - (i) must not adversely affect vision in any noticeable way; and
 - (ii) must allow corrective glasses to be worn in a normal position;
 - (c) it must be able to supply oxygen continuously for at least 15 minutes.
- Note: The oxygen supply for the PBE for each flight crew member can be provided by the supplemental oxygen equipment required to be fitted to the rotorcraft under section 11.34 or 11.35, as applicable to the flight.
- (3) The protective breathing equipment for a flight crew member must be accessible for immediate use at the flight crew member's crew station.
 - (4) The PBE must not prevent, or be likely to prevent, a flight crew member from effectively using any crew intercommunications, or radiocommunications, equipment fitted to, or carried on, the rotorcraft.

11.39 Portable protective breathing equipment

- (1) When a pressurised rotorcraft that is required by its flight manual to be flown by 2 pilots begins a flight, it must be carrying portable protective breathing equipment (**portable PBE units**) in accordance with this section.
- (2) A portable PBE unit is required for each pilot.
- (3) Each portable PBE unit must meet the following requirements:
 - (a) it must protect the wearer's eyes, nose and mouth;

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- (b) the part protecting the wearer's eyes:
 - (i) must not adversely affect vision in any noticeable way; and
 - (ii) must allow corrective glasses to be worn in a normal position;
 - (c) it must be able to supply oxygen, or a mixture of oxygen and another suitable gas, continuously for at least 15 minutes.
- (4) Portable PBE units must be located in, or as close as is practicable to, the rotorcraft's cockpit.

11.40 First aid oxygen equipment — pressurised rotorcraft

- (1) In this section:

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

- (a) there has been a cabin depressurisation; and
 - (b) the amounts of supplemental oxygen supply, otherwise required under this Division, have been exhausted.
- (2) Until immediately before 2 December 2023, a rotorcraft must comply with the requirements related to first aid oxygen, however described, in accordance with:
- (a) *Civil Aviation Order 20.4* and *Civil Aviation Order 108.26*, as each is in force immediately before the commencement of this instrument; or
 - (b) this section.
- (3) With effect from the beginning of 2 December 2023, a rotorcraft must be fitted with, or carry, first aid oxygen in accordance with this section.
- (4) This section applies to a pressurised rotorcraft that:
- (a) is flown above FL 250 at any stage during the flight; and
 - (b) is conducting a passenger transport operation; and
 - (c) the rotorcraft is required by its flight manual to be flown by more than 1 pilot.
- (5) When the rotorcraft begins the flight, it must carry, for use in first aid, such a volume of first aid oxygen as will provide an average oxygen gas flow rate, calculated assuming dry oxygen gas at standard temperature and pressure, of 3 litres a minute for each person:
- (a) for whichever of the following is the greater number of persons:
 - (i) 2% of the number of passengers carried on the flight;
 - (ii) 1 person; and
 - (b) for the flight period after a cabin depressurisation event during which the rotorcraft's cabin pressure altitude exceeds 8 000 ft, but does not exceed 15 000 ft.
- (6) When the rotorcraft begins the flight, it must carry, for use in dispensing first aid oxygen, a sufficient number of specific first aid oxygen dispensing units relative to the number of passengers on board, but in no case less than 2 such units.

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

Division 10—Emergency locator transmitters

11.41 Carriage of ELTs

Automatic ELT

- (1) Subject to subsections (3) and (4), when a rotorcraft begins a flight, it must be fitted with an automatic ELT.
- (2) For subsection (1), if the automatic ELT has a switch marked, however described, as ‘armed’, the pilot in command must ensure the switch is set to this position at the time the flight begins.
- (3) Subsection (1) only applies to a rotorcraft that:
 - (a) has a maximum operational passenger seat configuration of more than 3; or
 - (b) during a flight is flown more than 50 nautical miles from the departure aerodrome for the flight.
- (4) Subsection (1) does not apply to a flight of a rotorcraft if:
 - (a) the rotorcraft is fitted with an inoperative automatic ELT, and the flight is for the purpose of taking the rotorcraft to a place for the repair, or re-fitting, of the ELT; and
 - (b) a survival ELT is carried on the rotorcraft during the flight; and
 - (c) no passengers are carried on the flight.

Survival ELT

- (5) Subject to subsection (6), when a rotorcraft begins a flight, it must be fitted with, or carry, a survival ELT.
- (6) Subsection (5) only applies to a rotorcraft that:
 - (a) has a maximum operational passenger seat configuration of 3 or less; and
 - (b) during a flight is flown 50 nautical miles or less from the departure aerodrome for the flight; and
 - (c) the rotorcraft is not fitted with an automatic ELT.

Additional ELT requirements

- (7) For subsections (4) and (5), a survival ELT must be carried in one of the following locations on the rotorcraft:
 - (a) on the person of a crew member;
 - (b) in, or adjacent to, a life raft;

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- (c) adjacent to an emergency exit used for evacuation of the rotorcraft in an emergency.
- (8) If the rotorcraft is required to carry a life raft equipped with a survival ELT under Division 11, the requirement under that Division is additional to the requirement under subsection (5).

11.42 ELT — basic technical requirements

In this Division, an *ELT* is a transmitter that meets the following requirements:

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

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).

11.45 Transitional requirements for ELTs

- (1) Until immediately before 2 December 2023, a rotorcraft for a flight must be fitted with, or carry, ELTs in accordance with:
 - (a) regulation 252A of CAR, and subsection 6 of *Civil Aviation Order 20.11*, as it applies to ELTs, as each of those provisions is in force immediately before the commencement of this instrument; or
 - (b) this Division.
- (2) For paragraph (1)(a), if immediately before 2 December 2021, the rotorcraft flight would have been:
 - (a) classed as a charter flight — the ELT requirements are those that would have applied to such a charter flight; and
 - (b) classed as a regular public transport (*RPT*) flight — the ELT requirements are those that would have applied to such an RPT flight.
- (3) With effect from the beginning of 2 December 2023, a rotorcraft must be fitted with, or carry, ELTs in accordance with this Division.

Division 11—Portable emergency equipment

11.46 Hand-held fire extinguishers

- (1) A rotorcraft must carry at least the following number of hand-held fire extinguishers:
 - (a) 1 in the flight crew compartment;

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- (b) for a rotorcraft that has a maximum operational passenger seat configuration of 7 or more — at least 1 hand-held fire extinguisher must be located in the rotorcraft's passenger compartment;
 - (c) for a cargo or luggage compartment of the rotorcraft that is accessible in-flight and is not fitted with a fixed fire and smoke detection and extinguishing system — at least 1 hand-held fire extinguisher must be located in, or as close as is practicable to, the compartment.
- (2) The type and quantity of extinguishing agent for the required fire extinguishers must:
- (a) be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used; and
 - (b) such as to minimise the hazard of toxic gas concentration in compartments occupied by persons.

11.47 First-aid kits

- (1) This section applies from the beginning of 2 December 2023.
- (2) A first aid kit that meets the following requirements must be carried on a flight of a rotorcraft:
- (a) the first-aid kit must contain enough supplies for the number of persons to be carried on the flight;
 - (b) the first-aid kit must be readily recognisable as a first-aid kit;
 - (c) the first-aid kit must be readily accessible by each crew member and adult passenger, if any, for the flight when the rotorcraft is on the ground or water, and not in operation.

Division 12—Equipment for flights over water

11.48 Sea anchors etc. and sound signals — certain rotorcraft

- (1) This section applies to a flight of a rotorcraft if:
- (a) the rotorcraft is designed to take-off from, and land on, land or water; and
 - (b) the flight involves a take-off from, or landing on, water.
- (2) When the rotorcraft begins the flight, it must carry the following:
- (a) a sea anchor;
 - (b) other equipment for mooring.
- (3) If the flight is conducted on, or over, water to which the International Regulations apply, the rotorcraft must carry equipment for making the sound signals required by the International Regulations for the flight.

Note: The expression *International Regulations* is defined in the Dictionary.

11.49 Life jackets and infant flotation cots

- (1) This section applies to a flight of a rotorcraft (a *relevant flight*) if:
 - (a) for a single-engine rotorcraft, or a multi-engine rotorcraft, flown in performance class 3 — the rotorcraft will be flown further over water than the distance from which, with 1 engine inoperative, the rotorcraft could reach land; or
 - (b) for a multi-engine rotorcraft — the rotorcraft will be flown over water more than 50 nautical miles from land; or
 - (c) in the event of an emergency happening during the take-off and initial climb stage, or approach and landing, or baulked landing stage, of the flight — the rotorcraft is reasonably likely to land in water; or
 - (d) the flight is to, or from, a helideck.
- (2) Subject to subsection (5), when a relevant flight begins, the rotorcraft must carry the following:
 - (a) for each infant on board — a life jacket, or another equally effective flotation device, which may have a whistle;
 - (b) for each other person on board — a life jacket that must have a whistle.
- (3) Subject to subsection (5), during a relevant flight, each person for whom a life jacket is required to be carried by this section must wear the life jacket.
- (4) Despite subsections (2) and (3), if an infant is in an infant flotation cot during a relevant flight, the rotorcraft does not need to carry a life jacket for the infant and the infant does not have to wear a life jacket.
- (5) This section does not apply if:
 - (a) the rotorcraft is flown over water for the purpose of climbing after take-off from, or descending to land at, an aerodrome; and
 - (b) the rotorcraft is flown in accordance with a navigational procedure that is normal;
 - (i) for the take-off, or take-off and initial climb, stage of the flight; or
 - (ii) from 1 000 ft during the approach and landing, or baulked landing stage of the flight.

