

2010



US National Hot Air Balloon Championship

Competition Rules

August 23 – 28, 2010
Battle Creek, Michigan

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INTRODUCTION

This booklet contains the 2010 Championship Rules for the US Nationals to be held in Battle Creek, Michigan from August 23 – 28, 2010. Appendices are provided to further explain various rules and provide guidance where necessary. These rules have been approved by the BFA/HACD. Tasks flown by competitors during this event do not count towards the National Ranking System.

Competition Operations Handbook

The FAI/CIA Competition Operations Handbook (COH) should be referenced by competitors as well as 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 philosophy of the handbook is to operate a 'Safe and Fair' competition and deliver knowledge and experience to organizers around the world.

The COH can be accessed and downloaded by going to <http://www.fai.org/ballooning/ciadocs.asp> and selecting the tab Competition Operations Handbook 2010.

Appendices

Appendices are included containing 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 inaugurated in August 1974 with a vote of the general membership of the BFA. Prior to that time, open participation in the National 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 **National 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.

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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).

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. ***Organizers should not attempt to stage a competitive event without contacting their local Flight Standards 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.

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RULE CHANGES FOR 2010

II.20 Balloon Size

The maximum size can be set for an event. Otherwise 105,000 cu. ft. max.

II.25 Competition Structure

Rule modifications have been made so that all events can be run using these rules. Rule II.25 indicates the competition structure regarding the use of observers and loggers.

4.3.6 Jury Duties and Composition

The Event Director may not serve as a juror.

6 OBSERVERS AND LOGGERS

The rules for the use of both observers and loggers have been combined in Chapter 6

7.3.2 Prohibited Zones

Circular PZs may be cylinder or dome shaped.

8.4.3 Multiple Tasks

Ground contact penalties of Rule 11.5 within an MMA will be assessed to the task of the MMA.

10.6 Livestock and Crop (II.7)

The distance limitation can be set for an event.

11.4 & .5 Ground Contact

The penalty for light ground contact has been reduced to 100 points.
Penalty points for ground contact are competition penalty points.

12.20 Marker Measuring Area (MMA)

Name changed from Marker Scoring Area to Marker Measuring Area to eliminate confusion with "scoring area" in rule 12.18.

APPENDIX D - Sanctioned Competition Regulations

Section II

- b) Fee for Regional Championship increased from \$400 to \$500.
- c) Fee for State Championship increased from \$250 to \$400.
- d) Eliminated Open Sanction and Safety Sanction and created "Other Sanction." Fee for other sanctioned increased from \$200 to \$300.
- e) Name 'Sanction Manager' changed to 'National Ranking Manager' "NR Manager"

Section VII – Applicability to International Competitions and FAI Invitations

- a) Competitors qualifying for an international event, whose rank is based on a Nationals which did not meet the minimum task requirements, must have competed in the two previous Nationals to qualify under this section.

APPENDIX E - U.S. NATIONALS ELIGIBILITY RULES

- g) The HACD reserves the right to add additional competitors for sponsorship considerations.

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SECTION I – EVENT DETAILS

I. 1 TITLE

The Event shall be known as THE US NATIONAL HOT AIR BALLOON CHAMPIONSHIP.

I. 2 SANCTION

The event is sanctioned by the Balloon Federation of America Hot Air Competition Division (BFA/HACD).

I. 3 ORGANIZATION

The event is organized by THE BFA HOT AIR COMPETITION DIVISION (HACD) and HOLIDAY BALLOON FEST, INC. (HBF).

I. 4 CORRESPONDENCE

All entries and official correspondence should be addressed to:

BALLOON FEDERATION OF AMERICA
PO BOX 400
INDIANOLA, IOWA 50125
Email: bfaoffice@bfa.net
Telephone: (515) 961-8809 FAX: (515) 961-3537

I. 5 PERSONNEL

Event Director	Maury Sullivan	Meteorologist	Brad Temeyer
Assistant Director	David Levin	Chief Scorer	Mike Gilligan
Safety Officer	Bob Zanella	Jury President	Gary Britton

I. 6 PLACE

The location for the event is Battle Creek, Michigan.

I. 7 DATES

The Event will run from August 23, 2010 to August 28, 2010.
The last flying day will be August 28, 2010.

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 BFA member pilots who have met the US Nationals eligibility requirements detailed in the registration materials provided.

I.11 CLOSING ENTRY DATE

The closing entry date for the Event is May 10, 2010.

I.12 RISK

The balloon and other property of a competitor, and control of same, must at all times be the responsibility of the pilot in every respect. Each competitor shall be deemed by entry to agree to hold event officials, the Organizer and their respective members, employees and personnel, harmless for all claims for injury to himself or his balloon.

I.13 INSURANCE

Each competitor shall be insured against all claims by third parties to a minimum of \$100,000.00 per passenger, \$100,000 property damage and a minimum limit of **\$1,000,000** combined single limit coverage on the operation of his balloon.

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SECTION II – COMPETITION DETAILS

II. 1 CONTEST AREA (7.1)

The competition map will consist of special editions of maps produced using DeLorme XMap® 6. software licensed for this application. The map datum is WGS 84 and UTM coordinates are applied with one (1) km grids; magnetic deviation 5.4° West. Maps will be distributed at the Monday, August 23 on-site pilot registration. A digital version of the competition map will be available via a link on the BFA's web site by July 15, 2010 (<http://bfa.net>)

The contest area will be the entire competition map except for areas designated as out of bounds. 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 will be printed on the Official Competition Map, and changes will be posted on the Official Notice Board.

II. 3 PZ LIST (7. 3)

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.

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

Common Launch Areas are depicted on the Official Competition Map and changes will be posted on the Official Notice Board and written supplements will be distributed at task briefings should changes occur.

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

Common Launch Points are depicted on the Official Competition Map and the Pilot Operations Manual provides a complete description and grid reference for each CLP.

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.

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 are 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)

Any special notes will be made available during the general pilot briefing and on the Official Bulletin Board. We are flying under provisions of a standard FAA Waiver requiring flight altitudes of not less than 200' from any structure, person, livestock, or vessel.

II. 8 DRIVING LAW (10.11)

All participants are required to follow Michigan laws and regulations. Michigan law allows a motorist to be stopped solely for not wearing a safety belt in the front seat of a vehicle and if a child 4 through 15 is not properly restrained, no matter where riding in the vehicle. Children up to 7 must be in a child safety or booster seat, unless 4'9" tall, when they must be secured by a properly adjusted and fastened safety belt. Children 8-15 must use a safety belt in all seating positions. Persons under age 18 may not legally ride in the open bed of a pickup truck traveling more than 15 MPH. Approaching a stationary emergency vehicle with lights activated, the operator of a vehicle must move into an open lane, at least one lane away from the emergency vehicle if possible.

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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. 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 of the Event Director.

II.10 RECALL PROCEDURE (10.15)

Text messages and/or phone calls will be made to all competitors using the phone number provided to the organizer at registration.

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 and APPENDIX G)

In the case of goals selected by competitors, pilots are required to select an intersection from the pre-printed list provided in the Pilot Operations Manual. These targets are also printed on the competition map and are labeled with a three-digit identifier. All pilot declared goals shall be identified using these three-digit identifiers.

