



**Australian Government**

**Civil Aviation Safety Authority**

## **Part 131 (Balloons and Hot Air Airships) Manual of Standards 2024**

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I, PHILIPPA JILLIAN SPENCE, Director of Aviation Safety, on behalf of CASA, make this instrument under regulations 131.055 and 201.025 of the *Civil Aviation Safety Regulations 1998*, and section 4 of the *Acts Interpretation Act 1901*.

**[Signed P. Spence]**

Pip Spence

Director of Aviation Safety

8 January 2024



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*Note* This Table of Contents is for guidance only. It is not a formal part of the *Part 131 (Balloons and Hot Air Airships) Manual of Standards 2024*. See subsection 1.03.

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# Part 131 (Balloons and Hot Air Airships) Manual of Standards 2024

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## CHAPTER 1 PRELIMINARY AND DEFINITIONS

### Division 1.1 Preliminary

#### 1.01 Name of instrument

- (1) This instrument is the *Part 131 (Balloons and Hot Air Airships) Manual of Standards 2024*.
- (2) This instrument may be cited as the Part 131 MOS.
- (3) Unless the contrary intention appears, references in this instrument to “the MOS” or “this MOS” are references to the Part 131 MOS.

#### 1.02 Commencement

This instrument commences on 12 November 2024.

*Note* The MOS is empowered by Part 131 of CASR, contained in Schedule 3 of the *Civil Aviation Legislation Amendment (Parts 103, 105 and 131) Regulations 2019* which commenced on 2 December 2021.

#### 1.03 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.

### Division 1.2 Definitions — general

#### 1.04 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) 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.

#### 1.05 References to TSOs, ETSOs, (E)TSOs

- (1) 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.
- (2) 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.

- (3) 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 Definitions, etc.

- (1) Subject to subsection 1.06 (5), in this instrument words and phrases have the same meaning as in the CASR Dictionary, Part 131 of CASR or the Act, unless a contrary intention appears.
- (2) 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](http://www.airservicesaustralia.com).

- (3) In this MOS, any reference to a balloon being tethered is a reference to a balloon being tethered in a manner that conforms to the requirements of the AFM for the balloon.
- (4) In this MOS, unless a contrary intention appears:
- (a) mention of a provision with the prefix “131.” is a reference to that provision in Part 131 of CASR; and
  - (b) mention of a provision with the prefix “91.” is a reference to that provision in Part 91 of CASR.

- (5) In this MOS:

*Note* The following definitions are particularly useful for this MOS. Other relevant words and phrases not included below may have been defined in the CASR Dictionary.

**Act** means the *Civil Aviation Act 1988*.

**adult** has the meaning given by the CASR Dictionary.

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

**aerodrome** has the meaning given by the Act.

**AFM** (short for aircraft flight manual) means the flight manual for a Part 131 aircraft.

*Note* **Flight manual** is defined in the CASR Dictionary. It includes AFM supplements that may be supplied by the original aircraft manufacturer, or by another person, in accordance with Subpart 21.M of CASR.

**AGL** means above ground level.

**AIP** has the meaning given by the CASR Dictionary.

*Note* The AIP is available through [www.airservicesaustralia.com](http://www.airservicesaustralia.com).

**AIP-ERSA** means Aeronautical Information Publication — En Route Supplement of Australia.

**air traffic service** has the meaning given by 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 ATC service, an area control service, an approach control service or an aerodrome control service. *Air Traffic Services* has a different meaning: see under *ATS*.

*AMSL* means above mean sea level.

*ASAO* is short for approved self-administering organisation, and has the meaning given by the CASR Dictionary.

*Note* See also Part 149 of CASR.

*ATC* means air traffic control.

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

*authorised aeronautical information*: see the CASR Dictionary.

*authorised weather forecast* has the meaning given by the CASR Dictionary.

*authorised weather report* has the meaning given by the CASR Dictionary.

*ballast* means fine sand carried by a gas balloon to facilitate altitude control through the release of the ballast.

*balloon* has the meaning given by the CASR Dictionary.

*balloon class endorsement* has the same meaning as in Part 5 of CAR.

*balloon flying training* means any training given to a person during flight time in a balloon for the purpose of increasing the person's skill in flying the balloon, including balloon flying training:

- (a) for a prescribed purpose under paragraph 206 (a) of CAR, conducted in accordance with Part 5 of CAR; or
- (b) that is a Part 131 recreational activity.

*balloon recreational activity* has the same meaning as in Part 131 of CASR.

*balloon transport operation* has the same meaning as in Part 131 of CASR.

*balloon transport operator* has the same meaning as in Part 131 of CASR.

*CAO* means Civil Aviation Order.

*CAR* means the *Civil Aviation Regulations 1988*.

*CAR certificate of validation* has the meaning given by the CASR Dictionary.

*CASR* means the *Civil Aviation Safety Regulations 1998*.

*CASR Dictionary* means the Dictionary under regulation 1.004 of CASR.

*child* has the meaning given by the CASR Dictionary.

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

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

*class*, for a balloon, has the same meaning as in Part 5 of CAR.

*control area* has the meaning given by the CASR Dictionary.

*controlled aerodrome* has the meaning given by the CASR Dictionary.

*control zone* has the meaning given by the CASR Dictionary.

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

*cost-sharing*, for this MOS only, has the same meaning as in the CASR Dictionary but as if paragraph (a) stated: "(a) the flight is conducted using a Part 131 aircraft and does not carry more than 6 persons; and".

*Note* See also section 25.03.

***crown***, for a Part 131 aircraft, means the highest point of the aircraft AGL when its envelope is fully inflated.

***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.

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

***ETSO*** means a Technical Standard Order of EASA: see the CASR Dictionary.

***(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.

***exposition*** has the meaning given by the CASR Dictionary.

*Note* A provision of this MOS that prescribes exposition content is empowered by paragraph 131.195 (1) (n) of CASR as matter required to be included in the exposition under the regulations because the expression under the regulations is taken to include under the MOS: see *Seaview Lord Howe Pty Ltd and Civil Aviation Authority* (1995) 38 ALD 422; 21 AAR 506.

***FAA*** means the Federal Aviation Administration of the United States.

***final reserve fuel*** means the amount of usable fuel, expressed as a period of time, required to be remaining in the fuel tanks on completion of the final landing of a flight before ground handling.

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

***flight note*** has the same meaning as in Chapter 13 of this MOS.

***flying in-company*** means that:

- (a) a group of at least 2 aircraft occupy a specific 3-dimensional volume of airspace; and
- (b) the aircraft within the group self-separate from each other while within that volume of airspace.

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

***forecast QNH*** means QNH obtained from an authorised weather forecast.

***ft*** means feet.

***gas balloon*** has the meaning given by the CASR Dictionary.

***GNSS*** means the global navigation satellite system.

***ground support personnel*** means 1 or more persons assigned by the operator of a Part 131 aircraft to perform duties on the ground related to the operation of the aircraft at any time during initial set up, inflation, take-off, flight, retrieval, landing and pack up.

*Note 1* For example, a balloon transport operator may assign a ground support person for any duty specifically concerned with the safety of the passengers from arrival at the launch area to final departure from the landing area.

*Note 2* See also ***operational safety-critical personnel***.

***hot air airship*** has the meaning given by the CASR dictionary.

***hot air balloon*** means a manned free balloon that derives its lift from heated air.

***hPa*** means hectopascals.

***in-company***, in relation to 2 or more Part 131 aircraft in flight, means such 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 the CASR Dictionary.

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

**inoperative**, for anything, has the meaning given by the CASR Dictionary.

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

**JRCC** means the Joint Rescue Coordination Centre of the Australian Maritime Safety Authority.

**km** means kilometres.

**kts** means knots.

**light sport balloon** has the meaning given by the CASR Dictionary.

**lighter-than-air aircraft** has the meaning given by the CASR Dictionary.

**m**, for a distance, means metres.

**manned free balloon** has the meaning given by the CASR Dictionary.

**MBA** means mandatory broadcast area.

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

**mixed balloon** means a manned free balloon that derives its lift from a combination of heated air and non-flammable lighter than air gas.

**MOS** means Manual of Standards.

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

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

**NM** means nautical miles.

**NOTAM** has the meaning given by the CASR Dictionary.

**operational safety-critical personnel** has the meaning given by the CASR Dictionary.

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

**operator** has the meaning given by the CASR Dictionary.

**Part 131 aircraft** has the meaning given by regulation 131.005 of CASR.

**Part 131 ASAO** has the meaning given by the CASR Dictionary.

**Part 131 pilot authorisation** has the meaning given by the CASR Dictionary.

**Part 131 recreational activity** has the meaning given by the CASR Dictionary.

**public gathering** has the meaning given by the CASR Dictionary.

**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 altitude.

**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.

**recognised country**: see the CASR Dictionary.

*Note* Recognised countries include the following:

- (a) Canada;

- (b) France;
- (c) Germany;
- (d) Netherlands;
- (e) New Zealand;
- (f) United Kingdom;
- (g) United States of America.

**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
- (b) scheduled reporting times (SKEDS); or
- (c) SARTIME.

**SFIS** means Surveillance Flight Information Service.

**specialised balloon operation** has the meaning given by regulation 131.020.

**special VFR** has the meaning given in section 2.01.

**suitable landing area** for a Part 131 aircraft means a place where, in the reasonable opinion of the pilot in command given the prevailing conditions, the aircraft can be safely landed without causing a hazard to persons or property on the ground or on the aircraft.

**surveillance equipment**: see Division 26.10 of this MOS.

**tethered** has the meaning given by the CASR Dictionary.

**the Regulations** means CAR and CASR.

**TSO** means Technical Standard Order of the FAA.

**VFR** means the visual flight rules.

**VHF** means very high frequency.

**VMC**, or **visual meteorological conditions**, has the meaning given by the CASR Dictionary.

**VMC criteria** has the meaning given by the CASR Dictionary.

*Note* See Division 2.2 of this MOS.

## 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*.

### Division 2.1 Definition of *special VFR*

#### 2.01 Special VFR

- (1) This section is for paragraph (b) 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) 1 600 m — for a height at or above 500 ft AGL; and
    - (ii) 100 m — for a height below 500 ft AGL.

### Division 2.2 Definition of *VMC criteria*

#### 2.02 VMC criteria

- (1) This section is for paragraph (b) 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.
- (3) For Table 2.02 (3), for a class of airspace mentioned in column 1 of an item, at a height mentioned in column 2 of the same item, the VMC criteria are those mentioned in columns 3, 4 and 5 of the same item.

**Table 2.02 (3)**

|      | Column 1          | Column 2                         | Column 3          | Column 4                                      | Column 5                 |
|------|-------------------|----------------------------------|-------------------|---|--------------------------|
| Item | Class of airspace | Height                           | Flight visibility | Distance from cloud                           | Operational requirements |
| 1    | A, B, C, E or G   | At or above<br>10 000 ft<br>AMSL | 8 000 m           | 1 500 m<br>horizontal<br>1 000 ft<br>vertical |                          |
| 2    | A, B, C, E or G   | Below 10 000 ft<br>AMSL          | 5 000 m           | 1 500 m<br>horizontal<br>1 000 ft<br>vertical |                          |
| 3    | D                 | All heights                      | 5 000 m           | 600 m<br>horizontal                           |                          |

|      | Column 1          | Column 2   | Column 3          | Column 4   | Column 5   |
|------|-------------------|--|-------------------|--|--|
| Item | Class of airspace | Height   | Flight visibility | Distance from cloud  | Operational requirements   |
|      |                   |  |                   | 1 000 ft vertical above cloud<br>500 ft vertical below cloud   |  |
| 4    | G                 | At or below whichever is the higher of:<br>(a) 3 000 ft AMSL; or<br>(b) 1 000 ft AGL | 5 000 m           | Clear of cloud   | In sight of ground or water  |
| 5    | G                 | Below 1 500 ft above ground or water   | 5 000 m           | No vertical clearance from cloud below the Part 131 aircraft is required provided the top of the cloud is at or below 500 ft above ground or water | The Part 131 aircraft must be at least 10 NM from an aerodrome with an approved instrument approach procedure                        |
| 6    | G                 | Below 500 ft above ground or water   | 100 m             | Not applicable   | Day operation only provided the Part 131 aircraft is at least 10 NM from an aerodrome with an approved instrument approach procedure |

*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.



## CHAPTER 3 OTHER PRESCRIPTIONS FOR DEFINITIONS FOR PART 131 OF CASR

### 3.01 Specialised balloon operation

- (1) For subparagraph 131.020 (c) (v), an operation is a *specialised balloon operation* if it:
  - (a) complies with paragraphs 131.020 (a) and (b); and
  - (b) involves an activity mentioned in this subsection (2).
- (2) **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.

### 3.02 Part 131 recreational activity

For subregulation 131.025 (2), a *Part 131 recreational activity* does not include operating a Part 131 aircraft in the following circumstances:

#### **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.

## **CHAPTER 4 PERSONNEL FATIGUE MANAGEMENT**

### **4.01 Purpose**

For regulation 131.190, this Chapter prescribes the requirements for a balloon transport operator's system for managing flight crew fatigue.

### **4.02 Personnel fatigue management**

#### **RESERVED**

*Note* Civil Aviation Order 48.1 Instrument 2019 applies to the holder of a balloon transport AOC. This section is reserved to provide for CASA to eventually move the requirements of the CAO into the MOS.

## CHAPTER 5 FLIGHT RELATED DOCUMENTS

### 5.01 Carriage of documents — all flights

(1) For subregulation 131.275 (1), the following documents are prescribed for carriage on all flights of a Part 131 aircraft, whether or not the flight begins or ends inside or outside Australian territory:

- (a) the aircraft flight manual instructions for the aircraft;
- (b) the MEL (if any) for the aircraft;

*Note* There are no operations under Part 131 that are required to have an MEL. However, an operator does have the ability to have an MEL approved under Subpart 91.Y of CASR. If an MEL were to be approved for an operator then it would have to be carried on the aircraft.

