



International Bodyflight Association
in association with dynamic-flying.com

Competition Rules

**Dynamic
2-way and 4-way
Speed**

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International Bodyflight Association

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1 Introduction

1.1 The IBA Authority

The competition will be conducted under the authority granted by the IBA, according to the regulations of the IBA and these rules. All participants accept these rules and the IBA regulations as binding by registering in the competition.

1.2 Objective of the Event

The objective of the event is for each team to perform Speed Routines in the fastest possible time. After all completed rounds, champions in D4W and D2W will be declared. The D4W and D2W champions are the teams with the lowest total times for all completed rounds of their event.

2 Definitions of Words and Phrases Used in These Rules

2.1 Team

A dynamic 4-way (D4W) team is composed of four (4) performers plus one (1) alternate.

A dynamic 2-way (D2W) team is composed of two (2) performers.

2.2 Body

A body consists of the entire performer and his/her equipment.

2.3 Heading

The direction in which the front of the torso of the performer faces.

2.4 Move

A change in body position, and/or a rotation around one or more of the three (3) body axes, or a static pose. See Addendum B.

2.5 Pattern

A movement sequence during which the performers' bodies follow prescribed pathways, often with embedded moves and/or intermixing.

2.5.1 Compulsory Pattern

A Pattern with specific performance requirements. See Addendum A.

2.6 Sideline (Speed Routines only)

Two (2) vertical lighted lines positioned on the transparent tunnel walls 180° opposite each other to describe a vertical plane that spans across the flight chamber. The start Sideline is clockwise from the doorway (with respect to top view.)

2.7 Centerline (Speed Routines only)

A vertical plane that spans across the center of the flight chamber extending from one (1) vertical line positioned on the transparent tunnel wall 90° offset from the two (2) vertical lighted lines.

2.8 **Ring** (Speed Routines only)

A horizontal line that crosses the center of the flight chamber, two (2) meters above the cable floor, between the two (2) Sidelines.

2.9 **Anti-Chamber**

Area used by teams as a waiting area for entrance into the flight chamber. This area is separated from public viewing areas and is the exclusive use for teams on call.

2.10 **Diffuser**

That vertical part of the flight chamber above the transparent viewing section.

2.11 **Flight**

A team's performance in the flight chamber.

2.12 **Speed Routine**

A routine composed of three (3) randomly drawn compulsory patterns (one from each group, Snakes, Verticals and Mixers, in that order), repeated three (3) times, in the fastest time possible. The Speed Routine starts with a compulsory entrance and ends with a compulsory exit sequence.

2.13 **Working Time**

Working time starts the instant that the timing judge gives the team a visual signal to start. Working time ends when the last performer completely exits the doorway of the flight chamber, as determined by the timing judge or by laser technology.

3 **General Rules**

3.1 **Flight Chamber Use**

3.1.1 There are no limitations on flight chamber entry and use other than those imposed for safety reasons by the hosting wind tunnel.

3.2 **Wind Tunnel Equipage**

3.2.1 The minimum acceptable diameter for the flight chamber is 14 feet.

3.2.2 The Sidelines must consist of two (2) vertical lines of lights, which must be changeable in colors. The lights may be LED technology. The Sidelines must extend from the floor up to the top of the transparent walls or 5 meters, whichever is less.

3.2.3 The Rings must have a five (5) cm hole and must be positioned two (2) meters above the cable floor on each Sideline.

3.2.4 The Centerline may be adhesive tape affixed to the transparent tunnel wall and must extend from the floor up to the top of the transparent walls or 5 meters, whichever is less.

3.2.5 The orientation of the two (2) Sidelines with respect to the flight chamber doorway that will be used for entry and exit will be published not less than 60 days before the start of competition.

3.2.6 The wind tunnel equipage must be approved by the chief judge prior to the start of the competition. If any equipment does not meet the requirements as determined by the chief judge, this equipment will be deemed to be unusable for the competition.

3.3 Video Recording

- 3.3.1 The organizer shall record all competition flights in a High Definition 1080 type digital video signal with a minimum of 25 frames per second through a memory card (minimum class 10).
- 3.3.2 Two cameras must record video, one positioned aligned with one of the Sidelines, level with the Ring, and the other positioned aligned with the centerline.
- 3.3.3 The organizer must provide a means of identification of each team to be included in the video evidence.

3.4 The Draw

- 3.4.1 The draw of the sequences will be done via the IBA Draw Generator on tunnelflight.com under the supervision of the chief judge.
- 3.4.2 Teams will be given not less than sixty (60) minutes knowledge of the results of the draw before the start of competition round one (1).
- 3.4.3 One (1) compulsory pattern from each group (Snakes, Verticals and Mixers), as shown in Addenda A, will be drawn, without replacement, for each Speed Round. The Speed Routine will begin with the compulsory entrance and end with the compulsory exit sequence.

3.5 Flight Order

- 3.5.1 The flight order for the teams will be determined by a draw during the competition brief.
- 3.5.2 The relevant order of flights will be maintained throughout the competition, except for any logistical changes deemed necessary by the chief judge and the meet director.

3.6 Official Training Flights & Speed Setting

- 3.6.1 Prior to the start of the competition, each team will receive one official training flight, lasting no more than two (2) minutes.
- 3.6.2 The competition wind tunnel, lighted Sidelines, the judging and scoring system to be used in the competition will be used for the official training flights.
- 3.6.3 The nominated team captain shall communicate with a tunnel official to request the speed to be increased, reduced or confirm correct. The determined speed will be the default speed for that team.

