

# Hang Gliding Aerobatics Competition Rulebook



**USHPA<sup>®</sup>**  
UNITED STATES HANG GLIDING  
& PARAGLIDING ASSOCIATION

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## 1. Competition Rules

### 1.1 Registration and Responsibility

Each competitor accepts responsibility by signing the **liability waiver**. The pilot assumes responsibility for damages he or she causes during the competition, the flights or during transportation.

Each competitor is responsible for his or her maneuvers and should only perform maneuvers that he or she has practiced and can control.

### 1.2 Equipment

A dry reserve parachute is compulsory. It should be in good condition and recently packed. After a water landing, a new reserve has to be used if the reserve is wet.

A helmet is compulsory.

Use of ballast is prohibited

The pilot is allowed to repair or to change their glider and continue the competition in the event of damage.

### 1.3 Safety

The aerobatics maneuvers must take place in a designated area called the **"flight box."** (Pilots must take in account the drift caused by wind.)

It is strictly forbidden to fly over the public (possible elimination from the competition).

### 1.4 Emergency Stop Signal

In case of emergency, the flight box can be closed.

A sound signal and a visual signal (cross) over the landing area will announce that all aerobatics maneuvers and all water landing must immediately stop. The pilot should be able to hear the sound signal.

### 1.5 General Behavior

In addition to adherence to USHPA's Code of Conduct for Competitors,

Competitors must respect the decisions of the Judges.

Competitors must respect the schedule of briefings and shuttles.

### 1.6 Warnings and Penalties

For safety reasons but as well for good sportsmanship and respect of the rules, warning and penalties may be imposed on pilots.

#### 1.6.1 Persons Entitled to Impose Warnings

- Judges
- Meet Director

#### 1.6.2 When Warnings Can Be Imposed

A warning can be imposed any time during the event (Flight, Registration, Meals, Transport to the take off, at the take off, during the briefings, etc).

## **1.6.3 Types of Warnings**

### **1.6.3.1 General Safety Warnings**

- Disrespect of the Flight box
- Disrespect of the signal closing the flight box
- Flying over the public
- Unauthorized take off

### **1.6.3.2 Taking Risks**

- Loss of control
- Bad management of recovering after a loss of control
- Endangering others (including the raft crew)
- Unsafe landing

### **1.6.3.3 Sportsmanship**

All competitors shall abide by USHPA's Code of Conduct. Conduct abusive to other competitors is grounds for a penalty. Rude or boorish behaviour towards the public or media may lead to disqualification. Other reasons for penalties may include:

- Delay at briefings
- Disrespect of the rules
- Unsporting behaviour
- Harmful behavior towards the organization

### **1.6.3.4 Point Penalties**

Penalties may be imposed by the Judges at the request of the Meet Director.

The total of the point penalties are shown on the Results and are deducted from the total results.

## **1.6.4 Announcement of Warnings and Penalties**

The pilot is personally informed of warnings by the meet director when debriefing the task.

## **1.7 Pilots Representation**

During the registration, 2 pilots must be elected to a committee to represent the pilots whenever needed.

## **1.8 Protest**

There are 3 stages of protest for USHPA Sanctioned Competitions:

1. A complaint is made to the Judges.
2. The protest is made and the protest fee paid. Protest fee amount will be specified in the local rules
3. The protest must be made in writing by the Team Leader and given to the Meet Director.
4. An appeal to USHPA per USHPA's procedures as outlined in the Sanction Manual.

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### 1.9 Validation of Run

In case of difficulties (meteorological conditions, organizations, etc), the pilots' representatives and the Jury meet to decide to validate or cancel the run.

The Judges may require a re-flight in case of scoring problems. A pilot failing to fly when requested may score zero.

The order of launch in the first round will be by a random drawing. Subsequent round launch order will be the reverse order of the current pilot points standings. If conditions deteriorate, a pilot can "push" or pass. Failure to fly in launchable conditions may lead to disqualification.

If for any reason a run cannot be completed on one day, it may be continued on a later scheduled day.

### 1.10 Announcement of Program Start

If, before starting the 1<sup>st</sup> maneuver, a pilot estimates the conditions unsafe or the altitude too low to complete the run, he notifies the Jury by making a 360 and exiting the box. The pilot accepts there is a risk of getting a warning if the Jury doesn't agree with the decision.

