

# Balloon Federation of America



## Competition Rules, Regulations, Policies and Procedures

# 2013

BALLOON FEDERATION OF AMERICA  
P.O. BOX 400, 1601 N. JEFFERSON  
INDIANOLA, IOWA 50125



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## INTRODUCTION

This booklet contains the rules, regulations, policies and procedures used by the Balloon Federation of America Hot Air Competition Division (BFA/HACD) for events desiring to submit scores to be included in the National Ranking System.

APPENDIX D contains the regulations governing all BFA/HACD sanctioned State, Regional, or National competitions and representation of BFA/HACD members in National and International events.

Additional Appendices are included and they contain all pertinent policies and procedures regarding BFA/HACD sanctioned competitive flying. In addition, general information regarding a variety of safety issues and topics designed to make your competitive flying experience a better one are included.

### History of the National Ranking System

The BFA/HACD Sanctioned Competition Regulations and Policies were initially inaugurated in August 1974 with a vote of the general membership of the BFA. Prior to that time, open participation in the Nationals competition had been a simple matter, considering that from 1970 through 1973 there were less than 100 competitors registered at the US National Hot Air Balloon Championship. By 1974, however, with 450 pilot members on the BFA roster and 168 registering to compete, the logistics of continued open competition posed potential problems.

The need to establish a fair method of evaluating pilot skills to determine eligible entrants in the Nationals competition automatically created a mandate for the BFA to develop a **Nationals Ranking System**. In autumn of 1974, the Events Committee was authorized to produce such a system and the nucleus of the present Competition Regulations and Policies and National Ranking System was born. The system became operable in January 1975 and has been the criterion for the selection of those pilots who are eligible to compete for the title of US National Hot Air Balloon Champion since then.

### Competition Operations Handbook

The FAI/CIA Competition Operations Handbook (COH) should be referenced by anyone involved in the organization or management of a competitive hot air balloon event. This handbook thoroughly covers a wide array of subjects dealing with Hot Air Balloon competitions. The details of this handbook will not fit all kind of AX competitions or all sizes of events. However, the philosophy of the handbook is to operate a 'Safe and Fair' competition, deliver knowledge and experience to organizers around the world. The use of the COH at Cat.1 events is mandatory. The COH can be accessed and downloaded by going to [Competition Operations Handbook](#).

### Balloon Event Guidelines

The BFA's *Balloon Event Guidelines* should be referenced by event organizers and officials responsible for the organization and management of hot air balloon events. These guidelines cover a wide variety of organizational and safety related issues that should be considered by anyone involved in any type of balloon event. The Balloon Event Guidelines can be downloaded by going to: [Balloon Event Guidelines](#).

## DISCLAIMER

The Balloon Federation of America offers this set of competition rules for aeronauts who are interested in competitive ballooning. These rules are designed to afford balloonists and balloon organizations the opportunity to participate in competitive hot air ballooning activities while observing the principles of sportsmanship and the mandates of the Federal Aviation Regulations (FAR's).

These rules are only examples to be used by persons or organizations who are interested in exploring the world of competitive hot air ballooning. While these rules have been developed by the BFA over years of competition, they are no substitute for well-reasoned pilot decision making by pilots in command of lighter-than-air craft. Likewise, they are not intended as a substitute for the Federal Aviation Regulations with which competing pilots should be totally familiar.

Many of the tasks referenced in these rules could potentially involve flight which would be below the minimum safe altitudes mandated by FAR 91.119 (b) and (c) (14 C.F.R. § 91.119(b), (c)). **These competition rules do not grant participating pilots the right to contravene FAR's, including minimum safe altitudes.** Limited operational airspace waivers may be available. However, the applicant must comply with the requirements of the Federal Aviation Administration in order to obtain such a waiver. Applications for waivers must be submitted on FAA Form # 7711-2 which can be found on the FAA Website at [www.faa.gov](http://www.faa.gov). **Organizers should not attempt to stage a competitive event without contacting their local Flight Service District Office (FSDO)**

**THESE RULES ARE OFFERED BY THE BALLOON FEDERATION OF AMERICA, WITHOUT CHARGE TO THE USER, ONLY AS A SERVICE TO HOT AIR BALLOON PILOTS AND ORGANIZATIONS. NO PERSON OR ORGANIZATION MAY, WITHOUT THE WRITTEN PERMISSION OF THE BALLOON FEDERATION OF AMERICA PRESIDENT, MAKE ANY USE OF THE BFA NAME OR LOGO OR IN ANY WAY, EXPRESSLY OR IMPLIEDLY REPRESENT THAT THE USER HAS ANY CONNECTION WITH OR SANCTION FROM THE BALLOON FEDERATION OF AMERICA.**

## RULE CHANGES FOR 2013

Substantive Changes to the BFA Competition Rules, Regulations, and Policies & Procedures include the following:

- II.10 RECALL PROCEDURE (10.15): changed language to require a recall system
- II.3.2 ORANGE PZ: added description of Orange PZ and related rules in the event that local FSDO's may request their use
- II.3.3 RED ROAD (Motorway) PZ: added description of Red Road PZ
- 4.3.3 JURY DUTIES AND COMPOSITION: Scoring Officer is Jury Chairman unless he has a conflict of interest. In that case the Safety Officer will serve as Chairman. The jury is composed of the chairman and two pilots.
- 7.5 PZ INFRINGEMENT: added yellow PZ to list of penalties and included maximum penalties for each type of PZ.
- 9.16 PROCEDURES WHEN LAUNCH DIRECTORS ARE OPTIONAL: added for guidance when launch directors are not used.
- 12.3.4 DECLARATIONS BY COMPETITORS: If more goals or declarations are made than permitted, the competitor will be scored to the least advantageous valid goal. Previous rule provided for a no result.
- 12.9 GRAVITY MARKER DROP (GMD): revised penalty structure based on task points applied based on degree of severity of infraction (competitive advantage obtained).
- 12.10 FREE MARKER DROP (FMD): Penalty for other than a minor infringement (50 task points) changed from 50 meters to 250 task points for a competitive advantage.
- 12.11 MARK: expands definition of mark to include a physical mark and an electronic mark.
- 12.17.2 SCORING PERIOD: Added guidance for closing of scoring period in Rule 15.9 (CRAT).
- 13. 3 DISTANCE INFRINGEMENTS: penalty structure changed from a distance related penalty to task point penalty based on severity of infringement.
- 14.6 POINTS FORMULA POSITIONAL SCORING: Removed provisions for "adjusted field" and redefined "competitive field" in Appendix D.
- 15.13 MINIMUM DISTANCE: Changed starting point from CLP to a reference point to be identified in the TDS.
- 15.14 SHORTEST FLIGHT: Changed starting point from CLP to a reference point to be identified in the TDS.
- 15.16 MAXIMUM DISTANCE TIME: Changed starting point from CLP to a reference point to be identified in the TDS.
- 15.17 MAXIMUM DISTANCE: Changed starting point from CLP to a reference point to be identified in the TDS.

### APPENDIX D

#### SANCTIONED COMPETITION REGULATIONS

The "opt out" provision previously permitted has been eliminated. The only instance in which a cardholder's flight will be excluded from the NRS is if he did not compete. The only exception is: "If a competitor attends an event and, due to commercial or other contractual responsibilities, is unable to compete (receives no markers) in one or more flights, those flights will not be included in the National Ranking System."

#### Section I

Competitive Field has been redefined as follows:

- a) There must be six (6) or more HACD cardholders competing.
- b) Scores are calculated using all pilots entered in the event (HACD cardholders and non-cardholders)

A minimum of six (6) HACD cardholders must be registered, present and participating in the event. Provisions of an Adjusted Field have been deleted.

#### Section II

Sanction fees for Regional and State Championships are not refundable

Section VII

Added provisions for qualification to represent the United States for Women and Junior Balloonist World Championships.

APPENDIX E U.S. NATIONALS ELIGIBILITY RULES

Revised sequence of the eligibility list making the current World Champion, if American, an exclusion to the qualification rules and placing him at the end of the eligibility list unless having qualified under another provision.

National's eligibility has been amended to ensure that Regional and State Championships, as well as top finishers in each region from the NRS will be awarded an automatic qualification for the US Nationals in the competitive year following their qualification. Note 2 to this Appendix has been modified to permit a filtered down eligibility process.

APPENDIX G COMPETITOR DECLARED GOALS IN GPS-LOGGER ONLY EVENTS (no observers)

Discussion includes the use of texting [[Short Message Service](#) (SMS)] for the purpose of pilot declared goals used in PDG or FON tasks.





## SECTION I – EVENT DETAILS

### I. 1 TITLE

The Event shall be known as **<name of event>**.

### I. 2 SANCTION

The event is sanctioned by **<indicate here if the event is sanctioned, i.e. State or Regional championship, by the Balloon Federation of America Hot Air Competition Division (BFA/HACD)>**.

### I. 3 ORGANIZATION

The event is organized by **<name of local organizer>**

### I. 4 CORRESPONDENCE

All entries and official correspondence should be addressed to:  
**<Name, address, telephone number, email, etc. of Event Organizer>**

Competition Division correspondence should be addressed to:

Balloon Federation of America  
PO Box 400  
Indianola, IA 50125  
Email: bfaoffice@bfa.net  
Telephone: (515) 961-8809  
FAX: (515) 961-3537

### I. 5 PERSONNEL

Event Director	<b>&lt;name&gt;</b>	Weather Officer	<b>&lt;name&gt;</b>
Assistant Director	<b>&lt;name&gt;</b>	Chief Scorer	<b>&lt;name&gt;</b>
Safety Officer	<b>&lt;name&gt;</b>	Jury President	<b>&lt;name&gt;</b>

### I. 6 PLACE

The Event will be held at **<location>**.

### I. 7 DATES

The Event will run from **<day/date on which competitors are required to be present>**  
The last flying day will be **<day/date>**

### I. 8 PROTEST FEE

The protest fee to accompany a protest is \$100.00 cash.

### I. 9 LANGUAGE (NOT USED)

### I.10 PARTICIPATION

The Event is open to pilots **<describe if the event is an invitational or open and any other unique qualifications required>** who qualify under conditions detailed in the registration materials provided. All pilots must meet the requirements of **<event organizer>**.

### I.11 CLOSING ENTRY DATE

The closing entry date for the Event is **<day/date>**.

### I.12 ACKNOWLEDGEMENT OF RESPONSIBILITY AND ASSUMPTION OF RISK

I.12.1 A competitor, by entering the event, acknowledges awareness of, and agreement with, the responsibility legally transferred to the pilot in command under the Federal Aviation Regulations (FAR's) as regards the personal decision to fly his balloon and any bodily injury or property damage resulting therefrom is solely the pilot's liability.

1.12.2 The competitor acknowledges that none of the flights are mandatory and that all flights will be made at the sole discretion of the competitor. Competitor's decisions as pilot in command may affect his standings in competitive events and any compensation to which the competitor might otherwise be entitled if choosing not to fly.

### I.13 INSURANCE

Each competitor shall be insured against all claims by third parties to a minimum of \$100,000 per passenger, \$100,000 property damage and a minimum limit of **<stipulate minimum, typically \$500,000 or \$1,000,000 at organizer's discretion>** combined single limit coverage on the operation of their balloon. The competitor shall produce documentary evidence of this insurance valid for the period of the Event covering any balloon which he may fly.

## SECTION II – COMPETITION DETAILS

### II. 1 CONTEST AREA (7.1)

The competition map will consist of **<provide specifications of map. When publically available, include ordering source. Include map datum, grid system, variation (magnetic, grid, and true North) and other relevant information>**. Whenever possible, the Organizer should try to provide a digital version of the competition map accessible via the Internet. **<Include instructions on finding the digital map and how to download.>**

The contest area is **<specify area in relation to the competition map>**. Any changes will be published on the Official Competition Map and posted on the Official Notice Board.

### II. 2 OUT OF BOUNDS (7.2)

The detail of out of bounds areas will be printed on the Official Competition Map, and changes will be posted on the Official Notice Board.

### II. 3 PZ LIST (7.3)

II. 3.1 The details of Prohibited Zones will be printed on the Official Competition Map and changes will be posted on the Official Notice Board and written supplements will be distributed at task briefings as changes occur. **<When possible provide list of PZs>**.

#### II. 3.2 ORANGE PZ

The altitude limit (minimum) for the Orange PZ is **<indicate minimum altitude expressed in ft. MSL>** The purpose of the Orange PZ is to ensure compliance with minimum safe altitudes over congested areas as required by the event's FAA Waiver. This rule allows for take-off and landing within the congested area but no other flying below the Orange PZ limit is permitted. Competitors may take off and land in an Orange PZ, however they may not use the airspace within the PZ until all tasks have been completed or abandoned. A competitor flying below the Orange PZ limit prior to completing or abandoning all tasks will be penalized.

A competitor taking off within an Orange PZ must climb to the altitude limit minimum without delay. This would imply an average rate of climb of approximately 300 fpm unless the competitor's climb rate is reduced due to higher balloons in his flight path.

II. 3.2.1 An ORANGE PZ is a restricted airspace over a congested area and will include a minimum altitude limit with the following restrictions:

- Competitors may launch in an Orange PZ provided they climb above the minimum limit without delay.
- Once achieving the minimum limit of the Orange PZ, competitors may not fly below the limit except for the purpose of landing.
- Goals may not be declared and results cannot be achieved within an Orange PZ. A mark or track point inside an Orange PZ is not valid

#### II. 3.3 RED ROAD (Motorway) PZ

In order to maintain a safe operating distance from major highways, **<Specify the altitude limit from the centerline (expressed as a dome) as well as identified red roads.>**

### II. 4 COMMON LAUNCH AREA(S) (9.1.1)

**<Provide launch area(s) description as available>**.

### II. 5 COMMON LAUNCH POINT(S) (9.1.2)

**<Provide CLP's with coordinates and altitude in feet MSL as available>**.

This data may be changed before the event and the final information will be published on the Official Notice Board and covered in the General Briefing.

## II. 6 LANDOWNER'S PERMISSION (9.3)

Landowner's permission must be obtained for each launch/landing and if several competitors launch/land at the same location, each competitor must ask for permission. **<Specify any other relevant landowner relation information.>**

**<If applicable provide information under which circumstances balloons may take off and/or pack up without prior permission. Specify what constitutes public property when taking off is allowed from it, etc. For example (always verify with local public officials and check local ordinances), 'public areas, such as public parks and schools, are considered as places without need for permission for take-offs or landings. Landowner permission is not required if the basket and retrieve vehicle is on a public road or driveway and the envelope is laid out in a field which is not fenced and not cultivated and no damage is done. Traffic may not be obstructed. Church property may also be used in this manner as long as no basket or retrieve vehicle is on grassy areas'>**

These provisions and instructions are subject to change before or during the event any time by announcements by the Event Director.

## II. 7 LIVESTOCK AND CROP (10.6)

Balloons shall not fly closer than **<200 ft, 500 ft, etc.>** from livestock or buildings containing livestock. **<Provide local and seasonal information concerning livestock and crop.>**

## II. 8 DRIVING LAW (10.11)

**<Provide local driving laws other than normal. Here is an example based on Ohio law, always verify your local ordinances. All participants are requested to follow Ohio laws and regulations. Ohio does require seat belts to be used in the front seat of all motor vehicles. Riding in the back of an unenclosed cargo storage area of a truck or trailer traveling over 25 MPH is illegal for persons under age 16. It is illegal for everyone if the tailgate is not latched. Infants and children who are either or both under the age of four and weigh less than forty pounds must be in an approved, properly used child safety seat.>**

## II. 9 AIR LAW (10.14)

When flying over congested areas, persons, livestock or property, competitors must follow the restrictions issued by the FAA in the Event Waiver. Violation of this rule will result in a penalty. **<Provide information concerning air law. When Controlled Airspace is present in the competition area, provide details on competition map or in other printed materials Here is an example: The entire contest area will have 8,000 ft. MSL as a maximum altitude (Blue PZ) during competition flights.>** This may be subject to change before or during the event by announcements by the Event Director.

## II.10 RECALL PROCEDURE (10.15)

**<Specify recall procedure to be used. Specify details of recall operation, i.e., via car radio, pagers, radio frequencies, group calling systems, etc.>**

## II.11 GOAL CENTER (12.1)

The center point of the intersections of roads will be the intersection of the centerlines of the roads. Additional information is described in APPENDIX B – GOAL DEFINITIONS and APPENDIX G - COMPETITOR DECLARED GOALS IN GPS-LOGGER EVENTS.

In the case of goals selected by competitors measured by track log, all logger measurements will be made to the published intersection coordinate. Competitors should be advised that this coordinate may not be the exact center of the intersection and that they should fly to the coordinate provided. Measurements involving markers will be made from the center of the intersection as specified above.

## II.12 GOALS SELECTED BY A COMPETITOR (12.2)

The following types of roads are permitted for the purpose of goals selected by competitors:

- a) Intersection of two roads
- b) Intersection of a road and a railroad.
- c) **<If applicable, specify list of goals that may be selected by competitors.>**

No goal selected by a competitor shall be:

- a) Within a built-up area (designated areas on competition map)
- b) Within a blue PZ
- c) Within 200 meters of:
  - i. A Red PZ
  - ii. A motorway (red road) or a road designated to be of motorway status (measured from the outer edge as shown on the map).
  - iii. A power line shown on the competition map.

These instructions are subject to change before or during the event anytime by announcements by the Event Director.