- (c) for each flight crew member, the following:
  - (i) if the member is required to hold a medical certificate — the certificate;
  - (ii) the member's Part 131 pilot authorisation;
  - (iii) either of the following:
    - (A) a photographic identification document issued by a Commonwealth, State or Territory authority or agency;  
*Note* Some examples of photographic identification documents include an Aviation Security Identification Card (ASIC), an Aviation Identification (AVID) or a driver's licence.
    - (B) the member's passport;
- (d) suitable scale maps and aeronautical charts for the proposed area of operation, which show the following:
  - (i) certified aerodromes;
  - (ii) non-controlled aerodromes identified in the authorised aeronautical information;
  - (iii) the lateral and vertical limits of any of the following:
    - (A) controlled airspace;
    - (B) prohibited, restricted, and danger areas (if any);
  - (iv) topographical information to enable the pilot in command to navigate to a suitable landing area.

(2) Despite paragraph (1) (a), if:

- (a) the information and instructions that are required under the relevant airworthiness standards for the Part 131 aircraft to be included in the aircraft's flight manual are contained in another document; and
- (b) the other document is carried on board the aircraft; and
- (c) that document does not alter, or contain anything that would conflict with, the information or instructions mentioned in paragraph (a);

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

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

(3) Also, despite paragraph (1) (a), if:

- (a) a checklist of the Part 131 aircraft's normal, abnormal and emergency procedures mentioned in paragraph (b) of the definition of ***aircraft flight manual instructions*** in the CASR Dictionary is contained in another document; and

- (b) the other document is carried on board the aircraft; and
  - (c) that document does not alter, or contain anything that would conflict with, the information or instructions in the checklist;
- then the document may be carried on board the aircraft in place of the checklist.

## **5.02 Carriage of documents — flights that begin or end, or are conducted entirely, outside Australian territory**

- (1) For subregulation 131.275 (1), the additional documents mentioned in subsection (2) are prescribed for carriage on a flight of a Part 131 aircraft that:
  - (a) either:
    - (i) begins or ends outside Australian territory; or
    - (ii) is conducted entirely outside Australian territory; and
  - (b) is involved in:
    - (i) a Part 131 recreational activity; or
    - (ii) a specialised balloon operation.
- (2) For subsection (1), the additional documents are the following:
  - (a) the aircraft's certificate of airworthiness and certificate of registration;
  - (b) if the aircraft has a radio station licence — a copy of the licence;
  - (c) a list including the name, place of embarkation and place of destination of each passenger on the aircraft;
  - (d) if the aircraft is carrying cargo (other than passenger baggage) — a manifest and detailed declaration of the cargo;
  - (e) the journey log for the flight containing the information required by section 5.03;
  - (f) if the operator or pilot in command of the aircraft holds an approval under regulation 131.035 or holds another civil aviation authorisation that is relevant to the flight — a copy of the approval or authorisation.

## **5.03 Journey logs**

- (1) For paragraph 5.02 (2) (e), the information mentioned in subsection (2) must be recorded in the journey log before the flight begins.
- (2) The information is the following:
  - (a) the aircraft registration mark and 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 or another means to identify the crew member; and
    - (ii) the duties assigned to the crew member for the flight;
  - (d) the place of departure for the flight.
- (3) For paragraph 5.02 (2) (e), the information mentioned in subsection (4) must be recorded in the journey log as soon as practicable after the flight ends.
- (4) 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) incidents and observations (if any) that may have been relevant in any way to the safety of the flight.

#### **5.04 Documents kept with a person on the ground**

For regulation 131.280, the following document is prescribed, namely, a passenger list that meets the requirements of section 6.02.

*Note 1* Regulation 131.280 applies only to balloon transport operators.

*Note 2* Documents that, for flights within Australian territory, must be carried on the flight or left with a person on the ground, may be electronic copies: see regulation 131.265.

*Note 3* Whether carriage of required documents in electronic form is permitted for flights within foreign territory is a matter for the relevant foreign law.

*Note 4* Chapter 13 of this MOS also requires that, during a flight, certain kinds of flight notifications must be kept by certain persons on the ground.

## CHAPTER 6 REPORTING AND RECORDING INFORMATION

### 6.01 Purpose

For subregulation 131.285 (1), this Chapter prescribes the requirements relating to recording, retaining and reporting information for a Part 131 aircraft flight.

### 6.02 Passenger lists

- (1) This section applies to a flight of a Part 131 aircraft that is any of the following:
  - (a) a balloon transport operation;
  - (b) training conducted as a prescribed activity under paragraph 206 (a) of CAR;
  - (c) a specialised balloon operation.

*Note* Paragraph 206 (a) of CAR requires certain balloon flying training activities to be conducted by the holder of an AOC.
- (2) For a flight, a passenger list must be prepared before the flight that records the following information:
  - (a) the aircraft's registration mark or flight number;
  - (b) the name of each passenger;
  - (c) the date, the estimated time of departure, and the location, of the flight, such that the individual flight can be identified.
- (3) Subsection (2) does not apply if, at the time it is required to be recorded, the information mentioned in the subsection is:
  - (a) recorded in another document kept by the operator; or
  - (b) readily available to the operator from another source.
- (4) The information required under subsection (2) (and subsection (3), where applicable) must be kept by the operator of a flight for at least 3 months after the end of the flight.

### 6.03 Recording loading weights and fuel usage

- (1) This section applies to the operator of a flight of a Part 131 aircraft that is any of the following:
  - (a) a balloon transport operation;
  - (b) training conducted as a prescribed activity under paragraph 206 (a) of CAR.
- (2) The operator must record for each flight, and keep for 3 months after the end of the flight:
  - (a) the loading weights calculated in accordance with Chapter 24; and
  - (b) the fuel used if fuelling was from a metered supply.

*Note* Examples of sources for a metered supply include an LPG supply at a service station, and an operator's bulk LPG tank fitted with a supply meter.

### 6.04 Other information to be recorded or retained

- (1) For a flight of a Part 131 aircraft, the following information must be recorded as soon as practicable after each flight:
  - (a) the flight time of the pilot in command;
  - (b) the flight time of any other pilot who is permitted under the civil aviation legislation to operate the aircraft during the flight;
  - (c) details of any incident relating to the flight that endangered, or could have endangered, the safe operation of the aircraft;

- (d) for a flight that includes balloon flying training — the flight report of the training activity.

*Note 1* See Part 4B of CAR for defect reporting.

*Note 2* See also the AIP for Immediately and Routine Reportable Matters.

- (2) The information mentioned in subsection (1) must be kept by the operator for the flight:
  - (a) in the case of a flight that is not a Part 131 recreational activity — for at least 3 months after the end of the flight; and
  - (b) in the case of a flight that is a Part 131 recreational activity — in accordance with pilot logbook or Part 131 ASAO requirements, as applicable.
- (3) For a flight of a Part 131 aircraft, the following information must be recorded in the document used by the operator of the aircraft to record the maintenance status of the aircraft as soon as practicable after the flight but no later than before the aircraft is next operated for another flight:
  - (a) details of any defect that occurs during the operation of the aircraft for the flight, including:
    - (i) any abnormal instrument indication; and
    - (ii) any abnormal behaviour by the aircraft;
  - (b) any instance of an operating limit specified in the aircraft's flight manual being exceeded during the flight.

*Note* See regulation 51 of CAR, and Advisory Circular AC 131-01, for further guidance.

## CHAPTER 7 EMERGENCY AND SURVIVAL EQUIPMENT INFORMATION

### 7.01 Information about emergency and survival equipment

For the purposes of subregulation 131.295 (1) of CASR, if equipment listed in column 1 of an item of Table 7.01 is carried on the flight, the information mentioned in column 2 of the item is prescribed for the equipment.

*Note* Regulation 131.295 only applies to balloon transport operations.

**Table 7.01 — Emergency and survival equipment**

| <b>Emergency and survival equipment and related information</b> |   |   |
|---|---|---|
|   | <b>Column 1</b>   | <b>Column 2</b>   |
| <b>Item</b>   | <b>Item of equipment</b>                                | <b>Information</b>  |
| 1   | A life jacket   | The number and colour of each type of life jacket carried on the flight     |
| 2   | A signalling device                                     | The number, colour and type of each signalling device carried on the flight |
| 3   | An emergency first-aid kit                              | Details of the emergency first-aid kit carried on the flight                |
| 4   | A survival ELT  | The type and frequency of each survival ELT carried on the flight           |
| 5   | Water supplies carried as an item of survival equipment | Details of the water supplies carried on the flight                         |



## **CHAPTER 8     FLIGHTS OVER POPULOUS AREAS, PUBLIC GATHERINGS AND OTHER AREAS**

### **8.01     Purpose**

For paragraph 131.305 (1) (b), this Chapter prescribes requirements for flight of a Part 131 aircraft over a populous area or a public gathering.

*Note* While this Chapter does not presently prescribe requirements related to flights other than over populous areas or public gatherings, regulation 91.055 (aircraft not to be operated in manner that creates a hazard) applies at all times to a Part 131 aircraft.

### **8.02     Minimum height for Part 131 aircraft — populous area or public gathering**

- (1) Subject to subsection (2), for flight over a populous area or a public gathering, a Part 131 aircraft must be flown at a minimum height of at least 1 000 ft above the highest feature or obstacle within a horizontal radius of 100 m of the point on the ground or water immediately below the aircraft.
- (2) The minimum height prescribed in subsection (1) does not apply if any of the following apply:
  - (a) the Part 131 aircraft is taking-off, or is conducting manoeuvres necessary to achieve a safe landing;
  - (b) the Part 131 aircraft is participating in an air display that is the subject of an approval for the purposes of regulation 91.180 (air displays in Australian territory);
  - (c) the Part 131 aircraft is engaged in a procedure to determine the suitability of a landing area for a landing;
  - (d) the Part 131 aircraft is conducting flight in order to navigate to a planned landing area.

## CHAPTER 9 DROPPING THINGS FROM AIRCRAFT

### 9.01 Purpose

For subregulation 131.310 (2), this Chapter prescribes the kinds of things (including a parachutist) that may be dropped from a Part 131 aircraft.

*Note* Regulation 91.055 (aircraft not to be operated in manner that creates a hazard) applies to a Part 131 aircraft.

### 9.02 What may be dropped

- (1) Subject to subsection (2), the following things may be dropped from a Part 131 aircraft:
  - (a) ballast in the form of fine sand or water;
  - (b) competition markers and wind indicators;
  - (c) a parachutist, when dropped in accordance with the requirements of Part 105 — Parachuting from aircraft, of CASR;
  - (d) substances or objects in accordance with subsection (2).
- (2) For paragraph (1) (d), the substance or object to be dropped or released:
  - (a) must be carried:
    - (i) inside the aircraft; or
    - (ii) in a manner specified in the AFM; or
    - (iii) in a manner specified in an engineering order issued under Part 21 of CASR;  
or
    - (iv) in a manner set out in the operator's exposition or operations manual; and
  - (b) when dropped, must not:
    - (i) damage any part of the aircraft; or
    - (ii) affect the operation of any part of the aircraft; and
  - (c) for objects only — must be such that the size to weight ratio of each individual object to be dropped ensures that, when released, the object immediately drops away from the aircraft.

## CHAPTER 10 USE OF SUPPLEMENTAL OXYGEN EQUIPMENT, ETC.

### 10.01 Purpose

For subregulation 131.320 (3), this Chapter prescribes requirements about the use, by a person on board a Part 131 aircraft for a flight, of equipment to supply supplemental oxygen during the flight.

### 10.02 Requirements about the use of equipment to supply supplemental oxygen

- (1) This section applies to the operator and the pilot in command of a Part 131 aircraft in a flight that is flown above 10 000 ft AMSL.

*Note 1* Under subregulation 131.320 (1), the operator of a balloon transport operation that is flown above 10 000 ft AMSL must hold a CASA approval under regulation 131.035.

*Note 2* See section 26.14 for requirements relating to the equipment that stores and supplies supplemental oxygen.

*Note 3* Under regulation 91.285, CASA approval is required for VFR flights in Class A airspace.

- (2) When the pressure altitude has been between FL125 and FL140 for longer than 30 minutes, each flight crew member engaged in performing duties essential to the safe operation of a Part 131 aircraft must use supplemental oxygen continuously.
- (3) When the pressure altitude is above FL140:
  - (a) each flight crew member engaged in the operation of a Part 131 aircraft (*performing duties*) must use supplemental oxygen continuously; and
  - (b) supplemental oxygen must be available for the use of each flight crew member not performing duties.
- (4) When the pressure altitude is above FL125, supplemental oxygen must be available for the use of each person on board a Part 131 aircraft.
- (5) During the flight of a Part 131 aircraft that is conducting a balloon transport operation, when the pressure altitude is above 10 000 ft AMSL, a flight crew member must use supplemental oxygen continuously if the flight crew member considers that lack of oxygen may result in the impairment of the flight crew member's faculties.
- (6) During the flight of a Part 131 aircraft that is conducting a balloon transport operation, when the pressure altitude is above 10 000 ft AMSL, supplemental oxygen must be available to each passenger on board a Part 131 aircraft if the lack of oxygen may result in the impairment of the passenger's faculties.

*Note* Flight crew member includes the pilot in command.

*Note* The following Table is a guide to some of section 10.02 but is not intended to alter the meaning of the section in any way.

**Table 10.02 — Requirements for supplemental oxygen above 10 000 ft**

| <b>Column 1</b>                | <b>Column 2</b>   | <b>Column 3</b>  | <b>Column 4</b>  |
|--------------------------------|---|--|--|
| <b>Altitude</b>                | <b>Above 10 000 ft AMSL (balloon transport operation only)</b>              | <b>Between FL125 and FL140</b>   | <b>FL140</b>   |
| <b>Each flight crew member</b> | Must use supplemental oxygen continuously if impairment considered possible | After 30 minutes, must use supplemental oxygen continuously if engaged in essential duty | Must use supplemental oxygen continuously if engaged in essential duty. Otherwise, must have supplemental oxygen available |
| <b>Each passenger</b>          | Must have supplemental oxygen available if impairment considered possible   | Must have supplemental oxygen available  | Must have supplemental oxygen available  |

## **CHAPTER 11    ADDITIONAL REQUIREMENTS FOR SPECIALISED BALLOON OPERATIONS**

### **11.01 Purpose**

For subregulation 131.330 (1), this Chapter prescribes additional requirements about the use of equipment carried or installed on a Part 131 aircraft conducting a specialised balloon operation.