After aborting a program start, the pilot must land on dry land as quickly as possible and without making further maneuvers. In this case, a re-flight will be allowed.

It is the pilot's responsibility to start or not to start the routine.

### 1.11 Validation of the Competition

A minimum of 2 runs are required to validate the competition.

### 1.12 Competition Format

Each competition may include qualifying rounds and a final round on the last day. This must be specified in the Local Rules.

The Local rules must specify which formats are going to be included from the list in section 2.0.

The organizer must announce at any briefing the number of maneuvers to be performed in the compulsory round (if flown). **This number of maneuvers is called X.**

### 1.13 Maximum Number of Pilots

The recommended maximum number of pilots in a solo competition is 40. The organizer can reduce this number when taking into account the site capacity and the pilot's skill.

### 1.14 Entry Fee

The entry fee shall be reasonable and appropriate for the amenities provided.

## 2. Competition Formats

### 2.1 Competitions for Individuals

#### 2.1.1 Compulsory Program

Each pilot must execute a required routine as imposed by the Judges.

The routine consists of a series of X maneuvers. The order of maneuvers will be imposed by the Judges. Alternately, the Judges may require compulsory maneuvers in the order of the pilot's choice.

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### 2.1.2 Announced Program

Each pilot must submit his or routine prior to the run. The pilot may choose the routine from the list of maneuvers by filling in an “Announced Program” form. The maximum number of maneuvers will be announced before the run and cannot be exceeded.

### 2.1.3 Expression Session

The pilot is totally free to perform maneuvers without announcing a routine. The quantity of maneuvers is unlimited, but only the official maneuvers are scored.

## 2.2 Selection Rounds

Before the competition starts, selection rounds may be required for all the pilots to qualify for the event. The dates of the selection rounds will be indicated in the local rules.

Each individual pilot must show his or her ability by performing official maneuvers to the satisfaction of the Judges.

The aim is to demonstrate the pilot's ability to fly the competition.

If more than 40 pilots participate in the selection round, this round will become qualifying and only the 40 best pilots will be allowed to participate to the competition.

### 2.2.1 Official Maneuvers to Be Performed During the Selection Rounds

All pilots entering the competition should be able to safely perform the maneuvers he or she will be performing in the competition. Demonstrable maneuvers are those on the official list. The current official list includes:

- Climb over
- Spin
- Loop
- Rollover

## 2.3 Other Points for Judges Appreciation

Choreography:

- Placement and drift
- Management of altitude
- Flow, rhythm, connection
- Originality, diversity

## 2.4 Elimination

A pilot may be eliminated if:

- The pilots' skills are insufficient to perform the minimum required maneuvers for the competition
- The maneuvers are performed unsafely
- The pilot has no respect of the flight box (including the drift)
- Others safety reasons

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An eliminated pilot may lodge a protest.

### 2.5 Panel of Judges

Ideally, the panel of Judges consists of 5 Judges

Judges are responsible for scoring each run.

## 3. Competition Scoring

### 3.1 Official Maneuvers

A figure with a bank angle of more than 90° is a maneuver. A change in the definition of a maneuver must be published in the local regulations.

#### 3.1.1 Loop

A loop is defined as a maneuver that starts in a wings level dive, climbs, without any rolling, to the apex where the glider is upside down, wings level (heading back where it came from), and then returning to the start attitude and heading, again without rolling, having completed an approximately circular path in the vertical plane.

The maximum score for a loop is 180 points.

#### 3.1.2 Spin

A spin is scored from the moment one wing stalls and the glider rotates noticeably into the spin. The entry heading is noted at this point. The glider must remain in the spin for at least 1/2 of a revolution to score any versatility spin points.

The maximum score for a spin is 180 points.

#### 3.1.3 Rollover

A Rollover is a maneuver where the apex heading is less than 90° left or right of the entry heading.

The maximum score for a rollover is 200 points.

#### 3.1.4 Climb over

A Climb over is a maneuver where the apex heading is greater than 90° left or right of the entry heading.

The maximum score for a climb over is 180 points.

