Australian Government

Civil Aviation Safety Authority

Part 91 (General Operating and Flight Rules) Manual of Standards 2020

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Note This Table of Contents is for guidance only. It is not a formal part of the Part 91 Manual of Standards. See section 1.06.

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CHAPTER 1 PRELIMINARY

1.01 Name of instrument

(1) This instrument is the *Part 91 (General Operating and Flight Rules) Manual of Standards 2020*.

(2) This instrument may be cited as the Part 91 MOS.

(3) Unless a contrary intention appears, references in this instrument to "the MOS", "this MOS" or "this instrument" are references to the Part 91 MOS.

1.02 Commencement

This instrument commences immediately after commencement of Part 91 of CASR.

Note Part 91 of CASR is contained in the *Civil Aviation Safety Amendment (Part 91) Regulations 2018* which commences on 2 December 2021.

1.03 References to instruments and documents

(1) In this MOS, unless a contrary intention appears, a reference to an instrument or any other document (however described) is a reference to the instrument or document, as in force or existing from time to time.

(2) In this MOS, unless a contrary intention appears, a reference to any legislative instrument is a reference to the instrument, as in force from time to time.

(3) In this MOS, unless a contrary intention appears, a reference to a FAR is a reference to the FAR, as in force from time to time.

(4) If a provision of this MOS applies, adopts or incorporates any instrument or other document, then, unless a contrary intention appears, the instrument or other document, is taken to have been applied, adopted or incorporated as in force or existing from time to time.

Note 1 This section applies to an AFM (which includes an AFM Supplement) because it is also a document.

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

1.04 References to ICAO documents

(1) In this MOS, unless a 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 MOS, unless a contrary intention appears, 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 contained in the Chicago Convention.

(3) In this MOS, unless a contrary intention appears, reference to a numbered ICAO manual is a reference to the manual of that number, or subsequent version, as in force or existing from time to time and issued by ICAO.

(4) In this MOS, unless a contrary intention appears, reference to a numbered ICAO circular is a reference to the circular of that number, or subsequent version, as in force or existing from time to time and issued by ICAO.

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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 MOS, unless a contrary intention appears. Such references in Notes are to documents which may be used as guidance or background information.

1.05 References to AS/NZS standards, TSOs, ETSOs, (E)TSOs

(1) In this MOS, unless a contrary intention appears, a reference to a particular AS/NZS standard is a reference to:

(a) the particular joint Australian and New Zealand Standard (the ***standard***), as applicable; or

(b) a later version of the standard, as applicable.

(1A) For subsection (1), "applicable", in relation to the standard, is a reference to the version of the standard that was in existence and applicable to the thing on the date of its manufacture.

Note For example, the joint *Australian and New Zealand Standard AS/NZS 1754:2004, Child restraint systems for use in motor vehicles*, would apply to an automotive child restraint system that was **manufactured** during the time period that this 2004 version of the AS/NZS was in force. However, there are later versions of this standard, for example, dated 2010 and 2013. If an automotive child restraint system was manufactured during the time period that the 2010 standard was in force, then that system would be acceptable for use; and if the automotive child restraint system was manufactured during the time period that the 2013 standard was in force, then that system would also be acceptable for use. In effect, by prescribing the 2004 version of this standard, or later version as applicable, the rule permits the use of this version, or any later version, but not any earlier version, and the version that applies to any specific system is the version that applied at the time the system was **manufactured**.

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

(4) In this MOS, unless a contrary intention appears, a reference to a particular (E)TSO is a reference to the relevant ETSO or TSO, or a later version of the relevant ETSO or TSO.

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

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.

1.06 Table of Contents

The Table of Contents for this MOS is not part of this instrument. It is for guidance only and may be modified or edited in any published version of this MOS.

1.07 Definitions and abbreviations

(1) Subject to subsection 1.07 (6), in this instrument words and phrases have the same meaning as in Part 91 of CASR and in the Act, unless a contrary intention appears.

(2) In this MOS, unless a contrary intention appears, mention of a provision with the prefix "91." is a reference to that provision as contained in Part 91 of CASR.

(3) In this MOS, reference in a provision to an aerodrome includes a helideck unless a helideck is expressly excluded for the purposes of the provision.

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(4) In this MOS, 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.

(5) In this MOS, any reference to a seat, a seatbelt, a shoulder harness or a restraint system is a reference to an approved seat, an approved seatbelt, an approved shoulder harness or an approved restraint system, where "approved" means approved under Part 21 of CASR.

(6) In this MOS:

AAIS means automatic aerodrome information service, and is the service that, by means of repetitive broadcasts on a discrete aerodrome frequency, provides current and routine information for aircraft arriving at, or departing from, the aerodrome.

accurate QNH has the same meaning as in section 10.06.

Act means the *Civil Aviation Act 1988*.

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

(a) proceed to an alternate aerodrome (or, for a rotorcraft, a suitable rotorcraft landing site); and

Note For a rotorcraft, an alternate rotorcraft landing site would constitute the alternate aerodrome.

(b) fly for 15 minutes at the holding speed for the aircraft at 1 500 ft above the aerodrome elevation in ISA conditions; and

(c) make an approach and landing.

Note Fuel planning in accordance with Chapter 19 may place an aircraft in a fuel emergency situation if a failure or loss were to occur as described above. In that case, additional fuel must be carried.

ADF means automatic direction finder.

adult has the meaning given by Part 1 of the CASR Dictionary.

Note ***Adult*** means a person who has turned 13.

aerial application operation has the meaning given by regulation 137.010 of CASR.

aerial application operator means a person who holds an AOC that authorises the use of an aeroplane or a rotorcraft in an aerial application operation.

aerial work certificate means a certificate issued under regulation 138.040 of CASR.

aerial work operator means the holder of an aerial work certificate.

aerodrome forecast means:

(a) for an aerodrome in Australian territory — an authorised weather forecast for the aerodrome issued by the BOM, that is labelled as a "TAF"; or

(b) for an aerodrome outside Australian territory — an authorised weather forecast for the aerodrome that meets the requirements of standard 6.2, Aerodrome forecasts, in Chapter 6 of ICAO Annex 3, *Meteorological Service for International Air Navigation.*

AFM (short for aircraft flight manual) has the same meaning as ***flight manual.***

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AGL means above ground level.

agricultural operation has the meaning given in subregulation 2 (1) of CAR.

AIP has the meaning given by Part 1 of the CASR Dictionary.

Note The AIP is available through www.airservicesaustralia.com.

AIRAC cycle, or ***aeronautical information regulation and control cycle***, is the system and frequency setting used to regularly update aeronautical information in relevant aviation systems, for example, in a navigation database.

Note In accordance with Annex 15, Aeronautical Information Services (AIS), to the Chicago Convention, the AIRAC cycle documents and defines a series of common dates, and an associated standard AIP procedure, for each Convention State, under which aeronautical information is to be cyclically updated.

air traffic service has the meaning given by Part 1 of the CASR Dictionary.

Note The phrase *air traffic service* includes 1 or more of the following: a flight information service, an alerting service, an air traffic advisory service, an air traffic control service, an area control service, an approach control service or an aerodrome control service. ***Air Traffic Services*** has a different meaning – see under ***ATS***.

alternate aerodrome has the same meaning as in ICAO Annex 2.

Note At the commencement of this instrument, Chapter 1 of ICAO Annex 2 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.".

AMSL means above mean sea level.

approved GNSS means:

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

(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).

approved GNSS position source has the meaning given by section 26.67.

approved provider means:

(a) the holder of a Type 2 LOA or a Type 2 DAT approval that receives its aeronautical data from a data service provider; or

Note A data service provider is a person who holds a certificate under regulation 175.295 of CASR.

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(b) for a foreign aircraft — a provider of aeronautical information for performance-based navigation, approved by the NAA of the State of registration or State of operator, of the foreign aircraft.

APU means auxiliary power unit.

area navigation, means a method of navigation which permits aircraft operations on any desired flight path within:

(a) the coverage of ground or space-based navigation aids; or

(b) the limits of the capability of self-contained navigation aids; or

(c) a combination of paragraphs (a) and (b).

Note Area navigation includes PBN as well as other operations that do not meet the definition of ***PBN***.

area QNH means an altimeter setting that is:

(a) issued by the BOM; and

(b) representative, to within ±5 hPa, of any actual QNH of any location within a QNH area (however described), or a subdivision of such an area, published in the AIP.

Note For QNH areas, see the *Planning Chart Australia*, as contained in the AIP.

AS/NZS has the meaning given by Part 1 of the CASR Dictionary.

ATC means air traffic control.

ATIS, for an aerodrome, means an automatic terminal information service which provides current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts during the hours when the unit responsible for the service is in operation.

ATS has the meaning given to ***Air Traffic Services*** in the CASR Dictionary.

ATS surveillance service has the meaning given by ICAO Document 4444.

Note At the commencement of this instrument, ICAO Document 4444 included the following:

"***ATS surveillance service.*** A term used to indicate a service provided directly by means of an ATS surveillance system."

ATS surveillance system has the meaning given by ICAO Document 4444.

Note At the commencement of this instrument, ICAO Document 4444 included the following:

"***ATS surveillance system***. A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

Note.— A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.".

ATSO (short for Australian Technical Standard Order) has the meaning given by Part 1 of the CASR Dictionary.

Australian-administered airspace has the meaning given by Part 1 of the CASR Dictionary.

Australian FIR has the meaning given to ***flight information region*** in the *Airspace Regulations 2007*.

authorised aeronautical information: see the CASR Dictionary.

authorised weather forecast has the meaning given by Part 1 of the CASR Dictionary.

authorised weather report has the meaning given by Part 1 of the CASR Dictionary.

avoid area of the HV curve, of a rotorcraft, means the area delineated on the height-velocity envelope diagram in the AFM, that shows the parameters within which operations of the rotorcraft should be avoided.

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AWIS, or ***automated weather information service***, means an aerodrome weather information service, provide by an aerodrome operator:

(a) that provides actual weather conditions at the aerodrome, via telephone or broadcast; and

(b) the data for which is obtained from an AWS operated or approved by the BOM.

AWS means automatic weather station.

BECMG, in relation to a weather forecast, has the same meaning as in ICAO Document 8896.

Note At the commencement of this instrument, ICAO Document 8896 included the following: "BECMG (abbreviation for "*becoming*") — this change indicator describes changes where the conditions are expected to reach or pass specified values at a regular or irregular rate.".

BKN, in relation to amounts of cloud, has the same meaning as in ICAO Document 8896.

Note At the commencement of this instrument, ICAO Document 8896 refers to BKN as 5-7 oktas of cloud. "Okta" is a standard unit of measurement for cloud cover.

BOM means the Bureau of Meteorology.

CAO means Civil Aviation Order.

CAR means the *Civil Aviation Regulations 1988*.

CASR means the *Civil Aviation Safety Regulations 1998*.

CASR Dictionary means the Dictionary under regulation 1.004 of CASR.

CAT means category.

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 Federal Aviation Regulations (***FARs***);

(ii) Part 29 of the FARs;

(iii) EASA CS — 27;

(iv) EASA CS — 29;

(v) an equivalent airworthiness certification code of a Contracting State; and

(b) capable of operation using scheduled take-off and landing data under a critical engine failure concept, which assures adequate designated ground or water area and adequate performance capability for continued safe flight or safe rejected take off in the event of engine failure, as mentioned in the rotorcraft's flight manual.

Note This definition is based on the ICAO, FAA and EASA definitions of the term ***Category A*** in relation to rotorcraft.

Category A performance, for a rotorcraft operation, means the 1 engine inoperative performance (as derived from the rotorcraft flight manual) from which the pilot in command determines the most critical maximum weight that enables the rotorcraft to avoid all obstacles and complete its operation.

Category A rotorcraft means a rotorcraft that:

(a) meets each of the requirements stated in the definition ***Category A***; and

(b) is type-certificated in accordance with any of the following:

(i) Part 27 of the FARs;

(ii) Part 29 of the FARs;

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(iii) EASA CS — 27;

(iv) EASA CS — 29;

(v) an equivalent airworthiness certification code of a Contracting State.

Category B rotorcraft means a rotorcraft that is not capable of operations as a Category A rotorcraft in accordance with paragraph (b) of the definition of ***Category A***.

child has the meaning given by Part 1 of the CASR Dictionary.

Note ***Child*** means a person who has turned 2 but has not turned 13.

civil aviation authorisation has the meaning given by section 3 of the *Civil Aviation Act 1988*.

civil aviation legislation has the meaning given by section 3 of the *Civil Aviation Act 1988*.

community service flight means a flight:

(a) that involves:

(i) the transport of 1 or more individuals (a ***patient***) to a destination for the purpose of each such individual receiving non-emergency medical treatment or services at the destination; or

(ii) the transport of a patient from a destination mentioned in subparagraph (i) (the ***treatment destination***) to another treatment destination; or

(iii) the transport of a patient from a treatment destination:

(A) back to a place from which the patient departed for a treatment destination; or

(B) to a destination at which the patient resides; and

(b) that is provided to a patient, and any person who accompanies the patient to provide support and assistance, without a charge being made to any of those persons for their carriage; and

(c) where medical treatment is not provided on board the aircraft for the flight, other than the administering of medication or in response to an unexpected medical emergency; and

(d) that is coordinated, arranged or facilitated by an entity for a charitable purpose or community service purpose.

Note Section 2B of the *Acts Interpretation Act 1901* defines ***charitable purpose*** as having the meaning given by Part 3 of the *Charities Act 2013*.

confined area, for a rotorcraft, means a relevant HLS where take-off or landing requires the rotorcraft to operate within the avoid area of the HV curve because the available take-off or landing space is constrained by:

(a) terrain; or

(b) the presence of other natural, or man-made, obstructions.

contingency fuel, for an aircraft in a kind of flight mentioned in an item of Table 19.02 (2), means the amount of fuel required to compensate for unforeseen factors, and which must not be less than:

(a) the percentage (if any) of the planned trip fuel for the flight, as specified in column 4 of the same item; or

(b) in the event of in-flight replanning — the percentage (if any) of the trip fuel for the replanned flight, as specified in column 4 of the same item.

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control area has the meaning given by Part 1 of the CASR Dictionary.

controlled aerodrome has the meaning given by Part 1 of the CASR Dictionary.

controlling zone RVR means the reported value of 1 or more RVR locations (touchdown, mid-point, and stop-end) used to determine whether operating minima are met.

control zone has the meaning given by Part 1 of the CASR Dictionary.

Note Controlled aerodromes, control areas and control zones are determined by CASA under the *Airspace Regulations 2007*.

critical engine means the engine whose failure would most adversely affect the performance or handling qualities of an aircraft.

CTAF means common traffic advisory frequency, being a designated frequency on which pilots make positional broadcasts when operating in the vicinity of a non-controlled aerodrome.

current, for a navigation database: see section 14.07.

DA means decision altitude.

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

destination alternate fuel means the amount of fuel required to enable an aircraft 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.

DH means decision height.

DME means distance measuring equipment.

EASA, is short for European Union Aviation Safety Agency, and has the meaning given by Part 1 of the CASR Dictionary.

Note For relevant EASA document definitions: see section 26.67.

END means end zone.

en route alternate aerodrome means an alternate aerodrome that is an en route alternate (within the meaning of ICAO Annex 2).

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

(a) established by the aircraft manufacturer and published in the AFM;

(b) established by the use of a fuel consumption monitoring system;

(c) established by the aircraft operator and published in the operations manual along with:

(i) the relevant data and methodology used; or

(ii) references to another accessible location of the data and methodology used.

ETA means estimated time of arrival.

ETSO is short for European Technical Standard Order: see the CASR Dictionary.

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(E)TSO, followed by an identifying letter and number, is a shorthand reference to both the TSO and the ETSO, each of which has the same identifying letter and number.

FAA is short for the Federal Aviation Administration of the United States.

FAR is short for the Federal Aviation Regulations of the United States.

FATO means the final approach and take-off area, as that expression is defined in the CASR Dictionary.

FATO, or ***final approach and take-off area***, has the meaning given by Part 1 of the CASR Dictionary.

FDE is short for fault detection and exclusion, and means a GNSS receiver's ability to exclude faulty satellites from position computation.

FEW, in relation to amounts of cloud, has the same meaning as in ICAO Document 8896.

Note At the commencement of this instrument, ICAO Document 8896 refers to FEW as 1-2 oktas of cloud.

final reserve fuel means the calculated amount of fuel that:

(a) is required to fly an aircraft:

(i) at 1 500 ft above aerodrome ***elevation*** in ISA conditions for the period of time specified for the flight in column 3 of Table 19.02 (2); and

(ii) for an aircraft that is a rotorcraft conducting IFR flight or VFR flight by night, or an aeroplane, or an airship — at holding speed; and

(iii) for an aircraft that is a rotorcraft conducting a VFR flight by day — at range speed; and

(iv) at the aircraft's estimated weight on arrival at the destination alternate aerodrome or the planned destination aerodrome when no destination alternate aerodrome is required (the ***relevant aerodrome***) to the relevant aerodrome; and

(b) is usable fuel remaining in the fuel tanks on completion of the final landing at the relevant aerodrome.

FIR means a flight information region.

FL, or ***flight level***, has the meaning given by Part 1 of the CASR Dictionary.

flight forecast means a text-based forecast issued for a part of a flight for which a routine GAF is not prepared.

flight manual has the meaning given by Part 1 of the CASR Dictionary.

flying in formation has the meaning given by the CASR Dictionary.

FO means fail operational.

FO hybrid landing system means a system which consists of a primary fail-passive automatic landing system and a secondary independent guidance system enabling the pilot to complete a landing manually after failure of the primary system.

forecast QNH means QNH obtained from an authorised weather forecast.

FP means fail passive.

ft means feet.

GAF, or ***graphical area forecast***, means an authorised weather forecast that is:

(a) issued by the BOM; and

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(b) a forecast of the weather conditions within a specific geographical area published in the AIP.

Note At the commencement of this instrument, the AIP document containing these geographical areas was the Planning Chart Australia.

GAMET area forecast has the meaning given by Annex 3, *Meteorological Service for International Air Navigation*.

Note At the commencement of this instrument, Chapter 1 of Annex 3 included the following definition:

"*GAMET area forecast*. An area forecast in abbreviated plain language for low-level flights for a flight information region or sub-area thereof, prepared by the meteorological office designated by the meteorological authority concerned and exchanged with meteorological offices in adjacent flight information regions, as agreed between the meteorological authorities concerned.".

GBAS means ground-based augmentation system.

GBAS landing system, or ***GLS***, has the meaning given by Chapter 1 of ICAO Document 8168, Volume 1.

Note At the commencement of this instrument, ICAO Document 8168 defined ***GBAS landing system*** to be "A system for approach and landing operations utilizing GNSS, augmented by a ground-based augmentation system (GBAS), as the primary navigational reference.".

GNSS means the global navigation satellite system.

GNSS FDE means GNSS fault detection and exclusion.

ground-based navigation aid: see section 14.05.

G/P means glide path.

helideck has the meaning given by Part 1 of the CASR Dictionary.

HLS means helicopter landing site.

holding fuel means the amount of fuel an aircraft requires to fly for the period of time anticipated for holding (taking into account the operating conditions) calculated at the holding fuel consumption rate established for the aircraft for the anticipated meteorological conditions, or ISA.

Note See also the definition of ***established***.

hPa means hectopascals.

HUD, or ***head-up display***, means a display system that presents flight information into a pilot's forward external field of view.

IAF means initial approach fix.

IAP means an instrument approach procedure.

Note ***Instrument approach procedure*** is a defined term: see the CASR Dictionary.

IAS, or ***indicated airspeed***, means the speed of an aircraft as shown on its pitot static airspeed indicator, calibrated to reflect standard atmosphere adiabatic compressible flow at sea level uncorrected for airspeed system errors.

ICAO Annex, followed by a number, means the Annex of the given number, as contained in the Chicago Convention.

ICAO landing forecast means an ***authorised weather forecast*** that meets the requirements of 6.3 in Chapter 6, Landing forecasts, of ICAO Annex 3.

IFR, or ***instrument flight rules***, has the meaning given by Part 1 of the CASR Dictionary.

ILS means instrument landing system.

IMC, or ***instrument meteorological conditions***, has the meaning given by Part 1 of the CASR Dictionary.

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in-company, in relation to 2 or more aircraft in flight, means aircraft:

(a) that form a group and occupy a specific 3-dimensional volume of airspace; and

(b) each of whose pilots in command self-separates from the other group aircraft in the volume of airspace.

infant has the meaning given by Part 1 of the CASR Dictionary.

Note ***Infant*** means a person who has not turned 2 years of age.

inoperative has the meaning given by Part 1 of the CASR Dictionary.

in the vicinity of a non-controlled aerodrome has the meaning given by Part 1 of the CASR Dictionary.

ISA means international standard atmosphere.

JRCC Australia means the Australian Joint Rescue Coordination Centre.

jump aircraft means an aircraft from which parachutists jump for a parachute descent.

km means kilometres.

kts means knots.

landing decision point, for landing a rotorcraft, means the 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 safely continued.

landing distance available means:

(a) for landing an aeroplane at a certified aerodrome — the distance declared by the aerodrome operator in the AIP as available and suitable for the ground run of the aeroplane when it lands at the aerodrome; or

(b) for landing an aeroplane at an aerodrome other than a certified aerodrome — the distance established by the aeroplane operator as available and suitable for the ground run of the aeroplane when it lands at the aerodrome.

landing distance available, for landing a rotorcraft, means the total of the following that are available for the rotorcraft to complete the landing from the height above the FATO that is mentioned in the rotorcraft's flight manual:

(a) the length of the FATO;

(b) the length of the area that is available and suitable for the rotorcraft to complete a landing on.

LNAV means lateral navigation.

LOA means a letter of acceptance issued by an NAA to a data supplier that has demonstrated compliance with the requirements of RTCA DO-200B, or EUROCAE ED-76A, Standards for Processing Aeronautical Data, as in force from time to time.

Note 1 An LOA may be a Type 1 LOA or a Type 2 LOA.

Note 2 An LOA, issued by an appropriate NAA to each of the participants in the data chain, demonstrates compliance with this requirement, for example, FAA LOA issued in accordance with FAA AC 20-153 or EASA LOA issued in accordance with EASA Agency Opinion 01/2005 and the associated "Conditions for the issuance of Letters of Acceptance for Navigation Database Suppliers by the Agency".

Note 3 A Type 1 LOA provides recognition of a data supplier's compliance with RTCA/DO-200A/EUROCAE ED-76 with no identified compatibility with an aircraft system. A Type 1 LOA ensures the processes for producing the aeronautical data comply with the documents identified in Note 2 and the documented data quality requirements.

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Note 4 A Type 2 LOA provides recognition of a data supplier's compliance with RTCA/DO-200A/EUROCAE ED-76 and the compatibility of its delivered data with particular avionic systems that are identified in the LOA.

Note 5 A data service provider who holds a certificate under regulation 175.295 of CASR equates to an EASA or FAA Type 1 LOA.

LOC means localiser.

LP means localiser performance.

LPV means localiser performance with vertical navigation.

LSALT is short for lowest safe altitude, and has the meaning given by Part 1 of the CASR Dictionary.

m, for a distance, means metres.

manufacturer's data manual, in relation to an aircraft, means a publication (however described) other than the AFM, produced by the manufacturer of the aircraft as a guide for the flight crew members in the operation of the aircraft.

MBA means mandatory broadcast area.

MDA means minimum descent altitude.

MDH means minimum descent height.

MEL (short for minimum equipment list) has the meaning given by Part 1 of the CASR Dictionary.

MID means mid zone.

MLS means microwave landing system.

MOS means Manual of Standards.

MSA, or ***minimum sector altitude***, means the lowest usable altitude that provides at least 300 m (or 1 000 ft) clearance above all objects within a circle or a sector of a circle of radius 46 km (25 NM) or 18.5 km (10 NM) centred on a significant point.

MTOW, or ***maximum take-off weight***, has the meaning given by Part 1 of the CASR Dictionary.

multi-crew operation has the meaning given by Part 1 of the CASR Dictionary.

NAA, or ***national aviation authority***, has the meaning given by Part 1 of the CASR Dictionary.

NAT-HLA means North Atlantic High-Level Airspace, and is the airspace to which NAT Doc 007, North Atlantic Operations and Airspace Manual (as in force from time to time) applies.

Note A copy of Nat Doc 007 is available at www.icao.int/EURNAT.

navigational tolerance means 1 of the following:

(a) for PBN operations — the RNP value for the segment of the IAP being conducted;

(b) for VOR or LOC-based operations — full-scale deflection of the course deviation indicator;

(c) for NDB-based operations — + or - 5° from the specified bearing;

(d) for DME-based operations — + or - 2 NM from the required arc;

(e) for operations based on visual navigation — 1 NM from the cleared track.

navigation database means the data from an approved provider loaded onto an aircraft navigation system.

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navigation specification means a set of aircraft and aircrew requirements needed to support PBN operations within a defined airspace, being either:

(a) RNAV specification which is a navigation specification based on area navigation that does not include the requirement for on-board performance monitoring and alerting, and is designated by the prefix RNAV, for example, RNAV 5, RNAV 1; or

(b) RNP specification which is a navigation specification based on area navigation that includes the requirement for on-board performance monitoring and alerting, and is designated by the prefix RNP, for example, RNP 2, RNP APCH.

NDB means non-directional beacon.

NM means nautical miles.

non-precision approach, or ***NPA***, means a non-precision approach procedure and is an IAP instrument approach procedure designed for 2D instrument approach operations.

NOTAM has the meaning given by Part 1 of the CASR Dictionary.

NVD means night vision device.

NVG means night vision goggles.

NVIS means night vision imaging system.

NVIS firebombing has the meaning given by subsection 12.03 (1) of the Part 138 MOS.

NVIS fire mapping has the meaning given by subsection 12.03 (1) of the Part 138 MOS.

NVIS incendiary dropping has the meaning given by subsection 12.03 (1) of the Part 138 MOS.

NVIS operation has the meaning given in subsection 3.02 (1) of this MOS.

OVC, in relation to cloud, has the same meaning as in ICAO Document 8896.

Note At the commencement of this instrument, ICAO Document 8896 refers to OVC as 8 oktas of cloud.

PAL means a pilot-activated lighting system.

Part 103 aircraft has the same meaning as in regulation 103.005 of CASR.

Part 141 operator: see the CASR Dictionary.

Part 142 operator: see the CASR Dictionary.

PBN, or ***performance-based navigation***, means area navigation based on performance requirements for aircraft operating:

(a) along ATS routes; or

(b) on an IAP; or

(c) in designated airspace.

Note 1 Performance requirements are expressed in navigation specifications (RNAV specification, and RNP specification) in terms of the accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular class of airspace.

Note 2 ***ATS routes*** is a defined term: see the CASR Dictionary.

planned destination aerodrome means the aerodrome which, before take-off, an aircraft is planned to fly to and land at.

POB means people on board.

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point of in-flight replanning means a point en route during a flight of an aircraft, determined by the operator or pilot in command for the flight before the flight commences, at which an aircraft 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 19.04 (2) — continue to that aerodrome; or

(b) otherwise — divert to an en route alternate aerodrome while maintaining the fuel required by subsection 19.04 (3).

precision approach procedure means an IAP based on an ILS, an MLS, a GLS or an SBAS CAT I, and which is designed for 3D instrument approach operations.

PRM means precision runway monitoring.

QNH is an atmospheric pressure adjusted to sea level and measured in hPa or millibars so that when QNH is set the altimeter will read elevation AMSL.

quick-donning mask: see section 26.44.

recognised country: see the CASR Dictionary.

Note Recognised countries include:

(a) Canada;

(b) France;

(c) Germany;

(d) Netherlands;

(e) New Zealand;

(f) United Kingdom;

(g) United States of America.

requisite GNSS satellites means at least the number of serviceable GNSS satellites a GNSS manufacturer specifies in writing as being required for its approved GNSS to provide a particular RNP specification.

rescue operation: see section 20.01.

RNAV specification has the meaning given by paragraph (a) of the definition of ***navigation specification***.

RNP specification has the meaning given by paragraph (b) of the definition of ***navigation specification***.

RNP APCH-LNAV means the conduct of an RNP APCH using LNAV minima.

RNP APCH-LNAV/VNAV means the conduct of an RNP APCH using LNAV/VNAV minima.

RNP APCH-LP means the conduct of an RNP APCH using LP minima.

RNP APCH-LPV means the conduct of an RNP APCH using LPV minima.

RVR, or ***runway visual range***, has the meaning given by Part 1 of the CASR Dictionary.

RVSM airspace, or ***reduced vertical separation minimum airspace***, has the meaning given by Part 1 of the CASR Dictionary.

SAR means search and rescue.

SARTIME means the time nominated by a pilot for the initiation of SAR action if a report has not been received by the nominated unit.

SARWATCH means the time for a SAR alert, based on:

(a) full position reporting procedures; or

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(b) scheduled reporting times (SKEDS); or

(c) SARTIME.

SBAS means satellite-based augmentation system.

SBAS CAT I, in relation to an instrument approach procedure, means SBAS Category I.

SCT, in relation to amounts of cloud, has the same meaning as in ICAO Document 8896.

Note At the commencement of this instrument, ICAO Document 8896 refers to SCT as 3-4 oktas of cloud.

SFIS means Surveillance Flight Information Service.

SIGWX means significant weather.

single-pilot operation has the meaning given by Part 1 of the CASR Dictionary.

special VFR has the meaning given by section 2.01.

specified aircraft performance category has the meaning given by section 2.02.

specified IFR cruising level: see Division 2.5.

specified VFR cruising level: see Division 2.5.

standard visual signal has the meaning given by Division 2.3 of Chapter 2.

step climb is an ATC procedure which allows 2 aircraft to perform a coordinated climb to a more fuel-efficient level while maintaining safe separation.

TAF3 means an aerodrome forecast:

(a) issued by the BOM for an aerodrome within Australian territory; and

(b) that contains the text "TAF3" in the remarks section of the forecast.

taxi fuel means the amount of fuel expected to be used by an aircraft before take-off, taking into account:

(a) local conditions at the departure aerodrome, including taxi time and traffic congestion; and

(b) APU consumption (if applicable).

Note For rotorcraft operations requiring a take-off prior to taxi, such as a hover taxi from a confined helipad, taxi fuel would be the fuel expected to be consumed before the commencement of the actual departure.

TDZ means touchdown zone.

the Regulations means CAR and CASR.

TLOF means touchdown and lift-off area and is the surface over which the touchdown and lift-off is conducted.

transition altitude means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

transition layer means the airspace between the transition altitude and the transition level.

transition level means the level at or above which the vertical position of an aircraft is controlled by reference to flight levels.

transponders and surveillance equipment: see subsection 1.07 (7).

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trip fuel means the amount of fuel required to enable an aircraft to fly from any point along a route until landing at a destination aerodrome including (as applicable) the following:

(a) fuel for take-off and climb from departure aerodrome elevation 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 at the planned destination aerodrome.

TSO is short for Technical Standard Order of the FAA: see the CASR Dictionary.

unforeseen factors means factors that could have an influence on an aircraft's fuel consumption to the planned destination aerodrome, including the following:

(a) the aircraft's deviation from the expected fuel consumption data for an aircraft of the same type;

(b) extended delays and deviations from planned routings or cruising levels.

Type 2 DAT approval means an approval issued by EASA that authorises the supply of aeronautical databases for which aircraft compatibility has been demonstrated.

Type 2 LOA means an LOA issued by the FAA or EASA that identifies the compatibility of its delivered data with a particular avionic system or avionic systems.

use NVIS means to use NVIS as the primary means of terrain avoidance for safe air navigation by means of visual surface reference external to the aircraft.

valid, for a navigation database: see section 14.07.

V_{AT}, or ***velocity at threshold***, for this MOS, means the indicated airspeed at the threshold which is equal to the higher of whichever of the following is available in the landing configuration at the maximum certificated landing mass:

(a) stall speed V_{SO} multiplied by 1.3; or

(b) stall speed V_{S1G} multiplied by 1.23.

VFR, or ***visual flight rules***, and has the meaning given by Part 1 of the CASR Dictionary.

VFR climb is a specific kind of ATC authorisation for an IFR flight.

VFR descent is a specific kind of ATC authorisation for an IFR flight.

VFR-on-top is a specific kind of ATC authorisation for an IFR flight.

VHF means very high frequency.

VMC, or ***visual meteorological conditions***, and has the meaning given by Part 1 of the CASR Dictionary.

VMC criteria has the meaning given by Part 1 of the CASR Dictionary.

Note See section 2.07 of this MOS.

V_{min}, means the minimum operating speed.

VNAV means vertical navigation.

VOR means VHF omnidirectional radio range.

V_{SIG} means the stalling speed, or the steady flight speed, obtained in the clean configuration at 1G.

V_{SO} has the meaning given by Part 1 of the CASR Dictionary.

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V_y, for an aircraft, means the speed mentioned in the AFM for the best rate of climb.

WATIR, or ***weather and terminal information reciter***, means a service, provided by an aerodrome operator:

(a) that provides actual weather conditions at the aerodrome via telephone or broadcast; and

(b) the data for which is obtained from an AWS operated or approved by the BOM and supplemented by the aerodrome operator.

(7) In this MOS:

(a) a small number of additional definitions also appear in and for some particular sections; and

(b) a larger number of additional definitions are in section 26.67 in relation to transponders and surveillance equipment.

(8) In this MOS:

(a) ***operative***, for anything, means that the thing is not inoperative; and

(b) ***inoperative***, for anything, has the meaning given by Part 1 of the CASR Dictionary.

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CHAPTER 2 PRESCRIPTIONS FOR CERTAIN DEFINITIONS IN THE CASR DICTIONARY

Note Relevant definitions to which these provisions refer were inserted in the CASR Dictionary by the *Civil Aviation Safety Amendment (Operations Definitions) Regulations 2019* (as amended).

Division 2.1 Definition of *special VFR*

2.01 Special VFR

(1) This section is for paragraph (a) of the definition of ***special VFR*** in the CASR Dictionary.

(2) For the definition of ***special VFR***, the VFR in subsection (3) are prescribed.

(3) To operate under the special VFR, the pilot in command must:

(a) be authorised by ATC; and

(b) operate by day; and

(c) conduct the flight clear of cloud; and

(d) maintain flight visibility of at least:

(i) for an aeroplane — 1 600 m; and

(ii) for a rotorcraft — 800 m; and

(e) for a rotorcraft — ensure that the rotorcraft is operated at a speed that allows the pilot in command to see obstructions or other traffic in sufficient time to avoid a collision.

Division 2.2 Definition of *specified aircraft performance category*

2.02 Specified aircraft performance category

(1) This section is for the definition of ***specified aircraft performance category*** in the CASR Dictionary.