### **11.02 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.

## CHAPTER 12 FLIGHT PREPARATION

### 12.01 Purpose

For subregulation 131.340 (1), this Chapter prescribes requirements relating to flight preparation and weather assessments for a Part 131 aircraft (the *flight preparation (weather assessments) requirements*).

### 12.02 Flight preparation (weather assessments) requirements

- (1) Subject to subsections (2), (3) and (4), the pilot in command must study:
  - (a) authorised weather forecasts and authorised weather reports (including any expected changes to surface conditions and forecast winds) that apply for the period from commencement of the flight until 2 hours after the planned landing time; and
  - (b) any other reasonably available weather information that is relevant to the intended operation.
- (2) If the information mentioned in paragraph (1) (a) is studied more than 2 hours before commencing the flight, the pilot in command must obtain, and review, an update to that information before the flight begins.
- (3) The pilot in command must study the materials mentioned in subsections (1) and (2) as they apply to:
  - (a) the planned flying area; and
  - (b) for a flight in controlled airspace — any relevant aerodrome within 10 NM of the planned flying area.

## CHAPTER 13 FLIGHT NOTIFICATION REQUIREMENTS

### 13.01 Purpose

For subregulation 131.345 (1), this Chapter prescribes requirements relating to balloon flight notifications for flights of a Part 131 aircraft (the *flight notification requirements*).

### 13.02 Flight notification requirements

- (1) Subject to subsection (2), if the flight of a Part 131 aircraft is 1 of the following:
  - (a) a flight conducting a balloon transport operation;
  - (b) a flight over water where, in the event of an emergency, a landing or ditching in the water may occur;
  - (c) a flight in a designated remote area;
  - (d) a flight conducted in whole, or in part, at night;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 13.05 for *responsible person*.

- (2) If the flight of a Part 131 aircraft is a flight in Class C or D airspace then the pilot in command must ensure that a flight plan is submitted or a SARTIME for arrival is nominated, in accordance with procedures published in the authorised aeronautical information.

*Note* The authorised aeronautical information describes the circumstances under which ATS may accept the submission of a flight plan or a SARTIME for arrival via radio.

### 13.03 Changes to flight plans and SARTIME nominations

- (1) A pilot in command of a Part 131 aircraft for a flight where a flight plan has been submitted must ensure that ATS is notified of any changes to the following before the flight begins:
    - (a) the aircraft call sign or registration;
    - (b) the serviceability of the equipment that, as stated in the flight plan, is carried on board;
    - (c) the ETD (but only if changed by more than 30 minutes);
    - (d) the planned maximum altitude of the flight.
  - (2) A pilot in command of a Part 131 aircraft for a flight where a flight plan has been submitted must ensure that ATS is notified if, before or during the flight, a change is made to:
    - (a) the route and landing areas; or
    - (b) the number of passengers on board.
- Note* The number of passengers may change during a flight due to skydiving operations.
- (3) A pilot in command of a Part 131 aircraft for a flight where a SARTIME is nominated must ensure that ATS is notified of changes in any of the following:
    - (a) the aircraft call sign or registration;
    - (b) the ETD (but only if changed by more than 30 minutes);

- (c) the route and landing points;
- (d) the SARTIME.

#### **13.04 Cancelling SARTIME**

A pilot in command of a Part 131 aircraft for a flight where a SARTIME has been nominated must ensure that the SARTIME is cancelled not later than the time nominated.

#### **13.05 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 SAR 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.



## CHAPTER 14 MATTERS TO BE CHECKED BEFORE TAKE-OFF

### 14.01 Purpose

For subregulation 131.350 (1), this Chapter prescribes the checks to be carried out before take-off.

### 14.02 Pre-flight checks

The prescribed checks are the following:

- (a) a check of the NOTAMs relevant to the flight;  
*Note* Amongst Head Office, FIR and location specific NOTAMs, this would also include NOTAMs relating to airspace activation and any anticipated military low flying.
- (b) a check to confirm that:
  - (i) equipment required to be fitted to, or carried on, the aircraft by Part 131 or this MOS is fitted or carried, and functioning properly; and
  - (ii) the emergency and survival equipment carried on the aircraft is readily accessible;
- (c) a check to confirm that each flight crew member and each other operational support person (if any) required for the flight by Part 131 or this MOS is fit to perform his or her duties;
- (d) if the aircraft is an Australian aircraft — a check to confirm that there is:
  - (i) a certificate of release to service for the most recent maintenance carried out on the aircraft; and
  - (ii) no defects have been recorded in the document used by the operator to record the maintenance status of the aircraft that would affect the airworthiness of the aircraft;
- (e) a check to confirm that the aircraft's flight controls have been tested and are functioning correctly;
- (f) for each system fitted to, or carried on, the aircraft for measuring and displaying pressure altitude, a check of the system's accuracy in accordance with the procedures mentioned in section 14.03, as applicable;
- (g) if carriage of supplemental oxygen is required for a flight in accordance with Part 131 and this MOS — checks to ensure that:
  - (i) the required amount of supplemental oxygen is carried; and
  - (ii) the approved oxygen delivery system is functioning properly; and
  - (iii) quick-donning masks are available if required by the approved oxygen delivery system; and
  - (iv) if the oxygen masks are adjustable — the masks fit each flight crew member, and any other person for whom supplementary oxygen must be available.

### 14.03 Checking systems for measuring and displaying pressure altitude — general

- (1) For paragraph 14.02 (f), 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 14.04.

- (3) 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.

#### **14.04 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.

## CHAPTER 15 AIR TRAFFIC SERVICES — PRESCRIBED REQUIREMENTS

### Division 15.1 Use of a class of airspace

#### 15.01 Purpose

For subregulation 131.353 (1), this Division prescribes requirements in relation to the use by a Part 131 aircraft of a class of airspace or a portion of a class of airspace.

#### 15.02 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 15.02 (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 15.02 (3) — Transition level**

|             | <b>Column 1</b>                            | <b>Column 2</b>         |
|-------------|--|-------------------------|
| <b>Item</b> | <b>Area QNH</b>                            | <b>Transition level</b> |
| 1           | Equal to, or greater than, 1 013.2 hPa     | FL110                   |
| 2           | At least 997 hPa but less than 1 013.2 hPa | FL115                   |
| 3           | At least 980 hPa but less than 997 hPa     | FL120                   |
| 4           | At least 963 hPa but less than 980 hPa     | FL125                   |
| 5           | Less than 963 hPa                          | FL130                   |

*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 or drift 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 14.04 or a forecast QNH) of a station along the route within 100 NM of the aircraft;
  - (b) if the current local QNH is not known — the current area forecast QNH.
- (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.

#### 15.03 Australian domestic airspace — inoperative radio requirements

- (1) This section applies to a flight of a Part 131 aircraft 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.

*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 an operation in any Australian domestic airspace, the pilot in command must do the following:
  - (a) if operating in Class E or G airspace:
    - (i) select code 7600 on the aircraft transponder (if fitted); and
    - (ii) remain outside controlled airspace; and
    - (iii) assume the radiocommunication system is functioning 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 in Class A, B, C or D airspace or in a restricted area:
    - (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) attempt to contact ATS by telephone; and
    - (iv) commence descent in preparation for landing; and
    - (v) land as soon as practicable.

*Note* See subsection 26.23 (7) for requirements relating to Mode A transponder emergency codes.

#### 15.04 Mandatory broadcast area requirements

- (1) This section applies to the pilot in command of a flight in 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 16.06. Radio carriage or fitment requirements for an MBA are contained in section 26.07.

- (3) For an MBA mentioned in an item of column 1 of Table 15.04 (3), the pilot in command must comply with the requirements mentioned in column 2 of the same item.

**Table 15.04 (3) — Mandatory broadcast area requirements**

|             | <b>Column 1</b>                 | <b>Column 2</b>  |
|-------------|---------------------------------|--|
| <b>Item</b> | <b>Mandatory broadcast area</b> | <b>Requirements</b>  |
| 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 15.2 Control zones, control areas, controlled aerodromes and classes of airspace

### 15.05 Purpose

For subregulation 131.353 (1), this Division prescribes requirements in relation to the use by a Part 131 aircraft of a control zone, a control area, a controlled aerodrome or a class of airspace.

### 15.06 Controlled aerodromes

- (1) A Part 131 aircraft must not be operated at a controlled aerodrome unless the pilot in command holds 1 of the following:
  - (a) a current commercial pilot (balloon) licence;
  - (b) a current CAR certificate of validation;
  - (c) an authorisation (however described) that is issued by a relevant Part 131 ASAO to the pilot in command to operate a Part 131 aircraft at a controlled aerodrome.

*Note 1* Under the Part 149 MOS, a relevant ASAO must have the approved aviation administration function of issuing pilot authorisations that include the privileges of operating in controlled airspace or at controlled aerodromes.

*Note 2* A similar kind of authorisation is mentioned in paragraph 15.08 (1) (c). Nothing in this MOS requires the 2 kinds of authorisations to be separately issued to pilots by an ASAO. An ASAO could issue a combined authorisation covering both circumstances.

- (2) Part 131 aircraft operations at a controlled aerodrome must be conducted in accordance with the authorised aeronautical information.
- (3) Subject to subsection (5), the pilot in command of a Part 131 aircraft operating at a controlled aerodrome must obtain ATC clearance to take-off or land.
- (4) Subject to subsection (5), the pilot in command of a Part 131 aircraft that is, or is about to become, part of aerodrome traffic at a controlled aerodrome must:
  - (a) maintain a watch for instructions given visually by the ATC service for the aerodrome using standard visual signals; and
  - (b) if a continuous listening watch for communications with ATC for the aerodrome can be maintained on the frequency specified in the authorised aeronautical information for the flight — maintain such a watch.
- (5) Subsections (3) and (4) do not apply when an ATC service is not in operation for the aerodrome.

### 15.07 Control zones and areas — entry into Class A, B, C or D airspace

- (1) Subject to subsections (2) and (3), a pilot in command of a Part 131 aircraft must not enter a control zone or a control area that is Class A, B, C or D airspace without ATC clearance (a *clearance*).
- (2) Despite subsection (1), VFR flights do not require clearance to enter Class E airspace.
- (3) Subsection (1) does not apply when an ATC service is not in operation for a control zone or a control area.

### 15.08 Control zones and control areas — operating within

- (1) A Part 131 aircraft must not be operated within a control zone or a control area unless the pilot in command holds 1 of the following:
  - (a) a current commercial pilot (balloon) licence;

- (b) a current CAR certificate of validation;
- (c) an authorisation (however described) that is issued by a relevant Part 131 ASAO to the pilot in command to operate a Part 131 aircraft within a control zone or a control area.

*Note 1* Under the Part 149 MOS, a relevant ASAO must have the approved aviation administration function of issuing pilot authorisations that include the privileges of operating in controlled airspace or at controlled aerodromes.

*Note 2* A similar kind of authorisation is mentioned in paragraph 15.06 (1) (c). Nothing in this MOS requires the 2 kinds of authorisations to be separately issued to pilots by an ASAO. An ASAO could issue a combined authorisation covering both circumstances.

- (2) Part 131 aircraft operations in a control zone or a control area must be conducted in accordance with the authorised aeronautical information.
- (3) The pilot in command of a Part 131 aircraft operating in a control zone or a control area must:
  - (a) notify ATC of any deviation from an ATC clearance (a clearance) given under section 15.07; and
  - (b) take positive action to comply with the clearance as soon as a deviation is recognised.

*Note* Regulation 91.257 also applies to a Part 131 aircraft.

### **15.09 Readback of ATC clearances and instructions**

- (1) This section applies to the pilot in command of a Part 131 aircraft in relation to the use by the aircraft of a control zone, a control area, or a controlled aerodrome.
- (2) The pilot in command must ensure that they personally, or another member of the flight crew (if any), 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**).
- (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) clearances, conditional clearances and instructions to wait, take off from, or land;
  - (c) the assigned altimeter settings, Mode A transponder codes, altitude instructions, operating area instructions;
  - (d) radio frequency instructions.

## **Division 15.3 Prohibited, restricted and danger areas**

### **15.10 Purpose**

For paragraphs 131.353 (1) (a), (b) and (c), respectively, this Division prescribes requirements in relation to the use by an aircraft of a prohibited area, a restricted area or a danger area.

### **15.11 Prohibited areas**

*Note* For prohibited areas, see CASA's OAR 6-monthly *Declarations and Directions in relation to Prohibited, Restricted and Danger Areas, Etc – Permanent Instrument* 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.

## 15.12 Restricted areas

*Note* For restricted areas, see CASA's OAR 6-monthly *Declarations and Directions in relation to Prohibited, Restricted and Danger Areas, Etc. – Permanent Instrument* 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.

## 15.13 Danger areas

The pilot in command of a Part 131 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 *Declarations and Directions in relation to Prohibited, Restricted and Danger Areas, Etc. – Permanent Instrument* and the relevant Designated Airspace Handbooks, as each exists, or is in force, from time to time. It is an offence under subregulation 131.353 (2) to not comply with the section 15.13 requirements for a danger area.

## CHAPTER 16 USE OF RADIO — BROADCASTS AND REPORTS

### 16.01 Purpose

For paragraph 131.354 (1) (b), this Chapter prescribes broadcasts and reports relating to a flight that the pilot in command of a Part 131 aircraft 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.

### 16.02 Prescribed broadcasts and reports — general

The broadcasts and reports required under this Chapter 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 an air traffic service to agree to a changed radio frequency for special flight circumstances.

### 16.03 Non-controlled aerodromes — prescribed broadcasts

- (1) The pilot in command of a Part 131 aircraft must ensure that broadcasts on the CTAF are made for a non-controlled aerodrome in accordance with Table 16.03 (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 subsection 1.06 (5).

*Note 2* For a pilot to be authorised and 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 an MBA — see section 16.06.

- (2) For Table 16.03 (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 broadcast mentioned for the item in column 2 is made.

