

COMMAND INSTRUMENT RATING

CAO EXTRACT

IMPORTANT INFORMATION

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1. The 'selected extracts' must be as provided without any additional pages, training notes, cross references or indexes added to them.
2. Candidates may choose to take into their exams either:
 - These 'selected extracts' of CAOs, CARs and Part 61 documents; or
 - The normal set of CAOs, CARs and Part 61 documents, but NOT both.
3. Should a candidate, as a result of using 'selected extracts', find that they cannot answer a question(s) or choose an incorrect answer(s), are not permitted to use this to request a re-marking of their exam.
4. Candidates may only take 'selected extracts' into those exams where each of those documents (CAOs, CARs and CASR Part 61) are part of the 'permitted materials' for that subject.
5. A divider page, used to separate the different sections, i.e. separating CAOs from CARs and from the Part 61 portions of 'selected extracts', is approved.
6. As per the normal CASA requirements stated on page <https://www.casa.gov.au/standard-page/permitted-material-under-part-61> of the CASA web site, no tagging of these pages is permitted, however candidates may choose to underline or highlight sections of the text if they wish (also as stated on that same page of the CASA web site).

4.5 Action in the event of a fire hazard

4.5.1 A fuelling operation shall be suspended and the Airport Fire Service notified when any fuel of a quantity likely to create a fire hazard is spilled on or within 15 metres (50 feet) of the aircraft or ground fuelling equipment, including the bilge of a fuelling barge, and the operation shall not recommence until the fire hazard is removed.

4.5.2 A fuelling operation shall be stopped as soon as it becomes apparent that an infringement exists of any of the relevant requirements of this Order.

4.5.3 When any fuel of a quantity likely to create a fire hazard is spilled on or within 15 metres (50 ft) of the aircraft or ground fuelling equipment, the pilot in command or, in his absence, the operator shall ensure that:

- (a) passengers remaining on board or in the process of embarking or disembarking are removed to a point at least 15 metres (50 ft) from the spilled fuel; and
- (b) mobile power units, vehicles and power operated loading devices operating within 15 metres (50 ft) of the spilled fuel are shut down; and
- (c) maintenance work of any nature on or within the aircraft is suspended and not recommenced until the spilled fuel has been removed.

4.7 In this subsection:

cabin crew member means a person who:

- (a) is a member of the operating crew, but not the flight crew, of an aircraft; and
- (b) may be assigned to emergency duties in the aircraft under subsection 12 of section 20.11 of the Civil Aviation Orders.

passenger zone in relation to an aircraft, means an area within the aircraft which has:

- (a) seats for 72 or less passengers; and
- (b) an exit.

5 Starting and ground operations of engines

5.1 The pilot in command or in his absence any other person responsible for starting or ground operation of an aircraft shall ensure that:

5.1.1 In the case of land aircraft, passenger loading equipment to permit rapid evacuation of passengers and crew is kept immediately available during the starting of engines.

5.1.2 In the case of seaplanes, water transport of a capacity sufficient to enable rapid evacuation of passengers and crew is immediately available during the starting of engines.

5.1.3 Where any fuel or other flammable material is spilled within 15 metres (50 ft) of an aircraft, the aircraft engines shall not be started or operated until the fire hazard has been removed.

5.1.4 An aircraft engine shall not be started or operated:

- (a) within 5 metres (17 ft) of any sealed building; or
- (b) within 8 metres (25 ft) of other aircraft; or

- (c) within 15 metres (50 ft) of any exposed public area; or
- (d) within 15 metres (50 ft) of any unsealed building in the case of an aircraft with a maximum take-off weight exceeding 5 700 kg (12 566 lb); or
- (e) within 8 metres (25 ft) of any unsealed building in the case of an aircraft with a maximum take-off weight not exceeding 5 700 kg (12 566 lb);

and turbine engines, in addition, shall not be operated within the appropriate distance specified below of any other aircraft, fuelling equipment or exposed public areas which lie to the rear of and within a 15 degree arc either side of the exhaust outlet axis of that engine:

Engine type	Power condition	Minimum distance metres
Turbo-prop	At or below normal slow taxiing power	15 (50 ft)
	At power used to initiate movement of a stationary aircraft	23 (75 ft)
Turbo-jet	At or below normal slow taxiing thrust	30 (100 ft)
	At thrust used to initiate movement of a stationary aircraft	46 (150 ft)

Note Fuelling equipment does not include equipment and outlet points of an installation located below ground level when the equipment is stowed and covering hatches are in place.

- 5.2 The operator of an aircraft shall ensure that all persons who may be required to start the engine of the aircraft are familiar with the method of operation of any installed engine nacelle fire extinguishing equipment.
- 5.3 The pilot in command and the operator shall ensure that passengers do not embark or disembark or that freight is not loaded or unloaded from the aircraft whilst an engine of the aircraft is operating unless the passengers and/or the loading personnel have been given instruction and guidance to protect them from injury as a consequence of engine operation.

6 Ground operation of aircraft radar equipment

- 6.1 The requirement of this subsection shall apply to all radar equipment with a nominal peak power output rating in excess of 25 kW.
- 6.2 During all ground operation, including testing and maintenance of aircraft radar equipment, the operator and person in charge of such equipment shall ensure that:
 - 6.2.1 The equipment is not energised in its normal mode (antenna rotating) unless the sector area scanned by the radar beam is clear of the following objects to a distance of 37 metres (120 ft) from the antenna:
 - (a) aircraft being refuelled or defuelled;
 - (b) fuel tankers, fuel tanks or fuel storage areas;
 - (c) persons or cargo;
 - (d) any other aircraft or aircraft hangar.

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Note For each radar installation the sector area should be defined in terms of readily distinguishable dimensions preferably related to some feature of the aircraft and should appear in the Aircraft Maintenance Manual.