11.50 Life raft carriage requirements

Application of this section

- (1) Subject to subsection (2), this section applies to a flight of a rotorcraft if the flight is a passenger transport operation and during the flight, the rotorcraft will be flown further, over water, from a suitable forced landing area situated on land, then a distance that is:
 - (a) for a multi-engine rotorcraft — the shorter of the following:
 - (i) the distance the rotorcraft would fly in 30 minutes at the planned cruising speed, for the flight, in still air;
 - (ii) 50 nautical miles; or

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- (b) for a single-engine rotorcraft with operational control that would enable, in the event of an emergency, an immediate initiation of a response to the emergency by a search and rescue body — 25 nautical miles; or
 - (c) for a single-engine rotorcraft to which paragraph (b) does not apply — the distance the rotorcraft would fly in 5 minutes at the normal cruising speed, for the flight, in still air.
- (2) Despite subsection (1), this section does not apply to a flight of a rotorcraft if:
- (a) the rotorcraft has a maximum operational passenger seat configuration of not more than 5; and
 - (b) the rotorcraft will be flown less than 10 nautical miles over water from land; and
 - (c) the rotorcraft has operational control that would enable, in the event of an emergency, an immediate initiation of a response to the emergency by a search and rescue body.

Life raft carriage requirements

- (3) For a flight of a rotorcraft with not more than 11 persons onboard the rotorcraft, life raft equipment must be carried in accordance with the following requirements:
- (a) the rotorcraft must carry at least 1 life raft that has the capacity to provide a place for each person on board the rotorcraft;
 - (b) each life raft carried on the rotorcraft must be equipped with:
 - (i) a survivor locator light; and
 - (ii) a survival ELT;
 - (c) each life raft must be stowed in a manner so that it can be readily deployed if the rotorcraft must ditch;
 - (d) if a life raft is stowed in a compartment or container, the compartment or container must be conspicuously marked as containing the life raft.
- (4) For a flight of a rotorcraft with more than 11 persons onboard the rotorcraft, life raft equipment must be carried in accordance with the following requirements:
- (a) the rotorcraft must carry at least 2 life rafts that collectively have the capacity to provide a place for each person on board the rotorcraft;
 - (b) there must be a place on a life raft for each person, other than an infant, on board the rotorcraft:
 - (i) assuming the life raft with the greatest rated-capacity cannot be used; and
 - (ii) based on the overload capacity of the other life rafts;
 - (c) for a rotorcraft which, on or after 1 January 1991, was first issued with a certificate of airworthiness, or an authorisation (however described) equivalent to a certificate of airworthiness issued by the NAA of a Contracting State.
 - (i) at least 50% of the life rafts carried on the rotorcraft must be deployable by remote control; and

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- (ii) if a life raft is not deployable by remote control and weighs more than 40 kg — the life raft must be equipped with a means of mechanically-assisted deployment;
 - (d) each life raft carried on the rotorcraft must be equipped with:
 - (i) a survivor locator light; and
 - (ii) a survival ELT;
 - (e) each life raft must be stowed in a manner so that it can be readily deployed if the rotorcraft must ditch;
 - (f) if a life raft is stowed in a compartment or container, the compartment or container must be conspicuously marked as containing the life raft.

Transitional life raft carriage requirements

- (5) Until immediately before 2 December 2023, a rotorcraft for a flight must be fitted with, or carry, life rafts in accordance with:
 - (a) regulation 252 of CAR, and subsection 5 of *Civil Aviation Order 20.11*, as it applies to life rafts, as each of those provisions is in force immediately before the commencement of this instrument; or
 - (b) this section.
- (6) With effect from the beginning of 2 December 2023, a rotorcraft must be fitted with, or carry, life rafts in accordance with this section.

11.51 Emergency flotation equipment

- (1) This section applies to a flight of a rotorcraft, other than a rotorcraft designed to take-off from and land on water, which is a passenger transport operation.

Note: An example of a rotorcraft designed to take-off from, and land on, water is a rotorcraft fitted with fixed floats.

- (2) Subject to subsection (3), the rotorcraft must be fitted with emergency flotation equipment if one or more of the following applies to the flight:

- (a) the flight:
 - (i) is to, or from, a helideck on a vessel or other offshore facility; and
 - (ii) will have an approach and landing or baulked landing stage, or a take-off and initial climb stage, over water;
- (b) the rotorcraft will be flown further over water from land than the distance in which, with 1 engine inoperative, the rotorcraft could reach a suitable forced landing area, for the flight, on land.

Note: For example, if a flight of a rotorcraft is over solid ice that is of suitable density to permit a safe rejected take-off, or a suitable forced landing or an emergency landing, of the rotorcraft, the rotorcraft is not required to be fitted with emergency flotation equipment.

- (3) Despite paragraph (2)(b), the flight over water is permitted without having to fit emergency flotation equipment if:
 - (a) it is in a rotorcraft access lane mentioned in the AIP; or

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- (b) both:
- (i) it is to comply with an ATC instruction; and
 - (ii) it is for no longer than 2 minutes at normal cruising speed in still air.

Division 13—Surveillance equipment

11.52 Definitions for Division 13

In this Division:

ADS-B means automatic dependent surveillance – broadcast.

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

aircraft address means a unique combination of 24 bits available for assignment to an aircraft for the purpose of air-ground communications, navigation and surveillance.

alternate ADS-B OUT equipment configuration: see paragraph (b) of the definition of **approved ADS-B OUT equipment configuration**.

approved ADS-B OUT equipment configuration means an equipment configuration capable of ADS-B OUT operation on the ground and in flight, and that is one of the following:

- (a) an approved Mode S transponder with ADS-B capability connected to an approved GNSS position source;
- (b) an alternate ADS-B OUT equipment configuration meeting the requirements stated in section 11.57;
- (c) another system approved in writing by CASA as having a level of performance equivalent to a system mentioned in paragraph (a) or (b).

approved GNSS position source means a GNSS position source that is:

- (a) authorised by the FAA, or EASA, in accordance with one of the following:
 - (i) (E)TSO-C145a;
 - (ii) (E)TSO-C146a;
 - (iii) (E)TSO-C196a; or
- (b) an alternate GNSS position source meeting the requirements stated in section 11.56; or
- (c) another system approved in writing by CASA as having a level of performance equivalent to performance in accordance with paragraph (a) or (b).

approved Mode A/C transponder means a Mode A transponder, or Mode C transponder, which is authorised:

- (a) by CASA, or the NAA of a recognised country, in accordance with TSO-C74c or ETSO-C74d; or

(b) by CASA in accordance with ATSO-1C74c.

approved Mode S transponder means a Mode S transponder that is:

- (a) authorised by CASA, or the NAA of a recognised country, in accordance with TSO-C112 or ETSO-2C112a; or
- (b) another system approved in writing by CASA as having a level of performance equivalent to a system mentioned in paragraph (a).

approved Mode S transponder with ADS-B capability means an approved Mode S transponder that is:

- (a) authorised by CASA, or the NAA of a recognised country, in accordance with (E)TSO-C166; or
- (b) another system approved in writing by CASA as having a level of performance equivalent to a system mentioned in paragraph (a).

approved transponder means an approved Mode A/C transponder or approved Mode S transponder.

assigned aircraft address means an aircraft address that is assigned to an aircraft by:

- (a) when the aircraft is registered on the Australian Civil Aircraft Register — CASA; or
- (b) when the aircraft is a foreign-registered aircraft — the relevant NAA.

DAPs means Mode S EHS downlink aircraft parameters.

EASA AMC 20-24 means Annex II to ED Decision 2008/004/R titled *Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHz Extended Squitter*, dated 2 May 2008, of EASA.

EASA CS-ACNS means Annex I to ED Decision 2013/031/R titled *Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance CS-ACNS*, dated 17 December 2013, of EASA, or any later version.

FDE means fault detection and exclusion, a feature of a GNSS receiver that excludes faulty satellites from position computation.

HPL means the horizontal protection level of the GNSS position of an aircraft as an output of the GNSS receiver or system.

Mode A is a transponder function that transmits a 4-digit octal identification code for an aircraft's identity when interrogated by an SSR.

Mode A code is the 4-digit octal identification code transmitted by a Mode A transponder function.

Mode C is a transponder function that transmits a 4-digit octal identification code for an aircraft's pressure altitude when interrogated by an SSR.

Mode S is a transponder function that uses a unique aircraft address to selectively call individual aircraft, and supports advanced surveillance using Mode S EHS, Mode S ELS, or Mode S ES capabilities.

Mode S EHS means Mode S enhanced surveillance, which is a data transmission capability of a Mode S transponder.

Mode S ELS means Mode S elementary surveillance, which is a data transmission capability of a Mode S transponder.

Mode S ES means Mode S extended squitter, which is a data transmission capability of a Mode S transponder used to transmit ADS-B OUT information.

NACp means Navigation Accuracy Category – Position, as specified in paragraph 2.4.3.2.7.2.7 of RTCA/DO-260B.

NIC means Navigation Integrity Category, as specified in paragraph 2.2.8.1.16 of RTCA/DO-260B.

NUCp means Navigation Uncertainty Category – Position, as specified in paragraph 2.2.8.1.5 of RTCA/DO-260.

RTCA/DO-229D means document RTCA/DO-229D titled *Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment*, dated 13 December 2006, of the RTCA Inc. of Washington D.C. USA (**RTCA Inc.**).

RTCA/DO-260 means RTCA Inc. document RTCA/DO-260 titled *Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance – Broadcast (ADS-B)*, dated 13 September 2000.

RTCA/DO-260B means RTCA Inc. document RTCA/DO-260B titled *Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance – Broadcast (ADS-B) and Traffic Information Services – Broadcast (TIS-B)*, dated 2 December 2009.

secondary surveillance radar (SSR) means a surveillance radar system, which uses transmitters/receivers (interrogators) and transponders.

SIL means Source Integrity Level, as specified in paragraph 2.2.3.2.7.2.9 of RTCA/DO-260B.

surveillance radar means radar equipment used to determine the position of an aircraft, in range and azimuth.

transponder means an aircraft's SSR transponder.

11.53 Carriage of surveillance equipment

- (2) A rotorcraft in an operation mentioned in column 1 of an item in Table 11.53(2), in the class of airspace mentioned in column 2 of the item, must be fitted with

surveillance equipment meeting the requirements mentioned in column 3 of the item.