**Table 16.03 (1) – Non-controlled aerodromes – broadcasts**

|             | <b>Column 1</b>   | <b>Column 2</b>  |
|-------------|---|------------------|
| <b>Item</b> | <b>Situation</b>  | <b>Broadcast</b> |
| 1           | When the pilot in command considers it reasonably necessary to broadcast to avoid the risk of a collision with another aircraft | Broadcast        |

### 16.04 Controlled aerodromes and controlled airspace — prescribed reports

- (1) The pilot in command of 1 of the following:
  - (a) a Part 131 aircraft on the ground at a controlled aerodrome;
  - (b) a Part 131 aircraft in Class A, B, C or D airspace;must ensure that:
  - (c) reports to the ATC service are made in accordance with Table 16.04 (1); and



- (d) reports and broadcasts are made in accordance with the other applicable provisions of this Chapter.
- (2) For Table 16.04 (1), for an item in the Table, the pilot in command in the situation mentioned for the item in column 1 must make the report mentioned for the item in column 2.
- (3) Despite paragraph (1) (c) and subsection (2), for item 8 of Table 16.04 (1), the required report must be made to the air traffic service for the Class G airspace volume that the Part 131 aircraft will descend into after the controlled airspace.

*Note* This is to ensure that separation with any aircraft operating near the base of controlled airspace is not compromised.

**Table 16.04 (1) – Class A, B, C or D airspace – reports**

|             | <b>Column 1</b>   | <b>Column 2</b>                              |
|-------------|---|--|
| <b>Item</b> | <b>Situation</b>  | <b>Report</b>                                |
| 1           | Ready to launch   | Report the situation                         |
| 2           | Airborne  | Report the situation                         |
| 3           | Position report when required by the ATC service or the route reporting requirements of the authorised aeronautical information   | Report the situation                         |
| 4           | Previously reported position estimate is more than 2 minutes in error   | Corrected position estimate                  |
| 5           | Aircraft performance degraded below:<br>(a) the level required for the airspace in which it is operating; or<br>(b) the capability of the aircraft reported in the aircraft’s flight notification | Report the situation                         |
| 6           | Leaving a level or reaching an assigned level   | Report the situation                         |
| 7           | Unable to comply with ATC clearances or instructions  | Report the situation                         |
| 8           | Before leaving controlled airspace on descent   | Report the situation                         |
| 9           | Landed  | If cancelling SARWATCH — report cancellation |

*Note* Item 5 pertains to degradation of aircraft performance as a result of failure or degradation of navigation, communications, altimetry (including transponders), flight control or other systems.

**16.05 Class E or G airspace — prescribed reports**

- (1) The pilot in command of a Part 131 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 16.05 (1); and
  - (b) reports and broadcasts are made in accordance with the other applicable provisions of this Chapter.
- (2) For Table 16.05 (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 16.05 (1) – Classes E and G airspace – reports**

|             | <b>Column 1</b>                                | <b>Column 2</b>   |
|-------------|--|---|
| <b>Item</b> | <b>Situation</b>                               | <b>Report</b>   |
| 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 |

**16.06 Flights in a mandatory broadcast area — prescribed broadcasts and reports**

- (1) The pilot in command of a Part 131 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 16.06 (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 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 call sign;
    - (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 16.06 (1);
    - (iv) for an MBA where an SFIS is active immediately before 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 15.04. The requirement to have a radio in an MBA is contained in section 26.07.

- (2) For Table 16.06 (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 16.06 (1) – Broadcasts – in relation to an MBA**

|             | <b>Column 1</b>                                | <b>Column 2</b>  |
|-------------|--|--|
| <b>Item</b> | <b>Situation</b>                               | <b>Broadcast</b>   |
| 1           | Prior to, or immediately after entering an MBA | Broadcast the pilot’s intended use of the MBA  |
| 2           | Entering the circuit area                      | Broadcast the situation, and indicate the position of the aircraft relative to the aerodrome |

|             | <b>Column 1</b>   | <b>Column 2</b>   |
|-------------|---|---|
| <b>Item</b> | <b>Situation</b>  | <b>Broadcast</b>  |
| 3           | Commencing a missed approach  | Broadcast the situation   |
| 4           | After landing and clear of the active runway(s)                                     | Broadcast the situation   |
| 5           | Immediately before launching  | Broadcast the situation and the following information:<br>(a) either:<br>(i) the planned destination aerodrome for the flight; or<br>(ii) the direction in which the pilot intends to fly from the aerodrome; or<br>(iii) the nature of operation (e.g. circuits);<br>(b) the runway (if any) proposed to be used for take-off. |
| 6           | Immediately before entering, or being moved onto, a runway to be used for launching | Broadcast the following:<br>(a) a statement that the aircraft is entering, or being moved onto, the runway;<br>(b) the runway identifier.   |

## CHAPTER 17 OPERATIONS AT NON-CONTROLLED AERODROMES

### 17.01 Purpose

For subregulation 131.360 (1), this Chapter prescribes requirements in relation to the operation of a Part 131 aircraft at, or in the vicinity of, a non-controlled aerodrome.

*Note 1* For the meaning of *in the vicinity of a non-controlled aerodrome*, the CASR Dictionary references regulation 91.360 which indicates that such vicinity is in uncontrolled airspace, within 10 NM of the aerodrome and at a height above the aerodrome that could result in conflicting operations.

*Note 2* The give way rules under regulations 91.325, 91.330 and 91.340 apply to a Part 131 aircraft.

*Note 3* Regulation 91.055, requiring pilots to not operate an aircraft in a manner that is hazardous to another aircraft, person or property, also applies to Part 131 aircraft. Aircraft operations that are otherwise conducted in accordance with the civil aviation legislation are not taken to create a hazard.

### 17.02 Operating within 3 NM of a non-controlled aerodrome

- (1) When within 3 NM of a non-controlled aerodrome, the pilot in command of a Part 131 aircraft who does not hold a qualification mentioned in subsection (3):
  - (a) must not land or take off; and
  - (b) if overflying the aerodrome must maintain at a height of at least 2 000 ft AGL.
- (2) When within 3 NM of a non-controlled aerodrome, the pilot in command of a Part 131 aircraft who holds a qualification mentioned in subsection (3) may take off, or conduct manoeuvres necessary to achieve a safe landing.
- (3) For subsections (1) and (2), the qualification referred to is 1 of the following:
  - (a) a current commercial pilot (balloon) licence (CP(B)L);
  - (b) a current CAR certificate of validation;
  - (c) a current authorisation from a Part 131 ASAO that:
    - (i) authorises the holder to operate a Part 131 aircraft; and
    - (ii) is endorsed for flight within 3 NM of a non-controlled aerodrome.

## CHAPTER 18 FLIGHTS OVER WATER

### 18.01 Purpose

For subregulations 131.365 (1) and (2), this Chapter prescribes the requirements for the flight of a Part 131 aircraft over water.

### 18.02 Definition

In this section:

**risk considerations** means the following considerations:

- (a) the potential for exposure of any crew member for the flight, or passenger on the flight, to injury because of the operation;  
*Note* The potential for exposure to injury includes the chances of survival in the water of the persons on board the aircraft in the event of the aircraft descending, or ditching, into the water. A person's chances of survival may be affected by their swimming and other physical abilities.
- (b) the surface condition of the area of water, including the wave height, wind conditions and swell;
- (c) the water temperature and air temperatures;
- (d) the distance the Part 131 aircraft would be, at any time while over the water, from land that was suitable for a landing;
- (e) the availability of SAR facilities, and the time it would likely take for a successful SAR operation to be completed;
- (f) the emergency and survival equipment carried on the aircraft.

### 18.03 Requirements for Part 131 aircraft flights over water

- (1) This section applies to the flight of a Part 131 aircraft:
  - (a) if it is planned to fly the aircraft over water where, in the event of an emergency, a landing or ditching in the water may occur; or
  - (b) if the planned flight is in an area, or under circumstances, in which:
    - (i) there is a reasonable possibility that the aircraft may unintentionally fly over water; and
    - (ii) in the event of an emergency, a landing or ditching in the water may occur.

*Note* Water would include, for example, the sea, a lake, a bay or an estuary.
- (2) Before take-off, the pilot in command of a Part 131 aircraft must use the risk considerations to identify the risks to survival of persons carried on board in the event of ditching.  
*Note* Pilots in command have responsibility for the safety of persons on board an aircraft: see regulation 91.215 of CASR. Operators holding an AOC must at all times take all reasonable steps to ensure that every activity covered by the AOC, and everything done in connection with such an activity, is done with a reasonable degree of care and diligence: see subsection 28BE (1) of the *Civil Aviation Act 1988*.
- (3) Based on the risks identified under subsection (2), the pilot in command of a Part 131 aircraft must decide whether to carry any or none of the following:
  - (a) a life jacket or equivalent flotation device for each person on board the aircraft;
  - (b) an emergency locator transmitter;
  - (c) signalling equipment for making distress signals;
  - (d) other emergency equipment.

*Note 1* Examples of other emergency equipment include personal locator transmitters, warm or waterproof clothing, food and drink, lighting equipment.

*Note 2* Division 26.7 contains requirements that apply to emergency locator transmitters, and Division 26.9 contains requirements that apply to life jackets.

- (4) Based on operational circumstances during a flight, the pilot in command of a Part 131 aircraft must decide if and when any of the items mentioned in subsection (3) must be worn or deployed (as applicable).
- (5) A balloon transport operator must ensure that their exposition contains the procedures to be followed by a pilot in command when meeting the requirements specified in subsections (2), (3) and (4).
- (6) In determining the following:
  - (a) the risks to the aircraft of a flight over water;
  - (b) the chances of survival in the water of persons on the aircraft in the event of the aircraft descending or ditching into the water;the operator and the pilot in command assume responsibility for the lives of the persons on board the aircraft.

## CHAPTER 19 VISUAL FLIGHT RULES

### 19.01 Purpose

For subregulation 131.367 (1), this Chapter prescribes requirements relating to the operation of a Part 131 aircraft for a VFR flight.

### 19.02 VFR flight requirements

- (1) The pilot in command of a Part 131 aircraft must ensure that during VFR flight, the aircraft is flown in accordance with:
  - (a) the VMC criteria for the airspace in which the flight is conducted; or
  - (b) the special VFR — but only if ATC has authorised the pilot in command to so conduct the flight.
- (2) 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 maps or charts.
- (3) For subsection (2), when navigating by visual reference over the sea, visual reference features may include rocks, reefs and fixed man-made objects that are:
  - (a) marked on topographical charts appropriate for the flight; and
  - (b) readily identifiable from the air.
- (4) The pilot in command of a Part 131 aircraft conducting a flight at night under the VFR must:
  - (a) for a balloon transport operation:
    - (i) not take off earlier than 1 hour before first light; and
    - (ii) plan to land the aircraft after first light; and
    - (iii) ensure that the aircraft does not land at night other than in an emergency; and
  - (b) for a flight that is not a balloon transport operation:
    - (i) plan not to land the aircraft at night; and
    - (ii) ensure that the aircraft does not land at night other than in an emergency or as a precautionary manoeuvre.
- (5) In this section:

***precautionary manoeuvre*** means to land at night when to proceed with the flight and land later would be likely to increase the risk of injury or damage to any persons or property.

*Note* For example, a precautionary manoeuvre would be to land at night if continuing the flight would be likely to carry the balloon out over the sea, or over inhospitable terrain, or over heavily built-up areas, where a landing would have consequential risks to any persons or property, including the persons on board the Part 131 aircraft, and the aircraft itself.

## CHAPTER 20 OPERATION OF TETHERED PART 131 AIRCRAFT OTHER THAN A SUBPART 131.Z TETHERED GAS BALLOON

### 20.01 Purpose

- (1) Subject to subsection (2), for subregulation 131.375 (1), this Chapter prescribes requirements relating to the flight of a Part 131 aircraft that is tethered to the ground for the flight (*tethered flight*).
- (2) This Chapter does not apply to a flight of the following:
  - (a) a Subpart 131.Z tethered gas balloon;
  - (b) a Part 131 aircraft that is tethered to the ground for the flight by a launch restraint.
- (3) In this Chapter:  
*launch restraint* means the temporary restraint of a free balloon for the purpose of initiating a free flight.

### 20.02 Requirements for tethered flight

- (1) The pilot in command must not operate a Part 131 aircraft in tethered flight in such a manner that the crown of the aircraft exceeds 400 ft AGL unless the operator holds an approval under regulation 131.035 for this subsection.
- (2) The pilot in command must not operate a Part 131 aircraft in tethered flight:
  - (a) on the movement area or the runway of a controlled aerodrome; or
  - (b) anywhere within the control zone of such an aerodrome;unless the operator has the approval (however described) of ATC.  
*Note* ATC approval may take the form of, for example, a direct authorisation from the ATC tower, or an enduring permission from Airservices Australia as the ATS provider for the aerodrome. If the ATC tower closes and no air traffic control service is provided for the aerodrome (as distinct from an approach control service or area control service for certain airspace above and in the vicinity of the aerodrome) then the aerodrome is no longer a controlled aerodrome and subsection (3) would apply in such circumstances.
- (3) The pilot in command must not operate a Part 131 aircraft in tethered flight:
  - (a) on the movement area or the runway of a *relevant aerodrome*; or
  - (b) within 2 NM of such an aerodrome;unless the operator holds, for the purposes of this subsection:
  - (c) a CASA approval under regulation 131.035; or
  - (d) the written permission or approval of the operator of the relevant aerodrome.
- (4) For subsection (3), *relevant aerodrome* means a non-controlled aerodrome listed in the AIP-ERSA.  
*Note* A non-controlled aerodrome includes an aerodrome that at times has ATC but where the ATC service is not operating.
- (5) A person must not operate a Part 131 aircraft in tethered flight in such a manner as to create an obstruction to an aircraft taking off from, or approaching for landing at, the following areas of any aerodrome:
  - (a) a marked rotorcraft landing area;
  - (b) a rotorcraft landing area identified as such in the authorised aeronautical information;
  - (c) a runway.



## CHAPTER 21 FUEL AND BALLAST REQUIREMENTS

### 21.01 Purpose

For subregulation 131.385 (1), this Chapter prescribes requirements relating to fuel and ballast for a Part 131 aircraft, whether or not it is conducting a balloon transport operation.