- 6.2.2 The equipment is not energised with the antenna stationary and the beam directed towards any of the objects specified in paragraph 6.2.1 unless the distance separating them from the antenna is in excess of 60 metres (200 ft).
- 6.2.3 The distance specified in paragraphs 6.2.1 and 6.2.2 may be reduced by 75 per cent when an approved beam attenuating device is used between the antenna and any object specified in paragraph 6.2.1.
- 6.2.4 The equipment is not energised in any radiating mode of operation when the aircraft in which the equipment is fitted is in a hangar or other enclosure unless a suitable microwave energy absorbing shield is fitted over the antenna.
- 6.2.5 The equipment is not to be operated in any aircraft which is being refuelled or defuelled.

Note During all testing of aircraft radar equipment the beam should, whenever possible, be directed with maximum upward tilt toward a clear area.



Australian Government
Civil Aviation Safety Authority

Civil Aviation Order 20.18 (as amended)

made under regulations 207 and 232A of the *Civil Aviation Regulations 1988*.

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Section 20.18

Aircraft equipment — basic operational requirements

1 Application

This section applies to all Australian registered aircraft.

Note Particular attention is drawn to the fact that this section does not include requirements for oxygen equipment, radio apparatus or emergency equipment which are specified in Civil Aviation Orders sections 20.4 and 20.11 respectively.

2 Definitions

In this section, unless a contrary intention appears:

minimum equipment list means a list that provides for the operation of aircraft with permissible unserviceabilities, subject to compliance with such conditions, if any, as CASA directs under subregulation 37 (2) of the Regulations.

permissible unserviceability means any defect or damage that CASA has approved under subregulation 37 (1) of the Regulations as a permissible unserviceability.

TAWS-B+ system means a terrain awareness and warning system that is equipped with a visual display and complies with the requirements for Class B equipment expressed in TSO-C151, TSO-C151a or TSO-C151b.

the Regulations means the *Civil Aviation Regulations 1988*.

3 Instrumentation for flight under Visual Flight Rules

RPT aeroplanes and large charter aeroplanes

3.1 An aeroplane engaged in:

- (a) a regular public transport operation (RPT); or
- (b) a charter operation that has maximum take-off weight exceeding 5 700 kg — a charter operation;

may only be operated under the V.F.R. if it is equipped with the following:

- (c) the instruments specified in Appendix II;
- (d) any other instruments and indicators specified in the aeroplane's flight manual.

Note V.F.R. and *flight manual* are defined in subregulation 2 (1) of CAR 1988.

Helicopters

3.2 A helicopter may only be operated under the V.F.R. if it is equipped with the following:

- (a) the instruments specified in Appendix VI;
- (b) any other instruments and indicators specified in the helicopter's flight manual.

Hot air balloons and hot air airships

3.3 A hot air balloon and a hot air airship may only be operated under the V.F.R. if the balloon or airship is equipped with the following:

- (a) the instruments specified in Appendix X;
- (b) any other instruments and indicators specified in the flight manual of the balloon or airship.

Other aircraft in private, aerial work or charter operations

3.4 An aircraft:

- (a) engaged in a private, aerial work or charter operation; and
- (b) not mentioned in paragraphs 3.1 to 3.3;

may only be operated under the V.F.R. if it is equipped with the following:

- (c) the instruments specified in Appendix I;
- (d) any other instruments and indicators specified in the aircraft's flight manual.

4 Equipment for flight under Instrument Flight Rules

- 4.1 An aeroplane shall not be operated under the Instrument Flight Rules unless it is equipped with:
- (a) the flight and navigation instruments specified in Appendixes II, III and IV to this section as applicable; and
 - (b) any other instruments or indicators specified in the aeroplane flight manual; and
 - (c) the minimum lighting equipment specified in Appendix V to this section; and
 - (e) in the case of single pilot regular public transport operations, earphones for the pilot with boom or throat microphone and a press to transmit control on the control column. The earphones and microphone shall be compatible with the radio installation in the aeroplane, and shall be used by the pilot during flight.
- 4.1A Subject to paragraphs 4.1B and 4.1C, an aeroplane engaged:
- (a) in regular public transport operations; or
 - (b) in charter operations; or
 - (c) in aerial work operations as an air ambulance or for a flying doctor service; must not be operated under the Instrument Flight Rules unless it is equipped with a serviceable automatic pilot approved by CASA that has the following capabilities:
 - (d) a capability of operating the flight controls to maintain flight and manoeuvre the aeroplane about the roll and pitch axis;
 - (e) an automatic heading capability;
 - (f) an altitude hold capability.
- Note* For the purpose of meeting the requirements of subparagraph 4.1A (d), an automatic pilot is taken to have the capability of manoeuvring the aeroplane about the pitch axis if it does so solely to restore the selected altitude after a disturbance.
- 4.1B In spite of paragraph 4.1A, an aeroplane referred to in that paragraph that is not equipped with an automatic pilot in accordance with that paragraph may be operated under the Instrument Flight Rules, if the aeroplane:
- (a) is equipped with fully functioning dual controls; and
 - (b) has 2 control seats, with 1 control seat occupied by the pilot in command of the aeroplane and the other by a person who holds a commercial pilot (aeroplane) licence or an air transport pilot (aeroplane) licence with:
 - (i) an endorsement for that type of aeroplane; and
 - (ii) at least a co-pilot (aeroplane) instrument rating.
- 4.1C If the automatic pilot fitted to an aeroplane engaged:
- (a) in charter operations; or
 - (b) in aerial work operations as an air ambulance or for a flying doctor service; loses a capability referred to in paragraph 4.1A, the aeroplane may, if the pilot is satisfied that it is safe to do so, be operated under the Instrument Flight Rules by a single pilot at any time within the period of 3 days commencing on the day on which the automatic pilot loses the capability.
- 4.1D Paragraphs 4.1A, 4.1B and 4.1C apply in addition to, and not in derogation of, paragraph 4.1.
- 4.2 A helicopter shall not be operated under the Instrument Flight Rules unless it is equipped with:
- (a) the flight and navigation instruments specified in Appendixes VII, VIII, or IX to this section as applicable; and

- (b) any other instruments, indicators or equipment specified in the helicopter flight manual; and
- (c) the minimum lighting equipment specified in Appendix V to this section; and
- (d) an approved automatic pilot, or automatic stabilisation system, for other than night VFR flights except that in the case of such flight which will involve more than 30 minutes flight over water or over land areas where the helicopter's altitude cannot be maintained by reference to ground lighting, an approved autostabilisation system or a 2 pilot crew shall be carried.

