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Australian Government  
Civil Aviation Safety Authority

A low-angle photograph of a hot air balloon basket and burner. The basket is made of dark metal with horizontal slats. The burner is a large, cylindrical metal structure with a grid of horizontal bars. The balloon's envelope is visible in the background, featuring horizontal stripes of orange, red, and blue. A person's hand in a black sleeve is visible in the foreground, holding a metal rod connected to the burner. The background is a clear blue sky.

# CASA Recreational Ballooning Procedures Manual

Draft for consultation

December 2023



### Acknowledgement of country

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

Inside front cover artwork: James Baban. \_\_\_\_\_

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This document contains guidance material intended to assist CASA officers, delegates and the aviation industry in understanding the operation of the aviation legislation. However, you should not rely on this document as a legal reference. Refer to the civil aviation legislation including the Civil Aviation Act 1988 (Cth), its related regulations and any other legislative instruments—to ascertain the requirements of, and the obligations imposed by or under, the law.

# Preface

As an Australian Government authority, CASA must ensure that the decisions we make, and the processes by which we make them, are effective, efficient, fair, timely, transparent, properly documented and otherwise comply with the requirements of the law. At the same time, we are committed to ensuring that all our actions are consistent with the principles reflected in our Regulatory Philosophy.

Most of the regulatory decisions CASA makes are such that conformity with authoritative policy and established procedures will lead to the achievement of these outcomes. Frequently, however, CASA decision-makers will encounter situations in which the strict application of policy may not be appropriate. In such cases, striking a proper balance between the need for consistency and a corresponding need for flexibility, the responsible exercise of discretion is required.

In conjunction with a clear understanding of the considerations mentioned above, and a thorough knowledge of the relevant provisions of the civil aviation legislation, adherence to the procedures described in this manual will help to guide and inform the decisions you make, with a view to better ensuring the achievement of optimal outcomes in the interest of safety and fairness alike.

Chief Executive Officer and  
Director of Aviation Safety

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**Bookmark not defined.**

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# Glossary

## Acronyms and abbreviations

The acronyms and abbreviations used in this document are listed in the table below. Further abbreviations are shown in AIP GEN.

**Note:** As regulations change, there may be some alterations to this list—these changes may not be included until the next review of the CRBPM. Current abbreviations and definitions may also be found in AIP GEN 2.2 on the Airservices Australia website. [www.airservicesaustralia.com](http://www.airservicesaustralia.com).

Acronym	Description
AAC	Airworthiness Advisory Circular
ABF	Australian Ballooning Federation Inc.
AC	Advisory Circular
AGL	Above Ground Level (Expressed in feet, unless stated otherwise)
AIP	Aeronautical Information Publication
AMSL	Above Mean Sea Level (Expressed in feet, unless stated otherwise)
AOC	Air Operator Certificate
AROC	Aeronautical Radio Operator Certificate
APF	Australian Parachute Federation Inc.
ARFOR	Area Forecast. (In aeronautical Meteorological Code)
ATC	Air Traffic Control
ATS	Air Traffic Services
ATSB	Australian Transport Safety Bureau
AusSAR	Australian Search and Rescue
AUW	All up weight
BKN	Broken (cloud descriptor)
B050	Below 5,000 ft. AMSL
C	Degrees Celsius (Centigrade)
CAA	Civil Aviation Act 1988
CAAP	Civil Aviation Advisory Publication
CAO	Civil Aviation Order
CAR	Civil Aviation Regulations 1988
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations 1998
CAVOK	Visibility 10 km or more, no cloud below 5000 ft or below the highest minimum sector altitude, whichever is the greater, and no cumulonimbus; and no

Acronym	Description
	precipitation, thunderstorms, shallow fog, low drifting snow or dust devils.
<b>CoA</b>	Certificate of Airworthiness
<b>CoR</b>	Certificate of Registration
<b>CP(B)L</b>	Commercial Pilot (Balloon) Licence
<b>CRBPM</b>	CASA Recreational Ballooning Procedures Manual
<b>CTAF</b>	Common Traffic Advisory Frequency
<b>CTR</b>	Control Zone
<b>D</b>	Danger Area (Followed by number) Listed in ERSA
<b>ERC</b>	En Route Chart
<b>ERSA</b>	En Route Supplement Australia
<b>ETA</b>	Estimated Time of Arrival
<b>FEW</b>	Few (cloud descriptor)
<b>FPM</b>	Feet per minute
<b>FROL</b>	CASA Flight Radiotelephone Operator Licence
<b>FT</b>	Feet
<b>GS</b>	Ground speed
<b>H24</b>	24-hour Continuous day and night service
<b>HJ</b>	Sunrise to sunset
<b>HN</b>	Sunset to sunrise
<b>hPa</b>	Hectopascal
<b>ICAO</b>	International Civil Aviation Organisation
<b>IRM</b>	Immediately Reportable Matter
<b>KG</b>	Kilograms
<b>KM</b>	Kilometres
<b>KT</b>	Knots
<b>LAT</b>	Latitude (Degrees North or South of the Equator)
<b>LONG</b>	Longitude (Degrees East or West of the Prime Meridian)
<b>...M</b>	(Number) Bearing or Course Magnetic
<b>M</b>	Metres (preceded by figures)
<b>MAX</b>	Maximum
<b>MTOW</b>	Maximum Take-off Weight
<b>NM</b>	Nautical Miles
<b>NOTAM</b>	Notice to Airmen. A notice containing information concerning the establishment, condition or change in facility, service, procedure or hazard, which is essential to personnel, concerned with flight operations.



Acronym	Description
<b>OCTA</b>	Outside Control Area/Outside Controlled Airspace
<b>OVC</b>	Overcast (cloud descriptor)
<b>P...</b>	Prohibited area. (followed by identification) Listed in ERSA
<b>PAX</b>	Passenger(s)
<b>PP(B)C</b>	Private Pilot (Balloon) Certificate
<b>PP(B)P</b>	Private Pilot (Balloon) Permit
<b>PVT</b>	Private (As in type of Operation)
<b>QNH</b>	Altimeter subscale setting to obtain altitude
<b>R</b>	Restricted Area. (Followed by number) Listed in ERSA
<b>RAD</b>	Radius
<b>RCC</b>	Rescue Coordination Centre
<b>RRM</b>	Routinely Reportable Matter
<b>SCT</b>	Scattered (cloud descriptor)
<b>SIGMET</b>	Significant Meteorological information concerning Enroute Weather Phenomena which may affect the safety of aircraft operations.
<b>SP(B)C</b>	Student Pilot (Balloon) Certificate
<b>SP(B)P</b>	Student Pilot (Balloon) Permit
<b>SPECI</b>	Aviation Special Weather (in Aeronautical Meteorological Code)
<b>SUP</b>	Supplement. (AIP Supplement)
<b>SZ</b>	Sensitive Zone
<b>...T</b>	Bearing or Course (True)
<b>TAF</b>	Terminal Aerodrome Forecast
<b>TR</b>	Track
<b>UHF</b>	Ultra-High Frequency (300–3,000 MHz)
<b>U/S</b>	Unserviceable
<b>UTC</b>	Coordinated Universal Time (formerly GMT, also Z – Zulu)
<b>VFRG</b>	VFRG (Visual Flight Rules Guide) contains information VFR pilots need from the CAR's, CASRs, CAO's, AIP and CAAP's regarding procedures to be used when operating aircraft. It should be consulted for specific requirements and cross-checked against the parent documents for currency.
<b>VFR</b>	Visual Flight Rules
<b>VHF</b>	Very High Frequency (30–300 MHz)
<b>VMC</b>	Visual Meteorological Conditions
<b>VTC</b>	Visual Terminal Chart. Scale 1:250,000.
<b>WAC</b>	World Aeronautical Chart. ICAO 1:1,000,000.
<b>WX</b>	Weather

Acronym	Description
Z	Coordinated Universal Time (in Meteorological messages).

## Definitions

Terms that have specific meaning within this document are defined in the table below.

**Note:** Where definitions from the civil aviation legislation have been reproduced for ease of reference, these are identified by 'grey shading'. Should there be a discrepancy between a definition given in this document and the civil aviation legislation, the definition in the legislation prevails.

Term	Definition
Ab-initio Training	Training for the Private Pilot (Balloon) permit.
Examiner	A person who holds a Flight Examiner Permit with associated flight examiner endorsements or a person approved to conduct flight tests.
Instructor Grade 1	Person who holds a valid Private Pilot (Balloon) Permit Grade 1.
Instructor Grade 2	Person who holds a valid Private Pilot (Balloon) Permit Grade 2.
Aircraft flight manual	The manufacturer's aircraft flight manual.
Authorised weather forecast	As defined in the CASR Dictionary.
Authorised weather report	As defined in the CASR Dictionary.
Approval or Approved	Approved by CASA.
Certified Aerodrome	An aerodrome in respect of which an aerodrome certificate is in force.
Direct Supervision	In the presence of the supervisor. The supervisor observes and checks the work being performed to ensure that it is being performed properly.
Flight instructor proficiency check	A flight for the renewal of an instructor rating
<b>Flight proficiency check</b>	A flight for an assessment for an endorsement on a pilot permit.
<b>Flight test</b>	A process conducted by an examiner that assesses the applicant's demonstration of knowledge, skills and attitudes for a permit, or instructor rating and includes ground and flight components.
<b>Flight time</b>	The total time from the moment at which the balloon first becomes airborne to when the balloon comes to rest at the end of the flight, excluding any time during which the balloon is at rest on the ground.
<b>Free flight time</b>	In relation to a balloon, means any part of the flight time during which it is not tethered.
<b>Indirect Supervision</b>	When the supervisor is monitoring the operations through other persons. The supervisor monitors and checks the work being performed to ensure that it is being performed properly.
<b>In the vicinity</b>	An aircraft is in the vicinity of a non-controlled aerodrome if it is within: <ul style="list-style-type: none"> <li>• uncontrolled airspace; and</li> <li>• 10 nautical miles of the aerodrome; and</li> </ul>

Term	Definition
	<ul style="list-style-type: none"> <li>a height above the aerodrome that could result in conflict with operations at the aerodrome.</li> </ul>
<b>Medical Certificate</b>	A Certificate issued under CASR part 67.
<b>Pilot in Command (PIC)</b>	in relation to a flight of an aircraft, means the pilot designated by the operator of the aircraft as being in command and charged with the safe conduct of the flight.
<b>Pilot logbook</b>	A system that is used to keep an accurate record of a pilot's aeronautical experience.
<b>Private airship</b>	A generic term for any hot air airship as defined in CASR Part 131 that is operated in accordance with this manual.
<b>Private balloon</b>	A generic term for any manned balloon as defined in CASR Part 131 that is operated in accordance with this manual.
<b>Recreational balloon flight review</b>	Means a review of the aeronautical skills and aeronautical knowledge of the person undertaking the review that is relevant to the safe flight of balloons in sport or recreational operations.
<b>Supervision</b>	The regular surveillance, assessment and correction of pilot training operations and of persons engaged in those operations. Supervision may be 'direct' in the presence of the supervisor or 'indirect' by the supervisor monitoring the operations through other persons.
<b>Tethered</b>	Means a balloon attached to the ground, or an object on the ground, by flexible restraints that limit movement.
<b>Tethered flight time</b>	Means any part of the flight time in the balloon during which the balloon is tethered. This is recorded in the pilot's logbook under 'Tether'.
<b>Time in service</b>	The total time from the moment at which the balloon first becomes airborne and ends when the balloon comes to rest at the end of the flight. This is recorded in the balloon logbook.

## Meaning of auxiliary verbs

Throughout this document, the following auxiliary verbs have the meanings defined below:

- 'must', means the application is mandatory.
- 'should' means the application is recommended.
- 'may' or 'need not' means the application is optional.
- 'will' means futurity, not a requirement for application.

Singular words include the plural and plural words include the singular unless a contrary intention is indicated by the context.

