



EASA
European Aviation Safety Agency

Part-BOP – Subpart BAS

Basic operational requirements

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Part-BOP – Subpart BAS 1

Cover Regulation

**Annex I
Definitions**

**Annex II
Part-BOP**

**Subpart-
BAS**

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ADD**



Subpart BAS

- **Section 1 – General requirements**
- Section 2 – Operating procedures
- Section 3 – Performance and operating limitations
- Section 4 – Instruments, data and equipment



HOT TOPIC

‘3-level-approach’ for passenger ballooning

Level	Measure	Category	Persons	Provision
1	Cost sharing	Non-CPB	4 or less	Direct + annual cost sharing
2	Declaration	CPB	6 or less	<ul style="list-style-type: none">• Operator to provide competent authority with declaration• Additional national rules possible (?)
3	BOC	CPB	Not limited	Operator to apply and obtain a BOC issued by competent authority



Part-BOP – Subpart BAS 4

➤ **BOP.BAS.001 Scope**

- (a) Requirements applicable to all balloon operations
- (b) Subpart is sufficient for
 - (1) Non-commercial operations
 - (2) Cost-shared operations
 - (i) Direct and annual costs shared by all
 - (ii) 4 persons or less
 - (3) Competition flights or flying display
 - (i) Recovery of direct and annual costs
 - (ii) Prizes up to maximum value specified by competent authority
 - (4) Introductory flights with 4 persons or less and parachute dropping



Part-BOP – Subpart BAS 5

➤ **BOP.BAS.001 Scope**

(a)(4) Introductory flights with 4 persons or less and parachute dropping performed by

- (i) Training organisation in a Member State
- (ii) An organisation promoting aerial sport or leisure aviation

when

- (i) The balloon is operated by the organisation on the basis of ownership or dry lease
- (ii) The flight does not generate profits distributed outside of the organisation
- (iii) Such flights represent marginal activity of the organisation



Part-BOP – Subpart BAS 6

➤ **AMC1 BOP.BAS.001 Scope**

CRITERIA FOR SPECIALISED OPERATIONS

- Balloon is flown close to the surface
- Special equipment is necessary and which affects the manoeuvrability of the balloon
- External loads or goods are lifted
- Persons enter or leave the balloon during flight

➤ **GM1 BOP.BAS.001 Scope**

LIST OF SPECIALISED OPERATIONS

- Parachute operations
- Aerial photography and observation flights
- Aerial advertising flights
- News media flights, television and movie flights
- Flying display and competition flights



➤ **AMC2 BOP.BAS.001 Scope**

SPECIALISED OPERATIONS – AERIAL ADVERTISING FLIGHTS

Only commercial when conducted

- Especially at a specific time and for advertising purpose
- In return for remuneration or other valuable consideration



Part-BOP – Subpart BAS 8

➤ **BOP.BAS.005 Competent authority**

The authority where the operator is established or residing

➤ **BOP.BAS.010 Means of compliance**

Alternative means of compliance may be used

➤ **BOP.BAS.015 Mixed balloons**

The requirements for hot-air balloons to be applied



Part-BOP – Subpart BAS 9

➤ **BOP.BAS.020 Introductory flights**

- Be operated under visual flight rules (VFR) by day
- Be overseen by a person which has been nominated by the organisation responsible for the introductory flights
- Comply with any other conditions stipulated by the competent authority

➤ **BOP.BAS.025 Immediate reaction to a safety problem**

The operator shall implement any safety measures and any relevant mandatory safety information



Part-BOP – Subpart BAS 10

- **BOP.BAS.030 Responsibilities of the pilot-in-command (PIC)**
 - Safety of the balloon and all persons on board
 - Only commence a flight if the balloon is airworthy, registered, etc.
 - Remain during flight in control of the balloon unless another pilot is taking over
 - Not commence a flight if incapacitated from performing duties
 - Take any necessary action in an emergency situation
 - Etc., etc.



