



Tunnel Competition Rules  
Indoor Solo Speed,  
Dynamic 2 way & 4 way Skydiving

Effective 01 June 2022

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## 1 AUTHORITY

The competition will be conducted under the authority granted by the iFly Australia Tunnel Competition, per the regulations of the iFly Australia Tunnel Competition and these rules. All participants accept these rules and the iFly Australia Tunnel Competition regulations as binding by registering in the competition.

## 2. DEFINITIONS OF WORDS AND PHRASES USED IN THESE RULES

2.1 PERFORMERS: Solo Speed Team is composed of one (1) Performer

A Dynamic 2-Way (D2W) Team is composed of two (2) Performers.

A Dynamic 4-Way (D4W) Team is composed of four (4) Performers plus one (1) Alternate.

2.2 Junior Performer

Is a person whose 18<sup>th</sup> birthday occurs either during or after the calendar year in which the relevant competition takes place

2.3 BODY: consists of the entire Performer and his/her equipment.

2.4 HEADING: The compass direction in which the front of the torso of the Performer faces.

2.5 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.

2.6 PATTERN: A movement sequence during which the Performers' bodies follow pathways, often with embedded moves or intermixing.

2.6.1 Compulsory Pattern: a Pattern with specific performance requirements. See Addenda A.

2.7 SIDELINES FOR SPEED ROUTINES: 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.)

2.8 CENTRELINE A vertical plane that spans across the centre 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.

2.9 RING FOR SPEED ROUTINES: A horizontal line that crosses the centre of the flight chamber, two (2) metres above the cable floor, between the two (2) Sidelines. 2.8.1 Ring Plane (for Speed Routines): the plane parallel to the cable floor that spans across the entire flight chamber at the level of the Ring.

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

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

2.12 FLIGHT: A Team's performance in the flight chamber.

2.13 ROUTINE: A sequence of Moves or Patterns performed during the working time.

2.13.1 D2W OPEN, D2W INTER & D4W OPEN SPEED ROUTINE: a routine composed of three (3) randomly drawn Compulsory Patterns (one from each group, Snakes, Verticals and Mixers, in that order), and Compulsory Transitions, repeated three (3) times, in the fastest time possible. The Speed Routine starts with a compulsory entrance and ends with a compulsory exit sequence.

2.13.2 SOLO SPEED ROUTINE: a routine composed of Four (4) randomly drawn Compulsory Patterns (one from each group, Line and Verticals, two Mixers, in that order), and Compulsory Transitions, repeated One (1) time, in the fastest time possible. The Speed Routine starts with a compulsory entrance and ends with a compulsory exit sequence

2.14 WORKING TIME: The period of time during which a Team may perform a routine during a flight. Performers will wait for a visual signal before entering the flight chamber.

- 2.14.1 Speed Routine Working Time starts when the first Performer crosses through the door's sensor beam and ends when the last Performer crosses through the door's sensor beam, completely exiting through the doorway of the flight chamber.
- 2.14.2 Sensor beam technology must be used to detect the start and end of Speed Routine Working Time.
- 2.14.3 Free Routine Working Time starts when both feet of any Performer leave either the antechamber floor, the cable floor, or any other pre-determined place in the flight chamber.
- D2W Free Routine working time is 60 Seconds.
- At the end of the Free Routine Working Time, a visual signal will be given and the team will have 15seconds to exit the flight chamber, if they have not already exited.

### **3. THE EVENTS**

- 3.1 Discipline consists Four categories: Solo Speed, Dynamic 2-Way (D2W) Inter, Dynamic 2-Way (D2W) and Dynamic 4-Way (D4W), Open and Junior Events. There is no gender separation.
- 3.1.1 Junior competitors, whose 15th birthday occurs during the calendar year of the competition may, if they choose, enter an open category event. Any competitor may only enter one category (Open or Junior).
- 3.2 OBJECTIVE OF THE EVENT
- The objective for the Teams is to perform Speed Routines in the fastest possible time.
- 3.2.1 After all completed round(s), the Winner in Solo Speed, D2W Open, D2W Inter, D4W Open, and in Junior categories will be declared
- 3.2.2 If two (2) or more Performers have equal scores, then if time permits, the first three (3) places will be determined by a tie-break Speed Round.
- If a tie still exists, the following procedure will be applied:
- i) the best score, then the second best score, and then third best score, of any completed free rounds.
  - ii) the best score, then the second best score, of any completed compulsory rounds.
- 3.2.3 All team members in the events will be awarded medals if placed First, Second or Third
- 3.3 Performance Requirements
- Refer [ADDENDUM A](#)