## Reference material

Document Type	Title
Existing Regulations	The Part 131 MOS has not yet been made or commenced being in force, operational rules set out in CAO 95.54 (2023) will apply until the MOS is in force. If the MOS is made before the expiry date of CAO 95.54 it will be amended. This list in CAO 95.54 refers to provisions of the CAR that were repealed at the end of 1 December 2021 and to legislative instruments that would not otherwise apply to a relevant aircraft from 2 December 2021, but must be complied with as if they were still in force. This list does not obviate the requirement for an operator or pilot in command to comply with other provisions of the CAR or CASR as is in force from time to time if they apply to them.
CAO 95.54 (2023)	Civil Aviation Order 95.54 (Part 131 Recreational Activity and Specialised Balloon Operations Instrument) 2023
CAR 82	Equipment of Australian aircraft with radiocommunication systems.
CAR82A	Use of radio communication systems: words and phrases to be used.
CAR84	Use and operation of radiocommunication systems by foreign aircraft
CAR99A	Broadcasts to be made at certain aerodromes.
<a href="#">CASA97/13</a>	Designation – of airspace – Direction – broadcast requirements and frequency. Prescribes requirements for radio broadcast requirements and frequency.
<a href="#">CASA 50/21</a>	Designation of Airspace for Broadcast Requirements – Locations with Surveillance Flight Information Service. Prescribes directions for radio broadcast requirements and frequency.
CAR99AA	Air Traffic – Services, directions and instructions.
<a href="#">CASA 142/10</a>	Directions and determinations – Class D airspace. Directions and determinations — Class D airspace.
<a href="#">CASA 143/10</a>	Determination – flight visibility and distance from cloud in V.F.R. flights – Direction – Special V.F.R. flights. Prescribes requirements for operating under the Special VFR.
<a href="#">CASA 490/05</a>	Designation of airspace for broadcast requirements – aerodromes with certified air/ground radio services. Prescribes requirements for operations at an aerodrome where a certified air/ground radio service is in operation.
CAR100	Compliance with air traffic control clearances and air traffic control instructions.
CAR101	Procedure when air traffic control not in operation.
CAR120	Weather reports not to be used if not made with authority.
CAR139	Documents to be carried in Australian aircraft.
CAR140	Prohibited, restricted and danger areas.
CAR150	Dropping of articles (except in the context of contest markers and wind indicators).
CAR158	Reports at designated points or intervals.
CAR159	Procedures on radio failure.
Part 12, Division 1	Rules of the air.

Document Type	Title
Part 12, Division 2	Operations on and in the vicinity of aerodromes other than subregulation 163(2) as far as it relates in the proximity of other balloons or hot air airships; regulation 163AA, paragraphs 166A (2) (d), (e), (f), (g) and regulation 168.
CAR195	Compliance with rules about lights.
<u>CAO20.4</u>	Civil Aviation Order 20.4 – Provision & use of oxygen & protective breathing equipment (02/12/2004).
CAR208	Number of operating crew.
CAR233	Responsibility of pilot in command before flight.
CAR234	Fuel requirements.
CAR234A	Oil Requirements (applicable only to hot air airships).
CAR235	Take-off and landing of aircraft etc.
CAR239	Planning of flight by pilot in command.
CAR241	Flight plans – submission to air traffic control in certain cases.
CAR242	Testing of radio apparatus.
CAR243	Listening watch
CAR244	Safety precautions before take-off.
CAR249	Prohibition of carriage of passengers on certain flights.
CAR207(2)	Requirements according to operations on which Australian aircraft used (instrument requirements and other equipment).
CAR252	Provision of emergency systems.
CAR253	Emergency and life-saving equipment.
<u>CAO20.11</u>	Civil Aviation Order 20.11 – Emergency & lifesaving equipment & passenger control in emergencies (02/12/2004). Only appropriate parts of CAO 20.11 currently apply (e.g. briefing of passengers).
CAR254	Exits and passageways not to be obstructed.
CAR255	Smoking in aircraft.
CAR257	Aerodrome meteorological minima.
CAR258	Flights over water (applicable only to hot air airships).
CAR260	Manned fixed balloons and kites.
Part 12 Division 3	Visual Flight Rules.
<u>CAO20.18</u>	Aircraft equipment — but only such provisions (including Appendix X) as are applicable to, or are in relation to, hot air balloons and hot air airships.
<u>DASR 2/1994</u>	Prescribes requirements for equipment requirements for flight under the visual flight rules.
<u>DASR 3/1994</u>	Prescribes requirements for navigating during flight under the visual flight rules.
<u>CASA 184/00</u>	Direction under subregulation 207 (3). Prescribes requirements for the use of supplemental oxygen by the pilot when conducting parachuting operations

Document Type	Title
<b>Applicable New Regulations</b>	The following lists the new regulations that apply to recreational balloon activities from 2 December 2021.
131.025	Definition of Part 131 recreational activity.
131.245	Pilots must be authorised – CAO 95.54 provides that CASA can issue a pilot authorisation as a permit or approval.
131.265	Electronic documents – See AC 131–02 for more detail.
131.310	(1) Dropping things from aircraft.
131.315	(2)(b)(ii) Flights at night – CAO 95.54 provides that CASA can issue a pilot authorisation for flight at night.
131.354	Use of radio broadcasts and reports.
131.355	Additional right of way rules – Note subreg (3) is scheduled to be repealed.
131.390	Smoking not permitted during flight or within 15 m of Part 131 aircraft.
131.425	Restraint of cargo.
131.445	(1)(a) and (3)(a) Loading weights.
131.565	(2)(a)(iii) Qualifications and training for pilots – exemption under CAO 95.54.
131.580	Part 131 recreational activities must be authorised.
131.585	Procedures for carrying hang gliders.
<b>Regulations Recreational Balloon Activities</b>	
91.005	Application of Part 91—Australian aircraft in Australian territory.
91.010	Application of Part 91—Australian aircraft in foreign countries.
91.015	Application of Part 91—Australian aircraft over the high seas – this would only be applicable for a record attempt – for example a flight from NZ to Australia.
91.020	9Application of Part 91—foreign registered aircraft.
91.030(3)	Application of Part 91—aircraft to which Part 101, 103 or 131 applies.
91.040	Issue of Manual of Standards for Part 91.
91.045	Approvals by CASA for Part 91.
91.050	Approvals by authorised persons for Subpart 91.T.
91.055	Aircraft not to be operated in manner that creates a hazard.
91.060	Unauthorised travel or placing of cargo on aircraft.
91.095	Compliance with flight manual etc.
91.140	Operating an Australian aircraft outside Australia.
91.145	Requirements to be met before Australian aircraft may fly.
91.150	Operating aircraft with inoperative equipment—placarding.
91.155	Manipulating flight controls.

Document Type	Title
91.160	Possessing firearm on aircraft.
91.165	Discharging firearm on aircraft.
91.170	Operation of portable electronic devices.
91.175	Operation of portable electronic devices by crew members.
91.180	Air displays in Australian territory.
91.195	Picking up or setting down people or things during flight.
91.200	Persons not to be carried in certain parts of aircraft.
91.205	Flying in formation.
91.215	Authority and responsibilities of pilot in command.
91.220	Actions and directions by operator or pilot in command.
91.225	Crew members—power of arrest.
91.257	Air traffic control clearances and instructions.
91.260	Unauthorised entry into prohibited or restricted areas.
91.263	Air defence identification zone flights.
91.270	Aircraft to be flown under VFR or IFR.
91.325	Basic rule.
91.330	Right of way rules.
91.340	Right of way rules for take-off and landing.
91.345	Compliance with International Regulations.
91.350	Giving way to vessels.
91.360	Meaning of in the vicinity of a non-controlled aerodrome.
91.410	Use of aerodromes.
91.420	Parked aircraft not to create hazard.
91.465	Contaminated, degraded or inappropriate fuels.
91.470	Fire hazards.
91.475	Fuelling aircraft—fire fighting equipment.
91.485	Equipment or electronic devices operating near aircraft.
91.520	Crew members to be fit for duty.
91.525	Offensive or disorderly behaviour on aircraft.
91.600	Carriage of cargo—general.
91.620	Carriage of animals .
91.625	Use of radio—qualifications.
91.635	Communication monitoring in controlled airspaces.
91.640	Use of radio outside controlled airspaces—listening watch of radio



Document Type	Title
	transmissions.
91.670	Standard visual signals.
91.675	Pilot in command to report hazards to air navigation.
91.680	Pilot in command to report emergencies.
91.690	Pilot in command to report contraventions relating to emergencies.
91.695	Interception of aircraft.
91.700	Aviation distress signals.
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## Forms

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

Form number	Title

## Revision history

Revisions to this manual are recorded below in order of the most recent first.

Version Number	Date	Parts/Sections	Details
1.0	December 2023	All	Draft for consultation. Initial issue of CRBPM. This CASA document replaces the Australian Ballooning Federation Operations Manual.

# 1. Introduction

## 1.1 Purpose

This CASA Recreational Ballooning Procedures Manual (CRBPM) provides detailed information to support *Civil Aviation Order* (CAO) 95.54 (2023) and is given legal force by being incorporated by reference in the CAO.

The CRBPM sets out the pilot authorisations for a Part 131 recreational activity that CASA may issue. It includes the privileges and limitations of each pilot authorisation and required syllabus of training. The operational requirements for a Part 131 recreational activity are detailed in Parts 91 and 131 of the *Civil Aviation Safety Regulations 1988* (CASR) and in CAO 95.54 (2023).

## 1.2 Audience

This CRBPM applies:

- to operators, owners and pilots operating a manned free balloon or hot air airship (Part 131 aircraft) in a recreational activity.
- from 2 December 2023.

## 1.3 Scope

This CRBPM contains:

- the requirements, privileges and limitations of the following balloon permits:
  - Student Pilot (Balloon) Permit
  - Private Pilot (Balloon) Permit
  - Instructor Private Pilot (Balloon) Permit
  - Examiner Private Pilot (Balloon) Permit.
- the syllabuses of training and endorsements for the following permits:
  - Private Pilot (Balloon) Permit
  - Radio Operator (Balloon) Permit
  - Instructor Private Pilot (Balloon) Permit.
- operational procedures and continuing airworthiness requirements.
- accident and incident reporting procedures.
- appendices that contain additional advisory material.

## 1.4 Recreational flying activity

CASR Part 131 and CAO 95.54 (2023) require that persons acting as Pilot in Command (PIC) or as a student pilot of a Part 131 aircraft engaged in a recreational flying activity, must be the holder of a current pilot authorisation issued by CASA.

A Part 131 aircraft is defined in regulation 131.005 as any of a:

- manned free balloon
- hot air airship.

A pilot authorisation to operate a Part 131 aircraft in a recreational flying activity is a:

- permit issued by CASA under CAO 95.54 (2023)
- commercial pilot (balloon) licence or certificate of validation issued under Part 5 of CAR.

## 1.5 Pilot training

CASR Part 131 and CAO 95.54 (2023) require that a pilot undergo training and be subject to the privileges and limitations specified within the CRBPM. The Private Pilot (Balloon) Permit theory and practical training set out in this CRBPM is compliant with the ICAO requirements for a free balloon pilot licence listed in ICAO Annex 1 Personnel licensing.

This CRBPM provides information about the rules and regulations governing Part 131 recreational ballooning activities in Australia.

**Note:** CASA has adopted standards for operations, pilot authorisation and pilot training from the Australian Ballooning Federation (ABF). This CRBPM is based on the *ABF Operations Manual v3.0* redrafted and presented in a CASA document and style.

## 1.6 Instructor and pilot training manuals and student training record

These training documents:

- contain all the relevant material to assist and inform student pilots and provide guidance to instructors in carrying out their functions.
- provide syllabuses and study guides for examinations, as well as other general information.

The student training record is the student's logbook and record of completed exams and exercises.

## 1.7 Compliance

Part 131 aircraft operators are required to comply with the requirements of the *Civil Aviation Act 1988* and subordinate CASA regulations, orders or instruments. The holder of a Part 131 recreational pilot authorisation issued by CASA is required to comply with the requirements of:

- this CRBPM
- CASR Part 91
- Part 131
- CAO 95.54 (2023)
- any related CASA approvals
- all applicable CARs, CASRs and CAOs not exempted by CAO 95.54 or CASA instrument.