Declaration methods:

- a) Pilot Declared Goals (PDG)
 - i. Written pilot declarations shall be submitted to an official at a time and location specified in the Task Data Sheet (TDS). Multiple competitors' declarations, individually signed by the competitor, may be submitted by a single crew member.
 - ii. A written provisional declaration may be submitted by the pilot at the conclusion of the task briefing at the McCamy Plaza Hotel or as indicated on the TDS
- b) Fly On (FON)
 - i. The primary method of declaration for a FON requires the competitor to write clearly on the previous marker his declared goal(s) for fly on. If more goals are declared than permitted, the competitor will not achieve a result.
 - ii. If the previous marker is not dropped or is lost, or if no goal is written on it, and if no valid provisional goal is declared, the competitor will not achieve a result.
 - iii. A written provisional declaration may be submitted by the pilot at the conclusion of the task briefing at the McCamy Plaza Hotel or as indicated on the TDS
 - iv. If the competitor fails to achieve a valid marker drop in the previous task, a provisional declaration may be made in writing to an official at the previous MMA as described on the TDS. This declaration will supersede all previous provisional declarations. This declaration form must be signed by the competitor and will be time-stamped when submitted by the designated crew person. Each competitor shall have the sole responsibility for completing his declaration and submitting it to officials or supervise his crew in turning in the declaration in his behalf. Pilot designated crew may submit signed declarations for multiple pilots. While officials will accept multiple declarations from one crew member representing a group of pilots, each pilot's signature must be on his respective declaration form. The pilot has the ultimate responsibility for all declarations and any errors or late declarations received in this manner will not serve as reason for protest.

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

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II.13 LOCATION OF OFFICIAL NOTICE BOARD (5.10)

The Official Notice Board is located in the McCamly Plaza Branson Ballroom pre-function area. Scores and other information will also be posted, when feasible, on the BFA web site (<http://bfa.net>).

II.14 COMMUNICATION TIMES (5.3)

Replies to general inquiries or complaints will be posted on the even hours between 8:00 AM and 10:00 PM every day at the Official Notice Board.

II.15 PUBLICATION TIMES ON THE LAST FLYING DAY (5.6.3)

Every half-hour beginning at 7:30 AM.

II.16 FLIGHT CREW (NOT USED)

II.17 DETAILS FOR USE OF GPS-LOGGERS (See Chapter 6)

Official backup loggers supplied by the organizer will be the Garmin Geko 201. Each competitor will utilize their personal GPS as his primary logger for all purposes of scoring and monitoring of flight activity. This personal GPS logger must comply in all respects and settings as outlined below and elsewhere in these rules. This GPS should have a 12 channel parallel receiver which provides a record of GPS altitude and shall be settable to time interval recording.

a) Handling:

- Backup Geko 201 loggers (Organizer provided):
 - Will be provided to the competitor at briefing.
 - The competitor will take the logger with him after briefing, turn it on approximately 10 minutes before the intended take-off time to allow proper GPS initialization, and attach it to his balloon before take-off.
 - The logger should be attached to the envelope on the right side (as laid out for inflation) approximately one to two meters above the bottom of the envelope (skirt or scoop excluded).
 - After landing, the competitor will detach the logger, turn it off, and return it, before refueling, to the Operations Center at the McCamly Plaza Hotel or as indicated in the pilot schedule for that flight.
- Primary scoring logger (pilot provided)
 - Previous track history is to be cleared by the pilot at the direction of the Director. Generally, this will be done prior to launching at the pilot's launch area to eliminate unnecessary tracks developed in the search for a suitable launch area.
 - The competitor will take the logger with him after briefing, turn it on approximately 10 minutes before the intended take-off time to allow proper GPS initialization, and utilize it as the pilot chooses for navigational purposes. Placement of the GPS logger is at the discretion of pilot considering satellite signal acquisition and maintenance.
 - After landing, the competitor will turn it off and return it, before refueling, to the Operations Center at the McCamly Plaza Hotel or as indicated in the pilot schedule for that flight.
 - Pilots can retrieve their GPS logger after event staff has completed and verified the completeness of the logger download. The Debriefing will provide pilots with an estimate of the time their GPS will be available for pick up.

b) Landing: Defined as no vertical or horizontal distance for 5 minutes (within GPS instrument's precision). If the landing mark is more than 200m from the previous mark, movement within the 5 minute period may be accepted.

c) Logger Failure: If a pilot provided GPS-logger fails to record a log, the GPS log recorded by the Organizer provided Geko 201 will be used as backup to provide positional information. If the pilot provided GPS is not set to the settings under (e), his result will be based on the Geko 201. If all GPS-loggers failed or the competitor's GPS is not set to the settings under (e), and the Geko 201 failed, he will not achieve a logger result.

d) Altitude: GPS-loggers will record uncorrected GPS altitude. Pilot provided GPS must also record altitude on this basis.

e) Logger Settings and Capacity: Recording time interval is 3 seconds. Minimum memory is 10,000 track points.

f) Logger Responsibility: Damage to, or loss of an Organizer provided GPS will result in the pilot being assessed a charge of \$100.

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II.18 DETAILS FOR TIME LIMITS (rest hours) (5. 6)

The hours between 10:00 PM and 8:00 AM local time will be disregarded for the purpose of the time limits of complaints and protests.

II.19 LOST MARKER (12.15.3)

Competitors will be charged \$20 for each lost marker. Lost marker fees must be paid prior to the first briefing following the flight in which the marker was lost.

II.20 BALLOON SIZE (3.3)

The maximum size balloon permitted is AX8 (3000cbm/105000cft).

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 a guidance the altitude should be approximately 2000 ft AGL and be expressed in ft MSL.>*

II.22 ALTITUDE (6.9.2)

GPS Loggers will use GPS altitude (not barometric altitude).

II.23 SCORING FORMULA (14.5 AND 14.6)

The Event will be scored using Proportional (14.5) scoring

II.24 2D, MODIFIED 3D AND 3D SCORING ALTITUDES (12.21.3 and Appendix F)

II.24.1 2D measurements will only be valid below 1,500' MSL

II.24.2 Modified 3D measurements will be used for altitudes $\geq 1,500'$ and $< 2,000'$ MSL, and 3D measurements will be utilized at altitudes $\geq 2,000'$ MSL. The modified 3D measurement utilizes one-half of the altitude in the calculation of the hypotenuse in the mathematical formula.

II.25 COMPETITION STRUCTURE (6.1)

The competition will be conducted without observers utilizing logger scoring for all measurements other than direct measurements of marker drops by event staff.

SECTION III – RULES

CHAPTER 1 - OBJECTIVES

1.1 OBJECTIVES

The objectives of the Event are:

- To determine the US National Champion Pilot
- To stimulate the development of aerostation by a comparison of performance of pilots and aerostats;
- To reinforce friendship among aeronauts.

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 National Championship and for a National Champion to be declared, at least three tasks must have been completed on not less than two separate flights.

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

Pilots entered and competing in the event.

2.2 COMPETITOR'S RIGHT TO COMPETE

Members in good standing with the BFA/HACD meeting the US Nationals eligibility requirements are eligible to compete in the US National Championship.