Note Paragraph 91.320 (1) (a) requires an aircraft to "operate in the specified aircraft performance category" unless an approval under regulation 91.045 is held. The specific requirements for an IFR aircraft that determine whether the aircraft is being operated within the ***specified aircraft performance category*** are contained in section 14.09.

(1A) In relation to an aircraft's ***specified aircraft performance category***, the aircraft performance categories, in order of lowest to highest, are H, A, B, C, D and E.

(2) For an aeroplane with an IAS mentioned in an item of column 1 of Table 2.02 (2), the aircraft performance category is that mentioned in the same item of column 2.

(3) The ***specified aircraft performance category*** for an aeroplane is the aircraft performance category determined under subsection (2).

(4) The ***specified aircraft performance category*** for a helicopter is:

(a) aircraft performance category H; or

(b) during the conduct of an IAP that does not have category H minima — aircraft performance category A.

(5) The ***specified aircraft performance category*** for a powered-lift aircraft is the aircraft performance category stated in the AFM.

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Table 2.02 (2) — Aircraft performance categories

	Column 1	Column 2
Item	**Indicated airspeed (IAS) V_{AT} (kts)**	**Aircraft performance category**
1	Not more than 90	A
2	91-120	B
3	121-140	C
4	141-165	D
5	166-210	E

Division 2.3 Definition of *standard visual signal*

2.03 Purpose

For the definition of ***standard visual signal*** in the CASR Dictionary, this Division prescribes:

(a) light, hand and ground signals; and

(b) the requirements and circumstances for their display.

2.04 Light or projectile signals to aircraft on an aerodrome or in flight

(1) Light (which includes projectile) signals to aircraft mentioned in an item of Table 2.04 (1), are prescribed standard visual signals.

(2) For subsection (1), a light or projectile signal mentioned in an item of column 2 of the Table:

(a) for an aircraft in flight — has the meaning mentioned for it in column 3 of the item; and

(b) for an aircraft on the ground at an aerodrome — has the meaning mentioned for it in column 4 of the item.

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Table 2.04 (1) — Light signals to aircraft on an aerodrome or in flight

	Column 1	Column 2	Column 3
Item	**Light or projectile signal**	**Meaning — in flight**	**Meaning — on the ground at an aerodrome**
1	Steady green	Authorised to land if pilot satisfied no collision risk exists	Authorised to take-off if pilot satisfied no collision risk exists
2	Steady red	Give way to other aircraft and continue circling	Stop
3	Green flashes	Return for landing	Authorised to taxi if pilot satisfied no collision risk exists
4	Red flashes	Aerodrome unsafe — do not land	Taxi clear of landing area in use
5	White flashes	No significance	Return to starting point on aerodrome
6	A series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars	The aircraft is flying in, or about to enter, a restricted, prohibited or danger area, and the pilot in command of the aircraft must take such remedial action as may be necessary	No significance

2.05 Ground signals for aircraft at aerodromes

(1) The ground signals for aircraft at aerodromes depicted in an item of Table 2.05 (1), are prescribed standard visual signals.

(2) For subsection (1), a ground signal depicted in an item of column 1 of the Table:

(a) when in the form mentioned in column 2 of the item; and

(b) when displayed at location mentioned in column 3 of the item;

has the meaning mentioned for it in column 4 of the item.

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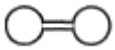
Table 2.05 (1) — Ground signals for aircraft at aerodromes

	Column 1	Column 2	Column 3	Column 4
Item	**Ground signal**	**Description**	**Where ground signal is displayed at an aerodrome (display location)**	**Meaning of ground signal**
1		Horizontal white dumb-bell	Adjacent to an aerodrome wind direction indicator.	1. Use only hard surface movement areas. 2. Where there are sealed and gravel manoeuvring areas, use only the sealed surfaces. 3. Where there are constructed gravel and natural surface manoeuvring areas, use only the gravel surfaces. *Note* See also AIP-ERSA FAC for any local information relating to this particular ground signal.
2		White cross	1. Adjacent to an aerodrome wind direction indicator.	1. The aerodrome is completely inoperative.
			2. On the manoeuvring area.	2. For an area signalled with a cross or crosses with the limit delineated by those ground signals — this area is unfit for use by aircraft.
3		White double cross	Adjacent to wind direction indicator.	Gliding operations are in progress.

2.06 Hand signals for marshalling aircraft at aerodromes

The hand signals mentioned in the following documents are prescribed standard visual signals:

(a) 5. *Marshalling Signals, 5.1 From a signalman to an aircraft*, as contained in Appendix 1 of ICAO Annex 2, Rules of the Air (excluding 5.1.1); and

(b) 6. *Standard Emergency Hand Signals*, as contained in Appendix 1 of ICAO Annex 2, Rules of the Air.

Note For ICAO documents — see section 1.04.

Division 2.4 Definition of *VMC criteria*

2.07 VMC criteria

(1) This section is for paragraph (a) of the definition of ***VMC criteria*** in the CASR Dictionary.

(2) ***VMC criteria*** means meteorological conditions expressed in terms of the flight visibility and distance from cloud (horizontal and vertical) prescribed in this section.

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(3) For Table 2.07 (3), for a type of aircraft mentioned in an item of column 1, in a Class of airspace mentioned in the same item of column 2, at a height mentioned in the same item of column 3, the VMC criteria are those mentioned in the same item in columns 4 and 5 respectively, and are subject to the operational requirements mentioned in the same item in column 6.

Table 2.07 (3) — VMC criteria

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Item	**Type of aircraft**	**Class of airspace**	**Height**	**Flight visibility**	**Distance from cloud**	**Operational requirements**
1	Aircraft	A, B, C, E or G	At or above 10 000 ft AMSL	8 000 m	1 500 m horizontal 1 000 ft vertical	
2	Aircraft	A, B, C, E or G	Below 10 000 ft AMSL	5 000 m	1 500 m horizontal 1 000 ft vertical	
2A	Aircraft	C	Below 10 000 ft AMSL	5 000 m	Clear of cloud	Operations must comply with conditions stated in subsection 2.07 (3A)
2B	Aircraft	Any class	Below 10 000 ft AMSL	5 000 m or less, but not less than 3 000 m. In all cases, only with a relevant CASA approval		Operations must comply with conditions stated in subsections 2.07 (3B) and (3C)
3	Aircraft	D	All heights	5 000 m	600 m horizontal 1 000 ft vertical above cloud 500 ft vertical below cloud	
4	Aircraft	G	At or below whichever is the higher of: (a) 3 000 ft AMSL; (b) 1 000 ft AGL	5 000 m	Clear of cloud	Aircraft must be operated in sight of ground or water
5	Rotorcraft	G	Below 700 ft over land. Below 700 ft over water *with* track guidance	800 m	Clear of cloud	Operations must comply with conditions stated in subsection

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	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Item	**Type of aircraft**	**Class of airspace**	**Height**	**Flight visibility**	**Distance from cloud**	**Operational requirements**
			from a navigation system			2.07 (4)
6	Rotorcraft	G	Below 700 ft over water *without* track guidance from a navigation system	5 000 m	600 m horizontal and 500 ft vertical	Operations must comply with conditions stated in subsection 2.07 (4)

Note 1 Subject to ATC clearance, operation under the special VFR may be available within a control zone.

Note 2 Refer to regulation 91.285 for restrictions on VFR flight in Class A airspace.

(3A) For item 2A in Table 2.07 (3), the conditions are that the flight must be an NVIS operation.

(3B) For item 2B in Table 2.07 (3), the conditions are that the flight must be:

(a) an NVIS operation; and

(b) conducted under Part 138 MOS by an aerial work operator; and

(c) conducted by at least 2 NVIS crew members authorised (however described) to conduct an NVIS operation by:

(i) for an Australian aircraft — Part 61 of CASR; or

(ii) for a foreign-registered aircraft — the NAA of the State of registry of the aircraft; and

(d) for a flight with visibility of 5 000 m — one for which the operator holds a CASA approval under regulation 91.045; and

(e) for a flight with visibility of less than 5 000 m but not less than 3 000 m — one for which the operator holds a CASA approval under subsection (3C).

(3C) For paragraph (3B) (e), CASA may approve a minimum in-flight visibility requirement of less than 5 000 m but not less 3 000 m for an NVIS operation in VMC for a particular class of airspace but only if:

(a) the operation is not NVIS firebombing, NVIS fire mapping, or NVIS incendiary dropping; and

(b) the operator's application includes a detailed risk assessment; and

(c) given the risks, approval (including subject to conditions if required) would not have an adverse effect on aviation safety.

(4) For items 5 and 6 of Table 2.07 (3), the conditions are that the flight must be conducted:

(a) by day; and

(b) at a speed that allows the pilot in command to see obstructions or other traffic in sufficient time to avoid a collision; and

(c) if not more than 10 NM from an aerodrome with an IAP — in a way that ensures the flight maintains a separation of at least 500 ft vertically from any aircraft that is:

(i) less than 10 NM from the aerodrome; and

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(ii) conducting an IFR operation.

(4A) Subsection (1) does not apply to the pilot in command of a rotorcraft in an operation:

(a) to which Division 5 of Chapter 9 of the Part 138 MOS applies; and

(b) which is conducted using NVIS in accordance with Chapter 12 of the Part 138 MOS.

Division 2.5 Definitions of specified cruising levels

2.08 Specified cruising levels

(1) This Division is for the definition of the following expressions in the CASR Dictionary:

(a) ***specified IFR cruising level*** for a track; and

(b) ***specified VFR cruising level*** for a track.

(2) Sections 2.09 and 2.10 prescribe the ***specified IFR cruising level*** for an IFR flight on a track. (3) Sections 2.09 and 2.10 prescribe the ***specified VFR cruising level*** for a VFR flight on a track.

2.09 Specified cruising levels — at or north of 80° south

(1) Specified cruising levels are those levels set out in Table 2.09 (1), including the effect of any applicable footnote.

(2) Specified IFR cruising levels for operations at or north of 80° south are as set out in Table 2.09 (1), so that:

(a) for an aircraft track from 000° clockwise to 179°— a specified IFR cruising level is an altitude or a FL mentioned in column 1; and

(b) for an aircraft track from 180° clockwise to 359°— a specified IFR cruising level is an altitude or a FL mentioned in column 3.

(3) Specified VFR cruising levels for operations at or north of 80° south are as set out in Table 2.09 (1), so that:

(a) for an aircraft track from 000° clockwise to 179°— a specified VFR cruising level is an altitude or a FL mentioned in column 2; and

(b) for an aircraft track from 180° clockwise to 359°— a specified VFR cruising level is an altitude or a FL mentioned in column 4.

(4) For subsection (2) and (3) cruising levels must be selected by reference to the following:

(a) when operating at or north of 60° south — aircraft magnetic track;

(b) when operating south of 60° south — aircraft grid track.

Table 2.09 (1) — Specified cruising levels for operations at or north of 80° south

Track 000° clockwise to 179°		**Track 180° clockwise to 359°**	
IFR **Column 1**	**VFR** **Column 2**	**IFR** **Column 3**	**VFR** **Column 4**
–	1 500 ft	2 000 ft	2 500 ft
3 000 ft	3 500 ft	4 000 ft	4 500 ft
5 000 ft	5 500 ft	6 000 ft	6 500 ft

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Track 000° clockwise to 179°		Track 180° clockwise to 359°	
IFR **Column 1**	**VFR** **Column 2**	**IFR** **Column 3**	**VFR** **Column 4**
7 000 ft	7 500 ft	8 000 ft	8 500 ft
9 000 ft	9 500 ft	10 000 ft	–
FL110[1]	FL115[2]	FL120[3]	FL125[4]
FL130	FL135	FL140	FL145
FL150	FL155	FL160	FL165
FL170	FL175	FL180	FL185
FL190	FL195	FL200	FL205
FL210	FL215	FL220	FL225
FL230	FL235	FL240	FL245
FL250		FL260	
FL270		FL280	
FL290		FL300	
FL310		FL320	
FL330		FL340	
FL350		FL360	
FL370		FL380	
FL390		FL400	
FL410		FL430	
FL450		FL470	
FL490		FL510	
FL530		FL550	
FL570		FL590	

1. FL110 is not useable when the local QNH is less than 1013 hPa.
2. FL115 is not useable when the local QNH is less than 997 hPa.
3. FL120 is not useable when the local QNH is less than 980 hPa.
4. FL125 is not useable when the local QNH is less than 963 hPa.

Note Refer to section 11.02 for the rules relating to use of certain flight levels when QNH is less than 1013 hPa.

2.10 Specified cruising levels — south of 80° south

(1) Specified VFR cruising levels are those levels set out in Table 2.10 (1), including the effect of any footnotes.

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(2) Specified IFR cruising levels for operations south of 80° south are as set out in Table 2.10 (1), so that:

(a) for an aircraft track from 000° clockwise to 179° — a specified IFR cruising level is an altitude or a FL mentioned in column 1; and

(b) for an aircraft track from 180° clockwise to 359° — a specified IFR cruising level is an altitude or a FL mentioned in column 3.

(3) Specified VFR cruising levels for operations south of 80° south are as set out in Table 2.10 (1), so that:

(a) for an aircraft track from 000° clockwise to 179° — a specified VFR cruising level is an altitude or a FL mentioned in column 2; and

(b) for an aircraft track from 180° clockwise to 359° — a specified VFR cruising level is an altitude or a FL mentioned in column 4.

Table 2.10 (1) — Specified cruising levels for operations south of 80° south

Track 000° clockwise to 179°		**Track 180° clockwise to 359°**	
IFR **Column 1**	**VFR** **Column 2**	**IFR** **Column 3**	**VFR** **Column 4**
–	1 500 ft	2 000 ft	2 500 ft
3 000 ft	3 500 ft	4 000 ft	4 500 ft
5 000 ft	5 500 ft	6 000 ft	6 500 ft
7 000 ft	7 500 ft	8 000 ft	8 500 ft
9 000 ft	9 500 ft	10 000 ft	–
FL110[1]	FL115[2]	FL120[3]	FL125[4]
FL130	FL135	FL140	FL145
FL150	FL155	FL160	FL165
FL170	FL175	FL180	FL185
FL190	FL195	FL200	FL205
FL210	FL215	FL220	FL225
FL230	FL235	FL240	FL245
FL250	FL255	FL260	FL265
FL270	FL275	FL280	FL285
FL290	FL300	FL310	FL320
FL330	FL340	FL350	FL360
FL370	FL380	FL390	FL400
FL410	FL420	FL430	FL440
FL450	FL460	FL470	FL480

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Track 000° clockwise to 179°		Track 180° clockwise to 359°	
IFR **Column 1**	**VFR** **Column 2**	**IFR** **Column 3**	**VFR** **Column 4**
FL490	FL500	FL510	FL520
FL530	FL540	FL550	FL560
FL570	FL580	FL590	FL600

1. FL110 is not useable when the local QNH is less than 1013 hPa.
2. FL115 is not useable when the local QNH is less than 997 hPa.
3. FL120 is not useable when the local QNH is less than 980 hPa.
4. FL125 is not useable when the local QNH is less than 963 hPa.

Note Refer to section 11.02 for the rules relating to use of certain flight levels when QNH is less than 1013 hPa.

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CHAPTER 3 NVIS FLIGHTS

Division 1 Purpose, application and definitions

3.01 Purpose

For subregulation 91.085 (1), this Chapter prescribes requirements relating to an NVIS flight.

Note 1 This Chapter applies to all NVIS flights **except** those conducted by an Australian air transport operator in a Part 133 operation, and those conducted by an aerial work certificate holder in an aerial work operation: see item 1 of Table 91.035 which, in effect, applies regulation 91.085 to all other NVIS flights.

Note 2 This Chapter applies to NVIS flights conducted by a limited aerial work operator mentioned in Part 138: see item 1 of Table 91.035 and regulation 138.350, whose combined effect is to disapply regulation 91.085 from aerial work operations by aerial work certificate holders, but not from limited aerial work operators.

Note 3 For NVIS equipment requirements: see Division 26.17 of the Part 91 MOS. The effect of item 16 of Table 91.035 is that the Division 26.17 requirements apply to all NVIS flights except NVIS flights conducted as a Part 133 operation. The Part 133 MOS contains the equipment requirements for such flights.

3.01A Application

(1) This Chapter applies to the use of NVIS by a flight crew member of an aircraft in an NVIS flight.

(2) This Chapter does not apply 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.

3.02 Definitions

(1) In this Chapter and Division 26.17:

contracted checking has the meaning given by regulation 142.020 of CASR.

contracted recurrent training has the meaning given by regulation 142.020 of CASR.

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 meaning given by section 3.04.

IFR capable, for an aircraft, describes a circumstance in which:

(a) the aircraft is equipped for IFR flight in accordance with the regulations; and

(b) the crew who operate the aircraft meet the relevant requirements for IFR flight under Part 61 of CASR.

IR is short for infra-red.

NVFR capable, for an aircraft, describes a circumstance in which:

(a) the aircraft is equipped for flight by night under the VFR in accordance with the regulations; and

(b) the crew who operate the aircraft meet the relevant requirements for a VFR flight at night under Part 61 of CASR.

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

(a) of an NVIS operator who holds an AOC, a Part 141 certificate, or an aerial work certificate 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 MOS.

NVIS crew member means an NVIS pilot, an NVIS trainee 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 any of the following operations using NVIS:

(a) authorised Part 141 flight training that is for a person to qualify for an NVIS rating or endorsement;

(b) training and checking for a Part 141 operator in relation to its personnel who carry out the activities mentioned in paragraph (a);

(c) authorised Part 142 activity that is:

(i) authorised Part 142 flight training that is for a person to qualify for an NVIS rating or endorsement; and

(ii) contracted recurrent training of personnel holding an NVIS rating or endorsement; and

(iii) contracted checking of personnel holding an NVIS rating or endorsement;

(d) training and checking for a Part 142 operator in relation to its personnel who carry out the activities mentioned in paragraph (c);

(e) a flight test required under Part 61 of CASR;

(f) an NVIS proficiency check under Part 61of CASR;

(g) a flight, conducted by a Part 141 operator or a Part 142 operator, for the purpose of ensuring the proficiency of an NVIS pilot;

(h) training or checking for a Part 133 operator in relation to its crew members who conduct NVIS flights during the operator's medical transport operations;

(i) a maintenance flight of an aircraft for the purpose of ensuring the serviceability of the aircraft, or the NVIS, for NVIS operations mentioned in any other paragraph of this definition;

(j) a test flight of an aircraft for the purpose of certifying the aircraft, or the NVIS, for NVIS operations mentioned in any other paragraph of this definition.

Note 1 Unless otherwise expressly permitted (for example, under this Chapter, or under the Part 133 or Part 138 MOS), NVIS must not be used in any other operations for safe air navigation by means of visual surface reference external to the aircraft conducting the operation.

Note 2 This Chapter does not apply to the use of NVIS by any crew member who is not directly involved in air navigation or terrain avoidance functions, and who uses NVIS solely for observation or surveillance.

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

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(b) if the aircraft is a foreign-registered aircraft — is authorised by the aircraft's State of registry to pilot the aircraft for the NVIS flight.

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

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

NVIS trainee pilot means a pilot who:

(a) does not hold an initial NVIS rating under CASR Part 61; and

(b) is undergoing:

(i) an approved course of training by a Part 141 or Part 142 operator, for the issue of such a rating; or

(ii) a flight test.

operator has the meaning given by the CASR Dictionary.

Note Operator, of an aircraft, means:

(a) if the operation of the aircraft 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 aircraft operations involving the aircraft.

Part 141 means Part 141 of CASR.

Part 141 operator has the meaning given by the CASR Dictionary.

Part 142 means Part 142 of CASR.

Part 142 operator has the meaning given by the CASR Dictionary.

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 an aircraft accidentally diverging 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.

TLOF is short for touchdown and lift-of area.

used, ***using*** or ***uses***, in relation to the use of NVIS, means used for safe air navigation by means of visual surface reference external to the aircraft 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

3.03 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 3.05 — an HLS-NVIS basic.

(2) A pilot in an NVIS flight must be:

(a) an NVIS pilot; or

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(b) in an NVIS flight that is an NVIS operation for the purpose of flight training or flight testing a pilot (the ***NVIS trainee pilot***) for an NVIS rating or endorsement — the NVIS trainee pilot accompanied by an NVIS pilot mentioned in paragraph (a).

(3) A trainee pilot must not conduct a solo NVIS flight.

(4) Each air crew member who uses NVIS in an NVIS flight must be:

(a) an NVIS air crew member in an NVIS operation; or

(b) a person, otherwise qualified for the NVIS flight, who is under flight training or flight testing to become an NVIS air crew member.

Note Air crew members may only be carried in accordance with the requirements for NVIS operations.

3.04 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 x 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 x D, or 3 m around the FATO, whichever is larger;

(b) a TLOF must be at least:

(i) a cleared and, as far as practicable, stable area capable of bearing the dynamic loads which may be imposed by the rotorcraft; and

(ii) an area of 0.83 x 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).

3.05 HLS-NVIS basic

(1) A rotorcraft for an NVIS flight must not land on or take off from an HLS-NVIS basic unless it is conducting an NVIS operation.

(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

(c) 1 NVIS pilot and 1 NVIS trainee pilot; or

(d) 1 NVIS pilot, but only if the flight is conducted by an operator who holds a CASA approval under regulation 91.045 that is based on the applicant's detailed risk assessment.

3.06 No formation flights for NVIS flight

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

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3.07 Alternate lighting requirements

(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

3.08 Aircraft lighting

If, in an NVIS operation, the optimum performance of the NVIS is affected, or is likely to be affected, by the aircraft'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 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.

3.09 Minimum height under the NVFR or the IFR for NVIS operations

(1) The pilot in command of an aircraft for an NVIS operation may, if it is operationally necessary, fly below:

(a) for a VFR flight at night — the minimum height prescribed under regulation 91.277; and

(b) for an IFR flight — the minimum height prescribed under regulation 91.305.

(2) Under regulation 11.160 of CASR, the pilot in command of an aircraft for an NVIS operation is exempted from the requirements of regulation 91.277 or 91.305 (as the case requires):

(a) on condition that the requirements of this section are complied with; and

(b) on condition that the pilot in command makes no request to ATC for any clearance inconsistent with the requirements of this section; and

(c) on condition that an NVIS operation conducted under the IFR maintains VMC during flight below the minimum heights referred to in subsection (1); and

(d) only insofar as compliance with this section would otherwise be an offence under subregulation 91.277 (4) or 91.305 (4) (as applicable).

Note 1 It is not an offence to fly below the prescribed minimum heights in the circumstances mentioned in subregulation 91.277 (4) or 91.305 (4).

Note 2 **This exemption expires 3 years after commencement**: see paragraph 11.230 (1) (b) of CASR. Before it expires, Part 91 will be amended to accommodate the rules in this section without recourse to an exemption.

Note 3 The VMC criteria are contained in section 2.07.

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(3) If an NVIS operation is conducted:

(a) below the minimum height for a VFR flight at night, as prescribed under regulation 91.277; or

(b) below the minimum height for an IFR flight, as prescribed under regulation 91.305;

then, subject to subsections (6) and (7), NVIS must be used by each NVIS pilot and each NVIS air crew member who is involved in the operation.

(4) If, for subsection (1), an NVIS operation is conducted by a single NVIS pilot as the only NVIS crew member then, subject to subsection (5), the operation must be conducted at or above 1 000 ft AGL.

(5) An NVIS operation mentioned in subsection (4) may be conducted below 1 000 ft AGL only if it is:

(a) operationally necessary; and

(b) conducted at or above 500 ft AGL; and

(c) the subject of a detailed risk assessment given to CASA; and

(d) conducted by an operator who holds a CASA approval under regulation 91.045.

(6) 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.

(7) 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.

3.10 Weather requirements — cloud

(1) The pilot in command of an aircraft for an NVIS operation must comply with 1 of the following for the operation:

(a) the in-flight cloud requirements set out in Table 3.10 (1) of this MOS;

(b) the in-flight cloud requirements approved by CASA under subsection (3).

(2) For Table 3.10 (1), for an NVIS aircraft 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.

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Table 3.10 (1) — In-flight cloud requirements

	Column 1	Column 2	Column 3
Item	**NVIS aircraft and crew**	**Kind of NVIS flight for the NVIS operation**	**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 3.02, 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:

(a) operationally necessary; and

(b) the subject of a detailed risk assessment given to CASA; and

(c) approved by CASA under regulation 91.045.

(4) If:

(a) an NVIS operation is NVFR capable; but

(b) the NVIS crew is only a single NVIS pilot;

then the NVIS pilot must comply with night VFR weather minima.

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CHAPTER 4 ALL FLIGHTS — AIRSPEED LIMITS

4.01 Purpose

For subregulation 91.090 (1), this Chapter prescribes the airspeed limits for a flight.

Note Other sections of this MOS include references to speeds: see section 2.02 (specified aircraft performance category), section 2.07 (VMC criteria) and section 14.09 (instrument approach operational requirements).

4.02 Flight to be within indicated airspeed limits

Subject to this section, if an aircraft is flown:

(a) in the airspace mentioned in an item of column 1 in Table 4.02 (1); and

(b) under the flight rules mentioned in the same item of column 2;

then the pilot in command must ensure that the aircraft is flown at not more than the maximum indicated airspeed limits (if any) mentioned in the same item of column 3, unless the requirements of aviation safety require otherwise.

Table 4.02 (1) — Airspeed limits

	Column 1	**Column 2**	**Column 3**
Item	**Class of airspace**	**Flight rules**	**Maximum indicated airspeed**
1	Class C	VFR	Below 10 000 ft AMSL — 250 kts.
2	Class D	IFR or VFR	Either: (a) unless paragraph (b) applies — 250 kts; or (b) unless paragraph (c) or (d) applies, if authorised by ATC in response to the pilot in command declaring a higher speed is an operational requirement — no limiting speed; or (c) unless paragraph (d) applies, when at or below 2 500 ft above aerodrome elevation and within 4 NM of the primary aerodrome in that airspace — 200 kts; or (d) if authorised by ATC, when at or below 2 500 ft above aerodrome elevation and within 4 NM of the primary aerodrome in that airspace — 250 kts.
3	Class G and E	IFR or VFR	Below 10 000 ft AMSL — 250 kts.

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CHAPTER 5 JOURNEY LOGS — FLIGHTS THAT BEGIN OR END OUTSIDE AUSTRALIAN TERRITORY

5.01 Purpose

(1) For paragraph 91.120 (2) (a), this Chapter prescribes requirements relating to maintaining a journey log for a flight of an aircraft that begins or ends at an aerodrome outside Australian territory (an ***international flight***).

(2) In this Chapter, the expression ***journey log*** includes a general declaration or other document provided that it:

(a) contains the information required for a journey log: and

(b) is carried on the flight.

Note Under ICAO Annex 9, a general declaration may be a substitute for a journey log provided that it contains the information required for a journey log.

5.02 Journey log information before an international flight begins

(1) The information mentioned in subsection (2) must be recorded in the journey log before an international flight begins.

(2) The information is the following:

(a) the aircraft registration mark or flight number (if any);

(b) the date of the flight;

(c) for each crew member assigned to the flight:

(i) the crew member's name; and

(ii) the duties assigned to the crew member for the flight;

(d) the place of departure for the flight;

(e) the amount of fuel added to the aircraft's fuel tanks before the flight begins (if any);

(f) the amount of fuel in the aircraft's fuel tanks when the flight begins.

5.03 Journey log information after an international flight ends

(1) The information mentioned in subsection (2) must be recorded in the journey log as soon as practicable after an international flight ends.

(2) The information is the following:

(a) the place of arrival;

(b) the time the flight began;

(c) the time the flight ended;

(d) the duration of the flight;

(e) the amount of fuel in the aircraft's fuel tanks when the flight began;

(f) the amount of fuel in the aircraft's fuel tanks when the flight ended;

(g) incidents and observations (if any) that may have been relevant in any way to the safety of the flight.

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CHAPTER 6 FLYING IN FORMATION

6.01 Purpose

For subregulation 91.205 (1A), this Chapter prescribes the requirements if the pilot in command of an aircraft for a flight is not to be in contravention of subregulation 91.205 (1).

Note The pilot in command of an aircraft for a flight otherwise contravenes subregulation 91.205 (1) if, during the flight, the aircraft is flying in formation, and the pilot has not a prearranged with each pilot in command of the other aircraft making up the formation to fly as part of the formation.

6.02 Gliders

For section 6.01:

(a) the aircraft must be a glider; and

Note The various forms of glider for this purpose are defined in the CASR Dictionary.

(b) the glider must be engaged in a soaring flight; and

(c) the glider must be flying with 1 or more other gliders in a thermal.

Note Such flight constitutes a formation.

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CHAPTER 7 FLIGHT PREPARATION (WEATHER ASSESSMENTS) REQUIREMENTS

7.01 Purpose

For subregulation 91.230 (1), this Chapter prescribes requirements relating to flight preparation and weather assessments (the ***flight preparation (weather assessments) requirements***).

7.02 Forecasts for flight planning

(1) Subject to subsection (1A), before commencing a flight, the pilot in command must study:

(a) authorised weather forecasts and authorised weather reports for:

(i) the route to be flown; and

(ii) the departure aerodrome, the planned destination aerodrome and any planned alternate aerodrome; and

Note See also subsection 8.04 (3).

(b) any other reasonably available weather information that is relevant to the intended operation.

(1A) If the information mentioned in paragraph (1) (a) is studied more than 1 hour before commencing the flight, the pilot in command must obtain, and review, an update to that information before the flight begins.

(2) For subparagraph (1) (a) (i), the authorised weather forecasts are as follows:

(a) 1 of the following:

(i) for an operation at or below 10 000 ft AMSL — a GAF or a GAMET area forecast;

(ii) for an operation above 10 000 ft AMSL — a SIGWX forecast;

(iii) for any operation — a flight forecast;

(b) a wind and temperature forecast.

(3) An authorised weather forecast used to satisfy the requirement under subparagraph (1) (a) (i) must cover the whole period of the flight for which it is to be used.

(4) For subparagraph (1) (a) (ii), for an IFR flight to a planned destination aerodrome with an IAP that a pilot is able to conduct, the authorised weather forecasts for the planned destination aerodrome and any planned alternate aerodromes must be an aerodrome forecast or an ICAO landing forecast.

(5) For subparagraph (1) (a) (ii), for an IFR flight to a planned destination aerodrome without an IAP, or with 1 or more IAPs none of which a pilot is able to conduct, the authorised weather forecasts must be the following:

(a) for the planned destination aerodrome — an aerodrome forecast, an ICAO landing forecast, or a GAF or a GAMET area forecast;

(b) for any planned alternate aerodrome — an aerodrome forecast or an ICAO landing forecast.

(5A) However, subsections (4) and (5) do not apply if the IFR flight is a Part 121 operation.

(6) An authorised weather forecast used to satisfy the requirement under subparagraph (1) (a) (ii) must be valid for at least 30 minutes before, and 60 minutes after, the planned ETA.

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7.03 Flights unable to obtain an authorised weather forecast before departure

(1) Despite subsection 7.02 (1), an aircraft may commence a flight if:

(a) an authorised weather forecast or an authorised weather report for the flight is not available; and

(b) the pilot in command reasonably considers that the weather conditions at the departure aerodrome will permit the aircraft to return and land safely at the departure aerodrome within 1 hour after take-off.

(2) The pilot in command of a flight mentioned in subsection (1) (other than a flight that is a Part 121 operation) must return to the departure aerodrome if:

(a) the authorised weather forecast required for the planned destination aerodrome is not obtained within 30 minutes after take-off; and

(b) the pilot in command has not nominated a destination alternate aerodrome if required to do so by subsection 8.04 (3).

(3) The pilot in command of a flight that is a Part 121 operation must return to the departure aerodrome if the authorised weather forecasts required to satisfy the requirements under regulation 121.170 of CASR (Flight preparation (Part 121 alternate aerodromes) requirements) are not obtained within 30 minutes after take-off.

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CHAPTER 8 FLIGHT PREPARATION (ALTERNATE AERODROMES) REQUIREMENTS

Division 8.1 Purpose and definitions

8.01 Purpose

For subregulation 91.235 (1), this Chapter prescribes requirements relating to flight preparation and alternate aerodromes (the ***flight preparation (alternate aerodrome) requirements***).

8.02 Definition of *relevant weather conditions*

(1) Subject to subsection (2), in this Chapter:

relevant weather conditions means the following weather conditions:

(a) for cloud — more than SCT below the alternate minima;

Note For alternate minima see section 8.08.

(b) for visibility — either:

(i) less than the alternate minima; or

(ii) equal to or more than the alternate minima but with a forecast of at least a 30% probability of fog, mist, dust or any other phenomenon restricting visibility below the alternate minima;

(c) for wind — a headwind, crosswind or downwind component more than the maximum for the aircraft;

(d) a thunderstorm or associated severe turbulence, or a forecast of at least a 30% probability of such an event.

(2) If flight planning for a flight is based on 1 of the following:

(a) a TAF3, where the ETA of the flight is within the first 3 hours of the TAF3 validity period (but not if that ETA falls outside the end time (if any) specified for the TAF3 service);

(b) an ICAO landing forecast;

then the definition in subsection (1) may be read as if there were no mention of probabilities in subparagraph (1) (b) (ii) and paragraph (1) (d).

8.03 Definition of *relevant IAP*

(1) In this Chapter:

relevant IAP for an aerodrome outside Australian territory is the IAP that the pilot in command of an aircraft determines has the second lowest minimum altitude of the IAPs that the aircraft is able to conduct at the aerodrome (***conductible IAPs***).

(2) For subsection (1), in determining which conductible IAP has the second lowest minimum altitude, the pilot in command must comply with the following constraints:

(a) the conductible IAPs that may be considered in determining the IAP with the lowest, and hence the second lowest, minimum altitudes must not both require use of the same radio navigation aid;

Note ***Radio navigation aid*** is a defined term in the CASR Dictionary. An example of this mandatory constraint is an aerodrome that has the following IAPs to a specific runway (from lowest to highest minimum altitude): an ILS with CAT I and CAT II minima that both require the use of a non-associated DME; a VOR that uses the same DME as the ILS; a GNSS with LNAV minima; and an NDB. The CAT II minima cannot be used and, therefore, cannot be the lowest

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minimum altitude and VOR could not be considered to have the second lowest minimum altitude as it shares a required radio navigation aid with the ILS (namely, the same DME).

(b) CAT II and CAT III minimum altitudes must not be used in determining altitudes for the relevant IAP.

Division 8.2 Destination alternate aerodromes

8.04 Destination alternate aerodromes — weather

(1) Subject to subsection (2), the pilot in command of an aircraft must nominate a destination alternate aerodrome if the ETA at the planned destination aerodrome is during the period that:

(a) begins 30 minutes before the forecast commencement of relevant weather conditions at the planned destination aerodrome; and

(b) ends 30 minutes after the forecast ending of relevant weather conditions.