3.7 Flight Chamber Entry

- 3.7.1 The tunnel will be set to the default speed decided by the team during the Official Training Flights. [ref 3.6.3] When the tunnel is at the correct speed, a signal will be given to the team. If no signals are given by the team, then the default speed will be assumed to be satisfactory.
- 3.7.2 The speed setting will be indicated in the tunnel and shall be clearly visible to the team prior to entering the flight chamber.

3.8 Re-flights

- 3.8.1 In case of an unforeseen change of environment during performance, a re-flight may be granted.
- 3.8.2 Contact or other means of interference between (a) performer(s) and/or the tunnel wall/cable floor shall not be grounds for a re-flight.
- 3.8.3 Problems with a competitor's equipment shall not be grounds for a re-flight.

3.8.4 A re-flight will be granted, if a tunnel spotter must abort a team's flight for any safety reason, provided that there was no intentional act on the part of the team to create a safety problem.

3.9 Use of Skydiving and Tunnel

3.9.1 Performers are not allowed to skydive (freefall from any aircraft) or use any freefall simulator or wind tunnel, for flights other than competition flights, after the draw has been published.

3.10 Safety

3.10.1 If a performer demonstrates inadequate flying skills and/or persistent unsafe flying requiring repeated intervention by a tunnel spotter, that performer may be disqualified from the competition.

4 Rules Specific to the Event

4.1 **Teams:** Dynamic teams may consist of either or both genders.

4.2 **Routines:** The discipline is comprised of only speed routines.

4.3 **Number of Rounds:** 6 rounds

4.4 **Right of Local Adaptation:** The organizer may change the number of rounds or utilize a battle format and decide which compulsory patterns will be excluded from the draw. This change will be published not less than thirty (30) days before the competition.

5 Judging and Scoring

5.1 **General:** Once any performer has entered the flight chamber, the flight shall be evaluated and scored.

5.2 **Scoring Speed Routines:** The score is based on the time, measured in thousandths of a second, the team takes to perform the three (3) compulsory patterns, repeated three (3) times as well as the compulsory entrance and exit sequence plus penalty times for infringements and omitted compulsory patterns.

5.2.1 **Infringements:** Each incorrect, incomplete or non-judgeable compulsory pattern or compulsory exit sequence will lead to adding a penalty of five (5) seconds to the total time for the speed routine. See the Addenda A for performance and scoring requirements for the compulsory patterns and compulsory exit sequence.

5.2.2 The performers become designated as P#1, P#2, P#3 and P#4 (P#1 and P#2 for D2W) according to the order in which they entered the flight chamber at the start of the speed routine.

5.2.3 A five (5) second penalty will apply to a compulsory pattern or exit sequence if:

- Any part of the first performer's body crosses the doorway entering the flight chamber before the visual signal is given to start the working time.
- Any performer does not maintain their designated slot. If the same positioning error is carried into the following patterns to the end of the speed routine, this will be considered as one infringement only, provided that the intent of following the performance requirements in the following

patterns and compulsory exit sequence is clearly presented and no other infringement occurs.

- The team does not stay in view and clearly present the performance requirements to the judges. E.g., if any performer flies so high in the diffuser that the Judges cannot determine that the pattern has been performed correctly, (e.g., properly crossed a Sideline, etc.).
- The leading performer completely crosses the following Sideline before the following performer crosses the previous Sideline, i.e., lack of synchronization. (D2W only)
- Any performer fails to completely cross a Sideline at the finish of a pattern before entering the next pattern. That next pattern does not receive a time penalty, provided there are no other infringements.

5.2.4 Each compulsory pattern can receive a maximum of only one (1) five (5) second time penalty.

5.2.5 An omitted compulsory pattern will lead to adding a penalty of twenty (20) seconds to the total time for the speed routine. An omission is one of the following:

- A compulsory pattern is missing from the drawn sequence.
- No clear intent to finish the compulsory pattern (e.g., after an infringement) and there is a resulting time advantage to the team.
- No clear intent to perform the correct compulsory pattern is seen and another pattern is presented and there is a time advantage to the team resulting from the substitution.

5.2.6 If a team crashes or becomes disorganized during a compulsory pattern, the team may continue to the next compulsory pattern accruing only a five (5) time penalty provided that the judges see the team losing time in the process of getting organized and there is no time advantage to the team.

5.2.7 One or more judges may make an evaluation of any infringements and of an omission.

5.3 Scores and Results

5.3.1 The final time for each speed routine will be published, including the raw speed routine completion time, time penalties, infringement types and any omissions.

5.3.2 Total scores for the events are calculated by adding a team's official scores of all completed rounds.

5.4 Judging Rules

5.4.1 The judges will watch each team's flight live from the flight chamber viewing gallery.

5.4.2 A minimum of four (4) judges must evaluate each team's speed routine. Five (5) judges are recommended.

5.4.3 Two (2) judges, one positioned at each Sideline, will evaluate for complete crossings of the Sidelines. In D2W, they will evaluate Synchronization. Each Sideline judge must be positioned such that the Sideline on the far wall is obscured from view by the Sideline on the near wall. One Sideline judge will be the timing judge and will operate a chronometer, which will start the working time. The chronometer will be stopped at the end of working time. [ref 2.13]

5.4.4 A Ring Judge will evaluate that no part of any performer's body is visible in the Ring (Vertical Patterns only). The Ring judge must be positioned two (2) meters

from the Ring with the judge's eye level with the Ring with the outline of the far Ring visible through the five (5) cm hole of the near Ring.