- II.13 LOCATION OF OFFICIAL NOTICE BOARD (5.10)**  
*<Specify location of Official Notice Board. Mention here if ONB is also on the web and that the physical Board will prevail if there is a discrepancy between the two.>*
- II.14 COMMUNICATION TIMES (5.3)**  
 Replies to general inquiries or complaints will be posted at *<to be specified by event organizer>* every day at the Official Notice Board. While a reply may be posted anytime, it will take effect *<to be specified by event organizer>*.
- II.15 PUBLICATION TIMES ON THE LAST FLYING DAY (5.6.3)**  
*<Specify publication time on the last flying day, e.g. 09:00, 10:00, and 10:30.>*
- II.16 FLIGHT CREW (NOT USED)**
- II.17 DETAILS FOR THE USE OF GPS-LOGGERS (See Chapter 6)**  
*<Specify details regarding GPS-loggers used in the competition. Standard rules for loggers are provided here in Chapter 6. When applicable, specify any variations to those rules. Details should include logger setup and type of altitude recorded.>*
- II.18 DETAILS FOR TIME LIMITS (rest hours) (5. 6)**  
 The hours between *<xx:xx and yy:yy>* local time will be disregarded for the purpose of the time limits of complaints and protests. The total rest period for the day shall be a minimum of ten hours and may be divided into two parts, depending on the daylight period.
- II.19 LOST MARKER (12.15.3)**  
 If the Event is assessing competitors a charge for lost markers it should be announced at the General Briefing. *<Specify charge to competitor for lost markers in accordance with 12.15.3, e.g., \$20>*
- II.20 BALLOON SIZE (3.3)**  
*<Specify other balloon size category than the standard maximum size category of AX8 (3000cbm/105000cft) for specific events e.g. alpine balloon events.>*
- II.21 ASSESSED MARK (12.15.2) (for events with observers and no loggers)**  
 An assessed result based on the least advantageous interpretation of evidence available will be given, if a marker was released from lower than *<insert the altitude required by the terrain features. As guidance the altitude should be approximately 2000 ft. AGL and be expressed in ft. MSL.>*
- II.22 ALTITUDE (6.9.2)**  
*<State which altitude measurement method is used in the Event competition, i.e. GPS or barometric>*
- II.23 SCORING FORMULA (14.5 AND 14.6, Policies Section II (a) and (b))**  
*<Specify which scoring formula will be used for the event scoring: Proportional (14.5) or Positional (14.6). Sanctioned State and Regional Championships must use Proportional scoring. All events are encouraged to calculate overall event results using Proportional Scoring.>*
- II.24 2D, MODIFIED 3D AND 3D SCORING ALTITUDES (14.9 and Appendix F)**
- II.24.1 For tasks with goals and targets, 2D measurements will only be valid below *<specify an altitude that generally doesn't exceed 500' AGL throughout the flying area>*
- II.24.2 For tasks with goals and targets, Modified 3D measurements will be used for altitudes *<specify a 500' altitude band range above the 2D measurement band>*, and 3D measurements will be utilized at altitudes above; *<specify the maximum altitude of the modified 3D band>*. The modified 3D measurement formula is in Chapter 14
- II.25 COMPETITION STRUCTURE (6.1)**  
 The competition will be conducted using *<specify limited scoring (no loggers or observers), observers only, observers and loggers, logger scoring only>*.

## II.26 MAP COORDINATES

*<Specify competition map grid system and datum used:  
32K (Zone reference, where 32=zone and K=latitude band)  
458565 (6 digit Easting)  
5552261 (7 digit Northing) \*>*

To identify a point on the competition map, the coordinates must be written in one of the following formats:

*<\* 6-7 format: this complies with the standard UTM grid format. First six digits easting and second, seven digits northing. (e.g. 458565-5552261 alternatively 0458565-5552261)*

*4-4 format: this format uses two times four-digits. First four digits easting and the second four digits northing. (e.g. 5857-5226), leaving out the 1m digit.*

*a target list number according to the list provided for the competition at hand. \*>.*

Coordinates may be written in one of the following formats:

*<\* If the competition area is completely in one zone, the zone reference may be omitted.*

*Eastings may be written with a leading 0 (zero) making it 7 digits.*

*Eastings may be separated from Northing's by: a carriage return (= new line), by a blank space, by the minus character or the slash character. In all cases the parts of the coordinates shall be clearly separated and with Easting's first. \*>*

## SECTION III – RULES

### CHAPTER 1 - OBJECTIVES

#### 1.1 OBJECTIVES

The objectives of the Event are:

- To determine the Champion Pilot
- To stimulate the development of aerostation by a comparison of performance of pilots and aerostats;
- To reinforce friendship among aeronauts.
- To provide task opportunities for pilots interested in qualifying for the US National Hot Air Balloon Championship through the National Ranking System

#### 1.2 DEFINITION OF CHAMPION

1.2.1 The Champion shall be the competitor who has the highest aggregate score at the end of the event.

1.2.2 To be recognized as a Champion and for a Champion to be declared for State or Regional Championships, at least three tasks must be completed.

#### 1.3 INTERPRETATION OF ENGLISH WORDING

1.3.1 “**Shall**” and “**must**” mean the application is mandatory. Failure to comply will normally lead to a penalty, disadvantageous interpretation, or other disadvantages.

1.3.2 “**Should**” means that the application is recommended. Failure to comply may lead to penalties, disadvantageous interpretation, or other disadvantages.

1.3.3 “**May**” means that the application is optional.

#### 1.4 DOCUMENTATION

The following documents will be inspected when competitors register on arrival at the Event:

- a) Pilot Certificate
- b) Pilot Log Book
- c) Balloon Log Book
- d) Certificate of Airworthiness
- e) Certificate of Registration
- f) Certificate of Insurance

#### 1.5 CLARIFICATION STATEMENT

The terms “**he**”, “**his**”, “**pilot**”, or “**competitor**” shall mean a person of either gender that is registered and participating in the Event as it may pertain to these rules and/or task sheets and briefings.

## CHAPTER 2 – ENTRY CONDITIONS

### 2.1 COMPETITOR

Pilot entered and competing in the event.

### 2.2 COMPETITOR'S RIGHT TO COMPETE

2.2.1 Members in good standing and not on probation with the BFA/HACD are eligible to compete in BFA Sanctioned events.

2.2.2 **NOT USED** (Crew flying in basket having competed in previous national, continental or World championship must be of same nationality)

### 2.3 QUALIFICATION

Each pilot-in-command shall meet the requirements of the organizer and the BFA/HACD Sanctioned Regulations.

### 2.4 SPORTING LICENSE (NOT USED)

### 2.5 ENTRY

The completed entry form and entry fee for each competitor must reach the organizers by the closing entry date, except in the case of extra places offered by the organizers. The entry fee may or may not be refundable.

### 2.6 ACKNOWLEDGEMENT

A competitor who has not received acknowledgement of their entry within fourteen days after the closing entry date should make inquiries of the organizer .

### 2.7 ACCEPTANCE OF CODE OF CONDUCT, RULES AND REGULATIONS

All entrants and competitors are expected to know, understand, and abide by the competition Rules and Regulations for this event. In addition, the competitors are required to know, understand, accept and abide by the Code of Conduct (see APPENDIX C), and by entering are deemed to accept without reservation. They should appreciate that they should compete in a sporting manner and that their behavior must be beyond reproach.

### 2.8 RELEASE OF LIABILITY

2.8.1 The competitor, by entering the event, agrees that the organizers and sponsors of this event, competition officials, Balloon Federation of America, BFA/HACD, officers, trustees, agents and/or members of these entities are providing the competitor with the facilities and means for participation in this event and in no way do they supersede the responsibility of the pilot in command as stated in the FAR's, or otherwise.

2.8.2 The competitor releases the aforementioned from liability for their actions or inactions in relation to the event which may arise out of or result from or in any manner be connected with the balloon flight or activity in which the competitor participates as a pilot in command.

### 2.9 LIABILITY TO THIRD PARTIES

By entering the Event, a competitor assumes all liability for injury, loss or damage to third parties or their property caused by himself or his crew.

### 2.10 SAFETY

2.10.1 All meteorological reports, forecasts, and other safety or navigational information is provided in good faith for the guidance of competitors. The event assumes no responsibility for the completeness or accuracy of such information. It is the competitor's decision whether to rely on that information or acquire additional information.

2.10.2 Officials may be appointed to regulate the inflation and launching of balloons. However, nothing shall diminish the responsibility of each pilot under this chapter.

2.10.3 Recall procedures will be used as described in II.10 and 10.15.

### 2.11 RESPONSIBILITY

Entrants and competitors **have full and complete authority over the balloon and are responsible for all decisions to be made associated with the balloon on the ground and in the air.** Competitors must ensure that his crew, his equipment, and his own level of skill and experience are suitable for the conditions in his own judgment. A competitor is responsible for all the actions of his crew during the event.

### 2.12 CONDUCT

Entrants and competitors and their crews are required to behave in a sportsmanlike manner, follow the Code of Conduct, and comply with the directions of Event Officials. Inconsiderate behavior, profanity, or unsportsmanlike conduct will be penalized by the Event Director and may be grounds for expulsion of a competitor. (See APPENDIX C for Code of Conduct.)



## CHAPTER 3 - BALLOON QUALIFICATIONS

### 3.1 DEFINITION OF BALLOON

- 3.1.1 Aerostat: a lighter-than-air aircraft  
Free Balloon: an aerostat supported statically in the air, with no means of propulsion by any power source.
- 3.1.2 Sub-class AX: free balloons which obtain their buoyancy solely as a result of heating air. The envelope may contain no gasses other than air and the normal products of combustion.

(3.1.3) **NOT USED** (In CIA sanctioned Category I events, vents which are designed to rotate or propel a balloon may only be operated in flight after all tasks are completed. Penalty 250 to 500 task points.)

### 3.2 FUEL

Each balloon shall carry an adequate fuel supply to ensure completion of the flight with an adequate reserve. The lack of adequate fuel to complete a task shall not be grounds for protest.

### 3.3 DESIGNATION OF BALLOON

Each competitor shall designate the balloon he is to fly during the Event. No change of balloon may be made after the start of the first task briefing except as provided in these rules. The maximum size category is **<designated in II.20>**

### 3.4 AIRWORTHINESS

Aerostats flown in the Event must have current certificates of registration and airworthiness, or in place of the later, an equivalent document from the FAA. The organizers/officials are empowered to visually inspect and/or reject any aerostat which in their opinion is not of a reasonable standard of airworthiness.

### 3.5 DAMAGE

- 3.5.1 If a balloon is damaged during the Event, it may be repaired. Damaged components may be replaced or repaired, except that a complete envelope may be replaced only at the discretion of the Event Director.
- 3.5.2 The pilot of a balloon damaged while in flight, to the extent affecting its airworthiness (according to the individual balloon's flight manual), is prohibited from continuing in the task(s) and must land at the first practical opportunity. The damage must be reported to the Safety Officer per rule 3.5.3
- 3.5.3 Any damage to a balloon affecting its airworthiness must be reported to the Safety Officer before it is entered for a further task, and the balloon may only be flown after appropriate repairs have been made and proper evidence and documentation of such has been provided to the Safety Officer. Penalty: up to 1000 competition points.

### 3.6 AUTOMATIC FLIGHT CONTROLS

Any device designed to act as an automatic flight control is prohibited, regardless of the specific nature of the device.

### 3.7 ALTIMETER

Each balloon shall carry a serviceable altimeter.

### 3.8 COMPETITION NUMBERS

If utilized by the Organizer, basket banners provided will be displayed on opposite sides of the basket during tasks. In addition, all crew vehicles shall be clearly identified on opposite sides with competition numbers, if provided. Penalty is up to 200 competition points applied to the first task of the flight(s).

### 3.9 BASKET

The term "basket" includes any crew or passenger compartment, regardless of its construction.

### 3.10 RETRIEVE

- 3.10.1 Retrieve Crew shall not be within any MMA except with permission of the target official(s). Crews are not allowed to make permanent marks on an intersection (temporary marks are permitted, e.g. paper, chalk).
- 3.10.2 All vehicles used to aid the retrieval of a balloon shall be marked with the competition number.
- 3.10.3 Retrieve vehicles shall not be parked within 100m of a goal/target set by the Director, unless specifically authorized in the briefing, e.g. to submit a competitor's FON declaration.

## **CHAPTER 4 - ORGANIZATION OFFICIALS**

### **4.1 EVENT DIRECTOR**

- 4.1.1 The Event Director will be in overall charge of balloon operations of the event. He may have an assistant director and technical officials to assist him.
- 4.1.2 The Event Director is responsible for the good management, smooth, and safe running of the event. He shall make operational decisions in accordance with the rules of the Event. He may penalize or disqualify a competitor for misconduct or infringement of the rules. He shall attend meetings of the jury and give evidence if requested.
- 4.1.3 In the rules the word "Director" may be used instead of "Event Director."
- 4.1.4 The responsibility of the Event Director is limited to competition operations, and does not include any other activity within the event not related to competition operations.

### **4.2 STEWARDS**

- 4.2.1 Stewards are advisors to the Director and, if used, shall:
- Watch over the conduct of the event and report any unfairness or infringement of the regulations or behavior prejudicial to the safety of other competitors or the public or in any way prejudicial to the sport.
  - Investigate protests and assemble information and facts concerning matters to be considered by the Jury.
  - Advise on the interpretation of the rules and regulations and to advise on penalties
- 4.2.2 A steward has no executive powers; he must not be a member of the organizing committee. A steward may attend a meeting of the Jury as an observer or witness.

### **4.3 JURY DUTIES AND COMPOSITION**

- 4.3.1 Matters of advice, arbitration or rule interpretation shall be the responsibility of the Jury having been appointed in accordance with 4.3.3.
- 4.3.2 During the event, the Jury deals with protests made by competitors. A Jury member must possess a thorough knowledge of the rules and regulations for the Event. At least one Jury member is to be on site during the competition operations.
- 4.3.3 In the event of a protest, the Scoring Officer shall serve as Jury Chairman and select two competitors from a pool of five potential jurors, selected by the competitors at the general briefing. Selected jurors must not have a conflict of interest with the protest to be heard. In the event that the Scoring Officer has a conflict of interest, the Safety Officer or other designee shall serve as Jury Chairman. In the event of a subsequent protest, the Scoring Officer shall make a new selection of jury members. In the event that all members of the pool should have a conflict of interest with the current protest, the Scoring Officer and the Safety Officer shall act as jury members and shall select one additional member from the competition staff. The Event Director may not serve as a juror.
- 4.3.4 The Scoring Officer, in his role as Jury Chairman, has the right to require the Organizer to abide by the published rules and regulations for the Event. If the Organizer fails to do so, the Scoring Officer has the power to stop the Event until a jury meeting has considered the situation.

### **4.4 SCORING OFFICER**

The scoring officer shall be responsible for collecting results and producing scores using the BFA Scoring Software or some other valid method.

### **4.5 SAFETY OFFICER**

The Safety Officer shall give advice to the Event Director on any matters regarding safety and will be in consultation on weather forecasts and briefings. Mandatory operational procedures for the safety officer are contained in the Safety Officer's Handbook (SOH).

### **4.6 TECHNICAL SUPPORT OFFICERS**

Technical Support Officers are competition officials who are responsible to the Scoring Officer. If utilized, they are responsible for the computers mapping software and verifying the records of each pilot's flight track. Their duties include the downloading of the GPS tracks and they will be responsible for verifying each pilot's recorded track and recording relevant information regarding their flight and performance during the task for the Chief Scorer.

## **CHAPTER 5 - COMPLAINTS & PROTESTS**

### **5.1 ASSISTANCE**

A competitor who is dissatisfied on any matter should first ask the appropriate Official to assist him. He may ask for his result or points score to be checked, or the calculation to be explained.

### **5.2 COMPLAINT**

- 5.2.1 The purpose of a complaint is to obtain a correction without the need to make a formal protest.
- 5.2.2 A complaint is a request by a competitor to the Director, or his delegated official, to investigate any matter in which the competitor is dissatisfied.
- 5.2.3 A formal complaint must be submitted in writing and will receive a written reply.
- 5.2.4 Complaints shall be handled or transmitted by the competitor to the Director, or his designated official, who will acknowledge receipt and record the time of receipt.

### **5.3 COMMUNICATION (II.14)**

Replies to complaints will be posted on the Official Notice Board at fixed times announced in advance by the Director.

### **5.4 PUBLICATION**

The Director may at his discretion publish the text of any formal complaint together with his reply. If requested by the competitor, the Director must do this.

### **5.5 PROTEST**

- 5.5.1 If dissatisfied with the Director's decision on a Complaint made during the Event, a competitor has the right of protest.
- 5.5.2 Declarations of intention to protest and protests with protest fees shall be handled or transmitted by the competitor to the Event Director, or his designated Official, who will acknowledge receipt and record the time of receipt. These declarations of intent or protests shall be handed in at the Operations Center to an official.
- 5.5.3 A competitor who has made a protest has the right to make a verbal presentation of his case to the Jury. He may be assisted by an advisor of his choice during this meeting.
- 5.5.4 The text of all protests and the decisions of the Jury shall be posted on the Official Notice Board.

### **5.6 TIME LIMITS**

#### **5.6.1 TIME LIMITS FOR COMPLAINTS (II.18)**

- 5.6.1.1 Complaints must be submitted as soon as possible after the event giving rise to the complaint and must be dealt with expeditiously.
- 5.6.1.2 Complaints concerning scoring must be made to the Event Director or Scoring Officer within eight (8) hours of publication of the official scores for a task. The rest hours defined in the competition details (II.18) will be disregarded for the purpose of the time limits.
- 5.6.1.3 Publication of a new version of official scores will only extend the complaint time in the matter concerned.

#### **5.6.2 TIME LIMITS FOR PROTESTS (II.18)**

- 5.6.2.1 A competitor intending to protest shall, within one (1) hour of the reply to his complaint, declare his intention to protest to the Event Director.
- 5.6.2.2 Within eight (8) hours of the reply to his complaint the competitor shall submit his protest in writing accompanied by the protest fee (I.8). The rest hours defined in the competition details (II.18) will be disregarded for the purpose of the time limits.

**5. 6.3 SHORTENED TIME LIMITS FOR COMPLAINTS AND PROTESTS (II.15)**

- 5. 6.3.1 Complaints made on or after the last day of the Event must be submitted to the Director within one (1) hour of publication of the official scores.
- 5. 6.3.2 Protests made on or after the last day of the Event must be submitted within one (1) hour of the reply.
- 5. 6.3.3 The Event Director shall announce the publication times for all task scores on the last flying day.
- 5. 6.3.4 Time limits applying to scores published after 13:00 on the day before the last flying day will also be reduced to one hour on or after the last flying day of the event.

**5. 7 TREATMENT OF PROTESTS**

- 5. 7.1 The Event Director must present any protest to the Jury Chairman without delay. The Jury Chairman will call a meeting of the Jury within 24 hours of receiving a protest.
- 5. 7.2 The jury will hear both sides of the matter of any protest, applying the relevant rules for the event.
- 5. 7.3 The Chairman of the Jury shall report the result and a summary of any relevant considerations in writing to the Event Director without delay, who shall make public the Chairman's report.

**5. 8 RETURN OF DEPOSIT**

- 5. 8.1 Normally the deposited fee is returnable only if the protest is upheld, or is withdrawn prior to the hearing by the Jury.
- 5. 8.2 All non-refunded deposit fees from protests will be sent by the Jury to the BFA/HACD.

**5. 9 JURY APPROVAL OF SCORES AND PRIZE GIVING**

- 5. 9.1 The scores of the event shall be final only after all protests have been dealt with by the Jury and the Jury has ceased its functions. The final scores must be made public before the prize giving is held.
- 5. 9.2 The Jury Chairman shall verify and sign the final total scores before they are made public.

**5.10 OFFICIAL NOTICE BOARD (II.13)**

The Event Director will announce at the General Briefing the place where the Official Notice Board is located. This should be marked OFFICIAL NOTICE BOARD and is the place where all results, scores, replies to complaints and protests, and other official communications directly relating to the Event will be published. All information shall be signed, dated, and timed. Postings to an official web site implies the required signature and shall display the date and time.

## CHAPTER 6 – OBSERVERS AND LOGGERS

### 6.1 COMPETITION STRUCTURE

The competition will be conducted as defined in Section II.25. **Rules 6.2 to 6.8 apply only to competitions with observers**

### 6.2 OBSERVERS

An Observer is a competition official, responsible to the Chief Observer. His duties are primarily the impartial recording of particulars of positions, times, distances etc. achieved during a flight. He also has the duty to report any apparent infringement of these rules or of air law, and any case of inconsiderate behavior towards landowners or the public by any competitor or crew member.