2.3 QUALIFICATION

Each pilot-in-command shall have been authorized to act as pilot-in-command of a hot air balloon with airborne heater at least twelve months prior to the start of the event (August 23, 2010). Each pilot-in-command shall have accumulated at least fifty (50) hours as pilot-in-command of the specified sub-class of aerostat by May 10, 2010. 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 BFA Office by the closing entry date (May 10, 2010) unless the field is not full and an extension to the entry deadline has been granted.

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 by telephone.

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 WAIVER

A pilot, by entering the event, thereby waives any right of action against and holds harmless the Balloon Federation of America, BFA/HACD, competition officials, the Organizer and their respective members, employees and personnel for any damages sustained by him in consequence of any act or omission on the part of said bodies, their officials, members or representatives or by other pilots.

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

All meteorological reports, forecasts, and other safety or navigational information is provided in good faith for the guidance of competitors. Officials may be appointed to regulate the inflation and launching of balloons. However, nothing shall diminish the responsibility of each pilot under this chapter. Recall procedures may be used as described in II.10 and 10.15.

2.11 RESPONSIBILITY

Entrants and competitors shall be completely responsible for the safe operation of their balloon at all stages of inflation, launch, flight, and landing. He 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.)

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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) (In CIA sanctioned Category I events, turning vents may only be used after all tasks are completed)

3.2 FUEL SUPPLY

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 (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 TO A BALLOON

- 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).
- 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.

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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. If requested, the Director shall attend meetings of the jury and give evidence.
- 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 not normally appointed for sanctioned events, however, if appointed they are advisors to the Director and 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 4.3.5.
- 4.3.2 In addition to being Chairman at jury meetings, the Jury President 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 Jury President has the power to stop the Event until a jury meeting has considered the situation.
- 4.3.3 The jury has the right to terminate the event if the organizers fail to abide by the published regulations.
- 4.3.4 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.
- 4.3.5 The Jury shall be composed of the Jury President and two competitor jurors. The other two members shall be selected from a pool of five potential jurors chosen by all the competitors at the general briefing. In the event of a protest, the Jury President shall select two competitors from this pool who have no conflict of interest, as determined by the President, with the protest to be heard. In the event of a subsequent protest(s) the President shall make new selections for the two competitor jury members. In the event that all members of the pool should have a conflict with the current protest, the President and the Safety Officer shall act as the jury and select one additional member from the competition staff not including the Championship Director.
- 4.3.6 Absence of a Jury Member – In special cases, such as illness or conflict of interest, the Director may accept a replacement. The quorum for a Jury meeting shall be at least two thirds of its total membership.

4.4 SAFETY OFFICER

The Safety Officer will advise the Event Director on all matters of safety and will be in consultation on weather forecasts and briefings.

4.5 TECHNICAL SUPPORT OFFICERS

Technical Support Officers are competition officials who are responsible to the Chief Scorer. If utilized, they are responsible for the computer 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.

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CHAPTER 5 - COMPLAINTS & PROTESTS

5.1 ASSISTANCE

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

5.2 COMPLAINTS

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.

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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.

5.7 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 & 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.

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 Operations 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.

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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 6.12 only apply to events utilizing GPS Data Loggers.
- 6.9.2 A GPS Data Logger is a device, provided by the organizer or the competitor, 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 and for scoring purposes. 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 the posting of the final results for the event. Competitors who fail to comply with this penalty will result in that competitor receiving NO RESULT for the event.
- 6.10.5 At no time is the competitor allowed to open or interfere with the logger or 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 unusable track logs, the officials may ask the competitor to provide any GPS equipment he may have to substitute the missing track information.
- 6.13.2 In case both the official track log and the competitor's GPS are not providing the necessary information to establish a result, the competitor will not receive a result. 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, etc. in accordance with II.17) as the official logger and has a minimum track point memory in accordance with II.17)
- 6.13.3 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. Otherwise the competitor will be scored to his nearest mark or landing position, whichever is best.

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CHAPTER 7 - MAPS

7.1 CONTEST AREA (II. 1)

An area defined by reference to the official competition map and 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 upper limit 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 three classifications of PZ's: Red, Yellow, and Blue.

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.

7.4 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 by up to 1000 competition points, proportionally to the offense.

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 (II.12)

To identify a given point on the competition map, the coordinates will be written in eight-digit format. First four digits west/east and the second four digits south/north. (Easting then Northing.)

7.9 DEGREE REFERENCE

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

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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.

8.2.2 The Director has the authority to cancel a task(s) due to 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 multiple tasks to be carried out during the same flight. The tasks will be scored separately, with a winning score of 1000 points 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 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 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) 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 markers is released in a task, the competitor will be scored by track point.

8.5 MODIFICATION OF RULES

8.5.1 The task rules of Chapter 15 are defined as variable rules and changes to those may be made by the Event Director without authorization of the BFA/HACD Board.

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

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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 competitors 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 task briefings 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, five minutes study time should be allowed before the briefing process commences.

8.8 TASK DATA

8.8.1 At task briefings the task data, preferably in writing, shall be given to competitors. The task sheets 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/return of logger

8.8.3 Individual task data:

- a) Marker(s) color to be used (if used)
- b) Task/Marker order
- c) Dropping method
- 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 pilot will 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.

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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.

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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 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.
- 9.2.3 Individual launch areas shall not be selected outside the contest area. Penalty: no result in the first task of that flight.
- 9.2.4 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 LANDOWNER PERMISSION (LO) (II. 6)

Competitors must ensure permission has been obtained from the landowner or occupiers 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.

9.4 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.

9.5 LATE VEHICLES

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.

9.6 PREPARATION OF BALLOONS

- 9.6.1 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 on the launch area. Penalty is up to 200 task points.
- 9.6.2 Quick-release tie-offs must be used on all launches from a common launch area and are recommended in individual launch areas.

9.7 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 inflation period until a flag of any color has been raised. This rule does not apply to ILA.

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9.8 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.

9.9 LAUNCH SIGNALS

9.9.1 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.

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

9.10 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.

9.11 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 9.13, 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)

9.12 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.

9.13 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).

9.14 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 hoisted or when given individual permission by the Launch Director.

9.15 READINESS FOR TAKE-OFF

9.15.1 When a competitor is completely ready for take-off, and has positive buoyancy, he should wave a white flag or otherwise indicate to the Launch Director his readiness. When the Launch Director has acknowledged this signal, the competitor should leave the white flag displayed on the front 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 order of signaling their readiness. Competitors should equip themselves with a suitable white flag about 50 cm square 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 (10) minutes of the launch period.

9.16 OBSTRUCTION

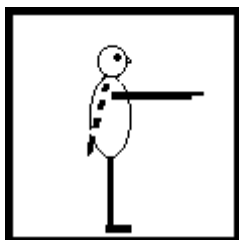
Once his balloon is fully inflated, a competitor may not unnecessarily remain in position where his balloon obstructs another.

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9.17 TAKE-OFF PERMISSION

- 9.17.1 Launch Director(s), if utilized, will give each competitor permission, either verbally or with hand signals, to take-off. The competitor may then take-off at will, subject to any instructions from the Launch Director at the time.