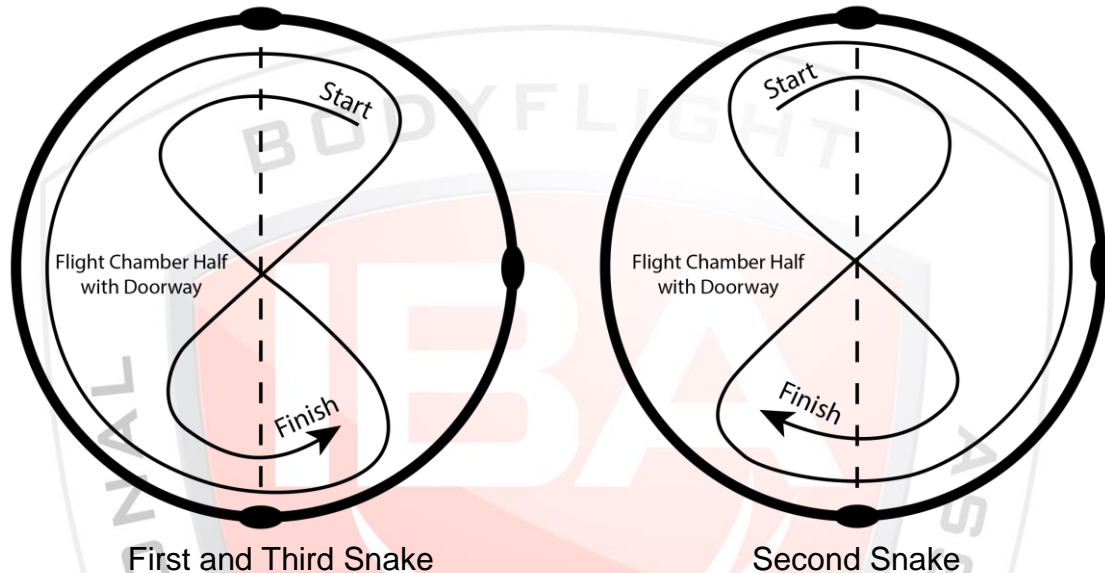
- 5.4.5 A judge positioned at the Centerline will evaluate for complete crossings of the Centerline according to Addendum A. This judge will also evaluate the team's correctness in following the performance description of each compulsory pattern (e.g., Performers flying in the correct order, pirouettes in correct direction, etc.).
- 5.4.6 If there is a fifth judge, that judge will be positioned beside the primary timing judge, will act as the secondary timing judge, with a secondary chronometer. This judge will also evaluate the team's correctness in following the performance description of each compulsory pattern (e.g., Performers flying in the correct order, pirouettes in correct direction, etc.).
- 5.4.7 The Judges may utilize video monitors and these cameras must record video [ref 3.3] The cameras for the video monitors must be positioned in compliance with the above judging positions. The Sideline camera must show the entire height of the glass wall or five (5) meters, whichever is less.
- 5.4.8 The judges may use a paper or electronic scoring system to record their evaluations.
- 5.4.9 The judges must have previous competition and/or coaching experience, or be certified at the FAI level in dynamic events, and who are acceptable to the meet director.

5.5 Ties

- 5.5.1 If two (2) or more teams have equal scores, then if time permits, the first three (3) places will be determined by a tie-break round. If a tie still exists, then the lowest time, then the second lowest time, and then third lowest time, of any completed rounds will determine placings.

ADDENDUM – A1
SPEED ROUTINE COMPULSORY PATTERNS - SNAKES
PERFORMANCE REQUIREMENTS & JUDGEMENT CRITERIA

The following performer(s) follow the leader throughout the illustrated pathway, with respect to top view. If the performers change their order of following one another or a different performer becomes the leader during any Snake, a five (5) second penalty applies.



- If any performer flies any Snake differently than described, (e.g., failure to switch to outface during a Switching Snake,) a five (5) second penalty applies.
- If the Compulsory Entrance is not performed correctly, a five (5) second penalty will apply to the first Snake.
- The Sidelines and Centerline apply.
- Each performer must be in the orientation of the Snake before crossing the start Sideline after the compulsory entrance. If any performer's body is not in the correct orientation, (e.g., it is horizontal,) before crossing the start Sideline, a five (5) second penalty applies.
- Each performer's entire body must completely cross each Sideline and Centerline. If a Sideline or Centerline is not completely crossed, (e.g., a hand does not pass the line, even though the rest of the body does,) a five (5) second penalty applies.
- During any Snake, each performer crosses a Sideline six (6) times.

Compulsory Entrance (D4W & D2W)

P#1, followed by P#2 through P#4, must completely cross the vertical plane comprised by the Sidelines. The performers may cross this vertical plane in any orientation. Maintaining sequential order, the performers must flow counterclockwise (with respect to the top view) into the first Snake.

S-1 Head-down Inface Snake (D4W & D2W)

Performers remain in head-down inface carving during the entire pattern. Performers begin by carving towards the performers' left in the first and third Snake (right in the

second Snake). When passing through the center the first time, each performer changes to carving towards his/her right in the first and third Snake (left in the second Snake). When passing through the center the second time, each performer changes to carving towards his/her left in the first and third Snake (right in the second Snake).