Table 11.53(2)—Surveillance equipment requirements

Item	Column 1 Operation	Column 2 Class of airspace	Column 3 Requirements
1	IFR	Any (Classes A, B, C, D, E and G)	At least 1 approved ADS-B OUT equipment configuration.
2	Any (IFR or VFR)	Class B or C — at certain aerodromes	For a rotorcraft operating at one of the following aerodromes: (a) Brisbane (YBBN); (b) Sydney (YSSY); (c) Melbourne (YMML); (d) Perth (YPPH); at least 1 approved Mode S transponder. <i>Note</i> An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.
3	VFR	Class A, B, C or E	(a) For a rotorcraft first certificated in its country of manufacture on, or after, 6 February 2014, or modified by having its transponder replaced on, or after, 6 February 2014 — at least 1 approved Mode S transponder with ADS-B capability; or (b) for any other rotorcraft — at least 1 approved transponder. <i>Note</i> An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.

Item	Column 1 Operation	Column 2 Class of airspace	Column 3 Requirements
4	VFR	Class G — from 10 000 ft and above	<p>(a) For a rotorcraft first certificated in its country of manufacture on, or after, 6 February 2014, or modified by having its transponder replaced on, or after, 6 February 2014 — at least 1 approved Mode S transponder with ADS-B capability; or</p> <p>(b) for any other rotorcraft — at least 1 approved transponder.</p> <p><i>Note</i> An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.</p>
5	VFR	Class A — from FL 290 and above	At least 1 approved ADS-B OUT equipment configuration.

11.54 Operation of surveillance equipment — general requirements

- (1) The requirements of this section are subject to section 11.58.
- (2) Surveillance equipment required to be fitted to, or carried on, a rotorcraft by section 11.53 must be continuously operated during the circumstances mentioned in section 11.53.

Note Continuous operation for a transponder means that the equipment must be operated in a mode that enables an SSR response to be transmitted.

- (3) Subsection (2) does not apply if ATC has issued an instruction that the surveillance equipment is not to be operated.
- (4) If a rotorcraft is fitted with more than 1 approved transponder, only 1 transponder is to be operated at any time.
- (5) For each transponder, the Mode A code must be set:
 - (a) to the transponder code assigned by ATC for the flight; or
 - (b) if no transponder code is assigned by ATC for the flight — to the relevant standard code in Table 11.54(5)(b).
- (6) For paragraph (5)(b), for a situation mentioned in column 1 of an item in Table 11.54(5)(b), the Mode A code is the number mentioned in column 2 for the item.

- (7) If an approved transponder capable of reporting pressure altitude is fitted to a rotorcraft for a flight, it must be operated with altitude reporting enabled.
- (8) Pressure altitude information reported by an approved transponder or an approved ADS-B OUT equipment configuration must be determined by:
 - (a) a barometric encoder of a type authorised by CASA or the NAA of a recognised country in accordance with (E)TSO-C88a; or
 - (b) another system approved under Part 21 of CASR as having a level of performance equivalent to a system mentioned in paragraph (a).

Table 11.54(5)(b)—Transponders: Mode A standard codes

Item	Column 1 Situation	Column 2 Mode A code
1	(a) Flights in Class A, B, C or D airspace; (b) IFR flights in Class E airspace.	3000
2	IFR flights in Class G airspace.	2000
3	VFR flights in Class E or Class G airspace.	1200
4	Flights in Class G over water at a distance greater than 15 nautical miles from shore.	4000
5	Flights engaged in coastal surveillance.	7615
6	Ground testing by aircraft maintenance staff.	2100
7	Unlawful interference.	7500
8	Loss of radiocommunication.	7600
9	In flight emergency, unless otherwise instructed by ATC.	7700

11.55 Mode S transponders and ADS-B OUT — specific requirements

- (1) An approved Mode S transponder fitted to a rotorcraft for a flight must be configured in accordance with the following:
 - (a) the assigned aircraft address must be entered into the equipment;
 - (b) as far as practicable for the equipment — with one of the following forms of aircraft flight identification entered into the equipment:
 - (i) if a flight notification is filed with ATS for the flight — the aircraft identification mentioned in the flight notification;
 - (ii) if no flight notification is filed with ATS for the flight — the aircraft registration mark.
- (2) An approved ADS-B OUT equipment configuration fitted to a rotorcraft for a flight must be configured in accordance with the following:
 - (a) the assigned aircraft address must be entered into the equipment;

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- (b) with one of the following forms of aircraft flight identification entered into the equipment:
- (i) if a flight notification is filed with ATS for the flight — the aircraft identification mentioned in the flight notification;
 - (ii) if no flight notification is filed with ATS for the flight — the aircraft registration mark.
- (3) An approved Mode S transponder must transmit each of the following when interrogated on the manoeuvring area of an aerodrome or in flight:
- (a) the assigned aircraft address;
 - (b) the Mode A code;
 - (c) the Mode C code;
 - (d) subject to subsection (4) — the aircraft flight identification.
- (4) Transmission of the aircraft flight identification by an approved Mode S transponder is optional for a rotorcraft that was first certificated in its country of manufacture before 9 February 2012 (an **older rotorcraft**).
- Note: An older rotorcraft that is equipped to transmit its aircraft flight identification may transmit this.
- (5) If an approved Mode S transponder transmits any Mode S EHS DAPs, the transmitted DAPs must comply with the standards stated in paragraph 3.1.2.10.5.2.3 and Table 3-10 of Volume IV, Surveillance and Collision Avoidance Systems, of ICAO Annex 10.
- Note 1: Paragraph 3.1.2.10.5.2.3 includes paragraphs 3.1.2.10.5.2.3.1, 3.1.2.10.5.2.3.2 and 3.1.2.10.5.2.3.3.
- Note 2: Australian Mode S SSR supports EHS DAPs. Transmission of Mode S EHS DAPs that are not in accordance with the ICAO standards may provide misleading information to ATC. Operators need to ensure that EHS DAPs are being transmitted.
- (6) If an approved Mode S transponder is fitted to a rotorcraft first certificated in its country of manufacture on, or after, 9 February 2012:
- (a) having a certificated MTOW above 5 700 kg; or
 - (b) that is capable of normal operation at a maximum cruising true airspeed above 250 kts;
- the transponder's receiving and transmitting antennae must:
- (c) be located in the upper and lower fuselage; and
 - (d) operate in diversity, as stated in paragraphs 3.1.2.10.4 to 3.1.2.10.4.5 (inclusive) of Volume IV, *Surveillance and Collision Avoidance Systems*, of ICAO Annex 10.
- Note: Paragraph 3.1.2.10.4.2.1 is only recommended.
- (7) A rotorcraft must not fly in Australian territory if it is fitted with Mode S transponder equipment other than an approved ADS-B OUT equipment configuration, unless the equipment is:
- (a) deactivated; or
 - (b) set to transmit only a value of zero for the NUCp, NACp, NIC or SIL.

Note: It is considered equivalent to deactivation if NUCp, NACp, NIC or SIL is set to continually transmit only a value of zero.

11.56 Alternate GNSS position source for ADS-B OUT — requirements

- (1) For a rotorcraft first certificated in its country of manufacture on, or after, 8 December 2016, an alternate GNSS position source is acceptable if the source:
 - (a) is certified by CASA, or the NAA of a recognised country, for use in an IFR flight; and
 - (b) has included in its specification and operation the following:
 - (i) FDE, computed in accordance with the definition of the term at paragraph 1.7.3 of RTCA/DO-229D;
 - (ii) the output function HPL, computed in accordance with the definition of the term at paragraph 1.7.2 of RTCA/DO-229D;
 - (iii) functionality that, for the purpose of HPL computation, accounts for the absence of the SA of the GPS in accordance with paragraph 1.8.1.1 of RTCA/DO-229D.
- (2) For a rotorcraft first certificated in its country of manufacture before 8 December 2016, an alternate GNSS position source is acceptable if it meets the requirements of subsection (1), other than subparagraph (1)(b)(iii), which is optional.

11.57 Alternate ADS-B OUT equipment configuration — requirements

- (1) An alternate ADS-B OUT equipment configuration is acceptable if:
 - (a) it has been certified by CASA or the NAA of a recognised country, during type certification, as meeting the standards of EASA AMC 20-24 or EASA CS-ACNS; and
 - (b) the rotorcraft's flight manual or flight manual supplement attests to the certification; and
 - (c) the GNSS system meets the performance requirements stated in subsection 11.56(1).
- (2) An alternate ADS-B OUT equipment configuration is acceptable if:
 - (a) it has been certified by EASA, during type certification, as meeting the standards of EASA AMC 20-24; and
 - (b) the rotorcraft's flight manual attests to the certification; and
 - (c) the GNSS system meets the performance requirements stated in subsection 11.56(1).
- (3) For a rotorcraft first certificated in its country of manufacture on, or after, 8 December 2016, an equipment configuration is acceptable if:
 - (a) it has been certified by the FAA, during type certification, as meeting the standards of 14 CFR 91.227; and
 - (b) the rotorcraft's flight manual attests to the certification; and
 - (c) the GNSS system meets the performance requirements stated in subsection 11.56(1).

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- (4) For a rotorcraft first certificated in its country of manufacture before 8 December 2016, an equipment configuration is acceptable if:
- (a) it has been certified by the FAA, during type certification, as meeting the standards of 14 CFR 91.227; and
 - (b) the rotorcraft's flight manual attests to the certification; and
 - (c) the GNSS system meets the performance requirements stated in subsection 11.56(2).

11.58 Rotorcraft flown with inoperative surveillance equipment

Surveillance equipment may be inoperative at the beginning of a flight of a rotorcraft if the flight:

- (a) begins from an aerodrome at which there is no facility for the surveillance equipment to be repaired or replaced; and
- (b) ends not more than 72 hours after the time the surveillance equipment was found to be inoperative.

Note See also section 11.04 for additional requirements related to a flight with inoperative equipment. For a flight with inoperative surveillance equipment, within controlled airspace or at a controlled aerodrome, Division 11.2 of the Part 91 Manual of Standards has requirements related to ATC clearances. Whether a clearance is issued, or when a clearance may be issued, could be affected by the flight not being conducted with operative surveillance equipment.

Division 14—Equipment for NVIS flights

11.59 Purpose

For regulation 133.360, this Division prescribes requirements relating to:

- (a) the fitment and non-fitment of NVIS equipment to a rotorcraft; and
- (b) the carrying of NVIS equipment on a rotorcraft; and
- (c) NVIS equipment that is fitted to, or carried on, a rotorcraft.

