

## AIR OPERATIONS WITH BALLOONS

### Article 1:

This manual lays down detailed rules for air operations with balloons.  
These requirements do not apply to air operations with tethered gas balloons.

### Article 2:

#### Definitions

For the purposes of this CAR, the following definitions shall apply:

1. 'balloon' means a manned lighter-than-air aircraft which is not power-driven and sustains flight through the use of either a lighter-than-air gas or an airborne heater, including gas balloons, hot-air balloons, mixed balloons and, although power-driven, hot-air airships;
2. 'gas balloon' means a free balloon that derives its lift from a lighter-than-air gas;
3. 'tethered gas balloon' means a gas balloon with a tether system that continuously anchors the balloon to a fixed point during operation;
4. 'free balloon' means a balloon that is not continuously anchored to a fixed point during operation;
5. 'hot-air balloon' means a free balloon that derives its lift from heated air;
6. 'mixed balloon' means a free balloon that derives its lift from a combination of heated air and a lighter-than-air, non-flammable gas;
7. 'hot-air airship' means a power-driven hot-air balloon, whereby the engine does not create any portion of lift;
8. 'competition flight' means any air operation with a balloon performed for the purposes of participating in air races or contests, including practising for such an operation and flying to and from air races or contests;
9. 'flying display' means any air operation with a balloon performed for the purposes of providing an exhibition or entertainment at an advertised event open to the public, including practising for such an operation and flying to and from the advertised event;
10. 'introductory flight' means any air operation against remuneration or other valuable consideration consisting of an air tour of short duration for the purpose of attracting new trainees or new members, performed either by a training organisation or by an organisation created with the aim of promoting aerial sport or leisure aviation;
11. 'principal place of business' means the head office or registered office of the operator of the balloon within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised;
12. 'dry lease agreement' means an agreement between undertakings pursuant to which the balloon is operated under the responsibility of the lessee.

## Article 3:

### Air operations

1. Operators of balloons shall operate the balloon in accordance with the requirements set out in Subpart BASIC of Annex II of this CAR.
2. The requirement of certification laid down therein shall not apply to operators already engaged in commercial operations with balloons.

Those operators shall only be entitled to engage in such commercial operations after having declared to the competent authority their capacity and means to discharge the responsibilities associated with the operation of the balloon. They shall make that declaration and operate the balloon, in addition to the requirements set out in Subpart BASIC, in accordance with the requirements set out in Subpart ADDITIONAL of Annex II.

However, the second subparagraph shall not apply to operators engaged in the following operations with balloons:

- a) cost-shared operations by four individuals or less, including the pilot, provided that the direct costs of the flight of the balloon and a proportionate part of the annual costs incurred for the storage, insurance and maintenance of the balloon are shared by all those individuals;
- b) competition flights or flying displays, provided that the remuneration or any other valuable consideration for such flights is limited to the recovery of the direct costs of the flight of the balloon and a proportionate part of the annual costs incurred for the storage, insurance and maintenance of the balloon and that any prizes gained do not exceed the value specified by the competent authority;
- c) introductory flights with four individuals or less, including the pilot, and flights for the purposes of parachute dropping, performed either by a training organisation or by an organisation created for the purposes of promoting aerial sport or leisure aviation, provided that the organisation operates the balloon on the basis of either ownership or a dry lease agreement, that the flight does not generate profits distributed outside of the organisation and that such flights represent only a marginal activity of the organisation;
- d) training flights, performed by a training organisation.

## **ANNEX I**

### **DEFINITIONS**

For the purposes of Annex II, the following definitions shall apply:

1. 'acceptable means of compliance (AMC)' means non-binding standards adopted by the DGCA to illustrate means to establish compliance with this CAR and its implementing rules;
2. 'alternative means of compliance (AltMoC)' means those means that propose an alternative to an existing AMC or those that propose new means to establish

compliance and its implementing rules for which no associated AMC have been adopted by the DGCA;

3. 'guidance note (GN)' means an explanatory note for the ease of understanding or clarity of the associated requirements
4. 'pilot-in-command' means the pilot designated as being in command and charged with the safe conduct of the flight;
5. 'crew member' means a person assigned by an operator to perform duties on board the balloon or, where the duties are directly related to the operation of the balloon, on the ground;
6. 'flight crew member' means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period;
7. 'psychoactive substances' means alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psycho stimulants, hallucinogens and volatile solvents, excluding coffee and tobacco;
8. 'accident' means an occurrence associated with the operation of a balloon which takes place between the moment of the commencement of the inflation of the balloon and the moment of complete deflation of the balloon, in which:
  - a. a person suffers fatal or serious injuries as a result of being in the balloon or as a result of direct contact with any part of the balloon, including parts which have become detached from the balloon, but excluding any injuries arising from natural causes or which are self-inflicted or inflicted by other persons;
  - b. the balloon sustains damage or structural failure which adversely affects its structural strength, performance or flight characteristics and requires major repair or replacement of the affected component; or
  - c. the balloon is missing or is completely inaccessible;
9. 'incident' means an occurrence, other than an accident, associated with the operation of a balloon which affects or could affect the safety of its operation;
10. 'serious incident' means an occurrence associated with the operation of the balloon which takes place between the moment of the commencement of the inflation of the balloon and the moment of complete deflation of the balloon, in which there was a high probability of an accident;
11. 'critical phases of flight' means take-off, final approach, missed approach, landing and any other phases of a flight which the pilot-in-command determines as critical for the safe operation of the balloon;
12. 'aircraft flight manual (AFM)' means the document containing the applicable and approved operating limitations and information with respect to the balloon;
13. 'dangerous goods' means articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the technical instructions or which are to be classified as such in accordance with those instructions;
14. 'technical instructions' means the latest applicable edition of the 'Technical instructions for the safe transport of dangerous goods by air', including the supplement and any addenda, published by ICAO in document 9284-AN/905;