*Note* Fuel, in the form of liquid petroleum gas, is used in hot air balloons, hot air airships and mixed balloons to control altitude by heating the air inside the envelope. Ballast (as defined in subsection 1.06 (5)) is used in a gas balloon to control altitude by initiating ascent and controlling descent through the progressive release of the ballast. A gas balloon flight must terminate when the ballast is exhausted.

### 21.02 Definitions for this Chapter

In this Chapter:

***final reserve fuel*** means the calculated amount of usable fuel, expressed as a period of time, required to be remaining in the fuel tanks on completion of the final landing of a flight before ground handling.

***night operations fuel*** for a hot air balloon or hot air airship means the amount of fuel required to enable an aircraft, that is conducting a flight under the VFR at night, to remain airborne until conducting a landing by day.

***trip fuel*** means the amount of fuel required to enable a hot air balloon or hot air airship to fly from any point along a route until landing at a suitable landing area.

***unforeseen factors*** means factors that could have an influence on an aircraft's fuel consumption to a suitable landing area, including the following:

- (a) the aircraft's deviation from the expected fuel consumption data for the aircraft;
- (b) extended deviations from planned routings or altitudes.

### 21.03 General requirements

#### *Gas balloon*

- (1) For a gas balloon that exclusively uses ballast to control the altitude of the aircraft, the pilot in command for the flight of an aircraft must, after taking into account the matters required by this Chapter to be considered in relation to amounts of fuel, ensure that the aircraft is carrying on board at least the amount of ballast that would achieve an equivalent outcome to the fuel requirements specified by this Chapter.

#### *Mixed balloon*

- (2) For a mixed balloon, the pilot in command for the flight of an aircraft must, after taking into account the matters required by this Chapter to be considered in relation to amounts of fuel, ensure that the aircraft is carrying on board at least the amount of fuel that would achieve an equivalent outcome to the fuel requirements specified by this Chapter.

#### *Fuel consumption data*

- (3) When determining the amount of usable fuel required under this Chapter for a flight of a hot air balloon or hot air airship, 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.

*Operational requirements, etc.*

- (4) In determining the amount of usable fuel required under this Chapter, the pilot in command of a Part 131 aircraft must take the following matters into account:
  - (a) the operating conditions for the proposed flight, including the following:
    - (i) the total loaded weight of the aircraft at take-off;
    - (ii) relevant NOTAMs;
    - (iii) relevant authorised weather forecasts and authorised weather reports;
    - (iv) relevant air traffic service procedures, restrictions and possible delays;
    - (v) the terrain to be flown over, and the suitable landing area opportunities it presents;
    - (vi) the planned duration of the flight;
  - (b) the potential for deviations from the planned flight because of unforeseen factors.

#### **21.04 Amount of fuel that must be carried for a flight**

- (1) The pilot in command of a Part 131 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) trip fuel;
  - (b) night operations fuel (if applicable);
  - (c) for a flight that is a balloon transport operation — final reserve fuel of 20 minutes.
- (2) Without affecting subsection (1), the pilot in command of a Part 131 aircraft must not commence a flight unless the aircraft is carrying on board at least the following amounts of usable fuel:
  - (a) subject to paragraph (b) — an amount equivalent to at least 30 minutes of flight time;
  - (b) for a hot air balloon that is equipped with only a single fuel tank, and that is not conducting a balloon transport operation — an amount equivalent to at least 15 minutes of flight time.
- (3) The pilot in command of a Part 131 aircraft must ensure that the aircraft is carrying on board at least the following amounts of usable fuel, required at any time (*that time*) to safely continue the flight:
  - (a) trip fuel from that time;
  - (b) night operations fuel from that time (if applicable);
  - (c) for a flight that is a balloon transport operation — a final reserve fuel of 20 minutes.
- (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 of a Part 131 aircraft must reanalyse the planned use of fuel for the remainder of the flight, and adjust the parameters of the flight insofar as is necessary to remain in compliance with the requirements of this Chapter.

#### **21.05 Procedures for determining fuel before flight and fuel monitoring during a flight**

- (1) The pilot in command of a Part 131 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 or ballast consumption with actual fuel or ballast consumption (as applicable); and
  - (b) determine the amount of usable fuel remaining; and
  - (c) determine whether the remaining usable fuel is sufficient to satisfy the requirements of subsection 21.04 (3); and
  - (d) determine the amount of usable fuel expected to be remaining when the aircraft lands at a suitable landing area.

### **21.06 Procedures if fuel reaches specified amounts**

If, at any time during a flight of a Part 131 aircraft, the amount of usable fuel remaining in the aircraft on landing at a planned landing area will be, or is likely to be, less than the fuel required under subsection 21.04 (3), then the pilot in command must make a precautionary landing at a suitable landing area that enables the pilot in command to continue to meet the requirements in section 21.04.

### **21.07 Operational variations — procedures and requirements**

- (1) Despite section 21.04, a balloon transport operator may use an operational variation, specified in the operator's exposition for the purpose of this section, that relates to the calculation of any of the following, if the requirements in subsections (2) and (4) are met:
  - (a) trip fuel;
  - (b) night operations fuel.
- (2) At least 28 days before using an operational variation, a balloon transport 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;
    - (ii) the results of a specific safety risk assessment conducted by the relevant operator that meets the requirements of subsection (3); and
  - (b) a copy of the relevant operator's procedures proposed for inclusion in the exposition, in relation to using the operational variation.
 

*Note* Under regulation 131.115 of CASR (as applicable), CASA may direct a balloon transport operator to remove or revise an operational variation if CASA were to find there was insufficient evidence that it would maintain or improve aviation safety.
- (3) For subparagraph (2) (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 landing areas; and
    - (iii) specific risk mitigating measures; and
    - (iv) the quality and reliability of meteorological information.

- (4) For the purposes of subsection (1), the balloon transport operator's exposition must include procedures in relation to the use of the operational variation.

## CHAPTER 22 CARRIAGE OF PERSONS REQUIRING ASSISTANCE

### 22.01 Purpose

For paragraph 131.405 (1) (b), this Chapter prescribes requirements relating to carriage on a flight of a Part 131 aircraft of a person who is likely to require assistance.

### 22.02 Requirements – persons requiring assistance – any Part 131 aircraft

- (1) A Part 131 aircraft must not carry on a flight a person who requires assistance due to sickness, injury or disability (*the passenger*) unless the requirements of this section are complied with.
- (2) The pilot in command must be satisfied that the passenger can be safely accommodated on the flight without causing a hazard to any other passenger or person on the aircraft.
- (3) The passenger must be positioned in the basket or gondola of the aircraft so as to not impede the exit of any other passenger or person on board the aircraft in the event of an emergency.
- (4) A person who requires the use of a wheelchair may only be carried:
  - (a) in a basket that is constructed and equipped, in accordance with the AFM, for the safe carriage of such a person (a suitable basket); and
  - (b) in accordance with the procedures for carriage of such a person specified in the AFM.
- (5) If the suitable basket has been constructed with a door to allow passenger ingress and egress, the pilot in command must ensure that:
  - (a) a crew member closes and secures the door before flight, in accordance with the procedures in the AFM; and
  - (b) except in an emergency on the ground, only a crew member may open the door.

*Note* Subsection 23.02 (6) also contains safety briefing requirements for persons requiring assistance.

### 22.03 Requirements — balloon transport operators

Without affecting section 22.02, the exposition of a balloon transport operator must contain procedures for the following:

- (a) the risk assessment and management of a passenger who requires assistance due to sickness, injury or disability (*the passenger*);
- (b) the carriage of a passenger who requires the use of a wheelchair, in a basket of a kind mentioned in paragraph 22.02 (4) (a);
- (c) the operation and securing of a door mentioned in subsection 22.02 (5);
- (d) the assessment of flight weather conditions;
- (e) the assessment of any other flight conditions that may affect the safety of the balloon transport operation.

## CHAPTER 23 PASSENGERS — SAFETY BRIEFINGS AND INSTRUCTIONS

### 23.01 Purpose

- (1) For subregulation 131.410 (1), this Chapter prescribes the matters that must be included in the safety briefing and instructions for a passenger before a Part 131 aircraft takes off for a flight.
- (2) For subregulation 131.410 (2), this Chapter prescribes:
  - (a) the circumstances during the flight in which a safety briefing and instructions must be given to a passenger; and
  - (b) the matters that must be included in the safety briefing and instructions for the circumstances.

### 23.02 Safety briefing and instructions before take-off

- (1) For paragraph 131.410 (2) (a), a safety briefing or instructions mentioned in this section must be given to a passenger before the Part 131 aircraft takes off for a flight.
- (2) The safety briefing or instructions must:
  - (a) take the form of a verbal briefing and related demonstration about safety matters for the flight; and
  - (b) be given in a way that ensures the information is easily retained and applied during the stage of the flight relevant to each aspect of the safety briefing or instructions.

*Note* Stages of flight in the context of this paragraph would include take-off, cruise, landing and emergencies.
- (3) For passengers who may not speak English, the briefing must be supplemented by any relevant video, pictorial, or graphic, material or instructions, in the passengers' language, unless the verbal briefing is given in that language.
- (4) Subject to subsection (5), the safety briefing and related demonstration must be conducted by:
  - (a) the pilot in command; or
  - (b) another pilot for the flight who is designated by the pilot in command to conduct the briefing and demonstration.
- (5) For a balloon transport operation, the safety briefing and related demonstration must be conducted by:
  - (a) the pilot in command; or
  - (b) by another person who is:
    - (i) designated by the operator to deliver passenger safety briefings and instructions; and
    - (ii) qualified for the purpose in accordance with the operator's exposition.
- (6) A specific safety briefing must be provided directly to any passenger requiring assistance on the flight, and any person accompanying or assisting the passenger (the ***accompanying person***), and the safety briefing must:
  - (a) include what to do if an emergency landing of the aircraft is necessary; and
  - (b) be given in a form appropriate to the passenger and an accompanying person.
- (7) A specific safety briefing must:
  - (a) be provided directly to any passenger responsible for an infant on the flight; and

- (b) explain how the infant must be restrained in normal operations and in an emergency.

*Note* Regulation 131.400 requires a balloon transport operator to hold an approval under regulation 131.035 to carry an infant on a flight.

- (8) If life jackets are carried on the aircraft, the safety briefing must include a demonstration of the method of donning and inflating a life jacket.
- (9) The safety briefing and instructions must cover at least each of the following matters:
  - (a) safety in relation to ground equipment, including any envelope inflation fans;
  - (b) safety in relation to any restricted access areas in the launch area;
  - (c) the role and authority of ground support personnel and the pilot in preserving safety, including through giving instructions;

*Note* For example, passengers must stow personal belongings and baggage, and assume the landing position, on the pilot's instructions.

- (d) the wearing of suitable clothing (with an indication of what is unsuitable);
- (e) smoking prohibitions around, and on board, the aircraft, including in relation to the use of e-cigarettes;
- (f) procedures for boarding the aircraft;
- (g) the in-flight use and stowage of personal belongings and baggage;
- (h) instructions that the aircraft controls and equipment must not be interfered with;
- (i) the timing and posture for the landing position to be adopted for landing, as appropriate to the aircraft type design;
- (j) the landing position for an emergency;
- (k) a practice session for each passenger in adopting the correct landing position and the brace position;
- (l) the importance of remaining on board the aircraft until instructed otherwise, particularly after landing;
- (m) instructions on the location and use of any emergency equipment (including life jackets and oxygen equipment) that is provided for individual passenger use;
- (n) general instructions on any possibility of emergency situations and how to respond.

### **23.03 Safety briefing and instructions before landing**

- (1) For paragraph 131.410 (2) (a), a prescribed circumstance is a time, before the landing of the Part 131 aircraft, at which the passenger could be reasonably expected to remember, before the flight ends, the safety briefing and instructions contained in this section.
- (2) The pilot in command must give a safety briefing that reminds the passengers of the landing position.
- (3) The pilot in command must give the passengers a safety instruction that:
  - (a) they must stow personal belongings and baggage; and
  - (b) they must assume the landing position; and
  - (c) they must remain on board the aircraft until instructed to disembark.

#### **23.04 Operator's exposition**

A balloon transport operator's exposition must contain:

- (a) the procedures and requirements for passenger safety briefings and instructions;  
and
- (b) details of when safety briefings and instructions must be given; and
- (c) a description of the role and qualifications of the persons, other than the pilot in command, who may give safety briefings and instructions.



## CHAPTER 24 LOADING WEIGHTS

### Division 24.1 Maximum loading weights

#### 24.01 Purpose

For subregulation 131.445 (2), this Division prescribes the circumstances and the method for calculating the maximum weight of a Part 131 aircraft for a flight.

#### 24.02 Circumstances and methods for calculating maximum weight

- (1) For paragraph 131.445 (2) (a), the circumstances are before the Part 131 aircraft takes off for the flight.

*Note* Under regulation 131.450, a balloon transport operator's exposition must include procedures for loading a Part 131 aircraft for a flight.

- (2) For paragraph 131.445 (2) (b), the method used to calculate the maximum weight of the Part 131 aircraft for the flight is this: the maximum weight is calculated by considering, and then taking into account, the following factors in order to arrive at the maximum weight:
  - (a) any aircraft loading system specified by the aircraft manufacturer;
  - (b) the ambient temperature and altitude at the launch site and planned landing sites;
  - (c) the planned maximum altitude for the flight;
  - (d) the combined weight of all persons on board;
  - (e) the weight of fuel or ballast on board;
  - (f) the weight of any equipment or cargo carried on board.

*Note* CAO 100.96 places requirements on pilots and operators relating to the initial and subsequent establishment of the empty weight of certain Part 131 aircraft.

- (3) For paragraph (2) (d), the combined weight of all persons on board may be determined by using 1 of the following:
  - (a) for a passenger or a crew member — the actual clothed-body weight of the person, as measured by a crew member, or as declared by the person;

*Note* Operators are reminded that under paragraph 131.445 (1) (a) of CASR, the aircraft must not be overloaded. Therefore, operators using declared weights must have procedures to ensure the aircraft will not be overloaded.
  - (b) the standard weights set out in section 24.03;
  - (c) for a flight that is a balloon transport operation — an exposition-derived weight, being the passenger weight calculated using procedures described in the balloon transport operator's exposition, as in force or existing from time to time.