Operational requirements may also be published in the Aeronautical Information Publication, or other publications.

## 1.8 Further information

For further information, contact CASA's Flight Standards Branch (Tel 131 757).

## 2. Pilot authorisations – Permits, ratings and endorsements

### 2.1 The permit system

CASA issues private balloon pilot authorisations as a paper-based permit that is similar to a Part 61 licence. Each permit will include all the pilot's authorisations and a dynamic table where successful flight tests, flight reviews and instructor flight proficiency checks are recorded by the person conducting the test, review, or check.

The online version of the permit will update when the conductor of the flight test, proficiency check or review submits the results to CASA.

Pilots receiving a new authorisation may request a new print out of the permit incorporating the new details.

#### 2.1.1 Private pilot (balloon) permits that may be issued

##### 2.1.1.1 Student Pilot (Balloon) Permit (SP(B)P)

This is a permit authorising the holder to:

- receive practical flight instruction in a balloon, which has an envelope capacity of not more than 120,000 cubic feet (3,400 cubic metres) and
- increase the standard of skill to that required for the issue of:
  - a Private Pilot (Balloon) Permit, or
  - a higher category of permit, or
- engage in flying practice for the re-issue of a balloon pilot permit.

##### 2.1.1.2 Private Pilot (Balloon) Permit (PP(B)P)

This is a permit authorising the holder to act as pilot in command of a balloon engaged in a recreational activity. This permit complies with the ICAO requirements for the issue of a free balloon pilot licence set out in ICAO Annex1 Personnel licensing

[https://www.icao.int/APAC/Meetings/2019%20COSCAP%20SEAEASA%20PEL/AN01\\_cons.2019\\_compressed.pdf](https://www.icao.int/APAC/Meetings/2019%20COSCAP%20SEAEASA%20PEL/AN01_cons.2019_compressed.pdf)

##### 2.1.1.3 Radio Operator (Balloon) Permit (RO(B)P)

This is a permit authorising the holder to operate a VHF radio for communication with other aircraft and air traffic services.

##### 2.1.1.4 Permit to carry a hang glider outside a Part 131 aircraft

Reserved.

### 2.1.2 Balloon ratings that may be issued

#### 2.1.2.1 Instructor Private Pilot (Balloon) Permit Grade 2

This is a rating authorising the holder to conduct training in accordance with the pilot training syllabus under the direct or indirect supervision of an Instructor Grade 1, except for:

- solo flights; and
- advanced training flights; and
- recommendation for a flight test.

### 2.1.2.2 Instructor Private Pilot (Balloon) Permit Grade 1

This is a rating authorising the holder to conduct training in accordance with the pilot training syllabus and to supervise an Instructor Grade 2.

### 2.1.2.3 Private Pilot (Balloon) Examiner Permit

This is a permit authorising the holder to:

- conduct theory examinations; and
- mark theory examinations; and
- conduct flight tests.

## 2.1.3 Endorsements to permits that may be issued

A Private Pilot (Balloon) Permit may be endorsed for:

- non-controlled aerodrome operations to allow flight lower than 2 000 feet above the aerodrome elevation while flying within 3 nautical miles of any certified aerodrome, and operations at a non-controlled aerodrome.
- competency to fly a balloon which has an envelope capacity greater than 120,000 cubic feet on the recommendation of a balloon pilot instructor endorsed on at least the balloon envelope capacity applied for.
- private pilot (gas balloons) – based on overseas qualifications.
- private pilot (hot air airships) – based on overseas qualifications.

## 2.2 Student Pilot (Balloon) Permit

### 2.2.1 Issue of permit

An applicant for a Student Pilot (Balloon) Permit must:

- be able to read, speak and understand the English language; and
- have attained the age of 15 years; and
- forward to CASA, a completed application form/medical declaration (insert form number) and such fee as determined by CASA.

### 2.2.2 Flight privileges and limitations

The holder of a Student Pilot (Balloon) Permit may exercise the privileges specified in paragraph 2.1.1.1 (above) subject to the following limitations:

- A student pilot must not manipulate the controls of a balloon unless under the direct supervision of a current Instructor Private Pilot (Balloon) Grade 1 or 2.
- except that a student pilot may conduct solo flight training exercises provided that:
  - the flight is under the observation of an Instructor Private Pilot (Balloon) Grade 1; and
  - all the theory exams have been satisfactorily completed; and
  - the student holds a Radio Operator (Balloon) Permit or an Aeronautical Radio Operator Certificate, and
  - no passengers are carried.

### Exception

The holder of a Student Pilot (Balloon) Permit may manipulate the controls of a balloon carrying passengers provided that:

- the student is under the direct supervision of a current balloon pilot Instructor on board the balloon; and
- the flight training exercise requires the presence of passengers for loading or passenger management considerations; and
- emergency procedures involving disruption of the fuel supply or intentionally heavy landings are not practiced; and
- the passengers do not contribute in any way to the cost of the flight.

**Note:** The holder of a SP(B)P or PP(B)P on board a training flight for the purpose of giving or receiving instruction, or being assessed for the issue of a permit, are not considered to be passengers.

### 2.2.3 Logging of flight time and exercises

The holder of a Student Pilot (Balloon) Permit must:

- record:
  - all flight time in their pilot logbook; and
  - every flight conducted in the course of instruction in the appropriate logbook columns, using one line for every flight; and
- ensure that:
  - flight time is not logged as instructional flight time unless physically operating the controls of the balloon under the supervision of a current balloon pilot instructor or demonstration of flight exercises by the instructor (Instructor demonstration time should be minimal), and
  - at the satisfactory completion of each flight training exercise as specified in Section 7.2.2 - *Syllabus for the Private Pilot (Balloon) Permit practical flight exercises*, that the instructor supervising the exercise, also signs and enters details of exercises completed in the *Student Training Record* and completes the debrief page; and
  - the '*Flight Training Exercises Completed to a Competent Standard*' sheet is signed by both student and instructor when both are satisfied that exercises are completed to a competent standard.

### 2.2.4 Validity

A Student Pilot (Balloon) Permit remains in force unless the permit expires or is revoked by CASA.

## 2.3 Private Pilot (Balloon) Permit

### 2.3.1 Issue of a permit

A student applicant for a Private Pilot (Balloon) Permit must:

- hold a:
  - valid Student Pilot (Balloon) Permit, and
  - a Radio Operators (Balloon) Permit, or
  - an Aviation Radio Operators Certificate (AROC) or
  - be authorised under CASR Part 61 or Part 64 to operate aircraft radio; and
- have:
  - attained the age of 16 years; and
  - completed the theory examinations in *Flight Rules and Procedures, Meteorology, Aerostatics and Airmanship, and Navigation* (the syllabuses of which are specified at Section 7 – *Syllabuses* of this manual.); and



- passed all examinations within 2 years and one month prior to successfully completing a PP(B)P flight test; and
- completed the Sport Aviation human factors course available through [AviationWorx](#).
- completed the Flight Training Exercises to a competent standard as listed in *Section 7 - Syllabuses* of this manual; and
- complete a minimum of 16 hours instructional flight time under either the direct supervision (dual flight) or observation (solo flight) of an appropriate instructor before submitting to a flight test with an examiner.

The 16 hours must consist of at least 8 flights including inflation and deflation by the student and will comprise the following:

- a minimum of 9 hours instructional flight time (instructional or solo flight time excludes any time during which the balloon is at rest on the ground); and
- a tether flight of between 15 minutes (minimum) and one hour (maximum); and
- a minimum of 2 hours solo flight consisting of 3 flights, 2 of which must occur on separate days; and
- in the 12 months immediately prior to making the application, have completed at least 3 flights including inflation and deflation; and
- have successfully completed a dual flight test of at least 30 minutes duration with an examiner, and a solo flight test of at least 20 minutes duration under the observation of an examiner. The order in which these flights are conducted is at the discretion of the examiner; and
- forward to CASA:
  - completed application form, **medical declaration and language proficiency form (insert number)** available from the CASA website **insert link** signed by an examiner certifying that all the requirements for the issue of the permit have been met; and
  - payment for any fee determined by CASA.

## 2.3.2 Flight privileges and limitations

A Private Pilot (Balloon) Permit authorises the holder to act as pilot in command (PIC) of a balloon, subject to the following:

- The holder of a PP(B)P:
  - must maintain a log providing a record (date, balloon registration, duration and route) of all flights in a pilot logbook.
  - must not engage in Australian balloon transport unless holding an Australian Commercial Pilot (Balloon) Licence (CP(B)L) and engaged by a balloon Air Operator Certificate (AOC) holder.

## 2.3.3 Private balloon pilot: recreational balloon flight review required

A recreational balloon flight review (RBFR) is a review of the aeronautical skills and aeronautical knowledge of the person being reviewed that is relevant to the safe flight of balloons in sport or private operations.

### Note:

- A RBFR is a review.
- A flight for an instructor renewal is a flight instructor proficiency check.
- A flight for the initial issue of a PPC or a rating is a flight test.
- An assessment flight for an endorsement on a PP(B)P is a flight proficiency check.

### 2.3.3.1 Private balloon pilot: regular balloon flight review required

The holder of a Private Pilot (Balloon) Certificate must not fly a balloon as pilot in command if the pilot has not, within the period of 2 years immediately before the day of the proposed flight, satisfactorily completed a recreational balloon flight review.

### 2.3.3.2 A recreational balloon flight review

- A recreational balloon flight review must be conducted:
  - only by an approved person whose balloon pilot certifications are current and valid, and
  - with the approved person on board
    - » except where the balloon the pilot has flown the most time during the last 10 flights, is a single person balloon, the review may be conducted by the approved person by observation from the ground or another balloon, and
  - in a balloon that has an envelope capacity not greater than 120,000 cubic feet, unless endorsed to act as PIC for a balloon of greater capacity and the approved person is similarly endorsed; and
- and must include at least 1 inflation of the balloon envelope, 30 minutes of flight time and 1 landing and deflation of the balloon envelope.

**Note:** **Approved person** means:

- an Instructor Grade 1 or 2; or
- a person approved in writing by CASA.

### 2.3.3.3 Recreational balloon flight review requirements not satisfied

If the holder of a Private Pilot (Balloon) Permit undertakes a recreational balloon flight review and the requirements of Section 2.3.3.2 - *A recreational balloon flight review* above are not satisfied, the pilot is taken not to have satisfactorily completed the review.

### 2.3.3.4 Recreational balloon flight review requirements satisfied

If the holder of a Private Pilot (Balloon) Permit satisfactorily completes a recreational balloon flight review, the approved person conducting the review must make an entry on the pilot's permit to the effect that the pilot has satisfactorily completed the review.

The appropriate forms and supporting documents must be submitted to CASA for recording purposes.

If the review is passed up to 90 days prior to the end of the two-year validity period, it is considered to have been completed on the final day of the validity period.

### 2.3.3.5 Recreational balloon flight review requirements deemed to be satisfied

A holder of a Private Pilot (Balloon) Permit who, within the period of 2 years immediately before the day of the proposed flight, has:

- passed a flight test or proficiency check conducted for the purpose of:
  - the issue of a Private (Balloon) Pilot Permit; or
  - the issue of a Commercial Pilot (Balloon) Licence; or
  - the issue or renewal of an Instructor Private Pilot (Balloon) Rating; or
  - the issue or renewal of a Flight Instructor (Balloon) Rating on a CP(B)L; or
- has satisfactorily completed a Commercial Pilot (Balloon) flight review; or
- passed a flight review or proficiency check for the purpose of:
  - maintaining the currency of a Private (Balloon) Pilot Permit; or
  - regaining the currency of a Private (Balloon) Pilot Permit; or

- operating a balloon that has a capacity greater than 120 000 cu ft; or
  - satisfactorily completed balloon type conversion training conducted by the holder of a grade of instructor rating that allows them to conduct a flight review; and
  - submits evidence of the above to CASA for recording purposes,
- is deemed to have satisfactorily completed a recreational balloon flight review.