Note For relevant weather conditions, see section 8.02.

(2) If:

(a) flight planning is based on a TAF3; and

(b) the ETA at the planned destination aerodrome:

(i) is within the first 3 hours of the TAF3 validity; and

(ii) does not fall outside the end time (if any) specified for the TAF3 service;

then the pilot in command of an aircraft must nominate a destination alternate aerodrome if the ETA is during the period that:

(c) begins at the forecast commencement of relevant weather conditions at the planned destination aerodrome; and

(d) ends at the forecast ending of the relevant weather conditions.

(3) If the forecast for the planned destination aerodrome required by subparagraph 7.02 (1) (a) (ii) is not available then the pilot in command of an aircraft must nominate a destination alternate aerodrome.

(4) Subsections (1) and (2) do not apply if the pilot in command is operating an aircraft under the VFR by day within 50 NM of the departure aerodrome.

(5) Subsections (1) and (2) do not apply if:

(a) relevant weather conditions exist; and

(b) the pilot in command ensures that sufficient fuel is carried to permit the aircraft to hold at the planned destination aerodrome until the end of the period mentioned in subsection (1) or (2), as the case requires.

(6) Subsections (1) and (2) do not apply if:

(a) relevant weather conditions are forecast to occur on an intermittent or temporary basis; and

(b) the pilot in command ensures that sufficient fuel is carried to permit the aircraft to hold for:

(i) 30 minutes — when the forecast is based on a change indicator of INTER; or

(ii) 60 minutes — when the forecast is based on a change indicator of TEMPO.

(7) For subsection (6), if a forecast contains multiple change indicators of INTER or TEMPO, the fuel for holding that is required under paragraph (6) (b) must be that for the most limiting requirement.

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(8) For subsections (1) and (2), if a forecast includes the change indicator BECMG:

(a) where the weather conditions within the BECMG element of the forecast represent a deterioration in any of the weather elements within the preceding element of the forecast — the change indication is to be applied from the start of the forecast BECMG period; and

(b) where the weather conditions within the BECMG element of the forecast represent an improvement in all of the weather elements within the preceding elements of the forecast — the change indication is to be applied from the end of the forecast BECMG period.

8.05 Destination alternate aerodromes — navigation

(1) The pilot in command of an aircraft must nominate a destination alternate aerodrome if a flight is an IFR flight by night to a planned destination aerodrome that is:

(a) not served by an IAP; or

(b) is served by 1 or more IAPs none of which the pilot in command is able to conduct.

(2) For a VFR flight by night, the pilot in command must nominate a destination alternate aerodrome that is within 1 hour's flight time of the planned destination aerodrome:

(a) unless:

(i) the planned destination aerodrome is served by a ground-based radio navigation aid; and

(ii) the aircraft is fitted with the appropriate radio navigation system capable of using the aid; and

(iii) the pilot in command is competent in using the aid; or

(b) unless:

(i) the aircraft is fitted with an approved GNSS; and

(ii) the pilot in command is competent in using the GNSS.

(3) If aircraft navigation is to be conducted using a GNSS receiver certified only to (E)TSO C-129, navigation to a destination alternate aerodrome must be planned using a navigation system other than GNSS.

8.06 Destination alternate aerodromes — aerodrome lighting

(1) If a flight is planned to land at night at an aerodrome that only has portable runway lighting, the pilot in command of an aircraft must nominate a destination alternate aerodrome unless reliable arrangements have been made for a qualified and responsible person to:

(a) attend the aerodrome during the period beginning at least 30 minutes before the ETA, and ending on completion of the aircraft's landing and taxiing (the ***landing period***); and

(b) display the portable lighting.

(2) If a flight is planned to land at night at an aerodrome with electric runway lighting, but without standby power, the pilot in command must nominate a destination alternate aerodrome unless:

(a) portable runway lights are available; and

(b) reliable arrangements have been made for a qualified and responsible person to:

(i) attend the aerodrome during the landing period; and

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(ii) display the portable lighting in the event of a failure of the electric runway lighting.

(3) If a flight is planned to land at night at an aerodrome with PAL, the pilot in command must nominate a destination alternate aerodrome unless reliable arrangements have been made for a qualified and responsible person to:

(a) attend the aerodrome during the landing period; and

(b) manually switch on the runway lighting in the event of a failure of the PAL.

(4) The pilot in command of an aircraft fitted with a single VHF radiocommunication system may only nominate an aerodrome with PAL as a destination alternate aerodrome if:

(a) reliable arrangements have been made for a qualified and responsible person to be in attendance to manually switch on the aerodrome lighting; and

(b) the aircraft has:

(i) a HF radiocommunication system; and

(ii) 30 minutes of holding fuel.

Note There is no requirement for a responsible person to be in attendance on the ground. The requirement for holding fuel will allow ground staff to be alerted in the event of a failure of the aircraft's VHF radiocommunication system.

(5) Subsections (1) to (4) do not apply if the pilot in command ensures that sufficient fuel is carried to permit the aircraft to hold until first-light plus 10 minutes.

(6) A destination alternate aerodrome nominated in accordance with subsection (2) or (3) is not required to have standby power or portable runway lighting.

(7) In this section:

qualified, for a responsible person, means a person who is instructed in, and is competent to display, the standard runway lighting with portable lights.

8.07 Destination alternate aerodromes — restrictions

The pilot in command of an aircraft may nominate an aerodrome as a destination alternate aerodrome only if the aerodrome is:

(a) suitable as a planned destination aerodrome for the flight; and

(b) not itself an aerodrome for which the aircraft would require a destination alternate aerodrome; and

(c) not a helideck.

8.08 Alternate minima — Australian aerodromes

(1) For Table 8.08 (1), for a type of aircraft mentioned in an item of column 1, conducting the type of operation mentioned in the same item of column 2, the alternate minima for an aerodrome in Australian territory are those mentioned in the same item of column 3 (for altitude) and column 4 (for visibility), subject to any conditions mentioned in the same item of column 5.

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Table 8.08 (1) Alternate minima at Australian aerodromes

	Column 1	Column 2	Column 3	Column 4	Column 5
Item	**Type of aircraft**	**Type of operation**	**Altitude**	**Visibility**	**Conditions**
1	Aeroplane or rotorcraft	IFR to aerodrome with an IAP the pilot is able to conduct	The alternate minima published on the instrument approach chart	The alternate minima published on the instrument approach chart	
2	Aeroplane or rotorcraft	(a) Day IFR to an aerodrome not served by an IAP; or (b) Day IFR to an aerodrome served by 1 or more IAPs none of which the pilot is able to conduct	LSALT for the final route segment plus 500 ft	8 km	*Note* See subsection 8.05 (1) for night IFR requirements
3	Aeroplane	Day VFR and night VFR	1 500 ft	8 km	
4	Rotorcraft	Day VFR	1 000 ft	3 km	Only for aerodromes in Class G airspace
		Day VFR and night VFR	1 500 ft	8 km	Only for aerodromes in airspace other than Class G airspace
		Night VFR	1 500 ft	8 km	

(2) Subject to subsection (3), special alternate minima are only available for operations by aircraft with the following:

(a) at least 2 localiser and glideslope receiving systems;

(b) at least 2 VOR receiving systems;

(c) at least 1 of the following combinations of distance measuring systems:

(i) 2 DME systems;

(ii) 2 GNSS;

(iii) 1 DME system and 1 GNSS.

(3) Special alternate minima must not be used in any of the following circumstances:

(a) when an aerodrome control service is not provided;

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(b) when an authorised weather forecast or authorised weather report is not available for the aerodrome;

(c) when ground equipment associated with the approach aid has been continuously unserviceable for more than 7 days and continues to be unserviceable.

Note In the circumstance mentioned in paragraph (c), the non-availability of special alternate minima will be published in NOTAM.

8.09 Alternate minima — at foreign aerodromes

(1) Subject to subsection (2), the alternate minima for an aerodrome outside Australian territory (the ***relevant aerodrome***) are whichever 1 of the following provides the highest minima:

(a) the official alternate minima published in the State in which the aerodrome is located (the ***relevant State***);

(b) the circling minima for the aerodrome, plus:

(i) a cloud ceiling increment of 500 ft; and

(ii) a visibility increment of 2 km;

(c) the landing minima of the relevant IAP, plus the following:

(i) where the relevant State increments are published — those increments;

(ii) where relevant State increments are not published, or if the availability or reliability of the approach aid is doubtful:

(A) a cloud ceiling increment of 500 ft; and

(B) a visibility increment of 2 km;

(d) if the determination of the relevant IAP is based entirely on the minimum altitudes of precision approach procedures:

(i) a cloud ceiling of 400 ft; and

(ii) a visibility of 1 600 m;

(e) if the determination of the relevant IAP is not based entirely on the minimum altitudes of precision approach procedures:

(i) a cloud ceiling of 800 ft; and

(ii) visibility of 3 000 m.

(2) If:

(a) the aerodrome has straight-in procedures to a runway that are not suitable for the operation; and

(b) circling is permitted;

then the alternate minima must not be lower than that derived from paragraph (1) (b).

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CHAPTER 9 FLIGHT NOTIFICATIONS

9.01 Purpose

For subregulation 91.240 (1), this Chapter prescribes requirements relating to flight notifications (***flight notification requirements***).

Note Different requirements in this Chapter apply either before a flight, during a flight, or after a flight.

9.02 Flight notification requirements

(1) If a flight is 1 of the following:

(a) an IFR flight;

(b) a VFR flight in Class C or Class D airspace;

then the pilot in command must submit a flight plan in accordance with procedures published in the authorised aeronautical information.

(2) If a VFR flight is 1 of the following:

(a) a flight conducting an air transport operation;

(b) a flight over water that is conducted beyond a distance from land greater than that which would allow the aircraft to reach land with an engine inoperative;

(c) a flight in a designated remote area;

(d) a flight at night proceeding beyond 120 NM from the aerodrome of departure;

then the pilot in command must ensure that, in accordance with procedures published in authorised aeronautical information, 1 of the following has occurred:

(e) the submission of a flight plan;

(f) the nomination of a SARTIME for arrival;

(g) the leaving of a flight note with a responsible person.

Note See section 9.05 for ***responsible person***.

(3) If a VFR flight is a community service flight, the pilot in command must submit a flight plan or nominate a SARTIME for arrival in accordance with procedures published in authorised aeronautical information.

Note The fact that a flight is not one mentioned in subsection (1), (2) or (3), does not prevent the pilot in command from submitting a flight plan, nominating a SARTIME, or leaving a flight note with a responsible person. However, if a flight plan is submitted, a SARTIME is nominated or a flight note is left with a responsible person, sections 9.03, 9.04 and 9.05 apply.

9.03 Changes to flight plans and SARTIME nominations

(1) The pilot in command of an aircraft for a flight where a flight plan has been submitted must ensure that ATS is notified of changes in any of the following:

(a) the aircraft callsign or registration;

(b) the flight rules under which the flight will be operating;

(c) serviceability of the equipment that, as stated in the flight plan, is carried on board;

(d) the planned departure time (but only if changed by more than 30 minutes);

(e) the route, landing points and destination alternate aerodromes;

(f) the cruising level;

(g) the cruising speed;

(h) the number of POB (except for a flight that is an Australian air transport operation).

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(2) The pilot in command of an aircraft for a flight where a SARTIME has been nominated must ensure that ATS is notified of changes in any of the following:

(a) the aircraft callsign or registration;

(b) the planned departure time (but only if changed by more than 30 minutes);

(c) the route, landing points and destination alternate aerodromes;

(d) the SARTIME.

9.04 Cancelling SARTIME

The pilot in command of an aircraft for a flight where a SARTIME has been nominated must ensure that the SARTIME is cancelled not later than the time nominated.

9.05 Responsible persons for receipt of a flight note

(1) In this Chapter, a responsible person for the receipt of a flight note must meet the requirements mentioned in subsection (2).

(2) For subsection (1), the responsible person must:

(a) be over the age of 18 years; and

(b) have access to at least 2 operative and appropriate means of communicating with a search and rescue service; and

Note For example, 2 telephones or a telephone and a radio transmitter etc.

(c) satisfy the pilot in command that the person:

(i) knows how to contact JRCC Australia; and

(ii) will immediately do so in the event that the pilot in command's flight is overdue.

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CHAPTER 10 MATTERS TO BE CHECKED BEFORE TAKE-OFF

10.01 Purpose

For subregulation 91.245 (1), this Chapter prescribes the checks to be carried out before take-off.

10.02 Matters to be checked before take-off

The prescribed checks are the following:

(a) a check to confirm that each aerodrome, air route and airway facility that the pilot plans to use for the flight will be available for use;

(b) a check of the following:

(i) all Head Office and FIR NOTAMs applicable to the en route phase of the flight;

(ii) all location-specific NOTAMs for relevant aerodromes;

(c) a check to confirm the availability of GNSS integrity if required by section 11.03 or 14.06;

(d) a check to confirm that:

(i) all equipment required to be fitted to, or carried on, the aircraft by or under the civil aviation legislation is available and functioning properly; and

(ii) emergency and survival equipment carried on the aircraft is readily accessible;

(e) a check to confirm that each crew member is fit to perform the crew member's duties;

(f) a check to confirm that:

(i) the aircraft's hatches, access ports, panels and fuel tank caps are secured; and

(ii) the control locks, covers and ground safety devices and restraints have been removed;

(g) if the aircraft is an Australian aircraft — a check to confirm that there is either:

(i) a certificate of release to service for the most recent maintenance carried out on the aircraft; or

(ii) a maintenance release for the aircraft;

(h) a check to confirm that the aircraft's flight controls have been tested and are functioning correctly;

(i) for each system fitted to the aircraft for measuring and displaying pressure altitude, a check of the system's accuracy in accordance with the procedures mentioned in this Chapter;

(j) if an amount of supplemental oxygen or protective breathing equipment is required by or under the civil aviation legislation to be carried on the aircraft for a flight crew member for the flight — checks to ensure the following (as the case requires):

(i) that the required amount of supplemental oxygen is available;

(ii) that the protective breathing equipment is operative;

(iii) that the oxygen mask is connected to the supply terminal;

(iv) that each communication system associated with the oxygen mask is operative;

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(v) if the oxygen mask is adjustable — that the mask fits the flight crew member correctly.

10.03 Checking systems for measuring and displaying pressure altitude — general

(1) For paragraph 10.02 (i), this section sets out the requirements for checking aircraft systems for measuring and displaying pressure altitude (***pressure altitude systems***).

(2) If:

(a) an aircraft is at a known elevation (the ***site elevation***); and

(b) an accurate QNH is available;

then, before take-off, the pilot in command of the aircraft must check the accuracy of each of the aircraft's pressure altitude systems in accordance with this section.

Note For accurate QNH and site elevation — see section 10.06.

10.04 Checking pressure altitude systems — IFR flight

(1) The pilot in command of an IFR flight must consider any pressure altitude system with an error in excess of ±75 ft to be inoperative for the flight.

(2) If 2 pressure altitude systems are required for the category of operation, then:

(a) at least 1 system (the ***first system***) must read the site elevation to within 60 ft; and

(b) if the other system (the ***second system***) has an error between 60 ft and 75 ft — the pilot in command may conduct a flight to the first point of landing where the accuracy of the second system can be rechecked; and

(c) if, on rechecking, the second system shows an error in excess of 60 ft — the pilot in command must consider the second system to be inoperative for further IFR flight.

(3) If 1 pressure altitude system is required for the category of operation, but 2 are fitted, then:

(a) the pilot in command is permitted to conduct a flight if at least 1 system (the ***first system***) reads the site elevation to within 60 ft; and

(b) if the other system (the ***second system***) has an error in excess of 75 ft — the pilot in command must consider the second system to be inoperative for further IFR flight.

(4) If 1 pressure altitude system is required for the category of operation, and 1 is fitted, then:

(a) if the system has an error between 60 ft and 75 ft — the pilot in command is permitted to conduct a flight to the first point of landing where the accuracy of the system can be rechecked; and

(b) if, on rechecking, the system shows an error in excess of 60 ft — the pilot in command must consider the system to be inoperative for further IFR flight.

10.05 Checking pressure altitude systems — VFR flight

(1) A pressure altitude system with an accurate QNH is operative for a VFR flight only if the system reads site elevation to within:

(a) 100 ft; or

(b) at test sites above 3 300 ft — 110 ft.

(2) If an aircraft that is fitted with 2 pressure altitude systems continues to conduct a flight under the VFR with 1 of the systems erroneously reading more than 100 ft (or 110 ft

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as the case may be), the pilot in command must consider the erroneous system to be inoperative for further VFR flight.

(3) For an aeroplane operation conducted under the VFR involving flight above FL 200, the pressure altitude system used must be checked against the accuracy requirements for such system usage under the IFR.

10.06 Accurate QNH and site elevation

(1) In this Chapter, a QNH is to be considered accurate only if it is provided by 1 of the following:

(a) AAIS;

(b) ATC;

(c) ATIS;

(d) AWIS;

(e) CA/GRS;

(f) WATIR.

(2) QNH contained in an authorised weather forecast must not be used for checking the accuracy of a pressure altitude system.

(3) Site elevation must be derived from aerodrome survey data that is:

(a) authorised in writing (as the case requires):

(i) by CASA; or

(ii) by an NAA; or

(b) supplied in writing by the relevant aerodrome operator.

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CHAPTER 11 AIR TRAFFIC SERVICES — PRESCRIBED REQUIREMENTS

Division 11.1 Use of a class of airspace

11.01 Purpose and definition

(1) For subregulation 91.255 (1), this Division prescribes requirements in relation to the use by an aircraft of a class of airspace or a portion of a class of airspace.

(2) In this Division:

oceanic airspace means:

(a) for any airspace within an Australian FIR — the airspace within the lateral boundaries of an oceanic control area described in the AIP; or

(b) for any airspace not within an Australian FIR — the airspace:

(i) described by the relevant NAA as an oceanic control area; or

(ii) if subparagraph (i) does not apply — within an area, predominantly over an ocean or sea, where aircraft are unlikely to maintain VHF radiocommunications with an air traffic service.

Note The effect of subsection (2) is that the vertical limits of an oceanic control area have no relevance to the definition of ***oceanic airspace*** within an Australian FIR. At the commencement of this instrument, the AIP document describing the geographic boundaries of oceanic control areas is the Designated Airspace Handbook.

11.02 Transition altitude, transition layer and transition level

(1) This section applies to a flight using any class of airspace, whether controlled or uncontrolled, that is within an Australian FIR.

(2) The transition altitude is 10 000 ft.

(3) The transition level is as set out in Table 11.02 (3), so that for an area QNH mentioned in an item of column 1, the transition level is that mentioned in the same item of column 2.

Table 11.02 (3) — Transition level

	Column 1	**Column 2**
Item	**Area QNH**	**Transition level**
1	Equal to, or greater than, 1 013.2 hPa	FL 110
2	At least 997 hPa but less than 1 013.2 hPa	FL 115
3	At least 980 hPa but less than 997 hPa	FL 120
4	At least 963 hPa but less than 980 hPa	FL 125
5	Less than 963 hPa	FL 130

Note The intention is to retain a minimum buffer of 1 000 ft above the transition altitude.

(4) The pilot in command must not cruise within the transition layer.

(5) For an operation at or below the transition altitude, the pilot in command must use the following altimeter setting:

(a) the current local QNH (either an accurate QNH as defined in section 10.06 or a forecast QNH) of a station along the route within 100 NM of the aircraft; or

(b) if the current local QNH is not known — the current area forecast QNH.

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(6) For an operation above the transition altitude, the pilot in command must use an altimeter setting of 1 013.2 hPa.

(7) On climb, the pilot in command must change between QNH and 1 013.2 hPa after passing 10 000 ft and before levelling off.

(8) On descent, the pilot in command must change between 1 013.2 hPa and the QNH before entering the transition layer.

11.03 Oceanic airspace

(1) This section applies to a flight in any class of airspace that is oceanic airspace.

Note ***Oceanic airspace*** is defined in section 11.01. At the commencement of this instrument, the AIP document specifying the geographic boundaries of oceanic control areas is the Designated Airspace Handbook.

(1A) In this subsection:

INS means inertial navigation system.

IRS means inertial reference system.

long range navigation system, or ***LRNS***, means a navigation system, capable of area navigation in oceanic airspace, that comprises an INS, or an IRS, or an approved GNSS position source.

(1B) The pilot in command of an aircraft that has been declared in a flight plan as capable of navigating to a navigation specification that is RNP 2, RNP 4 or RNP 10 must, immediately before entering oceanic airspace, ensure that a check has been completed that the aircraft has at least 2 independent and operative LRNSs capable of navigating to the required navigation specification (***capable LRNS***).

Note The requirements of this subsection do not override the minimum navigation system equipment requirements required by the Part 91, Part 121, Part 133 or Part 135 Manual of Standards.

(1C) If, as a result of the check mentioned in subsection (1B), the number of capable LRNSs is less than 2, the pilot in command of the aircraft must ensure that ATS is notified of the situation as soon as practicable.

(2) Before the departure of a flight planned to operate in oceanic airspace using GNSS, the pilot in command must obtain a prediction for GNSS FDE availability for the intended route.

(3) For subsection (2), the pilot in command must plan so that the maximum predicted duration of the loss of GNSS FDE availability is not more than:

(a) for an RNP-4 operation — 25 minutes; or

(b) for an RNP-10 operation — 34 minutes.

(4) The pilot in command of an aircraft whose approved GNSS can achieve LNAV accuracy of less than 0.3 NM using requisite GNSS satellites may disregard subsections (2) and (3).

Note ***Requisite GNSS satellites*** is defined in section 1.07.

11.04 Loss of GNSS integrity

(1) This section applies to a flight in any class of airspace, whether controlled or uncontrolled:

(a) that is within an Australian FIR; and

(b) for which the flight is:

(i) required to maintain regular contact with an ATS; or

(ii) being provided with a separation service by an ATS.

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Note Regulation 91.630 requires certain flights to make regular reports or broadcasts to an ATS. Regulation 91.635 requires certain flights to continuously monitor the primary communications medium used by ATC in controlled airspace.

(2) The pilot in command of an aircraft must advise ATS if any of the following occurs:

(a) during an en route phase of flight — there is RAIM loss or loss of GNSS integrity for more than 5 minutes;

(b) during a terminal phase of flight — there is RAIM loss or loss of GNSS integrity;

(c) when ATS requests the provision of GNSS-derived information — RAIM or GNSS integrity is not available;

(d) when ATS grants a clearance or imposes a requirement based on GNSS-derived information — RAIM or GNSS integrity is not available;

(e) the GNSS receiver is in dead-reckoning mode, or experiences loss of its navigation function, for more than 1 minute.

(3) If a pilot has notified ATS of a RAIM loss or loss of GNSS integrity in accordance with subsection (2), the pilot must notify ATS when RAIM or GNSS integrity is restored.

11.05 Use and supply of distance information

(1) This section applies to a flight using any class of airspace, whether controlled or uncontrolled, that is within an Australian FIR.

(2) When supplying distance information requested by the ATS, the pilot in command must be satisfied that ATS is aware of the source and the point of reference of the distance measurement.

Note Here are examples of source and the point of reference: 115 GNSS ML VOR, 80 GNSS CTM NDB, 267 GNSS BEEZA 86 DME BN.

(3) When supplying GNSS-derived distance information, the pilot in command must ensure that the information is obtained:

(a) from an approved GNSS; and

(b) by reference to data from a valid database.

11.06 ACAS resolution advisory

In any class of airspace, whether controlled or uncontrolled, in the event of an ACAS resolution advisory (an ***RA***), the pilot in command of an aircraft must:

(a) respond immediately by following the RA as indicated, unless doing so would jeopardize the safety of the aircraft; and

(b) follow the RA even if there is a conflict between the RA and an ATC instruction to manoeuvre; and

(c) limit the alterations of the flight path to the minimum extent necessary to comply with the RA; and

(d) promptly return to the last assigned level when the conflict is resolved; and

(e) notify ATC when returning to the last assigned level.

Note When this section is complied with, an RA satisfies the requirements of subregulation 91.257 (2) that is, it is a defence to the offence of failing to comply with an ATC clearance or instruction.

11.07 RVSM airspace

(1) This section applies to a pilot in command of an aircraft conducting a flight in a class of airspace that is RVSM airspace.

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(2) The pilot in command must conduct the flight in accordance with procedures published in the authorised aeronautical information.

(3) When changing levels in RVSM airspace in an Australian FIR, the pilot in command must ensure that the aircraft does not overshoot or undershoot its cleared FL by more than 150 ft.

(4) If the cleared FL cannot be maintained, the pilot in command must:

(a) inform ATC as soon as possible of the circumstances; and

(b) either:

(i) obtain a revised ATC clearance (a ***revised clearance***) before initiating any deviation from the cleared route or FL (the ***deviation***); or

(ii) if a revised clearance cannot be obtained before the deviation, obtain a revised clearance as soon as possible after the deviation.

(5) If it is not possible to obtain a revised clearance for an operation within RVSM airspace in an oceanic control area in an Australian FIR, the pilot in command may initiate a temporary lateral offset procedure with the intention of returning to the cleared route as soon as possible.

11.08 Requirements for flight in the NAT-HLA

(1) This section applies to a flight in a portion of a class of airspace that is the NAT-HLA.

(2) The pilot in command of an Australian aircraft must not operate in the NAT-HLA unless the operator of the aircraft holds an approval under regulation 91.045 to conduct operations in the NAT-HLA.

(3) CASA must not issue an approval mentioned in subsection (2), unless:

(a) the aircraft meets all of the requirements for operational approval and aircraft systems for flight in the NAT-HLA as specified in NAT Doc 007, *North Atlantic Operations and Airspace Manual,* as in force from time to time; and

(b) evidence of meeting the requirements mentioned in paragraph (a) is contained in 1 or more of the following documents:

(i) the AFM;

(ii) an original equipment manufacturer service letter;

(iii) any other document from the entity responsible for the design approval of the equipment;

(iv) if the operator holds an AOC, an aerial work certificate or a Part 141 certificate:

(A) the operator's exposition, operations manual or AOC; or

(B) any other civil aviation authorisation held by the operator.

Note NAT Doc 007, *North Atlantic Operations and Airspace Manual* contains requirements relating to, but not limited to, flight rules, flight plans, communications, navigation (PBN), surveillance, air traffic service provision, safety monitoring, air traffic flow management, special procedures, phraseology, SAR, meteorology and aeronautical information services.

11.09 Performance-based communication and surveillance requirements

(1) This section applies to a flight of an aircraft within any class of airspace, whether it is controlled or uncontrolled, that involves:

(a) the conduct of datalink operations using FANS 1/A; and

(b) the declaration of RCP or RSP capabilities for the aircraft on the flight plan for the flight.

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(1A) In this section:

automatic dependent surveillance – contract, or ***ADS-C***, means a contract between ATC and an aircraft's system:

(a) for the reporting of aircraft position and other data via a datalink; and

(b) which specifies:

(i) under what conditions ADS-C reports are to be initiated; and

(ii) what data is to be contained in the reports.

communication services provider, or ***CSP***, means any public or private entity which, under a contract or agreement, provides communication services for general air traffic which may include services provided by a satellite service provider (***SSP***) or services provided by the CSP in its own capacity as an SSP.

controller-pilot datalink communications, or ***CPDLC***, is the means of communication between ATC and a pilot, using datalink for ATC communications.

datalink operations means aircraft operations using FANS 1/A avionics.

FANS 1/A, which is taken to include ***FANS 1/A+***, is a direct datalink communication between the pilot of an aircraft and ATC via FANS 1/A avionics and FANS 1/A ground end systems, based on EUROCAE ED-100A/RTCA DO-258A, or a later version, as in force from time to time.

performance-based communication, or ***PBC,*** means communication based on performance specifications applied to the provision of air traffic services.

performance-based communications and surveillance, or ***PBCS***, means the application of required communication performance (***RCP***) and required surveillance performance (***RSP***) specifications to ensure appropriate performance levels for relevant air traffic management operations.

performance-based surveillance, or ***PBS,*** means surveillance based on performance specifications applied to the provision of air traffic services.

RCP 240 is the value for the communication expiry time (namely, 240 seconds) after which the initiator of the communication is required to revert to an alternative procedure.

Note In the context of RCP, the initiator is normally an air traffic controller.

RCP allocation is a portion of an RCP parameter, and is a time value assigned to a specific component of the communication system used for transferring messages between aircraft and ATC.

RCP parameters are performance characteristics that:

(a) provide the basis for developing an RCP specification; and

(b) include RCP transaction time, RCP continuity, RCP availability and RCP integrity.

RCP pilot operational response time, or ***RCP PORT***, is an RCP allocation that specifies the maximum time for a flight crew member to recognise and respond to an ATC instruction.

required communication performance, or ***RCP specification***, means the requirements needed to support PBC, being requirements for the following:

(a) ATC and associated ground equipment;

(b) the communication service provider;

(c) aircraft equipment;

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(d) flight crew members.

required surveillance performance (RSP) specification means the requirements needed to support PBS, being requirements for the following:

(a) ATC and associated ground equipment;

(b) the communication service provider;

(c) aircraft equipment.

RSP 180 is the value for the surveillance data delivery time (namely, 180 seconds) at which the surveillance data delivery is considered overdue.

Note RSP 180 means that 99.9% of surveillance data must be delivered in less than 180 seconds.

RSP allocation is a portion of an RSP parameter and is a time value assigned to a specific component of the communication system used for transferring surveillance reports from aircraft to ATC.

RSP parameters are performance characteristics that:

(a) provide the basis for developing an RSP specification; and

(b) include RSP data delivery time, RSP continuity, RSP availability and RSP integrity.

satellite service provider, or ***SSP,*** means an entity, or group of entities, that provides the portion of the communication system that involves the operation of 1 or more satellites.

Flight plan declaration of capability

(2) Before declaring RCP 240 or RSP 180 capabilities on a flight plan, the pilot in command of the aircraft must:

(a) check with the operator of the aircraft whether the operator has received advice from Airservices Australia that the relevant aircraft has consistently not met the operational criteria of RCP 240 and RSP 180 specifications; and

(b) if such advice has been received — be reasonably satisfied that the operator of the aircraft has ensured that the aircraft consistently meets the operational criteria of the specifications.

Note Airservices Australia monitors datalink communications in Australian-administered airspace and advises when operational criteria of RCP 240 and RSP 180 specifications are consistently not met.

(3) A declaration must not be made on a flight plan, submitted to ATS for a flight, that the aircraft has RCP capability or RSP capability unless:

(a) the declaration relates solely to RCP 240 or RSP 180 capabilities; and

(b) the requirements of subsections (4) to (7) are complied with at the time of the declaration.

Note It is ultimately a matter for the relevant aviation authority to be satisfied that an aircraft operator's declaration is, in actual fact, valid for the relevant aircraft at the time of any declaration, audit or inspection. A false declaration would constitute an offence under regulation 11.255 of the *Civil Aviation Safety Regulations 1998* and could result in other legal consequences under the *Civil Aviation Act 1988*.

Equipment

(4) The aircraft must:

(a) be equipped with avionics supporting ADS-C and CPDLC applications over FANS 1/A (the ***equipment***); and

(b) the equipment must be operative for the flight.

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Aircraft documentation

(5) Subject to subsection (6), 1 of the following documents:

(a) the AFM;

(b) an original equipment manufacturer service letter;

(c) any other document from the entity responsible for the design approval of the aircraft datalink communications equipment;

must include a statement of compliance (an ***SOC***) indicating that:

(d) the aircraft system is approved for datalink communications using FANS 1/A avionics: and

(e) the aircraft datalink system meets the aircraft-allocated requirements of the RCP 240 and RSP 180 specifications.

(6) If a document mentioned in paragraph (5) (a), (b) or (c) does not include an SOC, the following may act as a temporary substitute pending the formal issue of the SOC, provided there has been no indication of non-compliance given by the State of Design — a copy of the aircraft operator's written and dated request to the appropriate design authority for an SOC which indicates the matters mentioned in paragraphs (5) (d) and (e).

Note Allocation requirements for RCP 240 and RSP 180 specifications are as defined in ICAO Doc 9869, *Performance-based Communications and Surveillance (PBCS) Manual*.

Communication service provider agreement

(7) Subject to subsection (8), the pilot in command must be reasonably satisfied that an agreement, or a relevant request under subsection (8), is in place between the aircraft operator and the CSP that includes the following terms and conditions:

(a) that there is adequate subnetwork coverage in the route flown;

(b) that there is to be notification of coverage and performance failures;

(c) that there is to be recording of datalink messages for 30 days;

(d) that datalink messages mentioned in paragraph (c) will be available on written request by:

(i) CASA; or

(ii) the national aviation authority responsible for the regulation of flight plans to whom the declaration of an RCP or RSP capability on the flight plan is made;

(e) that datalink messages will not be manipulated or altered;

(f) that network-allocated requirements for the RCP 240 and RSP 180 specification are met according to the definitions contained in ICAO Doc 9869, *Performance-based Communications and Surveillance (PBCS) Manual*.

(8) If the agreement between the operator of the aircraft and the CSP does not include the terms and conditions mentioned in subsection (7), the following may act as a temporary substitute pending the formal issue, as soon as practicable, of an agreement that does include the terms and conditions (a ***revised agreement***) — a copy of the relevant operator's written and dated request to the appropriate CSP for a revised agreement (the ***relevant request***).

11.10 Australian domestic airspace — inoperative radio requirements

(1) This section applies to a flight within any class of airspace, whether controlled or uncontrolled, that is within an Australian FIR and is not specified in the AIP as an oceanic control area.

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Note At the commencement of this instrument, the AIP document specifying the geographic boundaries of oceanic control areas is the Designated Airspace Handbook.

(2) If the radiocommunication system becomes inoperative during a flight, the pilot in command must do the following:

(a) if operating under the VFR in Class G or Class E airspace:

(i) select code 7600 on the aircraft transponder (if fitted); and

(ii) remain outside controlled airspace; and

(iii) assume the radiocommunication system is broadcasting and broadcast position and intentions on the frequency appropriate to the area of operation; and

(iv) as soon as practicable, descend below 5 000 ft to continue flight under the VFR;

(b) if operating under the VFR in Class A, B, C or D airspace or in a restricted area, or if operating under the IFR in any class of airspace whether controlled or uncontrolled:

(i) select code 7600 on the aircraft transponder (if fitted); and

(ii) assume the radiocommunication system is functioning and broadcast position and intentions on the frequency prescribed in the authorised aeronautical information; and

(iii) if the aircraft is in VMC and certain of maintaining VMC — remain in VMC and land at the most suitable aerodrome; and

(iv) if the aircraft is in IMC or is uncertain of maintaining VMC:

(A) maintain the last assigned altitude or level (or LSALT if higher) for 3 minutes; and

(B) maintain the last assigned vector for 2 minutes, or fly one more holding pattern; and

(C) after complying with sub-subparagraphs (A) and (B) — proceed in accordance with the latest ATC route clearance acknowledged; and

(D) commence descent in accordance with latest ATC route clearance acknowledged; and

(E) conduct the most suitable IAP.