### 3.2 Scoring

**The Chief Judge will present the judging criteria for each maneuver at the 1<sup>st</sup> briefing.**

**The local rules will specify which program or programs will be flown.**

#### 3.2.1 Compulsory Program

Form Score is awarded for subjective scoring of the aesthetics of the routine, dramatic performance of the routine and smoothness and continuity of the routine. This takes into account altitude management and safety as well as respect for the flight box.

The Maneuver Accuracy score takes account of the deviation in the entry, apex and exit heading from the maneuver definitions.

The Routine Accuracy score takes account of the adherence to the order of maneuvers proscribed for the round being performed.



### 3.2.2 Announced Program

**This is the same as the compulsory program except the pilot determines the order of maneuvers flown.**

Versatility is introduced to give incentives to the pilot to perform all the maneuvers.

### 3.2.3 Expression Session

Each Judge may award 300 points maximum per flight scored. This breaks down as follows:

Difficulty	200 points max
Versatility	40 points max
Form	60 points max
Total	300 points max

### 3.2.4 Difficulty Scores

Each loop 180 points

Each full 360° rotation of SPIN 180 points

The difficulty scores for all other maneuvers are determined by the bank angle at the apex or highest point of each maneuver. Determine the bank angle to the nearest 10° at the moment the glider peaks in altitude. This is the apex. This is very important and it requires practice to watch for apex, bank angle, and heading at the same time. This gives a difficulty score within the range of 90 to 200 points (i.e.: 90° to 200°) for each maneuver. Any maneuvers below this range are not eligible for scoring but should be noted, and any past 200° will score 200 points.

The final difficulty score for each flight will be the average of the three highest scoring maneuvers in each routine, with a maximum of 200 points.

### 3.2.5 Versatility Scores

Versatility points are awarded for each of the recognized maneuver defined in section 3.0.

The first time each type is performed (each round) 10 points are scored with the following exceptions:

- In the case of the spin, 5 points will be awarded for a spin entry with a minimum of 180° of rotation while in a spin. If a full 360° of spin is subsequently shown, the full 10 points only will be awarded for spin versatility points.
- The second loop performed during each flight may be considered a “perfect” climb over and score the 10 climb over versatility points.

The final versatility score for each flight will be the total of all versatility points awarded with a maximum of 40 points.

Entry heading is determined at the start of a maneuver when the gliders pitch attitude passes through level with the horizon on the way up to the apex.

### 3.2.6 Form Scores

Form points allow the Judge to score the subjective elements of a routine. These include but are not limited to:

- Smoothness and continuity of the maneuvers and the routine as a whole

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- Proficiency in performing the maneuvers demonstrated
- Dramatic elements and aesthetics of the routine

Poorly performed maneuvers will tend to reduce the form score. Loss of control is considered poor form at best and may lead to disqualification from the meet. Sixty points maximum may be awarded in one point increments.

A pilot starts out with 30 points. The Judge may add or remove points by considering the following guidelines and other subjective impressions:

### 3.2.6.1 Deductions

- A badly flown maneuver (loss of control, erratic flight path, etc)
- Lack of continuity of the routine as a whole
- Maneuvers outside the window or in the sun

### 3.2.6.2 Additions

- Performing multiple forms of a maneuver type
- Performing left and right handed maneuvers when doing multiples of a type
- Clean, flowing transitions in between maneuvers
- More difficult versions of maneuvers (multi-turn spins, linked high bank rollovers, square loops, etc).

No effect:

### 3.2.6.3 No Affect

- There should be no penalty for doing low difficulty maneuvers or routines.

## 3.3 Totalling Scores

Five Judges will score each flight. The high and low scores for each pilot will be disregarded and the remaining three scores totalled. This is the score of the pilot's routine. In the event of only four Judges being present the high and low scores will be averaged and that average will become the third score totalled. In case only 3 Judges have a score, the pilot's score will be the average. All valid rounds will be totalled for each pilot to determine standings.

## 3.4 Competition Box

Only maneuvers performed within the designated competition box will be scored. The box limits will be defined in the local rules.

Repetitive illegal maneuvers below the floor of the box may lead to disqualification from the competition.

At the end of each routine, the pilot will clear the competition box immediately.