Note Because of considerable variation in the individual stability characteristics of different helicopter types and in the associated automatic pilot and automatic stabilisation systems approved by the certification authority in the country of certification, it is not possible to detail precise specifications for this equipment. This consideration also applies to the flight crew complement. Accordingly each application for approval to conduct I.F.R. category operations will be individually assessed on the basis of the specific helicopter type and its associated automatic pilot or autostabilisation equipment and the proposed operating environment.

5 Windshield clear vision equipment

- 5.1 An aircraft with a flight compartment windshield may only be operated under the V.F.R. or the I.F.R. if it has a means of clearing heavy outside precipitation from the windshield at a rate which ensures an unobstructed view for each pilot.

Note **I.F.R.** is defined in subregulation 2 (1) of CAR 1988.

- 5.2 Paragraph 5.1 does not apply for:

- (a) an aeroplane with a MTOW less than 5 700 kg; or
- (b) a helicopter with a MTOW less than 2 750 kg maximum;

if the windshield design satisfies CASA that moderate rain will not impair the pilot's view for take-off, landing or normal flight.

6 Recording equipment

- 6.1 An aircraft of maximum take-off weight:

- (a) In excess of 5 700 kg and which is:
 - (i) turbine powered; or
 - (ii) of a type first certificated in its country of manufacture on or after 1 July 1965;

shall not be flown (except in agricultural operations) unless it is equipped with an approved flight data recorder and an approved cockpit voice recorder system;

- (b) Less than or equal to 5 700 kg and which is:
 - (i) pressurised; and
 - (ii) turbine powered by more than 1 engine; and
 - (iii) of a type certificated in its country of manufacture for operation with more than eleven places; and
 - (iv) issued with its initial Australian Certificate of airworthiness after 1 January 1988;

shall not be flown unless it is equipped with an approved cockpit voice recorder system.

- 6.1A Paragraph 6.1 does not apply to an aircraft for which there is in force an airworthiness certificate in the agricultural category or the restricted category.

- 6.2 The flight data recorder and cockpit voice recorder systems installed in an aircraft under this section:
- (a) must comply with the requirements of section 103.19 and 103.20 respectively; and
 - (b) will be considered for approval when CASA has equipment available allowing replay of the recordings.
- 6.3 Where an aircraft is required to be so equipped by this section, the flight data recorder system shall be operated continuously from the moment when the aircraft commences to taxi under its own power for the purpose of flight until the conclusion of taxiing after landing.
- 6.4 Where an aircraft is required to be so equipped by this section, the cockpit voice recorder system shall be operated continuously from the start of the use of the check list before starting engines for the purpose of flight until completion of the final check list at the termination of the flight.
- 6.5 Where an aircraft is required to be so equipped by this section the operator shall ensure that:
- (a) the flight data recorder retains its last 25 hours of recording; and
 - (b) the cockpit voice recorder retains its last 30 minutes of recording; and
 - (c) data from the last 2 occasions on which the flight data recorder system was calibrated from which the accuracy of the system can be determined are preserved.
- 6.6 The operator of an aircraft which is required by this section to be equipped with recorders shall take action to ensure that during ground maintenance periods the recorders are not activated unless the maintenance is associated with the flight data recording equipment or with the aircraft engines.
- 6.7 An aircraft required to be fitted with a flight data recorder system and/or a cockpit voice recorder system may operate with an unserviceable recorder system for a period of 21 days commencing on the day on which the system was determined to be unserviceable providing that:
- (a) the aircraft does not depart from an aerodrome where staff and equipment are available to replace the unserviceable units; and
 - (b) where the aircraft is required to be fitted with both a flight data recorder and cockpit voice recorder system, 1 system is serviceable; and
 - (c) the aircraft is not operating training or test flights.

7 Assigned altitude indicator and altitude alerting system

- 7.1 Piston engined aircraft and unpressurised turbine engine aircraft operating above 15 000 feet in controlled airspace under Instrument Flight Rules (except night V.M.C.) shall be equipped with an altitude alerting system.
- 7.2 Pressurised turbine engined aircraft operating in controlled airspace under Instrument Flight Rules (except night V.M.C.) shall be equipped with an altitude alerting system.
- 7.3 Unless equipped with an altitude alerting system, an aircraft operating in controlled airspace under Instrument Flight Rules (except night V.M.C.) shall be equipped with an assigned altitude indicator.
- 7.4 An altitude alerting system or an assigned altitude indicator shall be so designed and located that:
- (a) it can be readily adjusted for setting from each pilot seat; and

9E.4 On and after 4 February 2016, an aircraft operating at Brisbane, Sydney, Melbourne or Perth aerodrome must carry a serviceable Mode S transponder that meets the standards of:

- (a) subsection 9C; and
- (b) the following clause or clauses of Appendix XI:
 - (i) clauses 2 and 5 of Part B; or
 - (ii) clause 7 of Part C; or
 - (iii) clause 8 of Part C.

Note 1 A Mode A/C transponder does not meet this requirement.

Note 2 ADS-B OUT transmission is not mandatory but the Mode S transponder must be ADS-B capable.