S-2 *Head-down Switching Snake (D4W & D2W)*

Performers remain head-down during the entire pattern. Performers begin by inface carving towards the performers' left in the first and third Snake (right in the second Snake). When passing through the center the first time, each performer changes to outface carving towards his/her left in the first and third Snake (right in the second Snake). When passing through the center the second time, each performer returns to inface carving towards his/her left in the first and third Snake (right in the second Snake).

S-3 *Head-up Inface Snake (D4W & D2W)*

Performers remain in head-up inface carving during the entire pattern. Performers begin by carving towards the performers' right in the first and third Snake (left in the second Snake). When passing through the center the first time, each performer changes to carving towards his/her left in the first and third Snake (right in the second Snake). When passing through the center the second time, each performer changes to carving towards his/her right in the first and third Snake (left in the second Snake).

S-4 *Head-up Switching Snake (D4W & D2W)*

Performers remain head-up during the entire pattern. Performers begin by inface carving towards the Performers' right in the first and third Snake (left in the second Snake). When passing through the center the first time, each performer changes to outface carving towards his/her right in the first and third Snake (left in the second Snake). When passing through the center the second time, each performer returns to inface carving towards his/her right in the first and third Snake (left in the second Snake).

S-5 *Head-down Mixed Snake (D4W & D2W)*

Performers begin by head-down inface carving towards the performers' left in the first and third Snake (right in the second Snake). When passing through the center the first time, each performer transitions through the back down orientation to head-up inface carving towards his/her left in the first and third Snake (right in the second Snake). When passing through the center the second time, each performer transitions through the back-down orientation to head-down inface carving towards his/her left in the first and third Snake (right in the second Snake).

S-6 *Head-up Mixed Snake (D4W & D2W)*

Performers begin by head-up inface carving towards the performers' right in the first and third Snake (left in the second Snake). When passing through the center the first time, each performer transitions through the back down orientation to head-down inface carving towards his/her right in the first and third Snake (left in the second Snake). When passing through the center the second time, each performer transitions through the back-down orientation to head-up inface carving towards his/her right in the first and third Snake (left in the second Snake).

ADDENDUM – A2
SPEED ROUTINE COMPULSORY PATTERNS - VERTICALS
PERFORMANCE REQUIREMENTS & JUDGEMENT CRITERIA

- If the compulsory transition to the Vertical from the Snake is not performed correctly, a five (5) second penalty will apply to the Vertical.
- If any performer flies any Vertical Pattern differently than described, (e.g., performers not pirouetting in the same direction during a Classic, etc.) a five (5) second penalty applies.
- The Sidelines and Ring apply.
- Teams must fly around the Ring. The pairs of performers must completely cross a Sideline on each half of the vertical orbit. If a Sideline is not completely crossed, a five (5) second penalty applies.
- No part of any performer's body may be visible through the Ring. If any part of a performer's body is visible through the Ring, a five (5) second penalty applies.
- The Centerline applies for V-2, Butterfly. If each performer does not completely cross the Centerline, when flying over the Ring, a five (5) second penalty applies.
- In each Vertical (not including the compulsory transition), each performer will cross a Sideline four (4) times.

D4W VERTICALS

Compulsory Transition from Any Head-Down Snake to Any Vertical (D4W)

While head-down, P#1, followed by P#2 through P#4, must cross the Centerline and the start Sideline before starting any Vertical. P#1 and P#3 must continue across the Centerline again before starting any Vertical.

Compulsory Transition from Any Head-Up Snake to Any Vertical (D4W)

While head-up, P#1 and P#3 must cross the Centerline. When crossing through the Sidelines, each performer transitions to head-down in a half inface Reverse Eagle before starting any Vertical.

V-1 Back Layout (D4W)

While head-down, the performers separate into two (2) pairs. P#1 & P#2 will be the leading pair and P#3 & P#4 will be the following pair. Each pair, one after the other, flies forward over the Ring and then performs one half outface Eagle passing under the Ring to head-up. Next, each pair, one after the other, flies backward over the Ring and performs one half inface Reverse Eagle under the Ring to head-down.

V-2 Butterfly (with Bottom Loops) (D4W)

While head-down, the performers separate into two (2) pairs. P#1 & P#2 will be the leading pair and P#3 & P#4 will be the following pair. Each pair, one after the other, flies forward, with the two (2) performers in the pair crossing each other, over the Ring. Then, each pair, one after the other, performs one half outface Eagle with one half back loop passing under the Ring to head-down. This sequence is performed twice.

V-3 *Classic (D4W)*

While head-down, the performers separate into two (2) pairs. P#1 & P#2 will be the leading pair and P#3 & P#4 will be the following pair. While head-down and flying over the Ring, each performer in the pair performs a 180° pirouette in the same direction. Each pair then performs one half inface Eagle under the Ring to head-up. While head-up and flying over the Ring, each performer in the pair performs a 180° pirouette in the same direction. And the pair performs one half inface Reverse Eagle under the Ring to head-down.

V-4 *Half Barrel Roll 180° (D4W)*

While head-down, the performers separate into two (2) pairs. P#1 & P#2 will be the leading pair and P#3 & P#4 will be the following pair. Each pair, one after the other, flies forward over the Ring and then performs one half outface Eagle with one half barrel roll in the same direction passing under the Ring to head-up. As they fly over the Ring, they perform a 180° pirouette in the same direction. Each pair, one after the other, then, performs one half inface Reverse Eagle under the Ring to head-down.