15. 'operating site' means a site selected by the pilot-in-command or the operator for landing, take-off or external load operations;
16. 'refuelling' means the refilling of fuel cylinders or fuel tanks from an external source, excluding the replacement of fuel cylinders;
17. 'night' means the period between the end of evening civil twilight and the beginning of morning civil twilight. Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon; (30 minutes after sunset to 30 minutes before sunrise).
18. 'balloon specialised operation' means any operation, which can be commercial or non-commercial, with a balloon the main purpose of which is not the carriage of passengers for sightseeing or experience flights, but parachute operations, hang-gliding dropping, flying displays, competition flights or similar specialised activities;
19. 'traffic load' means the total mass of passengers, baggage and carry-on specialist equipment;
20. 'balloon empty mass' means the mass determined by weighing the balloon with all the installed equipment as specified in the AFM;
21. 'wet lease agreement' means an agreement between operators pursuant to which the balloon is operated under the responsibility of the lessor;
22. 'commercial passenger ballooning' (CPB) means a form of commercial air transport operation with a balloon whereby passengers are carried on sightseeing or experience flights for remuneration or other valuable consideration;
23. 'commercial air transport (CAT) operation' means an aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration.

## **ANNEX II**

### **BALLOON AIR OPERATIONS**

#### ***BASIC OPERATIONAL REQUIREMENTS FOR ALL BALLOON OPERATIONS***

##### **Section 1**

##### **General requirements**

##### **1. Scope**

This Subpart establishes the requirements to be met by any operator of balloons.

Note:

Aerial Advertising Flight

An aerial advertising flight, displaying a logo or an advertisement on the balloon, should only be considered a commercial operation, when:

- (a) especially conducted at a specific time and for an advertising purpose; and
- (b) conducted in return for remuneration or other valuable consideration from the principal, with or without the existence of a contract.

### Mixed Balloons

Mixed balloons are operated in accordance with the requirements for hot-air balloons, unless otherwise specified.

## **2. Demonstration of Compliance**

- a) An operator shall, when so requested by the competent authority which is verifying continued compliance by the operator, demonstrate compliance with the with the requirements of this CAR.
- b) The operator shall use either of the following means to demonstrate such compliance:
  - i. acceptable means of compliance (AMC);
  - ii. alternative means of compliance (AltMoC)

## **3. Introductory Flights**

Introductory flights shall be:

- a) operated under visual flight rules (VFR) by day; and
- b) overseen as regards their safety by a person who has been nominated by the organisation performing the introductory flights.

## **4. Immediate Reaction to A Safety Problem**

The operator shall implement:

- a) safety measures mandated by the competent authority; and
- b) airworthiness directives and/ other mandatory information issued by the DGCA.

## **5. Designation as Pilot-In-Command**

The operator shall designate a pilot-in-command who is qualified to act as pilot-in-command.

## **6. Responsibilities of The Pilot-In-Command**

- a) The pilot-in-command shall:
  - i. be responsible for the safety of the balloon and of any person or property carried therein during balloon operations;

- ii. be responsible for the initiation, continuation or termination of a flight in the interest of safety;
- iii. ensure that all applicable operational procedures and checklists are complied with;
- iv. only commence a flight if he or she is satisfied that all operational limitations are complied with, as follows:
  - a. the balloon is airworthy;
  - b. the balloon is duly registered;
  - c. instruments and equipment required for the execution of the flight are carried on board the balloon and are operative;
  - d. the mass of the balloon is such that the flight can be conducted within the limits defined by the AFM;
  - e. all equipment and baggage are properly loaded and secured; and
  - f. the operating limitations of the balloon as specified in the AFM will not be exceeded at any time during the flight;
- v. ensure that the pre-flight inspection has been carried out;
- vi. be responsible for the pre-flight briefing of persons assisting in the inflation and deflation of the envelope;
- vii. ensure that persons assisting in the inflation and deflation of the envelope wear appropriate protective clothing;
- viii. be satisfied that relevant emergency equipment remains easily accessible for immediate use;
- ix. ensure that no person is smoking on board or within the direct vicinity of the balloon;
- x. not allow a person to be carried in the balloon who appears to be under the influence of psychoactive substances to the extent that the safety of the balloon or of any person or property carried therein is likely to be endangered;
- xi. remain during flight in control of the balloon at all times except if another pilot is taking the controls;
- xii. take any action in an emergency situation that requires immediate decision and action which he or she considers necessary under the circumstances. In such cases he or she may deviate from rules, operational procedures and methods to the extent necessary in the interest of safety;
- xiii. not continue a flight beyond the nearest weather-permissible operating site when his or her capacity to perform his or her duties is significantly reduced because of sickness, fatigue, lack of oxygen or any other cause;
- xiv. record utilisation data and all known or suspected defects in the balloon at the termination of the flight, or series of flights, in the balloon logbook;
- xv. notify the safety investigation authority of the State in the territory of which the occurrence took place and the emergency services of that State without delay by the quickest available means of any serious incident or accident involving the balloon;

- xvi. submit a report of an act of unlawful interference without delay to the competent authority and inform the local authority designated by the State in the territory of which the unlawful interference took place; and
  - xvii. report to the appropriate air traffic services (ATS) unit, without delay, any hazardous weather or flight conditions encountered that are likely to affect the safety of other aircraft.
- b) The pilot-in-command shall not perform duties on a balloon in one of the following situations:
- i. when he or she is incapacitated from performing his or her duties by any cause, including injury, sickness, medication, fatigue or the effects of any psychoactive substance, or feels otherwise unfit;
  - ii. if applicable medical requirements are not fulfilled.
- c) Whenever crew members are involved in the operation of the balloon, the pilot-in-command shall:
- i. ensure that during critical phases of flight or whenever deemed necessary in the interest of safety, all crew members are at their assigned stations and do not perform any activities other than those required for the safe operation of the balloon;
  - ii. not commence a flight if any crew member is incapacitated from performing his or her duties by any cause, including injury, sickness, medication, fatigue or the effects of any psychoactive substance, or feels otherwise unfit;
  - iii. not continue a flight beyond the nearest weather-permissible operating site when any crew member's capacity to perform duties is significantly reduced because of sickness, fatigue or lack of oxygen or any other cause; and
  - iv. ensure that all crew members can communicate with each other in a common language.

