

# **Guideline for Hot Air Ballooning – Air Based Adventure Tourism Activities**

## **For Registration with Sri Lanka Tourism Development Authority**

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### **1. INTRODUCTION**

Hot Air Balloons work according to the natural law that hot air is lighter than cold air. To generate lift and take flight, hot air balloons deploy a burner that heats the air within the balloon until it becomes lighter than the external air. The difference in the temperature inside the balloon relative to the outside temperature, determines the amount of lifting the balloon.

The single most defining factor of balloon Flight Safety is weather condition. The wind, rain, fog, snow etc. are the key elements to consider safe hot air ballooning. The pilot must always check the weather forecast and select a suitable flight route, departure, and landing area.

There are two main types of Hot Air Balloon Flight:

- i. Free Flight - A Balloon takes off from one location and travels with the wind to land in another alternate location.
- ii. Tethered Flight - A ropes are safely attached to the Balloon and the Balloon ascends and descends on the spot, with the ropes restraining the Balloon from flying away with the wind.

Operation air rules and regulations in hot air ballooning should strictly adhere in operation.

### **2. BASIC OPERATING PROCEDURE/ GUIDELINES**

- a. For the commercial operations of Hot Air Balloons, an Operator should have a valid Air Operator Permit (AOP) issued by Civil Aviation Authority (CAA).
- b. All Hot Air Balloon operating organizations have to be approved by Director General of Civil Aviation Authority under Aircraft Maintenance Organization (AMO) as per CAR-145 and Continuing Airworthiness Management Organization (CAMO) as per CAR-M.
- c. Before every balloon flight the Pilot must ensure that the Balloon has a valid Certificate of Airworthiness.
- d. Pilot has to check Certificate of Release to Service (CRS) issued by authorized Aircraft Maintenance Engineer before every flight.
- e. Hot air balloons engaged in commercial operations must possess a Type Certificate issued or validated by the Director General, Civil Aviation Authority and export Certificate of Airworthiness issued by a country acceptable by Civil Aviation Authority.

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- f. All Balloon operators should have an Emergency Action Plan and training must be conducted regularly to pilots and ground handling staff.
- g. The company must follow a strict "leave no trace" policy and conform to high sustainability standards.

**3. MANDATORY EQUIPMENT**

Instruments & Equipment to be carried by Balloons in flight:

- a) Hand fire extinguisher, at the main compartment carrying participants.
- b) Safety harness for each participant on board. The harness for each participant need not be provided for gondola or basket type of balloons.
- c) A compass
- d) An altimeter
- e) A rate of climb indicator.
- f) First Aid Kit
- g) A fuel quantity display meter.
- h) An envelope temperature indicator.
- i) Communication Equipment.

**4. SAFETY AND RISK MANAGEMENT**

The Operator should strictly adhere with all emergency procedures listed in the Director General, Civil Aviation Authority Approved Flight manual including:

- i. Emergency landings.
- ii. Fire on the air and ground.
- iii. Blast valve failure.
- iv. Contact with power lines.

Ballooning operator should establish and review procedures for all possible emergencies. Every pilot and passenger should thoroughly understand emergency procedures and pre-flight passenger briefing must be conducted by the Pilot in command.

A monthly risk assessment to be carried out and reviewed by the Chief Pilot and the operator and records must be maintained.

**4.1. SAFETY BRIEFING**

**Guideline for Hot Air Ballooning – Air Based Adventure Tourism Activities**  
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Safety information to passengers on pre-flight, In-flight, pre and after landing is very important. Practical advice on basket layout and access the basket is also important to passengers:

#### **4.2.MEDICAL CONCERNS**

- a) As per Director General, Civil Aviation Authority guidelines, all Hot Air Balloon operators should have comprehensive public liability insurance cover of all passengers, Pilot, and third-party liability.
- b) All commercial operators should ensure that general health and physical condition of all passengers are fit for the activity. Following details also could be established from the passengers.
  - i. No recent surgery.
  - ii. No significant hip, knee, neck or back problems.
  - iii. No recently broken bones.
  - iv. Not pregnant passengers.
  - v. Ability to stand for at least 1 hour without rest.
  - vi. Not under the influence of alcohol or drugs at the time of flight.
- c) The Pilot is responsible to assess the medical condition of all passengers before boarding a Hot Air Balloon and the Pilot reserves the right to refuse any passenger to fly, if they are not medically fit.