V-5 *Head-Down 360° (D4W)*

While head-down, the performers separate into two (2) pairs. P#1 & P#2 will be the leading pair and P#3 & P#4 will be the following pair. Each pair, one after the other, flies forward over the Ring and then performs one half outface Eagle with one half back loop passing under the Ring to head-down. As they fly over the Ring, they perform a 360° pirouette in the same direction and perform one half outface Eagle with one half back loop passing under the Ring to head-down.

V-6 *Head-Up 360° (D4W)*

While head-down, the performers separate into two (2) pairs. P#1 & P#2 will be the leading pair and P#3 & P#4 will be the following pair. Each pair, one after the other, flies forward over the Ring and then performs one half outface Eagle passing under the Ring to head-up. Next, each pair flies backwards over the Ring and performs a 360° pirouette in the same direction and performs one half inface Reverse Eagle under the Ring to head-down.

D2W VERTICALS

Compulsory Transition from Any Head-Down Snake to Any Vertical (D2W)

While head-down, P#1, followed by P#2, must cross the Centerline and the start Sideline before starting any Vertical. P#1 must continue across the Centerline again before starting any Vertical.

Compulsory Transition from Any Head-Up Snake to Any Vertical (D2W)

While head-up, P#1 must cross the Centerline. When crossing a Sideline, each performer transitions to head-down in a half inface Reverse Eagle before starting any Vertical.

V-1 Back Layout (D2W)

While head-down, the two (2) performers fly this pattern as a pair. The pair flies forward over the Ring and then performs one half outface Eagle passing under the Ring to head-up. Next, the pair flies backward over the Ring and performs one half inface Reverse Eagle under the Ring to head-down.

V-2 Butterfly (with Bottom Loops) (D2W)

While head-down, the two (2) performers fly this Pattern as a pair. The pair flies forward, with the two (2) performers in the pair crossing each other, over the Ring. The pair, then, performs one half outface Eagle with one half back loop passing under the Ring to head-down. This sequence is performed twice.

V-3 Classic (D2W)

While head-down, the two (2) performers fly this pattern as a pair. While head-down and flying over the Ring, each performer in the pair performs a 180° pirouette in the same direction. The pair, then, performs one half inface Eagle under the Ring to head-up. While head-up and flying over the Ring, each performer in the pair performs a 180° pirouette in the same direction. And the pair performs one half inface Reverse Eagle under the Ring to head-down.

V-4 Half Barrel Roll 180° (D2W)

While head-down, the two (2) performers fly this pattern as a pair. The pair flies forward over the Ring and then performs one half outface Eagle with one half barrel roll in the same direction passing under the Ring to head-up. As they fly over the Ring, they perform a 180° pirouette in the same direction. The pair, then, performs one half inface Reverse Eagle under the Ring to head-down.

V-5 Head-Down 360° (D2W)

While head-down, the two (2) performers fly this pattern as a pair. The pair flies forward over the ring and then performs one half outface Eagle with one half back loop passing under the Ring to head-down. As they fly over the Ring, they perform a 360° pirouette in the same direction and perform one half outface Eagle with one half back loop passing under the Ring to head-down.

V-6 Head-Up 360° (D2W)

While head-down, the two (2) performers fly this pattern as a pair. The pair flies forward over the Ring and then performs one half outface Eagle passing under the Ring to head-up. Next, the pair flies backward over the Ring and performs 360° pirouette in the same direction and perform one half inface Reverse Eagle under the Ring to head-down.

ADDENDUM – A3
SPEED ROUTINE COMPULSORY PATTERNS - MIXERS
PERFORMANCE REQUIREMENTS & JUDGEMENT CRITERIA

- If any performer flies any Mixer differently than described, (e.g., failure to switch to outface during a Shuffler, etc.) a five (5) second penalty applies.
- If the transition from the Mixer to the appropriate Snake is not performed correctly, a five (5) second penalty will apply to the Mixer.
- If any performer crosses through the center in the incorrect order during any Shuffler, (e.g., P#2 crosses the center before P#1,) a five (5) second penalty applies.
- The Sidelines apply.
- Each performer's entire body must completely cross a Sideline during each part of a Mixer. If a Sideline is not completely crossed, (e.g., a performer does not perform their circle sufficiently wide for their entire body to completely cross a Sideline on each half circle,) a five (5) second penalty applies.
- The Centerline also applies during any Shuffler.
- When starting any Circle, as each pair separates into carving in opposite directions, each performer of the pair must be on their respective side of the Centerline.

D4W MIXERS

M-1 Head-down Inface Circles (D4W)

While head-down, each pair of performers separates into inface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline, and P#2 followed by P#4, crossing the other Sideline. While head-down, P#1 & P#3, facing one another, and P#2 & P#4, facing one another, perform an additional 360° of inface carving, crossing a Sideline two (2) additional times, once for each half circle. Then, P#1 & P#2 become the leading pair and fly forward, crossing through the Sidelines, followed by P#3 & P#4. Thence...

M-2 Head-up Inface Circles (D4W)

While head-down, each pair of performers flies forward, crossing through the Sidelines, and performs one half back loop to head-up. While head-up, each pair separates into inface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. While head-up, P#1 & P#3, facing one another, and P#2 & P#4, facing one another, perform an additional 360° of inface carving, crossing a Sideline two (2) additional times, once for each half circle. P#1 & P#2 become the leading pair and perform one half inface Reverse Eagle, crossing through the Sidelines, to head-down, followed by P#3 & P#4. And P#1 & P#2 fly forward, crossing through the Sidelines, followed by P#3 & P#4. Thence...