9E.5 Paragraphs 9E.2 and 9E.4 do not apply to an aircraft for a flight if the Mode S transponder equipment is unserviceable for the flight, and each of the following applies:

- (a) the flight takes place within 3 days of the discovery of the unserviceability;
- (b) at least 1 of the following applies for the flight:
 - (i) flight with unserviceable equipment has been approved by CASA, in writing, subject to such conditions as CASA specifies;
 - (ii) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft, and any applicable conditions under subregulation 37 (2) of the *Civil Aviation Regulations 1988* have been complied with;
- (c) ATC clears the flight despite the unserviceability.

10 Serviceability

10.1 In the case of a charter or regular public transport aircraft, all instruments and equipment fitted to the aircraft must be serviceable before take-off, unless:

- (a) flight with unserviceable instruments or equipment has been approved by CASA, subject to such conditions as CASA specifies; or
- (b) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft and any applicable conditions under subregulation 37 (2) of the Regulations have been complied with; or
- (c) CASA has approved the flight with the unserviceable instrument or equipment and any applicable conditions that CASA has specified in writing have been complied with; or
- (d) the unserviceable instrument or equipment is a passenger convenience item only and does not affect the airworthiness of the aircraft.

10.1A A private or aerial work aircraft must not be operated:

- (a) under the V.F.R., unless:
 - (i) all instruments and equipment required to be fitted to the aircraft under subsection 3 are serviceable before take-off; or
 - (ii) CASA has approved the flight with the unserviceable instrument or equipment and any applicable conditions that CASA has specified in writing have been complied with; or
- (b) under the I.F.R., unless:
 - (i) all instruments and equipment required to be fitted to the aircraft under subsection 4 are serviceable before take-off; or

- (ii) CASA has approved the flight with the unserviceable instrument or equipment and any applicable conditions that CASA has specified in writing have been complied with.

10.2 Where flight is conducted with unserviceable instruments or equipment under the provisions of paragraph 10.1 or 10.1A, the unserviceable instruments or equipment shall be prominently placarded 'UNSERVICEABLE' or removed from the aircraft.

Note Where an instrument or piece of equipment performs more than 1 function, it is permissible to placard as unserviceable only the function(s) which are unserviceable.

10.3 The holder of an Air Operator's Certificate authorising a regular public transport operation must:

- (a) have a minimum equipment list or lists for the aircraft used to conduct those operations; and
- (b) include each list in the operations manual for the aircraft to which that list applies.

10.4 The holder of an Air Operator's Certificate authorising charter operations:

- (a) may have a minimum equipment list or lists for the aircraft used to conduct those operations; and
- (b) must include each list in the operations manual for the aircraft to which that list applies.

Appendix III

Instruments required for aeroplanes with a maximum take-off weight not greater than 5 700 kg engaged in charter operations under the Instrument Flight Rules (except night V.M.C.) excluding freight only charter operations

- 1 The flight and navigation instruments required are:
 - (a) an airspeed indicating system with means of preventing malfunctioning due to either condensation or icing; and
 - (b) 2 sensitive pressure altimeters; and
 - (c) (i) a direct reading magnetic compass; or
(ii) a remote indicating compass and a standby direct reading magnetic compass; and
 - (d) an accurate timepiece indicating the time in hours, minutes and seconds; and
 - (e) a rate of climb and descent indicator (vertical speed indicator); and
 - (f) an outside air temperature indicator; and
 - (g) 2 attitude indicators (artificial horizons); and
 - (h) a heading indicator (directional gyroscope or equivalent approved by CASA); and
 - (i) a turn and slip indicator except that only a slip indicator is required when a third attitude indicator usable through flight attitude of 360 degrees pitch and roll is installed; and
 - (j) a means of indicating whether the power supply to the gyroscopic instruments is working satisfactorily; and
 - (k) in turbo-jet aeroplanes with operating limitations expressed in terms of Mach number, a Mach number indicator (Machmeter).
- 2 The instruments specified in 1 (a), (b), (e) and (k) of this Appendix shall be capable of being connected to either a normal or alternate static source but not both sources simultaneously. Alternatively, they may be connected to a balanced pair of flush static ports.
- 3 The instruments specified in 1 (g), (h) and (i) of this Appendix shall have duplicated sources of power supply.
- 4 CASA may, having regard to the type of aeroplane, approve an attitude indicator incorporated in an automatic pilot system as being 1 of the 2 attitude indicators required by subparagraph 1 (g) of this Appendix.
- 5 A gyro-magnetic type of remote indicating compass installed to meet the requirements of subparagraph 1 (c) (ii) of this Appendix may also be considered to meet the requirement for a heading indicator specified in subparagraph 1 (h) of this Appendix, provided it has a duplicated power supply.

Appendix IV

Instruments required for aeroplanes engaged in:

- (i) aerial work and private operations under the Instrument Flight Rules (including night V.M.C.); and**
- (ii) charter operations under night V.M.C; and**
- (iii) Instrument Flight Rules freight only charter operations in aeroplanes with maximum take-off weight not greater than 5 700 kg.**