11.10A Mandatory broadcast area requirements

(1) This section applies to the pilot in command of a flight in a mandatory broadcast area (an ***MBA***) mentioned in subsection (2).

(2) A volume of Class G airspace within the Australian FIR is an MBA if it is so specified in the AIP, as in force from time to time.

Note 1 At the commencement of this instrument, the AIP specifies which broadcast areas are mandatory broadcast areas and also the lateral and vertical boundaries of each MBA.

Note 2 This section contains MBA requirements **other than those** for the specific radio broadcasts or reports required to be made in relation to an MBA, or the radio carriage or fitment requirements for flight within an MBA. Radio broadcast and report requirements for an MBA are contained in section 21.09. Radio carriage or fitment requirements for an MBA are contained in section 26.18.

(3) For an MBA mentioned in an item of column 1 of Table 11.10A (3), the pilot in command must comply with the requirements mentioned in column 2 of the same item.

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Table 11.10A (3) — Mandatory Broadcast area requirements

	Column 1	Column 2
Item	**Mandatory Broadcast Area**	**Requirements**
1	Ayers Rock MBA	Nil
2	Ballina/Byron Gateway MBA	When an SFIS is active for this MBA, operations in the MBA, or immediately before entering the MBA, must be conducted in accordance with the AIP.
3	Port Hedland MBA	Nil

Division 11.2 Use of controlled aerodromes, control areas and control zones

11.11 Purpose

For subregulation 91.255 (1), this Division prescribes requirements in relation to the use by an aircraft of a controlled aerodrome, a control area or a control zone.

Note Regulation 91.405 also places certain requirements on the pilot in command in relation to operations conducted at controlled aerodromes.

11.12 Readback of ATC clearances and instructions

(1) This section applies to the pilot in command of an aircraft in relation to the use by the aircraft of a controlled aerodrome, a control area or a control zone.

(2) The pilot in command must:

(a) read back to an air traffic controller the safety-related parts of any ATC clearance or instruction which the controller has transmitted by voice (a ***relevant ATC clearance or instruction***); or

(b) ensure that another flight crew member (if any) does the reading back.

(3) Without affecting subsection (2), the following parts of a relevant ATC clearance or instruction must always be read back to the air traffic controller:

(a) ATC route clearances, including any amendments;

Note ATC route clearances include departure, en route, arrival and approach clearances.

(b) en route holding instructions;

(c) route and runway-holding positions specified in a taxi clearance;

(d) clearances, conditional clearances and instructions to taxi on, enter, line up on, wait on, land on, take off from, hold short of, cross, or backtrack on, any runway; and

(e) the assigned runway or HLS, altimeter settings, Mode A transponder codes, data link logon addresses, altitude instructions, heading and speed instructions;

(f) radio frequency instructions.

11.13 Controlled aerodromes

(1) Aircraft operations at a controlled aerodrome must be conducted in accordance with the authorised aeronautical information.

(2) Subject to subsection (3), the pilot in command of an aircraft operating at a controlled aerodrome must obtain ATC clearance to do any of the following:

(a) taxi on any part of the manoeuvring area;

(b) enter, cross, or backtrack on, a runway;

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(c) take-off;

(d) land.

(3) Subsection (2) does not apply when an ATC service is not in operation for the aerodrome.

(4) Subject to subsection (5), the pilot in command of an aircraft taxiing on the manoeuvring area of a controlled aerodrome:

(a) must stop and hold at all illuminated stop bars; and

(b) may only proceed beyond the stop bars when the stop bar lights are switched off.

(5) Despite subsection (4), the pilot in command of the aircraft may proceed beyond a lighted stop bar if ATC:

(a) advises the pilot that stop bar contingency measures are in effect for the stop bar; and

(b) identifies the relevant lighted stop bar to the pilot by reference to the specific holding position; and

(c) instructs the pilot to cross the lighted stop bar.

11.14 Controlled aerodromes — other requirements

RESERVED

Note This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation.

11.15 Control zones and control areas — entry into Class A, B, C, D or E airspace

(1) Subject to subsections (2) and (3), a pilot in command of an aircraft must not enter a control zone or a control area that is Class A, B, C, D or E airspace without ATC clearance.

(2) Despite subsection (1), a VFR flight does not require clearance to enter Class E airspace.

(3) Subsection (1) does not apply when an ATC service is not in operation for the control zone or the control area.

11.16 Control zones and control areas — operating within

(1) Aircraft operations in a control zone or a control area must be conducted in accordance with the authorised aeronautical information.

(2) The pilot in command of an aircraft operating in a control zone or a control area must take positive action to regain track as soon as a deviation from the cleared track is recognised.

(3) The pilot in command must notify ATC if any deviation from track exceeds any of the following tolerances:

(a) for PBN operations — 1 x the RNP value for the route or route segment being flown;

(b) for LOC-based operations — full-scale deflection of the course deviation indicator;

(c) for VOR-based operations — half-scale deflection of the course deviation indicator;

(d) for NDB-based operations — + or -5° from the specified bearing;

(e) for DME-based operations — + or -2 NM from the required arc;

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(f) for operations based on visual navigation — 1 NM from the cleared track.

11.17 Control areas – IFR flights – VFR climb/descent and VFR-on-top

(1) The pilot in command of an IFR flight must obtain clearance for a VFR climb or VFR descent in a control area.

(1A) A pilot in command of an IFR flight may only request a clearance for a VFR climb or VFR descent in a control area that is Class D or Class E airspace.

(2) During the VFR climb or VFR descent, the pilot in command must:

(a) be in VMC at all times; and

(b) comply with IFR reporting and communication requirements; and

Note See Division 21.2.

(c) maintain separation from other aircraft; and

(d) visually maintain obstacle clearance.

(3) The pilot in command of an IFR flight must obtain clearance for VFR-on-top operations.

(3A) A pilot in command of an IFR flight may only request a clearance for a VFR-on-top operation in a control area that is Class E airspace.

(4) During the VFR-on-top operation, the pilot in command must:

(a) be in VMC at all times; and

(b) comply with IFR reporting and communication requirements; and

Note See Division 21.2.

(c) maintain separation from other aircraft; and

Note Pilots are advised that maintaining separation from other aircraft includes wake turbulence separation.

(d) operate on specified VFR cruising levels.

(5) The pilot in command of an IFR flight must obtain ATC clearance to cancel the VFR climb or VFR descent, or the VFR-on-top operation.

11.18 Certain oceanic control areas — inoperative radio requirements

(1) This section applies to a flight that is within Australian-administered airspace specified in the AIP as an oceanic control area.

Note At the commencement of this instrument, the AIP document specifying the geographic boundaries of oceanic control areas is the Designated Airspace Handbook.

(2) If the radiocommunication system becomes inoperative during the flight, the pilot in command must do the following:

(a) set code 7600 on the aircraft's transponder (if fitted);

(b) assume the radiocommunication system is broadcasting and, using the frequency appropriate to the area of operation:

(i) broadcast position and intentions; and

(ii) make normal position reports;

(c) keep a lookout for conflicting traffic, including by reference to ACAS and traffic displays;

(d) as far as practicable, turn on all exterior aircraft lights;

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(e) maintain the last assigned speed and level for a period of 60 minutes following the aircraft's failure to report its position over a compulsory reporting point (including ADS-C flights), and thereafter adjust speed and altitude in accordance with the filed flight plan;

(f) upon exiting the oceanic control area, conform, as far as practicable, to the relevant State procedures and regulations.

Division 11.3 Prohibited, restricted and danger areas

11.19 Purpose

For subregulation 91.255 (1), this Division prescribes requirements in relation to the use by an aircraft of a prohibited area, a restricted area or a danger area.

11.20 Prohibited areas

Note For prohibited areas, see CASA's OAR 6-monthly *Designation of Prohibited, Restricted and Danger Areas – Declaration and Determination (Permanent PRDs) Instruments* and the relevant Designated Airspace Handbooks, as each exists, or is in force, from time to time. Entry or flight in a prohibited area is an offence under regulations 6, 15 and 16 of the *Airspace Regulations 2007* and regulation 91.260 of Part 91 of CASR.

11.21 Restricted areas

Note For restricted areas, see CASA's OAR 6-monthly *Designation of Prohibited, Restricted and Danger Areas – Declaration and Determination (Permanent PRDs) Instruments* and the relevant Designated Airspace Handbooks, as each exists, or is in force, from time to time. Unauthorised entry or flight in an active restricted area is an offence under regulations 6, 15 and 16 of the *Airspace Regulations 2007* and regulation 91.260 of Part 91 of CASR.

11.22 Danger areas

The pilot in command of an aircraft may fly within or across a danger area provided that:

(a) before the flight, the pilot in command is demonstrably aware of the specific activity which causes the area to be a danger area; and

(b) before and during the flight, the pilot in command takes appropriate precautions against any safety risks that could arise from the flight.

Note For danger areas, see CASA's OAR 6-monthly *Designation of Prohibited, Restricted and Danger Areas – Declaration and Determination (Permanent PRDs) Instruments* and the relevant Designated Airspace Handbooks, as each exists, or is in force, from time to time. It is an offence under subregulation 91.255 (2) to not comply with the section 11.22 requirements for a danger area.

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CHAPTER 12 MINIMUM HEIGHT RULES

12.01 Minimum height rules — populous areas and public gatherings

(1) For paragraph 91.265 (4) (a), for flight over a populous area or a public gathering, this section prescribes take-off and landing circumstances for the purposes of paragraphs 91.265 (2) (b) and (3) (b).

Note For an aeroplane and a rotorcraft, paragraphs 91.265 (2) (b) and (3) (b), respectively, permit flight over a populous area or a public gathering below 1 000 ft above the highest feature or obstacle within a horizontal radius of 600 m or 300 m, respectively, of the point on the ground or water immediately below the aircraft.

(2) For subsection (1), the circumstances are when the following requirements are complied with:

(a) for take-off — when, from the point of lift-off, the pilot in command is conducting a climb to the planned cruising level in accordance with normal procedures for the aircraft type;

(b) for landing — when the pilot in command is conducting a continuous descent from the cruising level or circuit height to the landing threshold using rates of descent and flight manoeuvres which are normal for the aircraft type.

12.02 Minimum height rules — other areas

(1) For paragraph 91.267 (3) (a), for flight over an area other than a populous area or a public gathering, this section prescribes take-off and landing circumstances for the purposes of paragraph 91.267 (2) (b).

(2) For subsection (1), the circumstances are when the following requirements are complied with:

(a) for take-off — when, from the point of lift-off, the pilot in command is conducting a climb to the planned cruising level in accordance with normal procedures for the aircraft type;

(b) for landing — when the pilot in command is conducting a circling manoeuvre as part of an authorised IAP using rates of descent and flight manoeuvres which are normal for the aircraft type;

(c) for landing — when the pilot in command is conducting a continuous descent from the cruising level or circuit height to the landing threshold using rates of descent and flight manoeuvres which are normal for the aircraft type.

12.03 Minimum heights — VFR flight at night

For paragraph 91.277 (2) (e), this section prescribes an additional method for calculating the lowest altitude for a route or route segment as the minimum height for a VFR flight at night.

RESERVED

Note No requirements are currently prescribed. This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation.

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CHAPTER 13 VFR FLIGHTS

13.01 Purpose

For subregulation 91.273 (1), this Chapter prescribes requirements relating to the operation of an aircraft for a VFR flight.

13.02 VFR flight navigation requirements

(1) When navigating by visual reference to the ground or water, the pilot in command must, at intervals of not more than 30 minutes, positively fix the aircraft's position by visual reference to features marked on topographical charts.

(2) For subsection (1), when navigating by visual reference over the sea, visual reference features may include rocks, reefs and fixed human-made objects that are:

(a) marked on topographical charts appropriate for the flight; and

(b) readily identifiable from the air.

(3) When not navigating by visual reference to the ground or water, the pilot in command must comply with the requirements in Chapter 14, as if the flight were an IFR flight.

(4) The pilot in command of an aircraft may:

(a) operate in an airspace or on a route designated as requiring use of a particular navigation specification; or

(b) conduct a terminal instrument flight procedure designated as requiring use of a particular navigation specification;

but only if the aircraft is approved for operation, under the particular navigation specification, by at least 1 of the following:

(c) the AFM;

(d) a document approved under Part 21 of CASR as part of, or based on, an airworthiness assessment;

(e) for a foreign-registered aircraft — a document approved in writing by the NAA of the State of registration or State of the operator of the aircraft.

(5) If the pilot in command is engaged in any of the following:

(a) operating in an airspace or on a route that requires the use of GNSS;

(b) conducting a terminal instrument flight procedure that requires the use of GNSS;

(c) conducting a terminal instrument flight procedure using GNSS as a substitute or alternative for a ground-based navigation aid within the meaning of subsection 14.05 (1);

then the operation must be conducted using an approved GNSS.

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CHAPTER 14 IFR FLIGHTS

14.01 Purpose and definition

(1) For subregulation 91.287 (1), this Chapter prescribes requirements relating to the operation of an aircraft for an IFR flight.

(2) In this Chapter, an aircraft is approved for operation under a particular navigation specification if it is approved for the specification by at least 1 of the following:

(a) the AFM;

(b) a document approved under Part 21 of CASR as part of, or based on, an airworthiness assessment;

(c) for a foreign-registered aircraft — a document approved in writing by the NAA of the State of registration or State of the operator of the aircraft.

14.02 IFR flight navigation requirements

(1) The pilot in command must navigate the aircraft by:

(a) use of an area navigation system that meets the performance requirements of the intended airspace or route; or

(b) use of a ground-based navigation aid, but only if:

(i) the route is one where, after making allowance for possible tracking errors of ±9° from the last positive fix, the aircraft will come within the rated coverage of a ground-based navigation aid which can be used to fix the position of the aircraft; and

(ii) the maximum time interval between positive fixes is not more than 2 hours; or

(c) visual reference to the ground or water, but only:

(i) when unable to operate in accordance with paragraph (a) or (b); and

(ii) by day; and

(iii) if weather conditions permit flight in VMC; and

(iv) if the VFR position-fixing requirements mentioned in subsections 13.02 (1) and (2) are complied with.

(2) The pilot in command of an aircraft may:

(a) operate in an airspace or on a route designated as requiring use of a particular navigation specification; or

(b) conduct a terminal instrument flight procedure designated as requiring use of a particular navigation specification;

only if the aircraft is approved for operation under the particular navigation specification.

(3) If the pilot in command is:

(a) operating in an airspace or on a route that requires the use of GNSS; or

(b) conducting a terminal instrument flight procedure that requires the use of GNSS;

then the operation must be conducted using an approved GNSS.

(4) If the navigation system being used becomes inaccurate, unreliable or inoperative, the pilot in command must do the following:

(a) monitor the aircraft's track by reference to the other navigation aids with which the aircraft is equipped;

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(b) carry out appropriate procedures designed to maintain aviation safety in the event of loss of navigation equipment;

(c) notify ATS.

(5) The pilot in command of an aircraft must ensure that data entered into an area navigation system has:

(a) for a multi-crew operation — been crosschecked for accuracy by at least 2 flight crew members; or

(b) for a single-pilot operation — been checked for accuracy by the pilot in command.

(6) The pilot in command of an aircraft must ensure that position and tracking information is checked:

(a) at, or before, each waypoint specified as a reporting point for the flight and published in the authorised aeronautical information or designated by ATS; and

(b) as far as practicable, at, or before, each en route waypoint published in the authorised aeronautical information; and

(c) at regular intervals (as far as practicable) during navigation via waypoints not published in the authorised aeronautical information.

(7) The pilot in command of an aircraft must ensure that, for a terminal instrument flight procedure in which GNSS will be used as the sole means of navigation:

(a) the intended procedure is loaded from the navigation database by name; and

(b) waypoints are not added to, or deleted from, the procedure as so loaded; and

(c) the navigation system will fly the procedure as published in authorised aeronautical information.

Note During the conduct of an IAP that is based on a ground-based navigation aid but where GNSS will be used for navigation, pilots should be aware that not all aircraft are capable of conducting reversal or holding procedures, or of navigating DME arcs. The pilot in command should confirm the aircraft navigation system is capable of conducting such operations.

14.03 Instrument approaches — QNH sources

(1) Before passing the IAF, the pilot in command must set 1 of the following:

(a) the actual aerodrome QNH from 1 of the following (an ***approved source***):

(i) AAIS;

(ii) ATC;

(iii) ATIS;

(iv) AWIS;

(v) CA/GRS;

(vi) WATIR;

(b) the forecast aerodrome QNH;

(c) the forecast area QNH.

(2) The pilot in command must not use an actual aerodrome QNH for an instrument approach more than 15 minutes after receiving it.

(3) If the forecast area QNH is used, the pilot in command must increase the minima for the instrument approach by 50 ft.

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14.04 GNSS arrivals, and DME or GNSS arrivals

(1) During a GNSS arrival, or a DME or GNSS arrival, the pilot in command must:

(a) use the destination VOR or NDB to provide the primary track guidance; and

(b) if there is a significant disparity between the track guidance provided by the destination VOR or NDB and the GNSS track indication — discontinue the arrival procedure.

(2) For the purposes of paragraph (1) (b), a significant disparity is:

(a) for an NDB — a divergence of more than 6.9°; and

(b) for a VOR — a divergence of more than 5.2°.

14.05 Use of GNSS as substitute or alternative to ground-based navigation aids

(1) For this section, a ground-based navigation aid is 1 of the following:

(a) VOR;

(b) DME;

(c) NDB;

(d) Outer Marker;

(e) Middle Marker.

(2) GNSS may be used as a substitute or alternative to a ground-based navigation aid for the procedure or phase of flight mentioned in an item of column 1 of Table 14.05 (2) only if the aircraft is approved for operation under the particular navigation specification shown in the corresponding item in column 2 of the Table.

Table 14.05 (2) — Use of GNSS instead of a ground-based navigation aid

	Column 1	**Column 2**
Item	**Procedure or phase of flight**	**Navigation specification**
1	En route phase	RNP 2
2	SID or STAR	RNP 1
3	Initial, intermediate or missed approach segment	RNP 1
4	Final approach segment	RNP APCH

(3) Before using GNSS as a substitute for or alternative to a ground-based navigation aid during an en route phase of flight, the pilot in command must ensure that:

(a) when a waypoint of the route of the flight that is the ground-based navigation aid is entered into the GNSS — the waypoint is loaded from the navigation database by name; and

(b) latitude and longitude coordinates for the ground-based navigation aid are not manually entered into the GNSS.

(4) GNSS must not be used as a substitute or alternative to a ground-based navigation aid that has been decommissioned.

14.06 Availability of GNSS integrity for instrument approaches

(1) Before the departure of a flight that is planned to conduct an IAP that requires the use of GNSS at the planned destination aerodrome or at the destination alternate

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aerodrome, the pilot in command must obtain a prediction for GNSS integrity availability.

(2) For subsection (1), if a continuous loss of GNSS integrity for more than 5 minutes is predicted for any part of the IAP, the pilot in command must revise the flight plan.

Note Some examples of flight plan revisions include delaying the departure time, planning a different route or providing for an alternate.

(3) The pilot in command of a flight that is navigating with SBAS-capable receivers must regularly check for the availability of GNSS integrity indication in areas where the SBAS is not available.

(4) The pilot in command of an aircraft whose approved GNSS can achieve LNAV accuracy of less than 0.3 NM using requisite GNSS satellites may disregard subsections (1) and (2).

Note ***Requisite GNSS satellites*** is defined in section 1.07.

14.07 Navigation database requirements

(1) In this section:

current, for a navigation database, means that the database is up-to-date in accordance with the AIRAC cycle.

valid, for a navigation database, means that the database must be provided by an approved provider.

(2) The data in the navigation database must be:

(a) valid; and

(b) subject to subsection (7) — current; and

(c) in a form that cannot be changed by the operator or a flight crew member.

(3) Updating of the navigation database must be carried out in accordance with the instructions issued by the manufacturer of the navigation system.

(4) The aircraft operator must ensure that any person updating the navigation database is appropriately qualified and competent to properly perform that task.

(5) The operator of an aircraft must:

(a) regularly check the navigation database for integrity; and

(b) if any discrepancy in the data is discovered:

(i) report the discrepancy as soon as practicable to the approved provider; and

(ii) deal with the discrepancy before further operational use by:

(A) resolving it through the reissue of the database; or

(B) prohibiting use of the route; or

(C) ensuring that each flight crew member has instructions on how to preserve the safety of the operation despite the discrepancy.

Note The *Transport Safety Investigation Regulations 2003* have the effect that any discrepancy in the navigation database must be reported if it is likely to cause a hazardous condition from loss of separation between the aircraft and terrain or obstacles, or between the aircraft and other aircraft.

(6) If the navigation database changes to the next AIRAC cycle during a flight, the pilot in command must complete the flight using the unchanged database unless to do so will, or is likely to, jeopardise the safety of the flight.

(7) Despite paragraph (2) (b), and without affecting subsections (5) and (6), a navigation database:

(a) that is not current at the start of a flight; or

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(b) that ceases to be current during a flight;

may be used for navigation only if:

(c) data used for navigation of a flight is verified before use by reference to authorised aeronautical information; and

(d) the database is not used for updating of a navigation system.

(8) Despite anything else in this section, an aircraft operated without an MEL must not operate under PBN for more than 72 hours after the navigation database has ceased to be current.

Note An aircraft that is operated with an MEL must operate in accordance with the instructions in the MEL.

14.08 PRM instrument approach operations

The pilot in command of an aircraft must not carry out a PRM approach unless all of the pilots required by the AFM for the conduct of such an approach have received training from an appropriate source that ensures familiarisation with the following:

(a) the guidance on PRM approaches provided in the AIP;

(b) the PRM user instructions for the aerodrome of intended operation;

(c) the relevant instrument approach charts for the aerodrome of intended operation;

(d) relevant training material available on the websites of Airservices Australia and CASA.

14.09 Instrument approach operational requirements

Note This section effectively prescribes the requirements for the operation of an aircraft in a specified aircraft performance category at an aerodrome: see regulation 91.320 and section 2.02.

(1) When conducting an authorised IAP in IMC, the pilot in command of an aircraft must ensure that the aircraft is operated within the range of, or at not more than the maximum, IAS provided for in subsection (2).

(2) For any of the following:

(a) the specified aircraft performance category for the aircraft that is mentioned in an item of column 1 of Table 14.09 (2);

(b) a higher specified aircraft performance category than the specified aircraft performance category for the aircraft;

(c) subject to subsection (3), a lower specified aircraft performance category than the specified aircraft performance category for the aircraft;

the aircraft must be operated within the range of speeds, and at not more than the maximum speed (as the case requires), specified in columns 2, 3, 4 and 5 of the same item.

Note Lower and higher aircraft performance categories are specified in section 2.02. The aircraft performance categories are, **from lowest to highest**, H, A, B, C, D and E, and in items 1, 2, 3, 4 and 5.

(3) For paragraph (2) (c,) the aircraft must not be operated at a lower specified aircraft performance category unless the operator of the aircraft:

(a) holds an approval under regulation 91.045 for regulation 91.320 to operate in the lower specified aircraft performance category; and

(b) has complied with subregulation 91.320 (3).

Note 1 For example, an aircraft whose specified aircraft performance category is B, may conform to the requirements of aircraft performance category C. But an aircraft whose specified aircraft performance category is C must not attempt to conform to the requirements of aircraft performance category B without CASA approval and operator compliance with subregulation 91.320 (3).

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Note 2 Subregulation 91.320 (3) requires an operator holding the relevant approval to give details of the approval, and the conditions (if any) imposed by CASA on the approval, to the flight crew of an aircraft conducting a flight that uses the approval.

Table 14.09 (2) — IAP segment speeds

		Indicated airspeed (IAS)			
	Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
Item	**Specified aircraft performance category**	**Range of speeds for initial and intermediate approach (kts)**	**Range of speeds for final approach (kts)**	**Max. speed for visual manoeuvring (circling) (kts)**	**Max. speed for missed approach (kts)**
1	H	70-120	60-90	None specified	90
2	A	90-150	70-100	100	110
3	B	120-180	85-130	135	150
4	C	160-240	115-160	180	240
5	D	185-250	130-185	205	265
6	E	185-250	155-230	240	275

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CHAPTER 15 IFR TAKE-OFF AND LANDING MINIMA

15.01 Purpose

For subregulation 91.307 (1), this Chapter prescribes:

(a) requirements relating to take-off minima for an aerodrome (the ***take-off minima requirements***); and

(b) requirements relating to landing minima for an aerodrome (the ***landing minima requirements***).

15.02 Definitions for this Chapter

In this Chapter:

qualifying multi-engine aeroplane means an IFR multi-engine aeroplane, whether powered by piston or turboprop engines, that is:

(a) operated by:

(i) at least 2 pilots; or

(ii) if fitted with operative autofeather — 1 pilot; and

(b) in the event of an engine failure — capable of maintaining terrain clearance until reaching the minimum height for IFR flight.

qualifying multi-engine rotorcraft means an IFR rotorcraft that:

(a) has a Category A performance supplement; and

(b) is operated to the Category A weights, limitations and procedures contained in the supplement; and

(c) in the event of an engine failure — is capable of maintaining terrain clearance until reaching the minimum height for IFR flight.

15.03 Take-off minima requirements

A pilot in command must not commence a take-off if, at the time of take-off:

(a) the meteorological conditions are less than the take-off minima for the aircraft; or

(b) the meteorological conditions that would exist if it were necessary to return to land at the departure aerodrome because of engine failure, are not:

(i) at or above the landing minima for any IAP that the pilot in command is able to conduct at the aerodrome; or

(ii) such as to allow a visual approach for the return to land.

15.04 Take-off minima for low-visibility operations

The take-off minima for a low-visibility operation at an aerodrome are the take-off minima stated in an approval granted for paragraph 91.315 (1) (b).

15.05 Take-off minima for qualifying multi-engine aeroplanes

(1) The take-off minima mentioned in this section apply to a take-off that:

(a) is not a low-visibility take-off; and

(b) is conducted using a qualifying multi-engine aeroplane.

(2) The take-off minima are:

(a) visibility of:

(i) 800 m, or

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(ii) 550 m, but only if:

(A) the runway has illuminated edge lighting at spacing intervals not exceeding 60 m; and

(B) the runway has centreline lighting or centreline markings; and

(C) all lighting mentioned in sub-subparagraphs (A) and (B) is supported by a secondary power supply with a switchover capability of 1 second or less; and

(D) if the aerodrome is a non-controlled aerodrome or a controlled aerodrome where ATC is not in operation — the take-off is conducted by day and the aerodrome is one at which the carriage of radio is mandatory.

15.06 Take-off minima for other aeroplanes

(1) The take-off minima mentioned in this section apply to a take-off that:

(a) is not a low-visibility take-off; and

(b) is not conducted using a qualifying multi-engine aeroplane.

(2) The take-off minima are:

(a) a cloud ceiling of 300 ft; and

(b) visibility of 2 000 m.

15.07 Take-off minima for qualifying multi-engine rotorcraft

(1) The take-off minima mentioned in this section apply to a take-off that:

(a) is not a low-visibility operation; and

(b) is conducted using a qualifying multi-engine rotorcraft.

(2) The take-off minima are:

(a) a cloud ceiling not lower than the height at which the greater of the following can be achieved:

(i) V_y;

(ii) V_{min} IMC; and

(b) visibility of either:

(i) 800 m; or

(ii) 550 m, but only if:

(A) the relevant runway or FATO has illuminated edge lighting at spacing intervals not exceeding 60 m and centreline lighting; and

(B) all lighting mentioned in sub-subparagraph (A) is supported by a secondary power supply with a switchover capability of 1 second or less; and

(C) if the aerodrome is a non-controlled aerodrome or a controlled aerodrome where ATC is not in operation — the take-off is conducted by day and the aerodrome is one at which the carriage of radio is mandatory.

15.08 Take-off minima for other rotorcraft

(1) The take-off minima mentioned in this section apply to a take-off that:

(a) is not a low-visibility take-off; and

(b) is not conducted using a qualifying multi-engine rotorcraft.

(2) The take-off minima are:

(a) a cloud ceiling of 500 ft; and

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(b) visibility of 800 m.

15.09 Landing minima requirements

(1) Subject to complying with the requirements of section 15.11, a pilot in command of an aircraft must not land at an aerodrome if the meteorological conditions are below the landing minima for the aircraft that are:

(a) for a low-visibility operation — specified in an approval granted for paragraph 91.315 (1) (b); or

(b) for a landing that is not a low-visibility operation — specified in section 15.10.

(2) For the determination of landing minima for paragraph (1) (b), the pilot in command of an aircraft must obtain the landing minima from an instrument approach chart in accordance with:

(a) the specified aircraft performance category; and

(b) the aircraft LNAV and VNAV capabilities.

15.10 Landing minima

(1) For an RNP APCH-LNAV/VNAV, an RNP APCH-LPV, or a precision approach procedure — the minimum altitude must not be below whichever of the following is the highest:

(a) the DA or DH specified on the instrument approach chart for the IAP being conducted;

(b) relevant minima specified in the AFM;

(c) relevant minima specified in the operator's exposition or operations manual.

(2) For an RNP APCH-LNAV/VNAV, an RNP APCH-LPV, or a precision approach procedure — the minimum visibility must not be below whichever of the following is the highest:

(a) the RVR or visibility specified on the instrument approach chart for the IAP being conducted;

(b) relevant minima specified in the AFM;

(c) relevant minima specified in the operator's exposition or operations manual;

(d) 800 m, but only if:

(i) the TDZ RVR report is not available; or

(ii) the approach lighting system normally available beyond 420 m from the runway threshold is inoperative;

(e) 1 200 m, but only if:

(i) the approach cannot be flown to at least the landing minima using a flight director, a HUD or an autopilot; or

(ii) the aircraft is not equipped with an operative failure warning system for the primary attitude and heading reference systems; or

(iii) high intensity runway edge lighting is not in operation; or

(iv) the approach lighting system normally available beyond 210 m from the runway threshold is inoperative;

(f) 1 500 m — but only if the approach lighting system normally available for the runway is inoperative;

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(g) 1.5 times either the RVR or the visibility specified on the instrument approach chart for the IAP being conducted — but only if:

(i) a lighting failure has occurred on a runway at a controlled aerodrome; and

(ii) doubled spacing of runway edge lights results.

Note At a controlled aerodrome, in the event of failure of 1 electrical circuit on a runway equipped with interleaved circuitry lighting, pilots will be notified of a doubled spacing of runway edge lights, that is, from 60 m spacing to 120 m spacing.

(3) Subject to subsection (5), for an RNP APCH-LNAV, an RNP APCH-LP or another NPA — the minimum altitude must not be below whichever of the following is the highest:

(a) the MDA or MDH specified on the instrument approach chart for IAP being conducted;

(b) the relevant minima specified in the AFM;

(c) relevant minima specified in the operator's exposition or operations manual.

(4) Subject to subsection (6), for an RNP APCH-LNAV, an RNP APCH-LP or another NPA — the minimum visibility must not be below whichever of the following is the highest:

(a) the visibility specified on the instrument approach chart for IAP being conducted;

(b) relevant minima specified in the AFM;

(c) relevant minima specified in the operator's exposition or operations manual;

(d) if the approach lighting system normally available for the runway is inoperative — the visibility specified on the instrument approach chart, plus a value equivalent to the published length of the approach lighting system.

(5) Despite subsection (3), if the aircraft is conducting a circling manoeuvre — the minimum altitude must not be below whichever of the following is the highest:

(a) the circling minimum altitude specified on the instrument approach chart for the IAP being conducted;

(b) the relevant minima specified in the AFM;

(c) the relevant minima specified in the operator's exposition or operations manual.

(6) Despite subsection (4), if the aircraft is conducting a circling manoeuvre — the minimum visibility must not be below whichever of the following is the highest:

(a) the circling minimum visibility specified on the instrument approach chart for the IAP being conducted;

(b) the relevant minima specified in the AFM;

(c) the relevant minima specified in the operator's exposition or operations manual.

(7) For an aerodrome without an authorised IAP, the minimum altitude must not be below the altitude at which the flight can comply with the requirements relating to visual approach approaches published in the authorised aeronautical information for the purposes of subparagraph 91.305 (3) (b) (i).

(8) For an aerodrome without an authorised IAP, the minimum visibility must not be below the flight visibility specified for the type of aircraft, the class of airspace and the height in Table 2.07 (3).

Note Table 2.07 (3) specifies the VMC criteria. The effect of this paragraph is that flight visibility must not be below the highest flight visibility relevant to the aircraft, if it were required to maintain VMC, during the flight to the aerodrome.

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15.11 Missed approach

(1) During an IAP, the pilot in command of an aircraft must immediately execute the missed approach procedure for the IAP in any of the following circumstances:

(a) during the final segment of the IAP — if the aircraft is flown outside the navigational tolerance for the navigation aid being used;

(b) when using GNSS as a substitute or alternative to a ground-based navigation aid — if there is a sustained deviation from the centreline of the IAP other than during a transient manoeuvre;

(c) when below the MSA — if the navigational aid in use for the IAP becomes unreliable or inoperative;

Note 1 Examples of when a navigational aid for an approach becomes unreliable or inoperative include a RAIM warning for a GNSS approach, a red flag for a VOR approach, or a loss of the ident for an NDB approach.

Note 2 If, after the pilot in command has commenced the missed approach procedure, a RAIM warning ceases or there is no longer loss of data integrity, the pilot may execute the missed approach using GNSS-derived information.

(d) if the requirements in subsection (2) are not met for the IAP being flown, and the aircraft:

(i) for an RNP APCH-LNAV/VNAV, an RNP APCH-LPV, or a precision approach procedure:

(A) has arrived at the minimum altitude; or

(B) has passed the minimum altitude but has not touched down; or

(ii) for an RNP APCH-LNAV, an RNP APCH-LP or other NPA:

(A) has arrived at the missed approach point; or

(B) is being operated below minimum altitude;

(e) if the aircraft is conducting a circling manoeuvre and:

(i) the flight visibility reduces below the minimum visibility; or

(ii) an identifiable part of the aerodrome is not distinctly visible to the pilot in command (apart from loss of visibility due to normal aircraft manoeuvring during the approach).