### **4. SAFETY**

- 4.1 All competitors must, at minimum, be signed off as a Competent Flyer under IBA (International Bodyflight Association) and be able to participate safely in tunnel flying.
- 4.2 Minimum flying ability would require each individual to be able to show control when moving forwards and backwards, slow and fast fall, side sliding and turning, remembering that they are sharing the tunnel space with other people.
- 4.3 Coaches and Instructors are to never touch the competitors inside the wind tunnel other than to spot a potentially dangerous situation.
- 4.4 For safety reasons, if an individual flyer demonstrates unsafe or less than the minimum flying skills expected, he or she might be disqualified during the event or asked to exit the wind at any time, if deemed unsafe. Contact the event organiser or communicate with your wind tunnel coach/meet director with Questions regarding your suitability for this competition

## 5 GENERAL RULES

- 5.1 Performers' equipment: Performers are responsible for outfitting themselves in their own suitable clothing and footwear, including flight suits, helmets, goggles, and ear plugs.
- 5.1.1 No additional equipment intended to artificially enhance the performance of the flyer is allowed (eg: palmed gloves). The event judge shall decide whether any equipment is allowed or not. Such decision is no grounds for a protest.
- 5.2 Wind Tunnel Equipage: "The minimum acceptable diameter for the flight chamber is 3.65 meters (12FT). The minimum height for the transparent wall is 3.7 meters."
- 5.2.2 The Sidelines must consist of two (2) vertical lines of lights. The lights may be LED technology. The Sidelines must extend from the floor up to the top of the transparent walls or five (5) metres, whichever is less.
- 5.2.2.1 The Start Sideline must be green and the opposite Sideline blue.
- 5.2.3 The two (2) Rings must have a five (5) cm hole. The diameter of the Ring (from outer rim to outer rim) must be between fifteen (15) and eighteen (18) cm. The two (2) Rings must be positioned two (2) metres above the cable floor, one (1) on each Sideline.
- 5.2.3.1 The Ring Plane is materialised on the transparent wall by horizontal lines (adhesive tape affixed or any other equivalent means) of at least fifty (50) cm long, level with the centre of the Ring, and starting on either side of the outer diameter of the Ring on both Sidelines.
- 5.2.4 The Centreline may be a vertical line of lights or adhesive tape affixed to the transparent tunnel wall and must extend from the cable floor (or from the top of the door) up to the top of the transparent walls or five (5) metres, whichever is less.
- 5.2.5 The speed setting will be indicated in the tunnel and shall be clearly visible to the Team prior to entering the flight chamber.
- 5.2.6 The wind tunnel equipage and the video judging system must be approved by the Chief Judge prior to the start of the official Training Flights. 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.
- 5.3 USE OF SKYDIVING AND TUNNEL
- 5.3.1 Freefall: Performers are not allowed to freefall from any aircraft or use any freefall simulator or wind tunnel, for Flights other than competition Flights, after the commencement of the competition.
- 5.4 FLIGHT CHAMBER ENTRY: Only one (1) doorway leading into the flight chamber will be used for entries and exits. The tunnel will be set to the correct speed decided by the Performer during the Speed Setting time. When the tunnel is at the correct speed, a signal will be given to the Performer.
- 5.5 ROUTINES
- D2W Inter & D4W Open is comprised of Speed Routines.
- D2W Open is comprised of Compulsory Routines and Speed Routines
- 5.5.1 Teams must deliver a video of their Free Routine(s) to the Chief Judge at least three (3) days in advance (72hrs) before the start of the competition. The video must be uploaded to the designated iFly Cloud or as is described in Bulletin 2. Competitors are responsible for the quality of video delivered. The quality should be at least that described in para. 5.9.2 for a satisfactory scoring of Technical Difficulty by Judges.
- 5.5.2 Failure to provide the video of the Free Routine(s) within the time limit stated in para 5.5.1 will lead to receiving no credit for Technical Difficulty for all Free Routines