11.59A Application

- (1) This Division applies in relation to the use of NVIS by a flight crew member of an aircraft in an NVIS flight.
- (2) This Division does not apply in relation to the use of NVIS by a person on an NVIS flight who is not a flight crew member, unless the person is involved in air navigation or terrain avoidance functions.

11.60 Definitions

adverse event means any event or incident in which life or property is:

- (a) lost, injured or damaged in, on or by a rotorcraft in which NVIS are used;
or
- (b) at significant risk of loss or damage in, on or by a rotorcraft.

Note The following are some examples of significant risks: a near miss; NVIS equipment failure, malfunction or abnormal operation; the failure, malfunction or abnormal operation of NVIS-related or affected equipment; unintentional IMC penetration; inadvertent loss of visibility; abnormal degree or accelerated onset of fatigue.

NVIS certified means that a rotorcraft has been modified for NVIS operations by 1 of the following:

- (a) an approval under Part 21 of CASR;
- (b) the type certificate holder under the type certificate;
- (c) a supplemental type certificate.

NVIS compatible lighting means rotorcraft interior or exterior lighting:

- (a) with spectral wavelength, colour, luminance level and uniformity, that has been modified, or designed, for use with NVIS; and
- (b) that does not degrade or interfere with the image intensification capability performance of the NVIS beyond acceptable standards mentioned in subsection 11.61(2).

11.61 General and lighting standards for NVIS flights

- (1) A rotorcraft for an NVIS flight must be NVIS certified.

Note NVIS certification means that the rotorcraft also has NVIS compatible lighting.

- (2) The design of a required aircraft lighting system modification for an NVIS flight must be based on the requirements of:
 - (a) RTCA/DO-275, as in force from time to time; or
 - (b) MIL-STD-3009, Lighting, Aircraft, NVIS Compatible, of the US Department of Defense, as in force from time to time.

11.62 Performance and other specifications for NVG image intensifier tubes

- (1) NVG image intensifier tubes for an NVIS flight must meet the minimum operational performance specification that is:
 - (a) defined in RTCA/DO 275, as in force from time to time, as modified in accordance with subsection (5); or
 - (b) approved in writing by CASA as equivalent to that under paragraph (a) in terms of tube resolution, system resolution, system luminance gain, photosensitivity and signal to noise ratio.
- (2) Each NVG image intensifier tube and associated NVIS equipment (the **NVG tubes and equipment**) must be:
 - (a) certified by its manufacturer as being for aviation use; and
 - (b) identified by the manufacturer's unique serial number; and
 - (c) acquired (with or without valuable consideration) by the rotorcraft operator directly from:
 - (i) the manufacturer or the manufacturer's official supplier (an **official source**); or

- (ii) a person who acquired it directly from an official source (the *initial acquirer*); or
- (iii) a person who acquired it as the first or later acquirer in a line of direct and provable acquisitions originating from the initial acquirer (a *subsequent acquirer*); and

Note 1 In this subsection, “acquired (with or without valuable consideration)” refers to, for example, an acquisition through a purchase or a donation or in any other way.

Note 2 CASA considers the source of second-hand NVG tubes and equipment to be a matter that may affect safety.

(d) in the case of replacement of NVG image intensifier tubes with tubes that are sourced from other than an official source — as follows:

- (i) replaced as a pair;
- (ii) of the same form, fit and function as the tubes being replaced;
- (iii) such that the replacement does not involve modification of the NVIS mounting frame or optical components;
- (iv) compliant with paragraph (1)(a).

Note For guidance only, US AN/AVS 9 NVIS, although manufactured by different manufacturers, are produced to the same US Department of Defense specification and, therefore, these tubes are interchangeable.

(3) If 2 or more NVIS pilots on an NVIS flight use dissimilar NVG image intensifier tubes and equipment, the pilot in command must use the highest level of NVIS tubes and equipment in terms of resolution, gain and acuity.

Note Use of dissimilar NVIS does not remove the requirement that the minimum standard of any set used must be in accordance with subsections (1) and (2).

(4) An NVIS pilot who occupies a control seat of a rotorcraft during an NVIS operation must use the NVIS manufacturer’s approved helmet mounted attachment device for the NVIS.

(5) For paragraph (1)(a), column 3 of each item of Table 11.62(5)(a) shows how a relevant operational performance specification in the paragraph of RTCA/DO-275 mentioned in column 1 of the item, and summarised (if any) in column 2 of the item, is modified.

Table 11.62(5)—Modifications of RTCA/DO 275

Item	Column 1 RTCA/DO-275 (as in force from time to time)	Column 2 Summary	Column 3 Amended performance requirement
1	Para 2.2.1.1 System Resolution	1.0 cycles per milliradian (cy/mr). At 14° off axis = 0.81 cy/mr With a variable focus @ through infinity = 0.49cy/mr	1.3 cy/mr

Table 11.62(5)—Modifications of RTCA/DO 275

Item	Column 1 RTCA/DO-275 (as in force from time to time)	Column 2 Summary	Column 3 Amended performance requirement
2	Para 2.2.1.2 System Luminance Gain – Filmed non-autogating	= 2 500 foot-Lamberts (fL) per fL at an input light level of 1×10^{-4} fL	= 5 500 foot-Lamberts (fL) per fL at an input light level of 1×10^{-4} fL = 1750 cd/m ² /lx at an input light level of 1.1×10^{-3} lx
3	System Luminance Gain – Filmless autogating		=16 000 cd/m ² /lx at an input light level of 2×10^{-5} lx
4	Para 2.2.1.3 Field-of-View	38° vertical and horizontal	40°
5	Para 2.2.1.4 Magnification	1:1 +/- 2%	1:1
6	Para 2.2.1.7.1 Spectral Transmission	Meet Class B filter requirements	Class B filter
7	Para 2.2.1.10 Eyepiece Diopter Range	Adjustable +1.0 to -2.0, or Fixed -0.5 and -1.0	+2 to -6
8	Para 2.2.1.12 Objective Focus Range	Adjustable from beyond infinity to no greater than 45 cm close range	25 cm close
9	Para 2.2.13 Exit Pupil/Eye Relief	Type I – 25 mm, Type II – 20 mm	25 mm
10	Para 2.2.2.3 Flip-Up/Flip Down	Required capability	Push button
11	Para 2.2.2.4 Fore-and-Aft Adjustment	Sufficient to align with users' eyes	27 mm total

Table 11.62(5)—Modifications of RTCA/DO 275

Item	Column 1 RTCA/DO-275 (as in force from time to time)	Column 2 Summary	Column 3 Amended performance requirement
12	Para 2.2.2.4 Tilt Adjustment	Sufficient to align with users' eyes	10°
13	Para 2.2.2.5 Interpupillary Adjustment	Desired but not required. If not installed, exit pupil must be large enough to see full FOV	51 to 72 mm
14	Para 2.2.2.6 Voltage Required	2.7 – 3.0 V DC 50mA nominal Backup power supply required	2.7 – 3.0 V DC 50mA nominal Backup available
15	Technology	Intensifier tubes not specified	Not specified
16	Photosensitivity – Filmed non-autogating	Not specified	1 800 µA/lm
17	Photosensitivity – Filmless autogating		800 µA/lm
18	Tube Resolution	Not specified	64 line pairs per millimetre (lp/mm)
19	Signal to Noise Ratio – Filmed non-autogating	Not specified	21:1
20	Signal to Noise Ratio – Filmless autogating		25:1

11.63 Maintenance of the NVIS and its components

- (1) For an NVIS flight, the NVIS equipment must be maintained, stored, and checked for serviceability, in accordance with the manufacturer's requirements and procedures.
- (2) NVIS equipment must have a documented maintenance program to ensure that:
 - (a) maintenance, inspection, and serviceability standards for the NVIS are met;and

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- (b) a biennial assessment is made to identify and rectify any degradation in the compatibility of a rotorcraft's lighting systems with the NVIS.

Note RTCA/DO-275 (as in force from time to time) provides guidance for the ongoing maintenance of installed NVIS compatible systems.

- (3) The maintenance program must include a method for assessing NVIS compatibility with any subsequent rotorcraft modification, equipment introduction or repair that may have an effect on the rotorcraft's NVIS compatibility.
- (4) Any item of equipment other than NVIS equipment, that is fitted to, or carried on, the rotorcraft must not at any time adversely affect the safe operation of the rotorcraft in an NVIS operation.
- (5) Maintenance of NVIS must be carried out by an organisation that:
- (a) complies with regulation 30 of CAR or Part 145 of CASR as if the regulation or the Part applied to the organisation for the maintenance of NVIS and its related equipment; and
 - (b) is endorsed in writing by the manufacturer of the NVIS as an appropriate organisation to carry out maintenance on the NVIS.
- (6) To avoid doubt, for subsection (5), maintenance includes routine scheduled servicing of NVIS.
- (7) An organisation endorsed by a manufacturer under paragraph (5)(b) for any particular NVIS manufactured in the United States (the **US**) that complies with the specification mentioned in paragraph 11.62(1)(a) is taken to be endorsed for any other NVIS that:
- (a) is manufactured in the US and is available in Australia; and
 - (b) complies with the specification mentioned in paragraph 11.62(1)(a).

Note This provision is to ensure that an endorsement given to an organisation by an original US manufacturer of paragraph 11.62(1)(a)-compliant NVIS, is taken to be an endorsement for any other US manufactured NVIS available in Australia that complies with paragraph 11.62(1)(a).

- (8) If:
- (a) 1 or more image intensification tubes (**tubes**) fail for any reason during an NVIS operation; or
 - (b) 1 or more tubes fail at any time as a result of a suspected error in maintenance;

then the operator must, within 28 days of the failure, report the failure to CASA through the Service Difficulty Reporting System using ATA Code 2590.

- (9) For paragraph (5)(b):

manufacturer means the person who is:

- (a) the original manufacturer of the NVIS; or
- (b) the original manufacturer of the NVG image intensification tubes fitted to the NVIS; or

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- (c) if parts of the NVIS are manufactured by different persons — the person who makes the final assembly of the parts into the NVIS.