### 2.3.4 Examination credit

Credits for theory examinations may be granted to:

- persons who hold, or have held, flight crew licence qualifications which warrant exemption from the meteorology, navigation and radio operator exams.
- overseas pilots (Refer to *Section 4 – Credit for overseas ballooning qualifications* of this CRBPM).

**Note:** Persons seeking to obtain theory examination credits should make an application to CASA providing proof of current or previously held qualifications.

### 2.3.5 Validity

A Private Pilot (Balloon) Permit will remain in force unless the permit expires or is revoked by CASA.

### 2.3.6 Currency - recent experience requirements

#### 2.3.6.1 Flight recency

The holder of a Private Pilot (Balloon) Certificate must not act as Pilot in Command (PIC) of a hot air balloon and will become non-current unless they have within the period of 12 months immediately before the day of the flight:

- undertaken at least 3 flights of at least 30 minutes each of flight time as PIC, including an inflation and deflation; or
- satisfactorily completed a flight test or a flight proficiency check with a current Instructor Grade 1 and submitted to CASA a completed flight review record and supporting documents.

#### 2.3.6.2 No flight recency for between one and three years

If the period of non-currency, is greater than one year but less than 3 years, the holder of a Private Pilot (Balloon) Permit must not operate a balloon unless they have:

- provided evidence of previous Part 131 aircraft experience; and
- satisfactorily completed a balloon flight review with a current Instructor Grade 1; and
- demonstrated knowledge of *Section 7.2 - Syllabus of training for the Private Pilot (Balloon) Permit* of this CRBPM; and
- submitted to CASA a completed flight review record and supporting documents.

#### 2.3.6.3 No flight recency for three years or more

If the period of non-currency, is greater than 3 years the holder of a Private Pilot (Balloon) Permit must not operate a hot air balloon unless they have:

- provided evidence of previous Part 131 aircraft experience; and
- satisfactorily completed a balloon flight review with a current examiner; and
- demonstrated knowledge of *Section 7.2 - Syllabus of training for Private Pilot (Balloon) Permit* of this CRBPM; and

- completed flight review record and supporting documents must be submitted to CASA by the holder of the Private Pilot (Balloon) Permit for recording purposes.

## 2.4 Radio Operator (Balloon) Permit

### 2.4.1 Issue of permit

There are two methods for the issue of a Radio Operator (Balloon) Permit.

#### 2.4.1.1 First method: Demonstration and examination

The applicant for a Radio Operator (Balloon) Permit must:

- demonstrate to an examiner the required standard in both the written and oral radio examinations.

**Note:** Refer to *Section 7.3 - Syllabus of training for Radio Operator (Balloon) Permit* of this CRBPM and *Pilot Training Manual* for study notes.

#### 2.4.1.2 Second method: Recognition of prior learning (RPL)

The applicant for a Radio Operator (Balloon) Permit based on RPL must:

- be the holder of a Flight Radiotelephone Operator Licence; or
- be authorised under CASR Part 61 or Part 64 to operate aircraft radio or
- have a RAAus radio endorsement and current RAAus membership; or
- hold an equivalent radio operator certificate issued by another sport aviation body; and
- submit to CASA a completed application form, and proof of the licence, certificate or endorsement.

## 2.5 Instructor Private Pilot (Balloon) Permit

### 2.5.1 Instructor Private Pilot (Balloon) Permit Grade 1 and 2

An instructor rating authorises the holder to conduct training in accordance with the pilot training syllabus. There are 2 levels of Instructor Private Pilot (Balloon) ratings which may be issued.

#### 2.5.1.1 Privileges of an Instructor Grade 2 Permit

The Instructor Private Pilot (Balloon) Permit Grade 2 under the direct or indirect supervision of a Grade 1 Instructor, authorises the holder to:

- conduct practical flight instruction in accordance with the syllabus of knowledge and flight training exercises specified in *Section 7.2.2 - Syllabus for the Private Pilot (Balloon) Permit practical flight exercises* of this CRBPM limited to the following flight exercises:
  - preliminary familiarisation with balloon and equipment
  - pre-flight planning and preparations
  - flying operations and procedures (normal conditions) excluding solo flights
  - emergency procedures.
- certify that the holder of a Student Pilot (Balloon) Permit has satisfactorily completed the flight training exercises attempted.

**Notes:** A Grade 2 Instructor:

- may recommend a student for solo flight but must not supervise or conduct a student solo.
- level is intended to give experienced pilots exposure to instructional experience and increase access to basic flying training for students.

### 2.5.1.2 Privileges of an Instructor Grade 1 Permit

The Instructor Private Pilot (Balloon) Permit Grade 1 authorises the holder to:

- conduct both ground and flight instruction in accordance with the syllabus of knowledge and flight training exercises specified in *Section 7.2.2 - Syllabus for Private Pilot (Balloon) Permit practical flight exercises* of this CRBPM; and
- certify that the holder of a Student Pilot (Balloon) Permit has satisfactorily completed a flight training exercise; and
- recommend to an examiner that the holder of a Student Pilot (Balloon) Permit is of a standard to attempt a flight test; and provided the instructor is similarly endorsed, conduct both ground and flight instruction for and endorse a Private Pilot (Balloon) Permit holder for:
  - non-controlled aerodrome operations to allow flight lower than 2 000 feet above the aerodrome elevation while flying within 3 nautical miles of any certified aerodrome and for operations at a non-controlled aerodrome
    - » provided the instructor is similarly endorsed, conduct both ground and flight instruction for and endorse a Private Pilot (Balloon) Certificate holder's logbook for certification of competency to fly a balloon, which has an envelope capacity greater than 120,000 cubic feet.
    - » provided the instructor is similarly endorsed, conduct both ground and flight instruction for and recommend a Private Pilot (Balloon) Certificate holder for a flight test for a gas balloon or a hot air airship.

**Note:** An Instructor Grade 1 must not supervise a solo flight, while acting as PIC in another balloon or aircraft. If the solo flight is supervised from the air, the instructor must be in close formation with the student at all times.

## 2.5.2 Issue of permit

### 2.5.2.1 Application for Instructor Private Pilot (Balloon) Grade 2 Permit

An applicant for an Instructor Private Pilot (Balloon) Grade 2 must:

- have been the current holder of a valid Private Pilot (Balloon) Permit or overseas equivalent, for a period of at least 2 years; and
- have a minimum of 50 hours Pilot in Command; and
- demonstrate to an Instructor Grade 1, basic instructional skills and show evidence of good airmanship via a flight test, comprising the following:
  - flight test of at least 30 minutes duration, instructing a student (simulated or actual student), incorporating pre-exercise briefing and follow-up debriefing analysis of the students' performance; and
- attain a level of competency to be able to:

- give ground lessons, pre-flight and post flight briefings on any or all parts of *Section 7.2.2 - Syllabus for Private Pilot (Balloon) Permit practical flight exercises* of this CRBPM. (Refer to 'Instructor Assessment' item 7 in the *Instructor Training Manual*); and
- accurately present all aspects of the syllabus with explanations adjusted to suit the individual; and
- demonstrate an ability to assess a student's understanding of syllabus topics; and
- submit an application form to CASA, certified by the Instructor Grade 1.

### 2.5.2.2 Application for Instructor Private Pilot (Balloon) Grade 1 Permit

An applicant for an Instructor Private pilot (Balloon) Grade 1 must:

- have:
  - been the current holder of a valid Private Pilot (Balloon) Permit or overseas equivalent, for a period of at least 2 years; and
  - a minimum of:
    - » 30 hours instruction time logged as a Grade 2 Instructor; or
    - » hold a current overseas equivalent instructor rating; and
    - » have 75 hours aeronautical experience in balloons as Pilot in Command (PIC); and
- satisfactorily demonstrate to an examiner the ability to impart the theory specified in *Section 7.2.2 - Syllabus for Private Pilot (Balloon) Permit practical flight exercises* of this CRBPM particularly demonstrating skills gained from instructor Section 8 and 9 of the *Instructor Training Manual*; and
- have satisfactorily completed flight tests with an examiner, comprising the following:
  - Flight test of at least 30 minutes duration, instructing a student (simulated or actual student), incorporating pre-exercise briefing and follow-up debriefing analysis of the students' performance; and
  - Flight test of at least 30 minutes duration demonstrating a high degree of skill, airmanship, flight management, situational awareness, and an ability to recover from unusual situations.

**Note:** These flight tests can be done in **one** flight.

- submit an application form to CASA, certified by the examiner, complete with the **instructor assessment form (insert form number)**.

**Note:** The level of competency required is to be able to give instruction on all flying exercises as listed in the student training record. The Instructor Grade 1 rating applicant must satisfy an examiner that they can impart knowledge, assess and correct student faults and display a high level of airmanship. The applicant must be able to fly any of the same exercises in a skilled manner. The relevant standard is set out in the instructor assessment Form (part 7 of the *ABF Instructor Manual*). Each segment of the flight is assessed by the examiner to achieve a competent result for all exercises.

### 2.5.2.3 CASA Flight Instructor (Balloon) Rating

The holder of a CASA CP(B)L with a Flight Instructor Balloon Rating is deemed to be qualified to hold an Instructor Private Pilot (Balloon) Permit Grade 1 and may apply to CASA for an Instructor Private Pilot (Balloon) Permit Grade 1.

## 2.5.3 Validity

Unless suspended, cancelled or otherwise varied by CASA, an Instructor Private Pilot (Balloon) Rating remains in force while the holder is authorised to exercise the privileges of the rating.

### 2.5.3.1 Instructor Private Pilot (Balloon) Permit Grade 2

The holder of an Instructor Private Pilot (Balloon) Permit Grade 2 must not exercise the privileges of the rating unless:

- within the preceding 24 months they have demonstrated to an Instructor Grade 1 their ability to impart the:
  - theoretical knowledge specified in the *Pilot Training Manual*; and
  - practical skills specified in Section 7.2.2 - *Syllabus for the Private Pilot (Balloon) Permit practical flight exercises* by way of a flight test or flight instructor proficiency check of not less than 60 minutes; and
- the flight test or flight instructor proficiency check has been carried out in a balloon of 120,000 cubic feet or less; and
- the flight test or flight instructor proficiency check has been recorded and signed by the instructor in the certificate holder's logbook and on their permit; and
- a completed flight test or flight instructor proficiency check record has been forwarded to CASA within 30 days of the flight test.

**Note:**

- A flight instructor proficiency check may be carried out up to 90 days prior to expiry of the 24 months to avoid loss of continuity.
- If the flight instructor proficiency check is passed up to 90 days prior to the end of the two-year validity period, it is considered to have been completed on the final day of the validity period.
- The holder of a Flight Instructor Permit to which this section applies must not give flight instruction unless they have:
  - flown as a pilot in command at least three hours and made at least three flights including an inflation and deflation in the previous 12 months; or
  - satisfactorily completed a flight proficiency check with an Instructor Grade 1 within the preceding 90 days

### 2.5.3.2 Instructor Private Pilot (Balloon) Grade 1

The holder of an Instructor Private Pilot (Balloon) Rating Grade 1 must not exercise the privileges of the rating unless:

- within the preceding 24 months they have demonstrated to an Examiner Private Pilot (Balloon) the ability to successfully impart the:
  - theoretical knowledge specified in the *Pilot Training Manual*; and
  - practical skills specified in the *Pilot Training Manual* by way of a flight test of not less than 30 minutes; and
- the flight test or flight instructor proficiency check has been:
  - carried out in a balloon of 120,000 cubic feet or less; and
  - recorded and signed by the examiner in the certificate holder's logbook and on their permit; and
- a completed flight test or flight instructor proficiency check record and supporting documents has been submitted to CASA.

**Notes:**

- A flight instructor proficiency check may be carried out up to 90 days prior to expiry of the 24 months to avoid loss of continuity.
- If the flight proficiency check is passed up to 90 days prior to the end of the two-year validity period, it is considered to have been completed on the final day of the validity period.