(2) For paragraph (1) (d), the requirements are as follows:

(a) the aircraft must be continuously in a position from which a descent to a landing on the intended runway or, for a rotorcraft, flight to a landing or hover on or over the intended FATO, may be made:

(i) at a normal rate of descent; and

(ii) using normal manoeuvres; and

(iii) that allows touchdown to occur within the TDZ of the runway or TLOF of intended landing;

(b) for other than low-visibility operations;

(i) the flight visibility must be not less than the landing minima; and

(ii) at least 1 of the following visual references for the intended runway or FATO must be distinctly visible and identifiable to the pilot in command:

(A) elements of the approach lighting system;

(B) the threshold;

(C) the threshold markings;

(D) the threshold lights;

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(E) the runway identification lights;
(F) the FATO itself;
(G) the visual approach slope indicator;
(H) the TDZ or TDZ markings;
(I) the TDZ lights;
(J) the FATO or runway lights;

Note There are certain NPAs that have a minimum flight visibility of 5 km, and where the geographical point of attaining the minimum altitude is more than 5 km from the visual references mentioned above. In these instances, noting that the minimum flight visibility is 5 km, if the requirements to conduct a visual approach procedure are met, effectively, the flight transitions from one conducting an IAP, to one conducting a visual approach at the minima.

(c) for a low-visibility operation, the following visual references for the intended runway must be continuously visible and identifiable to the pilot in command:
(i) for a CAT III approach using an FO landing system where use of a DH is prescribed — at least 1 centreline light;
(ii) for a CAT III approach utilising an FP landing system — at least 3 consecutive longitudinally-aligned lights;
(iii) for a CAT III approach utilising an FO hybrid landing system — at least 3 consecutive longitudinally-aligned lights;
(iv) for any other low-visibility operation:
(A) at least 3 consecutive longitudinally-aligned lights; and
(B) unless the approach is conducted using a HUD — a lateral element of lighting in the form of an approach lighting crossbar, a landing threshold light, or a barrette of TDZ lights.

(3) For paragraph (2) (c), ***consecutive longitudinally-aligned lights*** means any of the following:
(a) centreline lights of the approach lighting system;
(b) the TDZ lights;
(c) runway centreline lighting;
(d) runway edge lights;
(e) a combination of the lights mentioned in paragraphs (a) to (d).

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CHAPTER 16 APPROACH BAN FOR IFR FLIGHTS

16.01 Purpose

(1) For subregulation 91.310 (1), this Chapter prescribes circumstances in which an aircraft flown under the IFR must not make an approach to land at an aerodrome.

(2) This Chapter applies to an aircraft conducting an IAP at an aerodrome:

(a) that has an air traffic control service in operation; and

(b) for which RVR reports are available for IAPs to the relevant runway.

16.02 Approach ban — other than low-visibility operations

(1) This section applies to an operation that is not a low-visibility operation.

(2) The pilot in command must not descend below 1 000 ft above the aerodrome elevation where the TDZ RVR is reported by ATC as continually less than the landing minima for the IAP.

(3) Despite subsection (2), if, after passing 1 000 ft above the aerodrome elevation, the TDZ RVR is reported by ATC as falling below the landing minima, the approach may be continued.

16.03 Approach ban — low-visibility operations

(1) This section applies to an operation that is a low-visibility operation.

(2) The pilot in command must not descend below 1 000 ft above the aerodrome elevation where a controlling zone RVR is reported by ATC as continually less than the RVR zone requirements.

Note ***Controlling zone RVR*** is defined in section 1.07. An RVR zone is controlling if a report is received from that zone, whether or not it is a required report.

(3) Subject to subsection (2), if, after passing 1 000 ft above the aerodrome elevation, a controlling zone RVR is reported by ATC as falling below the RVR zone requirements, the IAP may be continued.

(4) For subsections (2) and (3), the RVR zone requirements are as follows:

(a) a TDZ RVR report is always required, unless:

(i) the IAP is a CAT III instrument approach operation conducted with the use of an FO landing system and an FO or FP rollout system; and

(ii) the MID and END RVR zones are providing valid reports;

(b) other than for an SA CAT I instrument approach operation, a MID RVR report is required if the END RVR zone is not providing valid reports;

(c) other than for an SA CAT I instrument approach operation, an END RVR report is required if the MID RVR is not providing valid reports.

Note MID or END RVR reports are not required for SA CAT I instrument approach operations.

(d) for the TDZ RVR report — the RVR value shown on the instrument approach chart;

(e) for MID RVR zone report:

(i) for a CAT III instrument approach operation conducted without the use of a rollout system — 175 m; and

(ii) for a CAT III instrument approach operation conducted with the use of an FO rollout system — 75 m; and

(iii) for other IAPs — 125 m;

(f) for the END RVR report — 75 m.

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CHAPTER 17 DESIGNATED NON-CONTROLLED AERODROMES

17.01 Purpose

For subparagraph 91.400 (1) (a) (iv), the following aerodromes are prescribed as designated non-controlled aerodromes:

RESERVED

Note No requirements are currently prescribed. This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation

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CHAPTER 18 SAFETY WHEN AEROPLANE OPERATING ON THE GROUND

18.01 Prescribed persons

For subparagraph 91.425 (2) (a) (iii), a person operating an aeroplane for maintenance or maintenance training is prescribed as a kind of person who may start the engine of an aeroplane or cause the engine to be started.

Note For this section, the aeroplane must be secured from moving: see paragraph 91.425 (2) (b).

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CHAPTER 19 FUEL REQUIREMENTS

19.01 Purpose

For subregulation 91.455 (1), this Chapter prescribes requirements relating to fuel for aircraft.

19.02 Definitions of *final reserve fuel* and *contingency fuel*

The final reserve fuel and contingency fuel that must be carried on board an aircraft for a flight must conform to the requirements set out in Table 19.02 (2) so that, for an aircraft mentioned in an item of column 1 of the Table, in the kind of flight mentioned for the aircraft in column 2, the final reserve fuel flight time, and the contingency fuel amount, must be as mentioned in columns 3 and 4 respectively for the item.

Table 19.02 (2) — Final reserve fuel and contingency fuel requirements

	Column 1	Column 2	Column 3	Column 4
Item	**Aircraft (by aircraft category)**	**Kind of flight (by flight rules)**	**Final reserve fuel flight time**	**Contingency fuel amount**
1	Aeroplane with MTOW <= 5 700 kg (piston engine or turboprop)	VFR	30 minutes	N/A
2	Aeroplane with MTOW <= 5 700 kg (piston engine or turboprop)	Night VFR	45 minutes	N/A
3	Aeroplane with MTOW <= 5 700 kg (piston engine or turboprop)	IFR	45 minutes	N/A
4	Turbojet engine aeroplane, or aeroplane with MTOW > 5 700 kg (turboprop engine)	IFR or VFR	30 minutes	5% of trip fuel
5	Aeroplane with MTOW > 5 700 kg (piston engine)	IFR or VFR	45 minutes	5% of trip fuel
6	Rotorcraft	VFR	20 minutes	N/A
7	Rotorcraft	IFR	30 minutes	N/A

Note Table 19.02 (2) describes the required final reserve fuel and contingency fuel by aircraft type and flight rules.

19.03 General requirements

Fuel consumption data

(1) When determining the amount of usable fuel required under this Chapter for a flight of an aircraft, the pilot in command must use 1 of the following fuel consumption data sources:

(a) the most recent aircraft specific fuel consumption data derived from the fuel consumption monitoring system used by the operator of the aircraft (if available);

(b) the aircraft manufacturer's data for the aircraft.

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

Operational requirements etc.

(2) In determining the amount of usable fuel required under this Chapter, the pilot in command must take into account the effect of the following matters:

(a) the operating conditions for the proposed flight, including the following:

(i) the actual weight (if known or available), or the anticipated weight, of the aircraft;

(ii) relevant NOTAMs;

(iii) relevant authorised weather forecasts and authorised weather reports;

(iv) relevant air traffic service 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.

19.04 Amount of fuel that must be carried for a flight

(1) The pilot in command of an aircraft must ensure that, when a flight of the aircraft commences, the aircraft is carrying on board at least 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 (if applicable);

(f) final reserve fuel;

(g) additional fuel (if applicable).

(2) The pilot in command must ensure that, at any point of in-flight replanning, the aircraft 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 (if applicable);

(e) final reserve fuel;

(f) additional fuel (if applicable).

(3) The pilot in command must ensure that the aircraft is carrying on board at least the following amounts of usable fuel, required at any time to safely continue the flight:

(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 commencement of the flight, fuel is used for a purpose other than that originally intended during pre-flight planning, the pilot in command must reanalyse the planned use of fuel for the remainder of the flight, and adjust the parameters of the

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flight in so far as is necessary to remain in compliance with the requirements of this Chapter.

(5) Subsection (6) applies if an aircraft for a flight:

(a) is unable to land at the planned destination aerodrome; and

(b) diverts to the planned destination alternate aerodrome that was required for the flight.

(6) Despite subsection (3), the pilot in command must ensure that the aircraft is carrying at least the following amounts of usable fuel:

(a) destination alternate fuel from the time of commencing the diversion;

(b) holding fuel (if required);

(c) final reserve fuel.

19.05 Procedures for determining fuel before flight and fuel monitoring during a flight

(1) The pilot in command of an aircraft for a flight must ensure that the amount of usable fuel on board the aircraft is determined before the flight commences.

(2) The pilot in command must ensure that the amount of fuel is checked at regular intervals throughout the flight, and that the usable fuel remaining is evaluated to:

(a) compare planned fuel consumption with actual fuel consumption; and

(b) determine the amount of usable fuel remaining; and

(c) determine whether the remaining usable fuel is sufficient to satisfy:

(i) if a point of in-flight replanning has been specified by the pilot in command for the flight and the flight has not proceeded past the point — the requirements of subsection 19.04 (2); and

(ii) otherwise — the requirements of subsection 19.04 (3); and

(d) determine the amount of usable fuel expected to be remaining when the aircraft lands at the destination aerodrome.

19.06 Procedures if fuel reaches specified amounts

(1) If, at any time during a flight, the amount of usable fuel remaining in the aircraft on landing at the destination aerodrome will be, or is likely to be, less than the fuel required under subsection 19.04 (3), then the pilot in command must:

(a) take into account the likely air traffic and operational conditions 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 19.04.

(2) The pilot in command must request from ATS the duration of any likely delay in landing if unforeseen factors could result in the aircraft landing at the destination aerodrome with less than the following amounts of fuel remaining:

(a) the final reserve fuel;

(b) the destination alternate fuel (if required).

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(3) The pilot in command must declare to ATS a "minimum fuel" state if:

(a) the pilot in command is committed to land the aircraft at an aerodrome in accordance with this section; and

(b) the pilot in command determines that, if there is any change to the existing ATC clearance issued to the aircraft in relation to that aerodrome, the aircraft 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 occur.

Note 2 A pilot in command should not expect any form of priority handling because of a "minimum fuel" declaration. ATS will, however, advise the flight crew member of any additional expected delays, and coordinate when transferring control of the aircraft to ensure other ATS units are aware of the aircraft's fuel state.

(4) If, at any time during a flight, the amount of usable fuel remaining in the aircraft on landing at the nearest aerodrome where a safe landing can be made, will be, or is likely to be, less than the final reserve fuel, then the pilot in command must declare a situation of "emergency fuel" by broadcasting "MAYDAY, MAYDAY, MAYDAY FUEL".

Note The emergency fuel declaration is a distress message.

19.07 Operational variations — procedures and requirements

(1) This section applies only to the following operators (a ***relevant operator***):

(a) a Part 141 operator or a Part 142 operator;

(b) an aerial application operator;

(c) an aerial work operator.

Note These operators are defined in section 1.07, Definitions.

(2) Despite sections 19.03 and 19.04, a relevant operator may use an operational variation, specified in the operator's operations manual or exposition (as applicable) for the purpose of this section, that relates to the calculation of any of the following, if the requirements in subsections (5) and (7) are met:

(a) taxi fuel;

(b) trip fuel;

(c) contingency fuel (if any);

(d) destination alternate fuel;

(e) additional fuel.

(3) The operations manual or exposition (as applicable) of a relevant operator must not include an operational variation relating to the calculation of holding fuel.

(4) The operations manual of an aerial application operator or an aerial work operator may include an operational variation relating to the calculation of final reserve fuel for an aerial application operation or an aerial work operation, as the case requires, provided that only flight crew members are carried for the operation.

(5) At least 28 days before using an operational variation, a relevant operator must submit to CASA:

(a) evidence of at least 1 of the following, that demonstrates how the operational variation will maintain or improve aviation safety:

(i) documented in-service experience;

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(ii) the results of a specific safety risk assessment conducted by the relevant operator that meets the requirements of subsection (6); and

(b) a copy of the relevant operator's procedures proposed for inclusion in the operations manual or exposition (as applicable), in relation to using the operational variation.

Note Under regulations 137.080, 137.085, 137.090, 138.068, 141.100 and 142.155 of CASR (as applicable), CASA may direct the relevant operator to remove or revise the operational variation, if CASA were to find there was insufficient evidence that it would maintain or improve aviation safety.

(6) For subparagraph (5) (a) (ii), a specific safety risk assessment must include at least the following:

(a) flight fuel calculations;

(b) the capabilities of the relevant 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.

(7) For the purposes of subsection (2), the relevant operator's operations manual or exposition (as applicable) must include procedures in relation to the use of the operational variation.

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CHAPTER 20 SAFETY OF PERSONS AND CARGO ON AIRCRAFT

Division 20.1 Seating for persons on aircraft

20.01 Medical transport operations — prescribed circumstances

(1) For subregulation 91.545 (2), subregulation 91.545 (1) does not apply in relation to the carriage of a person for a flight if prescribed circumstances apply.

Note Subregulation 91.545 (1), makes it an offence to begin a flight if a person is assigned a seat or berth that is not fitted with a seatbelt or shoulder harness.

(2) For subsection (1), the prescribed circumstances are as follows:

(a) the flight must be a medical transport operation or a rescue operation;

(b) the person must be a:

(i) crew member; or

(ii) for a medical transport operation — a medical patient; or

(iii) for a rescue operation — person who has been rescued;

(c) during the flight — the person must:

(i) wear a safety harness and a restraint strap; or

(ii) if the person is a medical patient, or a person who has been rescued, and for whom compliance with subparagraph (i) is not practicable — be restrained on a stretcher in accordance with the procedures in the operator's exposition or operations manual (as applicable); or

(iii) if the person is a medical patient who is an infant for whom subparagraph (i) 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 aircraft — be carried inside an incubator, humidicrib, or other neonatal transport unit in accordance with the applicable procedures in the operator's exposition; or

(iv) if the person is a medical patient who is an infant, or a child under the age of 6, for whom subparagraph (i) is considered by the medical or nursing authority responsible for conducting the transport to be detrimental to the infant's or child's medical condition or the general situation inside the aircraft — be carried in the arms, or on the lap, of an adult occupying a seat in accordance with the applicable procedures in the operator's exposition;

(v) if the person is a person who has been rescued and for whom compliance with subparagraph (i) or (ii) is not practicable — be restrained:

(A) in a rescue harness, or other rescue device, that is compliant with the requirements of, or approved under, Part 21 of CASR; and

(B) in accordance with the applicable procedures in the operator's operations manual;

(d) the pilot in command must be satisfied that paragraph (c) is complied with.

(3) In this section:

rescue operation has the meaning given by subsection 1.07 (1) of the Part 138 MOS.

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Division 20.2 Restraint of infants and children

20.02 Purpose

For paragraph 91.560 (1) (c), this Division prescribes the requirements for the restraint of an infant or a child when a direction is given to passengers under regulation 91.570 to fasten seatbelts or shoulder harnesses (as the case requires).

Note General guidance for infant and child restraints is contained in AC 91-18 *Restraint of infants and children*, as in force from time to time.

20.03 Infant and child seatbelts as restraints

(1) An infant is restrained if:

(a) the infant is carried in the arms or on the lap (the ***relevant position***) of an adult occupying a seat; and

(b) the adult's seatbelt is not fastened around the infant; and

(c) the infant is restrained in the relevant position by an effective restraining device.

Note A commonly used method of restraining an infant in a person's arms or lap is to use a supplemental loop belt, also referred to as an infant belt.

(2) A child is restrained if:

(a) the child:

(i) occupies a seat of its own; and

(ii) is restrained in the seat by the seat's seatbelt; or

(b) all of the following apply:

(i) the child occupies a seat with 1 other child who is not an infant;

(ii) both children are seated side-by-side;

(iii) the combined weight of both children is not more than 77 kg;

(iv) the seatbelt is a lap belt which, when fastened, restrains both children in the seat.

(3) Despite subsections (1) and (2), a child who is not more than 12 years old may be restrained in accordance with subsection (1) if:

(a) at the request of the pilot in command, the operator or CASA — the adult responsible for the child produces a signed and dated certificate from a registered medical practitioner stating that the child:

(i) has a serious medical condition which prevents the child from sitting upright unaided; and

(ii) is fit to travel; and

(iii) weighed less than 16 kg on the date of the certificate; and

(b) the pilot in command or operator is reasonably satisfied, on the day of the flight, that the child weighs less than 16 kg.

20.04 Child restraint systems that are not seatbelts

(1) In this section:

approved child restraint system means a child restraint system that meets the requirements of 1 of the following:

(a) an automotive child restraint system;

(b) an aviation child restraint system.

Note To avoid doubt, an infant sling is not a child restraint system for this Chapter.

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automotive child restraint system means a child restraint system that meets the requirements of 1 of the following:

(a) AS/NZS 1754:2004 Child restraint systems for use in motor vehicles;

(b) Federal Motor Vehicle Safety Standards (FMVSS) No. 213;

(c) Canadian Motor Vehicle Safety Standard (CMVSS) No. 213;

(d) European Safety Standard requirements of ECE Regulation 44.

Note For paragraph (a), see section 1.05 for how the dating system for AS/NZS applies within this MOS.

aviation child restraint system means a child restraint system that is compliant with the requirements of, or approved under, Part 21 of CASR.

shoulder harness includes a child restraint system.

(2) An infant or a child (the ***person***) is restrained if:

(a) the person is restrained by an approved child restraint system; and

(b) the age, height and weight of the person using the system is within the range specified by the manufacturer of the system; and

(c) the system is:

(i) used according to the manufacturer's instructions; and

(ii) secured so as not to be a hazard to the person using the system or to any other person; and

(d) there is a suitable adult (the ***suitable person***) responsible for the person who is using the system.

Note Operators and pilots in command should note that in securing a child restraint system in accordance with the manufacturer's instructions, particular attention must be paid to whether the system requires securing by a lap belt, or a shoulder belt, or a combination of both. Many aircraft have only lap belts fitted to the aircraft seats but some child restraint systems are required by the manufacturer to be secured by both a lap belt and shoulder belt. In such aircraft, the system may not be able to be properly secured.

(3) The suitable person must be:

(a) seated in the seat closest to the seat on which the child restraint system is installed; and

(b) competent to do the following:

(i) install the system on a seat;

(ii) secure a person in the system;

(iii) release a person from the system.

Division 20.3 Safety briefings and instructions

20.05 Purpose

For paragraph 91.565 (1) (a), this Division prescribes the requirements for a passenger safety briefing and instructions before an aircraft takes off for a flight.

20.06 Passenger safety briefings and instructions

The passenger safety briefing and instructions must cover the following:

(a) the rules about smoking during the flight;

(b) the places on the aircraft where smoking is prohibited;

(c) when seatbelts must be worn during the flight, and how to use them;

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(d) the requirement that seat backs must be in the upright position (or otherwise, if permitted by the AFM) during take-off and landing;

(e) any requirement that attachments to the seat (for example, tray tables and footrests) must be stowed during taxiing, take-off and landing;

(f) how and when to adopt the brace position;

(g) where the emergency exits are, and how to use them;

(h) the location of evacuation slides (if any) and how to use them;

(i) if emergency oxygen is carried for the flight — how and when to use the emergency oxygen;

(j) how and where to stow, or otherwise secure, carry-on baggage and personal effects, and the periods during the flight when these items must be stowed or secured;

(k) if the aircraft is fitted with escape path lighting — where the lighting is and how to use it;

(l) if survival equipment is carried, and it is intended that a passenger is to use the equipment — where the equipment is carried, and how to use it;

(m) if life jackets or life rafts are carried — where the jackets or rafts are located, and how to use them;

(n) the requirement that life jackets must not be inflated inside the aircraft;

(o) the limitations imposed on the use of portable electronic devices during different stages of the flight;

(p) the requirement that:

(i) passengers seated in emergency exit rows must be willing and able to operate the exit in the event of an emergency; and

(ii) such passengers must not have a condition that will cause them to obstruct the exit or hinder an emergency evacuation;

(q) when a passenger is carried who requires assistance — the nature of the assistance required in the event of an emergency, which emergency exit to use and when to use it;

(r) when a passenger is seated in a pilot seat — the requirement to ensure that controls are not manipulated or interfered with by the passenger;

(s) for a flight of a jump aircraft — the physical location(s) within, or on, the aircraft that the passenger must occupy during the flight in order to ensure the aircraft is operated within the aircraft's weight and balance limits during the flight.

Division 20.4 Carriage of animals

20.07 Purpose

For subregulation 91.620 (5), this Division prescribes requirements relating to the carriage of animals on an aircraft for a flight.

RESERVED

Note No requirements are currently prescribed. This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation.

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CHAPTER 21 RADIO FREQUENCY, BROADCAST AND REPORTING REQUIREMENTS

Division 21.1 Use of certain frequencies — radio qualifications required

21.01 Purpose

For subparagraph 91.625 (1) (a) (iv), the following kinds of radio frequencies are prescribed:

(a) the CTAF for a non-controlled aerodrome;

(b) the frequency for an MBA.

Division 21.2 Use of radio — broadcasts and reports

21.02 Purpose

For paragraph 91.630 (1) (b), this Division prescribes broadcasts and reports relating to a flight that the pilot in command of an aircraft fitted with or carrying a radio must ensure are made during the flight.

Note Regulation 91.675 (Pilot in command to report hazards to air navigation) also requires the pilot in command to make certain reports to different persons (ATS or aerodrome operators) including, for example, meteorological conditions that are hazardous to flight or defects in airways facilities or at aerodromes.

21.03 Prescribed broadcasts and reports — general

The broadcasts and reports required under this Division must be made on the relevant published radio frequency, unless the air traffic service agrees to the use of a different frequency for special flight circumstances.

Note For example, descent from controlled to uncontrolled airspace, formation flights, SAR operations, and police and security operations. The pilot in command may initiate a request for the air traffic service to agree to a changed radio frequency for special flight circumstances.

21.04 Non-controlled aerodromes — prescribed broadcasts

(1) The pilot in command of an aircraft must ensure that broadcasts on the CTAF are made for a non-controlled aerodrome in accordance with Table 21.04 (1) if:

(a) the aircraft is operating at, or in the vicinity of, a non-controlled aerodrome (including a certified or military aerodrome when non-controlled); and

(b) the aircraft is equipped with an operative VHF radio; and

(c) the pilot is qualified to use the radio.

Note 1 For the definition of ***in the vicinity of a non-controlled aerodrome*** — see section 1.07.

Note 2 For a pilot qualified to use the radio — see regulation 91.625.

Note 3 For an aircraft that must be equipped with an operative VHF radio — see Chapter 26.

Note 4 Additional requirements apply for a non-controlled aerodrome in a mandatory broadcast area — see section 21.09.

(2) For Table 21.04 (1), for an item in the Table, the pilot in command in the situation mentioned for an item in column 1 must ensure the broadcast mentioned for the item in column 2 is made.

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Table 21.04 (1) – Non-controlled aerodromes – broadcasts

	Column 1	Column 2
Item	**Situation**	**Broadcast**
1	When the pilot in command considers it reasonably necessary to broadcast to avoid the risk of a collision with another aircraft	Broadcast

21.05 Controlled aerodromes and controlled airspace — prescribed reports

(1) The pilot in command of 1 of the following:

(a) an aircraft on the ground at a controlled aerodrome;

(b) an aircraft in Class A, B, C or D airspace;

(c) an IFR aircraft in Class E airspace;

must:

(d) subject to subsection (1A), ensure that reports to the ATC service are made in accordance with Table 21.05 (1); and

(e) ensure that reports and broadcasts are made in accordance with the other applicable provisions of this Chapter.

(1A) Despite paragraph (1) (d), for item 10 of Table 21.05 (1), to ensure that separation with any aircraft operating near the base of controlled airspace is not compromised, the required report is to be made to the air traffic service for the Class G airspace volume that the aircraft will descend into after leaving controlled airspace.

(2) For Table 21.05 (1), for an item in the Table, the pilot in command in the situation mentioned for the item in column 1 must ensure that the report mentioned for the item in column 2 is made.

Table 21.05 (1) – An aircraft at a controlled aerodrome, or in Class A, B, C or D airspace, or an IFR aircraft in Class E airspace – reports

	Column 1	Column 2
Item	**Situation**	**Report**
1	Ready to Taxi	Report the situation
2	Airborne (only at locations where an ATS surveillance service is provided)	Report the situation
3	Departure (only when item 2 does not apply)	Report the situation
4	Position report when required by the ATC service or the route reporting requirements in the authorised aeronautical information	Report the situation
5	Previously reported position estimate is more than 2 minutes in error	Corrected position estimate
6	Sustained variation of more than 10 kts or Mach 0.02 from any previously notified speed or any standard descent profile agreed between the aircraft operator and ATS	Report the situation
7	Aircraft performance degraded below: (a) the level required for the airspace in which it is	Report the situation

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	Column 1	Column 2
Item	**Situation**	**Report**
	operating; or (b) the capability of the aircraft reported in the aircraft's flight notification	
8	Leaving a level or reaching an assigned level	Report the situation
9	Unable to comply with ATC clearances or instructions	Report the situation
10	Before leaving controlled airspace on descent	Report the situation
11	Arrival	If cancelling SARWATCH — report cancellation

Note Item 7 pertains to degradation of aircraft performance as a result of failure or degradation of navigation, communications, altimetry (including RVSM airspace capability), flight control or other systems.

21.06 IFR aircraft in Class G airspace — prescribed reports

(1) The pilot in command of an IFR aircraft in Class G airspace must ensure that:

(a) reports are made to the air traffic service for the airspace in accordance with Table 21.06 (1); and

(b) reports and broadcasts are made in accordance with the other applicable provisions of this Chapter.

(2) Despite subsection (1), if the pilot in command of an IFR aircraft in Class G airspace is unable to make contact with the air traffic service in relation to the report required by item 1 or item 2 of Table 21.06 (1), the aircraft may taxi and take-off but only if:

(a) broadcasts are made in place of the required reports; and

(b) contact with the air traffic service is established as soon as possible after take-off; and

(c) the following conditions are complied with:

(i) where the operator of the flight is an AOC holder, aerial work certificate holder or Part 141 certificate holder — the pilot is assured of radio contact with the operator, or with a representative of the operator who has immediate access to a serviceable telephone, until contact is made with the air traffic service;

(ii) except for Part 121 operations conducted using aircraft with a MOPSC greater than 19 seats — a SARTIME for departure, that is a maximum of 30 minutes after commencing to taxi, has been established with the air traffic service.

(3) For Table 21.06 (1), for an item of the Table, the pilot in command in the situation mentioned for the item of column 1 must ensure that the report mentioned for the item in column 2 is made.

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Table 21.06 (1) – IFR aircraft in Class G airspace – reports

	Column 1	Column 2
Item	**Situation**	**Report**
1	Taxiing	Report the situation
2	Departure	Report the situation
3	Reaching cruising level	Report the situation
4	Position report when required by the ATC service or by the route reporting requirements of the authorised aeronautical information	Report the situation
5	Previously reported position estimate is more than 2 minutes in error	Report the situation
6	Before changing level	Report the situation
7	Before changing frequency	Report the situation
8	Requiring clearance into controlled airspace	Report the situation
9	Before changing to CTAF and not monitoring ATS frequency on second COM system	Report the situation
10	After landing	If cancelling SARWATCH at this time — report the cancellation

21.07 VFR aircraft in Class E or G airspace — prescribed reports

(1) The pilot in command of a VFR aircraft in Class E or G airspace must ensure that:

(a) a report is made to the air traffic service for the airspace in accordance with Table 21.07 (1); and

(b) reports and broadcasts are made in accordance with the other applicable provisions of this Chapter.

(2) For Table 21.07 (1), for an item of the Table, the pilot in command in the situation mentioned for the item in column 1 must ensure that the report mentioned for the item in column 2 is made.

Table 21.07 (1) — VFR aircraft in Classes E and G airspace

	Column 1	Column 2
Item	**Situation**	**Report**
1	Requiring clearance into controlled airspace	Report the situation
2	Before, and on completion of, over-water stage	Report in accordance with SAR reporting schedules if arranged before the over-water stage

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21.08 Flights in RVSM airspace — prescribed reports

The pilot in command of an aircraft conducting a flight in RVSM airspace within an Australian FIR must ensure that a report is made of all FL deviations of 300 ft or more from the aircraft's assigned level:

(a) regardless of the cause of the deviation; and

(b) in accordance with procedures published in the authorised aeronautical information.

21.09 Flights in a mandatory broadcast area — prescribed broadcasts and reports

(1) The pilot in command of an aircraft intending to operate in an MBA must:

(a) make broadcasts and reports in accordance with:

(i) if an SFIS is not active for the MBA — Table 21.09 (1); and

(ii) if an SFIS is active for the MBA — the requirements specified in the AIP, as in force from time to time for the SFIS; and

(b) ensure that, when making a broadcast or a report required by paragraph (a), the broadcast or report contains the following information, in the following order:

(i) the name of the relevant aerodrome followed by the word TRAFFIC;

(ii) the aircraft type and callsign;

(iii) for an MBA where an SFIS is not active immediately before entering the MBA:

(A) the aircraft's present altitude (where appropriate); and

(B) the situation-based information required by Table 21.09 (1);

(iv) for an MBA where an SFIS is active immediately before to entering the MBA — the information required by the AIP for the SFIS;

(v) the name of the relevant aerodrome; and

(c) ensure that reports and broadcasts are made in accordance with the other applicable provisions of this Chapter.

Note Certain other operational requirements for MBA are contained in section 11.10A. The requirement to have a radio in an MBA is contained in section 26.18.

(2) For Table 21.09 (1), for an item of the Table, the pilot in command in the situation mentioned in column 1 of an item must ensure that the broadcast mentioned in column 2 of the same item is made.

Table 21.09 (1) – Broadcasts – in relation to a MBA

	Column 1	**Column 2**
Item	**Situation**	**Broadcast**
1	Before or immediately after entering an MBA	Broadcast the pilot's intended use of the MBA
2	Joining a circuit	Broadcast the situation, and indicate the leg on which the aircraft will join
3	Conducting a straight-in approach	No later than 3 NM from the runway threshold — broadcast the situation
4	Passing the final approach fix of	Broadcast the situation

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	Column 1	Column 2
Item	**Situation**	**Broadcast**
	an instrument approach procedure	
5	Commencing a missed approach	Broadcast the situation
6	After landing and clear of the active runway(s)	Broadcast the situation
7	Starting to taxi	Broadcast the situation, and the following information: (a) that the flight is to be conducted under the IFR, if that is the case; (b) for any flight, either: (i) the planned destination aerodrome for the flight; or (ii) the direction in which the pilot intends to fly from the aerodrome; or (iii) the nature of operation (e.g. circuits); (c) the runway proposed to be used for take-off.
8	Immediately before entering the runway to be used for take-off	Broadcast the following: (a) a statement that the aircraft is entering the runway; (b) the runway identifier.

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CHAPTER 22 PERFORMANCE-BASED NAVIGATION (PBN)

22.01 Purpose

For paragraph 91.660 (1) (a), this Chapter prescribes the following navigation specifications:

(a) RNP AR APCH;

(b) RNP AR DP.

Note A prescribed navigation specification may not be used without CASA approval under regulation 91.045 for paragraph 91.660 (1) (b).

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CHAPTER 23 INTERCEPTION OF AIRCRAFT

23.01 Purpose

For subregulation 91.695 (1), this Chapter prescribes requirements that must be met if an aircraft (***the aircraft***) is intercepted by another aircraft during a flight.

23.02 Interception of aircraft

The pilot in command of the aircraft must comply with the applicable procedures for the pilot in command of an intercepted aircraft as set out in:

(a) ICAO Annex 2 – Appendix 1 – Signals – Section 2 – Signals for use in the event of interception; and

(b) ICAO Annex 2 – Appendix 2 – Interception of Civil Aircraft, Attachment A – Interception of Civil Aircraft.

Note For ICAO documents — see section 1.04.

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CHAPTER 24 TAKE-OFF PERFORMANCE

24.01 Purpose

For subregulation 91.795 (1), this Chapter prescribes requirements relating to take-off performance for a flight of an aircraft.

24.02 Take-off performance for aeroplanes

(1) The pilot in command of an aeroplane during and after take-off must ensure that, until the aeroplane reaches the minimum height for the flight in accordance with regulation 91.265, 91.267, 91.277 or 91.305 (as applicable), the aeroplane has the performance to clear all obstacles by a safe margin.

(2) For subsection (1), the pilot in command must determine the performance of the aeroplane from any 1 of the following:

(a) the AFM;

(b) the manufacturer's data manual (if any);

(c) other data approved under Part 21 of CASR for the purpose.

(3) For subsection (2), the pilot in command must take the following into account:

(a) the take-off distance available;

(b) the pressure altitude and temperature;

(c) the gradient of the runway in the direction of the take-off;

(d) the wind direction, speed and characteristics;

(e) the take-off and en route weather forecast;

(f) the obstacles in the vicinity of the take-off flight path.

24.03 Take-off performance for rotorcraft — general

(1) The pilot in command of a rotorcraft during and after take-off must ensure that, until the rotorcraft reaches the minimum height for the flight in accordance with regulation 91.265, 91.267, 91.277 or 91.305 (as applicable), the rotorcraft has the performance to clear all obstacles by a safe margin.

(2) For subsection (1), the pilot in command must determine the performance of the rotorcraft from any 1 of the following:

(a) the AFM;

(b) the manufacturer's data manual (if any);

(c) other data approved under Part 21 of CASR for the purpose.

(3) For subsection (2), the pilot in command must take the following into account:

(a) the take-off distance available;

(b) the adequacy of the size of the departure and planned destination aerodromes and any alternate aerodromes;

(c) the pressure altitude and temperature;

(d) the gradient of the take-off and initial climb stage of the flight;

(e) the climb flight path;

(f) either:

(i) the wind direction, speed and characteristics — if known; or

(ii) zero wind — if the matters mentioned in subparagraph (i) are unknown;

(g) the take-off and en route weather forecast;

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(h) the obstacles in the vicinity of the flight path.