Part-BOP – Subpart BAS 11

➤ **BOP.BAS.035 Authority of the PIC**

- Give commands and take actions for securing the safety of the balloon and its occupants
- Refuse carriage of or disembark any person, baggage or cargo that may be a potential hazard to the safety of the balloon or its occupants



Part-BOP – Subpart BAS 12

- **BOP.BAS.040 Crew (member) responsibilities**
 - Responsible for proper execution of his/her duties
 - Duties to be specified in checklist or standard operating procedures (SOPs)
 - During flight, at least one qualified flight crew member shall remain at the controls of the balloon at all times
 - Shall report to PIC
 - Any relevant fault, failure, malfunction
 - Any relevant incident



Part-BOP – Subpart BAS 13

- **BOP.BAS.045 Compliance with laws, regulations and procedures**
 - PIC and all crew members to comply with the laws, regulations and procedures of those States where operations are conducted
 - PIC to be familiar with the laws, regulations and procedures, pertinent to the performance of his/her duties



Part-BOP – Subpart BAS 14

- **BOP.BAS.050 Documents, manuals and information to be carried**
 - To be carried on each flight as originals or copies
 - AFM or equivalent
 - Details of the filed ATS flight plan, if applicable
 - Aeronautical charts
 - To be carried or to be stowed as originals or copies
 - Certificate of registration
 - Certificate of airworthiness
 - Balloon logbook or equivalent
 - Etc.
 - To make available the original documentation in a timeframe required by the competent authority, with a minimum of 24 hours



Part-BOP – Subpart BAS 15

➤ **BOP.BAS.055 Dangerous goods**

- To be conducted according to ICAO Annex 18 and the ICAO Technical Instructions
- PIC to prevent dangerous goods from being carried on board inadvertently
- Reasonable quantities of dangerous goods may be carried
 - When facilitating flight safety
 - Where carriage is advisable to ensure timely availability
- PIC or operator to report to
 - competent authority and
 - appropriate authority of the State of occurrenceany dangerous goods accident or incident



Part-BOP – Subpart BAS 16

- **BOP.BAS.060 Release of dangerous goods**
 - Not release dangerous goods when operating over
 - Congested areas of cities, towns or settlements
 - An open-air assembly of persons
 - Parachutists may exit the balloon over these areas or assembly whilst carrying smoke trail devices



➤ **BOP.BAS.065 Balloon logbook**

For each flight, or series of flights, particulars of the balloon, crew and journey to be documented in a balloon logbook or equivalent



Subpart BAS

- Section 1 – General requirements
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Part-BOP – Subpart BAS 19

➤ **BOP.BAS.100 Use of operating sites**

PIC shall only use adequate operating sites

➤ **BOP.BAS.105 Noise abatement procedures**

PIC shall take into account minimising the heating-system noise, ensuring that safety has first priority



Part-BOP – Subpart BAS 20

➤ **BOP.BAS.110 Fuel and ballast supply and planning**

PIC shall only commence a flight if the reserve fuel or ballast is sufficient to ensure a safe landing

➤ **AMC1 BOP.BAS.110 Fuel and ballast supply and planning**

Reserve fuel or ballast should be sufficient for

- 15 minutes of flight for hot-air airships and when flight is conducted in the vicinity of the operating site
- 30 minutes of flight for all other balloons/flights



Part-BOP – Subpart BAS 21

➤ **BOP.BAS.115 Passenger briefing**

PIC or operator shall ensure that passengers are briefed on normal, abnormal and emergency procedures

➤ **BOP.BAS.120 Carriage of special categories of passengers (SCPs)**

- Persons requiring special conditions, assistance and/or devices shall be considered as SCPs
- PIC or operator to be responsible that SCPs are carried under conditions that ensure safety



Part-BOP – Subpart BAS 22

- **BOP.BAS.125 Submission of the air traffic service (ATS) flight plan**
 - If an ATS flight plan is not submitted because not required, adequate information shall be deposited to permit alerting services to be activated if required
 - When operating from a site where it is impossible to submit an ATS flight plan, the ATS flight plan shall be transmitted as soon as possible after take-off



Part-BOP – Subpart BAS 23

➤ **BOP.BAS.130 Flight preparation**

Before commencing the flight, the PIC shall be familiar with all available meteorological and aeronautical information including

- A study of available current weather reports and forecasts
- Planning of alternative course of action for the eventuality that the flight cannot be completed as planned

➤ **BOP.BAS.135 Smoking on board**

No smoking!