- 1 The flight and navigational instruments required are:
 - (a) an airspeed indicating system; and
 - (b) a sensitive pressure altimeter; and
 - (c) (i) direct reading magnetic compass; or
(ii) a remote indicating compass and a standby direct reading magnetic compass; and
 - (d) an accurate timepiece indicating the time in hours, minutes and seconds, except that this may be omitted if it is carried on the person of the pilot or navigator; and
 - (e) a rate of climb and descent indicator (vertical speed indicator) for other than night V.M.C. flights; and
 - (f) an outside air temperature indicator; and
 - (g) an attitude indicator (artificial horizon); and
 - (h) a heading indicator (directional gyroscope); and
 - (i) a turn and slip indicator except that only a slip indicator is required when a second attitude indicator usable through flight attitudes of 360 degrees of pitch and roll is installed; and
 - (j) means of indicating whether the power supply to the gyroscopic instruments is working satisfactorily; and
 - (k) except for aeroplanes engaged in night V.M.C. flights, means of preventing malfunctioning due to either condensation or icing of at least 1 airspeed indicating system.
- 2 The instruments specified in subparagraphs 1 (a), (b), (e) and (k) of this Appendix shall be capable of being connected to either a normal or an alternate static source but not both sources simultaneously. Alternatively, they may be connected to a balanced pair of flush static ports.
- 3 Except for aeroplanes engaged in night V.M.C. private and aerial work operations the instruments specified in subparagraphs 1 (g), (h) and (i) of this Appendix shall have duplicated sources of power supply unless the turn and slip indicator or the second attitude indicator specified in subparagraph 1 (i) has a source of power independent of the power operating other gyroscopic instruments.
- 4 A gyro-magnetic type of remote indicating compass installed to meet the requirements of subparagraph 1 (c) (ii) of this Appendix may be considered also to meet the requirement for a heading indicator specified in subparagraph 1 (h) of this Appendix, provided that such installation complies with the power supply requirements of paragraph 3 of this Appendix.

Appendix V

Electric lighting equipment flight under the Instrument Flight Rules at night (including night V.M.C.)

The electric lighting equipment is:

1 Instrument illumination

illumination for all instruments and equipment, used by the flight crew, that are essential for the safe operation of the aircraft. The illumination shall be such that:

- (a) all illuminated items are easily readable or discernible, as applicable; and
- (b) its direct or reflected rays are shielded from the pilot's eyes; and
- (c) its power supply is so arranged that in the event of the failure of the normal source of power, an alternative source is immediately available; and
- (d) it emanates from fixed installations.

2 Intensity control

means of controlling the intensity of the illumination of instrument lights, unless it can be demonstrated that non-dimmed instrument lights are satisfactory under all conditions of flight likely to be encountered.

3 Landing lights

2 landing lights except that, in accordance with the provisions of regulation 308 of the Regulations, aircraft engaged in private and aerial work operations and charter operations not carrying passengers for hire and reward are exempted from this requirement provided that 1 landing light is fitted.

Note A single lamp having 2 separately energised filaments may be approved as meeting the requirement for 2 landing lights.

4 Passenger compartment lights

lights in all passenger compartments.

5 Pilots' compartment lights

means of lighting the pilots' compartment to provide illumination adequate for the study of maps and the reading of flight documents.

6 Position and anti-collision lights

equipment for displaying the lights prescribed in regulation 196 of the Regulations.

Note In accordance of the provision of subregulation 195 (1) of the Regulations, position and anti-collision lights shall be displayed at night and in conditions of poor visibility.

7 Emergency lighting

emergency lighting as specified in (*Civil Aviation Regulations 1998*) Part 39-105 AD/General/4B Amdt 3 and a shock-proof electric torch for each crew member at the crew member station.

Subpart 61.M—Instrument ratings

Division 61.M.1—Privileges and requirements for grant of instrument ratings

61.855 Privileges of instrument ratings

Subject to Subpart 61.E and regulations 61.860 to 61.880, the holder of an instrument rating is authorised to pilot an aircraft:

- (a) under the IFR; or
- (b) at night under the VFR.

Note: Subpart 61.E sets out certain limitations that apply to all pilot licences, and ratings and endorsements on pilot licences.

61.860 Limitations on exercise of privileges of instrument ratings—general

- (1) The holder of an instrument rating is authorised to conduct an instrument approach operation of a particular kind as pilot in command of an aircraft only if the aircraft is equipped for that kind of operation.
- (2) The holder of an instrument rating is authorised to pilot an aircraft in a single-pilot operation under the IFR only if the holder has:
 - (a) passed the flight test for the rating in a single-pilot aircraft; or
 - (b) completed an instrument proficiency check in a single-pilot aircraft.
- (3) The holder of an instrument rating is authorised to conduct a circling approach under the IFR on a flight only if:
 - (a) the holder passed the flight test for the rating within the previous 12 months, and the flight test included a circling approach; or
 - (b) the holder's most recent instrument proficiency check included a circling approach; or
 - (c) both:

Part 61 Flight crew licensing

Subpart 61.M Instrument ratings

Division 61.M.1 Privileges and requirements for grant of instrument ratings

Regulation 61.865

- (i) the holder is successfully participating in an operator's training and checking system for an operation that includes circling approaches; and
 - (ii) the operator holds an approval under regulation 61.040 for the system for this subregulation.
- (4) For paragraph (3)(b), an instrument proficiency check includes an operator proficiency check:
 - (a) that covers IFR operations; and
 - (b) that is conducted by a flight examiner who holds an instrument rating flight test endorsement.
- (5) The holder of an instrument rating is authorised to conduct an instrument approach operation in an aircraft using a procedure of a particular kind only if the holder has:
 - (a) completed training in the conduct of instrument approach operations using the procedure; and
 - (b) demonstrated, to a person mentioned in subregulation (6), his or her competence in the conduct of instrument approach operations using the procedure.
- (6) For paragraph (5)(b), the persons are as follows:
 - (a) CASA;
 - (b) an examiner who is authorised to conduct an instrument approach operation using the same procedure;
 - (c) a person who holds an approval under regulation 61.040 to assess the holder's competence.

61.865 Limitations on exercise of privileges of instrument ratings—endorsements

- (1) The holder of an instrument rating is authorised to pilot an aircraft mentioned in column 2 of an item in Part 1 of table 61.890 under the IFR, or at night under the VFR, only if the holder also holds the endorsement mentioned in column 1 of the item.
- (2) The holder of an instrument rating is authorised to conduct an instrument approach operation mentioned in column 2 of an item in Part 2 of table 61.890 only if the holder also holds the endorsement mentioned in column 1 of the item.