11.64 Minimum equipment for NVIS flight

- (1) Subject to subsection (2), before an NVIS flight, the rotorcraft must be fitted with a serviceable radio altimeter that:
- (a) conforms to the following requirements:
 - (i) it must have a presentation that requires minimal interpretation for both an instantaneous impression of absolute height and rate of change of height;
 - (ii) it must be positioned to be instantly visible and discernible to each NVIS crew member from the person's station in the cockpit;
 - (iii) it must have an integral audio and visual low height warning that operates at a height selectable by the pilot;
 - (iv) it must provide unambiguous warning to each NVIS crew member of radio altimeter failure; and
 - (b) has a visual warning system that provides clear visual warning at each cockpit crew station of height below the pilot-selectable height; and
 - (c) has an audio warning system that:
 - (i) is unambiguous and readily cancellable; and
 - (ii) when cancelled — does not extinguish any visual low height warnings; and
 - (iii) operates at the same pilot-selectable height as the visual warning.
- (2) CASA may approve an alternative visual and audio warning system that must be fitted to a rotorcraft before an operation, but only if the system produces warnings at least equivalent to those mentioned in paragraphs (1)(b) and (c).
- (3) Before an NVIS flight, the rotorcraft must be fitted with a serviceable pilot-steerable searchlight, adjustable in both pitch and azimuth from the flight controls.
- (4) Before an NVIS flight, the operator and the pilot in command must be satisfied that:
- (a) in an NVIS operation below 500 ft AGL; or
 - (b) in an NVIS operation from an HLS-NVIS basic using a searchlight with an NVIS compatible IR filter;
- the risk of an adverse event as a result of NVIS failure below 500 ft AGL is controlled by:
- (c) the rotorcraft's capacity to revert immediately to a non-filtered search or landing light; or
 - (d) the presence of 2 pilots, each of whom:
 - (i) is NVIS qualified and NVIS equipped; and
 - (ii) has access to dual flight controls.

Chapter 12 — Flight crew member training and checking

Division 1—Preliminary

12.01 Definitions for Chapter 12

In this Chapter:

flight crew member general emergency check of competency means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent, as a flight crew member in the rotorcraft, in relation to the matters mentioned in subsection 12.04(2).

flight crew member line check means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a flight crew member in the rotorcraft, which relates to the matters mentioned in subsection 12.06(2).

flight crew member proficiency check means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a flight crew member in the rotorcraft, which relates to the matters mentioned in subsection 12.05(2).

Division 2—Flight crew member training and checking events

12.02 Purpose of Division 2

This Division prescribes requirements for subregulation 133.370(4) of CASR.

Note: Paragraph 119.205(1)(h) of CASR requires an Australian air transport operator to include in the operator's exposition details of each plan, process, procedure, program and system implemented by the operator to safely conduct and manage the operator's Australian air transport operations in compliance with the civil aviation legislation.

12.03 Training and checking requirements

A flight crew member meets the training and checking requirements for the flight crew member and flight if:

- (a) the flight crew member has successfully completed the operator's general emergency training under section 12.04 and the operator's flight crew member general emergency check of competency; and
- (b) the flight crew member has successfully completed the operator's conversion training under section 12.05 and the operator's flight crew member proficiency check; and
- (c) the flight crew member is undertaking, or has successfully completed, the operator's line training under section 12.06 and the operator's flight crew member line check; and
- (d) if required, the flight crew member has successfully completed the operator's differences training under section 12.07; and
- (e) the flight crew member has successfully completed the operator's recurrent training and checking under section 12.08; and

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- (f) if required, the flight crew member has successfully completed the operator's remedial training under section 12.09.

12.04 General emergency training

- (1) The flight crew member must have successfully completed the operator's general emergency training for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in general emergency and survival procedures;
 - (b) training in aerodrome and rotorcraft security procedures;
 - (c) training in procedures for the location of, access to, and use of, the emergency and safety equipment on the rotorcraft;
 - (d) if life jackets and life rafts are required to be carried on the rotorcraft for the flight under regulation 133.360 of CASR — training in ditching procedures, and training, including in-water practical training, in underwater escape and the use of life jackets and life rafts;
 - (e) for a flight to which paragraph (d) does not apply, but for which life jackets are required to be carried on the rotorcraft under regulation 133.360 of CASR — training in ditching procedures, and training, including in-water practical training, in underwater escape and the use of life jackets.

12.05 Conversion training and flight crew member proficiency check

- (1) The flight crew member must have successfully completed the operator's conversion training, and flight crew member proficiency check, for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in the duties and responsibilities for the flight crew member's position;
 - (b) training in the standard operating procedures for the type or class of rotorcraft used for the flight;
 - (c) training in the normal, non-normal and emergency procedures for a rotorcraft of that type or class;
 - (d) training in any flight procedures or manoeuvres, conducted in a rotorcraft of that type or class, for which the operator holds an approval under regulation 91.045 or 133.015 of CASR;

Note: Examples of approvals issued under regulation 91.045, or 133.015, of CASR include approvals to conduct flights using certain PBN navigation specifications.

- (e) training in the procedures for any other operations conducted by the operator in a rotorcraft of that type or class that the flight crew member has not previously experienced, for example, offshore airborne radar approach operations or NVIS operations.

12.06 Line training and flight crew member line check

- (1) The flight crew member must be undertaking, or have successfully completed, the operator's line training, and flight crew member line check, for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in the operator's safety management system's risk assessment and management practices;

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- (b) training in the procedures for the conduct of line operations;
 - (c) training in the procedures related to aerodrome ground handling, rotorcraft parking and public safety;
 - (d) if passengers are carried on the flight — training in the conduct of passenger handling, briefings and safety demonstrations;
 - (e) training specific to the operator's area of operations, or routes if the operator's exposition describes the area of operations as a specific route or a number of routes;
 - (f) training in pre-flight, and post-flight, activities relating to line operations.
- (3) Also, for a pilot in command of the rotorcraft, if under regulation 133.400 of CASR, the operator's exposition includes details of training requirements in relation to a particular aerodrome for the flight, the training must deal with the requirements.

12.07 Differences training

- (1) If required, the flight crew member must have successfully completed the operator's differences training for the rotorcraft.
- (2) The successful completion of the training is evidenced by a course completion certificate given to the flight crew member, under paragraph 61.200(e) of CASR, in relation to the training.

12.08 Recurrent training and checking

- (1) The flight crew member must have successfully completed the operator's recurrent training and checking for the rotorcraft, in accordance with the requirements stated in subsections (3) and (4).
- (2) The operator's recurrent training and checking, for the rotorcraft, in relation to the use of life rafts or life jackets does not need to include in-water practical training.
- (3) The flight crew member must successfully undertake the operator's flight crew member general emergency check of competency, for the relevant type or class of rotorcraft, as follows:
 - (a) in relation to underwater escape or the use of life rafts — subject to subsection (5), at intervals of not more than 3 years after the previous check;
 - (b) otherwise — subject to subsection (5), at intervals of not more than 1 year after the previous check.
- (4) The flight crew member must successfully undertake the operator's flight crew member proficiency check, for the relevant type or class of rotorcraft, as follows:
 - (a) for a flight crew member only conducting a flight under the VFR by day — subject to subsections (5) and (6), initially 6 months after first commencing unsupervised line operations for the operator, and then at intervals of 1 year after the previous proficiency check;

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- (b) otherwise — subject to subsections (5) and (6), initially 6 months after first commencing unsupervised line operations for the operator, and then at intervals of 6 months after the previous proficiency check.
 - (5) Any check of competency or proficiency mentioned in this section, required to be completed at intervals of 1 or 3 years, successfully completed within 90 days before, or after, its due date is taken to meet the requirements stated in this section as if it had been completed on the due date.
 - (6) Any check of competency or proficiency mentioned in this section, required to be completed at intervals of 6 months, successfully completed within 30 days before, or after, its due date is taken to meet the requirements stated in this section as if it had been completed on the due date.
 - (7) A flight crew member who fails to demonstrate competency or continuing competency, for the relevant type or class of rotorcraft, under this section must not conduct a line operation with the relevant type or class of rotorcraft unless the flight crew member has met the remedial training requirements stated in section 12.09.

Note: The operator of a rotorcraft for a flight commits an offence if the operator assigns a person to duty as a flight crew member for the flight and the person has not been assessed by the operator, in accordance with the operator's training and checking system, as competent to perform the duties assigned to the person for the flight: see regulation 133.375 of CASR.

12.09 Remedial training

- (1) This section applies if a flight crew member fails the operator's flight crew member general emergency check of competency, or flight crew member proficiency check, under section 12.08 for a specific type or class of rotorcraft.
- (2) The flight crew member must have successfully completed the operator's remedial training for the relevant type or class of rotorcraft, in accordance with subsection (3).
- (3) Before being assigned by the operator to duty as a flight crew member for a flight in the relevant type or class of rotorcraft, the flight crew member must:
 - (a) successfully complete a program of remedial training in relation to the matters in which the flight crew member failed to demonstrate competency for the relevant type or class of rotorcraft, as identified in the flight crew member general emergency check of competency or flight crew member proficiency check, as the case requires; and
 - (b) then successfully complete the operator's flight crew member general emergency check of competency or flight crew member proficiency check, as the case requires, for the relevant type or class of rotorcraft; and
 - (c) then have the status of a flight crew member eligible to carry out unsupervised operations in the relevant type or class of rotorcraft reinstated by the operator.

Division 3—Individuals who conduct training and checking

12.10 Purpose of Division 3

This Division prescribes the requirements for subparagraph 133.377(2)(a)(ii) of CASR.