- 5.5.3 Teams must declare to the Chief Judge where the Free Routine starts and where it ends: the Antechamber floor, the cable floor, or from any other pre-determined place in the flight chamber
- 5.6 THE DRAW
- 5.6.1 The Draw for the Compulsory Patterns will be done publicly and supervised by the Chief Judge. Teams will be given not less than one (1) hour knowledge of the results of the Draw before the competition starts.
- 5.6.2 The D2W & D4W Compulsory Patterns will be drawn as follows: One (1) Pattern from each group (Snakes, Verticals and Mixers), as shown in Addendum A, will be drawn for each Speed Round.
- 5.6.2.1 All Compulsory Patterns will be singularly placed in three (3) containers, one for each group of Patterns. Individual withdrawal from each container, without replacement, will determine the Patterns to be performed.
- 5.6.3 D2W Inter Compulsory Patterns S-1, S-3, S-6, V-1, V-3, V-5, M-1, M-2, M6
- 5.6.4 The Solo Speed Compulsory Patterns will be drawn as follows: One (1) pattern for each group (Line, Vertical) and two (2) pattern from Mixer
- 5.6.5 The draw may be done electronically using an official draw generator
- 5.7 FLIGHT ORDER
- 5.7.1 The flight order for the competition will be determined by a draw prior to the start of the competition.
- 5.7.2 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.
- 5.7.3 The minimum time between flights for a performer will be ten (10) minutes
- 5.8 ROUNDS
- 5.8.1 A minimum of one (1) round constitutes a competition wherein a winner can be determined
- 5.8.1 D2W Inter Competition is composed of up to six (6) rounds.
- 5.8.2 D2W Open & D4W Open Competition is composed of up to eight (8) rounds.
- 5.8.3 Solo Speed Competition is composed of up to six (6) rounds.
- 5.8.2 In the official practice flight - the nominated team captain shall communicate with the tunnel instructor to request the speed to be increased, reduced or to confirm that it is ok. The speed reached will be used as the default speed for the team. The tunnel driver shall select the default speed for each team prior to that team entering the tunnel. If no signals are given, then the default speed is assumed by the tunnel driver to be satisfactory.
- 5.8.3 Time must be reserved before the end of the competition to allow for the completion of the tie break round
- 5.9 WORKING TIME
- 5.9.1 Working time starts the instant the Performer begins flying, as determined by the Judges.
- 5.9.2 The chronometer will be operated by the person appointed by the Chief Judge and/or event organiser.
- 5.10 VIDEO RECORDING
- 5.10.1 Video evidence is required for each flight.
- 5.10.2 For the purpose of these rules, "video equipment" shall consist of the complete video system used to record the video evidence of the Performer's Flight, including the camera(s), recording media, cables and power source. The video equipment must be able to deliver a

High Definition 1080 type digital signal with a minimum frame rate of 50 frames per second through a memory card (minimum class 10), approved by the Chief Judge.

- 5.10.3 The Organiser shall provide the video evidence required to show the Performer's Flight to third parties. A backup recording of all competition Flights will be made.
- 5.10.4 The Organiser is responsible for assuring the compatibility of the video equipment with the scoring system.
- 5.10.5 For Speed Routines, a minimum of two (2) cameras must record video; one camera positioned at one of the Sidelines, level with the Ring, and the other camera positioned at the Centreline. If the wind tunnel configuration permits, a third camera may be positioned at the other Sideline.
- 5.10.6 Video recording must allow the Judges to clearly view the cable floor up to at least three (3) metres (or to the top of the transparent wall, whichever is greater) above the Ring.
- 5.10.7 The camera(s) must be fixed static to the mount and on the same side of the tunnel as the Judges' live viewing gallery location.
- 5.10.8 The flight chamber doorway that will be used for entry and exit shall be fully shown in the video evidence. The position of the Judges with respect to the flight chamber doorway that will be used for entry and exit will be published not less than 90 days before the start of competition.
- 5.10.9 The speed setting will be indicated in the tunnel and shall be clearly visible to the Performer prior to entering the flight chamber.
- 5.10.10 A video controller will be appointed by the organiser, with the approval of the Chief Judge, prior to the start of the competition. The video controller is responsible for the functionality of the video equipment to ensure it is usable for the competition.
- 5.10.11 The Organiser must provide the Performers with a way of identification of the Performer to be included in the video evidence.