### 6.3 APPOINTMENT

At the task briefing an Observer will be appointed to each competitor. An Observer will not be appointed to the same competitor more than once.

### 6.4 ASSISTANCE

6.4.1 An observer may not assist the competitor with advice at any time. He should not attempt, to amplify, explain or interpret the rules to a competitor.

6.4.2 He may not handle the marker or any of the controls of the balloon during a task.

6.4.3 If he wishes, and is invited by the competitor, he may assist in the ground handling and inflation and, if flying, may assist with the final landing under the competitor's direction.

### 6.5 REQUEST TO WITNESS

If an observer is asked by a competitor to record or witness any particular piece of information during a task he shall do so.

### 6.6 OBSERVER ON RETRIEVE

6.6.1 When the observer is not flying, he will occupy a seat with a window in the retrieve vehicle and the crew must do their best to keep in visual contact with the balloon until the final marker has been dropped. The observer may not drive the vehicle. He may assist with map reading during the retrieve if asked to do so by the crew, at their responsibility.

6.6.2 It is the duty of the competitor and crew to convey the observer to the launch area, and to return him promptly to the Competition Center after measurement of results and recovery of the balloon.

### 6.7 PHOTOGRAPHY

An Observer may not take a camera on board or engage in photography while flying, except by permission of the competitor, or if required by his duties.

### 6.8 OBSERVER REPORT

The competitor should read and sign the observer's report sheet after completion of the flight. If the competitor disagrees with any information on the sheet, it should be noted at the time of signing.

## **6.9 GPS-LOGGERS**

6.9.1 The use of GPS-loggers in Sanctioned Competition is optional. They may be used exclusively or in conjunction with Observers. Rules 6.9 through 6.13 only apply to events utilizing GPS Data Loggers.

6.9.2 A GPS Data Logger is a device, issued by the organizer, which logs the track and altitude of a balloon. The track points of the log will specify the position (latitude/longitude), the altitude (barometric or GPS altitude as specified in II.22), and a time stamp. Devices enabling competitor's input may additionally be available depending on the type of logger. GPS-loggers may be used in competition as an observation tool to monitor compliance with the rules, for task setting and for achieving a score or result. Competitors must comply with the operational instructions on their use (see II.17).

## **6.10 HANDLING (II.17)**

6.10.1 The GPS-logger will be handed out to the competitors together with the markers at briefing time. Additional rules on handling loggers are specified in Section II.

6.10.2 The competitor will take the logger with him after briefing, turn it on, and attach it to his balloon before take-off in the appropriate manner.

6.10.3 After landing, the competitor will detach the logger, turn it off, and return it to the Operations Center or other location designated by the Director in briefing.

6.10.4 Each pilot is responsible for the safe and undamaged return of the GPS logger as supplied by the Organizer. Damage to, or loss of an Organizer provided GPS may result in the pilot being assessed a charge. If a charge is assessed, it must be paid prior to another official logger being provided.

6.10.5 At no time is the competitor allowed to modify the logger's critical settings (see 6.13.3) or interfere with its operation other than specifically instructed by the Director.

## **6.11 FLIGHT REPORT FORM (FRF) (For events without observers)**

6.11.1 A Flight Report Form (FRF) stating the take-off and landing place and time, estimated task results, landowner related issues, and other relevant data shall be completed and signed by the competitor.

6.11.2 The competitor will return the:

- FRF
- Logger
- Unused markers

to the designated Official(s) at a location designated by the Event Director during the General Briefing. Any undue delay in returning the above objects may result in a penalty.

## **6.12 RESPONSIBILITY**

The competitor is responsible for any loss or damage between handing over at briefing and return of the logger after the flight.

## **6.13 GPS-LOGGER FAILURE (II.17)**

6.13.1 In the case of logger malfunction, the officials may ask the competitor to provide his GPS equipment to substitute the missing track information. Not carrying the official logger in the basket or not turning it on does not constitute logger malfunction.

6.13.2 If the official logger is not carried in flight or turned on, but an approved GPS (see 6.9.2) with a usable track is provided, the competitor will receive a penalty of 200 task points on the first task of the flight for a first offense. Subsequent offenses will be penalized by no result on logger results and up to 200 task points on marker results.

6.13.3 In case both the official logger and the competitor's GPS equipment are not providing the necessary information to establish a result, the competitor will not receive a result based on track points. Marker results will be penalized up to 200 task points when no official or approved track log is available. It is therefore in the competitor's interest to equip himself with a GPS that provides track information usable for scoring (position, altitude and time in accordance with II.22) and use the same set-up (sampling time interval, map datum, minimum track point memory, etc. in accordance with II.17) as the official logger.

6.13.4 An electronic mark recorded by a competitor's GPS equipment can only be used if the equipment has been approved by the Director before the flight or specific rules under Section II have been followed. Otherwise the competitor will be scored to his nearest electronic mark of the official logger, nearest physical mark or landing position, whichever is best. A score to a track point will not be made.

## **CHAPTER 7 - MAPS**

### **7.1 CONTEST AREA (II. 1)**

An area defined by reference to the official competition map published at the start of the Event. Tasks will not be set, and results will not be measured, outside this area.

### **7.2 OUT OF BOUNDS (II. 2)**

The Director may define areas or airspaces as out of bounds. Take-offs or contest landings in OFB areas are prohibited and the competitor will achieve no result in the relevant task. Goal declarations in OFB areas or airspaces will be considered invalid. Competitors cannot achieve a valid mark, valid track point or result in OFB areas or airspaces.

### **7.3 PROHIBITED ZONES (PZ's) (II.2 and II. 3)**

7.3.1 The Director may define airspace or other areas as prohibited. A mark or track point inside a red, yellow or blue PZ is valid unless the area is defined as OFB. The boundaries and, if applicable, the altitude limits in feet MSL, shall be published in writing for each PZ.

7.3.2 Circular PZs (cylinder or dome shape) shall be defined by the center point map reference and radius in meters and/or feet. PZs with natural boundaries shall be defined by marked copies of the competition map to each competitor individually.

7.3.3 There are four classifications of PZ's: Red, Yellow, Blue and Orange.

7.3.4 A red PZ is restricted airspace and will include an altitude limit which a competitor shall not fly below.

7.3.5 A Yellow PZ is a restricted area where no take-offs or landings are permitted.

7.3.6 A Blue PZ is a restricted airspace and will include a lower altitude limit which a competitor shall not fly above.

7.3.7 An Orange PZ is restricted airspace defining minimum altitudes in congested areas as defined by the FAA.

7.3.8 Red Road (Motorway) PZ identifies restricted airspace surrounding major roadways or Interstates.

### **7.4 PZ's IN FORCE**

At each task briefing PZ's will be published as in force or not in force for competition purposes in that flight. This does not necessarily describe their operational activity or status for other aviation purposes.

### **7.5 PZ INFRINGEMENT**

A competitor violating a PZ in force will be penalized proportionally to the offense as follows:

- a) Red PZ up to 1000 competition points
- b) Orange PZ up to 1000 competition points
- c) Blue PZ up to 1000 competition points
- d) Yellow PZ up to 500 competition points.

### **7.6 MAPS**

A competitor is required to carry a competition map in the basket. All published PZ's, whether or not in force for the task, and all out-of-bounds areas shall be clearly and accurately marked on the map. An adequate map of aeronautical restrictions must be carried, unless these are also marked on the competition map. A competitor violating this rule will be penalized up to 250 competition points.

### **7.7 EARTH TO BE FLAT**

For scoring purposes, the earth is flat and calculations based on the competition map will be taken as accurate.

### **7.8 MAP COORDINATES**

To identify a point on the competition map, the coordinates must be written in eight-digit format (first four digits west/east and the second four digits south/north - Easting then Northing) or one of the formats as defined in Section II. For goal declaration of pre-defined goals, the complete goal number of the published list may be used. Penalty for inappropriate but unambiguous declarations is 100 task points.

### **7.9 DEGREE REFERENCE**

Unless otherwise stated, directions are expressed in degrees referenced to the grid system printed on the competition map.

## **CHAPTER 8 – PROGRAM, BRIEFINGS**

### **8. 1 TASK PROGRAM**

The Event will consist of a series of tasks. The number and frequency of the tasks and rest periods are at the discretion of the Director. At the first task briefing on the day before the last planned flying day, the Director shall publish the remaining flying program.

### **8. 2 VALID TASK**

8. 2.1 A valid task is defined as one in which all entered competitors were given a fair opportunity to make a valid take-off, unless they had withdrawn or had been disqualified. (See Appendix D, Section I (e) 2 for further requirement)

8. 2.2 The Director has the authority to cancel a task(s) for safety reasons at any time before the official task scores are published.

### **8. 3 TASK SELECTION**

The Director shall select tasks from those described in Chapter 15. Particular tasks may be set more than once or not at all.

### **8. 4 MULTIPLE TASKS**

8. 4.1 The Director may set more than one task to be performed on one flight. The tasks will be scored separately, with a winning score of 1000 points (or best positional score per 14.6.2) before penalties for each task. The combination of tasks should aim at the possibility of winning each task independently.

8. 4.2 Unless otherwise specified, tasks in a multiple task flight shall be flown in the order indicated in the task data, penalty up to 1000 task points in each task.

8. 4.3 When markers are used, dropping the marker(s) of a task inside the set MMA indicates the completion of that task and the start of the following task, if applicable. Ground contact penalties of Rule 11.5 within an MMA will be assessed to the task of the MMA.

8. 4.4 Competitors missing the MMA or choosing not to drop their marker(s) or when scoring by track points is indicated, are considered flying in the follow on task after achieving their best track point result or if they cross the boundary line (area, grid line, arc, etc.) or boundary time of the follow on task.

8. 4.5 NOT USED

8. 4.6 Penalties related to the take-off will normally be applied in the first task. Penalties related to the landing will normally be applied in the last task. Other penalties should be applied in the task in which they were incurred unless this is impossible, in which case they will be divided equally over more than one or all tasks.

8. 4.7 If not otherwise stated in the task data, the minimum distance from the launch point to a goal/target applies as well to all further goals/targets on that flight.

8. 4.8 Marker order: unless track points are used, the task data shall specify for each task the marker(s) and/or electronic marks to be used. If no competitive advantage is gained, the penalty for releasing the wrong marker is 25 points per task. If more than the allowed number of physical markers is released in a task, the competitor will be scored by track point. If an electronic mark is dropped more than once, the first (1<sup>st</sup>) electronic mark in time will be scored (for use in Flytec logger scoring).

### **8. 5 MODIFICATION OF RULES**

8. 5.1 No further modification, after approval by the BFA/HACD Board, shall be permitted during the Competition Year unless approved by three-quarter majority of the HACD/Board.. No such rule addition or modification shall be retroactive.

8. 5.2 The task rules of Section I, II, and III, Chapter 15 are defined as variable rules and changes to those may be made without authorization.

8. 5.3 Variations to task rules shall be provided individually to each competitor in writing.

### **8. 6 GENERAL BRIEFING**

A General Briefing on the rules, regulations and all major aspects of the Event will be held before the start of the Event. Attendance at the General Briefing is compulsory for all entrants, observers and Officials. The official competitors list, compiled from the roll call of the entrants taken at the General Briefing, shall be published as soon as practical after the General Briefing, but before the first task briefing. Where a justifiable reason exists, a late entry may be accepted by the Director in consultation with the Jury, but before the publication of the first scores.



## **8.7 TASK BRIEFING**

- 8.7.1 Task briefings will be called by the Director at times published on the Official Notice Board. Alternative methods may be used as announced in the General Briefing. At the briefing the following information will be given verbally, by written circular, or by posted notices:
- a) Meteorological information
  - b) Air traffic and safety information (if any)
  - c) Task data
- 8.7.2 Where written information is supplied, adequate study time should be allowed before the briefing proceeds (as specified in the COH).

## **8.8 TASK DATA**

- 8.8.1 At task briefings the task data, preferably in writing, shall be given to competitors. The task data sheets (TDS) will contain flight data related to all tasks and individual task data.
- 8.8.2 Flight data:
- a) Date
  - b) Official sunrise/sunset
  - c) PZs in force
  - d) Launch area
  - e) Launch period
  - f) Provisional time and place of next briefing
  - g) Solo flight (if directed)
  - h) Search period
- 8.8.3 Individual task data:
- a) Marker(s) color to be used (if used)
  - b) Task/Marker order (if other than normal)
  - c) Dropping method (if gravity drop directed)
  - d) Marker Measuring Area (MMA)
  - e) Scoring period, scoring area, and/or scoring airspace (if set)
  - f) Task data as per task rule

## **8.9 SUPPLEMENTARY BRIEFING**

If it should be necessary to publish additional or revised information to competitors at the common launch area, a pink flag will be raised at the signals point. The competitor should attend in person or send a responsible crew member to the signals point. The information will be given verbally and a written copy may be displayed. All competitors will be deemed to have proper notice of the information. Alternatively, an official may circulate a written notice to each balloon and obtain the signature of the competitor or crew member.

## **8.10 ENTRY FOR TASKS**

A competitor shall enter a task by answering his name or competition number at roll call at the task briefing. Alternative methods of checking the competitor's attendance may be used.

## **8.11 LATE ENTRY**

- 8.11.1 A competitor may make a late entry at the signals point with a penalty of 50 task points up to five minutes before the start of the launch period, or 100 task points thereafter. Officials will not be available to give a personal briefing except for Air Traffic, safety matters, and PZ's.
- 8.11.2 In tasks where competitors select their own launch areas, late entries must be made by contacting an official and making arrangements on where to be briefed and receive a task sheet, GPS-logger, weather sheet, and markers.

## **8.12 OFFICIAL TIME**

The official time is GPS time corrected for the local time offset.

## **CHAPTER 9 - LAUNCH PROCEDURES**

### **9.1 COMMON LAUNCH AREA(S) (CLA) (II. 4)**

- 9.1.1 One or more areas defined by the Organizer and used when the task requires all pilots to launch from a common area. A competitor taking off outside the prescribed common launch area (CLA) will not achieve a result for all tasks of that flight.
- 9.1.2 The Common Launch Point (CLP) is a point in or near the launch area, physically marked on the ground before the beginning of the Event, from which all angles and distances are measured, irrespective of the take-off points of individual balloons. (II. 5)
- 9.1.3 The Director may establish an improvised CLA by a radius around a coordinate or clearly bordered area. Competitors will select their own launch positions within this area. The use of launch directors and relevant rules is at the Director's discretion. Competitors must take-off within the set launch period or, if signals are used, within the period indicated by the flag signals. The Director will declare the CLP used for the CLA at the task briefing. The Director may also apply this procedure to the CLA.

### **9.2 INDIVIDUAL LAUNCH AREAS (ILA)**

- 9.2.1 Individual launch areas are selected by the competitors. The boundary of the Launch Area is a circle of 100 meter radius from the individual launch point or the physical boundary of the property if closer.
- 9.2.2 Competitors must ensure permission has been obtained from the landowner or occupants before driving onto, or launching from, any land which is enclosed or cultivated, or apparently private, or used for agricultural purposes. Penalty for infringement is up to 250 task points.
- 9.2.3 In tasks where competitors select an individual launch area, the Individual Launch Point (ILP) is the position of the basket at the start of hot inflation.
- 9.2.4 In tasks where multiple take-offs are allowed, unless the balloon is deflated, the landing position of the discontinued flight is considered the ILP for the next take-off.
- 9.2.5 Individual launch areas shall not be selected outside the contest area. Penalty: no result in the first task of that flight.
- 9.2.6 A balloon inflated in an individual launch area shall not be moved and take-off outside of it unless it is deflated, moved to another launch area and re-inflated. Penalty: no result in the first task of that flight.

### **9.3 LAUNCH PROCEDURES (II.6)**

- 9.3.1 The launch director may allocate to each competitor a space in which to prepare and inflate his balloon. He has the authority to regulate the operation of all balloons and vehicles in the launch area. Penalty is up to 200 task points.
- 9.3.2 Quick-release tie-offs must be used for all balloons inflating in a common launch area and are recommended in individual launch areas.

### **9.4 VEHICLES**

- 9.4.1 Not more than one vehicle per balloon may be present in the common launch area during the launch period. Penalty: 100 task points.
- 9.4.2 Vehicles must be driven at suitably reduced speeds within the launch area. The Safety Officer and the Launch Directors may bar from the area any vehicle that is driven inconsiderately.
- 9.4.3 No vehicle may enter the common launch area after the advance yellow warning flag has been raised except by permission of a Launch Director or other official. Penalty: 100 task points.

### **9.5 COLD INFLATION**

Burners may be briefly tested and cold air may be induced into the envelopes for rigging and inspection, but before permission for hot inflation has been given, there must be no hot inflation, no use of powered fans, and no part of the envelope fabric may be more than two meters off the ground. Fans may be tested or used before the launch period until a flag of any color has been raised. This rule does not apply to ILA.

### **9.6 SIGNALS POINT**

One or more points at the launch area where flag signals may be displayed and competitor's task declarations, late entries and supplementary briefings take place. Competitors are responsible for keeping observation on the signals point, and its obscuring shall not be grounds for complaint.

## **9.7 LAUNCH SIGNALS**

9.7.1 Colored flags shall have the following meanings when displayed at the signals point:

RED	No inflation or take-off permitted. Previous permission to take-off cancelled.
GREEN	General permission to all balloons to begin hot inflation.
BLUE	Permission to 'blue' wave (odd numbered balloons) to begin hot inflation.
WHITE	Permission to 'white' wave (even numbered balloons) to begin hot inflation.
YELLOW	Five minute warning.
PINK	Supplementary or amended briefing information available at signals point.
BLACK	Task cancelled.
VIOLET	(Reserve) Meaning as notified at task briefing for a particular task.

9.7.2 An audible signal may be given to draw attention to changes of flag signals.

## **9.8 PUBLIC ADDRESS**

Unless the Director has specified at the task briefing that the public address system will be used, any information given over the public address system is of no effect for competition purposes.

## **9.9 LAUNCH PERIOD**

Take-off may not be made before or after the launch period. Any take-off made outside the launch period, except under rule 9.12, will be subject to a penalty of 100 task points per minute or partial minute early or late. The yellow warning flag will be raised five or more minutes before the end of the launch period (for launches from a CLA)

## **9.10 OBSTRUCTION**

Once his balloon is fully inflated a competitor may not unnecessarily remain in position where his balloon obstructs another.

## **9.11 ADEQUATE TIME**

A competitor who has been given permission to begin hot inflation 20 or more minutes before the end of the announced launch period is deemed to have adequate time, even if the launch period is curtailed for any reason.

## **9.12 EXTENSION OF TIME**

A competitor may request an extension of time from the Launch Director. The Launch Director may grant an extension if he is satisfied that the competitor was delayed by the action of officials or other competitors, or by causes outside his control (equipment malfunction excluded).