**61.870 Limitations on exercise of privileges of instrument ratings—
recent experience: general**

- (1) This regulation applies to the holder of an instrument rating subject to subregulation (1A).
 - (1A) This regulation does not apply to the holder if:
 - (a) the holder has successfully completed an operator proficiency check that covers IFR operations within the previous 3 months; or
 - (b) both:
 - (i) the holder is successfully participating in an operator's training and checking system for an IFR operation; and
 - (ii) the operator holds an approval under regulation 61.040 for the system for this subregulation.
 - (2) The holder is authorised to pilot an aircraft under the IFR only if the holder has conducted at least 3 instrument approach operations within the previous 90 days in an aircraft or an approved flight simulation training device for the purpose.
 - (3) The holder is authorised to pilot an aircraft of a particular category under the IFR only if the holder has conducted at least one instrument approach operation within the previous 90 days in an aircraft of the same category or an approved flight simulation training device for the purpose.
 - (4) The holder is authorised to conduct a 2D instrument approach operation only if the holder has conducted a 2D instrument approach operation within the previous 90 days in an aircraft or an approved flight simulation training device for the purpose.
 - (5) The holder is authorised to conduct a 3D instrument approach operation only if the holder has conducted a 3D instrument approach operation within the previous 90 days in an aircraft or an approved flight simulation training device for the purpose.
 - (6) The holder is authorised to conduct an azimuth guidance operation only if the holder has conducted an azimuth guidance operation within the previous 90 days in an aircraft or an approved flight simulation training device for the purpose.
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- (7) The holder is authorised to conduct a course deviation indicator operation only if the holder has conducted a course deviation indicator operation within the previous 90 days in an aircraft or an approved flight simulation training device for the purpose.

Note: Azimuth guidance operations and course deviation indicator operations are instrument approach operations: see the definitions of those terms in regulation 61.010.

61.875 Limitations on exercise of privileges of instrument ratings—recent experience: single pilot

- (1) The holder of an instrument rating is authorised to pilot an aircraft under the IFR in a single-pilot operation only if the holder has conducted a flight or simulated flight under the IFR in a single-pilot operation within the previous 6 months.
- (2) For subregulation (1), the flight or simulated flight must:
- (a) have a duration of at least one hour; and
 - (b) include at least one instrument approach or simulated instrument approach.

61.880 Limitations on exercise of privileges of instrument ratings—instrument proficiency check

- (1) The holder of an instrument rating is authorised to exercise the privileges of the rating in an aircraft of a particular category only if the holder has a valid instrument proficiency check for the aircraft category.
- (2) However:
- (a) the holder is authorised to exercise the privileges of the rating in a multi-engine aeroplane only if the holder has a valid instrument proficiency check for multi-engine aeroplanes; and
 - (b) the holder is authorised to exercise the privileges of the rating in a multi-engine helicopter only if the holder has a valid instrument proficiency check for multi-engine helicopters.
- (3) Subject to subregulations (4) and (4B), for subregulations (1) and (2), the holder is taken to have a valid instrument proficiency check

for the aircraft category, or for multi-engine aeroplanes or helicopters, during the following periods:

(a) if the holder passes the flight test for the instrument rating in a relevant aircraft—the period from when the holder passes the flight test to the end of the 12th month after the month in which the holder passes the flight test;

(b) if:

(i) the holder passes the flight test for an instrument endorsement in a relevant aircraft; and

(ii) the flight test is conducted more than 6 months after the holder passes the flight test for the rating;

the period from when the holder passes the flight test for the endorsement to the end of the 12th month after the month in which the holder passes the flight test for the endorsement;

(c) if the holder successfully completes an operator proficiency check that covers IFR operations in the relevant aircraft, and that is conducted by a flight examiner who holds an instrument rating flight test endorsement—the period from when the holder successfully completes the check to the end of the 12th month after the month in which the holder successfully completes the check;

(d) if:

(i) the holder is successfully participating in an operator's training and checking system for an IFR operation in the relevant aircraft; and

(ii) the operator holds an approval under regulation 61.040 for the system for this subregulation and operations in the relevant aircraft;

the period during which the holder is successfully participating in the system;

(e) if the holder successfully completes an instrument proficiency check for the relevant aircraft—the period from when the holder successfully completes the check to the end of the 12th month after the month in which the holder successfully completes the check;

(f) if:

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- (i) the holder is taken to have a valid instrument proficiency check under any of paragraphs (a) to (e) for the relevant aircraft (the *existing check*); and
 - (ii) within 3 months before the validity of the existing check expires, the holder successfully completes an instrument proficiency check for the relevant aircraft;
the period from when the validity of the existing check expires to the end of the 12th month after the validity of the existing check expires.
- (4) If, at any time, the holder attempts, but does not successfully complete, an instrument proficiency check mentioned in subregulation (4A) (the *failed check*), the holder is no longer taken to have a valid instrument proficiency check for:
 - (a) the aircraft category in which the holder attempted the failed check; or
 - (b) multi-engine aircraft of the category in which the holder attempted the failed check.
- (4A) For subregulation (4), the failed check may be any of the following:
 - (a) an instrument proficiency check for an aircraft category;
 - (b) an instrument proficiency check for multi-engine aeroplanes or helicopters;
 - (c) an instrument proficiency check for an aircraft type.
- (4B) If the holder is taken to have a valid instrument proficiency check for the relevant aircraft only because of the holder's participation in an operator's training and checking system, the check is taken to be valid only for operations conducted by the operator.
- (5) For paragraphs (3)(e) and (f), the holder successfully completes an instrument proficiency check for the relevant aircraft if:
 - (a) CASA or a flight examiner:
 - (i) assesses the holder's competency to conduct operations under the IFR in a relevant aircraft as meeting the standards mentioned in the Part 61 Manual of Standards for an instrument proficiency check in the relevant aircraft; and