12.11 Requirements for individual conducting training and checking

- (1) The training or check must be conducted by an individual who:
 - (a) has met the minimum experience and entry control requirements, stated in the operator's exposition, for a training pilot, check pilot, or training and check pilot, as applicable; and
 - (b) has completed the training program, for a training pilot, check pilot, or training and check pilot, as applicable, included in the operator's exposition; and
 - (c) has met the relevant recency or proficiency requirements that are required for the conduct of the training or check, as stated in the operator's exposition; and
 - (d) subject to subsection (3), has been nominated by the operator to be a training pilot, check pilot, or training and check pilot, as applicable, for the operator's training and checking system.
- (2) For paragraph (1)(d), the nomination must be made by an entry in the operator's exposition and state that the individual meets the requirements stated in paragraphs (1)(a) to (c).
- (3) An individual is not required to be nominated under paragraph (1)(d) if the individual holds any of the following:
 - (a) a Part 61 flight instructor rating with an appropriate training endorsement and current flight proficiency check in the class or type of rotorcraft to be used for the relevant training or check;
 - (b) a Part 61 flight examiner rating with an appropriate flight examiner endorsement and current examiner proficiency check in the class or type of rotorcraft to be used for the relevant training or check;
 - (c) an approval under regulation 61.040 that confers privileges equivalent to those under paragraph (a) or (b) for the relevant training or check.

12.12 CASA may test nominated individual

- (1) CASA may test an individual nominated by the operator under paragraph 12.11(1)(d) to be a training pilot, check pilot, or training and check pilot, as applicable, to assess the individual's competency in the role.

Note: If CASA conducts a test of the individual and determines that the individual should not be permitted to conduct training or checks under this Chapter, then CASA has the power under Subpart 11.G of CASR to direct the individual to undertake further training before commencing, or continuing, in the role.

- (2) For subsection (1), CASA must give the individual written notice of the test.
- (3) The date, time and location of the test stated in a notice under subsection (2) must be reasonable in the circumstances.

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- (4) CASA must give the individual a copy of the result of the test, including the CASA testing officer's assessment of the individual's competency in the role.

Division 4—Use of available approved flight simulator

12.13 Use of available approved flight simulator for training or checking etc.

- (1) This section applies to a flight crew member for a flight of a rotorcraft of a type mentioned in the following table.

Table Types of rotorcraft

Rotorcraft type certificate holder or manufacturer	Rotorcraft models and variants
Agusta Westland Agusta Bell	AB/AW 139 AW 189
Airbus Helicopters Aerospaiale Eurocopter or EADS	AS 332 L AS 332 L2 EC225 EC175
Sikorsky	S 76A series S 76B series S 76C series S 76D series S 70 S 92

- (2) Without limiting the requirements stated in section 12.05, the flight crew member must undertake the rotorcraft operator's conversion training under section 12.05, and flight crew member proficiency check, for the rotorcraft in relation to the flight component of the matters mentioned in subsection 12.05(2) in:
- (a) an available approved flight simulator; or
 - (b) the rotorcraft, subject to the conditions mentioned in subsection (3) being met.
- (3) For paragraph (2)(b), the conditions are the following:
- (a) the training or check must not require the carrying out of any non-normal exercises that disable a vital system of the rotorcraft in-flight;
 - (b) any simulated non-normal exercises, carried out as part of the training or check, must be carried out using the rotorcraft's 1 engine inoperative training mode selector switch;
 - (c) the training or check must have been risk-assessed, and managed, by the operator in accordance with the operator's risk assessment and management processes stated in the operator's exposition.
- (4) If the flight crew member undertook the operator's conversion training under section 12.05, and flight crew member proficiency check, for the rotorcraft, mentioned in subsection (2) in the rotorcraft, the flight crew member must:
- (a) undertake the next flight crew member proficiency check, for the rotorcraft, under subsection 12.08(4) in an available approved flight simulator; and

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- (b) undertake at least one of the flight crew member proficiency checks, for the rotorcraft, under subsection 12.08(4) in each of the following years in an available approved flight simulator.
- (5) If the flight crew member undertook the operator's conversion training under section 12.05, and flight crew member proficiency check, for the rotorcraft, mentioned in subsection (2) in an available approved flight simulator, the flight crew member:
- (a) may undertake the next flight crew member proficiency check, for the rotorcraft, under subsection 12.08(4) in an available approved flight simulator or the rotorcraft; and
 - (b) must undertake at least one of the flight crew member proficiency checks, for the rotorcraft, under subsection 12.08(4) undertaken in each of the following years in an available approved flight simulator.
- (6) In this section:
- available**, in relation to an approved flight simulator, means the flight simulator:
- (a) exists in Australia or a recognised foreign State; and
 - (b) is offered for use on a commercial basis; and
 - (c) is serviceable; and
 - (d) is available to the operator to reserve and use.

non-normal exercise means an aircraft operation that involves a simulated system failure of a kind that affects, or would be likely to affect, the flying performance, or handling characteristics, of the aircraft beyond the parameters of normal operation.

vital system, of a rotorcraft, means a system that if operated in a simulated failed-state would reasonably be considered to cause a reduction in safety of the rotorcraft in-flight.

Division 5—Command training for pilot in command

12.14 Command training requirements

For paragraph 133.385(1)(c) of CASR, the following requirements are prescribed:

- (a) training in the responsibilities of the pilot in command of a rotorcraft of that type or class;
- (b) supervised line flying as pilot in command under supervision for the required number of flight hours mentioned in the rotorcraft operator's exposition.

Note: Before the pilot can operate the rotorcraft as pilot in command, the pilot is also required to have successfully completed the operator's flight crew member proficiency check, and flight crew member line check, for the rotorcraft, relating to a pilot in command of the rotorcraft.

Division 6—Pilot in command in non-command seat

12.15 Non-command seat proficiency check requirements

For paragraphs 133.395(1)(b), and (2)(b), of CASR, the following requirements are prescribed:

- (a) the pilot in command must complete a relevant part of the operator's flight crew member proficiency check under section 12.08 while operating the rotorcraft from the non-command seat as pilot in command or in command under supervision;
- (b) the relevant part of the flight crew member proficiency check must check that the pilot in command is competent to carry out the required non-command seat flight crew member's duties in the rotorcraft.

Chapter 13 — Cabin crew member training and checking

13.01 Prescribed circumstances and number

- (1) For subregulation 133.425(2) of CASR, the following circumstances are prescribed:
 - (a) the rotorcraft's passenger seating compartment is configured in a way so that there is a longitudinal aisle between the rows of seating; and
 - (b) there are at least 20 passengers carried on the flight.
- (2) For paragraph 133.425(3)(a) of CASR, the number prescribed is 1.

13.02 Training and checking requirements

For subregulation 133.425(4) of CASR, the requirements prescribed are the same as the requirements prescribed for an air crew member under Divisions 1 and 2 of Chapter 14, as if:

- (a) a reference in those Divisions to an air crew member is a reference to a cabin crew member; and
- (b) a reference in those Divisions to an air crew member general emergency check of competency is a reference to a cabin crew member general emergency check of competency; and
- (c) a reference in those Divisions to an air crew member line check is a reference to a cabin crew member line check; and
- (d) a reference in those Divisions to an air crew member proficiency check is a reference to a cabin crew member proficiency check.

13.03 Who may conduct training and checking etc.

- (1) This section applies if a cabin crew member of a rotorcraft operator's personnel undertakes training, or a check, that is required under regulation 133.425 of CASR or section 13.02.
- (2) Sections 14.11 and 14.12 apply as if:
 - (a) a reference in those sections to a training air crew member is a reference to a training cabin crew member; and
 - (b) a reference in those sections to a check air crew member is a reference to a check cabin crew member; and
 - (c) a reference in those sections to a training and check air crew member is a reference to a training and check cabin crew member.

Chapter 14 — Air crew member training and checking

Division 1—Preliminary

14.01 Definitions for Chapter 14

In this Chapter:

air crew member general emergency check of competency operator means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent, as an air crew member in the rotorcraft, in relation to the matters mentioned in subsection 14.04(2).

air crew member line check means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as an air crew member in the rotorcraft, which relates to the matters mentioned in subsection 14.06(2).

air crew member proficiency check means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as an air crew member in the rotorcraft, which relates to the matters mentioned in subsection 14.05(2).

Division 2—Air crew member training and checking events

14.02 Purpose of Division 2

This Division prescribes requirements for subregulation 133.455(2) of CASR.

Note: Paragraph 119.205(1)(h) of CASR requires an Australian air transport operator to include in the operator's exposition details of each plan, process, procedure, program and system implemented by the operator to safely conduct and manage the operator's Australian air transport operations in compliance with the civil aviation legislation.

14.03 Training and checking requirements

An air crew member meets the training and checking requirements for the air crew member and flight if:

- (a) the air crew member has successfully completed the operator's general emergency training under section 14.04 and the operator's air crew member general emergency check of competency; and
- (b) the air crew member has successfully completed the operator's conversion training under section 14.05 and the operator's air crew member proficiency check; and
- (c) the air crew member is undertaking, or has successfully completed, the operator's line training under section 14.06 and the operator's air crew member line check; and
- (d) if required, the air crew member has successfully completed the operator's differences training under section 14.07; and
- (e) the air crew member has successfully completed the operator's recurrent training and checking under section 14.08; and
- (f) if required, the air crew member has successfully completed the operator's remedial training under section 14.09.

14.04 General emergency training

- (1) The air crew member must have successfully completed the operator's general emergency training for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in general emergency and survival procedures;
 - (b) training in aerodrome and rotorcraft security procedures;
 - (c) training in procedures for the location of, access to, and use of, the emergency and safety equipment on the rotorcraft;
 - (d) if life jackets and life rafts are required to be carried on the rotorcraft for the flight under regulation 133.360 of CASR — training in ditching procedures, and training, including in-water practical training, in underwater escape and the use of life jackets and life rafts;
 - (e) for a flight to which paragraph (d) does not apply, but for which life jackets are required to be carried on the rotorcraft under regulation 133.360 of CASR — training in ditching procedures, and training, including in-water practical training, in underwater escape and the use of life jackets.

14.05 Conversion training and air crew member proficiency check

- (1) The air crew member must have successfully completed the operator's conversion training, and air crew member proficiency check, for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in the duties and responsibilities for the air crew member's position;
 - (b) training in the standard operating procedures for the kind of rotorcraft used for the flight;
 - (c) training in the normal, non-normal and emergency procedures for a rotorcraft of that kind;
 - (d) training in the procedures for any other operations conducted by the operator in a rotorcraft of that kind that the air crew member has not previously experienced, for example, auto-hover search and rescue operations or NVIS operations.