24.04 Take-off performance for rotorcraft — Category A rotorcraft within populous areas

(1) This section applies to a rotorcraft that:

(a) is a Category A rotorcraft with a Category A performance supplement (the ***rotorcraft***); and

(b) takes off from a place in a populous area that is 1 of the following (the ***relevant HLS***):

(i) a non-certified aerodrome (including an HLS); or

(ii) an aerodrome that is not used for the regular take-off or landing of aeroplanes.

(2) The pilot in command of the rotorcraft may take off from the relevant HLS only if:

(a) the performance of the rotorcraft is sufficient to comply with the Category A procedure for take-off and initial climb at the relevant HLS; and

(b) in the event that an engine becomes inoperative — the pilot in command can ensure that the rotorcraft will maintain an obstacle clear climb gradient until 1 000 ft above the take-off surface.

Note 1 In the event of an engine failure, the Category A procedure allows for a rejected take-off within take-off distance available. If the critical engine failure occurs after the take-off decision point, the Category A procedure allows for flight clear of persons and property.

Note 2 ***Category A rotorcraft*** is defined in section 1.07.

24.05 Take-off performance for rotorcraft — Category B rotorcraft within populous areas

(1) This section applies to a rotorcraft that:

(a) is a Category B rotorcraft (the ***rotorcraft***); and

(b) takes off from a place in a populous area that is 1 of the following (the ***relevant HLS***):

(i) a non-certified aerodrome (including an HLS);

(ii) an aerodrome that is not used for the regular take-off or landing of aeroplanes.

(2) The pilot in command of the rotorcraft may take off from the relevant HLS only if:

(a) the performance of the rotorcraft is sufficient to:

(i) avoid obstacles during the take-off and initial climb stage of the flight; and

(ii) autorotate or fly clear of persons or property in the event of an engine failure; and

(iii) where the area is a confined area for the rotorcraft — hover out of ground effect for the take-off; and

(b) as far as practicable, the pilot in command provides for a planned take-off profile that minimises time within the avoid area of the HV curve.

Note For the ***avoid area of the HV curve*** — see section 1.07.

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CHAPTER 25 LANDING PERFORMANCE

25.01 Purpose

For subregulation 91.800 (2), this Chapter prescribes requirements relating to landing performance for a flight of an aircraft.

25.02 Landing performance for aeroplanes

(1) The pilot in command of an aeroplane during approach and landing must ensure that, from the time the aeroplane descends below the minimum height for the flight in accordance with regulation 91.265, 91.267, 91.277 or 91.305 (as applicable), the aeroplane has the performance to clear all obstacles by a safe margin.

(2) For subsection (1), the pilot in command must determine the performance of the aeroplane from any 1 of the following:

(a) the AFM;

(b) the manufacturer's data manual (if any);

(c) other data approved under Part 21 of CASR for the purpose.

(3) For subsection (2), the pilot in command must take the following into account:

(a) the landing distance available;

(b) the pressure altitude and temperature;

(c) the gradient of the runway in the direction of the landing;

(d) the wind direction, speed and characteristics;

(e) the landing weather forecast;

(f) the obstacles in the approach flight path and missed approach flight path.

25.03 Landing performance rotorcraft — general

(1) The pilot in command of a rotorcraft during approach and landing must ensure that, from the time the rotorcraft descends below the minimum height for the flight in accordance with regulation 91.265, 91.267, 91.277 or 91.305 (as applicable), the rotorcraft has the performance to clear all obstacles by a safe margin.

(2) For subsection (1), the pilot in command must determine the performance of the rotorcraft from any 1 of the following:

(a) the AFM;

(b) the manufacturer's data manual (if any);

(c) other data approved under Part 21 of CASR for the purpose.

(3) For subsection (2), the pilot in command must take the following into account:

(a) the FATO distance available;

(b) the adequacy of the size of the planned destination aerodromes and any alternate aerodromes;

(c) the pressure altitude and temperature;

(d) the gradient of the approach and any missed approach;

(e) either:

(i) the wind direction, speed and characteristics — if known; or

(ii) zero wind — if the matters mentioned in subparagraph (i) are unknown;

(f) the en route and destination weather forecast;

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(g) the obstacles in the vicinity of the approach flight path and the missed approach flight path.

25.04 Landing performance for rotorcraft — Category A rotorcraft within a populous area

(1) This section applies to a rotorcraft:

(a) that is a Category A rotorcraft with a Category A performance supplement; and

(b) that lands at a place in a populous area that is 1 of the following (a ***relevant HLS***):

(i) a non-certified aerodrome (including an HLS);

(ii) an aerodrome that is not used for the regular take-off or landing of aeroplanes.

(2) The pilot in command of the rotorcraft may land at the relevant HLS only if:

(a) the performance of the rotorcraft is sufficient to comply with the Category A procedure for landing and missed approach at the relevant HLS; and

(b) in the event that an engine becomes inoperative — the pilot in command can ensure that the rotorcraft will maintain an obstacle clear approach gradient, including any missed approach.

Note 1 In the event of an engine failure at or after the landing decision point, the Category A procedure allows a continued approach clear of persons and property, and a landing within the landing distance available at the HLS.

Note 2 ***Category A rotorcraft*** is defined in section 1.07.

25.05 Landing performance for rotorcraft — Category B rotorcraft within a populous area

(1) This section applies to a rotorcraft that:

(a) is a Category B rotorcraft (the ***rotorcraft***); and

(b) lands at a place in a populous area that is 1 of the following (a ***relevant HLS***):

(i) a non-certified aerodrome (including an HLS);

(ii) an aerodrome that is not used for the regular take-off or landing of aeroplanes.

(2) The pilot in command of the rotorcraft may land at the relevant HLS only if:

(a) the performance of the rotorcraft is sufficient to:

(i) avoid obstacles during the landing and any missed approach stage of the flight; and

(ii) autorotate or fly clear of persons or property in the event of an engine failure; and

(iii) where the area is a confined area for the rotorcraft — hover out of ground effect for the landing; and

(b) as far as practicable, the pilot in command provides for a planned landing profile that minimises time within the avoid area of the HV curve.

Note For the ***avoid area of the HV curve*** — see section 1.07.

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CHAPTER 26 EQUIPMENT

Division 26.1 General

26.01 Purpose

(1) For subregulation 91.810 (1), this Chapter prescribes requirements relating to:

(a) the fitment and non-fitment of equipment to an aircraft; and

(b) the carrying of equipment on an aircraft; and

(c) equipment that is fitted to, or carried on, an aircraft.

Note Requirements in relation to equipment may also be in relation to inoperative equipment.

(2) For subregulation 91.810 (1), unless the contrary intention appears in or for a particular provision, the pilot in command of an aircraft is subject to each of the requirements set out in the provisions of this Chapter.

(3) 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 26.2 Approvals, visibility and inoperative equipment

26.02 Approval of aircraft equipment

(1) In this section:

relevant aircraft means any of the following:

(a) a light sport aircraft for which a special certificate of airworthiness has been issued and is in force under regulation 21.186 of CASR;

(b) a light sport aircraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (j) or (k) of CASR;

(c) any other aircraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (g) or (h) of CASR.

(2) Before an Australian aircraft begins a flight, any equipment that is required to be fitted to, or carried on, the aircraft under this Chapter (other than equipment required under Division 26.16) must be compliant with the requirements of, or approved under, Part 21 of CASR.

Note Division 26.16 contains requirements for mandatory or optional carriage of surveillance equipment, most of which requires TSO or ETSO authorisation. However, the Division also contains a conditional alleviation. For the relevant equipment, a requirement for Part 21 approval would inappropriately negate this conditional alleviation.

(3) Subsection (2) does not apply to 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 sea anchor and other equipment for mooring;

(e) survival equipment, including signalling equipment.

(4) Subsection (2) does not apply to a relevant aircraft in respect of any required radiocommunication system if the aircraft is fitted with a radiocommunication system

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which provides the pilot with the same radiocommunication capability as would be provided if the radiocommunication system had complied with subsection (2).

(6) Before a foreign-registered aircraft begins a flight in Australian airspace, the equipment required by this Chapter to be fitted to, or carried on, the aircraft must have been approved by the NAA of the aircraft's State of registry.

(7) If equipment is carried on an aircraft although not required by this Chapter to be fitted or carried, then:

(a) the equipment need not be compliant with the requirements of, or approved under, Part 21 of CASR; and

(b) for a foreign-registered aircraft — the equipment need not have been approved by the NAA of the aircraft's State of registry; and

(c) any information, or data, provided by the equipment must not be used by any flight crew member for a flight 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 aircraft.

Note For other requirements in relation to surveillance equipment that is not required to be fitted or carried, see section 26.69.

26.03 Visibility and accessibility of pilot-operated equipment

(1) This section applies in relation to equipment that is required under this Chapter to be fitted to, or carried on, an aircraft 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 aircraft.

(3) Emergency equipment that is required under this Chapter to be fitted to, or carried on, an aircraft for a flight must be easily accessible for immediate use in the event of an emergency.

26.04 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, can 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 contained in this Chapter. For example, section 26.26 contains an allowable time period of 72 hours related to flights with inoperative altitude alerting equipment. An MEL would not be approved if it contained a maximum time period for altitude alerting equipment to be inoperative that was greater than the time period specified by either a master minimum equipment list (MMEL) or the legislation.

(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 26.3 Flight instruments — aeroplanes

26.05 Application

This Division applies to an aeroplane, subject to Division 26.5.

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26.06 Aeroplane VFR flight by day

(1) Subject to subsection (2), an aeroplane for a VFR flight 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) Mach number — but only for an aeroplane with operating limitations expressed in terms of Mach number;

(f) turn and slip — but only for an aeroplane conducting an aerial work operation;

(g) outside air temperature — but only for an aeroplane conducting an aerial work operation from an aerodrome at which ambient air temperature is not available from ground-based instruments.

(2) For subsection (1), the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 26.06 (2) must meet the requirements mentioned in column 2 of the item.

Table 26.06 (2) – Requirements for equipment – aeroplane VFR flight by day

	Column 1	**Column 2**
Item	**Flight information**	**Requirements**
1	Pressure altitude	The equipment must: (a) have an adjustable datum scale calibrated in millibars or hPa; and (b) be calibrated in ft, except that, if a flight is conducted in a foreign country which measures FLs 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) both: (i) a remote indicating compass; and (ii) 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 aircraft; or (b) worn by, or immediately accessible to, the pilot for the duration of the flight.

26.07 Aeroplane VFR flight by night

(1) An aeroplane for a VFR flight by night must be fitted with:

(a) an approved GNSS; or

(b) an ADF or VOR.

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Note 1 See subsection 1.07 (6) for definitions.

Note 2 For aircraft entering oceanic airspace with RNP 2, 4 or 10 navigation specification capability, see subsections 11.03 (1B) and (1C) in relation to long range navigation systems (LRNS) operability requirements.

(2) For subsection (1), if an approved GNSS unit is provided with the automatic barometric aiding options specified 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.

(3) Subject to subsection (4), an aeroplane for a VFR flight by night must be fitted with equipment for measuring and displaying the following flight information for the aeroplane:

(a) indicated airspeed;

(b) pressure altitude;

(c) magnetic heading;

(d) time;

(e) Mach number — but only for an aeroplane with operating limitations expressed in terms of Mach number;

(f) turn and slip;

(g) attitude;

(h) vertical speed;

(i) stabilised heading;

(j) outside air temperature;

(k) whether the supply of power to gyroscopic instruments (if any) is adequate.

(4) For subsection (3), the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 26.07 (4) must meet the requirements mentioned in column 2 of the item.

Table 26.07 (4) – Requirements for equipment – aeroplane VFR flight by night

	Column 1	**Column 2**
Item	**Flight information**	**Requirements**
1	Indicated airspeed	The equipment must be capable of being connected to: (a) an alternate source of static pressure that: (i) is selectable by a pilot; and (ii) includes a selector that can open or block the aeroplane's static source and alternative static source at the same time; or (b) a balanced pair of flush static ports.
2	Pressure altitude	1. The equipment must: (a) have an adjustable datum scale calibrated in millibars or hPa; and

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	Column 1	Column 2
Item	**Flight information**	**Requirements**
		(b) be calibrated in feet, except that, if a flight is conducted in a foreign country which measures FLs or altitudes in metres, the equipment must be: (i) calibrated in metres; or (ii) fitted with a conversion placard or device. 2. The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports.
3	Magnetic heading	The equipment must be: (a) a direct reading magnetic compass; or (b) both: (i) a remote indicating compass; and (ii) 1a standby direct reading magnetic compass.
4	Time	1. The equipment must display accurate time in hours, minutes and seconds. 2. The equipment must be: (a) fitted to the aircraft; or (b) worn by, or immediately accessible to, the pilot for the duration of the flight.
5	Turn and slip	The equipment must display turn and slip information, except when a second independent source of attitude information is available in which case only the display of slip information is required.
6	Vertical speed	The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports.
7	Stabilised heading	*Note* A gyromagnetic type of remote indicating compass meets this requirement if it has a primary power supply and an alternate power supply.

26.08 Aeroplane IFR flight

(1) An aeroplane for an IFR flight must be fitted with the following navigation equipment:

(a) for an aeroplane that is manufactured on or after 6 February 2014 — at least 1 approved GNSS but not one authorised in accordance with (E)TSO-C129;

Note For ***approved GNSS***, see subsection 1.07 (6).

(b) for an aeroplane that was manufactured before 6 February 2014:

(i) if the GNSS equipment is installed on or after 6 February 2014 — at least 1 approved GNSS, but not one authorised in accordance with (E)TSO-C129;

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(ii) if the GNSS equipment was installed before 6 February 2014 — at least:

(A) 1 approved GNSS, but not one authorised in accordance with (E)TSO-C129; or

(B) 1 approved GNSS that is authorised in accordance with (E)TSO-C129, and an ADF or VOR.

Note For aircraft entering oceanic airspace with RNP 2, 4 or 10 navigation specification capability, see subsections 11.03 (1B) and (1C) in relation to long range navigation systems (LRNS) operability requirements.

(2) If, in accordance with subsection (1), an approved GNSS unit is provided with the automatic barometric aiding options specified 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.

(3) Subject to subsection (4), an aeroplane for an IFR flight 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) Mach number — but only for an aeroplane with operating limitations expressed in terms of Mach number;

(f) turn and slip;

(g) attitude;

(h) vertical speed;

(i) stabilised heading;

(j) outside air temperature;

(k) whether the supply of power to gyroscopic instruments (if any) is adequate.

(4) For subsection (3), the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 26.08 (4) must meet the requirements mentioned in column 2 of the item.

Table 26.08 (4) – Requirements for equipment – aeroplane IFR flight

	Column 1	**Column 2**
Item	**Flight information**	**Requirements**
1	Indicated airspeed	1. The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports. 2. Subject to clause 3, the equipment for indicated airspeed must include a means of preventing malfunction due to condensation or

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	Column 1	Column 2
Item	**Flight information**	**Requirements**
		icing. 3. If more than 1 unit of indicated airspeed equipment is fitted, at least 1 of the units must include a means of preventing malfunction due to condensation or icing.
2	Pressure altitude	1. The equipment must: (a) have an adjustable datum scale calibrated in millibars or hPa; and (b) be calibrated in ft, except that, if a flight is conducted in a foreign country which measures FLs or altitudes in metres, the equipment must be calibrated in metres or fitted with a conversion placard or device. 2. The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports.
3	Magnetic heading	The equipment must be: (a) a direct reading magnetic compass; or (b) both: (i) a remote indicating compass; and (ii) a standby direct reading magnetic compass.
4	Time	1. The equipment must display accurate time in hours, minutes and seconds. 2. The equipment must be: (a) fitted to the aircraft; or (b) worn by, or immediately accessible to, the pilot for the duration of the flight.
5	Turn and slip	1. The equipment must display turn and slip information, except where a second independent source of attitude information is available, in which case only the display of slip information is required. 2. The equipment must have an alternate power supply in addition to its primary power supply unless: (a) the equipment has a source of power independent of the power operating other gyroscopic instruments; or (b) a second independent source of attitude information is available.
6	Attitude	The equipment must have an alternate power supply in addition to its primary power supply: (a) unless the equipment has a source of power independent of the source of turn and slip information; or

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	Column 1	Column 2
Item	**Flight information**	**Requirements**
		(b) a second independent source of attitude information is available.
7	Vertical speed	The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports.
8	Stabilised heading	The equipment must have an alternate power supply in addition to its primary power supply unless: (a) the equipment has a source of power independent of the power operating the source of turn and slip information; or (b) a second independent source of attitude information is available. *Note* A gyromagnetic type of remote indicating compass meets this requirement if it has a primary power supply and an alternate power supply.

Division 26.4 Rotorcraft-specific requirements

26.09 Application

This Division applies to a rotorcraft, subject to Division 26.5.

26.10 Rotorcraft VFR flight by day

(1) A rotorcraft for a VFR flight 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 — but only for a rotorcraft conducting an aerial work operation;

(f) outside air temperature — but only for a rotorcraft conducting an aerial work operation from an aerodrome at which ambient air temperature is not available from ground-based instruments.

(2) For subsection (1), the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 26.10 (2), as required under subsection (1), must meet the requirements mentioned in column 2 of the item.

Table 26.10 (2) – Requirements for equipment – rotorcraft VFR flight by day

	Column 1	Column 2
Item	**Flight information**	**Requirements**
1	Pressure altitude	The equipment must: (a) have an adjustable datum scale calibrated in millibars or hPa; and

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	Column 1	Column 2
Item	**Flight information**	**Requirements**
		(b) be calibrated in feet, except that, if a flight is conducted in a foreign country which measures FLs or altitudes in metres, the equipment must be: (i) calibrated in metres; or (ii) fitted with a conversion placard or device.
2	Magnetic heading	The equipment must be: (a) a direct reading magnetic compass; or (b) both: (i) a remote indicating compass; and (ii) 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 aircraft; or (b) worn by, or immediately accessible to, the pilot for the duration of the flight.

26.11 Rotorcraft VFR flight by night

(1) A rotorcraft for a VFR flight by night must be fitted with:

(a) an approved GNSS; or

(b) an ADF or VOR.

Note 1 See subsection 1.07 (6) for definitions.

Note 2 For aircraft entering oceanic airspace with RNP 2, 4 or 10 navigation specification capability, see subsections 11.03 (1B) and (1C) in relation to long range navigation systems (LRNS) operability requirements.

(2) For subsection (1), if an approved GNSS unit is provided with the automatic barometric aiding options specified 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.

(3) Subject to subsection (5), a rotorcraft for a VFR flight by 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;

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(g) standby attitude or turn indicator — but not if the rotorcraft is conducting an agricultural operation;

(h) vertical speed;

(i) stabilised heading — but not if the rotorcraft is conducting an agricultural operation;

(j) outside air temperature;

(k) whether the supply of power to gyroscopic instruments (if any) is adequate.

(4) A single pilot may only begin a rotorcraft VFR flight by night over land or water if:

(a) the rotorcraft's attitude during the flight can be maintained by the use of visual external surface cues provided by lights on the ground, or celestial illumination, or by lighting fitted to the aircraft; or

(b) the rotorcraft is fitted with an automatic pilot system, or an automatic stabilisation system.

Note Visual external surface cues can be established by using either unaided sight, or NVIS or other enhanced vision systems where permitted.

(5) For subsection (3), the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 26.11 (5) must meet the requirements mentioned in column 2 of the item.

Table 26.11 (5) – Requirements for equipment – rotorcraft VFR flight by night

	Column 1	**Column 2**
Item	**Flight information**	**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 which measures FLs or altitudes in metres, the equipment must be: (i) calibrated in metres; or (ii) fitted with a conversion placard or device.
2	Magnetic heading	The equipment must be: (a) a direct reading magnetic compass; or (b) both: (i) a remote indicating compass; and (ii) 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 aircraft; or (b) worn by, or immediately accessible to, the pilot for the duration of the flight.
4	Attitude	The equipment must have a primary power supply and an alternate power supply.

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	Column 1	Column 2
Item	**Flight information**	**Requirements**
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 onto vessels or platforms at sea by night, the equipment must: (a) be an instantaneous vertical speed indicator (***IVSI***); or (b) meet performance requirements for acceleration sensitivity equivalent to an IVSI.
7	Stabilised heading	*Note* A gyromagnetic type of remote indicating compass meets this requirement if it has a primary power supply and an alternate power supply.

26.12 Rotorcraft IFR flight

(1) A rotorcraft for an IFR flight must be fitted with the following navigation equipment:

(a) for a rotorcraft that is manufactured on or after 6 February 2014 — at least 1 approved GNSS, but not one authorised in accordance with (E)TSO-C129;

Note For ***approved GNSS***, see subsection 1.07 (6).

(b) for a rotorcraft that was manufactured before 6 February 2014:

(i) if the GNSS equipment is installed on or after 6 February 2014 — at least 1 approved GNSS, but not one authorised in accordance with (E)TSO-C129;

(ii) if the GNSS equipment was installed before 6 February 2014 — at least:

(A) 1 approved GNSS, but not one authorised in accordance with (E)TSO-C129; or

(B) 1 approved GNSS that is authorised in accordance with (E)TSO-C129, and an ADF or VOR.

Note For aircraft entering oceanic airspace with RNP 2, 4 or 10 navigation specification capability, see subsections 11.03 (1B) and (1C) in relation to long range navigation systems (LRNS) operability requirements.

(2) If, in accordance with subsection (1), an approved GNSS unit is provided with the automatic barometric aiding options specified 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.

(3) A rotorcraft for IFR flight must be fitted with an automatic pilot system or an automatic stabilisation system.

(4) A rotorcraft for IFR flight must be fitted with equipment for measuring and displaying the following flight information:

(a) indicated airspeed;

(b) pressure altitude;

(c) magnetic heading;

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(d) time;
(e) slip;
(f) attitude;
(g) standby attitude;
(h) vertical speed;
(i) stabilised heading;
(j) outside air temperature;
(k) whether the supply of power to gyroscopic instruments (if any) is adequate.

(5) When a rotorcraft begins an IFR flight with only 1 pilot, as permitted by or under the civil aviation legislation or the AFM, it must be fitted with equipment for measuring and displaying pressure altitude that is separate from, and independent of, the corresponding equipment mentioned in paragraph (4) (b).

(6) When a rotorcraft begins an IFR flight with 2 pilots, as required by or under the civil aviation legislation or the AFM, it must be fitted with equipment for measuring and displaying the following, that is separate from, and independent of, the corresponding equipment mentioned in paragraphs (4) (a), (b), (e), (f) and (h):
(a) indicated airspeed;
(b) pressure altitude;
(c) slip;
(d) attitude;
(e) vertical speed.

(7) For subsections (4), (5) and (6), the equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 26.12 (7) must meet the requirements mentioned in column 2 of the item.

Table 26.12 (7) – Requirements for equipment – rotorcraft IFR flight

	Column 1	**Column 2**
Item	**Flight information**	**Requirements**
1	Indicated airspeed	1. The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports. 2. Subject to clause 3, the equipment for measuring and displaying indicated airspeed must include a means of preventing malfunction due to condensation or icing. 3. If more than 1 unit of indicated airspeed equipment is fitted, at least 1 of the units must include a means of preventing malfunction due to condensation or icing. 4. The equipment must operate independently of other sources of indicated information.
2	Pressure altitude	1. The equipment must: (a) have an adjustable datum scale calibrated in millibars or hPa; and

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	Column 1	Column 2
Item	**Flight information**	**Requirements**
		(b) be calibrated in feet, except that, if a flight is conducted in a foreign country which measures FLs or altitudes in metres, the equipment must be: (i) calibrated in metres; or (ii) fitted with a conversion placard or device. 2. The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports.
3	Magnetic heading	The equipment must be: (a) a direct reading magnetic compass; or (b) both: (i) a remote indicating compass; and (ii) a standby direct reading magnetic compass.
4	Time	1. The equipment must display accurate time in hours, minutes and seconds. 2. The equipment must be: (a) fitted to the aircraft; or (b) worn by, or immediately accessible to, the pilot for the duration of the flight.
5	Attitude	1. The equipment must have a primary power supply and an alternate power supply. 2. The equipment must operate independently of other sources of turn and slip information.
6	Standby attitude	The equipment must: (a) have a source of power independent of the electrical generating system; and (b) operate independently of other sources of attitude information; 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.

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	Column 1	Column 2
Item	**Flight information**	**Requirements**
7	Vertical speed	1. The equipment must be capable of being connected to: (a) an alternate source of static pressure that is selectable by a pilot; or (b) a balanced pair of flush static ports. 2. The equipment must: (a) be an instantaneous vertical speed indicator (***IVSI***); or (b) meet performance requirements equivalent to an IVSI.
8	Stabilised heading	The equipment must have a primary power supply and an alternate power supply. *Note* A gyromagnetic type of remote indicating compass meets this requirement if it has a primary power supply and an alternate power supply.

Division 26.5 Experimental and light sport aircraft and Australian registered aircraft

26.13 Application — VFR flight requirements do not apply to certain light sport aircraft

(1) In this section:

relevant aircraft means 1 of the following:

(a) a light sport aircraft for which a special certificate of airworthiness has been issued and is in force under regulation 21.186 of CASR;

(b) a light sport aircraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (j) or (k) of CASR.

(2) Sections 26.06 and 26.07 do not apply to a relevant aircraft if the aircraft is fitted with equipment which provides the pilot with the same flight and navigation information as would be provided through compliance with section 26.06 or 26.07, as the case may be.

26.14 Application — VFR and IFR flight requirements do not apply to certain experimental aeroplanes

(1) In this section:

relevant aeroplane means an aeroplane for which an experimental certificate has been issued and is in force under paragraph 21.191 (g) or (h) of CASR.

(2) Sections 26.06, 26.07 and 26.08 (other than subsection 26.08 (1)), do not apply to a relevant aeroplane if the aeroplane is fitted with equipment which provides the pilot with the same flight and navigation information as would be provided through compliance with section 26.06, 26.07 or 26.08 (other than subsection 26.08 (1)), as the case may be.

Note The effect of subsection (2) is that for IFR flight, a relevant aeroplane must be fitted with an approved GNSS in accordance with subsection 26.08 (1).

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26.15 Application — VFR and IFR flight requirements do not apply to certain experimental rotorcraft

(1) In this section:

relevant rotorcraft means a rotorcraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (g) or (h) of CASR.

(2) Sections 26.10, 26.11 (other than subsection (2)) and 26.12 (other than subsections (1) and (2), do not apply to a relevant rotorcraft if the rotorcraft is fitted with equipment which provides the pilot with the same flight and navigation information as would be provided through compliance with section 26.10, 26.11 (other than subsection (2)) or 26.12 (other than subsections (1) and (2)), as the case may be.

Note The effect of subsection (2) is that for a VFR flight by night over land or water that is conducted by a single pilot, a relevant rotorcraft must be fitted with an automatic pilot system or an automatic stabilisation system in accordance with subsection 26.11 (2); and that for an IFR flight, a relevant rotorcraft must be fitted with an approved GNSS in accordance with subsection 26.12 (1), and an automatic pilot system or an automatic stabilisation system in accordance with subsection 26.12 (2).

26.16 Application — VFR and IFR flight requirements do not apply to certain Australian-registered aircraft

(1) In this section:

relevant aircraft means any Australian-registered aircraft that is not an experimental or light sport aircraft.

(2) Division 26.3 or 26.4 of this Chapter does not apply to a relevant aircraft if the aircraft is fitted with equipment, compliant with the requirements of, or approved under, Part 21 of CASR, which provides for the aircraft's intended operation a level of safety equivalent to that which would be achieved if Divisions 26.3 or 26.4 (as the case requires) applied.

(3) For subsection (2), CASA's consideration of safety equivalency must take into account whether the type certificating authority for the aircraft considers that the aircraft achieves, for its intended operation, a level of safety equivalent to that which would be achieved if Division 26.3 or 26.4 applied.

(4) For subsection (3), ***type certificating authority*** means such an authority of a recognised country.

26.17 Electronic flight information systems

(1) This section applies to an aircraft:

(a) to which section 26.13, 26.14 or 26.15 applies; and

(b) which is fitted with 1 of the following systems:

(i) an electronic flight information system (an ***EFIS***);

(ii) an electronic display indicator;

(iii) another system for electronically displaying flight information.

(2) The system must be provided with:

(a) a battery-powered back-up; or

(b) a source of power independent of the aircraft's primary electrical system.

(3) The battery-powered back-up must:

(a) be fully charged before the flight begins; and

(b) have sufficient capacity to power the EFIS panel or other display for at least 60 minutes.

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Division 26.6 Operational equipment

26.18 Radiocommunication systems

(1) Subject to subsection (2), an aircraft for a flight, in any class of airspace, whether controlled or uncontrolled, must be fitted with radiocommunication systems capable of:

(a) collectively communicating on all frequencies necessary to meet the reporting, broadcast and listening watch requirements under regulations 91.630, 91.635, 91.640 and 91.675, from any point on the route of the flight, including in the event of any diversions; and

(b) 2-way voice communications; and

(c) communicating on the aeronautical emergency frequency 121.5 MHz.

Note 1 Certain light sport aircraft and experimental aircraft do not have to comply with the requirement for this equipment to be approved under Part 21 of CASR: see subsection 26.02 (5).

Note 2 Regulation 91.400 places certain requirements on aircraft without an operative radio at certain non-controlled aerodromes.

(2) Subject to subsections (3) and (4), an aircraft for a flight under the VFR by day in Class G airspace at or below 5 000 ft AMSL (a ***relevant aircraft***) is not required to comply with subsection (1).

(3) Subsection (2) does not apply if a relevant aircraft is operating in accordance with the VMC criteria at item 4, 5 or 6 of Table 2.07 (3).

(4) Subsection (2) does not apply if a relevant aircraft is operating within, or intending to enter, an MBA.

Note Certain operational requirements for MBA are contained in section 11.10A. Radio broadcast requirements for MBA are contained in section 21.09.

26.19 When aircraft may begin a flight with inoperative radiocommunications

An aircraft for which a radiocommunication system is required may begin a flight with inoperative radiocommunication system if:

(a) the flight begins from a departure aerodrome with no facility for the radiocommunication system to be repaired or replaced; and

(b) the flight is to the nearest facility at which the radiocommunication system can be repaired or replaced; and

(c) for the portions of the flight conducted in controlled airspace:

(i) ATS is informed, before the flight begins, of the inoperative radiocommunication system; and

(ii) clearance is obtained from ATS for the flight; and

(d) for the portions of the flight conducted in Class G airspace above 5 000 ft AMSL, or conducted in an MBA:

(i) the flight is conducted during the day in VMC; and

(ii) the flight is conducted in-company with another aircraft (the ***other aircraft***); and

(iii) the other aircraft is carrying an operative radio; and

(iv) the pilot in command of the other aircraft ensures that all the broadcasts and reports required by regulation 91.630 are made for both aircraft; and

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(v) the pilot in command of the other aircraft is:

(A) if the aircraft is an Australian aircraft — authorised under Part 61 of CASR to operate the radio; or

(B) if the aircraft is a foreign registered aircraft — authorised to operate the radio under the law of the aircraft's State of registry.

Note 1 For continuation of a flight with an inoperative radiocommunication system, see sections 11.10 and 11.18.

Note 2 Regulation 91.400 places certain requirements on aircraft without an operative radio at certain non-controlled aerodromes.

26.20 Equipment to measure and record cosmic radiation

(1) An aeroplane conducting an IFR flight above FL 490 must be fitted with equipment to measure and display the total cosmic radiation received in the aeroplane's cabin.

(2) For subsection (1), the equipment must continuously measure and display:

(a) the dose rate of total cosmic radiation being received during the flight; and

(b) the cumulative dose of total cosmic radiation received on each flight.

(3) In this section:

total cosmic radiation means the sum total of ionizing and neutron radiation of galactic and solar origin.

Division 26.7 Lighting systems

26.21 Cockpit and cabin lighting requirements

(1) An aircraft operating by night must be fitted with or carry, as applicable, the following lighting equipment:

(a) cockpit lighting that meets the requirements mentioned in subsection (3);

(b) cabin lighting that enables each occupant of the aircraft 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 aircraft;

(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) An aircraft operating by day must be fitted with or carry, as applicable, cockpit lighting that meets the requirements mentioned in subsection (3) if natural light does not adequately illuminate the items of equipment and documents mentioned in paragraphs (3) (a) and (b).

(3) For paragraph (1) (a) and subsection (2), the cockpit lighting equipment of an aircraft 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 pilot; and

(d) be arranged in a way that:

(i) enables all placards and instrument markings to be read from each pilot's normal sitting position in a pilot's seat in the aircraft; and

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(ii) each pilot'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.

26.22 Anti-collision lights

(1) Subject to subsection (2), an aircraft operating by day or night must be fitted with the number of anti-collision lights required by the aircraft type design.

(2) The anti-collision light equipment fitted to an aircraft must comprise:

(a) at least 1 red beacon light; or

(b) at least 2 white strobe lights; or

(c) a combination of at least all of the lights mentioned in paragraphs (a) and (b).

(3) For anti-collision light equipment comprising 1 or more red beacon lights only, the lights must be displayed as follows:

(a) for a turbine-engine aircraft — from immediately before the engines are started until the time the engines are shut down at the end of the flight;

(b) for any other aircraft — from whichever of the following is the earlier, until the time the engines are shut down at the end of the flight:

(i) as required by the aircraft's flight manual instructions; or

(ii) from immediately after the engines are started.

(4) For anti-collision light equipment comprising white strobe lights only, the lights must be displayed as follows:

(a) for a turbine-engine aircraft — from immediately before the engines are started until the time the engines are shut down at the end of the flight;

(b) for any other aircraft — from whichever of the following is the earlier, until the time the engines are shut down at the end of the flight:

(i) as required by the aircraft's flight manual instructions; or

(ii) from immediately after the engines are started.

(5) For anti-collision light equipment comprising a combination of red beacon lights and white strobe lights, the lights must be displayed as follows:

(a) for the red beacon lights — in accordance with the requirements in subsection (3);

(b) for the white strobe lights — in accordance with the following:

(i) if the aircraft, on its way to the runway from which it will take off, or on its way from the runway on which it has landed, crosses any other runway that is in use for take-offs or landings (an ***active runway***) — while the aircraft is crossing the active runway;

(ii) from the time the aircraft first enters the runway from which the aircraft will take off until the time the aircraft leaves the runway on which it has landed.

(6) Subsections (3), (4) and (5) do not apply if the pilot in command reasonably believes that, in the circumstances, reflection or glare from the anti-collision light system may cause a hazard to an aircraft.

26.23 Landing lights

An aircraft operating by night must be fitted with at least 1 landing light.

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26.24 Navigation lights

(1) An aircraft operating by night must be fitted with navigation lights.