## **9.13 LAUNCHING ORDER**

Balloons may be allotted an order of priority for inflation, which will be rotated from one task to the next. Competitors may commence hot inflation according to the flag signal is hoisted or when given individual permission by the Launch Director.

## **9.14 LAUNCH DIRECTORS**

9.14.1 Launch directors are officials designated by the Director to regulate the operation of all balloons and vehicles in the launch area and to assist in launching of balloons from CLAs.

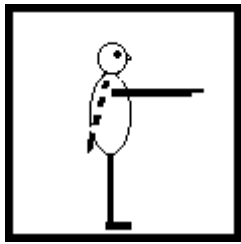
9.14.2 The Director can make the use of launch directors compulsory for all competitors or optional.

## **9.15 PROCEDURES WHEN LAUNCH DIRECTORS ARE COMPULSORY**

9.15.1 When a competitor is completely ready for take-off, and has positive buoyancy, he should wave a white flag to indicate his readiness to the launch director. When the launch director has acknowledged this signal, the competitor should leave the flag displayed on the edge of the basket and await further instructions while maintaining his readiness to take off. The launch director will, as far as possible, launch balloons in the order of signaling their readiness. Competitors should equip themselves with a suitable white flag about 50 cm square (handkerchief) for this purpose.

9.15.2 To avoid congestion, extension of time will not be granted when competitors wave their white flag within the last ten minutes of the launch period.

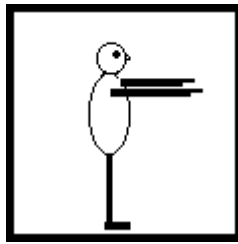
9.15.3 The launch director will give each competitor permission to take-off according to the signals as published. The competitor may then take-off at will, subject to any instructions from the launch director at the time.



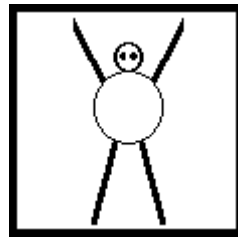
I acknowledge your white flag.



Stay on ground; follow instruction of my right hand.



I'm going to clear you for take-off.



Clear for take-off



Cancel all previous instructions. Wait.

9.15.4 This permission does not relieve the competitor of complete responsibility for his take-off, including adequate lift to clear obstacles and other balloons, and to continue safely in flight. A competitor taking off without permission, whether due to loss of control or any other reason, may be penalized up to 500 competition points

9.15.5 If the balloon does not take off within 30 seconds, permission to take off may be cancelled by the launch director.

9.15.1 When a competitor is completely ready for take-off, and has achieved positive buoyancy, he should waive a white flag to indicate his readiness to the launch director. When the launch director has acknowledged this signal, the competitor should leave the flag displayed on the edge of the basket and await further instructions while maintaining his readiness for take-off. The launch director will, as far as possible, launch balloons in the order of signaling their readiness. Competitors should equip themselves with a suitable white flag about 50 cm square (handkerchief) for this purpose.

**9.16 PROCEDURES WHEN LAUNCH DIRECTORS ARE OPTIONAL**

When a competitor is completely ready for take-off, he should have an experienced crew member advise him when the airspace above and upwind is clear for launch. Alternatively, he may ask an available launch director or official to clear him for launch.

**9.17 LOSS OF CONTROL**

A competitor losing control of his balloon shall deflate immediately or take appropriate action.

**9.18 TAKE-OFF (T/O)**

The point and/or time at which all parts of an aerostat or its crew cease to be in contact with or connected to the ground or water.

**9.19 VALID TAKE-OFF**

A balloon is considered to have taken off and to be flying the task(s) if a mark has been achieved or if the balloon passes over the boundary of any launch area. Unless stated otherwise, only one valid take-off per flight is permitted.

**9.20 ABORTED TAKE-OFF**

9.20.1 A competitor may abort his take-off for safety reasons but must avoid the obstruction of other balloons. He may attempt further take-off(s) inside the launch period.

9.20.2 At a Common Launch Area he must inflate in his originally allocated space, except by permission of the Launch Director, and must again obtain permission to take-off.

**9.21 CLEARING LAUNCH AREA**

Within three minutes of his basket first leaving the ground, a competitor must have passed over the boundary of the launch area or shall have climbed to 500 feet AGL, regardless of the end of the launch period. He shall not re-enter the launch field below 500 ft. AGL before the end of the launch period or until after all balloons have taken off, whichever is earlier.

## CHAPTER 10 - FLIGHT RULES

### 10.1 MIDAIR COLLISION

- 10.1.1 When two balloons are converging in flight, both competitors are responsible to avoid collision. The competitor of the higher balloon shall give way and shall climb if necessary.
- 10.1.2 Competitors shall not initiate or maintain a vertical speed exceeding 1.5 m/s (300 ft./min) unless they are certain that no balloon is in their flight path.
- 10.1.3 Competitors causing a collision will be penalized by up to 1000 competition points. A repeated offense will be penalized at least 1000 competition points and the competitor may be grounded for the next flight(s).
- 10.1.4 Envelope to envelope contact in approximate level flight will generally not be penalized.

### 10.2 RECKLESS FLYING

Reckless flying (e.g. any flying creating an unnecessary risk to other balloons or people on the ground), not necessarily causing a collision, will be penalized up to disqualification from the event.

### 10.3 CLEARING GOAL/TARGET AREA

A competitor who has dropped his marker shall clear the vicinity of the goal/target as quickly as reasonably possible.

### 10.4 DROPPING OBJECTS

No objects may be dropped from the balloon except for official markers, or small pieces of paper or similar lightweight materials for navigational purposes.

### 10.5 BEHAVIOR

Competitors are required to fly with proper consideration for persons and livestock on the ground and to follow good landowner relations etiquette and the code of conduct. Inconsiderate behavior by competitors or crew members, or endangering the public during flight, may be penalized up to 1000 competition points.

### 10.6 LIVESTOCK AND CROP (II. 7)

Balloons must not fly closer than defined in Section II from livestock or buildings containing livestock, and competitors and crews must not damage crops unless given permission by the landowner or person responsible for the crop. Penalty for infringement of this rule is up to 1000 competition points.

### 10.7 LANDOWNER

In these rules, the term "Landowner" means the person who is responsible for any crop or livestock on the land, not necessarily the legal owner of the land itself.

### 10.8 COLLISION

A competitor whose balloon is in collision with power or telephone lines or their supports at any time between inflation and completion of final landing will be penalized up to 500 competition points. Collisions may additionally be penalized under the rule for reckless flying.

### 10.9 PERSONS ON BOARD

- 10.9.1 Competitors may carry other crew during a flight, and they may perform any duties he wishes to assign to them, except to act as pilot-in-command.
- 10.9.2 The total number of persons on board (including competitor) shall not exceed three (3).
- 10.9.3 If the Event is operating under a standard FAA Waiver, flight crew are required to sign 'designated flight crew' forms.
- 10.9.4 Competitors may be required to perform a particular flight "solo" as specified in the task data. Penalty: the competitor will not receive a result.

### 10.10 GROUND CREW

Each competitor will ensure that he has sufficient crew to operate his balloon and retrieve vehicle. He will ensure that all those involved with his balloon are adequately briefed on safety.

### 10.11 DRIVING (II. 8)

Vehicles must be driven safely during the retrieve and comply with local driving laws. Penalty up to 500 competition points.

**10.12 DISEMBARKATION**

No person may enter or leave the basket between take-off and completion of the final task of that flight.

**10.13 ASSISTANCE**

The use of handling lines or any handling assistance from persons on the ground is forbidden during flight.

**10.14 AIR LAW (II. 9)**

10.14.1 Infringements of air law included in the FARs which do not contravene the rules of the Event or provide competitive advantage will not be penalized by the Director except in cases of damage, disturbance, or reasonable complaint from persons not connected with the Event.

10.14.2 Infringement of the FAA Event Waiver will be penalized up to 1000 competition points and if repeated violations occur may result in disqualification from the event.

**10.15 RECALL PROCEDURE (II.10)**

The organizer's recall procedure is defined in the competition details.

## **CHAPTER 11 - LANDINGS**

### **11.1 LANDINGS**

A competitor may land at will when he has completed all tasks during flight.

### **11.2 LANDING AT WILL**

11.2.1 When a competitor makes a landing at will, the landing point is the final resting place of the basket after landing.

11.2.2 All pilots must have landed by sunset as published or announced at the task briefing. Penalty for infringement of this rule is 100 task points per minute or part thereof.

11.2.3 Unless otherwise stated in the task data, a landing at will is not permitted within a MMA or limited scoring area where a target is displayed or within 200 meters of any physical mark of the competitor

### **11.3 CONTEST LANDING**

11.3.1 In tasks where a competitor is required to produce a mark (physical or electronic) but elects not to do so, his landing will be deemed a contest landing. The scoring position for a contest landing is the final resting place of the basket. Published scoring periods and search periods apply.

11.3.2 No handling assistance may be received from anyone on the ground and no one of the flight crew may leave the basket before the basket has reached its final resting place.

11.3.3 Any retained marker must be handed over to an official at the earliest opportunity.

11.3.4 Unless otherwise stated in the task data, a contest landing is not permitted within 200 meters of goals/targets or within a MMA.

### **11.4 GROUND CONTACT 1**

After passing over the boundary of any launch area, no part of the balloon or anything attached to it may make contact with the ground or water surface or anything resting on or attached to the ground, until the last task has been completed. Penalty for each contact is 100 competition points if light or 200 competition points if solid. Note: a contact is solid if, as a result, a change of motion of the basket or the envelope is observed.

### **11.5 GROUND CONTACT 2**

No part of the balloon or anything attached to it may make contact with the ground or water surface or anything resting on or attached to the ground (marker excepted) within the Marker Measuring Area or within 200 meters of any goal/target set by the Director or selected by a competitor. Penalty for each contact is 100 competition points if light and 500 competition points if solid. Note: a contact is solid if, as a result, a change of motion of the basket or the envelope is observed. In the case of ground contact within an MMA or limited scoring area involving more than one target, refer to Rule 8.4.6 for guidance.

(Note: Competitors will not be penalized under both rules for any single contact.)

### **11.6 PERMISSION TO RETRIEVE**

Competitors must ensure that permission has been obtained from the landowner or occupier before driving onto any land that is enclosed or cultivated or apparently private or used for agricultural purpose. Penalty is up to 250 task points.

## **CHAPTER 12 – GOAL, TARGET, MARKER, TRACK POINT**

### **12.1 GOAL (II.11)**

- 12. 1.1 A place defined by grid reference on the competition map, set by the Director or chosen by the competitor.
- 12. 1.2 A competitor arriving at an expected goal that was rebuilt or removed should aim for the closest replaced goal within 100 meters. If the goal has ceased to exist and no similar goal is seen within 100 meters, the competitor should aim for the coordinates. These coordinates will also be taken to calculate/measure any other related tasks of that flight.
- 12. 1.3 The Director may provide a list with predetermined goals. The goals will be numbered and followed by the map coordinates.

### **12.2 GOAL SELECTED BY A COMPETITOR (II.12)**

- 12. 2.1 A goal selected by a competitor shall appear from the map to be easily accessible to vehicles on the ground and precisely identifiable for measurement. Unless otherwise allowed in the task data, the goal shall be the intersection of two roads or a road and a railroad. According to the task data, competitors may be required to choose one or more goals from the list of predetermined goals or as listed in the TDS.
- 12. 2.2 Measurements will be made from a target or marked point as indicated in the TDS. In the remote case that an unmarked intersection is used or allowed to be chosen by a competitor, measurements will be made from the center of the intersection as specified in the competition details. If the intersection shown as a crossroad on the map turns out to be a staggered tee-intersection or other irregular intersection, then the goal will be as described in APPENDIX B – Goal Definitions.
- 12. 2.3 The types of roads allowed for goal declarations by competitors are published in Section II.12

### **12.3 DECLARATIONS BY COMPETITORS (II.12)**

- 12. 3.1 A competitor shall identify his goal by map coordinates. He shall add descriptive detail to distinguish between possible goals located close together near his coordinates. For goal declaration of pre-defined goals, the 3-digit goal number may be used.
- 12. 3.2 In case of any ambiguity between more than one valid goal within 200 meters of the coordinates, the goal achieving the least advantageous result will be placed on a competitor's declaration. If there is no valid goal shown on the map within 200 meters of the coordinates, the competitor will not achieve a result.
- 12. 3.3 A goal declaration violating the restrictions of Section II will be considered invalid and the competitor will not achieve a result. In case the competitor is allowed to declare more than one goal in a task and one or more goals are invalid, the competitor will be scored to the nearest valid goal if any.
- 12. 3.4 In tasks where a competitor is required to declare his goal(s) or other declarations according to the TDS, he shall do so in writing and his declaration shall be deposited before declaration time at the place specified in the briefing data, clearly identified with his name and/or competition number. If more goals or declarations are made than permitted, the competitor will be scored to the least advantageous valid goal.
- 12. 3.5 A competitor who wishes to revise his declaration may deposit a further declaration, within the declaration time, provided that it is clearly marked to distinguish it from any previous declaration(s).
- 12. 3.6 The timekeeper/official will close the declaration box precisely at the declaration time, and will accept late goal declarations, writing the time in minutes and seconds on each. Penalty for late declarations is 100 task points per minute or part minute late.
- 12. 3.7 If the declaration has to be made before take-off (as per 9.18) and the competitor fails to do so, he will not achieve a result.

### **12.4 (NOT USED)**

### **12.5 TARGET**

A prominent cross (as specified in the COH) displayed in the vicinity of a goal or at a specified coordinate. Where a target is displayed, any measurements are made from the target, not from the goal. A competitor reaching a goal where an expected target is not displayed should aim for the goal coordinate.

### **12.6 MARKER (MKR)**

Markers (as specified in the COH) supplied by the organizer will be used for scoring purposes to create a physical mark. Competitors are responsible for collecting the necessary marker(s) before the task. The marker must not be modified in any way. Penalty for modified or unauthorized markers is up to 250 task points.



**12.7 NOT USED**

**12.8 MARKER RELEASE**

The marker may be thrown by hand unless a Gravity Marker Drop is specified at the task briefing.

**12.9 GRAVITY MARKER DROP (GMD)**

In a Gravity Marker Drop (GMD), no horizontal motion shall be applied to the marker in relation to the basket and gravity shall be the only means for the marker to drop. The person releasing the marker must hold the unrolled marker by the tail (non-weighted part of the marker) and release the tail of the marker. The marker shall be allowed to fall from the top edge (bolster) of the basket. The person's hand holding the tail of the marker shall not be outside the basket. Penalties for infringement will be assessed as follows:

- a) Minor infringements with no competitive advantage: 25 task points.
- b) Competitive advantage, e.g. hand extended outside of basket but no horizontal motion applied: 250 task points
- c) Competitive advantage due to throwing, e.g. horizontal motion of the marker: 500 task points.

A marker thrown into a marker measuring area (MMA) or scoring area will be regarded as a valid result and the penalty will be applied.

**12.10 FREE MARKER DROP (FMD)**

The marker must be completely unrolled when coming to rest on the ground. No mechanism may be used to propel the marker. The person releasing the marker must stand on the floor of the basket. Penalty for minor infringement with no competitive advantage: 50 task points. Otherwise 250 task points for a competitive advantage.

**12.11 MARK (12.20 and 12.21)**

12.11.1 A physical mark is the point on the ground vertically below the weighted part of the official marker where it comes to rest after falling from the balloon. If the marker is displaced after coming to rest or disappears subsequently from view (e.g. beneath water level), the earliest position an official or observer has seen the marker in ground contact will be taken with the accuracy available. Same applies if the marker is carried on top of another balloon, automobile, train, etc.

12.11.2 An electronic mark is a track point specifically identified for scoring purposes. The technical details and procedures are defined in Section II. If no electronic mark is found in the recorded track or the scoring criteria defined in the TDS are not met, the competitor will not achieve a result in the relevant task.

**12.12 NOT USED**

**12.13 INTERFERENCE WITH MARKER**

No person other than an official may touch or interfere with a marker on the ground.

**12.14 SEARCH PERIOD**

12.14.1 Competitors have a specified period from the actual start of the launch period in which to find their marker(s).

12.14.2 The choice between searching for the marker and first recovering the competitor rests with the competitor or his crew.

**12.15 LOST MARKERS (in events with logger scoring)**

12.15.1 A marker, dropped within the Marker Measuring Area, is considered lost if it is not found and in possession of Officials within the time limit specified. Competitors may inquire with the measuring officials at a target or goal if they have doubt that their marker will be found. Competitors will not be allowed to search for markers in the MMA without the presence of an official. If a marker dropped, or allegedly dropped, in the MMA is considered lost, then the competitor will be scored by track point as if the competitor had missed the MMA.

12.15.2 If the marker has earlier been seen by an official on the ground and is estimated within the Marker Measuring Area then the official's evidence, together with the logger's data, will be used to determine the competitor's result based on the least advantageous interpretation of evidence available.

12.15.3 Competitors may be required to pay for any marker damaged, not reusable, lost or not brought back in time (see II.19). Charges for lost or damaged markers are stipulated at the General Briefing. Competitors are responsible for returning markers dropped outside the MMA.

#### **12.16 LOST MARKER (in events with observers and no logger scoring)**

- 12.16.1 A marker is considered lost if it is not found and in possession of Officials or an Observer within the time limit specified, except that the Director, or his delegated official may grant an extension of this time limit if there is sufficient reason to believe that the marker(s) may be found.
- 12.16.2 If the marker has earlier been seen on or falling to the ground by an Official or Observer, then the competitor will be given an assessed result based on the least advantageous interpretation of evidence available, provided that the marker was released from an altitude lower than the one defined in Section II. Otherwise the competitor will be scored to his nearest marker or landing position, whichever is best.
- 12.16.3 Charges for lost or damaged markers are stipulated at the General Briefing. Competitors are responsible for returning markers dropped outside the MMA.

#### **12.17 SCORING PERIOD (SCP)**

- 12.17.1 When defined by the Director in the task briefing, the scoring period is the time limits, within which a goal/target or scoring area is valid.
- 12.17.2 A competitor will only score if his marker is found or seen falling to the ground (except as noted in Rule 15.9) by officials or he has landed, within the set time limit. Otherwise, he will be scored by track point.
- 12.17.3 A competitor who does not achieve a scoring position within the Search Period (12.14) will not achieve a result.
- 12.17.4 Under all circumstances scoring within the last fifteen (15) minutes prior to official sunset is prohibited.

#### **12.18 SCORING AREA (SCA)**

- 12.18.1 An area or areas, defined by the Director in the task data within which a valid mark or track point can be achieved. Unless otherwise stated in the task data, the boundary will be the inner hard surface or gravel edge of a road, the inner bank of a river, or other defined marked area. Any part of the weighted bag that is on the inner edge will be considered valid.
- 12.18.2 A competitor who does not achieve a scoring position inside the scoring area(s) will not achieve a result.