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- (ii) endorses the holder's licence document to the effect that the holder has completed the instrument proficiency check; and
 - (iii) includes in the endorsement the matters mentioned in subregulation (8); or
 - (b) a person mentioned in subregulation (7) assesses the holder as competent to conduct operations under the IFR in a relevant aircraft, and CASA or a flight examiner:
 - (i) conducts an oral assessment of the holder's knowledge of IFR operation procedures to the standards mentioned in the Part 61 Manual of Standards for an instrument proficiency check; and
 - (ii) endorses the holder's licence document to the effect that the holder has completed the instrument proficiency check; and
 - (iii) includes in the endorsement the matters mentioned in subregulation (8).
 - (6) For paragraphs (3)(e) and (f), the instrument proficiency check must be conducted in a relevant aircraft or an approved flight simulation training device for the proficiency check.
 - (7) For paragraph (5)(b), the person is the holder of an approval under regulation 61.040 to conduct the proficiency check.
 - (8) For subparagraphs (5)(a)(iii) and (b)(iii), the matters are:
 - (a) the date on which the instrument proficiency check is conducted; and
 - (b) the aircraft to which the instrument proficiency check relates.
 - (9) In this regulation:
 - relevant aircraft**, for an instrument proficiency check, means:
 - (a) if the instrument proficiency check is for an aircraft category—a single-engine or multi-engine aircraft of that category; or
 - (b) if the instrument proficiency check is for multi-engine aeroplanes—a multi-engine aeroplane; or
 - (c) if the instrument proficiency check is for multi-engine helicopters—a multi-engine helicopter.
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61.885 Requirements for grant of instrument ratings

- (1) An applicant for an instrument rating must:
- (a) hold a private pilot licence, commercial pilot licence or air transport pilot licence; and
 - (b) meet the requirements for the grant of:
 - (i) at least one instrument endorsement mentioned in column 1 of an item in Part 1 of table 61.890; and
 - (ii) at least one instrument endorsement mentioned in column 1 of an item in Part 2 of table 61.890.
- Note 1: Paragraph (a) is satisfied if the applicant holds a certificate of validation of an overseas flight crew licence that is equivalent to a private pilot licence, commercial pilot licence or air transport pilot licence: see item 36 of Part 2 of the Dictionary.
- Note 2: An application for a pilot licence mentioned in paragraph (a) and an instrument rating may be made at the same time: see subregulation 61.155(2).
- (2) The applicant must also have:
- (a) passed the aeronautical knowledge examination for the instrument rating; and
 - (b) completed flight training for the instrument rating; and
 - (c) passed the flight test mentioned in the Part 61 Manual of Standards for the instrument rating and the aircraft category rating associated with the applicant's pilot licence; and
 - (d) met the aeronautical experience requirements mentioned in subregulation (5).
- Note 1: For paragraph (a), for the conduct of aeronautical knowledge examinations, see Division 61.B.3.
- Note 2: For paragraph (b), for the requirements for flight training, see Division 61.B.2.
- Note 3: For paragraph (c), for the conduct of flight tests, see Division 61.B.4.
- Note 4: For paragraph (d), for the determination of a person's flight time and other aeronautical experience, see Division 61.A.2.
- (3) For paragraph (2)(b), the flight training must have been conducted in an aircraft of the same category as the aircraft in which, or the aircraft represented by the flight simulation training device in which, the flight test is conducted.

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- (4) For paragraph (2)(c), the flight test must be conducted in an aircraft unless the applicant has previously held:
 - (a) an instrument rating; or
 - (b) an overseas rating that CASA is satisfied is equivalent to an instrument rating; or
 - (c) a qualification issued by the Australian Defence Force that CASA is satisfied is equivalent to an instrument rating.
- (5) For paragraph (2)(d), the applicant must have aeronautical experience that includes:
 - (a) at least 50 hours of cross-country flight time as pilot in command; and
 - (b) at least 40 hours of instrument time, including:
 - (i) at least 10 hours of dual instrument time; and
 - (ii) either:
 - (A) if subregulation (6) applies—at least 10 hours of instrument flight time; or
 - (B) in any other case—at least 20 hours of instrument flight time.
- (6) This subregulation applies if any instrument ground time relied on by an applicant for paragraph (5)(b) is:
 - (a) completed in an approved flight simulator for the purpose; and
 - (b) supervised by a pilot instructor who holds an instrument rating training endorsement.
- (7) For subregulation (5), the cross-country flight time and instrument flight time must have been conducted in an aircraft of the same category as the aircraft in which, or the aircraft represented by the flight simulation training device in which, the flight test is conducted.

61.887 Removal of instrument rating conditions about acting as pilot in command under IFR

- (1) This regulation applies to the holder of an instrument rating granted on the basis of regulation 202.272 or 202.274 if the rating

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is subject to the condition that the holder is not authorised to act as pilot in command under the IFR.

- (2) CASA must remove the condition, to the extent that it relates to a particular aircraft category or class, if:
- (a) the holder applies to CASA for the removal of the condition; and
 - (b) the holder meets the requirements under this Part for the grant of:
 - (i) an instrument rating; and
 - (ii) an instrument endorsement that would authorise the holder to pilot an aircraft of that category or class under the IFR.

Division 61.M.2—Privileges and requirements for grant of instrument endorsements

61.890 Kinds of instrument endorsement

The kinds of instrument endorsement are set out in column 1 of table 61.890.