(2) When required to be fitted, navigation lights must be displayed during a flight, and when operating on the movement area of an aerodrome.

Division 26.8 Alerting and warning system requirements

26.25 Altitude alerting system and assigned altitude indicator — IFR flights

(1) For an IFR flight, the following aircraft must be fitted with altitude alerting equipment in accordance with subsection (2):

(a) a piston-engine aircraft operating in controlled airspace above FL 150;

(b) an unpressurised turbine-engine aircraft operating in controlled airspace above FL 150;

(c) a pressurised turbine-engine aircraft operating in any controlled airspace.

(2) For subsection (1), the altitude alerting equipment must:

(a) include an assigned altitude indicator; and

(b) alert the flight crew members if the aircraft approaches a preselected altitude; and

(c) alert the flight crew members, including by an aural warning, if the aircraft deviates from a preselected altitude.

(3) If an aircraft, other than an aircraft to which subsection (1) applies, is operating under the IFR in controlled airspace, the aircraft must be fitted with altitude alerting equipment that at least includes an assigned altitude indicator.

26.26 Aircraft flown with inoperative altitude alerting equipment — IFR flights

Despite section 26.25, altitude alerting equipment may be inoperative at the beginning of a flight only if the flight:

(a) begins within 72 hours of the time the equipment was found to be inoperative; and

(b) is from an aerodrome at which there is no facility for the equipment to be repaired or replaced.

26.27 Aeroplane airborne collision avoidance system — ACAS II

RESERVED

Note No requirements are currently prescribed. This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation.

26.28 ACAS II requirements for use

RESERVED

Note No requirements are currently prescribed. This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation.

26.29 Flight with inoperative ACAS

RESERVED

Note No requirements are currently prescribed. This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation.

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Division 26.9 Flight recording equipment

26.30 Definitions — flight recorders

In this Division:

combination recorder means a single recording system combining the capabilities and functions of a flight data recorder (an ***FDR***) and a cockpit voice recorder (a ***CVR***).

recorder means a combination recorder, an FDR or a CVR.

26.31 Aeroplane flight data recorder

One FDR must be fitted to an aeroplane that has an MTOW of more than 5 700 kg and which:

(a) is turbine powered; or

(b) was first issued with a certificate of airworthiness after 1 July 1965.

26.32 Aeroplane cockpit voice recorder

One CVR must be fitted to the following:

(a) an aeroplane that has an MTOW of more than 5 700 kg and which:

(i) is turbine powered; or

(ii) was first issued with a certificate of airworthiness after 1 July 1965;

(b) a multi-engine turbine powered aeroplane 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.

26.33 Rotorcraft flight data recorder

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

(a) is turbine powered; and

(b) was first issued with a certificate of airworthiness after 1 July 1965.

26.34 Rotorcraft 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 which:

(i) is turbine powered; and

(ii) was first issued with a certificate of airworthiness 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.

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26.35 Combination recorders — for aeroplane or rotorcraft

(1) If the combined effect of sections 26.31 and 26.32 for an aeroplane is that the aeroplane must be fitted with both 1 FDR and 1 CVR, the requirements may be met by the fitment of:

(a) 2 combination recorders; or

(b) 1 FDR and 1 combination recorder; or

(c) 1 CVR and 1 combination recorder.

(2) If the combined effect of sections 26.33 and 26.34 for a rotorcraft is that the rotorcraft must be fitted with both 1 FDR and 1 CVR, the requirements may be met by the fitment of:

(a) 1 combination recorder; or

(b) 1 FDR and 1 combination recorder; or

(c) 1 CVR and 1 combination recorder.

26.36 FDR, CVR and combination recorder technical requirements

(1) An FDR or a combination recorder must comply with 1 of the following:

(a) the requirements of CAO 103.19;

(b) (E)TSO-C124a.

Note These standards include the minimum recording time requirements.

(2) A CVR or a combination recorder must comply with 1 of the following:

(a) the requirements of CAO 103.20;

(b) (E)TSO-C123a.

Note These standards include the minimum recording time requirements.

(3) The operator of an aircraft that must ensure that:

(a) for an aircraft required to be equipped with an FDR or a combination recorder:

(i) the recorder retains its last 25 hours of flight data recording; and

(ii) data are preserved from the last 2 occasions on which flight data recording was calibrated; and

(b) for an aircraft required to be equipped with an a CVR or a combination recorder — the recorder retains its last 30 minutes of cockpit voice recording.

Note The purpose of subparagraph (a) (ii) is to enable determination of the accuracy of recorded data.

26.37 Use of FDR, CVR and combination recorders

(1) Subject to subsection (4), an FDR fitted to an aircraft under this Division must record continuously from the time when the aircraft first begins moving under its own power for a flight until the time the flight is terminated and the aircraft can no longer move under its own power.

(2) Subject to subsection (4), a CVR fitted to an aircraft under this Division must:

(a) start to record before the aircraft first begins moving under its own power for a flight; and

(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 a flight; and

(c) record continuously until the termination of the flight when the aircraft is no longer capable of moving under its own power and the engines have been shut down; and

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(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 an aircraft under this Division must record continuously during the same periods as an FDR and a CVR are required to operate under subsections (1) and (2).

(4) If:

(a) there is no APU or other alternative power source for the aircraft; and

(b) it is reasonably necessary to preserve the aircraft's primary power source in order to start the aircraft's engines; and

(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 an aircraft 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 an aircraft under this Division must not be operated during maintenance of the aircraft or of an aeronautical product fitted to the aircraft, except if the maintenance is to the recorder or an aircraft engine.

(6) For subsection (5), an APU fitted to the aircraft is not an aircraft engine unless it is capable of propelling the aircraft.

26.38 Flight with inoperative FDR, CVR or combination flight recording equipment

An FDR, a CVR, or a combination recorder fitted to an aircraft 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) for an aircraft that 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) for an aircraft that 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) for an aircraft that is fitted with 1 combination recorder — the inoperative recorder has not have been inoperative for more than 3 days; and

(e) for an aircraft that is fitted with more than 1 combination recorders:

(i) the inoperative combination recorder has not been inoperative for more than 21 days; and

(ii) the other combination recorder is operative.

26.39 Data link recorder

RESERVED

Note No requirements are currently prescribed. This section has been reserved to preserve the MOS structure for any future provisions that would be appropriate following consultation.

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Division 26.10 Aircraft interior communication systems

26.40 Flight crew intercommunications system — VFR flights

(1) This section applies to an aircraft (a ***relevant aircraft***):

(a) that is flown under the VFR; and

(b) whose flight is required by or under the civil aviation legislation or the aircraft's AFM to be conducted by at least 2 pilots; and

(c) whose cockpit noise levels at any stage of the flight prevent the pilots from communicating with each other in speech at the level of normal conversation.

(2) A relevant aircraft must be fitted with a flight crew intercommunications system which, for each flight crew member, includes a headset and microphone that are not of the hand-held type.

26.41 Flight crew intercommunications system — IFR flights

(1) This section applies to an aircraft (a ***relevant aircraft***) that is flown under the IFR.

(2) When a relevant aircraft begins a flight with 1 pilot, as permitted by or under the civil aviation legislation or the AFM, it must be fitted with or carry:

(a) 2 headsets and microphones that are not of a hand-held type; or

(b) 1 headset and microphone that is not of a hand-held type, and 1 hand-held microphone with a loudspeaker.

(3) When a relevant aircraft begins a flight with at least 2 pilots, as required by or under the civil aviation legislation or the AFM, it must be fitted with:

(a) 3 headsets and 3 microphones that are not of a hand-held type; or

(b) 2 headsets and microphones that are not of a hand-held type, and 1 hand-held microphone with a loudspeaker.

26.42 Public-address system

(1) This section applies to an aircraft (a ***relevant aircraft***) that has:

(a) a maximum operational passenger seating configuration of 20 or more; and

(b) at least 1 passenger on board for a flight.

(2) When a relevant aircraft begins a flight, it must be fitted with a public-address system to enable the pilot in command to address the passengers.

Division 26.11 Oxygen equipment and oxygen supplies

26.43 Supplemental oxygen

(1) An aircraft operated above FL125 (a ***relevant aircraft***) must be fitted with supplemental oxygen equipment capable of storing and dispensing supplemental oxygen to crew members and passengers.

(2) A relevant aircraft must carry sufficient supplemental oxygen to meet the requirements set out in Table 26.43 (2).

(3) For a person mentioned in column 1 of an item in Table 26.43 (2), supplemental oxygen must be made available through an oxygen dispensing unit (a dispensing unit) in accordance with the supply requirements mentioned for the item in column 2.

(4) Each flight 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 26.43 (2).

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Table 26.43 (2) – Supplemental oxygen requirements

	Column 1	Column 2
Item	**Person**	**Supplemental oxygen supply requirements**
1	Flight crew member or cabin crew member	(a) For any period exceeding 30 minutes when the cabin pressure altitude is continuously at least FL 125 but less than FL 140, there must be supply for the entire period. (b) For any period when the cabin pressure altitude is at least FL 140, there must be supply for the entire period. (c) Without otherwise affecting paragraphs (a) and (b), when a pressurised aircraft is flown at an altitude of FL 250 or more (***relevant flight***), there must be at least 10 minutes supply even if the entire period of relevant flight is less than 10 minutes.
2	Passenger	(a) For any period when the cabin pressure altitude is at least FL 150, there must be supply for the entire period. (b) Without otherwise affecting paragraph (a), when a pressurised aircraft is flown at an altitude of FL 250 or more (***relevant flight***), there must be at least 10 minutes supply after descending below FL 250 even if the entire period of relevant flight is less than 10 minutes.

26.44 Oxygen mask usage requirements — pressurised aircraft above FL 250

(1) In this section:

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 face, secure and seal.

(2) This section applies for a flight of a pressurised aircraft that is flown above FL 250 at any time during the flight.

(3) At least 1 pilot occupying a pilot seat must:

(a) be wearing a sealed oxygen mask (securely worn) that:

(i) is being supplied with supplemental oxygen; or

(ii) automatically supplies supplemental oxygen when the cabin pressure altitude is at or above FL 140; or

(b) have access to a quick-donning mask that is supplied with supplemental oxygen when the mask is donned.

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(4) During the period when the aircraft is flown above FL 450, at least 1 pilot occupying a pilot seat must be wearing 1 of the following that is being supplied with supplemental oxygen:

(a) a sealed oxygen mask (securely worn); or

(b) a quick-donning mask.

26.45 Protective breathing equipment — flight crew members

(1) When a pressurised aircraft begins a flight with at least 2 pilots, as required by or under the civil aviation legislation or the AFM, it must be carrying protective breathing equipment (***PBE***) for each flight crew member in accordance with this section.

(2) The PBE must:

(a) protect the wearer's eyes, nose and mouth; and

(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; and

(b) 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 required under section 26.43.

(3) The PBE 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 aircraft.

26.46 Portable protective breathing equipment

(1) When a pressurised aircraft begins a flight with at least 2 pilots, as required by or under the civil aviation legislation or the AFM, it must be carrying portable protective breathing equipment (***portable PBE units***) for each flight crew member in accordance with this section.

(2) Each portable PBE unit must:

(a) protect the wearer's eyes, nose and mouth; and

(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; and

(b) be able to supply oxygen, or a mixture of oxygen and another suitable gas, continuously for at least 15 minutes.

(3) Portable PBE units must be located as follows:

(a) for a flight where no crew members other than the minimum flight crew members are carried — 1 portable PBE unit must be located in, or as close as practicable to, the flight crew compartment;

(b) as far as practicable — 1 portable PBE unit must be located adjacent to each of the hand-held fire extinguishers required to be carried on a flight under Division 26.13;

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(c) if compliance with paragraph (b) is not practicable — 1 portable PBE unit must be located adjacent to each individual cabin crew member crew station that is being used by a cabin crew member for the flight.

(4) Portable PBE units must not prevent, or be likely to prevent, a crew member from effectively using any crew intercommunications or radiocommunications equipment fitted to or carried on the aircraft.

26.47 First aid oxygen equipment — pressurised aircraft

(1) In this section:

BTPD means body temperature and pressure dry.

BTPS means body temperature and pressure saturated.

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

(a) there has been a cabin depressurisation; and

(b) the amounts of supplemental oxygen supply otherwise required under this Division have been exhausted.

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

STPD means standard temperature and pressure dry.

(2) This section applies to a pressurised aircraft (a ***relevant aircraft***) that:

(a) begins a flight with at least 2 pilots as required by or under the civil aviation legislation or the AFM; and

(b) is flown above FL 250 at any stage during the flight; and

(c) has at least 1 passenger on board for the flight.

(3) Until immediately before 2 December 2023, a relevant aircraft must comply with the requirements related to first aid oxygen (however described) in accordance with:

(a) CAO 20.4 and CAO 108.26, as in force immediately before the commencement of this instrument; or

(b) this section.

(4) With effect from the beginning of 2 December 2023, a relevant aircraft must be fitted with or carry first aid oxygen in accordance with this section.

(5) When the aircraft 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 per minute per 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 passenger; and

(b) for the flight period after a cabin depressurisation event during which the aircraft's cabin pressure altitude is above 8 000 ft but is not above FL 150.

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(6) When the aircraft begins the flight, it must carry, for use in dispensing first aid oxygen, a sufficient number of first aid oxygen dispensing units relative to the number of passengers on board, but in no case less than 2 such units.

(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 per minute per person STPD; and

(b) may have a means of reducing the flow to not less than 2 litres per minute per person STPD at any altitude.

Division 26.12 Emergency locator transmitters

26.48 Carriage of ELTs

(1) When an aircraft begins a flight, it must comply with the following requirements:

(a) for a flight other than one mentioned in paragraph (b) — the flight must:

(i) be fitted with an automatic ELT; or

(ii) carry at least 1 survival ELT;

(b) for a flight where more than 1 life raft is carried to comply with the requirements of section 26.60 — the flight must:

(i) be fitted with an automatic ELT and carry a survival ELT; or

(ii) carry at least 2 survival ELTs.

(2) Despite paragraph (1) (a), but without affecting paragraph (1) (b), when a single-engine aircraft is flown further over water than the distance from which, with the engine inoperative, the aircraft could reach an area of land that is suitable for a forced landing — the aircraft must carry a survival ELT.

(3) Without affecting paragraph (1) (b) (but subject to subsection (4)), paragraph (1) (a) does not apply to:

(a) a single-seat aircraft; or

(b) an aircraft in a flight for a purpose related to any of the following:

(i) the aircraft's manufacture;

(ii) the preparation or delivery of the aircraft following its purchase or transfer of operator;

(iii) the positioning of an Australian aircraft from a location outside Australia to any place at which any ELTs required to be fitted to the aircraft by this Division will be registered with AMSA; or

(c) an aircraft flown no more than 50 NM from its place of departure.

(4) For paragraph (1) (b), an automatic ELT or a survival ELT that is fitted or carried need not meet the requirements of paragraph 26.49 (b) or (c) (as applicable), if the flight is for a purpose related to any of the following:

(a) the aircraft's manufacture; or

(b) the preparation or delivery of the aircraft following its purchase or transfer of operator; or

(c) the positioning of an Australian aircraft from a location outside Australia to any place at which any ELTs required to be fitted to the aircraft by this Division will be registered with AMSA.

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(5) For subsection (1), if the ELT carried is an automatic ELT that has a switch marked with the word "armed" (or with a similar word) — then the pilot in command must ensure that the switch is set to the armed position at the time the flight begins.

(6) For subsections (1) and (2), if the ELT carried is a survival ELT — then the pilot in command must ensure that the ELT is carried in 1 of the following locations on the aircraft:

(a) on the person of a crew member; or

(b) in, or adjacent to, a life raft; or

(c) adjacent to an emergency exit used for evacuation of the aircraft in an emergency.

26.49 ELT — basic technical requirements

In this Division, an ELT is a transmitter that meets the following requirements (***basic technical 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 aircraft — 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 aircraft — the transmitter must be registered with the authority of the aircraft's State of registry that is responsible for SAR 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.

26.50 Automatic ELT

(1) In this Division:

automatic ELT is an ELT that meets the requirements in:

(a) section 26.49; and

(b) subsection (2).

(2) For paragraph (b), the ELT:

(a) must be automatically activated on impact; and

(b) must be 1 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) ETSO-2C91a for operation on 121.5 MHz; and

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

(iii) a type approved under Part 21 of CASR as having a level of performance equivalent to a type of transmitter mentioned in subparagraph (i) or (ii).

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26.51 Survival ELT

(1) In this Division:

survival ELT is an ELT that meets the requirements in:

(a) section 26.49; and

(b) subsection (2).

(2) For paragraph (1) (b), the ELT must be:

(a) removable from the aircraft; and

(b) 1 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) ETSO-2C91a for operation on 121.5 MHz; and

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

(v) a type approved under Part 21 of CASR as having a level of performance equivalent to a type mentioned in subparagraph (i), (ii), (iii) or (iv).

26.52 Aircraft flown with inoperative ELT

(1) This section only applies to an aircraft:

(a) required to fit, or carry, an ELT under paragraph 26.48 (1) (a); and

(b) that is not required to carry a life raft under section 26.60.

(2) The aircraft may begin a flight with an inoperative automatic ELT, or an inoperative survival ELT, if the flight is for the purpose of taking the aircraft to a place for the maintenance or repair of the ELT.

(3) The aircraft may begin a flight without an automatic ELT or a survival ELT if:

(a) the ELT has been temporarily removed from the aircraft for maintenance; and

(b) an entry has been made in the aircraft's flight technical log, stating:

(i) the ELT's make, model and serial number; and

(ii) the date on which the ELT was removed from the aircraft; and

(iii) the reason for the removal of the ELT; and

(c) a placard stating "Emergency locator transmitter not installed or carried" has been placed in the aircraft in a position where it can be seen by the pilot in command; and

(d) a period of no more than 90 days has passed since the ELT was temporarily removed from the aircraft for the maintenance mentioned in paragraph (a).

(4) Despite paragraph 26.48 (1) (a), if an inoperative automatic ELT has been removed from an aircraft, the aircraft is not required to carry a survival ELT during the period that the inoperative ELT is permitted to be inoperative under this section.

(5) Despite paragraph 26.48 (1) (a), if an inoperative survival ELT has been removed from an aircraft, the aircraft is not required to be fitted with an automatic ELT during the period that the inoperative ELT is permitted to be inoperative under this section.

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Division 26.13 Portable emergency equipment

26.53 Hand-held fire extinguishers — aeroplanes

(1) In this section:

Class A cargo or baggage compartment has the meaning given by FAR 25.857, as in force from time to time.

Class B cargo or baggage compartment has the meaning given by FAR 25.857, as in force from time to time.

Class E cargo compartment has the meaning given by FAR 25.857, as in force from time to time.

(2) This section applies to an aeroplane with an MTOW above 5 700 kg.

(3) The aeroplane must carry at least the following number of hand-held fire extinguishers in the locations mentioned:

(a) 1 in the flight crew compartment;

(b) 1 in each galley or 1 readily accessible for use in each galley, being a galley that is not in a passenger, crew or cargo compartment;

(c) 1 that is accessible to the crew members, and that is conveniently located for use in relation to each of the following:

(i) a class A cargo or baggage compartment;

(ii) a class B cargo or baggage compartment;

(iii) a class E cargo or baggage compartment;

(d) for an aircraft with the maximum certificated passenger seating capacity mentioned in an item of column 1 of Table 26.53 (3) (d) — the number mentioned in column 2 for the item, conveniently located to provide adequate availability for use in each passenger compartment;

Table 26.53 (3) (d) — Requirements for number of hand-held fire extinguishers

	Column 1	**Column 2**
Item	**Maximum certificated passenger seating capacity**	**Number of extinguishers**
1	7-30	1
2	31-60	2
3	61-200	3
4	201-300	4
5	301-400	5
6	401-500	6
7	501-600	7
8	601 or more	8

(e) despite paragraph (d) — for an aeroplane with a maximum certificated passenger seating capacity of not more than 9, in which the flight crew members and the

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passengers occupy the same compartment — 1, readily available to the pilot in command;

(f) despite paragraph (d) — for an aeroplane with a maximum certificated passenger seating capacity of more than 9, in which the flight crew members and the passengers occupy the same compartment:

(i) 1, readily available to the pilot in command; and

(ii) 1, readily available to the passengers.

26.54 Hand-held fire extinguishers — rotorcraft

(1) This section applies to a rotorcraft that is type certificated in the transport category.

(2) The rotorcraft must carry at least the following number of hand-held fire extinguishers:

(a) 1 in the flight crew compartment;

(b) for a rotorcraft that has a maximum certificated passenger seating capacity of 7 or more — 1 in the passenger compartment;

(c) despite paragraph (b) — for a rotorcraft with a maximum certificated passenger seating capacity of not more than 9, in which the flight crew members and the passengers occupy the same compartment — 1, readily available to the pilot in command;

(d) despite paragraph (b) — for a rotorcraft with a maximum certificated passenger seating capacity of more than 9, in which the flight crew members and the passengers occupy the same compartment:

(i) 1, readily available to the pilot in command; and

(ii) 1, readily available to the passengers.

Division 26.14 Equipment for flights over water

26.55 Sea anchors etc. and sound signals — seaplanes, amphibians and certain rotorcraft

(1) This section applies to a flight of an aircraft if:

(a) the aircraft is a seaplane, an amphibian, or a rotorcraft designed to take off from, and land on, water or land; and

(b) the flight involves take-off from, or landing on, water.

(2) When the aircraft 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 aircraft 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 CASR Dictionary.

26.56 Life jackets — carriage requirements

(1) This section applies to an aircraft flight:

(a) if the aircraft is a seaplane or an amphibian; or

(b) for a single-engine aircraft that is not a seaplane or an amphibian — if, during the flight, the aircraft is flown further over water than the distance from which, with

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the engine inoperative, the aircraft could reach an area of land that is suitable for a forced landing; or

(c) for a multi-engine aircraft that is not a seaplane or an amphibian — if during the flight the aircraft is flown more than 50 NM from an area of land that is suitable for a forced landing.

(2) When the aircraft begins the flight, it must carry the following:

(a) for each infant on board — a life jacket, or another equally effective flotation device, that may have a whistle;

(b) for each other person on board — a life jacket that must have a whistle.

(3) This section does not apply if:

(a) the aircraft is flown over water for the purpose of climbing after take-off from, or descending to land at, an aerodrome; and

(b) the aircraft is flown in accordance with a navigational procedure that is normal for the climb or descent at the aerodrome.

26.57 Stowage of life jackets

(1) This section applies to an aircraft that is required to carry a life jacket or a flotation device under this Division.

(2) When the aircraft begins the flight, then, unless the life jacket or flotation device is being worn:

(a) each infant's life jacket or flotation device must be stowed where it is readily accessible by an adult responsible for the infant, in the event of an emergency evacuation; and

(b) each other person's life jacket must be stowed where it is readily accessible from the person's seat in the event of an emergency evacuation.

26.58 Wearing life jackets — aircraft generally

(1) Subject to section 26.59, a person (other than an infant) on board a single-engine aircraft must wear a life jacket if the flight is over water that is further than the distance from which, with the engine inoperative, the aircraft could reach land.

(2) A person (other than an infant) on board a rotorcraft must wear a life jacket if the flight is over water to or from a helideck.

(3) This section does not apply if:

(a) for any aircraft:

(i) the aircraft is flown over water for the purpose of climbing after take-off from, or descending to land at, an aerodrome; and

(ii) the aircraft is flown in accordance with a navigational procedure that is normal for the climb or descent at the aerodrome; or

(b) for any aeroplane — the aeroplane is being flown higher than 2 000 ft above the water.

(4) For subsections (1) and (2), a person may be taken to be wearing a life jacket if it is secured to the person in a way that allows the person to quickly and easily put it on in an emergency.

26.59 Wearing life jackets – rotorcraft – special provision

(1) This section applies to a flight of a rotorcraft if:

(a) the rotorcraft takes off from, or lands at, an aerodrome in a populous area; and

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(b) an area of water is the only reasonably available forced-landing area for the ***relevant period***.

(2) During the relevant period, each person on the rotorcraft (other than an infant, if any) must wear a life jacket.

(3) For paragraph (1) (b), the ***relevant period*** is:

(a) for a take-off — the period after take-off until the rotorcraft reaches the minimum height at or above which the rotorcraft is required to be flown under regulation 91.265; or

(b) for a landing — the period after the rotorcraft descends below the minimum height at or above which the rotorcraft is required to be flown under regulation 91.265, until the rotorcraft has landed.

26.60 Life rafts —carriage requirements

(1) When an aircraft begins a flight to which this section applies, it must carry sufficient life rafts to provide a place on a life raft for each person on the aircraft.

(2) This section applies to an aircraft flight if during the flight the aircraft is flown further over water than the following distances:

(a) for a jet-driven multi-engine aeroplane with an MTOW of more than 2 722 kg — whichever is the shorter of the following:

(i) the distance the aeroplane would fly in 2 hours at its normal cruising speed in still air;

(ii) 400 NM;

(b) for a turbine-engine propeller-driven aeroplane with an MTOW of more than 5 700 kg — whichever is the shorter of the following:

(i) the distance the aeroplane would fly in 2 hours at its normal cruising speed in still air;

(ii) 400 NM;

(c) for any other aircraft — whichever is the shorter of the following:

(i) the distance the aircraft would fly in 30 minutes at its normal cruising speed in still air;

(ii) 100 NM.

(3) For subsection (1), when working out the number of life rafts to be carried on an aircraft:

(a) the capacity of a life raft is the rated capacity specified for it by the manufacturer of the life raft; and

(b) the number of infants on board the aircraft need not be taken into account.

(4) Any overload capacity of a life raft is not to be taken into account in determining its capacity for the purposes of paragraph (3) (a).

26.61 Stowage of life rafts

(1) This section applies to an aircraft that is required to carry a life raft under this Division.

(2) The life raft must be stowed and secured so that it can be readily deployed if the aircraft has to ditch.

(3) If a life raft is stowed in a compartment or container, the compartment or container must be conspicuously marked as containing the life raft.

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26.62 Overwater survival equipment

(1) This section applies if an aircraft is required to carry a life raft under section 26.60.

(2) When the aircraft begins the flight, it must carry the following:

(a) survival equipment for sustaining life, as appropriate for the overwater area to be overflown;

(b) signalling equipment that can make the distress signals set out in Appendix 1 to ICAO Annex 2, *Rules of the Air* if required.

Division 26.15 Remote areas

26.63 Definitions

In this Division:

Central Australia remote area has the meaning given by section 26.65.

remote area means 1 of the following:

(a) Central Australia remote area;

(b) Snowy Mountains remote area;

(c) Tasmania remote area.

Snowy Mountains remote area has the meaning given by section 26.65.

Tasmania remote area has the meaning given by section 26.65.

Note The actual definitions are located in section 26.65, adjacent to supporting maps.

26.64 Remote area survival equipment

(1) This section applies to the flight of an aircraft over a remote area.

(2) When the aircraft begins the flight, it must carry survival equipment for sustaining life, as appropriate for the remote area to be overflown.

26.65 Meaning of remote area

(1) ***Central Australia remote area*** means the area of Australia, illustrated by the shading in Figure 26.65-1 Central Australia remote area, that:

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

(b) includes Australian-administered islands adjacent to the remote area between Cairns and Talgarno; and

(c) excludes the area within a 50 NM radius of Darwin; and

(d) excludes the flight corridors within sight of, and not more than 5 NM from the following:

(i) the Stuart highway between Alice Springs and Darwin;

(ii) the Barkly highway between Tenant Creek and Mt Isa;

(iii) the Bruce Highway between Townsville and Cairns.

Snowy Mountains remote area means the area of Australia, illustrated by the shading in Figure 26.65-2 Snowy Mountains remote area, that is enclosed within the boundary of the following lines: a line from Mt Franklin to Tharwa, to Berridale, to Delegate, to Mt Baw, to Jamieson, to Khancoban, and back to Mt Franklin.

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Tasmania remote area means the area of Australia, illustrated by the shading in Figure 26.65-3 TAS remote area, that is enclosed within the boundary of the following lines: a line from West Point to Black Bluff, to 15 NM beyond Cape Bruny, then back to West Point at a distance of 15 NM off the coastline (disregarding bays and inlets).

(2) For subsection (1):

(a) subject to paragraph (b), a line, other than a coastline, is taken to be a straight line; and

(b) a line to or from a named town is taken to come no closer than 5 NM from the town centre on the side of the town adjacent to the remote area.

Figure 26.65-1 Central Australia Remote Area

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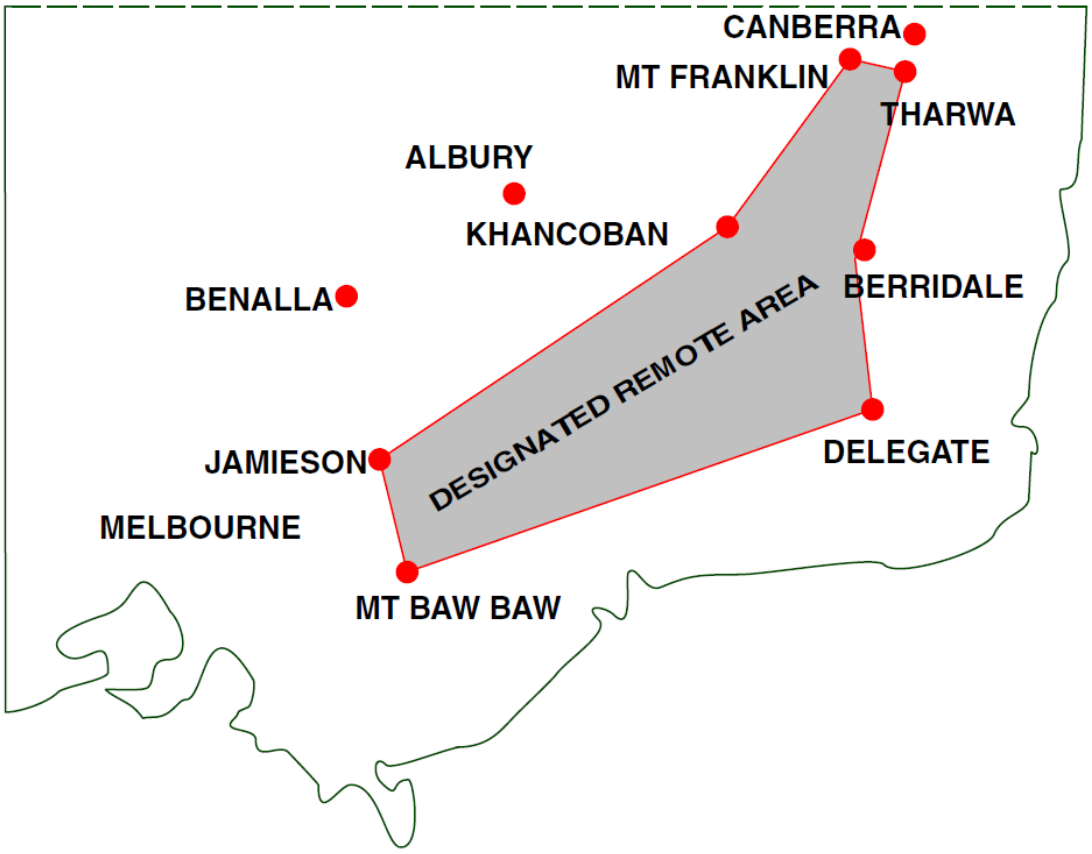

Figure 26.65-2 Snowy Mountains remote area

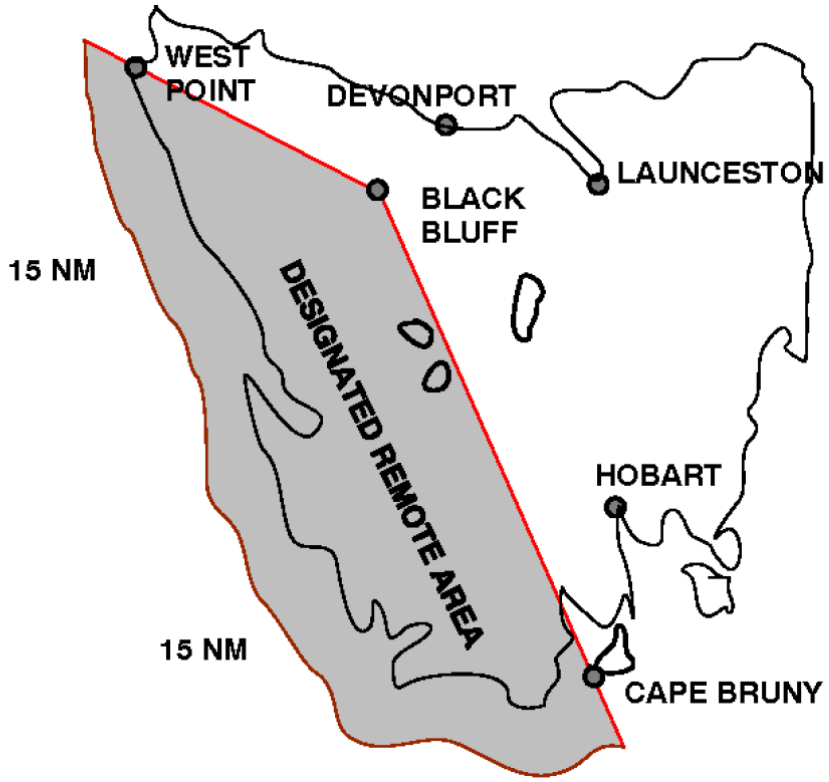

Figure 26.65-3 Tasmania remote area

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Division 26.16 Surveillance equipment

26.66 Exceptions to (E)TSO or NAA requirements

(1) In this section:

relevant aircraft means any of the following:

(a) a light sport aircraft for which a special certificate of airworthiness has been issued and is in force under regulation 21.186 of CASR;

(b) a light sport aircraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (j) or (k) of CASR;

(c) any other aircraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (g) or (h) of CASR.

(2) A requirement in this Division that an item of equipment, or element of an item of equipment, be authorised in accordance with a particular TSO or ETSO, does not apply to a relevant aircraft in respect of any surveillance equipment if:

(a) the configuration of the surveillance equipment that is fitted or carried provides the pilot, other aircraft and ATS with the same surveillance capability as would be provided if the equipment complied with the particular TSO or ETSO; and

(b) the pilot or the operator has a statement of conformance (however described) from the equipment manufacturer stating the particular standard or standards of the TSO or ETSO with which the equipment conforms.