- The holder of a Flight Instructor Certificate to which this section applies must not give flight instruction unless they:
  - have flown as a pilot in command at least three hours and made at least three flights including an inflation and deflation in the previous 12 months; or
  - have satisfactorily completed a flight test or a flight proficiency check with an Examiner Private Pilot (Balloon) within the preceding 90 days.

### 2.5.3.3 Commercial Flight Instructor Balloon test flight

A successful CASA Commercial Flight Instructor Balloon Rating test flight will be deemed as an Instructor Private Pilot (Balloon) test flight in *Section 2.5.3.2 - Instructor Private Pilot (Balloon) Grade 1* of this CRBPM.

## 2.6 Examiner Private Pilot (Balloon)

An examiner permit appointment authorises the permit holder to conduct theory exams and conduct flight tests in accordance with the syllabus.

### 2.6.1 Privileges of an Examiner Private Pilot (Balloon)

An Examiner Private Pilot (Balloon) appointment authorises the holder to:

- conduct:
  - theory and practical examinations; and
  - flight tests for initial issue or renewal of a Private Pilot (Balloon) Permit; and
  - flight tests for initial issue or renewal of an Instructor Private Pilot (Balloon) Rating; and
- mark paper-based theory examinations.

### 2.6.2 Issue of permit

#### 2.6.2.1 Application for Private Pilot (Balloon) Examiner

A candidate for an Examiner Private Pilot (Balloon) Appointment must be:

- the holder of a valid Instructor Private Pilot (Balloon) Rating Grade 1 who has logged;
  - a minimum of 40 hours flight instructional experience as the holder of an Instructor Private Pilot Permit Grade 1; or
  - more than 200 hours flight instructional experience as pilot in command of an aircraft, of which at least 20 hours must be instructional experience as pilot in command of a free balloon; and
- appointed by CASA where the need for such an appointment is recognised.

### 2.6.3 Duration of appointment

Unless suspended, cancelled or varied, an Examiner Private Pilot (Balloon) appointment shall remain in force for the period the holder continues to hold a current Instructor Private Pilot (Balloon) Rating.

## 3. Credits for overseas ballooning qualifications

### 3.1 Permits for holders of overseas qualifications

Persons seeking credits and recognition for ballooning qualifications issued in countries other than Australia must submit a written application to CASA using form **insert form number** providing evidence of their qualifications and experience (e.g. hot air balloons, gas balloon or hot air airship).

#### 3.1.1 Examinations

Overseas applicants for a Private Pilot (Balloon) Permit may be required to successfully complete a theory exam based on the syllabus of knowledge specified in Section 7 Syllabuses of this manual.

#### 3.1.2 Temporary issue of Private Pilot (Balloon) Permit

A temporary Private Pilot (Balloon) Permit and Radio Operators (Balloon) Permit may be issued by CASA. In general, a successful applicant will:

- hold an overseas balloon pilot qualification.
- have at least 100 hours (or 50 hours if the applicant is participating in an FAI-sanctioned competition event) experience as pilot in command and
- hold a recognised overseas radio qualification.

If an applicant does not hold a recognised overseas radio qualification, they can apply for a Radio Operator (Balloon) Certificate by completing the theory and practical Radio Operator (Balloon) exams.

The certificates will usually be valid for 30 days and are restricted to a single issue on any visit. Applicants must present proof of qualifications and currency.

#### 3.1.3 Exemption for CP(B)L or equivalent overseas licence holders

Overseas applicants who hold an Australian Commercial Pilot (Balloon) Licence, or overseas equivalent, are deemed to be eligible to be issued with a Private Pilot (Balloon) Permit.

## 4. Certification and airworthiness

### 4.1 Standard Certificate of Airworthiness

A Standard Certificate of Airworthiness (CoA) is issued to individual Australian aircraft which:

- meet the requirements of an applicable comprehensive airworthiness code as required by Part II, Section 2.2 Chapter 3 of the International Civil Aviation Organisation (ICAO) Annex 8, *Airworthiness of Aircraft*, and
- have been issued with a type certificate.

**Note:** Further information can be found in Advisory Circular AC21–02v2.2.

### 4.2 Special Certificate of Airworthiness

Any aircraft which does not have a standard CoA cannot be operated unless it has been issued a special CoA. In the case of balloons, special CoA applies to both experimental and Light Sport Aircraft (LSA) classes of aircraft.

**Note:** Further information can be found in Advisory Circular AC21–03v3.1.

### 4.3 Experimental Certificate of Airworthiness

CASR 21.191 allows an authorised person or CASA to issue an experimental certificate to allow specific operations of aircraft which are not type certificated.

**Note:** Further information can be found in Advisory Circular AC21–10v4.3.

### 4.4 Light Sport Aircraft Certificate of Airworthiness

CASR 21.186 allows an authorised person or CASA to issue Light Sport Aircraft (LSA) CoA in one of 2 categories:

- Special Certificate of Airworthiness for LSA.
- Experimental Certificates for LSA.

**Note:** Further information can be found in Advisory Circulars AC21–41v1.1 and AC21–41v1.1.

### 4.5 Maintenance

Balloons with a standard Certificate of Airworthiness must be maintained in accordance with CAR 37A, 38, 41, 42A, 42E, 42U, 42V, 42W, 42X, 42ZC, 42ZE and 50A.

**Note:** Permissible pilot maintenance items are contained in Part 2 of Schedule 8 of CAR.

Balloons with an Experimental Certificate of Airworthiness must be maintained in accordance with CAR 42CB which states:

*“The holder of the certificate of registration for a class B aircraft that is an experimental aircraft must maintain the aircraft in accordance with any conditions to which the certificate is subject under regulation 21.195A of CASR”.*

Balloons with a Special Certificate of Airworthiness for LSA must be maintained in accordance with the manufacturer’s maintenance procedures.

### **Pilot permitted maintenance**

As described in CAR 42ZC(4)(db) a holder of a Commercial Pilot (Balloon) Licence or a Private Pilot (Balloon) Permit that is valid for the balloon is permitted to undertake maintenance that is specified in Part 2 of Schedule 8, as long as the maintenance is carried out in accordance with any conditions prescribed by legislative instrument issued by CASA.

### **Minor repairs and inspections**

A holder of an Airworthiness Authority – Maintenance issued under CAR 33B may carry out inspection, maintenance and repair of manned, free hot air balloons that is not listed in Schedule 7, Part 5.

### **Major repairs**

As per part 5 Schedule 7 of CAR, may only be performed under the control of an appropriate certificate of approval (COA) holder, issued under regulation 30 of CAR.

Maintenance records for all aircraft must be kept in a CASA approved aircraft logbook.

- The operator of a balloon may use the aircraft logbook to record all details that would otherwise be required by Part 4 of CAR to be recorded in a maintenance release; and
  - must make the flight and maintenance records available to the Pilot in Command (PIC) prior to a flight; and
  - must ensure that the aircraft logbook is not carried on board the balloon during a flight.

## 5. Operational procedures

### 5.1 Introduction

Type certified Part 131 aircraft conducting recreational activities must be operated in compliance with all the applicable requirements specified in the:

- *Civil Aviation Regulations 1988 (CAR)*
- *Civil Aviation Orders (CAO)*
- *Civil Aviation Safety Regulations 1998 (CASR)*
- CAO 95.54 (2023)
- the relevant aircraft flight and maintenance manual
- this CRBPM.

Experimental aircraft must also be operated in accordance with CASR 91.875 and any conditions in the Experimental Certificate of Airworthiness for the aircraft.

Light Sport Aircraft (LSA) balloons must also be operated in accordance with CASR 91.900 and the relevant aircraft flight manual and this manual.

### 5.2 Equipment

In addition to the instruments specified in CAO 101.54 and CAO 20.18 Appendix X, all Part 131 aircraft conducting recreational operations must carry the following equipment:

- a magnetic compass (may be handheld) or GPS to determine drift direction; and
- relevant topographical maps marked with any SZs and appropriate aeronautical areas as required; and
- a means of igniting the burner other than the primary ignition system; and
- a fire extinguisher (must be minimum of 1kg dry powder); and
- a handling line (at least 30m in length).

During pre-flight set up before take-off, a launch rope and quick release approved by the balloon manufacturer must be used.

A basic first aid kit is recommended.

### 5.3 Right of way

It is the responsibility of all balloon pilots to avoid balloon collisions, especially basket to envelope contact. In general, the pilot of the upper balloon must give way to a lower balloon.

**Note:** This in no way absolves any balloon pilot of the responsibility to be aware of other air traffic and fly accordingly.

### 5.4 Compliance with sensitive zones (SZs)

Sensitive zones (SZs) are created to maintain good landowner relations and, before flying in any area, pilots must attempt to determine if any SZs are in force. Information should be sought from any other pilot or operator that has experience in operations in that area.

## 5.5 Hazardous areas

Some areas such as petroleum refineries and storage areas, quarries where blasting takes place etc. are considered hazardous areas and should be noted and avoided, or if unavoidable, must be overflown by at least 1000ft AGL from a point 300m before the boundary to a point 300m after the boundary.

**Note:** Areas designated **Prohibited**, **Restricted** or **Danger** on aeronautical charts must be noted and NOTAMS consulted for their activation.

## 5.6 Night flights

Existing ABF night VFR ratings are recognised, but new night ratings will not be issued until a syllabus of training has been developed.

## 5.7 Parachute descents from a balloon

**Note:** Guidance material for pilots wishing to conduct dropping of parachutists from a balloon will be published in *AC 131 - 02 Manned free balloons – Operations* in due course.

## 5.8 Cost sharing

Private operations conducted by holders of a Private Pilot Certificate (Balloon) cannot be conducted for financial return.

However, it is possible to share the cost of a flight, provided that the actual cost of the flight is shared equally between the participants (including the pilot). Such a flight cannot be advertised in any way, nor can participants be solicited. The maximum number of passengers that may be carried on a cost sharing flight is 5.

## 5.9 Search and rescue procedures

The primary response to an emergency or uncertainty over the safety of a balloon and crew should come from the balloon retrieve crew.

**Note:** Should a lost balloon situation become overdue, **AusSAR** should be contacted on **1800 815 257** within Australia.

AusSAR operates a 24-hour Rescue Coordination Centre (RCC) in Canberra and is responsible for the national coordination of both maritime and aviation search and rescue. On receiving a distress signal or being notified of a missing civil aircraft or seagoing vessel, the RCC will take action to establish the safety of the aircraft, vessel or source of the signal. This action may include:

- coordinating a search and rescue with assistance from organisations as appropriate such as:
  - the defence forces
  - trained aviation organisations (Civil SAR Units)
  - emergency medical helicopters
  - state police services
  - state emergency services
  - airlines and the general aviation industry, or
- passing the coordination onto the appropriate regional police organisation to conduct search and rescue operations within their jurisdiction.



## 5.10 Accident and incident reporting

Accidents and incidents (refer to Section 6 for definitions) must be reported to CASA and the Australian Transport Safety Bureau (ATSB).

**Note:** Reports will be used to improve safety and education in ballooning. They will be treated in confidence and will not be used as a basis for disciplinary action.

## 5.11 Carrying of hang gliders outside a hot air balloon

Reserved.

**Note:** The carrying or dropping of hang gliders outside balloons is not authorised until procedures are developed.

## 5.12 NOTAMS

Before flight, a Pilot in Command (PIC) must check the NOTAMs relevant to the flight via the National Aeronautical Information Processing System (NAIPS). NAIPS provides a central database of meteorological, NOTAM and chart information. The system is used by the Airservices Australia to provide pre-flight and in-flight briefings and to accept and distribute flight notifications.

Information available from NAIPS includes:

- Australian and international NOTAM
- status of Restricted Areas
- meteorological information:
  - Graphical Area Forecasts
  - AREA QNH
  - METAR/SPECI
  - TAF
  - AIRMET
  - SIGMET
- ATIS
- GPS RAIM availability
- First-light/Last-light
- meteorological charts.

MET and NOTAM information is available on all Australian locations and selected locations outside Australia.

Flight notification details can be submitted through NAIPS in ICAO, Domestic or SARTIME format.