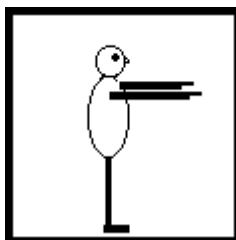
Hand signals, if used, will follow those shown below.



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.

- 9.17.2 The 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.
- 9.17.3 If the balloon does not clear the ground within thirty (30) seconds, the Launch Director may cancel permission to take-off. The Launch Director may require the balloon to be deflated and moved.
- 9.17.4 In the event that Launch Director(s) are not utilized, each pilot and his crew chief will be responsible for controlling his own launch being aware of surrounding air traffic and clearances required.

9.18 LOSS OF CONTROL

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

9.19 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.

9.20 VALID TAKE-OFF

A balloon is considered to have taken off and to be flying the task if it passes over the boundary of any launch area.

9.21 ABORTED TAKE-OFF

- 9.21.1 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.
- 9.21.2 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.

9.22 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. He shall not re-enter the launch field below 500 ft AGL before the end of the launch period or after all balloons have taken off, whichever is earlier.

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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.

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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 final landing.

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)

When it becomes necessary to cancel a task due to deterioration of weather, recall may be made by use of pagers, cell phones, local radio, or aircraft radio. Details will be given at the General Briefing.

CHAPTER 11 - LANDINGS

11.1 LANDINGS

A pilot 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 the MMA or limited scoring area.

11.3 CONTEST LANDING

- 11.3.1 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.

(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.

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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.

12.2 GOAL SELECTED BY 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.
- 12.2.2 Measurements will be made from a goal as indicated in the TDS. 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. If more goals or declarations are made than permitted, the competitor will not achieve a result.
- 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.
- 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 9.19) and the competitor fails to do so, he will not achieve a result.

12.4 (NOT USED)

12.5 TARGET

A prominent 'X' 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.

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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. Penalty for infringements in an MMA are: minor infringements with no competitive advantage: 50 task points. Otherwise, 50 meters will be added to the competitor's result in the least advantageous direction.

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, 50 meters will be added to the competitors result in the least advantageous direction.

12.11 MARK (12.20 and 12.21)

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.

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 (GPS & MARKER RETURN PERIOD)

12.14.1 Competitors have four (4) hours from the actual start of the launch period to return unused markers and the GPS to the Operations Center.

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 MARKER (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 are 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.

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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.

12.17 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 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 Marker Measuring Area (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 **or by their observer (in events with observers)**

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.

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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 either 2D, modified 3D (one-half altitude used for hypotenuse) or 3D (hypotenuse) distance, or any combination thereof at the Director's discretion and stated on the TDS, from the goal/target to the track. Shortest distance is best (see 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.
- 12.22.4 A competitor's result based on a track point cannot be better than the worst possible result in the MMA.
- 12.22.5 In tasks without goals or targets, the 2D-distance (horizontal 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 and 12.4)

- 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).

13.3.4.1 FOR EVENTS WITH LOGGER SCORING

Competitors landing in the MMA, 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 will not achieve a result in the related task.

13.3.4.2 FOR EVENTS WITHOUT LOGGER SCORING

The result penalty will be in case of:

- a) an Elbow or Angle task, a decrease of the competitors achieved angle with:

$$2 \times \text{ARCSIN} [\text{INFRINGEMENT} / \text{DISTANCE LIMIT}]$$

- b) a Race to an Area or Land Run task:

1 task penalty point per meter infringement.

- c) all other tasks:

An increase (or decrease) of the competitors result by twice the amount of the infringement.

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.

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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.

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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 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
- d) Not used

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. Pilots 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.

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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 (See APPENDIX H)

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.

N = numerical position of competitor 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.

If there are less than 6 competitors entered in the tasks at a Sanctioned Event, the scores for those pilots will be calculated with the above formula with:

P = total number of pilots flying the event, including pilots not entered in the sanctioned task and

N = numerical position of pilot among all pilots flying in the event, including pilots not entered in the sanctioned task.

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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.20.

14.8 MEASURING (for events without logger scoring)

14.8.1 Measurements by the measuring officials take precedence.

14.8.2 Within 200m, 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 Pacing should not be used within 200m.

14.8.4 All marks outside 200m 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 TOTAL SCORES

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

14.9.2 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.

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CHAPTER 15 - TASKS

15.1 PILOT DECLARED GOAL (PDG)

15.1.1 Competitors will attempt to drop a marker or achieve a track point close to a goal selected and declared by him before flight.

15.1.2 Task Data:

- a) Declaration time and place (also see 12.3)
- b) Number of goals permitted
- c) Minimum and maximum distances of goal from CLP or ILP
- d) Minimum distance of goal from any subsequent goals or targets, if applicable
- e) Goals available for declaration, if applicable

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

15.2 JUDGE DECLARED GOAL (JDG)

15.2.1 Competitors will attempt to drop a marker close to a set goal.

15.2.2 Task Data:

- a) Position of set goal/target.

15.2.3 Result is distance from observed mark to the target, if displayed, or goal. Smallest result is best.

15.3 HESITATION WALTZ (HWZ) aka MULTIPLE JUDGE DECLARED GOAL (MJDG)

15.3.1 Competitors will attempt to drop a marker 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 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 drop a marker close to a set goal or target.

15.4.2 Task Data:

- a) Position of set 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 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 drop a marker or achieve a track point close to a goal selected and declared by them during flight.

15.5.2 Task Data:

- a) Minimum and maximum distance between previous mark and declared goal.
- b) Number of goals permitted.
- c) Method of declaration.

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

15.5.4 Declaration method for events with observers:

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- c) The competitor shall write clearly on the previous marker his declared goal(s) for fly on. If the previous marker is not dropped or no goal is written on it or if more goals are declared than permitted the competitor will not achieve a result.
- d) As a precaution, in case the previous marker should be lost, the competitor may personally write a provisional goal on the observer's sheet. He will be scored to this goal if the previous marker is lost. The competitor may make or revise this provisional declaration at any time up to the release of the previous marker. A verbal declaration of a goal to the observer is of no effect and will not be recorded. If the observer is flying in the basket, he should witness and record on the observer sheet the declaration written on the marker before release.

15.6 HARE AND HOUND (HNN)

- 15.6.1 Competitors will follow a hare balloon and attempt to drop a marker 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 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 drop a marker 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
- 15.7.3 The result is the distance from the mark 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 drop their marker 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 to the target, if displayed, or goal. Smallest result is best.

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15.9 CALCULATED RATE OF APPROACH TASK (CRT)

15.9.1 Competitors will attempt to drop a marker 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 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 drop a marker or achieve a valid track point, as specified in the TDS 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 take-off to the marker drop 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 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 observers are not 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.

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15.13 MINIMUM DISTANCE (MDT)

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

15.13.2 Task Data:

- a) Minimum set time or distance
- b) Scoring period, if any

15.13.3 The result is the distance from the mark or closest valid track point to the CLP. Smallest 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 drop a marker or achieve a valid track point close to the CLP within a set scoring area(s).

15.14.2 Task Data:

- a) Description of scoring area(s).