M-3 Mixed Circles (D4W)

While head-down, each pair of performers flies directly through the Sidelines, presenting their backs to each other into 180° of inface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Each pair, one after the other, flies forward, crossing through the

Sidelines, and then performs one half outface Eagle, passing through the Sidelines again, to head-up, into 180° of outface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Then, P#1 & P#2 become the leading pair and fly backward, crossing through the Sidelines, followed by P#3 & P#4. Each pair, one after the other, then performs one half inface Reverse Eagle, crossing through the Sidelines, to head-down. And P#1 & P#2 fly forward, crossing through the Sidelines, followed by P#3 & P#4. Thence...

M-4 Reverse Mixed Circles (D4W)

While head-down, each pair of performers flies forward, crossing through the Sidelines, and then performs one half outface Eagle, crossing through the Sidelines, into 180° of head-up outface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Then, while head-up, P#1 & P#2 become the leading pair and fly backward, crossing through the Sidelines, followed by P#3 & P#4. Each pair, one after the other, then performs one half inface Reverse Eagle, crossing through the Sidelines, to head-down. Then, each pair flies directly through the Sidelines, presenting their backs to each other into 180° of inface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Then, P#1 & P#2 become the leading pair and fly forward through the Sidelines, followed by P#3 & P#4. Thence...

M-5 Head-down Shuffler (D4W)

While head-down, each pair of performers separates into inface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Next, P#1, then P#2, then P#3 and then P#4, pass through the center into 180° of outface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. Continuing the Shuffler, P#1, then P#2, then P#3 and then P#4, pass through the center into 180° of inface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. Then, P#1 & P#2 become the leading pair and fly forward through the Sidelines, followed by P#3 & P#4. Thence...

M-6 Head-up Shuffler (D4W)

While head-down, each pair of performers flies forward, crossing through the Sidelines, and performs one half back loop to head-up. While head-up, each pair separates into inface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Next, P#1, then P#2, then P#3 and then P#4, pass through the center into 180° of outface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. Continuing the Shuffler, P#1, then P#2, then P#3 and then P#4, pass through the center into 180° of inface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. Then, P#1 & P#2 become the leading pair and perform one half inface Reverse Eagle, crossing through the Sidelines, to head-down, followed by P#3 & P#4. Each pair, then, flies forward, crossing through the Sidelines. Thence...

M-7 Mixed Shuffler (D4W)

While head-down, each pair of performers separates into inface carving in opposite directions, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Next, P#1, then P#2, then P#3 and then P#4, pass through

the center, while performing one half inface Eagle to head-up and then perform 180° of inface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. Continuing the Shuffler, while head-up, P#1, then P#2, then P#3 and then P#4, pass through the center and perform 180° of outface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. Then, P#1 & P#2 become the leading pair and fly backward through the Sidelines, followed by P#3 & P#4. Each pair, one after the other, then performs one half inface Reverse Eagle, crossing through the Sidelines, to head-down. And P#1 & P#2 fly forward, crossing through the Sidelines, followed by P#3 & P#4. Thence...

...To transition to a head-down Snake (D4W)

Each pair, one after the other, then performs one half outface Eagle with one half back loop, crossing through the Sidelines, to head-down. They, then, inface carve, crossing a Sideline, before starting any head-down Snake or head-down compulsory exit sequence.

...To transition to a head-up Snake (D4W)

Each pair, one after the other, then performs one half outface Eagle, crossing through the Sidelines, to head-up. Then, each pair, while head-up, flies backward through the Sidelines, before starting any head-up Snake or head-up compulsory exit sequence.

Head-down Compulsory Exit Sequence (D4W)

While head-down, P#1, followed by P#2 through P#4, will inface carve towards the performers' right, completely crossing the Centerline and the start Sideline before exiting the flight chamber from the far side.

Head-up Compulsory Exit Sequence (D4W)

While head-up, P#1, followed by P#2 through P#4, will inface carve towards the performers' left, completely crossing one Sideline and the Centerline once before exiting the flight chamber from the far side.

D2W MIXERS

M-1 Head-down Inface Circles (D2W)

While head-down, the two (2) performers separate into inface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. While head-down, they perform 360° of inface carving, crossing a Sideline two (2) additional times, once for each half circle. Joining as a pair, the performers then fly forward, crossing through the Sidelines. Thence...

M-2 Head-up Inface Circles (D2W)

While head-down, the two (2) performers, as a pair, fly forward, crossing through the Sidelines, and perform one half back loop to head-up. While head-up, the two (2) performers separate into inface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. While head-up, they perform an additional 360° of inface carving, crossing a Sideline two (2) additional times, once for each half circle. Joining as a pair, the performers perform one half inface Reverse Eagle, crossing

through the Sidelines, to head-down and then fly forward, crossing through the Sidelines. Thence...

M-3 Mixed Circles (D2W)

While head-down, the two (2) performers, as a pair, fly directly through the Sidelines, presenting their backs to each other into 180° of inface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. As a pair, the performers fly forward, crossing through the Sidelines, and then performs one half outface Eagle, passing through the Sidelines again, to head-up, into 180° of outface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Joining as a pair, the performers fly backward, crossing through the Sidelines. The pair, then performs one half inface Reverse Eagle, crossing through the Sidelines, to head-down. And the pair flies forward, crossing through the Sidelines. Thence...