#### **12.19 SCORING AIR SPACE**

An air space or spaces, defined by the Director in the task data within which a valid track point can be achieved. Unless otherwise stated in the task data, the boundary will be defined by coordinate lines. The altitude limits are defined by GPS altitude as recorded by the GPS-logger. Any recorded track point exactly on the line or altitude limit will be considered valid.

#### **12.20 MARKER MEASURING AREA (MMA)**

- 12.20.1 The MMA is an area defined by a radius around a goal/target or an otherwise clearly defined area within which results will be achieved by markers.
- 12.20.2 The MMA will be provided for each task in which markers are used.
- 12.20.3 Competitors not achieving a physical mark within the MMA will be scored by track point.
- 12.20.4 In competitions using observers, markers may be scored by observers outside of the MMA within limits described on the TDS.

#### **12.21 VALID MARK**

- 12.21.1 A physical mark is considered valid if it is within the MMA or scoring area and within the scoring period if set.
- 12.21.2 An electronic mark is considered valid if the recorded track point meets all scoring criteria defined in the TDS.
- 12.21.3 A valid physical mark shall have precedence over any track point or electronic mark.
- 12.21.4 Measurements will be made to the closest point of the weighted bag portion of the marker.

## **12.22 TRACK POINT**

- 12.22.1 A track point is defined by recorded date/time, coordinates, and altitude of a point of the track of a GPS-logger.
- 12.22.2 When goals or targets are used, results based on track points will be the 2D, modified 3D or 3D-distance from the goal/target to the track or electronic mark. Details to be specified in Section II. (see Chapter 14 and APPENDIX F for guidance).
- 12.22.3 The director may specify an altitude below which the horizontal distance from the goal/target to the nearest track point (2D measuring) will be used to calculate results. Details are specified in II.22.
- 12.22.3 A competitor's result based on a track point cannot be better than the worst possible result in the MMA.
- 12.22.4 In tasks without goals or targets, the horizontal distance (2D-distance) between points will be used to calculate results.

## **12.23 VALID TRACK POINT**

A valid track point is a track point meeting all scoring criteria set in the task data such as scoring area, and/or scoring airspace, and/or scoring period.

## **12.24 TARGET OFFICIALS**

Target Officials are assigned to establish the competitor's results and possible rule violations. In general, in all tasks having set goals or targets, the Target Officials will measure the results by tape or surveyor equipment within the Marker Measuring Area (MMA).

## CHAPTER 13 - PENALTIES

### 13.1 SERIOUS INFRINGEMENTS, UNSPORTING BEHAVIOR

- 13.1.1 Serious infringements include dangerous or hazardous actions or repetitions of lesser infringements, and will be penalized according to the appropriate rule.
- 13.1.2 Cheating or unsporting behavior, including deliberate attempts to deceive or mislead officials, willful interference with other competitors, falsification of documents, use of forbidden equipment or prohibited drugs, or repeated serious infringements of rules should, as a guide, result in disqualification from the event.

### 13.2 UNSPECIFIED PENALTIES

- 13.2.1 A competitor infringing any rule for which a penalty is not specified in the rules may have a penalty (distance, angle, or time) applied to his result or a deduction of points.
- 13.2.2 Where safety is not an issue, and no competitive advantage has been gained, he will normally receive a warning in the first instance.
- 13.2.3 A competitor may not be penalized under this rule if he has already been penalized under the same rule in a previous task, but has not been informed of the fact before the beginning of the task in question, except for follow-on tasks in the same flight.

### 13.3 DISTANCE INFRINGEMENTS (also see II.12)

- 13.3.1 Where the individual launch point, a goal selected by a competitor, a mark, or a final landing infringes a distance limit at any time, the competitor will be penalized.
- 13.3.2 If a launch point infringes a natural set boundary, the infringement is the distance to the closest correct point.
- 13.3.3 Where the penalty relates to landing too close to a goal/target or mark, the competitor will only receive a result penalty for the greater infringement. The result penalty will be waived if the competitor can show that he was unable to comply because of safety reasons, or because of light wind (unable to clear area within 10 minutes).
- 13.3.4. Competitors landing in an MMA or limited scoring area will not achieve a result in the related task.
- 13.3.5 For competitors taking off too close to a goal or target, declaring a goal outside the limits specified in the TDS or otherwise abusing the set distance limits of a task, the penalty will be determined by the following table based on the percent infringements.

For Elbow, Angle and Land Run Tasks, the percent infringements will be the sum of the percent infringements of each 'leg'.

Percent Infringement (= Infringement / Limit * 100)	Penalty
<= 2%	25 Task Points
<= 5%	50 Task Points
<= 10%	200 Task Points
<= 25%	500 Task Points
> 25%	1000 Task Points

### 13.4 PENALTY POINTS

- 13.4.1 There are two kinds of point penalties: task points and competition points.
- 13.4.2 Task point penalties are subtracted from a competitor's task score, which cannot be reduced below zero (0). Competition point penalties are also subtracted from a competitor's task score and may result in a negative score, which will be set against his total score in the Event.

### 13.5 PROOF OF RULES VIOLATION

The production and demonstration of evidence for any alleged infringement by a competitor always rests entirely with the event officials. Rules shall not be written in order to oblige the competitor to prove his compliance with the rules or his innocence in case of alleged infringement.

### 13.6 FARs

It is the responsibility of competitors to follow the requirements of the Federal Aviation Regulations and any waiver for the event. In all cases involving air traffic rules and air safety, the Director or his delegated official will act in consultation with the FAA Monitor.

## CHAPTER 14 - SCORING

### 14.1 RESULT

A competitor's result is the achieved outcome in a task including result penalties. Results should be expressed in meters, square kilometers, feet, minutes, or degrees with an accuracy of two decimal places.

### 14.2 SCORE

A competitor's score in the Event is the total of all the points achieved in a task when applying the appropriate formulas. Task or competition penalties may be applied according to the rules.

### 14.3 PUBLICATION OF SCORES

14.3.1 The scores of each task shall be published with the minimum of delay on the Official Notice Board.

14.3.2 Task score sheets shall include:

- a) Event name, task date and time, task sequence number, task name and rules reference.
- b) For each competitor his: rank, competition number and name, result, score, and, if applicable, penalties followed by the kind of penalty, a rule reference, and a brief description.
- c) The fixed data used in the Scoring Formulas (P, A, M, RM, W, and SM) and the checksum
- d) Publication date and time, version number and signature of the Event Director.
- e) If more than one score sheet version is published for a particular task, the changes from the previous issue shall be marked and the different versions shall be numbered in sequence.

14.3.3 Task score sheets will have the following status:

**PROVISIONAL:** Provisional scores are published for information only and have no validity for timing purposes.

**OFFICIAL:** Time periods for complaints/protests start from the publication of official scores.

**FINAL:** Official scores automatically become final after all relevant time periods have expired. The Jury may require a correction of the results and/or penalties prior to approving and signing the final scores.

14.3.4 Total score sheets shall include:

- a) Event name
- b) For each competitor his: rank, competition number and name, total score and task scores
- c) Task checksums

14.3.5 Total scores are for information only and will not carry a signature.

### 14.4 RANKING ORDER

14.4.1 Competitors will be ranked in order of performance according to the rules for each task, after adjustment for any penalties. Competitors will be ranked in the following groups for each task:

- |         |   |
|---------|---|
| GROUP A | Competitors whose results have been measured or have been assessed under the rule for lost markers.   |
| GROUP B | Competitors flying the task, but not achieving a result. They will be scored equally using Formula Three, or share equally the remaining points using Formula Two, whichever is the higher. |
| GROUP C | Competitors not making a valid launch or disqualified in the event, all scoring zero points.  |

14.4.2 After calculating the points score with the applicable formula, any penalty points will be subtracted to obtain the competitors final task score. The competitor's final task scores will be ranked again before being published.

#### 14.5 POINTS FORMULA - PROPORTIONAL SCORING (See APPENDIX H)

14.5.1 Each competitor will be awarded a number of points according to his performance. The formula to be used will depend on the competitor's place in the ranking order for the task.

14.5.2 The best result can be awarded up to 1000 points before deduction of any penalty points.

14.5.3 The superior half of the results will receive a score between 1000 and approximately 500 points, in proportion to their performance using Formula One.

14.5.4 The inferior half of the results will receive a score between approximately 500 points and 0 points according to their relative position in the ranking order using Formula Two.

14.5.5 FORMULA ONE: (superior half of performances):  
$$1000 - [(1000 - SM) / (RM - W)] \times (R - W)$$

FORMULA TWO: (inferior half of performances):  
$$1000 \times (P + 1 - L) / P$$

FORMULA THREE: (competitors in Group B):  
$$1000 \times [(P + 1 - A) / P] - 200$$

- P = number of competitors entered in the competition.
- M = P/2 (rounded to the next higher number) (Median Rank)
- R = competitor's result (meters, etc.) if in the superior half.
- RM = result achieved by the median ranking competitor.
- L = competitor's ranking position if in the inferior portion.
- W = the winning result of the task.
- A = number of competitors in Group A
- SM = rounded points score of the median ranking competitor, calculated under formula two.

14.5.6 If fewer than half of the competitors achieve a result in the task, the following changes in definition will apply:

- RM = lowest ranking result in Group A.
- SM = rounded score of the lowest ranking competitor in Group A, calculated under Formula Two.
- M = lowest ranking competitor in Group A.

14.5.7 In tasks where no competitor achieves a result, all competitors in Group B will receive a score of 500 points before any penalty points.

14.5.8 Points scores will be rounded to the nearest whole number.

#### 14.6 POINTS FORMULA - POSITIONAL SCORING (Used for National Ranking System); see APPENDIX D and H) See Appendix D, Section I for definition of *Competitive Field*.

14.6.1 Positional scoring is the formula used for all individual tasks used in the BFA National Ranking System. All tasks entered into the Ranking System whether originally scored under Proportional Scoring or Positional Scoring are converted to Positional Scoring for entry into the National Ranking System.

14.6.2 Scores of competing pilots entered in each Sanctioned Task shall be computed by the following formula:

$$\text{SCORE} = \frac{(P - N + 0.5)}{P} \times 1000$$

- P = number of competitors entered in the competition *Competitive Field*.
- N = numerical position of competitor among the *Competitive Field* when competitors are numbered in sequence according to their standing in the task results. Scores will be rounded to the nearest whole number. In the event of a tie in a task, tied competitors shall each be awarded the average score of the tied places.

## 14.7 PRECISION

14.7.1 Results will be established with the highest precision available.

14.7.2 The following standards will be used:

Result Method	Precision	Example (m)
Tape / surveying	Centimeters	1.23 m
Map coordinate	Decameters	1250.00 m
Track point - GPS	Meters	1231.00 m

Any combination of result methods will revert to the lowest precision method used.

If positions can be determined relative to a common coordinate with a more accurate method, the precision of that method will be used.

Interpolation between track points may be used to establish the scoring position.

14.7.3 Results are considered tied when the outcome is the same after applying the above mentioned principles. Competitors whose results are tied will share equally between them the points, which they would have received had they not been so tied.

14.7.4 The altitude used in the Event is specified in Section II.22.

## 14.8 MEASURING (for events without logger scoring)

14.8.1 Measurements by the measuring officials take precedence.

14.8.2 Within 200 meters, tape/surveying, should be used. If there is reason to believe that a GPS measurement may be more accurate or safer for officials/crew than the tape/surveying, a GPS measurement shall be recorded.

14.8.3 NOT USED

14.8.4 All marks outside 200 meters shall be recorded by GPS. In case of a goal selected by the competitor, the coordinates of the goal shall also be recorded by GPS.

## 14.9 MODIFIED 3D SCORING

14.9.1 Notation for variables. All altitudes measured in feet above sea level.

GRND = Goal elevation

D = Horizontal distance to balloon from goal or target, measured in meters

LWR = Lower limit for modified 3D scoring band

UPR = Upper limit for modified 3D scoring band

MSL = Balloon altitude

R = Result

If  $MSL \leq LWR$ , then  $R = D$

If  $LWR \leq MSL \leq UPR$ , then  $R = \text{Sqrt}((D^2) + ((MSL - GRND) * ((MSL - LWR) / (UPR - LWR)) * 0.3048)^2)$

(in the above formula, < is 'less than or equal')

If  $UPR < MSL$ , then  $R = \text{Sqrt}((D^2) + ((MSL - GRND) * 0.3048)^2)$

## 14.10 TOTAL SCORES

14.10.1 The Total Score is the addition of the individual task scores.

14.10.2 Where two competitors have equal total scores in an Event, the competitor with the smaller difference between their best and worst scores will be ranked higher.

## CHAPTER 15 - TASKS

### 15.1 PILOT DECLARED GOAL (PDG)

15.1.1 Competitors will attempt to achieve a mark or valid track point close to a goal selected and declared by him.

15.1.2 Task Data:

- a) Method of declaration (also see 12.3 AND Appendix G)
- b) Number of goals permitted
- c) Goals available for declaration
- d) Minimum and maximum distances of goal(s) from CLP or ILP as per TDS
- e) Minimum distance of goal from any subsequent goals or targets, if applicable

15.1.3 The result is the distance from the mark or closest valid track point to the nearest valid declared goal. Smallest result is best.

### 15.2 JUDGE DECLARED GOAL (JDG)

15.2.1 Competitors will attempt to achieve a mark or valid track point close to a set goal.

15.2.2 Task Data:

- a) Position of set goal/target

15.2.3 Result is distance from the mark or closest valid track point to the target, if displayed, or goal. Smallest result is best.

### 15.3 HESITATION WALTZ (HWZ)

15.3.1 Competitors will attempt to achieve a mark or valid track point close to one of several set goals.

15.3.2 Task Data:

- a) Position of various set goals/targets
- b) Minimum and maximum distances of goal from CLP or ILP, if applicable

15.3.3 The result is distance from the mark or closest valid track point to the nearest target, if displayed, or goal. Smallest result is best.

### 15.4 FLY IN (FIN)

15.4.1 Competitors find their own launch areas and attempt to achieve a mark or valid track point –close to a set goal or target.

15.4.2 Task Data:

- a) Position of set of goal/target
- b) Minimum and maximum distances of ILP to the goal/target
- c) Number of take-offs permitted

15.4.3 The result is the distance from the mark or closest valid track point to the target, if displayed, or goal. Smallest result is best.

15.4.4 Only one scoring attempt (marker drop) may be made.

In events without logger scoring, a contest landing shall be declared as such to the appointed observer at the earliest opportunity

### 15.5 FLY ON (FON)

15.5.1 Competitors will attempt to achieve a mark or valid track point close to a goal selected and declared by them during flight.

15.5.2 Task Data:

- a) Method of declaration (also see 12.3 and Appendix G)
- b) Number of goals permitted
- c) Goals available for declaration
- d) Minimum and maximum distance between previous mark and declared goal

15.5.3 The result is the distance from the mark or closest valid track point to the nearest valid declared goal. Smallest result is best.



15. 5.4 Declaration method for events with observers:

The competitor must declare his Fly On goal(s) either on the previous marker or on his assigned observer's report form. The declaration can take place at any time prior to dropping the previous marker.

The declaration must be written by the pilot. A verbal declaration will not be recorded. If the observer is flying in the basket, he should witness and record any declaration written on the marker before the marker is released.

Any valid declaration on the marker will invalidate all declarations on the observer report form.

If no valid goal is declared the competitor will not achieve a result. If more goals are declared than are permitted the competitor will be scored to the least advantageous valid goal.

15. 5.5 Declaration methods for events without observers see Appendix G

**15. 6 HARE AND HOUNDS (HNN)**

15. 6.1 Competitors will follow a hare balloon and attempt to achieve a mark or valid track point close to a target displayed by the hare no more than two meters upwind of the basket after landing.

15. 6.2 Task Data:

- a) Description of hare balloon
- b) Intended flight duration of hare balloon

15. 6.3 The result is the distance from the mark or closest valid track point to the target. Smallest result is best.

15. 6.4 Variation from intended flight duration of the hare shall not be grounds for complaint.

15. 6.5 The hare may deflate after landing and may be removed from the field.

15. 6.6 The hare balloon may display a banner hanging below his basket. No competitor shall display any banner hanging below the basket during this task.

**15. 7 WATERSHIP DOWN (WSD)**

15. 7.1 Competitors will fly to the launch point of a hare balloon, follow the hare, and attempt to achieve a mark or valid track point close to a target displayed by the hare no more than two meters upwind of the basket after landing.

15. 7.2 Task Data:

- a) Description of hare balloon
- b) Location of the launch point of the hare balloon
- c) Set take-off time of the hare balloon
- d) Intended flight duration of the hare balloon
- e) Minimum and maximum distances of ILP from hare launch point, if applicable

15. 7.3 The result is the distance from the mark or closest valid track point to the target. Smallest result is best.

15. 7.4 If the hare balloon does not take off within five minutes after the set time then this task is considered cancelled.

15. 7.5 Variation from the intended flight duration of the hare shall not be grounds for complaint.

15. 7.6 The hare may deflate after landing and may be removed from the field.

15. 7.7 The hare may display a banner hanging below his basket. No competitor shall display any banner hanging below the basket during this task.

**15. 8 GORDON BENNETT MEMORIAL (GBM)**

15. 8.1 Competitors will attempt to achieve a mark or closest valid track point within a scoring area(s) close to a set goal.

15. 8.2 Task Data:

- a) Position of goal/target
- b) Description of scoring area(s)
- c) Minimum and maximum distances of goal from ILP, if applicable

15. 8.3 The result is the distance from the mark or closest valid track point to the target, if displayed, or goal. Smallest result is best.

## 15.9 CALCULATED RATE OF APPROACH TASK (CRT)

15.9.1 Competitors will attempt to achieve a mark within a valid scoring area close to a set goal. The scoring area(s) will have unique times of validity.

15.9.2 Task Data:

- a) Position of goal/target
- b) Description of scoring area(s) and their validity times
- c) Minimum and maximum distances of target from CLP or ILP

15.9.3 The result is the distance from the mark to the target. Smallest result is best.

15.9.4 A competitor who does not achieve a mark (marker on the ground) inside a scoring area during the time of validity will not achieve a result.

## 15.10 RACE TO AN AREA (RTA)

15.10.1 Competitors will attempt to achieve a mark or valid track point, as specified in the task data in the shortest time within a scoring area(s) or airspace(s).

15.10.2 Task Data:

- a) Arrangements for timing
- b) Description of Scoring Area(s)

15.10.3 The result is the elapsed time from the initial timing point to the mark-or first valid track point. Shortest time is best.

15.10.4 Timing ends at the moment the marker is released, falling, or on the ground as seen by the officials, the electronic mark is dropped (Flytec loggers only) or at the moment of the first valid track point in the scoring area if track points only was set.

If Observers are used, they must ensure that they have stop-watches when observing in this task.