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

15.15 MINIMUM DISTANCE DOUBLE DROP (MDD)

15.15.1 Competitors will attempt to drop two markers or achieve two 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 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 drop a marker or achieve a valid track point far away from the CLP, within a maximum set time.

15.16.2 Task Data:

- a) Maximum set time
- b) Arrangements for timing

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

15.16.4.1 (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.

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15.17 MAXIMUM DISTANCE (XDI)

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

15.17.2 Task Data:

- a) Description of scoring area(s)

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

15.18 MAXIMUM DISTANCE DOUBLE DROP (XDD)

15.18.1 Competitors will attempt to drop two markers or achieve two 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 result is best.

15.19 ANGLE (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.

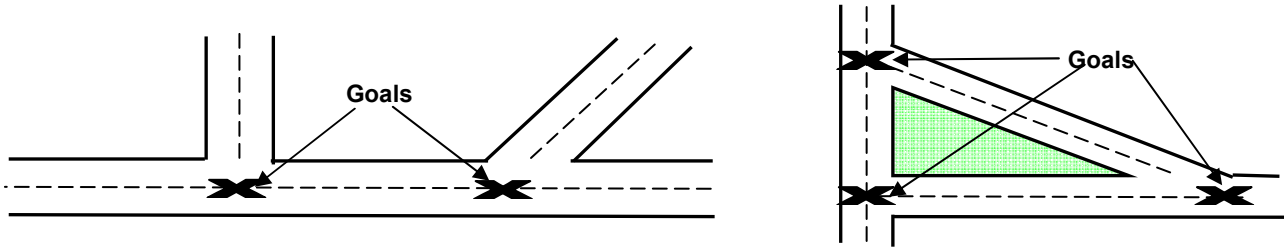
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APPENDIX A - ABBREVIATIONS

Rule ref	Abbreviation	Rule
7.1	CTA	CONTEST AREA (CTA)
7.2	OFB	OUT OF BOUNDS (OFB)
9.1	CLA	COMMON LAUNCH AREA(S) (CLA)
	CLP	COMMON LAUNCH POINT(S) (CLP)
9.2	ILA	INDIVIDUAL LAUNCH AREAS (ILA)
	ILP	INDIVIDUAL LAUNCH POINT(S) (ILP)
9.3	LO	LANDOWNER'S (LO) PERMISSION
9.19	T/O	TAKE-OFF (T/O)
11.1	LND	LANDINGS (LND)
12.4	SRP	SEARCH PERIOD (SRP)
12.6	MKR	MARKER (MKR)
12.9	GMD	GRAVITY MARKER DROP (GMD)
12.10	FMD	FREE MARKER DROP (FMD)
12.16	SCP	SCORING PERIOD (SCP)
12.17	SCA	SCORING AREA (SCA)
15.1	PDG	PILOT DECLARED GOAL (PDG)
15.2	JDG	JUDGE DECLARED GOAL (JDG)
15.3	HWZ	HESITATION WALTZ (HWZ) aka Multiple Judge Declared Goal (MJDG)
15.4	FIN	FLY IN (FIN)
15.5	FON	FLY ON (FON)
15.6	HNH	HARE AND HOUND (HNH)
15.7	WSD	WATERSHIP DOWN (WSD)
15.8	GBM	GORDON BENNETT MEMORIAL (GBM)
15.9	CRT	CALCULATED RATE OF APPROACH TASK (CRT)
15.10	RTA	RACE TO AN AREA (RTA)
15.11	ELB	ELBOW (ELB)
15.12	LRN	LAND RUN (LRN)
15.13	MDT	MINIMUM DISTANCE (MDT)
15.14	SFL	SHORTEST FLIGHT (SFL)
15.15	MDD	MINIMUM DISTANCE DOUBLE DROP (MDD)
15.16	XDT	MAXIMUM DISTANCE TIME (XDT)
15.17	XDI	MAXIMUM DISTANCE (XDI)
15.18	XDD	MAXIMUM DISTANCE DOUBLE DROP (XDD)
15.19	ANG	ANGLE (ANG)
15.20	3DT	3D SHAPE TASK (3DT)
	MMA	Marker Measuring Area (MMA)
	TDS	Task (data) sheet
	WIS	Weather Information sheet
	FRF	Flight Report Form
	GMF	GPS Measuring Form
	TAS	Task Score Sheet
	TOS	Total Score Sheet
	GC	Ground Contact
	GB	General Briefing

APPENDIX B – GOAL DEFINITIONS

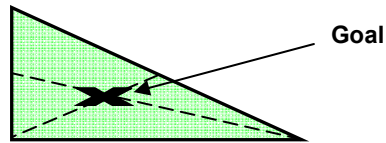
A **goal** is the intersection of the projected road centerlines as shown below. If the intersection is shown on the map, measure to the intersection.



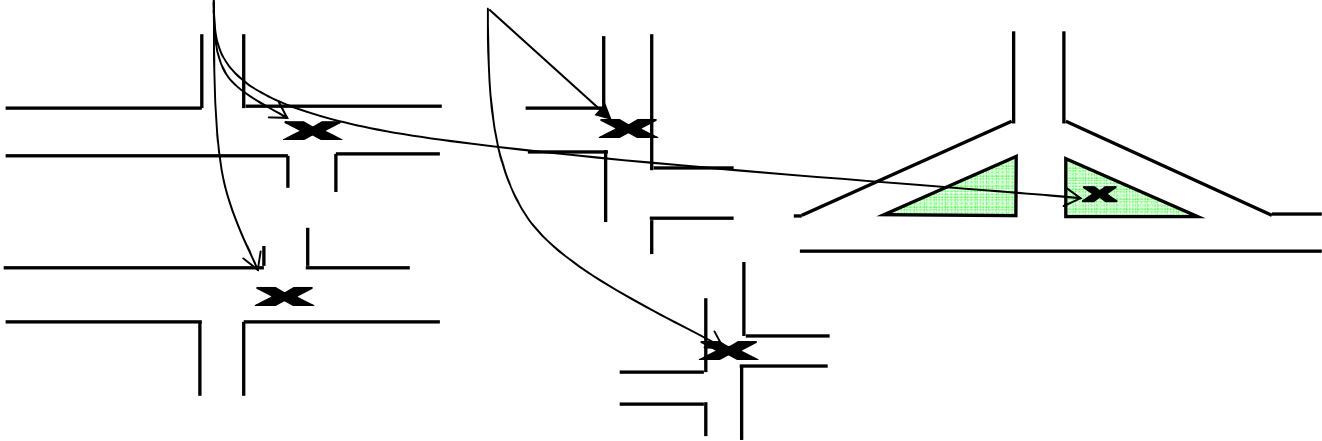
Ambiguous Goals

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



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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

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 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.

Violations of normally accepted conduct will result in a warning and possible expulsion from the Event.

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APPENDIX D – SANCTIONED COMPETITION REGULATIONS

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.
- N = numerical position of competitor 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.

If there are less than 6 competitors entered in the tasks at a Sanctioned Event, the scores for those pilots will be calculated with the above formula with:

- P = total number of pilots flying the event, including pilots not entered in the sanctioned task and
- N = numerical position of pilot among all pilots flying in the event, including pilots not entered in the sanctioned task.