*Note* For guidance on the use of exposition-derived weight see *Multi-Part Advisory Circular AC 121-05, AC 133-04 and AC 135-08*, as existing from time to time and freely available on the CASA website.

#### 24.03 Standard weights

- (1) This section prescribes standard weights for the purposes of paragraph 24.02 (3) (b).
- (2) If a Part 131 aircraft for a flight has an operational capacity mentioned in an item of column 1 of Table 24.03 (2), the standard weight for a passenger or crew member described in column 2, 3, 4, 5, 6 or 7 is the amount set out for the person in the item, measured in kilograms.

- (3) Despite subsection (2):
- (a) the standard weight for an infant is taken to be the weight set out in column 5 of Table 24.03 (2), if the operator chooses to substitute standard weights for infants with that of children, for the purposes of loading the aircraft; and
  - (b) the standard weight for an adolescent female is taken to be the weight set out in column 3 of the Table, if the operator chooses to substitute standard weights for adolescents with that of adults, for the purposes of loading the aircraft; and
  - (c) the standard weight for an adolescent male is taken to be the weight set out in column 2 of the Table, if the operator chooses to substitute standard weights for adolescents with that of adults, for the purposes of loading the aircraft.
- (5) A weight set out in column 2 of Table 24.03 (2) is taken to apply to a person whose gender is indeterminate, intersex or unspecified.
- (6) In this section:

**adolescent** means a person who has turned 13 but has not turned 16.

**adult** means a person who has turned 16.

*Note* An infant is defined as a person who has not turned 2, and a child is a person who has turned 2 but has not turned 13: see the definitions of **child** and **infant** in the CASR Dictionary.

**Table 24.03 (2) — Standard weights for passengers and crew**

|      | Column 1                     | Column 2   | Column 3     | Column 4 | Column 5 | Column 6        | Column 7          |
|------|------------------------------|--|--------------|----------|----------|-----------------|-------------------|
| Item | Maximum operational capacity | Adult male or a person mentioned in ss 24.03 (5) | Adult female | Infant   | Child    | Adolescent male | Adolescent female |
| 1    | 7-9                          | 86   | 71           | 17       | 44       | 65              | 58                |
| 2    | 10-14                        | 86   | 70           | 16       | 43       | 64              | 58                |
| 3    | 15-19                        | 85   | 69           | 16       | 43       | 63              | 57                |
| 4    | 20-39                        | 84   | 69           | 16       | 42       | 63              | 57                |

## Division 24.2 Minimum loading weights

### 24.04 Purpose

For subregulation 131.445 (4), this Division prescribes the method for calculating the minimum loading weight of a Part 131 aircraft for a flight.

### 24.05 Circumstances and methods for calculating minimum loading weight

- (1) For paragraph 131.445 (4) (a), the circumstances before the Part 131 aircraft takes off for the flight.
- (2) For paragraph 131.445 (4) (b), the method used to calculate the minimum weight of the Part 131 aircraft for the flight is this: the minimum weight is calculated by considering, and then taking into account, the following factors in order to arrive at the minimum weight:
  - (a) any aircraft loading system specified by the manufacturer;
  - (b) the combined weight of all persons on board, including any changes to the combined weight that might arise due to planned reductions in the persons on board during the flight (for example, the dropping of 1 or more parachutists from the aircraft in flight);

- (c) the weight of fuel or ballast on board, including any expected reductions in the weight of fuel or ballast during a flight;
- (d) the weight of any equipment or cargo carried on board, including any changes to the weight that might arise due to planned reductions in this weight during a flight (for example, the dropping of equipment or cargo from the aircraft in flight).

*Note* CAO 100.96 places requirements on pilots and operators relating to the initial and subsequent establishment of the empty weight of certain Part 131 aircraft.

- (3) For paragraph (2) (b), the combined weight of all persons on board may be determined by using 1 of the following:
  - (a) for a passenger or a crew member — the actual clothed-body weight of the person, as measured by a crew member, or as declared by the person;
  - (b) the standard weights set out in section 24.03;
  - (c) for a flight that is a balloon transport operation — an exposition-derived weight, being the passenger weight calculated using procedures described in the balloon transport operator’s exposition, as in force or existing from time to time.

*Note* For guidance on the use of exposition-derived weight see *Multi-Part Advisory Circular AC 121-05, AC 133-04 and AC 135-08*, as existing from time to time and freely available on the CASA website.

## CHAPTER 25 CARRIAGE OF PASSENGERS

### 25.01 Purpose

For subregulation 131.455 (1), this Chapter prescribes requirements relating to the carriage of passengers on a flight of a Part 131 aircraft, including:

- (a) the maximum number of passengers that may be carried for the flight of a Part 131 aircraft; and
- (b) the location of passengers on the Part 131 aircraft for the flight.

### 25.02 Application

This Chapter applies to the carriage of passengers on a Part 131 aircraft engaged in 1 of the following (a *passenger operation*):

- (a) balloon transport operations;
- (b) specialised balloon operations;
- (c) a Part 131 recreational activity;
- (d) balloon flying training.

### 25.03 Maximum number of passengers

The maximum number of passengers that may be carried is as follows:

- (a) for a balloon transport operation or a Part 131 recreational activity — 24;
- (b) for a Part 131 recreational activity that is a cost-sharing flight — 5;  
*Note* This paragraph, along with the definition of *cost-sharing* in subsection 1.06 (5), is intended to have, for a Part 131 aircraft, the same effect as the definition of *cost-sharing* in the CASR Dictionary has for other aircraft — namely, that only up to 6 persons, including the pilot, may be carried.
- (c) for balloon flying training conducted under Part 5 of CAR — 6;
- (d) if the operator of a specialised balloon operation holds an approval for the operation under regulation 131.035 for subregulation 131.325 (2) — the number or passengers specified by CASA in the approval.

### 25.04 Pilot in command communications with passengers

If the Part 131 aircraft has more than 2 passenger compartments, the pilot in command must be able to effectively communicate with all passenger compartments from the control position for the aircraft.

### 25.05 Location of passengers

- (1) Each passenger must be located in a position from which it is possible to hear any instructions given by the pilot in command.
- (2) If the Part 131 aircraft has multiple passenger compartments, then:
  - (a) an approximately equal weight of passengers must be located in each passenger compartment; but
  - (b) the number of passengers located in any single passenger compartment must not exceed the applicable number specified in the aircraft flight manual.

### 25.06 Carriage of children as passengers

A child must be accompanied by an adult.

*Note* In the CASR Dictionary, *child* means a person who has turned 2 but has not turned 13; and *infant* means a person who has not turned 2. Under regulation 131.400, an infant must not be carried

on a Part 131 aircraft if the operator does not hold a CASA approval under regulation 131.035 to carry the infant.

### **25.07 On board equipment for passengers**

- (1) Each passenger in a Part 131 aircraft that has a basket must have his or her own handhold.
- (2) Each passenger in a Part 131 aircraft that is a hot air airship must:
  - (a) have his or her own seat; and
  - (b) if the airship is fitted with seatbelts or safety harnesses — wear the seatbelt or safety harness.

### **25.08 Exposition requirements**

A balloon transport operator's exposition must contain procedures to be followed to ensure that the requirements of this Chapter are complied with, including:

- (a) a description of the duties and responsibilities of the pilot in command in communicating with, and controlling, passengers in normal and emergency situations during an operation; and
- (b) a description of the duties and the responsibilities of ground crew members:
  - (i) in assisting with the safe launching of the Part 131 balloon; and
  - (ii) in ensuring that passengers are loaded and unloaded safely, and are not exposed to unnecessary hazards on the ground or in during normal or emergency situations.

## CHAPTER 26 EQUIPMENT

### Division 26.1 General

#### 26.01 Purpose

- (1) For subregulation 131.460 (1), this Chapter prescribes requirements relating to:
  - (a) the fitment and non-fitment of equipment to a Part 131 aircraft; and
  - (b) the carrying of equipment on a Part 131 aircraft; and
  - (c) equipment that is fitted to, or carried on, a Part 131 aircraft.

*Note* Regulations 91.875 and 91.900 of CASR apply to Part 131 experimental and light sport aircraft. The placard requirements in Chapter 27 of the Part 91 MOS apply to Part 131 aircraft that are experimental aircraft or light sport aircraft.

- (2) For subregulation 131.460 (1), unless the contrary intention appears in or for a particular provision, the pilot in command of a Part 131 aircraft and, if the flight is a balloon transport operation, the balloon transport operator, are 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 position is taken to mean that the thing is seen or viewed from the pilot's normal control position in the aircraft; 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 and visibility

#### 26.02 Approval of aircraft equipment

- (1) Before a Part 131 aircraft begins a flight, any equipment that is required to be fitted to, or carried on, the aircraft under this Chapter (other than surveillance equipment required under Division 26.10) must be compliant with the requirements of, or approved under, Part 21 or Part 31 of CASR.

*Note* Division 26.10, concerning requirements for mandatory or optional carriage of surveillance equipment, provides conditional alleviation from TSO or ETSO authorisation that would otherwise be required. To preserve the scope of this alleviation, such equipment is also excluded from a requirement for CASR Part 21 approval.

- (2) Subsection (1) does not apply to the following:
  - (a) an item of equipment used to display the time;
  - (b) an item of equipment used to display vertical speed;
  - (c) an item of equipment used to display magnetic heading;
  - (d) an item of equipment used to indicate envelope temperature;
  - (e) an item of equipment used to determine free air temperature;
  - (f) radiocommunications equipment;
  - (g) a drop or handling line;
  - (h) a trail rope;
  - (i) an independent portable light, for example, a torch or landing light;
  - (j) a headset;
  - (k) a first-aid kit or medical kit;

- (l) survival equipment, including signalling equipment;
  - (m) an item of equipment used to determine the drift direction of the Part 131 aircraft.
- (3) Before a foreign-registered Part 131 aircraft begins a flight in Australian airspace, the equipment fitted to, or carried on, the aircraft must have been approved as required by the NAA of the aircraft's State of registry.
  - (4) 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 26.21.

### **26.03 Visibility and accessibility — 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 pilot's control position must be visible to, and usable by, the pilot from the pilot's position 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, a Part 131 aircraft for a flight must be operative unless:

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

*Note* An 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, paragraph 26.30 (b) contains an allowable time period of 72 hours related to flights with inoperative surveillance equipment. An MEL would not be approved if it contained a maximum time period for required surveillance 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

### 26.05 Part 131 aircraft VFR flight by day

- (1) Subject to subsections (3) and (4), a Part 131 aircraft for a VFR flight by day must be fitted with, or carry, equipment for measuring and displaying the following flight information:
  - (a) pressure altitude;
  - (b) for a hot air airship — magnetic heading;
  - (c) for a Part 131 aircraft other than a hot air airship — the drift direction;
  - (d) time;
  - (e) vertical speed;
  - (f) free air temperature.
- (2) The equipment for measuring and displaying the flight information mentioned in column 1 of an item in Table 26.05 (2) must meet the requirements mentioned in column 2 of the same item.

**Table 26.05 (2) – Requirements for equipment – Part 131 aircraft VFR flight by day**

|      | Column 1           | Column 2   |
|------|--------------------|--|
| Item | Flight information | Requirements   |
| 1    | Pressure altitude  | The equipment must: <ol style="list-style-type: none"> <li>(a) have an adjustable datum scale calibrated in millibars or hPa; and</li> <li>(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 calibrated in metres or fitted with a conversion placard or device.</li> </ol>  |
| 2    | Magnetic heading   | The equipment must be a direct reading magnetic compass.   |
| 3    | Time               | <ol style="list-style-type: none"> <li>1. The equipment must display accurate time in hours, minutes and seconds.</li> <li>2. The equipment must be:               <ol style="list-style-type: none"> <li>(a) fitted to, or carried on, the aircraft; or</li> <li>(b) worn by, or be immediately accessible to, the pilot for the duration of the flight.</li> </ol> </li> </ol> |

- (3) Subsections (1) and (2) 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 subsections (1) and (2).
- (4) For subsection (3):
 

**relevant aircraft** means a Part 131 aircraft that is 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) any other Part 131 aircraft:
  - (i) for which an experimental certificate has been issued and is in force under paragraph 21.191 (a), (b), (g), (h) or (j) of CASR; or
  - (ii) that is an LSA for which an experimental certificate has been issued under paragraph 21.191 (k) of CASR.

#### **26.06 Hot air airship flight – VFR flight – additional requirements**

- (1) For a VFR flight, a Part 131 aircraft that is a hot air airship must meet the requirements in this section.
- (2) A hot air airship that has a maximum permissible forward airspeed less than that attainable with the engine(s) operating at full power must have equipment capable of indicating when the maximum permissible airspeed is reached.
- (3) A pressurised hot air airship must have an internal pressure indicator for use by the pilot in command.

### **Division 26.4 Operational equipment**

#### **26.07 Radiocommunication systems**

- (1) Subject to subsection (2), a Part 131 aircraft for a flight in any class of airspace, whether controlled or uncontrolled, must be fitted with, or carry, radiocommunication systems capable of:
  - (a) collectively communicating on all frequencies necessary to meet the reporting, broadcast and listening watch requirements under regulations 131.354, 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* Certain 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 (4).

- (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 5 or 6 of Table 2.02 (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 15.04. Radio broadcast requirements for MBA are contained in section 16.06.

#### **26.08 When aircraft may begin a flight with inoperative radiocommunications**

- (1) This section applies to a flight of a Part 131 aircraft that is not a balloon transport operation.
- (2) A Part 131 aircraft for which a radiocommunication system is required may begin a flight in controlled airspace with an inoperative radiocommunication system only if:
  - (a) before the flight begins, the ATS service for the airspace is informed of the inoperative radiocommunication system; and
  - (b) clearance for the flight is obtained from the ATS service; and

- (c) 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 131.354 are made for both aircraft; and
  - (v) the pilot in command of the other aircraft is:
    - (A) if the aircraft is an Australian aircraft — authorised under Part 5 of CAR 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* For continuation of a flight with an inoperative radiocommunication system, see section 15.03.