M-4 Reversed Mixed Circles (D2W)

While head-down, the pair flies forward, crossing through the Sidelines, and then performs one half outface Eagle, crossing through the Sidelines, into 180° of head-up outface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. While head-up, both performers, as a pair, fly backward, crossing through the Sidelines, and then perform one half inface Reverse Eagle, crossing through the Sidelines again, to head-down. The pair then flies directly through the Sidelines, presenting their backs to each other into 180° of inface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Joining as a pair, the performers fly forward, crossing through the Sidelines. Thence...

M-5 Head-down Shuffler (D2W)

While head-down, the two (2) performers separate into inface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Next, P#1, then P#2, passes through the center (completely crossing the centerline) into 180° of outface carving, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Continuing the Shuffler, P#1, then P#2, passes through the center (completely crossing the centerline) into 180° of inface carving, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Joining as a pair, the performers fly forward through the Sidelines. Thence...

M-6 Head-up Shuffler (D2W)

While head-down, the two (2) performers, as a pair, fly forward, crossing through the Sidelines, and perform one half back loop to head-up. While head-up, the two (2) performers separate into inface carving in opposite directions, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Next, P#1, then P#2, passes through the center (completely crossing the centerline) into 180° of outface carving, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Continuing the Shuffler, P#1, then P#2, passes through the center (completely crossing the centerline) into 180° of inface carving, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Joining as a pair, the performers perform one half inface Reverse Eagle, crossing through the Sidelines, to head-down. The performers then fly forward, crossing through the Sidelines. Thence...

M-7 Mixed Shuffler (D2W)

While head-down, the two (2) performers separate into inface carving in opposite directions, with P#1, crossing a Sideline and P#2, crossing the other Sideline. Next, P#1 then P#2, pass through the center, while performing one half inface Eagle to head-up and then perform 180° of inface carving, with P#1 crossing a Sideline and P#2 crossing the other Sideline. Continuing the Shuffler, while head-up, P#1, then P#2, pass through the center and then perform 180° of outface carving, with P#1, crossing a Sideline and P#2 crossing the other Sideline. Joining as a pair, the performers fly backward through the Sidelines. The performers, then, perform one half inface Reverse Eagle, crossing through the Sidelines, to head-down and then fly forward, crossing through the Sidelines. Thence...

...To transition to a head-down Snake (D2W)

The pair, then, performs one half outface Eagle with one half back loop, crossing through the Sidelines, to head-down. The performers, then, inface carve, crossing a Sideline, before starting any head-down Snake or head-down compulsory exit sequence.

...To transition to a head-up Snake (D2W)

The pair, then, performs one half outface Eagle, crossing through the Sidelines, to head-up. Then, while head-up, the pair flies backward through the Sidelines, before starting any head-up Snake or head-up compulsory exit sequence.

Head-down Compulsory Exit Sequence (D2W)

While head-down, P#1, followed by P#2, will inface carve towards the performers' right, completely crossing the Centerline and the start Sideline before exiting the flight chamber from the far side.

Head-up Compulsory Exit Sequence (D2W)

While head-up, P#1, followed by P#2, will inface carve towards the performers' left, completely crossing one Sideline and the Centerline once before exiting the flight chamber from the far side.

ADDENDUM B

BASIC ORIENTATIONS, ROTATIONS and PATHWAYS

A. ORIENTATIONS

There are six (6) basic orientations (not including diagonal orientations) which a body can have relative to the wind or cable floor. These define which way the torso is oriented.

A-1. Belly-down Orientation

The torso is horizontal, on its front, facing down towards the wind (or the cable floor).

A-2. Back-down Orientation

The torso is horizontal, on its back, facing up, away from the wind (towards the top of the tunnel).

A-3. Sideways Orientation

The torso is horizontal, on its side, with either side facing towards the wind (or cable floor). The chest is facing the tunnel wall.

A-4. Head-up Orientation (HU)

The torso is vertical with the head up, directly away from the wind (towards the top of the tunnel). For the compulsory patterns, the performers may lean, but the feet must be below the knees, the knees below the hips and the hips below the shoulders.

A-5. Head-Down Orientation (HD)

The torso is vertical with the head down, pointing directly down into the wind (towards the cable floor). For the compulsory patterns, the performers may lean, but the shoulders must be below the hips, the hips below the knees and the knees below the feet.

A-6. Diagonal Orientation

The torso is on a diagonal with respect to the cable floor, at an angle between the six (6) basic orientations. The torso may be head high or head low. The front of the torso may be pointed towards the ground, towards the sky or any direction about the Body Head-Tail axis.

B. ROTATION AXES

Most moves involve some sort of rotational motion of the body. A total of five (5) axes are used to describe the six (6) basic rotational motions.

B-1. Earth/Wind Axes

There are two (2) inertial axes which stay fixed with respect to the wind (or cable floor).

Vertical Axis

The vertical axis remains parallel to the wind (pointing from the top of the tunnel to the cable floor). Spins are rotations about the Vertical Axis.

Horizontal Axis

The horizontal axis is any axis perpendicular (90°) to the wind (pointing to the tunnel wall). It may have any heading (pointing towards any desired point on the tunnel wall).

B-2. Body Axes

There are three (3) body axes which stay fixed with respect to each performer's body.