- c) The BFA/HACD Nationals 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 four sanctioned tasks in the current year by averaging the scores for the first four tasks. After a pilot has flown four tasks his average cannot be reduced in that competitive year even though individual task scores may be lower than the average. After four 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 down, plus 2. Thus $C = \text{INT}(N/2) + 2$ where N is the number of tasks flown and $\text{INT}(N/2)$ is the integer part of $N/2$. 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 Nationals Ranking.
 - 3) A Competitive Year runs from January 1 through December 31.
 - 4) Each pilot's Nationals Ranking scores are erased at the end of each competitive year.
- d) To be eligible for any award for top competitor from the Nationals Eligibility List a pilot must have completed four (4) tasks in the year for which the award is given.
- e) Once a pilot has agreed in writing to participate in a sanctioned task or event, that pilot is obligated to participate unless the Event Director is notified in advance. Failure to so notify will result in a disqualification, i.e., a zero score for the tasks in which that pilot agreed to participate. The Event Director may excuse pilots from this obligation if there is sufficient balloons in the task or if the minimum number of balloons has agreed to participate in the task.
- f) If there are six or more competitors with a valid BFA/HACD task card registered at the official registration site of an event, the task scores for those pilots will be based upon their ranking within the group of task card holders. At least five of the task cardholders must launch in order for that task to be valid and included in the Ranking System. If there are less than six competitors with a valid task card, the task scores for those pilots will be based upon their ranking within the total number of pilots flying the event, including pilots not entered in the sanctioned tasks. At least 50% of the total pilots must launch in order for that task to be valid and included in the Ranking System. See Section 1 (b) above and Rule 14.5 and 14.6.

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- g) Where deterioration of weather requires that pilots be recalled and the task cancelled, 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

- a) All tasks/events shall use the Sanction Rules and Regulations and use the HACD scoring program and comply with this Section and Section IV below. All scores shall be submitted to the BFA Office within seven (7) calendar days of completion of the event.
- b) **Regional Championships** – one regional championship may be held yearly in each BFA Region. 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.

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).

- c) **State Championships** – one state championship may be held yearly in each state. 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. Balloon Clubs in a state may submit a series of sanctioned events for a State Championship in which those competitors that are vying for the championship shall fly in at least two (2) of the sanctioned events and complete a minimum of three (3) tasks. A series State Championship shall be considered for approval by the HACD on a case-by-case basis. Current fee is \$400.00.

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).

- d) **Other Sanction** – issued for a typical weekend event. There should be a minimum of six (6) competitors entered in the event who shall hold a current BFA/HACD task card. If there are less than six (6) HACD card holders competing, the task scores for those pilots will be based upon their ranking within the total number of pilots flying the event, including pilots not entered in the sanctioned tasks. See Section I (f). Current fee is \$ \$300.00.
- e) **Non-sanctioned Event** – Scores for non-sanctioned events may be entered into the National Ranking System in accord with Section I (f) above. Approval prior to the event of a BFA/HACD board member or a representative approved by the National Ranking (NR) Manager shall be obtained. (No Fee)
- f) In the case where Regional or State Championship are being held in conjunction with a local event, the sanction fee for the event shall be the higher of the fees with the fees for the lesser event or events waived.

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.
1. Event applicant submits on-line application to NR Manager.
 2. Application denied if incomplete or inappropriate.
 - a. Applicant notified of application deficiency by NR Manager.
 - b. BFA Office notified of action taken by NR Manager.
 3. Application(s), if complete and appropriate, shall be reviewed and evaluated by a sanction subcommittee composed of the BFA/HACD chairperson, NR Manager and BFA/HACD regional board member for the region

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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. NR 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 NR 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. The NR 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 BFA Office for each task flown within seven (7) days of the completion of the event.
 6. Upon receiving the event scores the BFA Office forwards them to the NR Manager for review. Upon completion of the review and within fourteen (14) days of receiving the scores, if they are correct, the BFA Office shall submit them 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 days.
 7. BFA/HACD task cardholders shall have thirty days from the date of posting the scores to report omissions or discrepancies in their scores.

b) Other Sanction

1. Event applicant submits on-line application to NR Manager.
2. Application denied if incomplete or inappropriate. Applicant notified of application deficiency by NR Manager. BFA Office notified of action taken by Sanction Manager.
3. Application approved by NR Manager if appropriate. NR Manager notifies BFA Office, BFA/HACD web master and BFA editor of tentative approval. BFA Office notifies applicant of approval pending receipt of sanction fee. 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. BFA Office notifies NR Manager, BFA/HACD web master & BFA editor of receipt of fee. Event can be listed on BFA web site and Ballooning as a sanctioned event.
5. The National Ranking 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 BFA Office for each task flown within seven days of the completion of the event.
6. Upon receiving the event scores, the BFA Office forwards them to the National Ranking Manager for review. Upon completion of the review and within fourteen days of receiving the scores, if they are correct, the BFA Office shall submit them 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.
7. BFA/HACD task cardholders shall have thirty days from the date of posting the scores to report omissions or discrepancies in their scores.

c) Non-sanctioned Event

1. The applicant, a BFA/HACD board member or approved representative, shall notify the NR Manager of the intention to run sanctioned tasks prior to the event.
2. NR Manager notifies BFA Office, BFA/HACD web master and BFA Editor of approval.
3. The NR Manager notifies the event applicant that scores for the BFA/HACD task cardholders are to be submitted to the BFA Office for each task flown within seven days of the completion of the event.

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4. Upon receiving the event scores the BFA Office forwards them to the NR Manager for review. Upon completion of the review and within fourteen days of receiving the scores, if they are correct, the BFA Office shall submit them 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 days.
5. BFA/HACD task cardholders shall have thirty days from the date of posting the scores to report omissions or discrepancies in their scores.

SECTION IV – ELIGIBILITY FOR PARTICIPATION IN SANCTIONED TASKS

- a) The pilot must meet the invitational criteria of the organizer.
- 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) The pilot must pre-register with the Scoring Officer (or his representative) in charge of the task.
- d) 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.
- e) 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.
- f) 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 Panel 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. Should any additional places be available, competitors with three (3) 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 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 three BFA/HACD members. At least two members shall be BFA/HACD pilots. The BFA/HACD Board shall appoint the jury.

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

- a) The United States representatives to the World Hot Air Balloon Championships, to the 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 years 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.

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SECTION VIII – FEES

- a) Task Card Fees
 - 1. Sanctioned Task Card - \$55.00 each. (Covers all task fees for the entire competitive year.)
 - 2. Sanctioned Task Cards for first time cardholders and those that haven't been an HACD member within the previous five years - \$25.00 each. (Covers all task fees for the entire competitive year.)
- b) Event Official Card Fees - \$15 each
- c) All fees collected for protests and appeals shall be deposited in the BFA general treasury and earmarked for the BFA/HACD.