Part-BOP – Subpart BAS 24

➤ **BOP.BAS.140 Carriage and use of weapons**

- No weapons!
- Except when required for the safety of the persons on board
 - In such cases the PIC shall ensure that the weapons are secured when not in use

➤ **BOP.BAS.145 Meteorological conditions**

PIC shall only commence or continue a VFR flight if meteorological information indicates that the weather conditions will be

- At or above the applicable VFR operating minima; and
- Within the meteorological limitations specified in the AFM



Part-BOP – Subpart BAS 25

➤ **BOP.BAS.150 Take-off conditions**

Before commencing take-off, the PIC shall be satisfied that the weather would not prevent a safe take-off and departure

➤ **BOP.BAS.155 Approach and landing conditions**

➤ Before approaching to land

➤ Except in emergency situations

The PIC shall be satisfied that the conditions would not prevent a safe approach and landing



➤ **BOP.BAS.160 Simulated situations in flight**

PIC shall, when carrying passengers or cargo, not simulate situations that require the application of abnormal or emergency procedures

- Except when training flights are conducted with student pilots



Part-BOP – Subpart BAS 27

➤ **BOP.BAS.165 In-flight fuel management**

PIC shall check at regular intervals that the remaining fuel or ballast is sufficient

➤ **BOP.BAS.170 Refuelling with persons on board**

No refuelling with persons on board

- Except for refuelling of the engine of hot-air airships, where the PIC may be on board



Part-BOP – Subpart BAS 28

➤ **BOP.BAS.175 Use of supplemental oxygen**

PIC shall ensure

- Flight crew members performing essential duties use supplemental oxygen when deemed necessary
- Supplemental oxygen is available to passengers when lack of oxygen affects them

➤ **AMC1 BOP.BAS.175 Use of supplemental oxygen**

When PIC cannot determine

- Flight crew members use supplemental oxygen for any period in excess of 30 minutes between 10 000 ft and 13 000 ft
- All occupants use supplemental oxygen for any period above 13 000 ft



Part-BOP – Subpart BAS 29

- **BOP.BAS.180 Operational limitations at night**
 - Gas balloons, hot-air balloons and mixed balloons
 - May take off during night, when fuel or ballast is sufficient for a landing during day
 - Shall not land during night, except in emergency situations
 - Hot-air airships shall be operated in line with their VFR-night operating limitations and information



➤ **BOP.BAS.185 Specialised operations – checklist**

- Before commencing a specialised operation, the PIC shall conduct a risk assessment
- Specialised operation shall be performed in accordance with a checklist



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Part-BOP – Subpart BAS 32

➤ **BOP.BAS.200 Operating limitations**

The balloon shall comply with any limitation of

- The AFM; or
- Any other applicable and approved document

➤ **BOP.BAS.205 Weighing**

- Weighing shall be accomplished by the manufacturer or in accordance with the continuing airworthiness Regulation
- Balloon mass shall be established prior to initial entry into service
- Accumulated effects of modifications and repairs shall be
 - Accounted for and properly documented
 - Made available to the PIC



Part-BOP – Subpart BAS 33

➤ **BOP.BAS.210 Performance – general**

PIC shall only operate the balloon if the performance is adequate to comply

- With the applicable rules of the air; and
- Any other restrictions applicable to
 - the flight
 - the airspace; or
 - the operating sites used



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Part-BOP – Subpart BAS 35

➤ **BOP.BAS.300 Instruments and equipment – general**

- (a) To be approved in accordance with airworthiness requirements if
 - Used by the flight crew to determine the flight path; or
 - Permanently installed in the balloon
- (b) The following items do not need an equipment approval
 - Independent portable lights
 - An accurate time piece
 - First-aid kit
 - Survival and signalling equipment
 - Supplemental oxygen storage and dispensing apparatus
 - Alternative source of ignition
 - Etc.