Table 61.890 Instrument endorsements			
Item	Column 1 Endorsement	Column 2 Activities authorised	Column 3 Requirements
<i>Part 1—Aircraft category/class endorsements</i>			
1	Single-engine aeroplane instrument endorsement	Pilot an aeroplane of the single-engine aeroplane class under the IFR or at night under the VFR	Single-engine aeroplane class rating or type rating for a type of single-engine aeroplane At least 10 hours of dual instrument time in an aeroplane or an approved flight simulation training device for the purpose At least 5 hours of aeronautical experience at night as pilot of an aeroplane or an approved flight simulation training device for the purpose, including at least one hour of dual flight and one hour of solo night circuits
2	Multi-engine aeroplane instrument endorsement	Pilot an aeroplane under the IFR or at night under the VFR	Multi-engine aeroplane class rating or type rating for a type of multi-engine aeroplane At least 10 hours of dual instrument time in a multi-engine aeroplane or an approved flight simulation training device for the purpose At least 5 hours of aeronautical experience at night as pilot of an aeroplane or an approved flight simulation training device for the purpose, including at least one hour of dual flight and one hour of solo night circuits

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Table 61.890 Instrument endorsements

Item	Column 1 Endorsement	Column 2 Activities authorised	Column 3 Requirements
3	Single-engine helicopter instrument endorsement	Pilot a single-engine helicopter under the IFR or at night under the VFR	Single-engine helicopter class rating or type rating for a type of single-engine helicopter At least 10 hours of dual instrument time in a helicopter or an approved flight simulation training device for the purpose At least 5 hours of aeronautical experience at night as pilot of a helicopter or an approved flight simulation training device for the purpose, including at least 3 hours of dual flight and one hour of solo night circuits
4	Multi-engine helicopter instrument endorsement	Pilot a helicopter under the IFR or at night under the VFR	Type rating for a type of multi-engine helicopter At least 10 hours of dual instrument time in a multi-engine helicopter or an approved flight simulation training device for the purpose At least 5 hours of aeronautical experience at night as pilot of a helicopter or an approved flight simulation training device for the purpose, including at least 3 hours of dual flight and one hour of solo night circuits
5	Powered-lift aircraft instrument endorsement	Pilot a powered-lift aircraft under the IFR or at night under the VFR	Type rating for a type of powered-lift aircraft At least 10 hours of dual instrument time in a powered-lift aircraft or an approved flight simulation training device for the purpose At least 5 hours of aeronautical experience at night as pilot of a helicopter or powered-lift aircraft or an approved flight simulation training device for the purpose, including at least 3 hours of dual flight and one hour of solo night circuits

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Table 61.890 Instrument endorsements

Item	Column 1 Endorsement	Column 2 Activities authorised	Column 3 Requirements
6	Gyroplane instrument endorsement	Pilot a gyroplane under the IFR or at night under the VFR	Gyroplane aircraft class rating or type rating for a type of gyroplane At least 10 hours of dual instrument flight time in a gyroplane At least 5 hours of aeronautical experience at night as pilot of a helicopter or gyroplane or an approved flight simulation training device for the purpose, including at least 3 hours of dual flight and one hour of solo night circuits
7	Airship instrument endorsement	Pilot an airship under the IFR or at night under the VFR	Airship class rating or type rating for a type of airship At least 10 hours of dual instrument time in an airship or an approved flight simulation training device for the purpose At least 5 hours of aeronautical experience at night as pilot of an airship or an approved flight simulation training device for the purpose, including at least 3 hours of dual flight and one hour of solo night circuits
<i>Part 2—Instrument approach endorsements</i>			
8	IAP 2D instrument endorsement	Conduct a 2D instrument approach operation	
9	IAP 3D instrument endorsement	Conduct a 3D instrument approach operation	IAP 2D instrument endorsement

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61.895 Privileges of instrument endorsements

Subject to Subpart 61.E, Division 61.M.1 and regulation 61.900, the holder of an endorsement mentioned in column 1 of an item in table 61.890 is authorised to conduct the activity mentioned in column 2 of the item.

Note: Subpart 61.E sets out certain limitations that apply to all pilot licences, and ratings and endorsements on pilot licences.

61.900 Limitations on exercise of privileges of instrument endorsements

- (1) The holder of an endorsement mentioned in column 1 of an item in Part 2 of table 61.890 is authorised to conduct an instrument approach operation in IMC using a navigation system of a particular kind only if the holder has previously conducted:
 - (a) an instrument approach operation; or
 - (b) a simulated instrument approach operation in a flight simulation training device;using a navigation system of that kind.
 - (2) The holder of an IAP 3D instrument endorsement is authorised to conduct a 3D instrument approach operation only if:
 - (a) the holder passed the flight test for the endorsement within the previous 24 months; or
 - (b) the holder's most recent instrument proficiency check included a 3D instrument approach operation; or
 - (c) both:
 - (i) the holder is successfully participating in an operator's training and checking system for an operation that includes 3D instrument approaches; and
 - (ii) the operator holds an approval under regulation 61.040 for the system for this subregulation.
 - (3) For paragraph (2)(b), an instrument proficiency check includes an operator proficiency check:
 - (a) that covers IFR operations; and
 - (b) that is conducted by a flight examiner who holds an instrument rating flight test endorsement.
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61.905 Requirements for grant of instrument endorsements

- (1) An applicant for an endorsement mentioned in column 1 of an item in table 61.890 must hold:
- (a) an instrument rating; and
 - (b) the rating or endorsement (if any) mentioned in column 3 of the item.

Note: Subregulation (1) is satisfied, in relation to a required licence, rating or endorsement, if the applicant holds a certificate of validation of an overseas flight crew licence, rating or endorsement that is equivalent to the required licence, rating or endorsement: see item 36 of Part 2 of the Dictionary.

- (2) The applicant must also have:
- (a) completed flight training for the endorsement; and
 - (b) met the aeronautical experience requirements (if any) mentioned in column 3 of the item; and
 - (c) passed the flight test mentioned in the Part 61 Manual of Standards for the endorsement.

Note 1: For paragraph (a), for the requirements for flight training, see Division 61.B.2.

Note 2: For paragraph (b), for the determination of a person's flight time and other aeronautical experience, see Division 61.A.2.

Note 3: For paragraph (c), for the conduct of flight tests, see Division 61.B.4.