SECTION IX – COMPLAINTS AND APPEALS TO THE COMPETITION BOARD

a) Written Complaints

- 1. Written complaints that are not able to be resolved on the last day of Sanctioned Competition may be sent to the Hot Air Competition Division Chairman to be resolved.
- 2. The written complaint must be mailed (postmarked), together with a cashier's check for \$100.00, by the dissatisfied competitor, within 48 hours, after the last task of the event.
- 3. The Hot Air Competition Division will resolve the complaint and advise all parties of their decision within thirty (30) days from the date of the complaint.

b) National Championship Appeals

- 1. Right of appeal to the Hot Air Competition Division Board rests exclusively with a competitor or an official at the US National Championships.
- 2. Notice of appeal shall be made in writing and shall be accompanied by a deposit of \$250.00. It shall be addressed to the Chairman of the Hot Air Competition Division.
- 3. An appeal to the Hot Air Competition Division must be made within 30 days from the announcement of the decision leading to the appeal. This time may be extended by the Hot Air Competition Division Chairman in special circumstances.
- 4. The Hot Air Competition Division Chairman will investigate whether the appeal meets the published time frame and, if affirmative, will set up an Appeals Tribunal. The latter will be members of the Hot Air Competition Division Board.
- 5. All interested parties may be present at the hearing. They must be given notice of the appeal in good time, and shall have the right to call witnesses but their absence from the hearing shall not hold up proceedings.
- 6. The Hot Air Competition Division Appeals Tribunal is the final tribunal, which shall decide definitely and without any further possibility of appeal on all differences brought before it. The HACD Appeals Tribunal may set aside any decision against which an appeal is lodged and, according to the circumstances, may reduce or increase any penalty. It shall, however, not have the right to order a competition to be run again. It has the right to alter the results of a US sporting event, and to reclaim medals or withdraw the title of champion. It may also re-award medals and titles. In giving judgment on an appeal, the HACD Appeals Tribunal shall decide on the question of the refund of any of the deposit and the apportionment of the costs of the appeal. Tribunal decisions are final.
- 7. The Hot Air Competition Division has the right to publish the judgment and give the names of the persons concerned. These persons may not avail themselves of this publication of the judgment in order to institute proceedings against the Hot Air Competition Division or against any person who made the publication.

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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.

- a) Current World Champion, if from the United States, who meets all requirements of the Hot Air Competition Division sanction rules.
- b) Top 5 finishers 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 at least there is a minimum of six (6) competitors.
- f) Remaining pilots selected by the National Ranking System.
- g) The HACD reserves the right to add additional competitors for sponsorship considerations.
- h) 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 four (4) 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 (b), (c), (d) and (e) above, the available positions go to the pilots finishing in the positions indicated and do not filter down to pilots in lower positions if one or more of the top finishers do not enter the Nationals or qualify by any other means as noted in sections (a) thru (f) above.

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

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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 1,500' MSL. Modified 3D measurements will be used for altitudes $\geq 1,500'$ and $< 2,000'$ MSL, and 3D measurements will be utilized at altitudes $\geq 2,000'$ MSL. 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

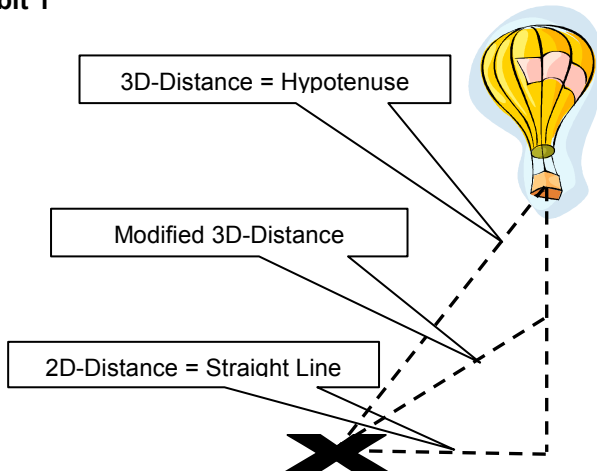
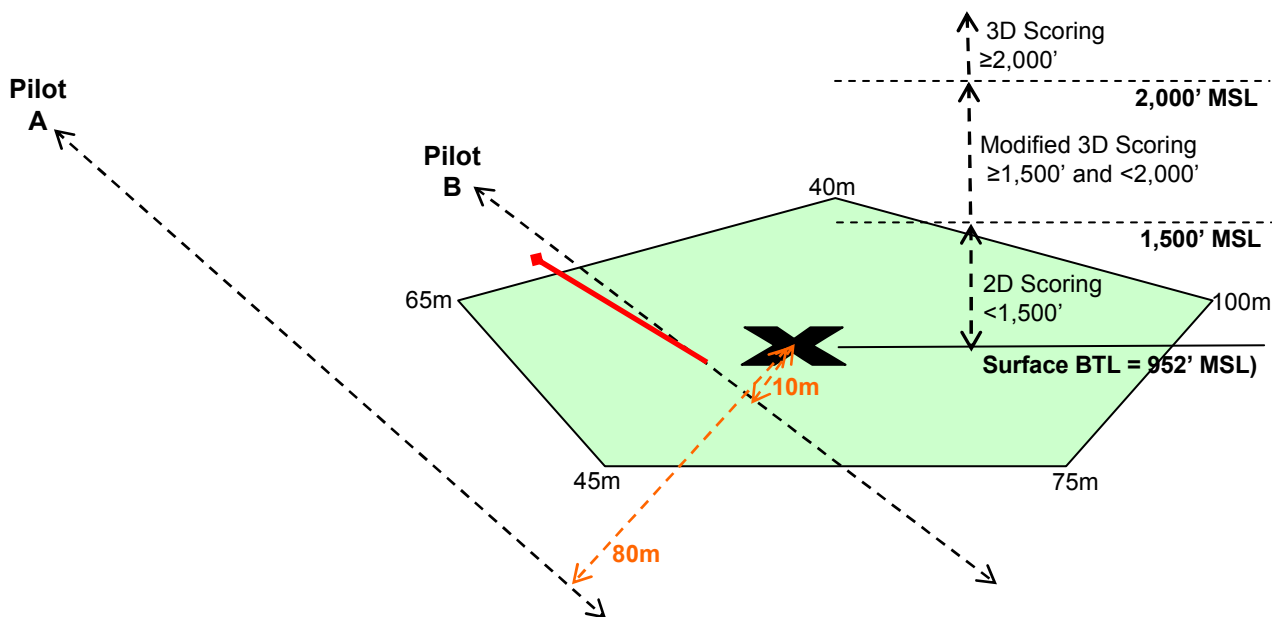


Exhibit 2

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 $\geq 2000'$ MSL.

Using Rule 12.22.4, Pilot A and B in this example would receive a measurement of 100m (worst possible marker score). It is important for competitors to note in the case of a HWZ task that each MMA stands on its own and may have differing distances for the 'worst possible marker score.' This means that it is possible for a trackpoint score at MMA#1 to possibly beat a marker score at MMA#2. As much as practical, the TDS shall provide the size of MMA's as well as limitations to the measuring area.



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APPENDIX G– COMPETITOR DECLARED GOALS IN GPS-LOGGER EVENTS

This World of ever-changing technology has allowed competitive ballooning to add creative tasks and save events money by providing for electronic measurements of pilots' results. While no system is perfect, the HACD has found that events can be run as logger-only events with an appropriate balance of tasks requiring markers in Marker Measurement Areas. This Appendix is included to provide event organizers with a discussion of topics related to competitor goal declarations to be considered when PDGs and FONs are utilized in an event competition.