NOTAM request details can also be submitted for those users who are Authorised NOTAM Originators.

**Note:** Among Head Office, FIR and location-specific NOTAMs are NOTAMs relating to airspace activation and any anticipated military low flying.

## 5.13 Weather assessments

Before flight, the Pilot in Command (PIC) must study:

- 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
- any other reasonably available weather information that is relevant to the intended operation. If the weather information is studied more than 2 hours before commencing the flight, the PIC must obtain, and review, an update to that information before the flight begins.

The PIC must study the weather information as they apply to the planned flying area and any relevant aerodrome within 10 NM of the planned flying area.

An authorised weather forecast is one issued by the Bureau of Meteorology for the purposes of aviation.

## 5.14 Flight over a populous area or a public gathering

For a flight over a populous area or public gathering, a balloon should be flown at a minimum height of at least 1000 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 unless:

- taking-off or is conducting manoeuvres necessary to achieve a safe landing.
- engaged in a missed approach.
- participating in an air display that is the subject of an approval for the purposes of regulation 91.180 (air displays in Australian territory)
- engaged in a procedure to determine the suitability of a landing area for a landing.

**Note:** Section 10 in AC 131-02 v2.0 provides guidance for flying over populous areas and public gatherings.

## 6. Accident and incident reporting

### 6.1 Civil Aviation Safety Authority (CASA)

#### 6.1.1 CASA responsibility

All aviation activity in Australia is the responsibility of the Civil Aviation Safety Authority (CASA). The *Civil Aviation Act* and Regulations govern all operations, with further details in *Civil Aviation Safety Regulations (CASR)*, *Civil Aviation Orders (CAO)*, Civil Aviation Advisory Publications (CAAP), Airworthiness Advisory Circulars (AACs) and the *Aeronautical Information Publication (AIP)*.

### 6.2 Australian Transport Safety Bureau (ATSB)

#### 6.2.1 ATSB responsibility

The Australian Transport Safety Bureau (ATSB) is a group responsible for carrying out investigations under the *Transport Safety Investigation Act 2003* (TSI Act) having its Central Office in Canberra.

ATSB operates with complete independence from any other body; its role being to investigate all accidents and incidents reported to it, and upon delivering its findings, recommend where necessary, a course of corrective action.

#### 6.2.2 Accidents and incidents

Accidents and incidents are categorised into Immediately Reportable Matter (IRM) or Routinely Reportable Matter (RRM), depending on their nature.

### 6.3 Definitions of IRM and RRM

#### 6.3.1 Immediately reportable matters (IRM)

IRM are:

- subject to the exclusions in the note below, the death of, or a serious injury to a person on board the aircraft, or in contact with the aircraft, or anything attached to the aircraft, or anything that has become detached from the aircraft;

**Note:** 'The death of, or a serious injury to, a person' does not include:

- death or serious injury resulting from natural causes (except to a flight crew member); or
- death or serious injury that is intentionally self-inflicted; or
- death or serious injury that is intentionally caused by another person; or
- death occurring more than 30 days after the occurrence that caused the death, unless the death was caused by an injury that required admission to hospital within 30 days after the occurrence.

- the aircraft:
  - believed 'missing'
  - suffering serious damage or the existence of reasonable grounds for believing that the aircraft has suffered serious damage
  - being inaccessible and the existence of reasonable grounds for believing that the aircraft has been seriously damaged
- breakdown of separation standards, being a failure to maintain a recognised separation standard (vertical, lateral or longitudinal) between aircraft that are being provided with an ATC separation service.

## 6.3.2 Routinely reportable matters (RRM)

RRM include:

- an injury, other than a serious injury, to a person on board the aircraft
- a flight crew member becoming incapacitated while operating the aircraft
- airprox (See below)
- an occurrence in which flight into terrain is narrowly avoided
- the use of any procedure for overcoming an emergency
- an occurrence that results in difficulty controlling the aircraft, including any of the following occurrences:
  - an aircraft system failure
  - a weather phenomenon
  - operation outside the aircraft's approved flight envelope
- fuel exhaustion
- the aircraft's supply of useable fuel becoming so low (whether or not as a result of fuel starvation) that the safety of the aircraft is compromised
- a collision with an animal, including a bird, on a licensed aerodrome.

**Note:** 'airprox' is an occurrence in which 2 or more aircraft come into such close proximity that a threat to the safety of the aircraft exists or may exist, in airspace where the aircraft are not subject to an air traffic separation standard or where separation is a pilot responsibility.

## 6.4 Notification of IRM and RRM

IRM must be reported as soon as reasonably practicable by telephone on **1800 011 034**, and then a follow-up written report must be made within 72 hours. This may be done by internet: [www.atsb.gov.au](http://www.atsb.gov.au). Online forms are available.

RRM requires only a written report to ATSB within 72 hours. The notification must contain the same details as for an IRM.

## 6.5 Particulars to be reported

### 6.5.1 Written report

The written report required to be submitted under Section 19 of the Act should preferably use the Air Safety Accident or Incident Report (ASAIR) format. For a reportable matter other than for a collision with an animal or bird, a requirement of Regulation 2.6 of the TSI Regulations is that the report should contain as much of the following information, as is within the person's knowledge:

- name and contact details of the person making the report
- person's role in relation to the aircraft concerned
- type, model, nationality, registration marks and flight number (if any) of the aircraft
- name of the owner of the aircraft
- name and contact details of the operator of the aircraft
- if the aircraft was under hire when the reportable matter occurred, the name of the hirer
- name and nationality of the pilot and the type and licence/certificate number of the licence/certificate held by the pilot
- name and nationality of each other flight crew member (if any), and the type and licence/certificate number of the licence/certificate held by each member

- day and local time when the reportable matter occurred
- if, when the reportable matter occurred, the aircraft was inflight, the:
  - place where the flight started; and
  - place where the flight ended, or was intended to end; and
  - purpose of the flight.
- unless the reportable matter occurred at an airport, the location of the aircraft immediately after the occurrence of the reportable matter, including the geographical coordinates of that location
- number of persons on board the aircraft when the reportable matter occurred
- nature of the reportable matter, including:
  - its outcome or effect on the flight of the aircraft
  - the phase of the aircraft's flight when the matter occurred
  - the weather conditions
  - the airspace designation
  - the altitude at which the matter occurred
  - if the matter occurred at, or in relation to, an airport, the name of the airport, and, if it occurred on, or in relation to, a runway, the runway number
  - if the matter involved a collision with an animal, including a bird, the nature of the collision
  - the causes of the occurrence (if known), including any human performance issues
  - any safety action carried out to prevent a recurrence of the matter; and
  - the nature and extent of any damage to the aircraft.
- physical characteristics of the area where the reportable matter occurred (e.g. the terrain, vegetation cover, and existence and location of any buildings, runways or aerodromes)
- flight rules under which the aircraft was operating at the time of the reportable matter
- type of aircraft operation the aircraft was engaged in at the time of the reportable matter
- if the matter resulted in a fatality or serious injury, and the aircraft carried an emergency locator transmitter:
  - the manufacturer and model of the emergency locator transmitter
  - whether it was fixed or portable
  - its location in the aircraft; and
  - whether it was activated.
- if the aircraft's pilot has died, the pilot's:
  - date of birth; and
  - total flying hours on all aircraft and flying hours on the same type of aircraft.
- if any:
  - crew members have died or been seriously injured as a result of the reportable matter, how many, and their names and nationalities
  - passengers have died or been seriously injured as a result of the reportable matter, how many, and their names and nationalities; and
  - other persons have died or been seriously injured as a result of the reportable matter, how many, and their names and nationalities.

## 6.5.2 Collision with an animal or bird only

For a reportable matter that amounts to a collision with an animal or bird, only the report must contain as much of the following information as is within the knowledge of the person making the report:

- name and contact details of the person making the report
- day and local time when the reportable matter occurred
- nature of the reportable matter, including:
  - if the matter occurred at, or in relation to, an airport, the name of the airport, and if it occurred on, or in relation to, a runway, the runway number; and
  - the nature and extent of any damage to the aircraft; and
- any other information that the person making the report considers appropriate.

### 6.5.3 ASAIR submission

The completed ASAIR should be forwarded directly by mail, facsimile, or via the on-line website [www.atsb.gov.au](http://www.atsb.gov.au) notification form to the ATSB Central Office in Canberra.

### 6.5.4 Aviation Self-Reporting Scheme form

An ASRS form may be obtained online at [www.atsb.gov.au](http://www.atsb.gov.au) or by contacting the ATSB on free-call phone number **1800 011 034** (primary notification number) or **1800 020 616** (safety information number and secondary notification number).

## 6.6 Requirements to notify CASA

In addition to the above statutory requirements, the following actions are to be taken:

- Notify CASA by the quickest means available:
  - in the case of a **fatal accident**
  - where **serious injury** is sustained
- Notify CASA as soon as is practicable:
  - Where **substantial damage** is done to the aircraft.
  - In the event of an **equipment failure in flight**.

## 6.7 Custody and removal of aircraft

These instructions are guidance only and AIP, ENR 1.14 should be consulted for up-to-date instructions.

**Note:** When an IRM occurs, the aircraft immediately comes into the custody of the Air Transport Safety Bureau (ATSB) and it **must not be removed** or otherwise interfered with except with the permission of a responsible officer of the ATSB.

However, the above provision is waived temporarily when it is necessary to:

- remove persons from the aircraft or
- protect the aircraft from further damage, or
- remove the aircraft if it presents an obstruction or danger to other aircraft, other transport or to the public.

An ATSB officer will release the aircraft from custody upon completion of the aircraft examination or in some cases of minor accidents, upon receipt of the accident notification message.

## 6.8 Investigation of accidents and incidents

Investigation of FATAL accidents may be conducted by the Australian Transport Safety Bureau (ATSB).

## 6.9 Investigating officers

In the case of an accident or incident where notification has been given, the investigating officers from ATSB or CASA must have free access to all relevant areas of the property and operators and pilots must assist them in any way possible.

## 6.10 Accident and incident investigation

### 6.10.1 Actions in the event of an accident

#### Site

1. Contact the local police, ATSB investigating officer and advise them of your appointment and your willingness to assist.
2. If police are not in attendance, secure the area.
3. Take photos of aircraft and any significant damage at scene.
4. Measure distance from initial landing contact to final position (if a landing event).
5. Sketch map of location.
6. Ascertain direction of travel (compass heading).
7. Determine local weather conditions at time of flight.

#### Aircraft checks

Check the following:

1. fuel system (tanks in use) - isolate after noting status.
  - quantity of fuel in tanks
  - integrity of fuel system.
2. cables, flying wires
  - integrity
  - wear
  - breaks
  - swages
  - carabiners.
3. control lines, venting systems
  - integrity of systems
  - pulleys
4. basket
  - condition
  - breakages
5. burner
  - operating at impact?
  - general condition
  - reason for stoppage?

#### Witness statements

Confirm:

1. contact details.
2. status (passenger, ground crew, bystander).

## 6.11 Media comments

**Note: Do not:**

- make any statements to the media. Whatever you say may be misreported.
- discuss any situation by insecure communications (radios etc.). Mobile phones may be considered secure.

## 6.12 Accident and emergency protocol

Parts of this section will be repeated in the document *Balloons, Accident and Emergency Protocol* for use by emergency services. (Refer to Appendix 3 of this manual)

It is recommended that pilots distribute this document to local police stations and emergency services, in their regular flying areas.

## 6.13 ATSB contact details

To contact the Australian Transport Safety Bureau (ATSB):

Canberra Central Office 12 Moore Street Canberra ACT 2601

GPO Box 321 Canberra ACT 2601

Tel: 1800 011 034 (24 hours)

International: +61 2 6230 4470

[Occurrence Notification - Aviation | ATSB](#)

Email: [atsbinfo@atsb.gov.au](mailto:atsbinfo@atsb.gov.au) ([General enquiries](#))



# 7. Syllabuses

Syllabuses of training for balloon permits, ratings, and endorsements.