(3) The requirement in subsection 26.75 (4) that an approved integrated TABS device (the ***equipment***) be authorised by the relevant NAA of the equipment manufacturer does not apply to a relevant aircraft if:

(a) the configuration of the equipment that is fitted or carried provides the pilot, other aircraft and ATS with the same surveillance capability as would be provided if the equipment had been expressly authorised by the relevant NAA; and

(b) the pilot or the operator has a statement of conformance (however described) from the equipment manufacturer stating the equipment meets the requirements of this Division for the equipment.

26.67 Definitions

In this Division:

14 CFR 91.225 means regulation 91.225 of the United States Title 14 Code of Federal Regulations (CFR) titled *Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment and use*.

ADS-B means automatic dependent surveillance – broadcast.

ADS-B test flight means a flight to prove ADS-B transmitting equipment that is newly installed on the aircraft undertaking the flight.

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***.

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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 1 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 mentioned in section 26.72;

(c) another system approved under Part 21 of CASR as having a level of performance equivalent to a system mentioned in paragraph (a) or (b).

approved EC device configuration means an equipment configuration meeting the requirements mentioned in section 26.72C.

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

(a) authorised by the FAA or EASA in accordance with 1 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 mentioned in section 26.71; or

(c) another system approved under Part 21 of CASR as having a level of performance equivalent to performance in accordance with paragraph (a) or (b).

approved integrated TABS configuration means an equipment configuration meeting the requirements mentioned in section 26.72B.

approved Mode A/C transponder means a Mode A transponder or a Mode C transponder that 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 under Part 21 of CASR 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 under Part 21 of CASR as having a level of performance equivalent to a system mentioned in paragraph (a).

approved Mode S transponder with Class B TABS position source device configuration means an equipment configuration meeting the requirements mentioned in section 26.72A.

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

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

(a) for an aircraft registered on the Australian Civil Aircraft Register — CASA; or

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(c) for an aircraft that is a foreign-registered aircraft — the relevant NAA.

Class A TABS means TABS functionality relating to transponder function, altitude source function, and ADS-B OUT function, in accordance with (E)TSO-C199.

Class B TABS means TABS functionality relating to position source function, in accordance with (E)TSO-C199.

Class B TABS position source device means a device with a Class B TABS functionality.

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.

GPS means Global Positioning System.

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

integrated TABS device means a device with integrated Class A TABS and Class B TABS functionality.

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 support 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 2.2.3.2.7.1.3.8 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.***).

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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, unless a later version as in force from time to time is expressly referred to.

SA means Selective Availability, and is a function of the GPS that has the effect of degrading the accuracy of the computed GPS position of a GNSS equipped aircraft.

SDA means System Design Assurance as specified in section 2.2.3.2.7.2.4.6 of RTCA/DO-260B.

SIL means Source Integrity Level as specified in paragraph 2.2.3.2.7.1.3.10 of RTCA/DO-260B.

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

surveillance equipment means equipment that broadcasts data as a means to identify an aircraft, determine its three-dimensional position or obtain other information (such as, but not limited to, velocity and selected altitude or flight level).

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

TABS means traffic awareness beacon system.

transponder means an aircraft's SSR transponder.

26.68 Required surveillance equipment

(1) An aircraft for a flight for which surveillance equipment is required under this section must be fitted with surveillance equipment that meets the requirements relevant to the intended operation and class of airspace.

Note See section 26.66 regarding certain aircraft that can be fitted with, or carry, surveillance equipment that is not in accordance with a TSO or ETSO provided certain conditions are met.

(1A) An aircraft operating at Brisbane, Sydney, Melbourne or Perth aerodrome must be fitted with, or carry, at least 1 approved Mode S transponder with ADS-B capability.

Note An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.

(2) For subsection (1), an aircraft in an operation mentioned in column 1 of an item in Table 26.68 (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 26.68 (2) – Surveillance equipment – requirements

	Column 1	**Column 2**	**Column 3**
Item	**Operation**	**Class of airspace**	**Requirements**
1	IFR	Any (Classes A, B, C, D, E and G)	At least 1 approved ADS-B OUT equipment configuration.
2	VFR	Any — from FL290 and above	At least 1 approved ADS-B OUT equipment configuration.

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	Column 1	Column 2	Column 3
Item	**Operation**	**Class of airspace**	**Requirements**
3	VFR	Class A, B or C (below FL290)	At least 1: (a) approved ADS-B OUT configuration; or (b) approved Mode S transponder with Class B TABS position source device configuration; or (c) approved transponder being: (i) for an aircraft, manufactured on or after 6 February 2014, or modified by having its transponder installation replaced on or after 6 February 2014 — an approved Mode S transponder with ADS-B capability; or (ii) for any other aircraft — approved transponder. *Note* An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.
4	VFR	Class E (not above FL290) Class G — from 10 000 ft to not above FL290	At least 1: (a) approved ADS-B OUT configuration; or (b) approved equipment configuration of a Mode S transponder with Class B TABS position source device; or (c) approved transponder being: (i) for an aircraft, manufactured on or after 6 February 2014, or modified by having its transponder installation replaced on or after 6 February 2014 — a Mode S transponder with ADS-B capability; or (ii) for any other aircraft — an approved

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	Column 1	Column 2	Column 3
Item	**Operation**	**Class of airspace**	**Requirements**
			transponder; or (d) an approved integrated TABS device. *Note* An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.

(3) Item 4 in Table 26.68 (2) does not apply to an aircraft if the aircraft does not have:

(a) an engine; or

(b) sufficient engine-driven electrical power generation capacity to power the surveillance equipment.

26.68A Requirements for other surveillance equipment for VFR aircraft

(1) An aircraft may be fitted with, or carry, surveillance equipment in addition to the surveillance equipment required by section 26.68, but only if the requirements of this section are met.

(2) An aircraft may be fitted with, or carry, surveillance equipment in circumstances where surveillance equipment is not required by section 26.68, but only if the requirements of this section are met.

(3) For subsections (1) and (2), an aircraft in an operation mentioned in column 1 of Table 26.68A (3), in the class of airspace mentioned in column 2 of the item, may be fitted with, or carry, surveillance equipment that meets the requirements mentioned in column 3 of the item.

Table 26.68A (3) – Optional surveillance equipment – requirements

Item	Operation	Class of airspace	Capability and Requirements
	Column 1	**Column 2**	**Column 3**
1	VFR	Classes A, B, C or E — below FL290 Class G — from 10 000 ft but not above FL290	An approved EC device configuration. *Note* An EC device may be operated concurrently with a Mode A/C, or a Mode S transponder (other than one that is transmitting ADS-B — see section 26.72C.
2	VFR	Class G — below 10 000 ft	Any of the following: (a) approved ADS-B OUT configuration; (b) approved equipment configuration of a Mode S transponder with Class B TABS position source device; (c) approved transponder being: (i) for an aircraft

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Item	Operation	Class of airspace	Capability and Requirements
	Column 1	Column 2	Column 3
			manufactured on or after 6 February 2014, or modified by having its transponder installation replaced on or after 6 February 2014 — a Mode S transponder with ADS-B capability; or (ii) for any other aircraft — an approved transponder; (d) an approved integrated TABS device; (e) an approved EC device configuration. *Note* An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight. *Note* An EC device may be operated concurrently with a Mode A/C, or a Mode S transponder (other than one that is transmitting ADS-B).

26.69 Operation of surveillance equipment — general requirements

(1) The requirements of this section are subject to section 26.73.

(2) Surveillance equipment required to be fitted to, or carried on, an aircraft by section 26.68 must be continuously operated during the circumstances mentioned in section 26.68.

Note Continuous operation for a transponder means that the equipment must be operated in a mode that enables an SSR response to be transmitted and, where an altitude reporting capability is available, that this capability is also activated.

(2A) Surveillance equipment (other than approved transponders) fitted to, or carried on, an aircraft under section 26.68A must be continuously operated during the circumstances mentioned in that section for the specific kind of equipment.

(3) Subsections (2) and (2A) do not apply if ATC has issued an instruction that the surveillance equipment is not to be operated.

(4) Unless otherwise required by ATC, an aircraft that is flying in formation with, or is in-company with, 1 or more other aircraft, is not required to operate surveillance equipment if serviceable surveillance equipment is operated by any of the other aircraft at all times while the aircraft are flying in formation or are in-company.

(5) If an aircraft is fitted with more than 1 approved transponder, only 1 transponder is to be operated at any time.

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(6) If an approved transponder is fitted to an aircraft for a flight, the Mode A code must be set:

(a) to the transponder code assigned by ATS for the flight; or

(b) if no transponder code is so assigned — to the relevant standard code in Table 26.69 (7).

(7) For paragraph (6) (b), for a situation mentioned in column 1 of an item in Table 26.69 (7), the Mode A code is the number mentioned in column 2 for the item.

(7A) Subject to subsection (7B), if an emergency situation described in an item of column 1 of Table 26.69 (7A) occurs during a flight, a pilot of the aircraft for the flight must set the Mode A code mentioned in column 2 for the item.

(7B) Despite subsection (7A), a pilot of an aircraft for a flight does not have to set a Mode A code mentioned in column 2 of Table 26.69 (7A) if the pilot reasonably believes that maintaining an existing Mode A code would result in a safer outcome.

(8) Pressure altitude information reported by an approved transponder or approved ADS-B OUT equipment configuration must be determined by:

(a) a barometric encoder of a type that is authorised 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 26.69 (7) – Transponders – Mode A standard codes

	Column 1	**Column 2**
Item	**Situation**	**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 NM from shore.	4000
5	Flights engaged in coastal surveillance.	7615
6	Ground testing by aircraft maintenance staff.	2100

Table 26.69 (7A) – Transponders – Mode A emergency codes

	Column 1	**Column 2**
Item	**Situation**	**Mode A Code**
1	Unlawful interference.	7500
2	Loss of radiocommunication.	7600
3	In-flight emergency (unless otherwise instructed by ATC).	7700

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26.70 Mode S transponders, ADS-B OUT and electronic conspicuity equipment — specific requirements

(1) An approved Mode S transponder fitted to an aircraft for a flight must have the following items entered into the equipment:

(a) the assigned aircraft address;

(b) as far as practicable for the equipment — 1 of the following forms of aircraft flight identification:

(i) if a flight notification is filed with ATS for the flight — the aircraft identification mentioned on 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, approved integrated TABS configuration or approved EC device configuration, fitted to, or carried on, an aircraft for a flight, must have the following items entered into the equipment:

(a) the assigned aircraft address;

(b) 1 of the following forms of aircraft flight identification:

(i) if a flight plan is filed with ATS for the flight — the aircraft identification mentioned on the flight plan;

(ii) if no flight plan 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 an aircraft that was first issued with a certificate of airworthiness before 9 February 2012 (an ***older aircraft***). However, an older aircraft that is equipped to do so may transmit its aircraft flight identification.

(5) If an approved Mode S transponder transmits any Mode S EHS DAPs, the transmitted DAPs must comply with the standards set out 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 and 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 ATS. Operators need to ensure that EHS DAPs are being transmitted.

(6) If an approved Mode S transponder is fitted to an aircraft first issued with a certificate of airworthiness on or after 9 February 2012:

(a) that has a certificated MTOW above 5 700 kg; or

(b) that is capable of normal operation at a maximum cruising true airspeed above 250 kts;

then the transponder's receiving and transmitting antennae must:

(c) be located in the upper and lower fuselage; and

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(d) operate in diversity, as specified 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 recommendatory only.

(7) Subject to subsection (8), an aircraft fitted with, or carrying, ADS-B OUT equipment that is not an approved ADS-B OUT equipment configuration, approved EC device configuration, approved integrated TABS configuration or approved Mode S transponder with Class B TABS position source device configuration, must not fly in Australian territory, 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.

(8) Subsection (7) does not apply to an aircraft if it is undertaking an ADS-B test flight in VMC in airspace below FL 290.

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

(1) For an aircraft first issued with a certificate of airworthiness on or after 8 December 2016, an alternate GNSS position source is acceptable if the source:

(a) is certified by the NAA of a recognised country for use in IFR flight; and

(b) has included in its specification and operation the following:

(i) GNSS FDE, computed in accordance with the definition at paragraph 1.7.3 of ***RTCA/DO-229D***;

(ii) the output function HPL, computed in accordance with the definition 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 an aircraft first issued with a certificate of airworthiness 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.

26.72 Alternate ADS-B OUT equipment configuration — requirements

An alternate ADS-B OUT equipment configuration must meet the following requirements:

(a) it has been approved or accepted by:

(i) the NAA of a recognised country as meeting the standards of EASA AMC 20-24 or EASA CS-ACNS; or

(ii) the FAA as meeting the standards of 14 CFR 91.225 for 1090 Megahertz (MHz) Extended Squitter ADS-B; and

(b) the AFM or flight manual supplement attests to the certification; and

(c) the GNSS system meets the relevant performance requirements mentioned in section 26.71.

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26.72A Approved Mode S transponder with Class B TABS position source device equipment configuration — requirements

(1) A Mode S transponder must be of a type that is:

(a) authorised in accordance with (E)TSO-C166B; or

(b) approved under Part 21 of CASR as having a level of performance equivalent to that of a type compliant with paragraph (a).

(2) When required to be operated, the Mode S transponder must transmit NACp, NIC, SIL and SDA values in accordance with the authorised capability of the GNSS position source.

(3) The geographical position transmitted by the Mode S transponder must be determined by:

(a) a Class B TABS position source device that is authorised in accordance with (E)TSO-C199; or

(b) another source approved under Part 21 of CASR as having a level of performance equivalent to that of a device compliant with paragraph (a).

(4) If a Mode S transponder with Class B TABS position source device transmits a SIL value of less than 2, the aircraft must not enter any controlled airspace in which the aircraft must be fitted with, or carry, equipment that is of an approved ADS-B OUT equipment configuration.

26.72B Approved integrated TABS device — requirements

(1) An approved integrated TABS device (the ***device***) must only be operated in transmitting mode if the flight is conducted:

(a) under the VFR; and

(b) below FL290; and

(c) in Class D, E or G airspace.

(2) The device must meet the technical specifications in (E)TSO-C199 that are for a device with integrated Class A TABS and Class B TABS functionality.

(3) The device must transmit a SIL value of 1.

(4) The device must be authorised by the relevant NAA of the equipment manufacturer as meeting the standards mentioned in subsections (2) and (3).

Note Section 26.66 provides for an exception to the relevant NAA authorisation requirement for certain kinds of light sport, experimental and other aircraft.

26.72C Approved EC device — requirements

(1) An approved EC device (an ***EC device***) must only be operated in transmitting mode if the flight is conducted:

(a) under the VFR; and

(b) below FL290.

(2) The EC device must not be operated in transmitting mode concurrently with a Mode S transponder that is also transmitting ADS-B.

Note An EC device may be operated concurrently with a Mode A/C, or a Mode S transponder (other than one that is transmitting ADS-B) but it is not a substitute for mandatory carriage of a transponder in relevant airspace.

(3) The EC device must meet the technical specifications in UK CAP 1391, except in relation to the matters mentioned in subsections (4), (5) and (6).

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(4) The EC device must use a Class B TABS position source that complies with the performance standards specified in (E)TSO-C199.

(5) The EC device must:

(a) be capable of transmitting a SIL value of 1, in accordance with the standards in UK CAP 1391 for an EC device that uses a Class B TABS position source; and

(b) transmit that SIL value of 1.

(6) The EC device must:

(a) meet the requirements described in paragraph 2.2.3.2.7.2.4.6 of RTCA/DO-260B for transmitting an SDA of 1; and

(b) transmit an SDA value of 1.

(7) The EC device must use a barometric encoder for altitude information.

(8) The EC device must be mounted in accordance with the manufacturer's instructions.

(9) The EC device, when mounted in accordance with the manufacturer's instructions, must not:

(a) interfere with aircraft controls; or

(b) otherwise affect the safe operation of the aircraft.

(10) The following administrative standards for the EC device must be complied with:

(a) an EC device must have a statement of compliance (however described) from the EC device manufacturer certifying that the device meets the following requirements (***a declaration of capability and conformance*** or ***declaration***):

(i) if the declaration was made before 2 December 2021 — clauses 1 to 5 of Part B of Appendix XIV of Civil Aviation Order 20.18 as in force immediately before 2 December 2021;

(ii) otherwise — subsections (3) to (7);

(b) the pilot in command of an aircraft that uses the EC device must carry the declaration, or a copy of it, on board the aircraft;

(c) an EC device model must not be operated in a transmit mode anywhere in Australia unless it is listed on the CASA website as an EC device model for which the manufacturer has made a valid declaration;

(d) the manufacturer of an EC device model may apply in writing to CASA:

(i) for a statement that CASA considers that the manufacturer has made a valid declaration of capability and conformance to subsections (3) to (7); and

(ii) for inclusion of the EC device model on the CASA website;

(e) CASA may remove an EC device model from the CASA website if:

(i) the manufacturer requests its removal in writing; or

(ii) if CASA is satisfied that removal is required in the interests of aviation safety.

26.73 Aircraft flown with inoperative surveillance equipment

Surveillance equipment required by section 26.68 may be inoperative at the beginning of a flight if:

(a) the flight begins from an aerodrome at which there is no facility for the surveillance equipment to be repaired or replaced; and

(b) the flight ends not more than 72 hours after the time the surveillance equipment was found to be inoperative; and

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(c) before the flight commences, the pilot in command informs ATS about the unserviceability.

Note See also section 26.04 for additional requirements related to flight with inoperative equipment. For a flight with inoperative surveillance equipment, within controlled airspace or at a controlled aerodrome, Division 11.2 has requirements related to ATC clearances. Whether a clearance is issued, or when a clearance may be issued, could be affected by the flight's inoperative equipment.

Division 26.17 Equipment for NVIS flights

26.74 Purpose

For subregulation 91.810 (1), this Division prescribes requirements relating to:

(a) the fitment and non-fitment of NVIS equipment to an aircraft; and

(b) the carrying of NVIS equipment on an aircraft; and

(c) NVIS equipment that is fitted to, or carried on, an aircraft.

Note The effect of item 16 of Table 91.035 is that this Division 26.17 applies to all NVIS flights except NVIS flights conducted as a Part 133 operation. The Part 133 MOS contains the equipment requirements for such flights.

26.74A 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.

26.75 Definitions

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

(a) lost, injured or damaged in, on or by an aircraft in which NVIS is used; or

(b) at significant risk of loss or damage in, on or by an aircraft.

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 an aircraft has been modified for NVIS flight 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 aircraft 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 26.76 (2).

26.76 Aircraft general and lighting standards for NVIS flights

(1) An aircraft for an NVIS flight must be NVIS certified.

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

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(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.

26.77 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 aircraft 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 to 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).

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(4) An NVIS pilot who occupies a control seat of an aircraft during an NVIS flight 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 26.77 (5) 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 26.77 (5) — Modifications of RTCA/DO 275

	Column 1	**Column 2**	**Column 3**
Item	**RTCA/DO-275 (as in force from time to time)**	**Summary**	**Amended performance requirement**
1	Para 2.2.1.1 System Resolution	1.0 cycles per milliradian (cy/mr). At 14º off axis = 0.81 cy/mr With a variable focus @ through infinity = 0.49cy/mr	1.3 cy/mr
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 x 10^{-4} fL	= 5 500 foot-Lamberts (fL) per fL at an input light level of 1 x 10^{-4} fL = 1750 cd/m^2/lx at an input light level of 1.1 x 10^{-3} lx
3	System Luminance Gain – Filmless autogating		=16 000 cd/m^2/lx at an input light level of 2 x 10^{-5} lx
4	Para 2.2.1.3 Field-of-View	38º vertical and horizontal	40º
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
12	Para 2.2.2.4 Tilt	Sufficient to align with	10º

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	Column 1	Column 2	Column 3
Item	**RTCA/DO-275 (as in force from time to time)**	**Summary**	**Amended performance requirement**
	Adjustment	users' eyes	
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

26.78 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

(b) a biennial assessment is made to identify and rectify any degradation in the compatibility of the aircraft 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 aircraft modification, equipment introduction or repair that may have an effect on the aircraft's NVIS compatibility.

(4) Any item of equipment other than NVIS equipment, that is fitted to, or carried on, the aircraft must not at any time adversely affect the safe operation of the aircraft in an NVIS flight.

(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

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(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 26.77 (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 26.77 (1) (a).

Note This provision is to ensure that an endorsement given to an organisation by an original US manufacturer of paragraph 26.77 (1) (a)-compliant NVIS, is taken to be an endorsement for any other US manufactured NVIS available in Australia that complies with paragraph 26.77 (1) (a).

(8) If:

(a) 1 or more image intensification tubes (***tubes***) fail for any reason during an NVIS flight; 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

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

26.79 Minimum aircraft equipment for NVIS flight

(1) Subject to subsection (2), before an NVIS flight, the aircraft must be fitted with a serviceable radio altimeter that:

(a) conforms to the following requirements:

(i) it must have a display 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.

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(2) CASA may approve an alternative visual and audio warning system that must be fitted to an aircraft before an operation, but only if the system produces warnings at least equivalent to those mentioned in paragraphs (1) (b) and (c).

(3) A rotorcraft for an NVIS operation must be fitted with a serviceable pilot-steerable searchlight, adjustable in both pitch and azimuth from the flight controls.

(4) Before an NVIS operation, 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 aircraft'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.

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CHAPTER 27 EXPERIMENTAL AND LIGHT SPORT AIRCRAFT PLACARDS

27.01 Experimental aircraft — placards

(1) For subparagraph 91.875 (2) (i) (iii), this section prescribes the requirements for a placard that must be displayed inside an experimental aircraft carrying one or more passengers.

(2) The placard must:

(a) be displayed in full view of the passengers; and

(b) contain the text set out in subsection (3).

(3) For subsection (2), the text is:

WARNING

PERSONS FLY IN THIS AIRCRAFT AT THEIR OWN RISK.

THIS AIRCRAFT IS NOT OPERATED TO THE SAME SAFETY STANDARDS AS A NORMAL COMMERCIAL PASSENGER FLIGHT.

CASA DOES NOT SET AIRWORTHINESS STANDARDS FOR EXPERIMENTAL AIRCRAFT.

(4) The requirement in paragraph (2) (b) is taken to be complied with if the placard contains the text set out in subsection (5), but only if a placard containing such text was displayed in full view of all passengers on the aircraft for flights immediately before 1 December 1999.

(5) For subsection (4), the text is:

WARNING

THIS AIRCRAFT IS NOT REQUIRED TO COMPLY WITH THE SAFETY REGULATIONS FOR STANDARD AIRCRAFT.

YOU FLY IN THIS AIRCRAFT AT YOUR OWN RISK.

27.02 Light sport aircraft — placards

(1) For paragraph 91.900 (2) (c), this section prescribes the requirements for a placard that must be displayed inside a light sport aircraft.

(2) The placard must:

(a) be displayed in full view of all passengers; and

(b) contain the text set out in subsection (3).

(3) For subsection (2), the text is:

THIS AIRCRAFT WAS MANUFACTURED IN ACCORDANCE WITH LIGHT SPORT AIRCRAFT AIRWORTHINESS STANDARDS AND DOES NOT CONFORM TO STANDARD CATEGORY AIRWORTHINESS REQUIREMENTS.

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CHAPTER 28 REQUIREMENTS FOR MINIMUM EQUIPMENT LISTS

28.01 Contents of minimum equipment list

For subregulation 91.930 (1), this Chapter prescribes requirements relating to MELs for an aircraft.

28.02 Definitions

(1) In this Chapter:

Category A rectification interval means a rectification interval other than 3 days, 10 days or 120 days.

Category B rectification interval means a rectification interval that is 3 consecutive days.

Category C rectification interval means a rectification interval that is 10 consecutive days.

Category D rectification interval means a rectification interval that is 120 consecutive days.

day, in relation to a rectification interval for an inoperative item of equipment, means a calendar day starting after 12 midnight on the day of discovery of the inoperative item.

day of discovery, in relation to an inoperative item of equipment for an aircraft, means the day that information about the inoperative state of the item is recorded in the flight technical log for the aircraft.

extendable rectification interval means:

(a) a Category B rectification interval; or

(b) a Category C rectification interval.

item means an item of equipment as defined in this section.

MMEL means master MEL.

UTC means Coordinated Universal Time as determined by the International Bureau of Weights and Measures.

Note The UTC is located at http://www.bipm.org.

(2) A reference in this Chapter to days (plural) means consecutive days.

28.03 MEL — contents

(1) An MEL for an aircraft must include the following:

(a) the name of the operator of the aircraft, including any operating or trading name;

(b) the aircraft type, model, registration mark and serial number;

(c) a list of the items in the aircraft, 1 or more of which may be inoperative for a flight of the aircraft;

(d) identification of the MMEL on which the MEL is based;

(e) definitions of any unique terms used in the MEL;

(f) guidance for the use and application of the MEL;

(g) a statement of whether rectification intervals will be calculated according to the local legal time or UTC.

(2) If the operator intends to extend the rectification interval of an inoperative item in accordance with regulation 91.945, the procedures to be used must be set out in the MEL.

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(3) For subsection (2), the procedures must include the following:

(a) who, on behalf of the operator, may extend the rectification interval;

(b) how the operator ensures compliance with the requirements of subregulation 91.945 (1).

(4) For each item referred to in paragraph 28.03 (1) (c), the MEL must do the following:

(a) describe the item;

(b) specify whether the rectification interval for the item is a Category A, B, C or D rectification interval;

(c) set out the conditions or limitations (if any) that must be complied with if the aircraft is to conduct a flight with the item inoperative;

(d) if the aircraft is required to comply with an operational procedure for the conduct of a flight with the item inoperative:

(i) set out the procedure; or

(ii) if the procedure is in another document — include a reference to the procedure and the document;

(e) if the aircraft requires maintenance to conduct a flight with the item inoperative:

(i) set out the maintenance data; or

(ii) if the maintenance data is in another document — include a reference to the data and the document.

(5) For an aircraft that is subject to section 11.06, information regarding the RCP 240 and RSP 180 capabilities (as applicable) of the aircraft must be included in the MEL.

28.04 Compliance with the MMEL

(1) An MEL for an aircraft must be based on the MMEL for the aircraft type.

(2) Subject to subsection 28.05 (2), the MEL for a flight with an inoperative item must not be less operationally restrictive than the MMEL in the same circumstances.

Examples

1 If the MMEL for an aircraft specifies a rectification interval for an inoperative item, an MEL for the aircraft must not specify a rectification interval for the item that is less restrictive than the interval specified in the MMEL.

2 If the MMEL for an aircraft specifies conditions or limitations that must be complied with if the aircraft is to conduct a flight with an inoperative item, the MEL for the aircraft must include conditions or limitations for the item that are at least as restrictive as the conditions or limitations in the MMEL.

28.05 Compliance with the civil aviation legislation

(1) An MEL must not permit the operation of an aircraft for a flight with an inoperative item if the flight would be in contravention of the civil aviation legislation.

(2) If the civil aviation legislation permits the operation of an aircraft with an inoperative item, the MEL may permit the operation with the inoperative item in accordance with the civil aviation legislation even if the MEL is less restrictive than the MMEL.

Examples

1 If a provision of the civil aviation legislation permits an aircraft to operate for a period with an inoperative item and the period is less restrictive than the rectification interval for the item specified in the MMEL for the aircraft — the rectification interval for the item in the MEL may be based on the period mentioned in the provision.

2 If a provision of the civil aviation legislation permits an aircraft to operate for a flight with an inoperative item subject to conditions or limitations and the conditions or limitations in the provision are less restrictive than the conditions or limitations in the MMEL for the aircraft — the conditions or

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limitations specified in the MEL for the item must be at least as restrictive as the conditions or limitations specified in the provision.

28.06 Compliance with the AFM

An MEL for an aircraft must not permit the operation of the aircraft for a flight with an inoperative item in contravention of any of the conditions, limitations or emergency procedures specified in the AFM.

28.07 If the MMEL does not specify rectification intervals

If the MMEL for an aircraft type does not specify a rectification interval for an inoperative item, the rectification interval for the item in an MEL for an aircraft of the type must clearly reflect the significance of the item for the safe operation of the aircraft.

28.08 Effects of repairs or modifications made to the aircraft

If:

(a) a repair or modification is made to an aircraft; and

(b) the approval for the repair or modification places a new condition or limitation on the operation of the aircraft for flight with an inoperative item;

then the conditions or limitations specified in the MEL for the inoperative item must be at least as restrictive as the conditions or limitations specified in the approval for the repair or modification.

28.09 Extension of rectification interval

(1) A rectification interval prescribed by this Chapter is prescribed for the purposes of paragraph 91.945 (5) (b) as an original rectification interval.

(2) For paragraph 91.945 (5) (g), this section prescribes the period by which an extendable original rectification interval may be extended.

Note Category B and Category C rectification intervals are the extendable rectification intervals.

(3) An original Category B rectification interval may be extended up to a maximum of 3 days.

(4) An original Category C rectification interval may be extended up to a maximum of 10 days.

(5) A reference in this section to an original rectification interval (however expressed) is a reference to the relevant rectification interval before any extension of it under this section.

Note The intended effect of subsection 28.09 (5) is that a rectification interval that has been extended once may not be further extended.

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Notes to Part 91 (General Operating and Flight Rules) Manual of Standards 2020

The Part 91 Manual of Standards (in force under the *Civil Aviation Safety Regulations 1998* and the *Acts Interpretation Act 1901*) as shown in this compilation comprises the *Part 91 (General Operating and Flight Rules) 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, saving or transitional provisions
Part 91 (General Operating and Flight Rules) Manual of Standards 2020	1 December 2020 (F2020L01514)	2 December 2021 (*see* s. 2)	—
Part 91 MOS Amendment Instrument 2021 (No. 1)	11 November 2021 (F2021L01533)	2 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)	—

Table of Amendments

ad. = added or inserted am. = amended (prev…) = previously renum = renumbered rep. = repealed rs. = repealed and substituted

Provision affected	How affected
s. 1.05	am. F2021L01533
s. 1.07	am. F2021L01533, F2021L01591
s. 2.02	rs. F2021L01533
s. 2.05	am. F2021L01533
s. 2.07	am.F2021L01591
s. 2.09	am. F2021L01533
s. 2.10	am. F2021L01533
s. 3.01	rs. F2021L01591
s. 3.01A	ad. F2021L01591
s. 3.02	rs. F2021L01591
s. 3.03 (prev. s. 3.02)	renum. F2021L01591 am. F2021L01591
s. 3.04	ad. F2021L01591
s. 3.05	ad. F2021L01591
s. 3.06	ad. F2021L01591
s. 3.07	ad. F2021L01591
s. 3.08	ad. F2021L01591
s. 3.09	ad. F2021L01591
s. 3.10	ad. F2021L01591

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Table of Amendments

ad. = added or inserted am. = amended (prev…) = previously renum = renumbered rep. = repealed
rs. = repealed and substituted

Provision affected	How affected
s. 4.01	am. F2021L01533
s. 4.02	am. F2021L01533
s. 5.02	am. F2021L01533
s. 6.01	am. F2021L01533
s. 7.02	am. F2021L01533
s. 7.03	am. F2021L01533
s. 8.04	am. F2021L01533
s. 8.08	am. F2021L01533
s. 9.01	am. F2021L01533
s. 9.02	am. F2021L01533
s. 9.03	am. F2021L01533
s. 9.04	rs. F2021L01533
s. 9.05	am. F2021L01533
s. 10.02	am. F2021L01533
s. 10.03	am. F2021L01533
s. 11.02	am. F2021L01533
s. 11.03	am. F2021L01533
s. 11.06	am. F2021L01533
s. 11.08	rs. F2021L01533
s. 11.09	rs. F2021L01533
s. 11.10	am. F2021L01533
s. 11.10A	ad. F2021L01533
s. 11.11	am. F2021L01533
s. 11.13	am. F2021L01533
s. 11.14	rs. F2021L01533
s. 11.15	rs. F2021L01533
s. 11.17	am. F2021L01533
s. 11.22	am. F2021L01533
s. 12.03	am. F2021L01533
s. 14.02	am. F2021L01533
s. 14.03	am. F2021L01533
s. 14.09	ad. F2021L01533
s. 15.02	am. F2021L01533
s. 15.07	am. F2021L01533
s. 15.09	rs. F2021L01533
s. 15.10	am. F2021L01533
s. 15.11	am. F2021L01533
s. 16.01	am. F2021L01533
s. 16.03	am. F2021L01533

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Provision affected	How affected
s. 17.01	am. F2021L01533
s. 18.01	rs. F2021L01533
s. 19.02	am. F2021L01533
s. 19.04	am. F2021L01533
s. 20.01	am. F2021L01533
s. 20.02	am. F2021L01533
s. 20.03	am. F2021L01533
s. 20.04	am. F2021L01533
s. 20.06	am. F2021L01533
s. 20.07	am. F2021L01533
s. 21.01	rs. F2021L01533
s. 21.02	am. F2021L01533
s. 21.03	am. F2021L01533
s. 21.04	am. F2021L01533
s. 21.05	rs. F2021L01533
s. 21.06	rs. F2021L01533
s. 21.07	rs. F2021L01533
s. 21.08	rs. F2021L01533
s. 21.09	ad. F2021L01533
s. 26.01	am. F2021L01533
s. 26.02	am. F2021L01533
s. 26.04	rs. F2021L01533
s. 26.07	am. F2021L01533
s. 26.08	am. F2021L01533
s. 26.11	am. F2021L01533
s. 26.12	am. F2021L01533
s. 26.18	am. F2021L01533
s. 26.19	am. F2021L01533
s. 26.22	am. F2021L01533
s. 26.24	am. F2021L01533
s. 26.27	am. F2021L01533
s. 26.28	am. F2021L01533
s. 26.29	am. F2021L01533
s. 26.31	am. F2021L01533
s. 26.32	am. F2021L01533
s. 26.39	am. F2021L01533
s. 26.43	am. F2021L01533
s. 26.52	am. F2021L01533
s. 26.53	am. F2021L01533

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Provision affected	How affected
s. 26.55	am. F2021L01533
s. 26.63	am. F2021L01533
s. 26.65	am. F2021L01533
s. 26.66	rs. F2021L01533
s. 26.67	am. F2021L01533
s. 26.68	rs. F2021L01533
s. 26.68A	ad. F2021L01533
s. 26.69	rs. F2021L01533
s. 26.70	am. F2021L01533
s. 26.71	am. F2021L01533
s. 26.72	rs. F2021L01533
s. 26.72A	ad. F2021L01533
s. 26.72B	ad. F2021L01533
s. 26.72C	ad. F2021L01533
s. 26.73	rs. F2021L01533
s. 26.74	ad. F2021L01591
s. 26.74A	ad. F2021L01591
s. 26.75	ad. F2021L01591
s. 26.76	ad. F2021L01591
s. 26.77	ad. F2021L01591
s. 26.78	ad. F2021L01591
s. 26.79	ad. F2021L01591
s. 28.03	am. F2021L01533

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