Pilot Declared Goal (PDG)

Many believe that PDGs are the ultimate test of a pilot's skill. In addition, they place the determination of the flight profile in the hands of the competitor allowing the competitor to choose his flight altitude rather than being 'forced' into altitudes to achieve goals selected by the Director as wind direction and circumstances change.

Generally there are two methods to make PDG declarations in GPS-Logger events: one is to make the declaration to officials at the briefing location before departing; the second is to provide for the declaration to be made to an event official located at an area near 'probable' pilot launch areas. Assuming there are other tasks after the PDG, such as an FIT or JDG, competitors will be selecting launch areas allowing them to achieve their PDG but also the goal(s) selected by event officials. For this reason, officials can establish a public meeting area (hopefully with ample parking and easy ingress and egress) for competitors to submit written declarations to an official within a stipulated time frame. Frequently this official would be the Safety Officer since he should be in the area of balloon launches to perform his duties.

Competitors would prefer to make their declarations near launch areas as it provides them additional time to monitor wind direction and they are sampling wind closer to launch time which generally yields better and more accurate information. If the Event has enough staff to accomplish this type of declaration area, we recommend its use.

Fly On Task (FON)

Competitor goal declarations for an FON are complicated with all GPS-Logger events. While a provisional declaration, if permitted, could be handled as described above for PDGs, the ability to amend the declaration once in flight creates challenges for the traditional methods used in observer-based events. To be fair to all pilots, each competitor must have the ability to amend his declaration even if he missed the opportunity to drop a marker with goal coordinates in an MMA. If an MMA available for an FON goal declaration amendment was missed, it, in essence, places too much weight on that one particular task involving the MMA and would be contrary to the spirit of Rule 8.4.1.

Accepting the fact that if an FON task is called we want all pilots to be assured of the ability to make a valid declaration in flight, we must now find practical ways to collect these declarations in accordance with the rules. Of course, the most obvious way to get this declaration would be on the tail of a marker dropped in a previous task. However, since all scoring areas in GPS-Logger events are MMA's there is only limited potential to ensure that a pilot's baggie will be retrieved. If the competitor misses the MMA, how do we collect the FON declaration?

We have found that permitting the competitor's crew to submit a written declaration to an official at an MMA is a reasonable method and one not requiring the use of cell phones, text messaging or other electronics. This written declaration would be time-stamped in order to verify minimum distance requirements away from the goal based on analysis of the GPS-Logger. While this method will work, there is some concern that crews would be encouraged to race to the declaration point for an early time stamp. This could create hazardous conditions for crew and the public alike. To avoid this potential for hazardous driving, a competitor could station a member of his crew at the MMA and they would remain there for the sole purpose of obtaining the FON declaration goal from the pilot via cell phone or radio, writing that declaration on the appropriate form, and submitting it to officials at the MMA site where it would be time stamped. Each competitor shall have the sole responsibility for completing his declaration and submitting it to officials or supervise his crew in turning in the declaration in his behalf. To help eliminate congestion at declaration points and ease the need for pilots to have additional crew and vehicles, pilot designated crew may submit signed declarations for multiple pilots. While officials will accept multiple declarations from one crew member representing a group of pilots, each pilot's signature must be on the declaration form. The pilot has the ultimate responsibility for all declarations and any errors or late declarations received in this manner will not serve as reason for protest.

Declarations written on the tail of a valid marker drop will take precedence over any other declaration.

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Goals Available for Pilot Declarations

Based on the experience of the HACD, we have learned there can be many implementation issues involving intersection coordinates declared by competitors given inherent errors in mapping as well as GPS accuracy deviations based on satellite reception, comparisons from unit to unit, and readings in the balloon above tree level interference compared to those at ground level. If an Event Director intends to use FONs or PDGs, the HACD recommends the use of a published list of 'official' intersections. The list should use a pre-numbered goal reference, e.g., 147 and include the full UTM coordinate as well as the intersection road names. While it is impossible to ensure that the coordinate provided will be the exact center of the intersection it should be the very best representation possible given the various forms of technology available. The HACD has found that intersection center coordinates created using Google Earth (WGS 84 map datum) are as accurate as any GPS reading taken from the center of the physical intersection.

Pilots should be advised that all logger measurements will be made to this 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.

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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.

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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.

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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

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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.

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APPENDIX K – PILOT INFORMATION

If you have not competed in sanctioned competition before, the following notes will be of help to you and your crew.

FOR PILOTS - Be sure to attend all of the scheduled pilot briefings and be on time. Read all of the instructions you are given and be sure you understand the task. If you are not sure of anything ask the Director at the briefing. Be sure to familiarize yourself with this booklet, especially the rules.

After landing, secure your balloon, close all valves and empty the fuel lines. Roll up the envelope, but do not move the basket until the landing point has been officially recorded. Remember, if Observers are used ANY Observer can do this for you. If flying with GPS-loggers, your landing location will be contained in your flight track data. If your retrieve crew does not arrive within a few minutes and you are unable to contact them on your radio:

1. Mark the exact location on the map.
2. Take your map with you to the nearest telephone.
3. Telephone the Lost Balloon/Crew Number given to you at the briefing:
 - a. Name and competitor number.
 - b. The map reference of your landing site.
 - c. The telephone number from where you are calling.
 - d. Name of the landowner.
 - e. Whether you will return to the balloon or stay at the telephone.

FOR CREW CHIEFS - Keep the balloon in sight if possible until the marker has been dropped. If Observers are being utilized as race officials, the Observer will need to measure the marker position exactly, but if necessary, its position may be marked with spray chalk/paint and left where it is and the measurements taken after retrieving the balloon and pilot. When you reach the landing field, obtain permission from the landowner prior to going into the field.

Help prevent spectators from entering the field where the balloon has landed, particularly if the field contains crops or animals.

If you lose contact with the balloon, telephone the lost Balloon/Crew number and give the following information:

1. We are the retrieve crew for pilot _____, competitor number _____.
2. Either we will continue to search and will call again or we can be contacted at phone number _____.

Always report to the Operations Room in case of problems with farmers, prolonged delays in finding the marker, or if you are in need of official help of any kind.

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APPENDIX L – 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.'

Manufacturer	Allowable Damage Limitations
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">• Above 1ST horizontal band below the equator: 1 inch.• Below 1ST horizontal band and above 6 feet above mouth: 2 inches.• Envelope within 6 feet of mouth: 18 inches For fabric with greater than 100 hours and greater than 3 years old: <ul style="list-style-type: none">• Above 1ST horizontal band below the equator: 3/8 inch.• Below 1ST horizontal band and above 6 feet above mouth: 1 inch.• Envelope within 6 feet of mouth: 12 inches Envelope skirt or Dipper: no more than 10%.
AVIAN	½" 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">1. They are more than 30.5 cm (12 inches) apart and more than 30.5 cm (12 inches) away from a seam.2. There are no more than four in any one panel. 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' ≤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 ¾" 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 ½". 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.