## 7.1 Syllabus of training for Student Pilot (Balloon) Permit

**Note:** There is no syllabus of training required for the issue of a Student Pilot (Balloon) Permit.

## 7.2 Syllabus of training for Private Pilot (Balloon) Permit

The syllabus of training for the Private Pilot (Balloon) Permit includes theory exams and practical flight exercises.

### 7.2.1 Syllabus for Private Pilot (Balloon) Permit theory examinations

#### 7.2.1.1 Aerostatics and airmanship

##### Airmanship

- Identify typical actions and personal attributes which contribute to good airmanship.
- Human factors.

##### Principles of flight

- Names and functions of balloon components (envelope, basket, fuel systems and accessories).
- Definitions of buoyancy, false lift, terminal descent, ballast, overheat, vent, differential temperature, kinetic energy, momentum, inertia.
- Relationship between buoyancy and atmospheric factors (ambient temperature, altitude, humidity).
- Importance of atmospheric stability to balloon flight (safety considerations in relation to atmospheric instability).

##### Balloon operations

- Be familiar with typical flight limitations, including damage limits to preclude flight, as found in a manufacturer's flight manual.
- Be familiar with emergency procedures detailed in a typical manufacturer's flight manual and emergencies in general.
- Given a typical load chart, launch field elevation and ambient temperature, calculate the load limit for a specific balloon size at a particular altitude (or the maximum safe altitude given the balloon size and all up weight). Understand the limitation of maximum all up weight.
- Recognise elements of a typical fuel system in a schematic drawing.
- Principles of fuel management, including fixed and variable fuel reserves.
- Refuelling (correct procedures and safety requirements).
- Properties and hazards of liquefied petroleum gas (LPG) and emergency procedures.
- Typical balloon controls, control reaction time (delay) and the importance of anticipating this.
- False lift and how to counteract it.
- Tethered balloon operations (safety procedures and use of ropes).
- Launch rope and quick release (requirements for use and safety procedures).

- Inflation fan safety procedures.
- Relationship of burner output to fuel pressure and importance of the fuel pressure gauge.
- Minimum checklists and briefings which must be carried out before take-off, during flight, before and after landing.
- Procedures for landing with higher-than-normal wind speed and/or descent rate.
- Positive deflation systems (advantages and safety considerations).

### Balloon performance

- Use of instruments to measure flight parameters (altimeter, variometer (rate of climb indicator), temperature gauge (ambient and envelope), pressure gauge, fuel contents gauge and clock).
- Variation in control reaction time in relation to burner power, total mass or inertia of the system and other factors.
- Differing kinetic energy levels with fast and slow landings and with different size balloons and loads.
- Rates of climb and descent in reference to obstacle clearance.
- Factors affecting flight duration (high envelope temperature, altitude and load, heat loss from venting, climbs, rain, fabric porosity, solar heat input, radiant, conductive and convective heat output).

## 7.2.1.2 Navigation

### General

- Know the units of measurement used in air navigation for speed, distance, direction, height and wind velocity.
- Understand the terms magnetic deviation, magnetic variation and isogonal.
- Be familiar with World Aeronautical Charts (WAC), En Route Charts, Visual Terminal Charts (VTC), Visual Navigation Charts (VNC), Planning Chart Australia (PCA) and Topographic Survey Maps.
- Know conventional signs on Visual Terminal Charts (VTC), Visual Navigation Charts (VNC) and Topographic Survey Maps.
- On a Visual Terminal Chart or Topographic Survey Map:
  - know how to measure a nominated position to an accuracy of one minute of arc of latitude and longitude.
  - be able to mark a position for which latitude and longitude is given.
- On a Topographic Survey Map:
  - know how to give a 6 or 8 figure grid reference for a nominated position.
  - be able to mark a position for which a grid reference is given.
- Convert a true bearing to a magnetic bearing and understand the terms heading, course, track, fix and dead reckoning position.
- Be able to express time and date as a 6, 8 or 10 figure group.
- Convert Australian Standard Times to UTC and UTC to Australian Standard Times.
- Given latitude and longitude, determine the beginning and end of daylight for a location in Australia. Know local factors which can cause daylight to end sooner than determined.
- Be able to calculate ground speed, fuel used, fuel required and fuel remaining.
- Given conversion factors, convert:
  - IMP Gallons/US Gallons/Litres
  - Pound/Kilograms
  - Nautical miles/Kilometres

- Statute miles Degree F/Degree C
- Feet/Metres.
- Calculate rate of descent given total descent and either estimated time interval or distance to run and ground speed.
- Match the terms QNH, Area QNH, AGL, AMSL, standard pressure, height, elevation, altitude, transition altitude, transition layer and transition height with their definitions. Select appropriate altimeter subscale settings for specified operational conditions.

### Flight planning pre-flight

- With forecast wind at various flight levels and specified flight altitude plan, predict average tracks and position after specified periods (ignore time taken to change levels).
- With forecast wind and specified maximum distance, specify maximum flight duration.
- Given usable fuel, consumption in litres or kilograms per hour and wind velocity, plot probable landing position and from maps state if projected area is suitable. Give reason and fuel reserve.

### Flight planning in-flight

- Use protractor to calculate course given take-off position and present position.
- Calculate ground speed from present position, take-off position and flight time and predict position after further specified flight time.

## 7.2.1.3 Meteorology

### General

- Be familiar with the different ways to obtain public and aviation forecasts and reports by telephone, fax and internet.
- Given the AIP and details of a particular operational situation, identify the types of aviation weather forecasts and weather reports that are available for the flight. Be able to decode/understand a written Area Forecast, TAF, TTF, METAR and SPECI.
- Match the terms isobar, inversion, lapse rate, dew point, pressure gradient, air temperature, relative humidity, fog and geostrophic wind with their appropriate definitions.
- On a mean sea level synoptic chart of Australia showing typical synoptic situations for given seasons, identify and match each of these features with a description of the associated general weather characteristics:
  - high and low-pressure systems
  - warm and cold fronts
  - a ridge of high pressure
  - a trough of low pressure
  - a tropical revolving storm
  - wind directions associated with the pressure systems.
- Recognise from a series of photographs the various cloud types. Describe the flying conditions associated with each type and the levels at which they may be found.
- Forecast weather conditions.
- Identify the conditions under which the following weather phenomena may occur and the actions required to avoid or counteract the related effects and hazards on ballooning operations:
  - thunderstorms
  - low-level temperature inversions and fog
  - mountain waves (standing waves and rotors)

- low-level wind shear especially in relation to balloons taking off and landing
- sea breezes and vertical thermal convection currents.
- micro meteorology
- Identify the conditions under which the following micro meteorological weather phenomena may occur and the actions required to avoid or counteract the related effects and hazards on ballooning operations:
  - anabatic and katabatic winds and drainage flow
  - strengthening of winds up slopes and over ridges
  - curl-over in lee of ridges and escarpments
  - down drafts and rotors on lee slopes in lee wave conditions
  - curl-over and wind shelter in the lee of tree belts and woods
  - cool air down drafts and microbursts (from showers and beneath virga associated with convection clouds)
  - thermals and dust devils.

#### 7.2.1.4 Flight rules and procedures (air legislation)

##### Private Pilot (Balloon) Permit

- Determine whether a balloon flight can be legally conducted in accordance with the privileges and limitations of a Private Pilot (Balloon) Permit given various operational situations.

##### Aviation documents

- List the documents that must be carried in a balloon in Australia. Know that the aircraft logbook must not be carried in the balloon.
- Be familiar with the use of:
  - Civil Aviation Regulations and Orders
  - Civil Aviation Safety Regulations
  - Advisory Circulars
  - Aeronautical Information Publication (AIP Book) including SUP, AIC, NOTAMs and charts.
  - En Route Supplement Australia (ERSA)
  - RBPM
  - Manufacturer's Aircraft Flight and Maintenance Manuals
  - Aircraft (Balloon) Logbook
  - Pilot Logbook.
- Understand which documents take precedence in a given situation. Know the procedure to follow in the case of conflict or ambiguity between applicable documents.

##### Flight rules

- Know the rules for the prevention of collision between a balloon and other balloons and aircraft in the air and on the ground including the requirement to give way to balloons below.
- Know the visual meteorological conditions (VMC) for balloons.
- Using VHF radio
- Know the minimum heights at which, under normal circumstances, a balloon may be flown (over a city, town or populous area and over any other area).
- Match prohibited area, danger area and restricted area with their appropriate definitions.
- Understand the role and responsibility of aviation authorities:

- Civil Aviation Safety Authority
- Airservices Australia
- Australian Transport Safety Bureau.
- Understand the functional difference between Flight Information Services and Air Traffic Control services.

### Airspace classification

- Understand the terms controlled airspace, control area, control zone, military airspace, non-towered aerodrome, flight information area and flight information region. Be familiar with airspace classes.

### Aircraft equipment

- Know the altitude above which it is mandatory for the pilot of a balloon to use oxygen.
- Know the flight level above which it is mandatory for oxygen to be available to all passengers in a balloon.
- Know the situations in which VHF airband radio must be carried and used in a balloon and the minimum required qualification to operate the radio.

### Carriage of passengers and cargo

- Know the minimum information which must be included in a passenger pre-flight briefing in respect of passenger safety and comfort during flight, during landing and stowage of equipment.

### Reportable matters (accidents and incidents)

- Know the responsibilities of aircraft owners, operators and pilots regarding the notification of reportable matters (accidents and incidents) to ATSB and CASA.

### Consumption of alcohol or drugs

- Know the rules relating to the consumption of alcohol or drugs:
  - by operating crew and other persons on board a balloon.
  - persons engaged in safety sensitive activities.

### Maintenance

- Know the responsibilities of the registered operator and pilot of a balloon with respect to:
  - » reporting unservicabilities
  - » ensuring required maintenance is carried out by an appropriate person
  - » maintaining balloon maintenance records.
- Know how to determine whether a maintenance item may be carried out by a:
  - balloon pilot
  - balloon Maintenance Authority holder
  - Certificate of Approval holder.
- Match the terms Airworthiness Directive and Service Bulletin with the appropriate definitions.
- Know how to determine flight time and enter it in a pilot and balloon logbook.

## 7.2.2 Syllabus for Private Pilot (Balloon) Permit practical flight exercises

### 7.2.2.1 Preliminary

- Familiarisation with balloon equipment, controls and terminology.
- Obtaining land holder permission
- Familiarisation with refuelling techniques, procedures and safety measures.

### 7.2.2.2 Pre-flight

- Obtaining meteorological forecast and appreciation of conditions.
- Appreciation of downwind airspace, terrain and power line systems.
- Passenger and crew briefings.
- Choice of suitable launch site.
- Rigging the balloon for flight and pre-flight inspection.
- Inflation.
- Pre-take-off checks.
- Use of launch rope also hands on/hands off the basket exercise.

### 7.2.2.3 Flight operations (normal conditions)

- Take-off (slow climb out in light wind condition).
- Level flight (effect of burner).
- Climb and descent (effect of burner and vent).
- Approach and overshoot from low level (awareness of power lines).
- Intermediate landing using vent.
- Final landing using rip panel.
- Flight to 4,000 feet AGL.
- Experience terminal velocity descent.
- Tethered flight (appreciation of hazards and precautions).

**Note:** Up to 1 hour of tether may be logged in total 16 hours required for certificate issue.

- Appreciation of the effect of variations in loading on balloon operations.
- First solo flight.

### 7.2.2.4 In-flight procedures

- Use of maps and instruments (appreciation of position and movement of balloon).
- Fuel management.
- Considerations when operating in company with other balloons.
- Observation of weather developments.
- Detection of power line systems.

### 7.2.2.5 Emergency procedures

**Note:** These situations are to be simulated where they cannot be put into practice safely. The student pilot to demonstrate reactions in theory as required.

- Pilot light failure and fuel supply problems.
- Power lines and use of handling line.
- Considerations of landing in difficult conditions (trees, water and confined spaces).
- Emergency landing procedures and briefing for passengers.
- Considerations of fuel leaks and fire in air and on ground.