14.06 Line training and air crew member line check

- (1) The air crew member must be undertaking, or have successfully completed, the operator's line training, and air crew member line check, for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in the operator's safety management system's risk assessment and management practices;
 - (b) training in the procedures for the conduct of line operations;
 - (c) training in the procedures related to aerodrome ground handling, rotorcraft parking and public safety;
 - (d) if passengers are carried on the flight — training in the conduct of passenger handling, briefings and safety demonstrations;
 - (e) training specific to the operator's area of operations;
 - (f) training in pre-flight, and post-flight, activities relating to line operations.

14.07 Differences training

- (1) If required, the air crew member must have successfully completed the operator's differences training for the rotorcraft.
- (2) The training must deal with the following:
 - (a) if the limitations or systems of a rotorcraft of that kind are of a kind that the air crew member has not previously received training for — training in the limitations or systems;
 - (b) if the equipment on a rotorcraft of that kind is of a kind that the air crew member has not previously received training for — training in the location, and use, of the equipment;
 - (c) if the normal and emergency procedures for a rotorcraft of that kind are of a kind that the air crew member has not previously received training for — training in the procedures.

14.08 Recurrent training and checking

- (1) The air crew member must have successfully completed the operator's recurrent training and checking for the rotorcraft, in accordance with the requirements stated in subsections (3) and (4).
- (2) The operator's recurrent training and checking, for the rotorcraft, in relation to the use of life rafts or life jackets does not need to include in-water practical training.
- (3) The air crew member must successfully undertake the operator's air crew member general emergency check of competency, for the relevant kind of rotorcraft, as follows:
 - (a) in relation to underwater escape or the use of life rafts — subject to subsection (5), at intervals of not more than 3 years after the previous check;
 - (b) otherwise — subject to subsection (5), at intervals of not more than 1 year after the previous check.
- (4) Subject to subsection (5), the air crew member must successfully undertake the operator's air crew member proficiency check, for the relevant kind of rotorcraft, initially 1 year after first commencing unsupervised line operations for the operator, and then at intervals of 1 year after the previous proficiency check.
- (5) Any check of competency or proficiency mentioned in this section, required to be completed at intervals of 1 or 3 years, successfully completed within 90 days before, or after, its due date is taken to meet the requirements stated in this section as if it had been completed on the due date.
- (6) An air crew member who fails to demonstrate competency or continuing competency, for the relevant kind of rotorcraft, under this section must not perform the duties of an air crew member in the relevant kind of rotorcraft unless the air crew member has met the remedial training requirements stated in section 13.09.

Note: The operator of a rotorcraft for a flight commits an offence if the operator assigns a person to duty as an air crew member for the flight and the person has not been assessed by the operator, in accordance with the operator's exposition, as competent to perform the duties assigned to the person for the flight: see regulation 133.460 of CASR.

14.09 Remedial training

- (1) This section applies if an air crew member fails the operator's air crew member general emergency check of competency, or air crew member proficiency check, under section 14.08 for a specific kind of rotorcraft.
- (2) The air crew member must have successfully completed the operator's remedial training for the relevant kind of rotorcraft, in accordance with subsection (3).
- (3) Before being assigned by the operator to duty as an air crew member for a flight in the relevant kind of rotorcraft, the air crew member must:
 - (a) successfully complete a program of remedial training in relation to the matters in which the air crew member failed to demonstrate competency for the relevant kind of rotorcraft, as identified in the air crew member general emergency check of competency or air crew member proficiency check, as the case requires; and
 - (b) then successfully complete the operator's air crew member general emergency check of competency or air crew member proficiency check, as the case requires, for the relevant kind of rotorcraft; and
 - (c) then have the status of an air crew member eligible to perform the duties of an air crew member in the relevant kind of rotorcraft reinstated by the operator.

Division 3—Individuals who conduct training and checking

14.10 Application of Division 3

This Division applies if an air crew member of a rotorcraft operator's personnel undertakes training or, a check, that is required under regulation 133.455 of CASR or Division 2.

14.11 Requirements for individual conducting training and checking

- (1) The training or check must be conducted by an individual who:
 - (a) has met the minimum experience and entry control requirements, stated in the operator's exposition, for a training air crew member, check air crew member, or training and check air crew member, as applicable; and
 - (b) has completed the training program, for a training air crew member, check air crew member, or training and check air crew member, as applicable, included in the operator's exposition; and
 - (c) has met the relevant recency or proficiency requirements that are required for the conduct of the training or check, as stated in the operator's exposition; and
 - (d) has been nominated by the operator to be a training air crew member, check air crew member, or training and check air crew member, as applicable, for the operator's training and checking system.

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- (2) For paragraph (1)(d), the nomination must be made by an entry in the operator's exposition and state that the individual meets the requirements stated in paragraphs (1)(a) to (c).
 - (3) The requirements of this section are directions to the operator for the purposes of regulation 11.245 of CASR.
 - (4) The directions cease to be in force at the end of 1 December 2027.

14.12 CASA may test nominated individual

- (1) CASA may test an individual nominated by the operator under paragraph 14.11(1)(d) to be a training air crew member, check air crew member, or training and check air crew member, as applicable, to assess the individual's competency in the role.

Note: If CASA conducts a test of the individual and determines that the individual should not be permitted to conduct training or checks under this Chapter, then CASA has the power under Subpart 11.G of CASR to direct the individual to undertake further training before commencing, or continuing, in the role.

- (2) For subsection (1), CASA must give the individual written notice of the test.
- (3) The date, time and location of the test stated in a notice under subsection (2) must be reasonable in the circumstances.
- (4) CASA must give the individual a copy of the result of the test, including the CASA testing officer's assessment of the individual's competency in the role.

Chapter 15 — Medical transport specialist training and checking

Division 1—Preliminary

15.01 Definitions for Chapter 15

In this Chapter:

medical transport specialist general emergency check of competency means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent, as a medical transport specialist, in relation to the matters mentioned in subsection 15.04(2).

medical transport specialist line check means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a medical transport specialist in the rotorcraft, which relates to the matters mentioned in subsection 15.06(2).

medical transport specialist proficiency check means an assessment, conducted by a rotorcraft's operator in accordance with the operator's exposition, of whether a person is competent to safely carry out the person's duties as a medical transport specialist in the rotorcraft, which relates to the matters mentioned in subsection 15.05(2).

Division 2—Medical transport specialist training and checking events

15.02 Purpose of Division 2

This Division prescribes requirements for subregulation 133.470(2) of CASR.

Note: Paragraph 119.205(1)(h) of CASR requires an Australian air transport operator to include in the operator's exposition details of each plan, process, procedure, program and system implemented by the operator to safely conduct and manage the operator's Australian air transport operations in compliance with the civil aviation legislation.

15.03 Training and checking requirements

A medical transport specialist meets the training and checking requirements for the medical transport specialist and flight if:

- (a) the medical transport specialist has successfully completed the operator's general emergency training under section 15.04 and the operator's medical transport specialist general emergency check of competency; and
- (b) the medical transport specialist has successfully completed the operator's conversion training under section 15.05 and the operator's medical transport specialist proficiency check; and
- (c) the medical transport specialist is undertaking, or has successfully completed, the operator's line training under section 15.06 and the operator's medical transport specialist line check; and
- (d) if required, the medical transport specialist has successfully completed the operator's differences training under section 15.07; and

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- (e) the medical transport specialist has successfully completed the operator's recurrent training and checking under section 15.08; and
 - (f) if required, the medical transport specialist has successfully completed the operator's remedial training under section 15.09.

15.04 General emergency training

- (1) The medical transport specialist must have successfully completed the operator's general emergency training for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in general emergency and survival procedures;
 - (b) training in aerodrome and rotorcraft security procedures;
 - (c) training in procedures for the location of, access to, and use of, the emergency and safety equipment on the rotorcraft;
 - (d) if life jackets and life rafts are required to be carried on the rotorcraft for the flight under regulation 133.360 of CASR — training in ditching procedures, and training, including in-water practical training, in underwater escape and the use of life jackets and life rafts;
 - (e) for a flight to which paragraph (d) does not apply, but for which life jackets are required to be carried on the rotorcraft under regulation 133.360 of CASR — training in ditching procedures, and training, including in-water practical training, in underwater escape and the use of life jackets.

15.05 Conversion training and medical transport specialist proficiency check

- (1) The medical transport specialist must have successfully completed the operator's conversion training, and medical transport specialist proficiency check, for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in the duties and responsibilities for the medical transport specialist's position;
 - (b) training in the standard operating procedures for the kind of rotorcraft used for the flight;
 - (c) training in the normal, non-normal and emergency procedures for a rotorcraft of that kind;
 - (d) training in the procedures for any other operations conducted by the operator in a rotorcraft of that kind that the medical transport specialist has not previously experienced, for example, winching operations.

15.06 Line training and medical transport specialist line check

- (1) The medical transport specialist must be undertaking, or have successfully completed, the operator's line training, and medical transport specialist line check, for the rotorcraft.
- (2) The training must deal with the following:
 - (a) training in the operator's safety management system's risk assessment and management practices;
 - (b) training in the procedures for the conduct of line operations;

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- (c) training in the procedures related to aerodrome ground handling, rotorcraft parking and public safety;
 - (d) if medical patients are carried on the flight — training in the conduct of medical patient handling, briefings and safety demonstrations;
 - (e) if required, training specific to the operator's area of operations;
 - (f) training in pre-flight, and post-flight, activities relating to line operations.

15.07 Differences training

- (1) If required, the medical transport specialist must have successfully completed the operator's differences training for the rotorcraft.
- (2) The training must deal with the following:
 - (a) if the limitations or systems of a rotorcraft of that kind are of a kind that the medical transport specialist has not previously received training for — training in the limitations or systems;
 - (b) if the equipment on a rotorcraft of that kind is of a kind that the medical transport specialist has not previously received training for — training in the location, and use, of the equipment;
 - (c) if the normal and emergency procedures for a rotorcraft of that kind are of a kind that the medical transport specialist has not previously received training for — training in the procedures.