Body Head-Tail Axis

The body head-tail axis is oriented lengthwise, pointing from head to tail-bone, normally through the performer's torso. (In a layout position, the head and feet are in the same line. When the body is bent at the hips, this axis is aligned with the spine and does not include the legs.)

Body Front-Back Axis

The body front-back axis is oriented forwards and backwards, pointing from front to back, normally through the performer's belly.

Body Left-Right Axis

The body left-right axis is oriented sideways, pointing from left to right, normally through the performer's hips.

C. BASIC ROTATIONAL ACTIONS

There are six (6) basic rotational actions. Twisting combines rotational actions by adding a rotation about the body head-tail axis during a rotation about the body left-right or front-back axis.

C-1. Flat Turns

Flat turns involve a rotation about the body front-back axis when that axis is aligned with the vertical axis. The performer's heading is changing. The body can be belly-down or back-down while performing a flat turn.

C-2. Pirouettes

Pirouettes involve a rotation about the body head-tail axis when that axis is aligned with the vertical axis. The performer's heading is changing. The body can be head-up or head-down while performing a pirouette.

C-3. Barrel Rolls

A barrel roll is a rotation about the body head-tail axis when that axis is aligned with the horizontal axis. A barrel roll may begin and end in a belly-down, back-down or sideways orientation.

C-4. Cartwheels

A cartwheel is a head-over-heels rotation about the body front-back axis when that axis is aligned with the horizontal axis. The body passes through a head-up, sideways and/or head-down orientations during the course of a cartwheel. A cartwheel needs not start nor finish in an exact head-up, sideways or head-down orientation. A cartwheel is considered to be a full cartwheel when the head has traveled 360° around the horizontal axis from the point at which it started. A cartwheel may be performed to the right or left.

C-5. Loops

A loop is a head-over-heels rotation about the body left-right axis when that axis is aligned with the horizontal axis. The body passes through a head-up, belly-down,

head-down and/or back-down orientation during the course of the loop. A loop may begin and end in a head-up, belly-down, head-down and/or back-down orientation. A loop needs not start nor finish in an exact head-up, belly-down, head-down and/or back-down orientation. A loop is considered to be a full loop when the head has traveled 360° around the horizontal axis from the point at which is started. There are two (2) kinds of loops. (Loops are referred to by the direction in which the loop is initiated, since in the case of twisting loops, the direction in which the loop completes may be different from the direction at the start.)

Back Loop

A back loop is a loop rotation initiated with the torso rotating backwards.

Front Loop

A front loop is a loop rotation initiated with the torso rotating forwards.

C-6. Side Loops (Loops on the Side)

A loop in the sideways orientation is a rotation about the body left-right axis when that axis is aligned with the vertical axis. A Spinning Egg is an example of a true loop on the side.

C-7. Twists

Twisting combines rotational actions by adding a rotation about the body head-tail axis during a rotation about the body left-right or front-back axis, aligned with either the horizontal or vertical axis. There are two (2) basic categories of twists.

Vertical Twists

A vertical twist is a head-over-heels rotation about the horizontal axis (loop or cartwheel) combined with a rotation about the body head-tail axis. A single or full twist is defined to be a 360° rotation about the body head-tail axis over the course of a 360° loop or cartwheel. The amount of twist contained within a loop or cartwheel is the amount of twisting rotation completed after a 360° looping or cartwheeling rotation has been performed, when measured from the point in the loop or cartwheel at which the twist was first initiated. Twists may be initiated at any position in the loop or cartwheel and in any direction.

Horizontal Twists

A horizontal twist is a rotation about the vertical axis (flat turn or side loop) combined a rotation about the body head-tail axis. A single or full twist is defined to be a 360° rotation about the body head-tail axis over the course of a 360° flat turn or side loop. For example, a Flip Through is a horizontal twist.

D. CIRCULAR PATHWAYS

There are two (2) basic types of circular pathways a performer(s) may follow, which can be performed either infacing or outfacing. Circular pathways may have embedded moves (e.g. Bottom Loop).

Infacing

The front of the torso faces inward towards the concave side of the pathway, usually, but not always, towards the center of the flight chamber.

Outface

The front of the torso faces outward away from the concave side of the pathway, usually, but not always, towards the wall of the flight chamber.

D-1. Carving

The performer(s) body(ies) trace(s) a circular path in approximately a horizontal plane. Carving is performed while head-down, head-up or in other orientations.

D-2. Vertical Orbits

The performer(s) body(ies) trace(s) a circular path in a vertical plane. Eagles and Reverse Eagles are two (2) common forms of Vertical Orbits that involve also rotating about the Body Left-Right Axis.

Eagle

The performer(s) travel(s) in a Vertical Orbit while continuously leading with the head, passing through the back-down, head-up, belly-down and/or head-down orientation (in that order, if infacing). An Eagle may begin from any orientation in this progression. A Half Eagle is when the performer has traveled head first through 180° of vertical orbiting. A Full Eagle is when the performer has traveled head first through 360° of vertical orbiting.

Reverse Eagle

The performer(s) travel(s) in a Vertical Orbit while continuously leading with the feet (or tail-bone), passing through the back-down, head-down, belly-down and/or head-up orientation (in that order, if infacing). A Reverse Eagle may begin from any orientation in this progression. A Half Reverse Eagle is when the performer has traveled feet (or tail-bone) first through 180° of vertical orbiting. A Full Reverse Eagle is when the performer has traveled feet (or Tail-bone) first through 360° of vertical orbiting.