### 26.09 Fuel and burner equipment

Except for a gas balloon, a Part 131 aircraft for a flight must be fitted with, or carry, the following equipment:

- (a) equipment for measuring and indicating fuel quantity;
- (b) at least 2 items of equipment for igniting the burner;
- (c) for flight at night, at least 2 independent fuel systems.

### 26.10 Lines and ropes

- (1) Except for a gas balloon, a Part 131 aircraft for a flight must be fitted with, or carry, a drop or handling line that is at least 25 m in length.
- (2) For a flight of a Part 131 aircraft that is both a free balloon and a gas balloon, the aircraft must be fitted with, or carry, a trail rope that is at least 20 m in length and made of natural fibre or electrostatic conductive material.

### 26.11 Pilot restraint harness

- (1) This section applies for any flight of a Part 131 aircraft (the *aircraft*) that is a balloon transport operation.
- (2) The pilot who is operating the controls of a Part 131 aircraft that is fitted with an approved pilot restraint harness must wear the harness:
  - (a) whenever the aircraft is operating below 500 feet AGL, including during take-off; and
  - (b) during landing or any landing phase, until the aircraft is finally secured on the ground.

*Note* It is recommended that the pilot operating the controls of the balloon, whether the pilot in command or the pilot in command under supervision, should wear the pilot restraint harness throughout the flight. A pilot restraint harness may significantly reduce the severity of injuries to the pilot and passengers in the event of an accident where the pilot may be ejected from the basket.

### 26.12 Remote area survival equipment

A flight of a Part 131 aircraft that will be conducted in or through a remote area (within the meaning given by section 26.63 of the Part 91 MOS) must carry survival equipment that is suitable for sustaining life as appropriate for the remote area to be overflown.

## Division 26.5 Lighting systems

### 26.13 Lights for VFR flight at night

- (1) A Part 131 aircraft for a VFR flight at night must be fitted with, or carry, the following lighting systems:
  - (a) at least 2 portable battery-operated lights, for example, torches or flashlights, capable of illuminating for the pilot in command any equipment whose information, data or display is essential for the safe operation of the aircraft;
  - (b) a light capable of lighting a sufficient area of the surface for the aircraft to be landed at night in an emergency;
  - (c) a red anti-collision light that is visible from below, indirectly from above, and in all directions around, the aircraft, for at least 4 000 m.

*Note* Optimum visibility is obtained by suspending the light below the aircraft.

- (2) An anti-collision light must be displayed during a flight.
- (3) Subsection (2) does 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.

## Division 26.6 Oxygen equipment and oxygen supplies

### 26.14 Supplemental oxygen equipment and supplies

- (1) A Part 131 aircraft must carry, and make available to persons on board the aircraft during flight, sufficient supplemental oxygen to meet the requirements set out in Chapter 10 of this MOS.
- (2) If a supply of supplemental oxygen (the *oxygen*) is required to be carried on a Part 131 aircraft, the oxygen must be stored and supplied by an oxygen delivery system that is compliant with the requirements of, or approved under, Part 21 of CASR.

## Division 26.7 Emergency locator transmitters

### 26.15 ELT requirements

If an emergency locator transmitter (an *ELT*), whether an automatic ELT or a survival ELT, is fitted to, or carried on, a Part 131 aircraft, it must comply with the requirements set out in Division 26.12 of the Part 91 MOS.

## Division 26.8 Portable emergency equipment

### 26.16 Hand-held fire extinguishers

A Part 131 aircraft must carry at least 1 portable fire extinguisher that is:

- (a) readily accessible to the pilot in command; and
- (b) compliant with:
  - (i) any Airworthiness Directive (*AD*) issued by CASA, as in force from time to time; or
  - (ii) if there is no applicable AD — a dry powder type extinguisher of at least 1 kg capacity.

### 26.17 First-aid kits

A Part 131 aircraft for a flight that is a balloon transport operation must be equipped with a first-aid kit that is:

- (a) suitable for the nature of the planned operation and the number of passengers carried; and
- (b) readily accessible for use; and
- (c) kept up-to-date; and
- (d) inspected periodically to confirm that the contents are complete and in good condition for the intended use.

## Division 26.9 Equipment for flights over water

### 26.18 Life jackets and flotation devices

- (1) If a life jacket or equivalent flotation device is carried on a Part 131 aircraft, it must comply with the requirements set out in this section.
- (2) The life jacket or flotation device must be:
  - (a) equipped with a whistle; and
  - (b) if the flight is to be conducted at night — equipped with an electric light to facilitate the location of the person; and
  - (c) stowed in a position from which it is readily retrievable by the person for whose use it is provided, given the position on the aircraft which the person occupies during the flight.

*Note* See subsections 18.03 (4) and (5) for requirements that the pilot in command, and a balloon transport operator, must comply with in relation to when life jackets must be worn.

## Division 26.10 Surveillance equipment

### 26.19 Exceptions to (E)TSO or NAA requirements

- (1) A requirement under this Division that an item of equipment that is to be fitted to, or carried on, an aircraft must be authorised in accordance with a particular TSO or ETSO does not apply to a Part 131 aircraft for surveillance equipment if:
  - (a) the configuration of the surveillance equipment provides the pilot, other aircraft, and ATS with the same surveillance capability as would be provided if the equipment had complied with the particular TSO or ETSO; and
  - (b) the pilot in command 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.
- (2) The requirement in subsection 26.28 (4) that an approved integrated TABS device (the *equipment*) that is to be fitted to, or carried on, an aircraft must be authorised by the relevant NAA of the equipment manufacturer does not apply to a Part 131 aircraft if:
  - (a) the configuration of the equipment that is fitted to, or carried on, the aircraft 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 in command or the operator has a statement of conformance (however described) from the equipment manufacturer stating that the equipment meets the requirements of this Division for the equipment.

## 26.20 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 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.

**ADS-B test flight** means a flight to prove ADS-B transmitting equipment that is newly installed on the aircraft undertaking the flight.

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

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

**approved ADS-B OUT equipment configuration** means an equipment configuration capable of ADS-B OUT operation on the ground and in flight, and that is 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 26.26;
- (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 26.28.

**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 26.24; 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 device** means an equipment configuration meeting the requirements mentioned in section 26.28.

**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 26.27.

**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
- (b) 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.

**EC device** means an electronic conspicuity device.

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

**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.

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

**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.**).

**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 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 paragraph 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 3-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.

**UK CAP 1391** means Civil Aviation Authority of the United Kingdom document number CAP 1391 titled *Electronic conspicuity devices*, 3<sup>rd</sup> edition, dated February 2021, or a later edition, as in force from time to time.

## 26.21 Required surveillance equipment

- (1) A Part 131 aircraft for a flight for which surveillance equipment is required under this section must be fitted with, or carry, surveillance equipment that meets the requirements relevant to the intended operation and class of airspace.

*Note* See also section 26.19 of this MOS 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.

- (2) A Part 131 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.

- (3) For subsection (1), a Part 131 aircraft in an operation mentioned in column 1 of an item in Table 26.21 (3), in the class of airspace mentioned in column 2 of the item, must be fitted with, or carry, surveillance equipment meeting the requirements mentioned in column 3 of the item.

**Table 26.21 (3) – Surveillance equipment – requirements**

|             | <b>Column 1</b>   | <b>Column 2</b>  | <b>Column 3</b>  |
|-------------|---|--|--|
| <b>Item</b> | <b>Operation</b>  | <b>Class of airspace</b>   | <b>Requirements</b>  |
| 1           | Any operation by a Part 131 aircraft  | Any — from FL290 and above   | At least 1 approved ADS-B OUT equipment configuration.   |
| 2           | Any operation by a Part 131 aircraft  | Classes A, B or C (below FL290)  | At least 1:<br>(a) approved ADS-B OUT configuration; or<br>(b) approved Mode S transponder with Class B TABS position source device configuration; or<br>(c) approved transponder.<br><i>Note</i> An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight. |
| 3           | An operation by a Part 131 aircraft with engine-driven electrical power generation capacity | Class E (not above FL290)<br>Class G — from 10 000 ft to not above FL290 | At least 1:<br>(a) approved ADS-B OUT configuration; or<br>(b) approved Mode S transponder with Class B TABS position source device; or<br>(c) approved transponder; or<br>(d) an approved integrated TABS device.   |



|      | Column 1  | Column 2          | Column 3   |
|------|-----------|-------------------|--|
| Item | Operation | Class of airspace | Requirements   |
|      |           |                   | <i>Note</i> An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight. |

## 26.22 Requirements for other surveillance equipment for VFR aircraft

- (1) A Part 131 aircraft may be fitted with, or carry, surveillance equipment in addition to the surveillance equipment required by section 26.21, but only if the requirements of this section are met.
- (2) A Part 131 aircraft may be fitted with, or carry, surveillance equipment in circumstances where surveillance equipment is not required by section 26.21, but only if the requirements of this section are met.
- (3) For subsections (1) and (2), a Part 131 aircraft in an operation mentioned in column 1 of Table 26.22 (3), in the class of airspace mentioned in column 2 of the item, may be fitted with, or carry, surveillance equipment provided that it meets the requirements mentioned in column 3 of the item.

**Table 26.22 (3) – Optional surveillance equipment – requirements**

|      | Column 1      | Column 2   | Column 3  |
|------|---------------|--|---|
| Item | Operation     | Class of airspace  | Capability and Requirements   |
| 1    | Any operation | Classes A, B, C or E — below FL290<br><br>Class G — from 10 000 ft but not above FL290 | An approved EC device configuration.<br><br><i>Note</i> 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 26.76).   |
| 2    | Any operation | Class G — below 10 000 ft  | Any of the following:<br>(a) approved ADS-B OUT configuration;<br>(b) approved equipment configuration of a Mode S transponder with Class B TABS position source device;<br>(c) approved transponder;<br>(d) an approved integrated TABS device;<br>(e) an approved EC device.<br><i>Note 1</i> An approved Mode S transponder with ADS-B capability is not required to transmit ADS-B OUT for a VFR flight.<br><i>Note 2</i> An EC device may be operated concurrently with a Mode |

|      | Column 1  | Column 2          | Column 3  |
|------|-----------|-------------------|---|
| Item | Operation | Class of airspace | Capability and Requirements   |
|      |           |                   | A/C, or a Mode S transponder (other than one that is transmitting ADS-B). |

### 26.23 Operation of surveillance equipment — general requirements

- (1) Surveillance equipment required to be fitted to, or carried on, a Part 131 aircraft by section 26.21 must be continuously operated during the circumstances mentioned in section 26.21.
 

*Note* Continuous operation for a transponder implies 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.
- (2) Surveillance equipment (other than approved transponders) fitted to, or carried on, a Part 131 aircraft for section 26.22 must be continuously operated during the circumstances mentioned in that section for the specific kind of equipment.
- (3) Subsections (1) and (2) do not apply if ATC has issued an instruction that the surveillance equipment is not to be operated.
- (4) Unless otherwise required by ATC, a Part 131 aircraft that is flying in formation with, or flying in-company with, 1 or more other Part 131 aircraft, is not required to operate surveillance equipment if serviceable surveillance equipment is operated by the other, or 1 of the other, Part 131 aircraft at all times while the aircraft are flying in the formation or flying in-company.
- (5) If a Part 131 aircraft for a flight is fitted with, or carries, more than 1 approved transponder, only 1 of the transponders is to be operated at any time.
- (6) If a Part 131 aircraft is fitted with, or carries, an approved transponder 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 mentioned in Table 26.23 (7).
- (7) For paragraph (6) (b), for a situation mentioned in column 1 of an item in Table 26.23 (7), the Mode A code is the number mentioned in column 2 for the same item.
- (8) Subject to subsection (9), if an emergency situation described in an item of column 1 of Table 26.23 (9) occurs during a flight, a pilot of the aircraft for the flight must set the Mode A code mentioned in column 2 of the same item.
- (9) Despite subsection (8), a pilot of an aircraft for a flight does not have to set a Mode A code mentioned in column 2 of Table 26.23 (8) if the pilot reasonably believes that maintaining an existing Mode A code would result in a safer outcome.
- (10) 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 authorised in accordance with ETSO-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 26.23 (7) – Transponders – Mode A standard codes**

|             | <b>Column 1</b>   | <b>Column 2</b>    |
|-------------|---|--------------------|
| <b>Item</b> | <b>Situation</b>  | <b>Mode A Code</b> |
| 1           | Flights in Class A, B, C or D airspace                                    | 3000               |
| 2           | VFR flights in Class E or G airspace                                      | 1200               |
| 3           | Flights in Class G over water at a distance greater than 15 NM from shore | 4000               |
| 4           | Ground testing by aircraft maintenance staff                              | 2100               |

**Table 26.23 (8) – Transponders – Mode A emergency codes**

|             | <b>Column 1</b>  | <b>Column 2</b>    |
|-------------|--|--------------------|
| <b>Item</b> | <b>Situation</b>   | <b>Mode A Code</b> |
| 1           | Unlawful interference                                    | 7500               |
| 2           | Loss of radiocommunication                               | 7600               |
| 3           | In-flight emergency (unless otherwise instructed by ATC) | 7700               |

### **26.24 Mode S transponders, ADS-B OUT and electronic conspicuity equipment — specific requirements**

- (1) An approved Mode S transponder fitted to, or carried on, a Part 131 aircraft for a flight must have the following details 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 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 or other approved identifier, as applicable.
- (2) An approved ADS-B OUT equipment configuration, an approved integrated TABS device, or an approved EC device configuration, fitted to, or carried on, a Part 131 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 or other approved identifier, as applicable.
- (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, 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) Subject to subsection (7), an aircraft fitted with, or carrying, ADS-B OUT equipment that is not an approved ADS-B OUT equipment configuration, approved EC device, approved integrated TABS device, 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.

- (7) Subsection (6) does not apply to a Part 131 aircraft if it is undertaking an ADS-B test flight in VMC in airspace below FL290.

## **26.25 Alternate GNSS position source for ADS-B OUT — requirements**

- (1) For a Part 131 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 a Part 131 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.