*Note:*

## 6.1. GENERAL

The pilot-in-command is responsible for the operation and safety of the balloon and for the safety of all passengers on board. This includes the following:

- a) the safety of all passengers on board, as soon as he or she arrives on board until he or she leaves the balloon at the end of the flight; and
- b) the operation and safety of the balloon from the moment the balloon is unloaded from the retrieve vehicle or trailer to the moment the balloon is reloaded, unless the preparation of the flight is delegated to a crew member.

## 6.2. PROTECTIVE CLOTHING

Protective clothing includes:

- a) long sleeves and trousers preferably made of natural fibres;

- b) stout footwear; and
- c) gloves.

### 6.3. RECORDING UTILISATION DATA

Where a balloon conducts a series of flights of short duration and is operated by the same pilot-in-command, the utilisation data for the series of flights may be recorded in the balloon logbook as a single entry.

### 6.4. CHECKLISTS

- a) The pilot-in-command should use the latest checklists provided by the manufacturer or the operator.
- b) If checks conducted before take-off are suspended at any point, the pilot-in-command should restart them from a safe point prior to the interruption.

### 6.5. REPORTING OF HAZARDOUS FLIGHT CONDITIONS

- a) These reports should include any detail which may be pertinent to the safety of other aircraft.
- b) When unexpected meteorological conditions affecting other aircraft are encountered that, in the opinion of the pilot-in-command, may affect the safety of other aircraft operations, he or she should advise the appropriate air traffic services (ATS) unit as soon as practicable.

### 6.6. ALCOHOL CONSUMPTION

The operator should issue instructions concerning the consumption of alcohol by the pilot-in-command and the crew members. The instructions should not be less restrictive than the following:

- a) no alcohol should be consumed less than 12 hours prior to an operation; and
- b) no alcohol should be consumed during the operation.

Information on the effects of medication, psychoactive substances and other treatments can be found in CAR.

## 7. Authority of The Pilot-In-Command

The pilot-in-command shall have the authority to:

- a) give all commands and take any appropriate actions for the purpose of ensuring the safety of the balloon and of any person or property carried therein; and
- b) refuse embarkation or carriage of any person or baggage that may represent a potential hazard to the safety of the balloon or of any person or property carried therein.

## **8. Responsibilities of Crew Members**

- a) Any crew member shall be responsible for the proper execution of his or her duties in respect of the operation of the balloon.
- b) Crew members shall not perform duties on a balloon when incapacitated by any cause, including injury, sickness, medication, fatigue or the effects of any psychoactive substance, or if he or she feels otherwise unfit.
- c) Crew members shall report to the pilot-in-command both of the following:
  - I. any fault, failure, malfunction or defect, which he or she believes may affect the airworthiness or safe operation of the balloon, including emergency systems;
  - II. any incident.
- d) Any flight crew member who undertakes duties for more than one operator shall:
  - I. maintain his or her individual records regarding flight times and rest periods, if applicable; and
  - II. provide each operator with the data needed to schedule activities in accordance with the applicable flight and duty time limitations and rest requirements.

### **8.1 DESIGNATION OF PERSONS AS CREW MEMBERS**

- a) The pilot-in-command or the operator may designate any person as a crew member provided that:
  - I. the role, according to the reasonable expectation of the pilot-in-command or the operator, will enhance the safety of the flight or achieve an operational objective of the flight;
  - II. the person, according to the reasonable expectation of the pilot-in-command or the operator, is capable of fulfilling the role;
  - III. the person has been briefed on the role as a crew member and informed that he or she is crew, not a passenger; and
  - IV. the person agrees to the role as crew member.
- b) Crew members are not considered to be passengers.
- c) Crew members may be required, by specific provisions of this Regulation and other Implementing Rules, to hold licences, ratings or other personnel certificates to fulfil certain roles such as instructor or examiner, in certain circumstances.

## **9. Compliance with Laws, Regulations And Procedures**

- a) The pilot-in-command and all other crew members shall comply with the laws, regulations and procedures of those States where operations are conducted.

The pilot-in-command shall be familiar with the laws, regulations and procedures, pertinent to the performance of his or her duties, prescribed for the areas to be traversed, the operating sites to be used and the related air navigation facilities.

## **10. Documents, Manuals and Information To Be Carried**

- a)** All of the following documents, manuals and information shall be carried on each flight, as originals or copies or digital copies:
  - i.** the operating limitations, normal, abnormal and emergency procedures and other relevant information specific to the balloon's operating characteristics;
  - ii.** details of the filed ATS flight plan, when required;
  - iii.** current and suitable maps for the area of the intended flight.
- b)** All of the following documents, manuals and information shall be carried on each flight or shall be stowed in the retrieve vehicle, as originals or copies/digital copies:
  - i.** the certificate of registration;
  - ii.** the certificate of airworthiness,
  - iii.** the AFM or equivalent document(s);
- c)** the aircraft radio licence, where the balloon is equipped with radio communication equipment;
- d)** the third party liability insurance certificate(s);
- e)** the balloon logbook or equivalent document(s);
- f)** any other documentation that may be pertinent to the flight or is required by the DGCA
- g)** When requested by the competent authority, the pilot-in-command or the operator shall make available to that authority the original documentation within the time period specified by the authority which shall not be less than 24 hours.

Notes:

### **10.1 GENERAL**

- a)** In case of loss or theft of documents, the operation may continue until the balloon has landed. The operator provides replacement documentation within the shortest possible time frame.
- b)** The documents, manuals and information may be available in a form other than on printed paper. An electronic storage medium is acceptable if accessibility, usability and reliability is assured.

### **10.2 AFM OR EQUIVALENT DOCUMENT**

'AFM or equivalent document(s)' means the flight manual for the balloon or other documents containing information required for the operation of the balloon within the terms of its certificate of airworthiness.

### **10.3 BALLOON LOGBOOK OR EQUIVALENT DOCUMENT**

'Balloon logbook or equivalent document(s)' means that the required information may be recorded in documentation other than a logbook, such as the operational flight plan or the balloon technical log.