## 5.11 SCORING FREE ROUTINES

### 5.11.1 Criteria for scoring Free Routines

#### Technical Difficulty:

- New original Moves/Patterns are performed
- Moves/Patterns performed require precision. EG. Head touching to head with no other grips
- Technicality/complexity of Moves/Patterns performed. EG complex intermixing and/or embedded moves.
- Wind loading (tunnel speed setting used)
- Difficulty of Moves and Patterns
- See ADDENDUM

#### Execution:

- Full use of working time
- Moves/Patterns are performed without crashing or loss of balance
- Use of space in the tunnel
- Precision of flying (how close are the passes, synchronization between flyers)
- Display of balance
- Uniformity of body position: Efficient, clean positioning for appropriate power from the wind

#### Presentation

- Original Moves/Patterns and choreography
- Variety (of moves/patterns, transitions and orientations)

- Rhythm
- Use of visual effect(s)
- Choreography, Story-telling
- Creativity

#### 5.11.2 Appropriate use of working time

The total working time of each Team must be compared to the Free Routine Working Time, as defined in para 2.14.3 and controlled as in para 6.4.3.

If the performance of their Free Routine by any team ends more than two (2.00) seconds before the end of the Free Routine Working Time, hence every second in excess of two (2.00) seconds must trigger a penalty of 0.1

If the performance of their Free Routine by any Team ends more than two (2.00) seconds after the end of the Free Routine Working Time, hence every second in excess of two (2.00) seconds must trigger a penalty of 0.1

The total amount of penalties is deducted from the score given by Judges, as explained in para 5.11.4

#### 5.11.3 After watching all free routines, judges must, by conference, take into account the above criteria, and score each Performance between 0.00 to 10.0, rounded to the first decimal

#### 5.11.4 When Scoring each Performance, judges must use the following weightings : 40% for Technical Difficulty, 30% for Execution and 30% for Presentation

#### 5.11.4 Each Team will then be attributed by Judges a score (between 0.0 to 10.0 and rounded to the first decimal) equal to the average scores given by Judges to the Team. The total amount of penalties (see para 5.11.2) is then deducted in order to reach the Official Score given to the Team.

### 5.12 SCORING SPEED ROUTINES

The score is based on the time, measured in thousandths of a second that the Team takes to perform the three (3) Compulsory Patterns, repeated three (3) times, as well as the Compulsory Entrance, the Compulsory Transitions, and the Compulsory Exit Sequence; plus penalty times for infringements and omitted Compulsory Patterns.

#### 5.12.1 Once the Performer has entered the flight chamber, the Flight shall be evaluated and scored.

#### 5.12.2 Infringements: Each incorrect, incomplete or non-judgeable Compulsory Entrance, Compulsory Pattern, Compulsory Transition or Compulsory Exit Sequence will lead to adding a penalty of five (5) seconds for D2W & D4W or three (3) seconds for Solo Speed to the total time for the Speed Routine. Solo Speed Skips incur a twenty (20) second penalty. See Addendum A for performance and scoring requirements.

#### 5.12.3 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 enter the flight chamber at the start of the Speed Routine.

#### 5.12.4 A five (5) second penalty will apply to the Compulsory Entrance, each Compulsory Pattern, each Compulsory Transition and the Compulsory 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. (After the positioning error, the new order of the Performers must be maintained.