## 15.11 ELBOW (ELB)

15.11.1 Competitors will attempt to achieve the greatest change of direction in flight.

15.11.2 Task Data: (If no markers are used)

- a) Description of point "A"
- b) Description of point "B"
- c) Description of point "C"

15.11.3 Task data: (if observers and markers are used)

- a) Description of point "A", "B" and "C"
- b) Minimum and maximum distances from "A" to "B"
- c) Minimum and maximum distances from "B" to "C"

15.11.4 The result is 180 degrees minus the angle ABC. Greatest result is best.

## 15.12 LAND RUN (LRN)

15.12.1 Competitors will attempt to achieve the greatest area of a triangle ABC.

15.12.2 Task Data:

- a) Location of point "A"
- b) Method of determining point "B"
- c) Method of determining point "C"
- d) Description of scoring area(s)

15.12.3 The result is the area of triangle ABC. Greatest result is best.

### **15.13 MINIMUM DISTANCE (MDT)**

15.13.1 Competitors will attempt to achieve a mark or valid track point close to the reference point, after flying a minimum set time or distance.

15.13.2 Task Data:

- a) Arrangements of timing
- b) Minimum set time or distance
- c) Reference point

15.13.3 The result is the distance from the mark or closest valid track point to the reference point. Smallest 2D result is best.

15.13.4 The scoring position is the mark or best track point after the minimum time or distance has elapsed. If Observers are used, the scoring position is the mark if the observer has seen the marker drop after the minimum set time. Otherwise the scoring position will be the landing position, provided that the balloon has been seen by an official to be still airborne after the minimum time

### **15.14 SHORTEST FLIGHT (SFL)**

15.14.1 Competitors will attempt to achieve a mark or valid track point close to the reference point within a set scoring area(s).

15.14.2 Task Data:

- a) Description of scoring area(s)
- b) Reference point

15.14.3 The result is the distance from the mark or best valid track point to the reference point. Smallest 2D result is best.

### **15.15 MINIMUM DISTANCE DOUBLE DROP (MDD)**

15.15.1 Competitors will attempt to achieve two marks or valid track points close together in different scoring areas.

15.15.2 Task Data:

- a) Description of the scoring areas

15.15.3 The result is the distance between the marks or track points. Smallest 2D result is best.

15.15.4 Competitors will not achieve a result, unless they have valid track points or marks in different scoring areas as per the TDS.

### **15.16 MAXIMUM DISTANCE TIME (XDT)**

15.16.1 Competitors will attempt to achieve a mark or valid track point far away from the reference point, within a maximum set time.

15.16.2 Task Data:

- a) Maximum set time
- b) Arrangements for timing
- c) Reference point

15.16.3 The result is the distance from the mark or furthest valid track point to the reference point. Greatest 2D result is best.

15.16.4 (For events with observers)

If the observer does not see the marker release, falling or on the ground or the marker is not recovered in his hands within the maximum set time, the competitor will not achieve a result.

### **15.17 MAXIMUM DISTANCE (XDI)**

15.17.1 Competitors will attempt to achieve a mark or valid track point far away from the reference point within a set scoring area(s).

15.17.2 Task Data:

- a) Description of scoring area(s)
- b) Reference point

15.17.3 The result is the distance from the mark or valid track point to the reference point. Greatest 2D distance is best.

**15.18 MAXIMUM DISTANCE DOUBLE DROP (XDD)**

15.18.1 Competitors will attempt to achieve two marks or valid track points far apart in the scoring area(s).

15.18.2 Task Data:

- a) Description of Scoring Area(s)

15.18.3 The result is the distance between the marks or farthest valid track points. Greatest 2D result is best.

**15.19 ANGLE TASK (ANG)**

15.19.1 Competitors will attempt to achieve the greatest change of direction from a set direction. The change of direction is the angle between the set direction and line "A-B".

15.19.2 Task Data:

- a) Description of points "A" and "B"
- b) Set direction (degrees)
- c) Minimum and maximum distances from "A" to "B"

15.19.3 The result is the angle between the set direction and the line "A-B". Greatest result is best.

**15.20 3-D SHAPE TASK (3DT) (for events with logger scoring)**

15.20.1 Competitors will attempt to achieve the greatest distance within a set airspace.

15.20.2 Task Data:

- a) Description of set airspace(s)

15.20.3 The result is the accumulated horizontal distance between valid track points in the set airspace(s). Greatest result is best.

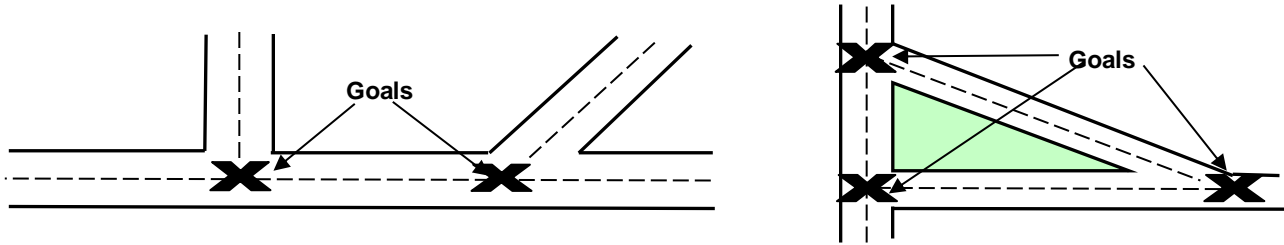
## APPENDICES

### APPENDIX A - ABBREVIATION LIST

<b>Abbreviation</b>		<b>Rule</b>
<b>3DT</b>	3D SHAPE TASK (3DT)	15.20
<b>ANG</b>	ANGLE (ANG)	15.19
<b>CLA</b>	COMMON LAUNCH AREA(S) (CLA)	9.1
<b>CLP</b>	COMMON LAUNCH POINT(S) (CLP)	9.1.2
<b>CRT</b>	CALCULATED RATE OF APPROACH TASK (CRT)	15.9
<b>CTA</b>	CONTEST AREA (CTA)	7.1
<b>ELB</b>	ELBOW (ELB)	15.11
<b>FIN</b>	FLY IN (FIN)	15.4
<b>FMD</b>	FREE MARKER DROP (FMD)	12.10
<b>FON</b>	FLY ON (FON)	15.5
<b>FRF</b>	FLIGHT REPORT FORM	6.11
<b>GB</b>	GENERAL BRIEFING	8.6
<b>GBM</b>	GORDON BENNETT MEMORIAL (GBM)	15.8
<b>GC</b>	GROUND CONTACT	11.4
<b>GMD</b>	GRAVITY MARKER DROP (GMD)	12.9
<b>GMF</b>	GPS MEASURING FORM	
<b>HNH</b>	HARE AND HOUND (HNH)	15.6
<b>HWZ</b>	HESITATION WALTZ (HWZ)	15.3
<b>ILA</b>	INDIVIDUAL LAUNCH AREAS (ILA)	9.2
<b>ILP</b>	INDIVIDUAL LAUNCH POINT(S) (ILP)	9.2.2
<b>JDG</b>	JUDGE DECLARED GOAL (JDG)	15.2
<b>LND</b>	LANDINGS (LND)	
<b>LO</b>	LANDOWNER'S (LO) PERMISSION	9.3 & 11.6
<b>LRN</b>	LAND RUN (LRN)	15.12
<b>MDD</b>	MINIMUM DISTANCE DOUBLE DROP (MDD)	15.15
<b>MDT</b>	MINIMUM DISTANCE (MDT)	15.13
<b>MKR</b>	MARKER (MKR)	12.6
<b>MMA</b>	MARKER MEASURING AREA (MMA)	12.20
<b>OFB</b>	OUT OF BOUNDS (OFB)	7.2
<b>PDG</b>	PILOT DECLARED GOAL (PDG)	15.1
<b>RTA</b>	RACE TO AN AREA (RTA)	15.10
<b>SCA</b>	SCORING AREA (SCA)	12.18
<b>SCP</b>	SCORING PERIOD (SCP)	12.17
<b>SFL</b>	SHORTEST FLIGHT (SFL)	15.14
<b>SRP</b>	SEARCH PERIOD (SRP)	12.14
<b>T/O</b>	TAKE-OFF (T/O)	9.19
<b>TAS</b>	TASK SCORE SHEET	14.3.2
<b>TDS</b>	TASK (DATA) SHEET	8.8
<b>TOS</b>	TOTAL SCORE SHEET	14.3.4
<b>WIS</b>	WEATHER INFORMATION SHEET	
<b>WSD</b>	WATERSHIP DOWN (WSD)	15.7
<b>XDD</b>	MAXIMUM DISTANCE DOUBLE DROP (XDD)	15.18
<b>XDI</b>	MAXIMUM DISTANCE (XDI)	15.17
<b>XDT</b>	MAXIMUM DISTANCE TIME (XDT)	15.16

## APPENDIX B – GOAL DEFINITIONS

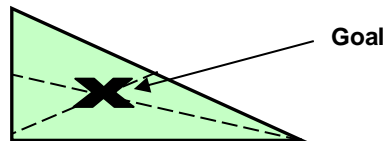
A **goal** is the intersection of the projected road centerlines as shown below. If the intersection is shown on the map, measure to the intersection.



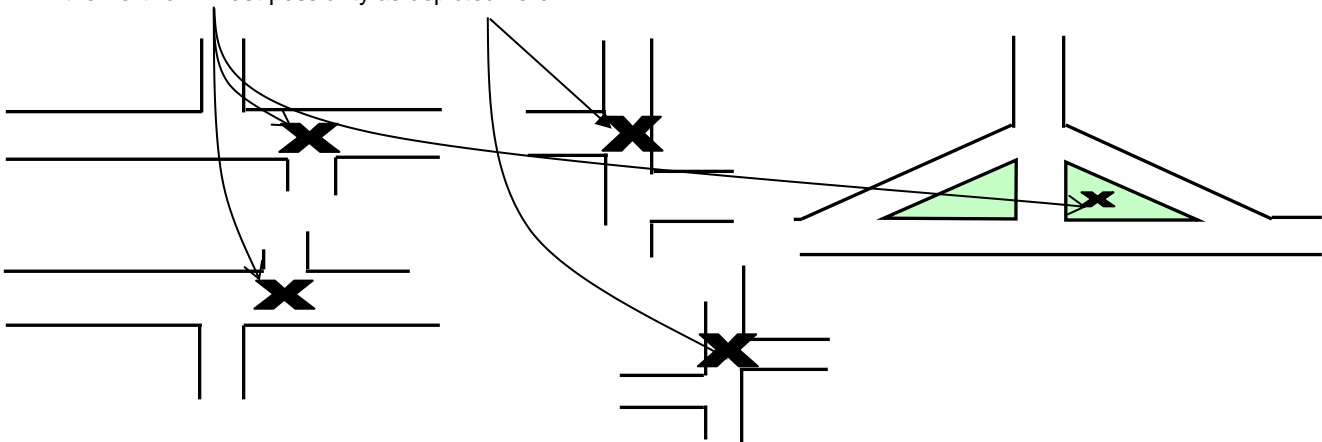
### Ambiguous Goals

If the intersection (in the real world) is different than it appears on the map, use the following rules. For example, if the triangular intersection shown above was depicted on the competition map as a “T” intersection but the real world intersection was the three-way above, the goal would be determined as follows:

- The centerline of a grass triangle is the intersection of any two lines drawn between a corner and the midpoint of the line between the other two corners as depicted here:



- If the goal is ambiguous (i.e., two grass patches or a cross which does not intersect) the goal is the **eastern most** and the **northern most** possibility as depicted here



## **APPENDIX C - CODE OF CONDUCT**

All **OFFICIALS, PILOTS/COMPETITORS AND CREWS** are required to comply with the Code of Conduct. In addition to the excerpts from the Competition Rules shown below, competitors and crews are expected to conduct themselves in a manner that promotes the sport of hot air ballooning.

### **2.12 CONDUCT**

Entrants and competitors and their crews are required to behave in a sportsmanlike manner, follow the Code of Conduct, and comply with the directions of Event Officials. Inconsiderate behavior, profanity, or unsportsmanlike conduct, or any violation of the FAA Waiver will be penalized by the Event Director and may be grounds for expulsion of a pilot.

### **10.5 BEHAVIOR**

Competitors are required to fly with proper consideration for fellow competitors, persons and livestock on the ground and to follow good landowner relations etiquette and the code of conduct. Inconsiderate behavior by competitors or crew members, or endangering the public during flight, may be penalized up to 1000 competition points.

### **13.1 SERIOUS INFRINGEMENTS, UNSPORTING BEHAVIOR**

Cheating or unsporting behavior, including deliberate attempts to deceive or mislead officials, willful interference with other competitors, falsification of documents, use of forbidden equipment or prohibited drugs, or repeated serious infringements of rules will be penalized up to 1000 points and may be disqualified from the task or Event. Pilots/crews found to misappropriate propane during the event would be penalized and/or disqualified.

All pilots and their crews will conduct themselves in such ways as their actions will be a credit to and in the best interests of hot air ballooning and the Event, its officials and staff, and its Event sponsors.

All participants will treat fellow pilots, crews, officials, sponsors, etc. with respect at all times.

Pilots will be responsible for operating within both the letter and spirit of the Event Competition Rules.

Pilots registering for and attending events are expected to be present for the General Briefing and attend all flight briefings. In circumstances requiring a participating pilot to miss a briefing or flight, the pilot is responsible to notify the organizer and Event Director of their situation. Violations of normally accepted conduct will result in a warning and possible expulsion from the Event.

## APPENDIX D – SANCTIONED COMPETITION REGULATIONS

The following policies govern the HACD event sanction process as well as the National Ranking System (NRS). The event sanctioning process and the NRS provides for the accumulation of individual competitor scores from events throughout the United States. The NRS compares individual results and ranks competitors using a method and scoring system that places all pilots and events on a level playing field.

Competitive flying has two key elements: the event and the competitors.

### **Event**

Events desiring to submit scores for inclusion in the NRS must notify an HACD Board member, National Sanction Manager or National Ranking Manager of their intention. It is the responsibility of the National Sanction Manager to work with the event organizer and Scoring Officer to ensure that all HACD Rules, Regulations, Policies and Procedures are followed. These include using the HACD published rules and scoring program or an approved alternative. Results of HACD cardholders using the prescribed Positional Scoring format (see Rule 14.6) must be submitted to the National Ranking Manager within three weeks after completion of the event.

Section II describes the two types of BFA sanctioned events: Regional and State Championships. Event officials must ensure that all competitors for which scores are submitted were HACD cardholders before the event's first flight. HACD cardholders are not permitted to 'opt out' except for the specific reasons noted below. The BFA maintains a list of HACD cardholders on its web site and this list is updated weekly.

### **Competitor**

Competitors must apply for and maintain membership in the BFA/HACD. Application for membership can be accomplished using: [BFA and HACD Membership Application](#). The competitor is ultimately responsible to ensure that his membership is current before participating in an event in which his scores can be submitted to the NRS. A competitor on probation or suspended under provisions of Article 8 of the HACD Bylaws is not eligible to have scores submitted to the NRS.

If a competitor attends an event and, due to commercial or other contractual responsibilities is unable to compete (receives no markers) in one or more flights, those flights will not be included in the National Ranking System. Such request for exclusion must be made to the National Ranking Manager or Regional Director a minimum of two weeks in advance. All non-competing pilots will be entered in the event's BFA scoring program as Not Competing for that flight.

## SECTION I – SCORING AND THE NATIONAL RANKING SYSTEM

- a) Competitors will be ranked in order of performance according to the rules for each task as defined in Rule 14.6 (**Positional Scoring**) of the Sanctioned Competition Rules.
- b) When entered in the BFA/HACD National Ranking System, computer scores of competing pilots entered in each Sanctioned Task shall be computed by the following formula (Positional Scoring):

$$\text{SCORE} = \frac{(P - N + 0.5) \times 1000}{P}$$

P = number of competitors entered in the competition (**Competitive Field**).

N = numerical position of competitor among the **Competitive Field** when competitors are numbered in sequence according to their standing in the task results. Scores will be rounded to nearest whole number. In the event of a tie in a task, tied competitors shall each be awarded the average score of the tied places.

**Competitive Field** = There must be six (6) or more HACD cardholders competing. Scores are calculated using all pilots entered in the event (HACD cardholders and non-cardholders)

- c) The BFA/HACD National Ranking System will compute and maintain a numerical ranking of all qualified competitors. The ranking shall be computed as follows:
  - 1) Compute an average score for each pilot who has competed in at least five sanctioned tasks in the current year by averaging the scores for the first five tasks. After a pilot has flown five tasks his average cannot be reduced in that competitive year even though individual task scores may be lower than the average. After five tasks have been flown, the average is determined as follows. Consider the subsequent tasks in the order they were flown. Determine the number of tasks to count by finding C, which is half the number of tasks, rounded up, plus 2. Thus  $C = \text{INT}((N+1)/2) + 2$  where N is the number of tasks flown and  $\text{INT}((N+1)/2)$  is the integer part of  $((N+1)/2)$ . C gives the number of tasks to be averaged. Determine a new average based on the best C scores. If this new average is more than the previous average, the new average becomes the pilot's average score for ranking. If the new average is not more than the old



- average, then the old average remains as the pilot's average score. This process is repeated after each additional task is flown.
- 2) List the pilots in order of decreasing average scores, then number in sequence. This number is the National Ranking.
  - 3) A Competitive Year runs from January 1 through December 31.
  - 4) Each pilot's National Ranking scores are erased at the end of each competitive year.
- d) To be eligible for any award for top competitor from the National Ranking System a pilot must have completed five (5) tasks in the year for which the award is given.
- e) Task results will be accepted from competitive events qualifying under Section II. Task scores for HACD cardholders will be based upon their ranking within the **Competitive Field** for events approved by the National Sanction Manager. Only events approved by the National Sanction Manager and listed on the BFA web site are eligible to submit results for inclusion in the National Ranking System. Events qualifying for submission to the NRS are noted on the BFA web site of approved events.

In order for task scores to qualify for submission for inclusion in the NRS, **both of the following conditions must be met:**

- 1) A minimum of six (6) HACD cardholders must be registered, present and participating in the event
  - 2) The greater of 50% of the total pilots registered or six (6) pilots must launch
- f) In a given task where no pilot achieves a result, that task will not be used in the National Ranking System.
- g) Pilots who achieve zero points because of a "did not fly" will not have those tasks added into the National Ranking System.
- h) Where deterioration of weather requires that pilots be recalled and the task canceled, the announcement will be made by a race official on AM, FM, aircraft radio, or by other means determined by the Event Director. The frequencies to be monitored will be announced at the pilot briefing. All pilots will be deemed to have the proper notice from the announcement.

## SECTION II – TYPES AND REQUIREMENTS FOR SANCTIONED TASKS AND EVENTS OTHER THAN US NATIONALS

All tasks/events shall use the BFA Rules and Regulations and comply with this Section and Section IV below. All scores shall be submitted to the BFA Office within twenty-one (21) calendar days of completion of the event. Event officials are strongly encouraged to use the BFA Scoring Software and related published Rules when submitting scores to the NRS. The software can be downloaded here: [BFA Scoring Program](#).