#### 10.4 OPERATING LIMITATIONS, NORMAL, ABNORMAL AND EMERGENCY PROCEDURES

The operating limitations, as well as normal, abnormal and emergency procedures should be available to the pilot during the operation by providing the specific sections of the aircraft flight manual (AFM) or by other means that effectively accomplish the purpose.

#### 10.5 CURRENT AND SUITABLE CHARTS

The charts carried should contain data appropriate to the applicable air traffic regulations, rules of the air, flight altitudes, area, route, and nature of the operation. Due consideration should be given to the carriage of textual and graphic representations of:

- a) aeronautical data, including, as appropriate for the nature of the operation:
  - a. airspace structure;
  - b. communication frequencies;
  - c. prohibited, restricted and danger areas;
  - d. sites of other relevant activities that may hazard the flight; and
- b) topographical data, including terrain and obstacle data.
- c) A combination of different charts and textual data may be used to provide adequate and current data.
- d) The aeronautical data should be relevant for the current aeronautical information regulation and control (AIRAC) cycle.
- e) The topographical data should be reasonably recent, as regards the nature of the planned operation.

#### 10.6 CERTIFICATE OF AIRWORTHINESS

The certificate of airworthiness should be a normal certificate of airworthiness, a restricted certificate of airworthiness, or a special certificate of airworthiness or permit to fly issued in accordance with the applicable airworthiness requirements.

### 11. Dangerous Goods

- a) The transport of dangerous goods on board the balloon shall be conducted in accordance with the requirements set out in Annex 18 to the Chicago Convention, as last amended and amplified by the technical instructions.
- b) The pilot-in-command shall take all reasonable measures to prevent dangerous goods from being carried on board the balloon inadvertently.
- c) Reasonable quantities of articles and substances that would otherwise be classified as dangerous goods and that are used to facilitate flight safety, where carriage on

board the balloon is advisable to ensure their timely availability for operational purposes, shall be considered authorised, regardless of whether or not such articles and substances are required to be carried or intended to be used in connection with a particular flight. The pilot-in-command shall ensure that the packing and loading on board the balloon of those articles and substances is performed in such a way as to minimise the risks posed to crew members, passengers and the balloon during operation.

- d) The pilot-in-command or, when the pilot-in-command is incapacitated, the operator shall report without delay any accidents or incidents involving dangerous goods to the safety investigation authority of the State in the territory of which the occurrence took place, the emergency services of that State, any other authority designated by that State and the competent authority.

NOTE:

#### 11.1 GENERAL

The carriage of dangerous goods is only permitted when:

- a) they are not subject to the 'Technical instructions for the safe transport of dangerous goods by air', ICAO Doc 9284-AN/905, in accordance with Part 1 of those instructions. Following the technical instructions, articles and substances which would otherwise be classified as dangerous goods, but which are required on board the balloon in accordance with the pertinent airworthiness requirements or the requirements of this Annex, are permitted;
- b) they are carried by crew members or passengers, or are in baggage, in accordance with Part 8 of the technical instructions; or
- c) they are required on board the balloon for specialised purposes in accordance with the technical instructions.

#### 12. Release of Dangerous Goods

- a) The pilot-in-command shall not release dangerous goods when operating a balloon over congested areas of cities, towns or settlements or over an open-air assembly of persons.
- b) Notwithstanding point (a), parachutists may exit the balloon for the purpose of parachute display over those congested areas or over that open-air assembly of persons whilst carrying smoke trail devices that were manufactured for that purpose.

#### 13. Balloon Logbook

For each flight, or series of flights, particulars of the balloon, its crew and each journey shall be retained in the form of a balloon logbook or an equivalent document.

NOTE:

1. The balloon logbook, or equivalent, should include the following items, where applicable:

- (a) balloon nationality and registration;
- (b) date;
- (c) name(s) of flight crew member(s);
- (d) place of departure;
- (e) place of arrival;
- (f) time of departure;
- (g) time of arrival;
- (h) hours of flight;
- (i) type of operation;
- (j) incidents and observations, if any; and
- (k) signature of the pilot-in-command.

## 2. SERIES OF FLIGHTS

(a) 'Series of flights' means consecutive flights, which begin and end:

- i. within a 6-hour period;
- ii. at the same operating site or remain within a local area; and
- iii. with the same pilot-in-command of the balloon.

(b) The term 'series of flights' is used to facilitate a single set of documentation.

## ***Section 2***

### **Operating procedures**

#### **14. Use of Operating Sites**

The pilot-in-command shall only use operating sites that are adequate for the type of balloon and operation concerned.

#### **15. Noise Abatement Procedures**

The pilot-in-command shall take into account operating procedures to minimise the effect of heating-system noise, while ensuring however that safety has priority over noise abatement.

#### **16. Fuel and Ballast Supply and Planning**

The pilot-in-command shall only commence a flight if the reserve fuel or ballast carried on board the balloon is sufficient to ensure a safe landing.

NOTE:

#### 16.1 GENERAL

- a) The pilot-in-command should only commence a flight if the reserve fuel or ballast is sufficient for 30 minutes of flight.
- b) Notwithstanding a), the pilot-in-command should only commence a flight if the reserve fuel (for the burner, and, in case of hot-air airships, also for the engine) or ballast is sufficient for 15 minutes of flight for:
  - a. hot-air balloons equipped with a single fuel tank; and
  - b. hot-air airships, when the flight is conducted in the vicinity of the operating site.
- c) Fuel or ballast supply calculations should be based upon at least the following operating conditions under which the flight is to be conducted:
  - a. data provided by the balloon manufacturer;
  - b. anticipated masses;
  - c. expected meteorological conditions; and
  - d. air navigation services provider procedures and restrictions

#### 17. Passenger Briefing

The pilot-in-command shall ensure that before and, when appropriate, during the flight passengers are given a briefing on normal, abnormal and emergency procedures.

Note:

#### 17.1 GENERAL

The pilot-in-command or a person designated by the operator may carry out the passenger briefing.