- 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, rotation away from the Start Sideline, etc.).
  - The leading Performer completely crosses the next Sideline before the following Performer completely crosses the previous Sideline, i.e., lack of synchronisation (D2W only).
- 5.12.5 The Compulsory Entrance, certain listed Transitions (as set forth in Addendum A), each Pattern, and the Compulsory Exit Sequence may receive a maximum of one (1) five (5) second time penalty; the maximum number is fourteen (14).
- 5.12.6 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 missing from the drawn sequence.
  - No clear intent to finish the Compulsory Pattern (e.g., after an infringement) is seen 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.
- 5.12.7 If a Team crashes and becomes disorganised during a Compulsory Pattern, the Team may continue to the next Compulsory Pattern accruing only a five (5) second time penalty provided that the Judges see the Team losing time in the process of getting organised and there is no time advantage to the Team.
- 5.12.8 One or more Judges may make an evaluation of any infringements and of an omission.
- 5.12.9 Challenge: A Team may challenge an infringement or omission given by the Judges. No Team can challenge any infringement or omission given by the Judges to another Team.
- 5.12.9.1 After the judges have officially announced their time and busts (specifying the pattern(s) and line(s)), the team may request an official review. This request triggers the challenge procedure and cannot be cancelled. In such case, a visual signal could be given (eg: yellow lines).
- 5.12.9.1.2 This official request must be made before the next flight of the other team, if any, and before leaving the Antechamber.
- 5.12.9.1.3 The review by the Team can only be made once and at normal speed.
- 5.12.10 Right after this official review, the team decides to confirm their challenge or to give up. If the team persists in the challenge procedure, then the judges will watch the video of the flight, according to para 6.5.2 and 6.5.3, and determine whether or not the infringement or omission occurred.
- 5.12.11 If the Judges determine that the infringement or omission occurred, or if the Team, after watching the video, gave up the procedure, the Team may not again challenge another infringement or omission given by the Judges.
- 5.12.12 The final time for each Speed Routine will be published, including the raw speed routine completion time, time penalties, infringement types and any omissions.
- 5.13 SCORES AND RESULTS
- The final time for each Speed Routine will be published, including the raw speed routine completion time, time penalties, infringement types and any omissions
- For each Free Routine, the decision of each judges will be published

#### 5.14 FLIGHT ABORTION

If, during any competition flight, one (1) or more of the Performers intentionally leaves the flight chamber for any reason (other than a direct order from the Event Judge or Chief Judge), deliberately stopping the flight early, no re-entrance or re-flight will be allowed.

#### 5.15 RE-FLIGHTS

5.15.1 In case of an unforeseen change of environment during performance, a re-flight may be granted.

5.15.2 Contact or other means of interference between the Performer and/or the tunnel walls/cable floor shall not be grounds for a re-flight.

5.15.3 Problems with a competitor's equipment shall not be grounds for a re-flight.

5.15.4 A re-flight may be granted if the Event Judge or Chief Judge concludes that the performance of a Team has been adversely affected by any external factor(s). The Event Judge's or Chief Judge's decision is no grounds for a protest.

5.15.5 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.

5.15.6 A re-flight will be made as soon as possible after the incident giving rise to the re-flight. In all cases, a re-flight must be made with a minimum of a two (2) minute delay starting from the time when the last Performer of the aborted flight completely exits the doorway.

#### 5.16 SPEED SETTING AND TRAINING PERFORMANCE

5.16.1 Speed Setting: Either three (3) minutes or two (2) times one (1) minute and thirty (30) seconds will be allocated to each team for speed setting. The lighted Sidelines and Centreline plus the judging and scoring systems to be used in the competition will be used for the official Speed Setting Flights. No score or time will be given by Judges.

5.16.2 Flights may only take place prior to the start of the competition

5.16.3 The wind tunnel configuration used for the competition will also be used for the official training performance

### 6. JUDGING

#### 6.1 JUDGE REQUIREMENTS

6.1.1 A panel consisting of three (3) Judges must evaluate each Performer's Flight. A complete round shall be judged by the same panel.

6.1.2 Viewing the Flights: The Judges will view each Performer's Flight from the flight chamber viewing gallery. The Judges will watch each Flight live.

6.1.3 All Judges will evaluate all judging criteria.

6.1.4 No Performer will approach or talk to the Judges during any Team's flight.

#### 6.2 Speed Routine Judging:

6.2.1 Three (3) Judges, must evaluate each Team's Speed Routine.

6.2.1.1 Each Judge will watch each Team's flight from an assigned physical location or by viewing the video monitor of a camera set in that same assigned physical location.