Scores submitted must be run as a 'sub-event' in the case of an event scored where HACD cardholders are ranked against a field smaller than the entire event field. It is the event officials' responsibility to ensure that the event setup includes the HACD card number for all cardholders. The scores submission include the cardholder numbers and task by task details for the event. The BFA/HACD maintains a current list of all HACD cardholders on its web site. Events are encouraged to verify the status of all their pilots well before the first official flight.

The three types of events are described below:

- a) **Regional Championships** – one Regional Championship may be granted annually in each BFA Region. In the event that a Regional Championship is cancelled or weathered out, application for a replacement Championship will be considered. There shall be a minimum of ten (10) competitors entered in the event who shall hold a current HACD task card and reside within that region. There shall be a minimum of three (3) tasks completed for the championship to be valid. Current fee is \$500.00. Sanction fees are non-refundable..

In the case of a limited field, acceptance priority will be given to any current HACD pilot that physically resides in the respective region during the current year's competition season. Applications received by the deadline will be accepted first based on the prior year's National Ranking order. Pilots are eligible to compete for automatic US National Championships qualification positions in only one Regional Championship during the competition season.

The scoring of Regional Championships, to determine the pilots that will automatically qualify for the U.S. National Championships, will use the proportional scoring formula (Rule 14.5)

Regardless of the scoring method used for the Regional Championship, the scoring for determining each competitors ranking in the National Ranking System shall be the scoring formula contained in Section 1 (b) above (Positional Scoring).

Regional Championships must have a liability insurance policy and the BFA/HACD must be named as an additional insured on that policy. Proof of this insurance must be submitted to the BFA's insurance carrier prior to the start of the Championship.

- b) **State Championships** – one State Championship may be granted annually in each state. . In the event that a State Championship is cancelled or weathered out, application for a replacement Championship will be considered. There shall be a minimum of six (6) competitors entered in the event who shall hold a current BFA/HACD task card and reside within that state. There shall be a minimum of three (3) tasks completed for the championship to be valid. Current fee is \$400.00. . Sanction fees are non-refundable.

In the case of a limited field, priority will be given to any current HACD pilot that physically resides in the respective state during the current year's competition season. Applications received by the deadline will be accepted based on the prior year's National Ranking order. Pilots are eligible to compete for automatic US National Championships qualification positions in only one State Championship during the competition season.

The scoring of State Championships, to determine the pilot that will automatically qualify for the U.S. National Championships, will use the proportional scoring formula (Rule 14.5). If the State Championship is a series, positional scoring (Rule 14.6) will be used.

Regardless of the scoring method used for the State Championship, the scoring for determining each competitors ranking in the National Ranking System shall be the scoring formula contained in Section 1 (b) above (Positional Scoring).

State Championships must have a liability insurance policy and the BFA/HACD must be named as an additional insured on that policy. Proof of this insurance must be submitted to the BFA's insurance carrier prior to the start of the Championship.

- c) **Scores-Only** – Scores for approved events may be entered into the National Ranking System in accordance with Section I (e) above. There must be a minimum of six (6) BFA/HACD cardholders entered in the event. The BFA/HACD maintains a list of approved events on the BFA web site.

If an event wishes to have scores submitted to the NRS, officials should contact the National Ranking Manager or the HACD Regional Director for approval. There are no sanction fees associated with Scores-Only events.

### SECTION III – SANCTION APPLICATION AND APPROVAL PROCESS

- a) **Regional or State Championship** – Applications for Regional or State Championships must be submitted to the NR Manager by March 31 of the year of the proposed championship. If no applications are submitted by the deadline, applications will be considered on a case-by-case basis. The following is a step-by-step guide to the sanction application process:

1. Event applicant submits on-line application to National Sanction Manager: [Sanction Application Form](#).
2. Application denied if incomplete or inappropriate.
  - a. Applicant notified of application deficiency by National Sanction Manager.
  - b. BFA Office notified of action taken by National Sanction Manager.
3. Application, if complete and appropriate, shall be reviewed and evaluated by a sanction subcommittee composed of the BFA/HACD chairperson, National Sanction Manager and BFA/HACD regional board member for the region submitting the application. If the regional representative would have a conflict of interest, another representative would be selected by the BFA/HACD chairperson to replace the regional board member. This subcommittee shall have the authority, on behalf of the BFA/HACD, to approve or deny the application. In the event there is more than one application, this subcommittee shall have the authority on behalf of the BFA/HACD to select the event that is deemed to be most appropriate.
  - a. National Sanction Manager notifies BFA Office, BFA/HACD web master and BFA editor of tentative approval.
  - b. BFA Office notifies applicant of approval pending receipt of sanction fee.
  - c. BFA Office sends invoice to applicant with fee to be submitted to BFA Office. Applicant advised that event will not be listed as sanctioned on BFA web site or Ballooning until fee is paid.
4. Submittal of fee
  - a. BFA Office notifies National Sanction Manager, BFA/HACD web master and BFA editor of receipt of fee.
  - b. Event can be listed on BFA web site and Ballooning as a sanctioned event.
5. Event submits certificate of insurance naming the BFA/HACD as Additional Insured.
6. The National Sanction Manager notifies the event applicant that the sanctioning process has been completed and advises applicant that the scores for the BFA/HACD task card holders are to be submitted to the National Ranking Manager for each task flown within twenty-one (21) days of the completion of the event.

7. Event scores, along with HACD cardholder numbers, are submitted to the National Ranking Manager for review. Upon completion of the review and within fourteen (14) days of receiving the scores, if they are correct, they shall be submitted to the BFA web master for inclusion in the National Ranking System. If the scores, as submitted are not correct, the event scoring officer will be notified of the deficiency and shall be asked to make the necessary corrections and resubmit the scores within seven (7) days.
8. BFA/HACD task cardholders shall have thirty (30) days from the date of posting the scores to report omissions or discrepancies in their scores.

**b) Scores-Only Event**

1. The applicant, a BFA/HACD Board member or approved representative, shall notify the National Sanction Manager of the intention to submit task results prior to the event.
2. The National Sanction Manager reviews details of the event and determines if scores will be accepted.
3. National Sanction Manager notifies National Ranking Manager, BFA Office, BFA/HACD web master and BFA Editor of approval.
4. Event scores along with HACD cardholder numbers should be submitted within twenty-one days to the National Ranking Manager. Upon completion of the review and within fourteen days of receiving the scores, if they are correct, the NRM shall post scores for review on the results page of the BFA web site. Scores are then entered in the NRS.
5. BFA/HACD task cardholders shall have thirty (30) days from the date of posting the scores to report omissions or discrepancies in their scores.

**SECTION IV – ELIGIBILITY FOR PARTICIPATION IN NATIONAL RANKING SYSTEM TASKS**

BFA members holding a valid HACD task card are eligible for participation in the National Ranking System. Specific requirements for having task results included in the system are as follows:

- a) The competitor must meet the invitational criteria of the organizer for event participation.
- b) The pilot must be a member in good standing of the BFA/HACD and hold a valid BFA/HACD task card for the current year and hold at least a private pilot certificate for Lighter-than-Air Free Balloon, or equivalent.
- c) All BFA pilots are eligible to enter the BFA/HACD National Ranking System but only pilots who are US Citizens or Resident Aliens, who have been permanent residents in the US for not less than three years, are eligible to compete in the US Nationals or represent the US in an FAI Sanctioned Event.
- d) BFA pilots who are US Citizens and have represented another FAI member country within the past three years are not eligible to compete in the US Nationals or represent the US in an FAI Sanctioned Event.
- e) Any pilot who flies in a BFA/HACD sanctioned task who does not meet the eligibility requirements outlined in (d) above shall not be included in the BFA/HACD Sanctioned Task Results and cannot be included in the count of pilots who are competing.

**SECTION V – EVENT OFFICIAL REQUIREMENTS FOR SANCTIONED TASKS AND EVENTS**

The membership requirements for sanctioned events are as follows:

- a) **State & Regional Championships** – The Event Director and either the Safety Officer or the Scoring Officer shall be members of the BFA/HACD.
- b) **National Championship** – The Event Director, Safety Officer, Scoring Officer and the Jury President shall be members of the BFA/HACD.

**SECTION VI – APPLICABILITY TO NATIONALS ELIGIBILITY LIST AND US NATIONALS**

- a) The pilot must be a member in good standing of the BFA/HACD and hold a valid BFA/HACD task card for the current year and hold at least a private pilot certificate for Lighter-than-Air Free Balloon, or equivalent.
- b) The highest finishers on the Nationals Eligibility List shall be allowed to enter the National Championship Events. The HACD reserves the right to add additional competitors for sponsorship considerations provided they hold a BFA/HACD task card and have flown at least five sanctioned tasks during the prior year. Should any additional places be available, competitors with four (4) tasks in the past competitive year shall be allowed to enter, taken in order of their average score, highest first. Should any additional places be available, competitors with three, two, then one task in the past competitive year shall be allowed to enter, taken in order of their average score, highest first. If there are still places available, competitors who hold a valid BFA/HACD task card but were unable to fly a task in the past competitive year shall be allowed to enter, taken in order of the receipt of their application.
- c) The determination of the US National Hot Air Balloon Champion, and all runner-up positions, shall be determined by the results of tasks held during the National Championship, except when fewer than two (2) flights or three (3) tasks

are held during the National Championship. If fewer than two (2) flights are flown or three (3) tasks are completed, no National Champion shall be declared.

- d) The scoring system used in the BFA/HACD National Ranking System is not the scoring system which shall be used in the US Hot Air Balloon Championships.
- e) The Nationals Jury shall consist of a non-competing Jury Chairman and two competing pilots selected from the jury pool selected in accordance with Rule 4.3.3. The BFA/HACD Board shall appoint the Jury Chairman.

## SECTION VII – APPLICABILITY TO INTERNATIONAL COMPETITION AND FAI INVITATIONS TO COMPETE

- a) The United States representatives to the World Hot Air Balloon Championships, Women's or Junior World Hot Air Balloon Championships, North American Championships, the Pacific Championships, the World Air Games and to all FAI Sanctioned hot air competitions for which the Balloon Federation of America is invited to select participants, shall be selected from the finishers at the last U.S. National Hot Air Balloon Championship conducted before the registration date of the World Hot Air Balloon Championship, and the highest finishers at the previous US National Hot Air Balloon Championships, taken in equal numbers. If the numbers must be unequal, the more recent high finishers will be favored but in all cases the selection process will give priority to pilots eligible as a result of a valid US National Championship and qualifiers as a result of the National Ranking System (see below) shall be selected secondarily. If one competitor is invited more than once or if competitors cannot attend, additional representatives will be chosen as if more US entrants were allowed. The following two paragraphs provide guidance in selecting competitors to represent the United States in International events if, for any reason, a US National Champion is not declared in any year.

**US Nationals Held but Did Not Meet Minimum Task Requirements:** In the event that a US National Champion is not declared in accordance with Section VI (c), International representatives will be selected from those competitors registered to attend and present for roll call at the US Nationals General Briefing. Selection of competitors qualified in this manner will be based on their respective results from any valid tasks from the current US Nationals with the addition of task scores from the previous year's final BFA/HACD National Ranking System needed to meet the minimum requirements of Section VI (c). If the number of completed flights is less than two or completed tasks are less than three, the competitors' scoring average in the BFA/HACD Ranking System shall be used as the competitors' additional score for one, two, or three tasks depending upon the number needed to meet the required minimum of two flights and three tasks. In order to qualify for consideration as an International representative of the US in this regard, competitors must have competed in both of the previous two US National Championships.

**No US Nationals Held:** In the event that there is no US Nationals due to the lack of a venue or a Nationals cancelled prior to the General Briefing due to extreme weather or other circumstance, representatives will be selected from the top finishers in the previous year's final BFA/HACD National Ranking System. For purposes of this determination, competitors must have competed in both of the previous two US National Championships.

- b) Each year prior to an FAI invitational event, the Hot Air Competition Division Chairman shall publish a list of the expected number of eligible pilots (times two to allow for alternates). The list shall be available on the BFA website after completion of the qualification process. Additionally, the list may be mailed to the pilots. The list will include an estimate of the number of U.S. entries and equal number of alternates.

Immediately after receipt of the initial invitation of the event, the Chairman shall notify the eligible first round pilot(s) and they will have fifteen (15) days to respond. A positive response shall be received no later than fifteen (15) days after receipt of notification. The entry fee will be submitted by the BFA for all participants along with the official list of participants. Each competitor is responsible for the reimbursement of their respective entry fee and any fees that may be associated with the transaction (i.e. foreign currency conversion).

If a pilot responds negatively or fails to respond within fifteen (15) days, then that pilot shall become ineligible and the next eligible pilot will be notified. That pilot shall respond within the same time limits as described above.

Immediately after receipt of subsequent rounds of invitations, or if an entry should become available for any reason, the Chairman shall follow the same procedure described above until all entries are filled. Once the invitation process has finished, the Chairman shall publish a list of entered pilots on the BFA website.

- c) The BFA Hot Air Competition Division shall organize World Hot Air Balloon Championships held in the US. The Hot Air Competition Division will review potential sites and approve the most appropriate site.
- d) When World Championship Hot Air Balloon Events are held in the United States, the number of entrants allowed from each country shall be governed by the applicable rules published by the FAI in the Sporting Code or other applicable publications.

## **APPENDIX E - U.S. NATIONALS ELIGIBILITY RULES**

Competitors for the U.S. National Hot Air Balloon Championships will be selected according to the following eligibility list with banner numbers assigned accordingly.

- a) Current U.S. National Champion.
- b) Other top 5 finishers, in order of finish, from the previous year's Nationals.
- c) Top finishers from each BFA/HACD sanctioned Regional Championship:
  1. Top 1 – for 10 to 19 competitors;
  2. Top 2 – for 20 to 29 competitors;
  3. Top 3 – for 30 or more competitors.
- d) Top ranked pilot, using the National Ranking System, in each BFA Region not holding a regional championship.
- e) Top finisher from each BFA/HACD sanctioned State Championship in which there is a minimum of six (6) competitors.
- f) Remaining pilots selected by the National Ranking System.
- g) Current World Champion, if from the United States, not qualifying under (a) through (f) above who meets all requirements of the Hot Air Competition Division sanction rules.
- h) The HACD reserves the right to add additional competitors for sponsorship considerations, provided they hold a BFA/HACD task card and have flown at least five sanctioned tasks during the prior year.
- i) Late applications will be accepted in the order they're received to develop a suitable waiting list.

Note 1: All Nationals competitors must have flown a minimum of five (5) competitive tasks unless there are not enough pilots to fill the available positions. In such cases, SECTION VI of APPENDIX D of the Sanctioned Competition Rules and Regulations shall be followed.

Note 2: In sections (c), (d) and (e) above, the available positions go to the pilots finishing in the positions indicated unless won by competitor(s) already qualifying under (a), (b) or (g) above. In such case, the positions awarded filter down to the next highest finishing pilots.

Note 3: In sections (c), (d), (e) and (f), the eligible competitors will be ranked by National Ranking Average on the US Nationals Eligibility List.

## APPENDIX F – GPS-LOGGER DISTANCE MEASUREMENTS AND SCORING BANDS

Exhibit 1 below is a graphic demonstration of 3D, modified 3D, and 2D measurement techniques. All logger-based scoring will be based on the best valid 2D, modified 3D, or 3D track point. 2D measurements will be used within a scoring altitude band (see Exhibit 2) from the surface up to approximately 500' AGL. Modified 3D measurements will be used for altitudes  $\geq 500'$  and  $< 1,000'$  AGL, and 3D measurements will be utilized at altitudes  $\geq 1,000'$ . The scoring program is designed to analyze track results and select the method providing the best result given these and the constraints of the TDS.

Exhibit 1

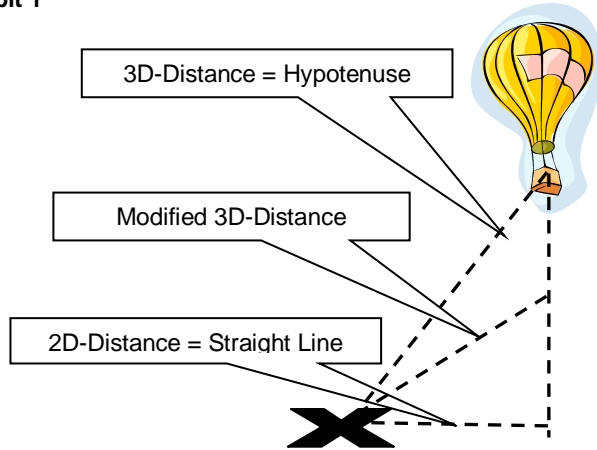
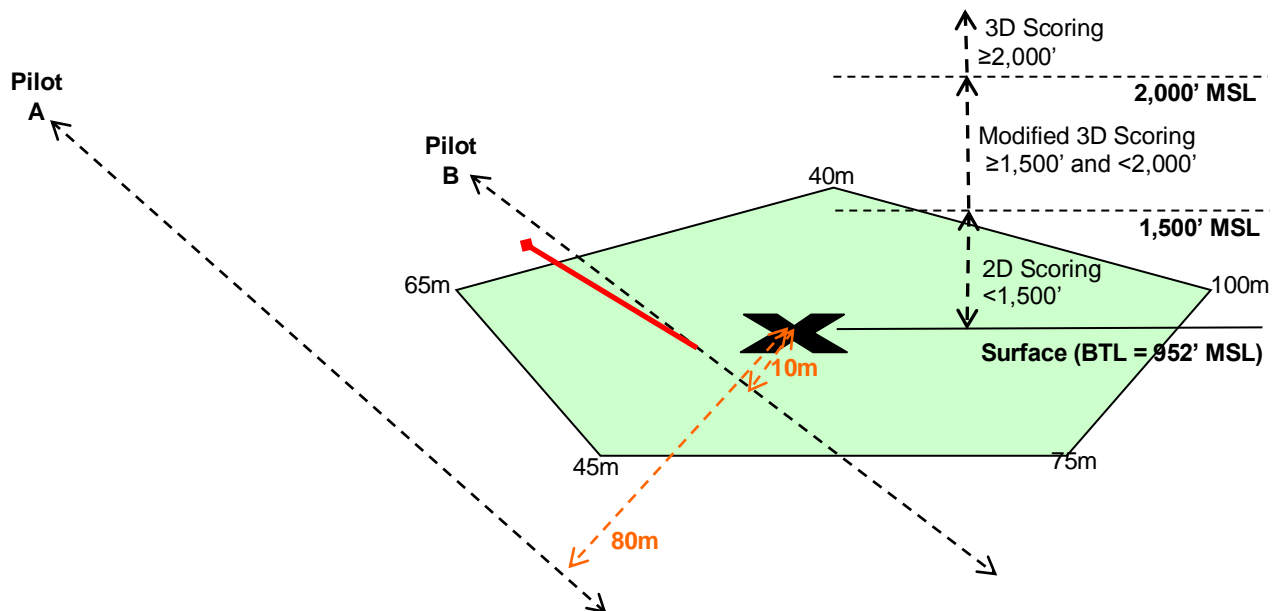


Exhibit 2 (EXAMPLE ASSUMES GROUND ELEVATION OF 952 FEET)

The graphic below demonstrates how the various rules for logger-based scoring will be implemented at a Marker Measurement Areas (MMA) as well as at pilot declared goals. Pilots not achieving a marker drop in the MMA will be scored using 2D scoring from the surface up to 1,500' MSL; modified 3D scoring will be used for track points between  $\geq 1,500'$  and  $< 2,000'$  MSL, and 3D scoring will be used for track points  $\geq 2,000'$  MSL.