Part-BOP – Subpart BAS 36

➤ **BOP.BAS.300 Instruments and equipment – general (contd.)**

- (c) Instruments and equipment not required by the Air Ops Annex shall comply with the following
 - Information provided by these instruments or equipment shall not be used to comply with the essential requirements for airworthiness
 - The instruments and equipment shall not affect the airworthiness
- (d) Instruments and equipment shall be readily operable or accessible
- (e) Emergency equipment shall be easily accessible



Part-BOP – Subpart BAS 37

➤ **BOP.BAS.305 Minimum equipment for flight**

A flight shall not be commenced when instruments and equipment required for the flight are inoperative or missing, unless operation with inoperative equipment is permitted by the minimum equipment list (MEL)

➤ **BOP.BAS.310 Operating lights**

Balloons operated at night shall be equipped with

- Anti-collision lights
- A means to provide adequate illumination for all instruments and equipment essential to safe operation
- An independent portable light



Part-BOP – Subpart BAS 38

➤ **BOP.BAS.315 Flight and navigational instruments and associated equipment**

Balloons operated under VFR by day shall be equipped with

- A means of displaying drift direction
- A means of measuring and displaying
 - Time
 - Vertical speed, if required by the AFM
 - Pressure altitude, if required or when the altitude needs to be controlled for the use of oxygen



Part-BOP – Subpart BAS 39

➤ **BOP.BAS.320 Restraint systems**

- Balloons with a separate compartment for the PIC shall be equipped with a restraint system for the PIC
- During landing the PIC shall wear the restraint system

➤ **BOP.BAS.325 First-aid kit**

- A first-aid kit is required
- The first-aid kit shall be
 - Readily accessible
 - Kept up-to-date



Part-BOP – Subpart BAS 40

➤ **BOP.BAS.330 Supplemental oxygen**

Balloons operated at pressure altitudes above 10 000 ft shall be equipped with an oxygen storage and dispensing apparatus to supply

- All crew members for any period in excess of 30 minutes when between 10 000 ft and 13 000 ft
- All crew members and passengers when above 13 000 ft

➤ **BOP.BAS.335 Hand fire extinguishers**

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



Part-BOP – Subpart BAS 41

➤ **BOP.BAS.340 Flight over water**

The PIC shall determine the risks to survival of the occupants of the balloon in the event of a ditching, based on which he/she shall determine the carriage of

- A life-jacket for each person
- When carrying up to 6 persons, an emergency locator transmitter (ELT) or a personal locator beacon (PLB)
- When carrying more than 6 persons, an ELT
- Equipment for making the distress signals

*For definitions of ELT and PLB see **GM1 BOP.BAS.340(b)(c)***



➤ **BOP.BAS.345 Survival equipment**

Balloons operating over areas in which search and rescue are difficult shall be equipped with appropriate signalling devices and life-saving equipment



Part-BOP – Subpart BAS 43

➤ **BOP.BAS.350 Miscellaneous equipment**

Required equipment

(a) All balloons

- Protective gloves for each crew member

(b) Hot-air balloons and hot-air airships

- Alternative source of ignition
- A means of measuring and indicating fuel quantity
- A fire blanket or fire resistant cover and
- A drop line of at least 25 m

(c) Gas balloons

- A knife and
- A trail rope of at least 20 m



Part-BOP – Subpart BAS 44

➤ **BOP.BAS.355 Radio communication equipment**

- When required by airspace being flown, balloons shall be equipped with radio communication equipment at the pilot's station
- Radio communication equipment, if required, shall provide for communication on the aeronautical emergency frequency

➤ **BOP.BAS.360 Transponder**

When required by airspace being flown, balloons shall be equipped with a secondary surveillance radar (SSR) transponder



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The End

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