## 3.5 National Ranking

Due to the currently small number of sanctioned hang gliding aerobatics competitions in the United States, the National Ranking shall consist of the rankings of the one Sanctioned competition each year. Should Hang Gliding Aerobatics competitions grow to more than one competition a year, the Aerobatics Subcommittee shall make a recommendation to the Board of Directors to incorporate multiple meets into the ranking system

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### 3.6 U.S. Team Selection

For the purposes of international competition, USHPA shall select U.S. Team members based on sequential order of the most current National Rankings at the time of submission to FAI.

## 4. Organizer Rules

### 4.1 The Site

When appropriate, competitions should take place above water. It is necessary to get a height of at least 500 meters above water in order to perform maneuvers.

### 4.2 Take Off

A setup area accommodating a minimum of 2 gliders must be available. Easy access must be provided for emergency services. When boat towing, the use of 2 boats and 2 winches is suggested.

### 4.3 Landing

A landing zone on land is recommended. A landing zone on a protected floating platform may be used, as long as the platform has no sharp edges and the sides and corners are well protected.

Wind socks must be posted at different places on launch and in the landing zones.

### 4.4 Communications

Radios must be used for communications between meet workers (meet director, safety director, launch director, etc.) and the Judges. The start of a run must be announced to and acknowledged by all Judges.

### 4.5 Site Facilities

A public reception and viewing area must be provided. Announcements must be audible by the public.

Adequate infrastructure is required.

### 4.6 Aerobatics Area Movements

When performing a routine, it is the pilot's responsibility to consider the strength of the wind and to estimate drift in order to land in water in case of a parachute deployment. The Judges, the task Director and pilot committee fix the maximum strength of wind accepted during the competition.

### 4.7 Organization Team

Shuttle drivers: Continuous shuttle or a cable car transport to launch must be available, with priority given to competitors.

Task director: The task director must be present in the landing zone.

Launch director: The launch director is responsible for launch control and is aided by or is an EMT.

Landing zone controller: This person is responsible for the movement of pilots and gliders in the landing zone.

Public announcer: The public announcer gives pilot information as well as a description of the maneuvers to the public.

Cameraman: The cameraperson may be located with the Jury and may be required to film the competitors.

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Secretary: The secretary assists the Jury and helps tabulate scores.

### 4.8 Briefing

The pilot committee gives its point of view on the competition, and particularly on all the aspects concerning safety.

### 4.9 Local Regulations

The Local Regulations must be published in accordance with USHPA sanction procedures.

### 4.10 Weather Forecast

Information on the landing wind strength must be provided at launch.

### 4.11 Safety

An EMT must be on-site during the competition.

Where applicable, 2 motorized boats must be available, with easy access for the pilots.

Where applicable, 2 divers with a double autonomous system to breathe and “cut-lines” must be available. Extra boats should be provided if there are a large number of competitors.

### 4.12 Panel of Judges

The panel of Judges is ideally composed of 5 independent Judges. It is recommended that all the expenses of the Judges (accommodation, food, catering and travel expenses) are paid by the organizer.

The 5 Judges are chosen by the organizer.

The Judges must get together during the selection day in order to organize the scoring and working methods.

The Judges must sit at a suitable distance from each other to prevent them from talking to each other.

The Judges are responsible for the safe and fair implementation of the rules.

The Judges may take disciplinary action against a pilot who doesn't respect the regulations or who executes un-controlled maneuvers. The action can be a penalty or expulsion from the competition. The pilot may lodge a protest against the decision of the Judges.

## 5. Local Regulations

The local regulations must contain the following:

1. Name of the event
2. Date(s) of the event
3. Rain date(s) of the event
4. Description of the event
  - Qualifications for entry
  - Number of competition days
  - Date of selection rounds
5. Number of qualifying rounds and elimination rounds
6. Maximum number of pilots

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7. Pilot selection method
8. Entry fee
  - Fee
  - List of benefits (gifts, etc.)
9. Protest fee
10. Prizes
  - How the prizes are awarded
  - Amount
  - Trophies awarded
11. Daily program
12. Safety issues
  - Type of helmet allowed
  - Life jacket provisions, if necessary
13. Competition issues
  - Definition of the flight box
  - Number of maneuvers to be performed per flight