### 7.2.2.6 Optional flight operations (Advanced conditions – not mandatory)

- Take-off (fast climb-out from shelter in moderate wind).
- Fast (or vehicle assisted) take-off in moderate wind and fast climb-out
- Approach and overshoot from high level.
- Landing at high descent rates.
- Flight in mild thermal conditions.
- Landing in moderate wind.

### 7.2.2.7 Endorsement to logbook for capacity greater than 120,000 cubic feet (3,400 cubic m)

- Inertia and momentum differences because of increased mass
- Alternative deflation systems
- Basket orientation (use of rotation vents)
- Partitioned basket and passenger management
- Burner (multiple burners, cross flow valves, manifolded and non-manifolded fuel systems).
- Fuel use and management
- Physical size requirements for launch and landing area

## 7.3 Syllabus of training for Radio Operator (Balloon) Permit.

The syllabus of training for the Radio Operator (Balloon) Permit includes theory and practical examinations.

### 7.3.1 Syllabus for Radio Operator (Balloon) Permit theory examination

#### 7.3.1.1 Regulations and organisation

- Understand regulations of the International Telecommunications Union regarding:
  - safety of life and priority of emergency transmissions
  - requirement to assist persons in distress
  - distress frequencies
  - prohibited transmissions

- Know the VHF aeronautical communication band and the qualifications which permit operations on this band.
- Know the privileges and limitations of the Radio Operator (Balloon) Permit.
- Know pilot responsibilities to limit transmissions to:
  - aircraft operational needs
  - Aviation English language and what to avoid:
    - » unauthorised, false or deceptive transmissions
    - » improper use of call signs
    - » profane or obscene language.

### 7.3.1.2 Operational situations

- Know the operational requirements, appropriate frequency type and standard phrases to be used in the following situations. Demonstrate examples of the appropriate calls in practice.

#### General

- Difference between reports and broadcasts
- Format for a position report
- Requirements for maintaining a listening watch
- Frequency change procedures.

#### Uncontrolled airspace

- Awareness of aerodrome traffic patterns and typical calls
- CTAF procedures at non-controlled aerodromes
- Instrument Approach aerodromes
- Operations above 5000ft AMSL.

#### Controlled airspace (for information only)

- Obtain ATIS broadcast
- Request or amend airways clearance
- SSR transponder use
- Read back requirements
- Advise operations complete
- Procedures when tower is not operating.

#### Emergency procedures

- Difference between distress and urgency situations
- Distress message format
- Urgency message format
- Procedure on intercepting a distress or urgency message
- Procedure for relaying a distress or urgency message
- Communication failure procedures
- Reporting of others in emergency.



### Remote area operations

- Use of emergency locator transmitter.

### Transponder operations

- Requirement to use transponder in controlled airspace unless specifically exempted
- Mode A/C and mode S
- Controls and settings
- Procedure to set and squawk IDENT
- Emergency codes.

## 7.3.2 Syllabus for Radio Operator (Balloon) Permit practical examination

### 7.3.2.1 Practical operations (VHF airband transceiver)

- Be familiar with functions and controls:
  - Identify and select appropriate frequency
  - Establishment of listening watch prior to transmitting
  - Routine pre-flight test procedure
  - Fault finding procedures and correction of faults
  - Voice procedures and communications check.
- Prepare the transceiver for use:
  - Power supply including master switches where fitted
  - Replacement of batteries or fuses and resetting of circuit breakers
  - Visual indicators of battery level and other functions
  - Function selectors and microphone/headphone/speaker selection
  - Antennas and antenna systems
  - Placement of transceiver for most effective operation
- Demonstrate practical knowledge of radio operations and procedure:
  - Ability to transmit and receive correctly
  - Microphone technique
  - International phonetic alphabet
  - Transmission of numerals
  - Procedural words and phrases
- Know the propagation properties of VHF signals, the importance of effective line of sight and typical reception range at various altitudes.

## 7.4 Syllabus of training for Instructor Private Pilot (Balloon) Permit

The syllabus of training for the Instructor Private Pilot (Balloon) Permit Grade 2 is based on a demonstration of flying and instructing ability.

Instructor Grade 2 syllabus includes revision of PP(B)P theory, training theory and practical flight training.

## 7.4.1 ABF Instructor Private Pilot (Balloon) Permit Grade 2

### 7.4.1.1 Syllabus for Instructor Private Pilot (Balloon) Permit Grade 2 practical flight training

- Demonstrable skills in ground training
- An ability to review student experience and explain objectives of flight
- Evaluate relevant operational and meteorological information
- Justify or assess flight planning, route, landing options, airspace, etc.
- Demonstrate or supervise passenger control and briefing
- Understand and critique inflation and launch site safety
- Demonstrable flying skills and airmanship
- Application of ABF landowner relations and code of conduct
- An ability to critique own performance and manage any weaknesses.

## 7.4.2 Instructor Private Pilot (Balloon) Permit Grade 1.

### 7.4.2.1 Syllabus for Instructor Private Pilot (Balloon) Permit Grade 1 revision of PP(B)P theory examinations

The theory component is as listed for the Private Pilot (Balloon) Permit and is assessed by exam. Pass marks are 5% higher than that required for the ABF Private Pilot (Balloon) Permit and are as follows.

Theory component	Pass mark required
Sport aviation human factors course	Complete
Aerostats and airmanship	75%
Navigation	75%
Meteorology	75%
Flight rules and procedures	75%
Radio Operators (Balloon) Certificate (Theory)	85%
Radio Operators (Balloon) Certificate (Practical)	85%

### 7.4.2.2 Syllabus for Instructor Private Pilot (Balloon) Permit Grade 1 training theory

#### Principles of instruction

- Your objective as a ballooning instructor
- Two instructor essentials
- Some more important qualities
- How we learn
- Section 7 CRBPM Syllabuses
- Principles of effective instructing
- Transferring responsibility

- Standardising balloon instruction
- Teaching safety
- Communication
- Constructive criticism
- Troubleshooting.

#### Methods of instruction

- Planning the lesson
- Familiarising with the balloon
- Flight location and conditions
- The training session and sequence.

### 7.4.2.3 Syllabus for Instructor Private Pilot (Balloon) Permit Grade 1 practical flight training

- Demonstrable skills in ground training
- An ability to review student experience and explain objectives of flight
- Evaluate relevant operational and meteorological information
- Justify or assess flight planning, route, landing options, airspace, etc.
- Demonstrate or supervise passenger control and briefing
- Understand and critique inflation and launch site safety
- Demonstrable flying skills and airmanship
- An ability to critique own performance and manage any weaknesses.

## 7.5 Syllabus of training for endorsements to permits

### 7.5.1 Syllabus of training for endorsement to a permit for gas balloons

**Note:** There is currently no syllabus of training for endorsement to a permit for gas balloons. An endorsement may be issued based on overseas qualifications.

### 7.5.2 Syllabus of training for endorsement to a permit for hot air airships

**Note:** There is currently no syllabus of training for endorsement to a permit for hot air airships. An endorsement may be issued based on overseas qualifications.

### 7.5.3 Syllabus of training for endorsement to a permit for night VFR flight

**Note:** Reserved. The syllabus if training for night VFR flight has not yet been developed.

## 7.5.4 Syllabus of training for the aerodrome endorsement

This endorsement permits recreational operations at an uncontrolled aerodrome and flight lower than 2000 feet above the aerodrome elevation while flying within 3 nautical miles of an uncontrolled aerodrome. The endorsement includes an assessment of theoretical knowledge and a flight test.

### 7.5.4.1 Pre-flight planning

- Charts
- ERSA
- Weather assessment
- Flight direction with the wind.

### 7.5.4.2 Aerodrome radio procedure

- Aerodrome briefing requirements
- Mandatory radio requirements
- Pilot responsibilities
- Coordinating with other balloons and other aircraft
- Broadcast scenarios
- Broadcast format - for radio procedures in the vicinity of non-controlled aerodromes (refer to CASA Advisory Circular AC91–10).

### 7.5.4.3 Aerodrome layout and terminology

- Parts of an aerodrome
- Occupied runway
- Runway Details in ERSA
- Runway signals
- Runway identification
- Active runways.

### 7.5.4.4 Aerodrome circuit operations, rules and airmanship

- Good airmanship – not creating a hazard.
- Ground operations
- Fixed wing circuit operations
- Right of way priorities
- Conflict avoidance
- Landing, flying and launching consideration.

### 7.5.4.5 Aerodrome permission and security

- Restricted access arrangements
- Contact security and other users for guidance.

### 7.5.5 Syllabus of training for CTR/CTA endorsement for flight in controlled airspace

**Note:** Reserved. The syllabus of training for flight in controlled airspace has not yet been developed.

### 7.5.6 Syllabus of training for a permit to carry and release a hang glider from a balloon

**Note:** Reserved. The syllabus of training for a permit to carry and release a hang glider from a balloon has not yet been developed.

### 7.5.7 Syllabus of training for endorsement to a permit for certification of competency to fly a balloon that has a capacity greater than 120,000 cubic feet (3,400 cu m)

The endorsement for envelope capacity greater than 120,000 cubic feet includes an oral assessment of theoretical knowledge and a flight proficiency check with an Instructor Grade 1 or examiner who is endorsed on at least the relevant envelope capacity.

- The person conducting the flight proficiency check must be endorsed on at least the envelope capacity used for the assessment and have logged 25 hours as PIC. Additional resources required (ground crew).
- Weather limitations (surface wind)
- Flight characteristics (changes in inertia and acceleration – effects of mass)
- Loading calculations
- Reasons for minimum load requirements
- Changes in fuel expectations (fuel management)
- Physical size and clearances at take-off and landing sites
- Deflation systems (manufacturer variations)
- Fuel systems, manifolded and non-manifolded
- Burners (double, triple and quadruple)
- Basket orientation (use of rotation vents)
- Partitioned baskets
- Passenger management including briefing, loading and unloading.

### 7.5.8 Parachute descents from balloons

**Note:** Reserved. Guidance material for pilots wishing to drop parachutists from a balloon will be published in due course.

# Appendices

## Appendix A – Units of measurement and conversion factors

### A.1 Units of measurement

Units of measurement to be used in airways operations and air-to-ground communication are:

Measurement	Unit
Distances used in navigation. (Generally in excess of 2NM)	Nautical miles and 1/10ths.
Short distances	Metres
Altitudes, elevations & heights	Feet
Horizontal speed, inc. wind speed	Knots
Vertical speed	Feet per minute
Wind direction for take-off and landing, used in TAFs	Degrees magnetic
Wind direction, excluding above, used in ARFORs	Degrees true
Visibility	Kilometres or metres
Altimeter setting	Hectopascals
Temperature	Degrees Celsius
Time (UTC)	Hours and minutes, 24-hour clock
Weight (Mass) Metric	Tonnes or kilograms

**Note:** For further reference, consult AIP GEN.

## A.2 Conversion factors

Multiply	By	To obtain
Pound (lb)	0.4535924	Kilogram (kg)
Pound Force per sq. in. (lbf/in <sup>2</sup> )	6.8947	Kilopascal (kPa)
Inch (in)	25.400	Millimetre (mm)
Foot (ft)	0.3048	Metre (m)
Mile	1.60934	Kilometre (km)
Nautical Mile (n m)	1.852	Kilometre (km)
Gallon, US liquid	3.785415	Litre (l)
Gallon, Imp. (gal)	4.54609	Litre (l)

**Note:** All conversions should be rounded to one decimal place (except millimetres, to the nearest whole number) which remains within that limitation.

## Appendix B – Additional references

### **B.1 Part 91 MOS chapters that apply to recreational balloon activities**

- Chapter 2 Division 2.3 Standard visual signals
- Chapter 20 Division 20.4 Carriage of animals
- Chapter 23 Interception of aircraft
- Chapter 26 Division 26.15 Remote areas
- Chapter 27 Placards for experimental aircraft

### **B.2 Advisory circulars**

- AC 131–01 v2.0 Manned free balloons – Continuing airworthiness.
- AC131 –02 v2.0 Manned free balloons – Operations.