15.08 Recurrent training and checking

- (1) The medical transport specialist must have successfully completed the operator's recurrent training and checking for the rotorcraft, in accordance with the requirements stated in subsections (3) and (4).
- (2) The operator's recurrent training and checking, for the rotorcraft, in relation to the use of life rafts or life jackets does not need to include in-water practical training.
- (3) The medical transport specialist must successfully undertake the operator's medical transport specialist general emergency check of competency, for the relevant kind of rotorcraft, as follows:
 - (a) in relation to underwater escape or the use of life rafts — subject to subsection (5), at intervals of not more than 3 years after the previous check;
 - (b) otherwise — subject to subsection (5), at intervals of not more than 1 year after the previous check.
- (4) Subject to subsection (5), the medical transport specialist must successfully undertake the operator's medical transport specialist proficiency check, for the relevant kind of rotorcraft, initially 1 year after first commencing unsupervised line operations for the operator, and then at intervals of 1 year after the previous proficiency check.
- (5) Any check of competency or proficiency mentioned in this section, required to be completed at intervals of 1 or 3 years, successfully completed within 90 days

before, or after, its due date is taken to meet the requirements stated in this section as if it had been completed on the due date.

- (6) A medical transport specialist who fails to demonstrate competency or continuing competency, for the relevant kind of rotorcraft, under this section must not perform the duties of a medical transport specialist in the relevant kind of rotorcraft unless the medical transport specialist has met the remedial training requirements stated in section 14.09.

Note: The operator of a rotorcraft for a flight commits an offence if the operator assigns a person to duty as a medical transport specialist for the flight and the person has not been assessed by the operator, in accordance with the operator's exposition, as competent to perform the duties assigned to the person for the flight: see regulation 133.475 of CASR.

15.09 Remedial training

- (1) This section applies if a medical transport specialist fails the operator's medical transport specialist general emergency check of competency, or medical transport specialist proficiency check, under section 15.08 for a specific kind of rotorcraft.
- (2) The medical transport specialist must have successfully completed the operator's remedial training for the relevant kind of rotorcraft, in accordance with subsection (3).
- (3) Before being assigned by the operator to duty as a medical transport specialist for a flight in the relevant kind of rotorcraft, the medical transport specialist must:
 - (a) successfully complete a program of remedial training in relation to the matters in which the medical transport specialist failed to demonstrate competency for the relevant kind of rotorcraft, as identified in the medical transport specialist general emergency check of competency or medical transport specialist proficiency check, as the case requires; and
 - (b) then successfully complete the operator's medical transport specialist general emergency check of competency or medical transport specialist proficiency check, as the case requires, for the relevant kind of rotorcraft; and
 - (c) then have the status of a medical transport specialist eligible perform the duties of a medical transport specialist in the relevant kind of rotorcraft reinstated by the operator.

Division 3—Individuals who conduct training and checking

15.10 Application of Division 3

This Division applies if a medical transport specialist of a rotorcraft operator's personnel undertakes training, or a check, that is required under regulation 133.470 of CASR or Division 2.

15.11 Requirements for individual conducting training and checking

- (1) The training or check must be conducted by an individual who:
 - (a) has met the minimum experience and entry control requirements, stated in the operator's exposition, for a training medical transport specialist, check medical transport specialist, or training and check medical transport specialist, as applicable; and
 - (b) has completed the training program, for a training medical transport specialist, check medical transport specialist, or training and check medical transport specialist, as applicable, included in the operator's exposition; and
 - (c) has met the relevant recency or proficiency requirements that are required for the conduct of the training or check, as stated in the operator's exposition; and
 - (d) has been nominated by the operator to be a training medical transport specialist, check medical transport specialist, or training and check medical transport specialist, as applicable, for the operator's training and checking system.
- (2) For paragraph (1)(d), the nomination must be made by an entry in the operator's exposition and state that the individual meets the requirements stated in paragraphs (1)(a) to (c).
- (3) The requirements of this section are directions to the operator for the purposes of regulation 11.245 of CASR.
- (4) The directions cease to be in force at the end of 1 December 2027.

15.12 CASA may test nominated individual

- (1) CASA may test an individual nominated by the operator under paragraph 15.11(1)(d) to be a training medical transport specialist, check medical transport specialist, or training and check medical transport specialist, as applicable, to assess the individual's competency in the role.

Note: If CASA conducts a test of the individual and determines that the individual should not be permitted to conduct training or checks under this Chapter, then CASA has the power under Subpart 11.G of CASR to direct the individual to undertake further training before commencing, or continuing, in the role.
- (2) For subsection (1), CASA must give the individual written notice of the test.
- (3) The date, time and location of the test stated in a notice under subsection (2) must be reasonable in the circumstances.
- (4) CASA must give the individual a copy of the result of the test, including the CASA testing officer's assessment of the individual's competency in the role.

Notes to Part 133 (Australian Air Transport Operations—Rotorcraft) Manual of Standards 2020

The *Part 133 Manual of Standards* (in force under the *Civil Aviation Safety Regulations 1998*) as shown in this compilation comprises the *Part 133 (Australian Air Transport Operations—Rotorcraft) Manual of Standards 2020* amended as indicated in the Tables below.

Table of Manuals of Standards

Year and number	Date of registration on FRL	Date of commencement	Application in or transitional provisions
Part 133 (Australian Air Transport Operations—Rotorcraft) Manual of Standards 2020	15 Dec 2020 (F2020L01614)	2 December 2021 (see s. 2)	—
Part 133 Manual of Standards Amendment Instrument 2021 (No. 1)	1 December 2021 (F2021L01688)	1 December 2021 (see s. 2)	—
Part 91, Part 133 and Part 138 Manuals of Standards — NVIS Amendments Instrument 2021 (No. 1)	24 November 2021 (F2021L01591)	2 December 2021 (see s. 2)	—
Part 133 Manual of Standards Amendment Instrument 2024 (No. 1)	14 February 2024 (F2024L00168)	15 February 2024 (see s. 2)	—
Part 133, Part 135 and Part 138 Manuals of Standards – Miscellaneous Minor Matters – Amendment Instrument 2024	9 April 2024 (F2024L00435)	10 April 2024 (see s. 2)	—

Table of Amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
s. 1.02	rep. <i>Legislation Act 2003</i> , s. 48D
s. 1.04	am. F2021L01591, F2024L00168
s. 1.05	rs. F2021L01688
s. 3.01	am. F2021L01688
s. 3.02	am. F2024L00168
s. 3.04	am. F2021L01688
s. 5.10	am. F2021L01688, F2021L01591
s. 5.12	am. F2021L01688

Table of Amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
s. 6.02	am. F2021L01688
s. 7.01	am. F2021L01688, F2024L00168
s. 7A.01	ad. F2021L01591
s. 7.02	am. F2024L00168
Chapter 8, heading	rs. F2021L01591
Division 1, heading	ad. F2021L01591
s. 8.01	rs. F2021L01591
s. 8.01A	ad. F2021L01591
s. 8.02	rs. F2021L01591
Division 2, heading	ad. F2021L01591
s. 8.03	ad. F2021L01591
s. 8.04	ad. F2021L01591
s. 8.05	ad. F2021L01591 am. F2024L00168
s. 8.06	ad. F2021L01591
s. 8.07	ad. F2021L01591
Division 3 heading	ad. F2021L01591
s. 8.08	ad. F2021L01591 am. F2024L00168
s. 8.09	ad. F2021L01591
s. 8.10	ad. F2021L01591 am. F2024L00168
Chapter 9, heading	rs. F2021L01688
s. 9.01	am. F2021L01688
s. 9.02	rs. F2021L01688, F2024L00168
s. 9.03	rs. F2021L01688
s. 9.04	rs. F2021L01688 am. F2024L00168
s. 9.05	ad. F2021L01688
s. 10.01	am. F2021L01688
s. 10.06	am. F2021L01688
s. 10.09	am. F2021L01688
s. 10.11	am. F2021L01688
s. 10.18	am. F2021L01688, F2024L00168
s. 10.22	am. F2024L00168
10.26	am. F2024L00168

Table of Amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
10.31	am. F2024L00168
s. 10.32	am. F2021L01591
s. 10.33	am. F2021L01688
s. 11.01	am. F2024L00168
s. 11.02	am. F2021L01688, F2024L00168
s. 11.04	rs. F2021L01688
s. 11.08	am. F2021L01688
s. 11.09	am. F2021L01688
s. 11.10	rs. F2021L01688
s. 11.12	am. F2021L01688
s. 11.15	am. F2021L01688, F2024L00168
s. 11.16	am. F2024L00168
s. 11.23	rs. F2021L01688
s. 11.24	am. F2021L01688
s. 11.34	am. F2024L00168
s. 11.35	am. F2024L00168
s. 11.37	am. F2021L01688
s. 11.38	am. F2021L01688
s. 11.41	am. F2024L00435
s. 11.48	am. F2021L01688
s. 11.50	am. F2024L00168
s. 11.51	am. F2021L01688
Division 13 heading	rs. F2024L00168
s. 11.52	am. F2021L01688
s. 11.53 heading	rs. F2024L00168
s. 11.53	am. F2024L00168
s. 11.54 heading	rs. F2024L00168
s. 11.54	am. F2024L00168
s. 11.55 heading	rs. F2024L00168
s. 11.55	am. F2021L01688, F2024L00168
s. 11.56	am. F2024L00168
s. 11.57	am. F2024L00168
s. 11.58 heading	rs. F2024L00168
s. 11.58	am. F2021L01688, F2024L00168
Division 14 heading	ad. F2021L01591

Table of Amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
s. 11.59	ad. F2021L01591
s. 11.59A	ad. F2021L01591
s. 11.60	ad. F2021L01591
s. 11.61	ad. F2021L01591
s. 11.62	ad. F2021L01591
s. 11.63	ad. F2021L01591
s. 11.64	ad. F2021L01591
Division 14 heading	rep. F2024L00168
s. 12.08	rs. F2021L01688
s. 12.11	am. F2024L00435
Division 4, heading	am. F2021L01688
s. 12.13	am. F2021L01688, F2024L00168
s. 14.08	rs. F2021L01688
s. 14.11	am. F2024L00435
s. 15.04	am. F2021L01688
s. 15.08	rs. F2021L01688
s. 15.11	am. F2024L00435