- a) Passengers should be given a verbal briefing and demonstration about safety matters in such a way that the information is easily retained and applied during the landing and in the case of an emergency situation.
- b) The briefing/demonstration should include the following items:
  - a. safety in relation to ground equipment;
  - b. use of internal handholds;
  - c. wearing of suitable clothing;
  - d. smoking regulations;
  - e. in-flight use and stowage of personal belongings and baggage;
  - f. importance to remain inside the basket at all times, particularly after landing;
  - g. landing positions to be assumed to minimise the effect of the impact during landing;
  - h. safe manoeuvring of the balloon on the ground after landing;

- i. use of oxygen-dispensing equipment, if applicable; and
  - j. other emergency equipment provided for individual passenger use, if applicable.
- c) Part or all of the verbal briefing may be provided additionally by a safety briefing card on which pictorial instructions indicate the correct landing position.
  - d) Before take-off, the correct landing position should be demonstrated.
  - e) Before commencing the landing phase, passengers should be required to practise the correct landing position.

## **18. Carriage of Special Categories Of Passengers**

The pilot-in-command shall ensure that persons requiring special conditions, assistance or devices when carried on board a balloon are carried under conditions that ensure the safety of the balloon and of any persons or property carried therein.

### **18.1. CARRIAGE OF CHILDREN AND PERSONS WITH REDUCED MOBILITY**

The pilot-in-command may exclude children or persons with reduced mobility from transportation in a balloon when:

- a) their presence may impede:
  - a. the crew in their duties;
  - b. access to emergency equipment; or
  - c. the emergency evacuation of the balloon; or
- b) those persons are:
  - a. unable to take a proper brace position;
  - b. smaller than the inner height of the basket wall; or
  - c. unable to understand the passenger briefing.

## **19. Submission of The Air Traffic Service Flight Plan**

If an air traffic service (ATS) flight plan is not submitted because it is not required, or when operating from an operating site where it is impossible to submit an ATS flight plan the pilot-in-command shall submit adequate information in order to permit alerting services to be activated if required.

### **1. FLIGHTS WITHOUT ATS FLIGHT PLAN**

- a) The operator should nominate a person to be responsible for alerting search and rescue services for flights without submitted ATS flight plans.
- b) The operator should establish procedures to ensure that the expected route of each flight is communicated to the ground crew, and should:
  - a. provide the nominated person with at least the information required to be included in a visual flight rules (VFR) flight plan;
  - b. notify the appropriate ATS or search and rescue facility when a balloon is overdue or missing; and

- c. ensure that the information is retained at a designated place until the completion of the flight.

## **20. Flight Preparation**

Before commencing the flight, the pilot-in-command shall be familiar with the available meteorological and aeronautical information appropriate to the intended flight which includes both of the following:

- a) a study of available current weather reports and forecasts;
- b) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned.

## **21. Smoking On Board**

No person shall smoke on board a balloon during any phase of flight or within the direct vicinity of a balloon.

## **22. Carriage and Use Of Weapons**

The pilot-in-command shall ensure that no person carries and uses a weapon on board the balloon.

## **23. Meteorological Conditions**

The pilot-in-command shall only commence or continue a VFR flight if the latest available meteorological information indicates that the weather conditions along the route and at the intended destination at the estimated time of use are as follows:

- a) at or above the applicable VFR operating minima as listed below\*; and
- b) within the meteorological limitations specified in the AFM.

\*Weather Minimums for Balloon Operations

Altitude	Airspace Type	Flight Visibility	Cloud Clearance
> 10,000 feet MSL	D, G	8 km	1000 below 1000 above 1500 m horizontal
Below 10,000 feet MSL	C, D	5 km	500 below 1000 above 2,000 feet horizontal
1,200 AGL or higher	G (Night)	5 km	500 below 1000 above 2,000 horizontal

	G (Day)	5 km	500 below 1000 above 2000 horizontal
Below 1,200 feet AGL	G (Night)	5 km	Clear of cloud and in sight of surface
	G (Day)	1.5 km (flight or ground visibility)	

Note:

*\*Risk analyses:*

*VFR flight is based on principle of “see and avoid”. The presumption made in establishing the basic VFR weather minimums is that aircraft would have time to respond to a threat of collision. The slower the aircraft the greater is the time to identify and respond to potential threat.*

*1. Balloons fly at Zero airspeed and therefore relative closing speed with other traffic is low. Such a low speed gives twice as much time for the aircraft to respond to any threat of collision. Consequently reducing the visibility requirement by half would not result in any aggravation of risk.*

*2. They are huge and brightly coloured and therefore easily spotted further reducing the risk.*

*3. The balloons may be safely allowed to operate in half the visibility prescribed for VFR operations.*

*4. The nature of balloon operation is such that they spend most of the flight time at height below 1,000 feet AGL. The density of aircraft operating lower than 1,200 feet AGL beyond 5 km from ARP is negligible. The risk of collision (between any other aircraft and balloons), below 1,200 feet AGL is virtually non-existent.*

Therefore the following low visibility VFR operation is permitted for balloon flights.

(i) In uncontrolled (Class G) airspace the balloon operations, may take place in ground and flight visibility of 1,500 m at a height below 1,200 feet AGL during day, provided they remain clear of cloud and in sight of surface at all time. When flight and/or ground visibility is less than 5,000 m, the balloons shall not operate within 5 km of ARP of an active airport, unless cleared by local ATC.

(ii) In controlled airspace the balloons may operate in coordination with local ATC.

(iii) Further balloon operations may take place in controlled airspace (Class D) in visibility less than 5000 m provided the balloon is flown:

(a) at a height not more than 1200 feet AGL, remains clear of cloud and in sight of surface

(b) at distance not less than 5 km of any airport reference point, and clear of approach and take-off funnels.

(c) so as to maintain two way communication with ATS if required and is equipped with transponder on board if required.

#### **24. Take-Off Conditions**

The pilot-in-command shall be satisfied before commencing take-off of the balloon that, according to the latest available information, the weather at the operating site permits a safe take-off and departure.

NOTE:

##### **FACILITIES AT THE TAKE-OFF SITE**

At the balloon take-off site, a means of assessing wind direction and wind speed should be available to the pilot-in-command.

#### **25. Approach and Landing Conditions**

Except in emergency situations, the pilot-in-command shall be satisfied before commencing an approach to land that, according to the latest available information, the conditions at the intended operating site permit a safe approach and landing.