## **26.26 Alternate ADS-B OUT equipment configuration — requirements**

An alternate ADS-B OUT equipment configuration must meet the following requirements:

- (a) it must have 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;
- (b) the AFM or flight manual supplement must attest to the approval or the acceptance;
- (c) the GNSS system must meet the relevant performance requirements mentioned in section 26.25.

### **26.27 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 the standard mentioned in paragraph (a).
- (2) When required to be operated, the relevant transponder component 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 the standard mentioned in 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 controlled airspace if, for such airspace, the aircraft must be fitted with, or carry, equipment that is of an approved ADS-B OUT equipment configuration.

### **26.28 Approved integrated TABS device — requirements**

- (1) An approved integrated TABS device (the *device*) may only be operated in transmitting mode if the flight is conducted:
  - (a) below FL290; and
  - (b) 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* See subsection 26.19 (2) for an exception to the NAA authorisation requirement mentioned in subsection 26.28 (4).

### **26.29 Approved EC device — requirements**

- (1) An EC device may only be operated in transmitting mode if the flight is conducted 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).
- (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) actually 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) the EC device must have a statement of compliance (however described) from the 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 CAO 20.18, as in force immediately before 2 December 2021;
    - (ii) otherwise — subsections (3) to (7) of this section;
  - (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) of this section; 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.

### **26.30 Aircraft flown with inoperative surveillance equipment**

Surveillance equipment required by section 26.21 may only be inoperative at the beginning of a flight if:

- (a) the flight begins from a place at which there is no facility for the equipment to be repaired or replaced; and
- (b) the flight ends not more than 72 hours after the time the equipment was found to be inoperative; and
- (c) before the flight commences, the pilot in command informs ATS about the equipment's 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, see Division 15.2 concerning ATC clearance requirements. Whether, or when, an ATC clearance is issued could be affected by a flight's inoperative equipment.

## CHAPTER 27 FLIGHT CREW — QUALIFICATIONS AND TRAINING

### Division 27.1 Training and checking

#### 27.01 Purpose

For paragraph 131.565 (2) (b), this Division prescribes the training and checking requirements for the pilot in command of a Part 131 aircraft in flight.

#### 27.02 Commercial pilot (balloon) licence or CAR certificate of validation

- (1) This section applies to a person (the *holder*) who holds a commercial pilot (balloon) licence (a *licence*) or a CAR certificate of validation, to pilot a Part 131 aircraft, issued by CASA.
- (2) Before commencing a flight that is to be conducted for hire or reward, the holder must meet the requirements of regulation 5.143 of CAR.
- (3) Before commencing a flight that is a Part 131 recreational activity, the holder must meet any training and checking requirements of the Part 131 ASAO that are necessary to enable the holder to conduct the activity.

#### 27.03 Recreational pilot authorisation

- (1) This section applies to a person (the *holder*) who holds a Part 131 pilot authorisation (an *authorisation*) to undertake a Part 131 recreational activity.
- (2) Before commencing a flight, the holder must meet any training and checking requirements prescribed by the Part 131 ASAO to enable the holder to continue to exercise the privileges of the authorisation.

### Division 27.2 Other qualifications or experience — general

#### 27.04 Purpose

For paragraph 131.565 (2) (c), this Division prescribes the other qualification and experience requirements for the pilot in command of any Part 131 aircraft in flight.

#### 27.05 Balloon class endorsement

- (1) This section applies to a person (the *holder*) who holds a commercial pilot (balloon) licence (a *licence*), or a CAR certificate of validation, issued by CASA for the holder to pilot a Part 131 aircraft.
- (2) Before commencing a flight as pilot in command of a Part 131 aircraft that is a manned free balloon, the pilot must hold the balloon class endorsement for the class of balloon in accordance with Table 5.01 in regulation 5.01 of CAR and CAO 40.7.

#### 27.06 Night VFR flight

- (1) Before commencing a flight of a Part 131 aircraft under the VFR by night, the pilot in command must:
  - (a) for a flight that is a Part 131 recreational activity:
    - (i) successfully complete a ground-based check and a proficiency check flight, that demonstrate sufficient knowledge of the equipment, systems and operational requirements for safe night VFR flight; and
    - (ii) meet the day VFR recency requirements of the Part 131 ASAO; and



- (b) for a flight that is not a Part 131 recreational activity — meet the recent experience requirements of regulation 5.144 of CAR as if they applied to the pilot in command.

*Note* To conduct a balloon transport flight at night, the pilot in command must also hold a balloon grade of night VFR rating: see CAO 40.2.2.

- (2) For subparagraph (1) (a) (i), the ground-based check and the proficiency check flight must be conducted by an instructor who holds:
  - (a) a balloon grade of night VFR rating; or
  - (b) a night rating or endorsement issued by a Part 131 ASAO.

## **Division 27.3 Other qualifications or experience — balloon transport operations**

### **27.07 Purpose**

- (1) This Division only applies to a balloon transport operation.
- (2) For paragraph 131.565 (2) (c), this Division prescribes the other qualification and experience requirements for the pilot in command of a Part 131 aircraft involved in a balloon transport operation.

*Note* Paragraph 131.195 (h) requires balloon transport AOC holders to include in their operations manuals the details of each plan, process, procedure, program and system implemented by the holder to safely conduct and manage operations in compliance with the civil aviation legislation.

### **27.08 Balloon transport operations — induction training and area familiarisation**

- (1) Before commencing a flight as pilot in command of a balloon transport operation, the pilot must satisfactorily complete the induction training and area familiarisation required by the balloon transport operator's exposition.
- (2) In addition to the training and familiarisation mentioned in subsection (1), before commencing a flight as pilot in command of a balloon transport operation that is to be conducted in an area with which the pilot is not familiar, the pilot's experience and competence must be:
  - (a) assessed in accordance with the procedures detailed in the operator's exposition; and
  - (b) further developed through any additional induction training and area familiarisation as required by the operator's exposition.

### **27.09 Balloon transport operations — general emergency training and competency**

- (1) The requirements of this section must be met before a person first acts as a pilot for a balloon transport operation.
- (2) The pilot must complete training in the following:
  - (a) the operator's general emergency procedures;
  - (b) the procedures for dealing with the specific emergency situations specified in subsection (3);
  - (c) locating, accessing, and using the emergency equipment and survival equipment on the aircraft;

*Note* For whether a life jacket, flotation device or emergency equipment must be carried — see section 18.03.

- (d) the actions to be taken in the event of an emergency relating to the operation of an inflation fan.
- (3) For paragraph (2) (b), the specific emergency situations are the following:
  - (a) fire in the air or on the ground, including how to use any fire extinguishers carried on the Part 131 aircraft and on any support vehicles;
  - (b) a flammable gas leak while the aircraft is in the air or on the ground;
  - (c) contact between the aircraft and a powerline;
  - (d) emergency evacuation from the launch field or the balloon basket;
  - (e) ditching in water if operations are planned or likely to traverse any body of water, such as a lake, a bay or an estuary, at a horizontal distance of more than 1 km from the shore for longer than 5 minutes before being again over land;
  - (f) the aircraft landing in trees;
  - (g) preparation for, and the handling of, a hard landing;
  - (h) emergency landing, whether with or without ground support personnel;
  - (i) SAR procedures.
- (4) The pilot must successfully complete a general emergency competency check for the operator that covers at least all of the matters mentioned in subsection (2) (as applicable).
- (5) For the recurrency provisions under subsection 27.11 (1), the successful completion of a general emergency competency check for the operator under this section is deemed to be the first previous general emergency competency check for a pilot.

### **27.10 Balloon transport operations — transition training to first act as pilot in command without supervision**

- (1) The requirements of this section must be met before a person first acts as a pilot for a balloon transport operation without the direct supervision of a person who meets the requirements of section 27.12.
- (2) The pilot must complete transition training that includes training in the following:
  - (a) the duties and responsibilities of a pilot for the operator;
  - (b) the procedures relating to the operator's operations;
  - (c) the normal and emergency procedures for the aircraft used for the flight, other than those already mentioned in subsections 27.09 (2) and (3);
  - (d) the conduct of a passenger briefing and safety demonstration for the aircraft being used for the flight.
- (3) The pilot must successfully complete, for the operator, an operator proficiency check in relation to the matters mentioned in subsection (2).

### **27.11 Recurrent training and checking requirements**

- (1) For a balloon transport operation, the pilot must complete recurrent training and checking in accordance with this section.
- (2) Training and checking for a pilot's general emergency training matters mentioned in subsection 27.09 (2) must occur at intervals of not more than 24 months after the date

of the first previous general emergency competency check (the *due date*) covering the matters mentioned in subsection 27.09 (2).

*Note* For the previous general emergency competency check, see subsection 27.09 (5).

- (3) Despite subsection (2), the recurrent training and checking for the general emergency training matters mentioned in paragraph 27.09 (2) (d) does not need to include an in-water element.
- (4) The training and checking mentioned in subsection (2) is deemed to have been completed on the due date if the check is successfully completed within the 90 days before or after the due date.

*Note* Thus, the due date does not alter.

## **27.12 Requirements for individuals conducting training and checking**

- (1) This section applies to the following training and checking events (the *relevant training and checking*):
  - (a) the general emergency training required by subsection 27.09 (2);
  - (b) the general emergency competency check required by subsection 27.09 (4) and section 27.11;
  - (c) the transition training required by subsection 27.10 (2);
  - (d) the operator proficiency check required by subsection 27.10 (3).
- (2) The relevant training and checking must be conducted and assessed by 1 of the following:
  - (a) the operator's head of flying operations — provided that person satisfies the requirements to perform a training or a competency assessment role, as set out in the operator's exposition;
  - (b) an individual who is authorised by Part 5 of CAR to conduct a balloon flight review.

## **27.13 RESERVED**

## **27.14 Exposition requirements**

A balloon transport operator's exposition must contain:

- (a) procedures to be followed to ensure that the requirements of this Division are complied with; and
- (b) details of the content and duration of the training provided by the balloon transport operator to ensure that each pilot is trained to be competent to discharge their duties and responsibilities under the civil aviation legislation.

## CHAPTER 28 GROUND SUPPORT PERSONNEL

### Division 28.1 Training and checking for ground support personnel of balloon transport operators

#### 28.01 Purpose

For regulation 131.055 and subregulation 131.570 (2), this Division prescribes the training and checking requirements that must be met by each member of a balloon transport operator's ground support personnel who is operational safety-critical personnel (*the person*) for a flight.

*Note* Paragraph 131.195 (h) requires balloon transport AOC holders to include in their expositions the details of each plan, process, procedure, program and system implemented by the holder to safely conduct and manage operations in compliance with the civil aviation legislation.

#### 28.02 Training and checking requirements

- (1) The requirements of this section must be met before a person carries out ground support for a balloon without the direct supervision of a person who meets the requirements of section 28.03.
- (2) For section 28.01, the person must have successfully completed:
  - (a) induction training required by the operator's exposition; and
  - (b) within the preceding 24 months — a check of competency in the execution of normal and emergency procedures that are set out in the operator's exposition, conducted by a person who meets the requirements in section 28.03.
- (3) Subject to subsection (4), as soon as practicable after the person has successfully completed a check of competency, the balloon transport operator must give the person a certificate of competency which states the date on which it expires, being the date that is 24 months after the day the check was conducted.
- (4) A check of competency successfully completed within the period of 90 days before the expiry date of the previous certificate of competency will expire 24 months after the expiry date of the previous certificate.
- (5) An operator must retain a record of the names of the ground support personnel who have undertaken the check of competency (*the check*), and the dates and results of all checks so undertaken. These records must be retained by the operator while the person is employed and for 12 months after the person's employment ceases.

#### 28.03 Requirements for individuals conducting training and checking

- (1) This section applies to the following training and checking events (*the relevant training and checking*):
  - (a) the induction training required by paragraph 28.02 (2) (a);
  - (b) the check of competency required by paragraph 28.02 (2) (b) and subsection 28.02 (4).
- (2) The relevant training and checking must be conducted and assessed by 1 of the following:
  - (a) the operator's head of flying operations — provided that person satisfies the operator's requirements to perform a training or a competency assessment role;
  - (b) an individual who is authorised by Part 5 of CAR to conduct a balloon flight review;

- (c) a person appointed by the operator to conduct training and checking of ground support personnel.

*Note* Guidance on the recommended competencies and training of persons appointed by the operator to conduct training and checking of ground support personnel is on the CASA website.

## **28.04 RESERVED**

### **28.05 Exposition requirements**

A balloon transport operator's exposition must contain:

- (a) procedures to be followed to ensure that the requirements of this Chapter are complied with; and
- (b) details of the content and duration of the training provided by the balloon transport operator to ensure that each ground support person is trained to be competent to discharge his or her duties and responsibilities under the civil aviation legislation.

## **Division 28.2 Numbers of ground support personnel of balloon transport operators**

### **28.06 Purpose**

For subregulation 131.570 (3), this Division prescribes the minimum number of ground support personnel required for a balloon transport operation.

### **28.07 Numbers of ground support personnel**

- (1) For section 28.06, during passenger loading and launching operations, and as far as possible during landing and passenger unloading operations, at least the minimum number of ground support personnel, each with a current certificate of proficiency, must be available to ensure that passengers:
  - (a) are loaded and unloaded safely; and
  - (b) are not exposed to unnecessary hazards during normal and emergency situations.
- (2) For subsection (1), the following minimum number of ground support personnel are required:
  - (a) if there are not more than 16 passengers — at least 1;
  - (b) if there are more than 16 passengers — at least 2.
- (3) For paragraph (2) (b), the ground support personnel must be positioned at either end of the basket or as directed by the pilot in command.

## **CHAPTER 29 TETHERED GAS BALLOONS**

### **29.01 Purpose**

For subregulation 131.690 (1), this Chapter prescribes the requirements that must be met for a person to operate a tethered gas balloon.

### **29.02 Requirements — tethered gas balloon**

- (1) A tethered gas balloon may only be operated in accordance with:
    - (a) the AFM; and
    - (b) the operator's instruction manual (if any), however described.
  - (2) A tethered gas balloon may only be operated by a person who has been trained in accordance with:
    - (a) the AFM; and
    - (b) the operator's instruction manual (if any), however described.
-