Using Rule 12.22.4, Pilot A and B in this example would receive a measurement of 100m (worst possible marker score).



## **APPENDIX G– COMPETITOR DECLARED GOALS IN GPS-LOGGER ONLY EVENTS (no observers)**

The following is suggested guidance and policies for events wishing to utilize Pilot Declared Goal and Fly On Tasks.

### **Pilot Declared Goal (PDG)**

- Pilots are permitted to make a declaration to officials at the briefing location before departing
- Pilots may also be permitted to make a declaration to an event official positioned at a location near anticipated pilot launch areas. The event official and declaration location will be noted on the Task Data Sheet.
- An event may permit the use of texting [[Short Message Service](#) (SMS)] for the purpose of pilot declared goals used in PDG or FON tasks. If this practice is permitted, the competitor must register any phone to be used in making the declaration and all texts must contain and retain the message time stamp. The declaration may be sent by the pilot or crew but it must be transmitted on a phone registered with the event.
- If the competitor wishes to change a previous declaration, he must indicate on the subsequent declaration that this is declaration #2, #3, etc.
- Pilot declaration forms, although not required to be submitted by the competitor, **MUST** be signed by the competitor.

### **Fly On Task (FON)**

- Pilots are permitted to make a declaration to officials at the briefing location before departing
- Pilots will also be permitted to make a declaration to an event official positioned at a Common Launch Area (CLA's) or a location near anticipated pilot launch areas (ILP's). The event official and declaration location will be noted on the Task Data Sheet. This declaration location will be open to receive declarations up to thirty (30) minutes after the close of the launch period.
- An event may permit the use of texting [[Short Message Service](#) (SMS)] for the purpose of pilot declared goals used in PDG or FON tasks. If this practice is permitted, the competitor must register any phone to be used in making the declaration and all texts must contain and retain the message time stamp. The declaration may be sent by the pilot or crew but it must be transmitted on a phone registered with the event.
- Pilot declarations may be made on the tail of the marker used on the task preceding the FON. This declaration method is only available for markers falling inside the respective MMA or recovered by event officials in the immediate vicinity of the MMA. It is not necessary for the pilot to record the pre-assigned target number on the tail of the marker if they are satisfied with other paper declarations made in accordance with these rules.
- Paper FON declarations may be made on behalf of the competitor by designated crewmembers to event officials located at MMA's noted on the Task Data Sheet. These paper pilot declarations **MUST** be signed by the competitor and crew may submit declarations on behalf of more than one competitor. These declarations will be time stamped by officials (hh.mm.ss) and the time will be used to ensure that the FON declaration was made on or before the time the competitor achieved his result at the declaration MMA and to establish minimum distances as noted on the Task Data Sheet.

### **Goals Available for Pilot Declarations**

Competitors should be provided a pre-approved list of intersection targets for use in PDG's and FON's. These are the only targets available for such declarations. The entire UTM coordinate has been provided and results will be measured to the nearest meter in accordance with Rule 14.7. Competitors must note that every effort was made to obtain the most accurate coordinate representing the center of each intersection, however, GPS, satellite and map technology has its limitations. Competitors are advised that at any given time and day, the coordinate provided may vary slightly from the exact center of the intersection.

Pilots should be advised that all logger measurements will be made to the published intersection coordinate. Competitions should be advised that this coordinate may not be the exact center of the intersection and that they should fly to the coordinate provided.

In order to provide competitors precise information on the target they will be measured to, the official Garmin Dakota 10 logger should be carried in the basket and mounted to basket uprights in a corner away from other radios and communication equipment. The official logger display will provide exact information to the competitor as to the best achieved distance from the published list of intersection targets and their respective UTM coordinates.

## APPENDIX H – PROPORTIONAL VS. POSITIONAL SCORING

This Appendix attempts to demonstrate and explain the differences between Proportional (see Rule 14.5) and Positional (see Rule 14.6) scoring. Many sanctioned events including weekend, state and regional events use Proportional Scoring to score their races and determine the Event Champion. In Proportional scoring the winner of each race receives 1,000 points regardless of the number of competitors. In Positional scoring, however, the winner's points vary from event to event depending on the number of competitors entered in the Event.

Positional scoring is typically used for small competitions organized by local balloon clubs without the ability to perform detailed measurements due to a lack of volunteer officials. In addition, the BFA/HACD Sanctioned National Ranking System utilizes positional scoring as it reflects the best measure when comparing participants in large events against competitors flying in small local events. All competitors are on a level playing field and more points are available to competitors when competing against a large field of competitors vs. the smallest of competition fields (six competitors).

### Positional Scoring

Most competitors in the U.S. are familiar with results that use Positional Scoring. Rule 14.5 of the BFA Sanctioned Rules contains the details for Positional Scoring. This method awards points based on the rank of the pilot's result. For example, if six competitors have results (measurements) of 0.5 ft., 1.0 ft., 6 ft., 6.5 ft., 25 ft., and 180 ft., the scores are calculated with 0.5 ft. ranked 1st, 1.0 ft. ranked 2nd, 6 ft. ranked 3rd, 6.5 ft. ranked 4th, 25 ft. ranked 5th, and 180 ft. ranked 6th. The formula used is:  $1000 * (NP - PR + 0.5) / NP$  rounded to the nearest whole number. Where NP is the number of pilots competing in the task and PR is the rank of the pilot whose score is being calculated. So, using the competitor whose result was 1.0 (rank = 2nd). NP = 6 and PR = 2. The formula then is:  $1000 * (6 - 2 + 0.5) / 6$ . The score then is  $1000 * (4.5 / 6)$ . The calculation gives a score of 750 points for this competitor. Likewise, the score for the competitor with the 180 ft. measurement is:  $1000 * (6 - 6 + 0.5) / 6$ ; which is 83.3333. This is then rounded to the nearest whole number. The score for the competitor with a measurement of 180 ft. is 83 points.

Notice that it does not matter if the second place competitor had a measurement of 0.6 ft. or 5.9 ft., the score would be the same! Similarly, the fourth place pilot could have a result anywhere from 6.5 ft. to 24.9 ft. and the score is the same. This is what is meant by positional scoring. It does not matter what the measurement is; it only matters what the relative position (rank) of the measurement was compared to all the other measurements. Notice that the scores would be the same if the measurements had been 0.5 ft., 0.6 ft., 200 ft., 210 ft., 290 ft., 295 ft. Even though two of the competitors clearly flew the task much better than the other four!

### Proportional Scoring

Proportional (Performance) Scoring is used in international events, at the U.S. Nationals, Regional, State, and many large weekend events. Rule 14.6 of the BFA Sanctioned Rules contains the details for Proportional Scoring. Beginning in 2009, Proportional Scoring will be required to score BFA sanctioned State and Regional championships that take place at a single event. Proportional Scoring awards scores based on the competitor's measurement relative to the best competitor's measurement and the median (average) competitor's measurement.

This scoring method makes it possible to gauge the relative difficulty of the task by using the average competitor's result to calculate scores. For example, if the measurement of the twenty-fifth place (median) pilot is 4 ft. and there are 50 competitors, it sounds like it was fairly easy to make it to the target (twenty-four competitors did better than 4 ft.). But, if the median pilot's measurement was 240 ft., maybe the task wasn't so easy. Twenty-four competitors may still be less than 4 ft. (not so likely), but 25 competitors were more than 240 ft. away. One way to think of Proportional Scoring is to imagine an elastic tape measure that has scores printed on it rather than feet or meter markings. At one end of the tape is the maximum score of 1000. At the other end is a score of 500. This is a very elastic tape. By placing the end of the tape with 1000 points on it at the mark of the best competitor and the end with the 500 on it at the mark of the median competitor, all the scores of the competitors between the best and median competitor can be read directly from the tape. It doesn't matter if the best and median are only 5 ft. apart or if they are 250 ft. apart. Half way along the tape is 750 points. If a competitor's mark is exactly half way between the best and median marks, the score is 750 – every time.

Proportional scoring is used to determine the score only for the competitors whose measurements are better than the median competitor. The remaining competitors who actually had a measurement are awarded points using Positional Scoring. Competitors who did not have a measurement (No Result) are likewise scored using Positional Scoring, but a deduction of 200 points is also taken.



Finally, competitors who did not fly get 0 points. The awarding of points is broken up into three groups. Group A is comprised of the competitors who achieved a result (measurement). The competitors who flew, but did not get a result are in Group B and those who did not fly or are disqualified are in Group C. The formula for calculating the scores for those in the upper half of Group A is:  $1000 - [(1000 - SM) / (RM - WR)] * (R - WR)$  where SM is the score of the median pilot, RM is the result of the median pilot, WR is the result of the winning pilot, and R is the result for the pilot whose score is being calculated. The formula to calculate the scores of the remaining pilots, including the median pilot, who achieved a result (measurement) is:  $1000 - (P - L + 1) / P$ . Here P is the total number of pilots competing in the task and L is the competitor's rank among all those who achieved a result.

Those pilots who did not achieve a result but did fly the task (Group B) are scored using the formula:  $1000 - [(P - A + 1) / P] - 200$ . Again, P is the total number of pilots competing in the task, and A is the number of competitors in Group A. This means that all of the competitors who did not achieve a result (no measurement) will have a score 200 points less than the lowest ranked pilot in Group A. Competitors who did not fly or who are disqualified get 0 points.

If there are 21 competitors in an event the median pilot is the one whose result is eleventh best. The median pilot is determined by the formula  $P/2$  rounded to the higher number. Again, P is the total number of pilots in the event. If there are 20 competitors, the median pilot is the one with the tenth best result.

Let's show some examples of how scores change depending on the scoring method used. I'll use 10 pilots. Their names are Pilot One, Pilot Two, and Pilot Three . . . In the first task their measurements are:

Example 1

Position	Pilot Name	Result m	Positional Scoring	Proportional Scoring
1	Pilot Four	0.20	950	1000
2	Pilot One	1.10	850	988
3	Pilot Three	8.90	750	880
4	Pilot Two	16.40	650	777
5	Pilot Five	29.30	550	600
6	Pilot Six	44.80	450	500
7	Pilot Nine	50.70	350	400
8	Pilot Eight	91.60	250	300
9	Pilot Ten	153.40	150	200
10	Pilot Seven	188.00	50	100

Now let's change some of the measurements to show what happens when the median pilot has a much larger measurement. I'll add 100 to the measurements for pilots Five through Ten. The median pilot remains Pilot Five.

Example 2 (with proportionally better top results)

Position	Pilot Name	Result m	Positional Scoring	Proportional Scoring
1	Pilot Four	0.20	950	1000
2	Pilot One	1.10	850	997
3	Pilot Three	8.90	750	973
4	Pilot Two	16.40	650	950
5	Pilot Five	129.30	550	600
6	Pilot Six	144.80	450	500
7	Pilot Nine	150.70	350	400
8	Pilot Eight	191.60	250	300
9	Pilot Ten	253.40	150	200
10	Pilot Seven	288.00	50	100

Notice that the scores for pilots One through Three (using Proportional Scoring) are now much closer to the leader, Pilot Four. This is a result of the "elastic" tape measure. The tape is stretched further to get to the mark for the median pilot, Pilot Five. That additional stretching means that the marks for Pilot One, Pilot Two, and Pilot Three are now comparatively closer to the end of the tape that is at the mark for Pilot Four. The winning pilot always gets 1000 points. Pilot One, Pilot Two, and Pilot Three did proportionately better than the median pilot in this example than in the first example, so they are rewarded with better scores. Also, notice that the scores did not change for any of the pilots when Positional Scoring is used even though the first four pilots did much better than the rest of the field.

And finally, I've changed the results for three of the pilots to No Result.

Example 3 (with no results)

Position	Pilot Name	Result m	Positional Scoring	Proportional Scoring
1	Pilot Four	0.20	950	1000
2	Pilot One	1.10	850	997
3	Pilot Three	8.90	750	973
4	Pilot Two	16.40	650	950
5	Pilot Five	129.30	550	600
6	Pilot Six	144.80	450	500
7	Pilot Ten	253.40	350	400
8	Pilot Eight	N/R	150	200
9	Pilot Ten	N/R	150	200
10	Pilot Seven	N/R	150	200

## **APPENDIX I – LANDOWNER RELATIONS**

All competitors and crews are reminded of the importance of Landowner Relations and that the countryside is the farmer's livelihood. It is important to remember that good rural relations are essential to our sport. Grass is a crop, cattle, pigs and horses are easily frightened and farmers depend on electric power for many purposes not the least of which is for their milking plant.

Please remember these guidelines when dealing with our landowners:

1. Always be COURTEOUS and respectful of the fact that you are trespassing unless invited onto the property.
2. Select a landing site that will cause the least possible inconvenience to the farmer. Select a field FREE OF CROPS and be particularly CAREFUL OF ANIMALS on the approach and on possible overshoot.
3. After landing, DISCOURAGE ONLOOKERS from coming onto the land unless the owner is there and they have his permission.
4. ALWAYS obtain permission BEFORE you bring the retrieve vehicle into the field.
5. Ensure farm FENCES are NOT DAMAGED and gates are left as you find them.
6. DO NOT let anyone LITTER the property.
7. If damage is caused, or the farmer wishes to take further action, exchange names and addresses and report the facts to race officials upon your return.
8. Remember not to use the "ran out of fuel" excuse if you do damage. It is a violation of the FARs to run out of fuel.

## **APPENDIX J – PROPANE REFUELING**

When refueling, please follow these guidelines:

1. Have your refueling adapters hooked up prior to entering the fueling area. After completing refueling, leave the area to complete the covering of your balloon and any other housekeeping that may be required.
2. No more than two from each balloon crew may be in the refueling station area. Persons involved in refueling must be experienced in refueling propane tanks.
3. Pilots are responsible for proper filling of tanks.
4. Disarm strikers and remove from basket.
5. Leave cell phones in the chase vehicle.
6. No nylon jackets in the refueling area.
7. Only tanks used in flight will be refueled.
8. Pilot lights in campers, chase commanders, etc., must be turned off.
9. All vehicles must be turned off.
10. No persons are permitted inside the balloon basket or vehicle passenger compartment during refueling.
11. No refueling of tanks in enclosed trailers or vans.
12. Absolutely no smoking in the area.

## APPENDIX K – ALLOWABLE DAMAGE on Balloon Envelopes and Baskets

The following is provided only for general guidance to event officials to quickly evaluate the effect of envelope and/or basket damage during a balloon event. In all cases, the manufacturer's manuals for continued airworthiness for each particular aerostat MUST be consulted when evaluating any situation of 'allowable damage. Refer to Rule 3.5 for further guidance.

<b>Manufacturer</b>	<b>Allowable Damage Limitations</b>
ADAMS	No allowable damage is listed
AEROSTAR	For fabric with less than 100 hours and less than 3 years old: <ul style="list-style-type: none"><li>• Above 1ST horizontal band below the equator: 1 inch.</li><li>• Below 1ST horizontal band and above 6 feet above mouth: 2 inches.</li><li>• Envelope within 6 feet of mouth: 18 inches</li></ul> For fabric with greater than 100 hours and greater than 3 years old: <ul style="list-style-type: none"><li>• Above 1ST horizontal band below the equator: 3/8 inch.</li><li>• Below 1ST horizontal band and above 6 feet above mouth: 1 inch.</li><li>• Envelope within 6 feet of mouth: 12 inches</li></ul> Envelope skirt or Dipper: no more than 10%.
AVIAN	1/2" long tear, hole or wear area from equator to top of envelope; 1-1/2" long tear, hole or wear area from 10 feet above mouth to equator; 12" long tear, hole or wear area from mouth to 10 feet up envelope No load tape may be damaged
FIREFLY AND GALAXY	Fabric: holes, tears or areas of damaged fabric of 1 cm (3/8 inch) in maximum dimensions are acceptable above the equator and of 2.5 cm (1 inch) below the equator and a maximum of 30.5 cm (12 inches) in bottom panel no.1 if: <ol style="list-style-type: none"><li>1. They are more than 30.5 cm (12 inches) apart and more than 30.5 cm (12 inches) away from a seam.</li><li>2. There are no more than four in any one panel.</li></ol> Basket wicker: Holes up to 25cm (10 inches) may be considered acceptable providing the damage does not endanger passenger safety or fuel system components.
CAMERON	In lowest 10', holes need not be repaired provided load tapes are undamaged; above 10' $\leq 3/4$ " in longest dimension. Basket damage – horizontal $< 3/4$ " in floor; $< 1/4$ " of thickness gone
LINDSTRAND BALLOONS	No damage to envelope fabric which is above the lower two nylon panels may be larger than $3/4$ " in any one direction. No damage is permissible to load tapes, control lines or parachute valve rigging. No damage to the basket that exceeds more than five strands of a basket wire broken, more than six broken consecutive strands in the woven floor is permissible. No damage to a plywood floor that is more than 10", visible from both sides, or the floor has separated from the lower stainless steel frame is permissible.
HEAD	Maximum damage near mouth 12"; more than 72" from bottom of envelope, but below equator, not greater than 1"; above equator not greater than $1/2$ ". No damage listed for basket.
PICCARD	The manual only lists damage above the lower horizontal load tape. This damage must be less than 1". No damage limitations are given below the lower horizontal load tape. No broken wicker allowed on basket which might affect passenger safety.
THUNDER & COLT	No damage to envelope may be greater than 1" Damage to basket is acceptable if "hand or foot size."
NATIONAL	No damage limitations listed.
KUBICEK	Any damage of the envelope fabric below the third horizontal load tape is permitted. The maximum size of an unrepaired tear or damage to the envelope fabric above the third horizontal load tape is 5mm (0.2 in).

## ULTRAMAGIC

Damage to the fabric in the lower third of the envelope must be limited to an area affecting no more than 3 panels, though they may be completely damaged and panels may be adjacent. Holes no greater than 10mm in diameter (e.g. cigarette burn) are permitted elsewhere on the envelope. These holes must not be within 25mm of a load tape, with no more than 5 in any one panel and no closer than 50 mm to each other. No more than 3 panels in the upper two-thirds of the envelope may have these small holes. No damage is permitted to any part of the burner, fuel or load suspension system.

## LIMELITE

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