#### **26. Simulated Situations in Flight**

- a) The pilot-in-command shall not simulate situations that require the application of abnormal or emergency procedures when carrying passengers, except as stated in b) below.
- b) The pilot-in-command may simulate such situations, during operations other than commercial operations of the balloon, when conducting training flights either with student pilots or with passengers, provided that the passengers have been duly informed and agreed to the simulation in advance.

#### **27. In-Flight Fuel Management**

The pilot-in-command shall check at regular intervals during the flight that the amount of usable fuel or ballast remaining in flight is not less than the fuel or ballast needed to complete the intended flight and the reserve planned for landing.

#### **28. Refuelling With Persons On Board**

Refuelling of balloons shall not be conducted when persons are on board.

NOTE: REPLACEMENT OF FUEL CYLINDERS

The definition of 'refuelling' excludes the replacement of fuel cylinders. Therefore, the replacement of fuel cylinders may be conducted, observing the appropriate precautions, when persons are on board.

### **29. Use of Restraint System**

When a restraint system is required by the manufacturer or AFM, the pilot-in-command shall wear the system at least during landing.

### **30. Use of Supplemental Oxygen**

The pilot-in-command shall ensure that:

- a) all crew members engaged in performing duties essential to the safe operation of the balloon use supplemental oxygen continuously whenever he or she determines that, at the altitude of the intended flight, the lack of oxygen might result in impairment of the faculties of crew members; and
- b) supplemental oxygen is available to passengers when lack of oxygen might harmfully affect them.

NOTE:

When the pilot-in-command cannot determine how the lack of oxygen might affect all occupants on board, he or she should ensure that all occupants use supplemental oxygen for any period when the pressure altitude is above 10,000 ft.

### **31. Operational Limitations at Night**

- a) Hot-air balloons:
  - a. shall not land during night, except in emergency situations; and
  - b. may take off during night, provided that sufficient fuel or ballast is carried for a landing during day.
- b) Gas balloons and mixed balloons:
  - a. shall not land during night, except in emergency situations or as a precautionary landing; and
  - b. may take off during night, provided that sufficient fuel or ballast is carried for a landing during day.
- c) Hot-air airships shall be operated in accordance with their approved VFR night operating limitations and information.

NOTE: AVOIDANCE OF NIGHT LANDING

- a) The intent of the rule is to ensure that when the balloon takes off during night, sufficient fuel is on board for landing under VFR by day.

- b) The risk of collision with overhead lines or other obstacles is considerable and cannot be overstated. The risk is considerably increased during night flights, in conditions of failing light and visibility, when there is increasing pressure to land.

### **32. Balloon Specialised Operations — Risk Assessment and Checklist**

- a) Before commencing a balloon specialised operation, the pilot-in-command shall conduct a risk assessment, assessing the complexity of the activity in order to determine the hazards and associated risks of the intended operation and establish mitigating measures where necessary.
- b) A balloon specialised operation shall be performed in accordance with a checklist. The pilot-in-command shall establish that checklist and ensure that it is appropriate to the specialised activity and balloon used, based on the risk assessment and taking account of all requirements set out in this Subpart. The checklist shall be readily accessible on each flight to the pilot-in-command and other crew members, where it is relevant for the performance of their duties.
- c) The pilot-in-command shall regularly review and update the checklist where necessary in order to adequately take account of the risk assessment.

NOTE:

#### **32.1. CRITERIA FOR BALLOON SPECIALISED OPERATIONS**

The pilot-in-command or the operator should consider the following criteria to determine whether an activity falls within the scope of balloon specialised operations:

- a) special equipment is necessary to fulfil the task and which affects the behaviour of the balloon in flight;
- b) external loads are lifted; or
- c) persons enter or leave the balloon during flight.

#### **32.2. DEVELOPMENT OF CHECKLIST**

In order to develop a checklist, the pilot-in-command should take into account at least the following items:

- a) nature and complexity of the activity:
  - a. the nature of the flight and risk exposure;
  - b. the complexity of the activity taking into account the necessary pilot skills and level of experience, ground support, and individual protective equipment;
  - c. the operational environment and geographical area; and
  - d. the result of the risk assessment and evaluation;
- b) balloon and equipment:
  - a. all equipment required for the activity should be listed;
- c) crew members:

- a. crew composition;
- b. duties of crew members;
- c. minimum crew experience and training provisions; and
- d. recency provisions;
- d) normal, abnormal and emergency procedures:
  - a. operating procedures for the flight crew; and
  - b. ground procedures for crew members; and
- e) records:
  - a. it should be determined which records specific to the flight(s) are to be kept, such as task details, balloon registration, pilot-in-command, flight times, weather and any remarks, including a record of occurrences affecting flight safety or the safety of persons or property on the ground.

### 32.3. CHECKLIST FOR PARACHUTE OPERATIONS

The checklist for parachute operations should include:

- a) normal, abnormal and emergency procedures;
- b) relevant performance data;
- c) required equipment;
- d) any limitations such as maximum take-off mass and minimum landing mass; and
- e) responsibilities and duties of the pilot-in-command and, if applicable, of crew members.

### 32.4. LIST OF OPERATIONS

- a) Balloon specialised operations include the following activities:
  - a. parachute operations;
  - b. hang-gliding/para-glider dropping; and
  - c. special events flights, including flying displays and competition flights.
- b) The following operations are not considered balloon specialised operations, but normal operations:
  - a. aerial advertising flights; and
  - b. news media flights, television and movie flights.

### 32.5. CATEGORISATION OF OPERATIONS

The pilot-in-command or the operator determines whether the main purpose of an operation is passenger ballooning, commercial or not, or whether the activity falls within the scope of a balloon specialised operation.

## ***Section 3***

### **Performance and operating limitations**

## **33. Operating Limitations**

The pilot-in-command shall ensure that, during any phase of operation, the balloon is not exceeding any of the limitations set out in the AFM or equivalent document(s).

NOTE:

In most cases the operating limitations are documented in the AFM, and in certain cases in the operations manual.