#### **5. GENERAL INFORMATION**

- a) Routine inspections are accomplished at regular and planned intervals. They consist of following inspections:
- b) Pre-Flight inspection before every flight and general inspection every 100 HR and one year in operation.
- c) Component overhaul and service inspection should be conducted as follows.

| <b>Item</b>                               | <b>Frequency</b>                          | <b>Inspection</b> |
|-------------------------------------------|-------------------------------------------|-------------------|
| Envelop                                   | 300 hours flying or 3 years in operations | Grab Test         |
| Fuel Cylinder                             | Every 5 Years                             | Hydrostatic Test  |
| Fuel Cylinder Pressure Relief Valve (PRV) | Every 5 Years                             | Replace           |

**Guideline for Hot Air Ballooning – Air Based Adventure Tourism Activities**  
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5.1. All Hot Air Balloon Operators should undertake the following

- a) Operating instructions must be strictly followed as per the operations manual approved by Director General, Civil Aviation Authority.
- b) Flight Manual Information must contain:
  - i. A description of the balloon and its technical equipment with explanatory notes.
  - ii. Operating limitations, normal operation procedure (including rigging, inflation, and deflation), emergency procedures and other relevant information for safe operation.
  - iii. Specification of the permissible lifting gas.
  - iv. Information for ground handling, transport, and storage.

**5.2. LOG BOOKS**

A Technical log notes in respect of each balloon operation including details of every flight, places of departure and arrival, total flight time shall be maintained.

The entries in the log book shall be certified by the pilots undertaking the flights. A Balloon log book shall be maintained by every operator to keep records of the flying hours of a Balloon, modification and other repair work carried out on the balloon.\

**5.3.FLYING PERMISSION**

- a) An Operator is required to obtain permission from the Airport Aviation Authority of Sri Lanka (AAASL) for each area of flight operation. This permission will be issued on consultation with the nearest aerodrome and Air Traffic Control tower.
- b) Permission from all local Police in the area where balloon flight operations are conducted.
- c) The Operator must inform the Flight plan to the Airport Aviation Authority before every flight operation.
- d) All Operators are required to obtain a Flight Information Centre (FIC) number and Air Defense Clearance (ADC) code from the relevant authorities before every flight. This information must be submitted to the relevant Air Traffic Controller before any flight commence operations.

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- e) Pilots have to obtain the Take-off permission from Air Traffic Controller before every flight and must close the flight plan on completion of every flight.

**6. REQUIRED DOCUMENTS / APPROVALS**

6.1. The following documentation is required to be maintained by the operator:

- a) Administrative:
  - i. Details of owner and operator.
  - ii. Document indicating the annual inspections report by relevant inspecting authority.
  - iii. List of all Pilots along with copies of relevant certifications.
  - iv. Valid cover of comprehensive public and other liability insurance.
  - v. Relevant approval from Airports Aviation Authority.
- b) Operational:
  - i. Log book containing the daily operation.
  - ii. Flight and operation information.
  - iii. Accident or incident report sheets.
  - iv. Emergency procedures manual.
  - v. Risk assessment and management plan.
  - vi. Recent inspection report.
  - vii. Passenger manifest information sheets.
  - viii. Manufacturer's product manual.
- c) Following manuals to be approved by Director General of Civil Aviation Authority.
  - i. Operation Manual.
  - ii. Continuous Airworthiness Management certification.
  - iii. Maintenance Organization Exposition (MON).
  - iv. Flight Safety Manual.
  - v. Safety Management System Manual.
  - vi. Security Manual.
- d) Information to be provided for participants and visitors:
  - i. Description of the activity and operation procedure
  - ii. Safety instructions.

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- iii. Information relating to comprehensive public liability insurance for passenger.

**6.2.REQUIRED DOCUMENTS / APPROVALS**

- a) Approval from Civil Aviation Authority.
- b) Certificate of Release to Service
- c) Certificate of Airworthiness
- d) Appropriate valid license for the Pilot.
- e) Comprehensive insurance with public liability cover for air crew staff and passengers.

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