### **34. Weighing**

- a) The weighing of the balloon shall be accomplished by the manufacturer of the balloon or in accordance with acceptable airworthiness practice.
- b) The operator shall ensure that the mass of the balloon has been established by actual weighing prior to its initial entry into service. The accumulated effects of modifications and repairs on the mass shall be accounted for and properly documented. Such information shall be made available to the pilot-in-command. The balloon shall be reweighed if the effects of modifications or repairs on the mass are not known.

NOTE:

- a) New balloons that have been weighed at the factory may be placed into operation without reweighing if the mass records have been adjusted for alterations or modifications to the balloon. Balloons transferred from one operator to another operator do not have to be weighed prior to use by the receiving operator, unless the mass cannot be accurately established by calculation.
- b) The initial empty mass for a balloon is the balloon empty mass determined by a weighing performed by the manufacturer of the balloon before the initial entry into service.
- c) The mass of a balloon is revised whenever the cumulative changes to the balloon empty mass due to modifications or repairs exceed  $\pm 10\%$  of the initial empty mass. This may be done by weighing the balloon or by calculation.

### **35. Performance — General**

The pilot-in-command shall only operate the balloon if the performance of the balloon is adequate and any other restrictions applicable to the flight, the airspace or operating sites used, ensuring that any charts or maps used are the latest available edition.

## ***Section 4***

### **INSTRUMENTS AND EQUIPMENT**

### **36. Instruments and Equipment — General**

- a) Instruments and equipment required by this Section shall be as per the AFM: or are permanently installed
- b) All of the following instruments or equipment, when required by this Section, shall not need an approval:
  - a. instruments or equipment used by the flight crew to determine the flight path;
  - b. independent portable lights;
  - c. an accurate time piece;
  - d. first-aid kit;
  - e. survival and signalling equipment;
  - f. supplemental oxygen storage and dispensing apparatus;
  - g. alternative source of ignition;
  - h. fire blanket or fire-resistant cover;
  - i. hand fire extinguisher;
  - j. drop line;
  - k. knife.
- c) Instruments and equipment not required by this Section, as well as any other equipment that is not required by this CAR but is carried on board a balloon during a flight, shall comply with the following conditions:
  - a. the instruments and equipment shall not affect the airworthiness of the balloon, even in the case of failures or malfunction.
  - b. Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is assigned.
  - c. All required emergency equipment shall be easily accessible for immediate use.

Note:

### 36.1. PERMANENTLY INSTALLED

'Permanently installed' means an instrument or equipment that requires a specific kind of installation to:

- a) perform its intended function;
- b) be operated according to its specified limitations; and
- c) minimise the hazards to the balloon in the event of a probable malfunction or failure.

### 36.2. REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED

The functionality of non-installed instruments and equipment, required by this Subpart and that do not need an equipment approval, are checked against recognised industry standards appropriate to the intended purpose. The operator is responsible for ensuring the maintenance of these instruments and equipment.

### 37.3. NOT REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED

- a) The provision of this paragraph does not exempt any installed instrument or item of equipment from complying with the applicable airworthiness requirements. In this case, the installation should be approved as required by the applicable airworthiness requirements and should comply with the applicable certification specifications.
- b) The failure of additional, non-installed instruments or equipment not required by this Annex or by the applicable airworthiness requirements or any applicable airspace requirements should not adversely affect the airworthiness or the safe operation of the balloon.

### **37. Minimum Instruments and Equipment for Flight**

A balloon flight shall not be commenced when any of the instruments and equipment required for the intended flight with the balloon are missing, inoperative or do not fulfil the required functions.

#### **37.1 GENERAL**

Instruments and equipment that must be operative for all flights should be identified in a list. These instruments and equipment are:

- a) included in the type certification data sheet (TCDS) or the AFM; and
- b) required by the applicable implementing rules, such as operational and airspace requirements, and any other applicable requirements for the intended operation.

### **38. Operating Lights**

Balloons operated at night shall be equipped with all of the following:

- a) an anti-collision light;
- b) a means to provide adequate illumination for all instruments and equipment essential to the safe operation of the balloon;
- c) an independent portable light.

**Note: 1. ANTI-COLLISION LIGHTS AND ILLUMINATION FOR INSTRUMENTS AND EQUIPMENT**

- a) An acceptable means of compliance for free manned balloons should be the anti-collision light required for VFR at night approved in accordance with EASA CS-31HB/CS-31GB or with the applicable provisions for hot-air airships.
- b) A means of providing adequate illumination to instruments and equipment essential to the safe operation of the balloon may be an independent portable light.

### **39. Flight and Navigational Instruments And Equipment**

Balloons operated under VFR by day shall be equipped with both of the following:

- a) a means of displaying drift direction;
- b) a means of measuring and displaying:
  - a. time in hours, minutes and seconds;
  - b. vertical speed, if required by the AFM; and
  - c. pressure altitude, if required by the AFM, when required by airspace requirements or when the altitude needs to be known for the use of oxygen.

#### 39.1 Means of Displaying Drift Direction

The drift direction may be determined by using a map and reference to visual landmarks.

#### 39.2 Means of Measuring And Displaying The Time

A means of measuring and displaying the time in hours, minutes and seconds may be a wristwatch capable of the same functions.

#### 39.3 Means of Measuring And Displaying Pressure Altitude

A means of measuring and displaying pressure altitude is needed when required by air traffic control or when altitude needs to be checked for flights where oxygen is used, or the limitations in the AFM require to limit altitude or rate of climb or descent.

### **40. Restraint systems**

Balloons shall be equipped with a restraint system for the pilot-in-command when the balloon is equipped with one of the following:

- a) a separate compartment for the pilot-in-command;
- b) turning vent(s).

#### 40.1 Equipment Requirements

A pilot restraint harness mounted to the basket is considered to meet the requirements of EASA CS- 31HB/CS-31GB for a restraint system.

### **41. Supplemental oxygen**

Balloons operated when an oxygen supply is required shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

### **42. First-aid kit**

- a) Balloons shall be equipped with a first-aid kit.
- b) The first-aid kit shall be:
  - a. readily accessible for use; and
  - b. kept up-to-date.

#### 42.1. Content of the First-Aid Kit

- a) The first-aid kit should be equipped with appropriate and sufficient medications and instrumentation. However, the kit should be amended by the operator according to the characteristics of the operation (scope of operation, flight duration, number and demographics of passengers, etc.).
- b) The following should be included in the first-aid kit:
  - a. bandages (assorted sizes);
  - b. burns dressings (large and small);
  - c. wound dressings (large and small);
  - d. adhesive dressings (assorted sizes);
  - e. antiseptic wound cleaner;
  - f. safety scissors; and
  - g. disposable gloves.

#### 42.2 Maintenance of First-Aid Kit

To be kept up to date, the first-aid kit should be:

- a) inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use;
- b) replenished at regular intervals, in accordance with the instructions contained on their labels, or as circumstances warrant; and
- c) replenished after use in flight at the first opportunity where replacement items are available.

#### 42.3 Additional First-Aid Kit

An additional first-aid kit may be carried in the retrieve vehicle or trailer.

### **43. Hand fire extinguishers**

Except for gas balloons, balloons shall be equipped with at least one hand fire extinguisher.

#### 43.1 Certification Specifications

The applicable certification specification for hot-air balloons should be EASA CS-31HB or equivalent.

#### 43.2 ADDITIONAL HAND FIRE EXTINGUISHER

An additional hand fire extinguisher may be carried in the retrieve vehicle or trailer.

### **44. Life-Saving and Signalling Equipment – Flights Over Water**

The pilot-in-command of a balloon operated over water shall determine, before commencing the flight, the risks to survival of the persons carried in the balloon in the

event of ditching. In light of those risks, he or she shall determine whether there is need to carry life-saving and signalling equipment.

#### 44.1 RISK ASSESSMENT

In order to determine the risk, the pilot-in-command should take the following operating environment and conditions into account:

- a) water state;
- b) water and air temperatures;
- c) the distance from land suitable for making an emergency landing; and
- d) the availability of search and rescue facilities.

#### 44.2 EQUIPMENT:

Based on the risk assessment, the pilot-in-command should determine the carriage of:

- a) a life jacket or equivalent individual flotation device for each person on board that should:
  - b) be worn or stowed in a position that is readily accessible from the station of the person for whose use it is provided; and
  - c) be equipped with a means of electric illumination for the purpose of facilitating the location of persons;
- d) when carrying up to six persons, an emergency locator transmitter (ELT) or a personal locator beacon (PLB), carried by a crew member or a passenger, capable of transmitting simultaneously on 121.5 and 406 MHz;
- e) when carrying more than six persons, an ELT capable of transmitting simultaneously on 121.5 and 406 MHz; and
- f) signalling equipment for making distress signals.

#### 44.3 BRIEFING ON PLB USE

When a PLB is carried by a passenger, he or she should be briefed on its characteristics and use by the pilot-in-command before the flight.

#### 44.4 ELT AND PLB REGISTRATION AND OPERATION PROVISIONS

- a) Any ELT and PLB carried should be registered with the agency responsible for initiating search and rescue, or another nominated agency.
- b) Any ELT carried should operate in accordance with the relevant provisions of Volume III of ICAO Annex 10 to the Chicago Convention, 'Aeronautical telecommunications'.

#### 44.5 TERMINOLOGY

- a) An ELT is a generic term describing equipment that broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or may be manually activated.

- b) A PLB is an emergency beacon, other than an ELT, that broadcasts distinctive signals at designated frequencies, is stand-alone, portable, and is manually activated by the survivors

#### **45. Life-Saving and Signalling Equipment – Search And Rescue Difficulties**

Balloons operated over areas in which search and rescue (SAR) would be especially difficult shall be equipped with such life-saving and signalling equipment as appropriate to the area overflown.

##### **45.1 GENERAL**

Balloons operated across land areas in which search and rescue would be especially difficult should be equipped with the following:

- a) at least one ELT or a PLB;
- b) signalling equipment for making distress signals; and
- c) additional survival equipment adequate for the route to be flown taking account of the number of persons on board.

##### **45.2 ADDITIONAL SURVIVAL EQUIPMENT**

- a) The following additional survival equipment should be carried:
  - a. 500 ml of water for each four, or fraction of four, persons on board;
  - b. one knife; and
  - c. first-aid equipment.
- b) If any item of equipment in a) is already carried on board in accordance with other requirements, the carriage does not need to be duplicated.

##### **45.3 AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT**

The expression 'areas in which search and rescue would be especially difficult' means:

- a) areas so designated by the authority responsible for managing search and rescue;  
or
- b) areas that are largely uninhabited and where the authority referred to in (a):
  - a. has not published any information to confirm whether search and rescue would be or would not be especially difficult; and
  - b. does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

#### **46. Miscellaneous Equipment**

- a) Balloons shall be equipped with protective gloves for each crew member.
- b) Mixed balloons, hot-air balloons and hot-air airships shall be equipped with all of the following:

- a. an alternative and independent source of ignition;
  - b. a means of measuring and indicating fuel quantity;
  - c. a fire blanket or fire-resistant cover;
  - d. a drop line of at least 25 m in length.
- c) Gas balloons shall be equipped with both of the following:
- a. a knife;
  - b. a trail rope of at least 20 m in length made of natural fibre or electrostatic, conductive material.

**Note:**

- a) A fire blanket should comply with the European Norm EN 1869 or equivalent BIS standard. The size should be at least 1.5 m × 1.8 m. smaller sizes are not recommended as they cannot sufficiently cover the source of developing propane fire.
- b) KNIFE: The knife, hook knife or equivalent, should be capable of cutting any control line or handling rope that is accessible to the pilot-in-command or a crew member from the basket.

#### **47. Radio Communication Equipment**

- a) Balloons shall have radio communication equipment to allow for the communication.
- b) The radio communication equipment shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

#### **48. Transponder**

Balloons shall have a secondary surveillance radar (SSR) transponder if operating in controlled air-space.

##### **48.1 GENERAL**

The SSR transponders should operate in accordance with the relevant provisions of Volume IV of ICAO Annex 10 to the Chicago Convention, 'Aeronautical telecommunications'.