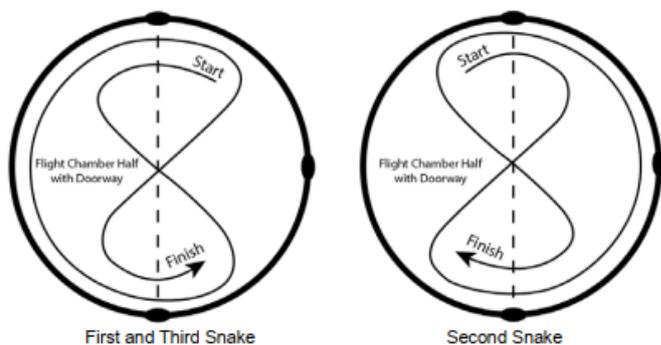
6.2.1.2 The Judges may use video monitors and these cameras must record video (para 4.2.8). The cameras for the video monitors must be positioned in accordance with the Judges' assigned physical locations below.

6.2.2 Judges' Assigned Physical Locations:

- 6.2.2.1 In Solo Speed & D2W, one Judge, positioned at a Sideline, will evaluate for complete crossings of the Sidelines. In D2W, the one Sideline Judge will also evaluate Synchronisation. In D4W, two (2) Judges, positioned at either or both Sideline(s), will evaluate for complete crossings of the Sidelines. The Sideline Judge(s) must be positioned such that the Sideline on the far wall is obscured from view by the Sideline on the near wall.
  - 6.2.2.2 A Ring Judge will evaluate that no part of any Performer's body is visible in the Ring hole (Vertical Patterns only). The Ring Judge must be positioned with the Judge's eye level with the Ring and the outer rim (but no view beyond the outer rim) of the far Ring visible through the five (5) cm hole of the near Ring.
  - 6.2.2.3 A Judge, positioned at the Centreline with the Judge's eye level with the Ring Plane, will 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.). This judge will also evaluate for complete crossings of the Centreline.
  - 6.2.2.4 In D4W, a Judge may be positioned between the Centreline and a Sideline Judge. This Judge will evaluate the Team's adherence to the performance description of each Compulsory Pattern (e.g., Performers flying in the correct order, pirouettes in correct direction, etc.)
- 6.3 Judges' Video Review Process for Speed Routines:
- 6.3.1 At the request of any member of the judging panel, made within fifteen (15) seconds after the end of the flight, the Chief Judge or the Event Judge will allow a video review, from a particular camera view, of the part of the flight in question. A video from a particular camera view may be subject to several different requests as long as the same part of the flight is not reviewed.
  - 6.3.2 For each request, a maximum of three (3) viewings per camera view is permitted. Two (2) viewings may be done at different speeds.
  - 6.3.3 Three (3) or more judges, overseen by the Chief Judge or the Event Judge, will make an assessment by a majority decision of the part(s) of the flight in question.
- 6.4 Free Routine Judging:
- 6.4.1 A panel of minimum of three (3) Judges must evaluate each Team's Free Routine. Each Judge will evaluate all criteria (para 5.11)
  - 6.4.2 The Free Routine Judges will be positioned in an arc spread throughout the entire viewing gallery, not including the Antechamber and controller booth.
  - 6.4.3 The chronometer will be operated by the Judges or by (a) person(s) appointed by the Chief Judge or by sensor beam technology, and will be started at the beginning of working time (para 2.14)
  - 6.4.4 At the end of working time, a signal will be given. Without discussion with other Judges, each Judge will record their evaluation of the performance executed within the working time and submit to the Event Judge.
  - 6.4.5 The Judges may use an electronic scoring system to record their evaluations

**ADDENDUM A1****D2W & D4W SPEED ROUTINE COMPULSORY PATTERNS****SNAKES PERFORMANCE REQUIREMENTS & JUDGEMENT CRITERIA****Performance Requirements for Snakes**

- For execution purposes, the definitions given in Addendum B for any orientation, rotation and pathway must be respected
- The Sidelines and Centreline apply.
- Each Performer's entire body must completely cross each Sideline and Centreline.
- Each Performer must be in the orientation of the Snake before crossing the Start Sideline after the Compulsory Entrance.
- For the Compulsory Entrance and before reaching the Start Sideline:
  - In D2W, P#1 must be closer to the Start Sideline than P#2 before starting the first Snake.
  - In D4W:
    - P#1 must be closer to the Start Sideline than P#2, P#3 and P#4 before starting the first Snake.
    - P#2 must be closer to the Start Sideline than P#3 and P#4 before starting the first Snake.
    - P#3 must be closer to the Start Sideline than P#4 before starting the first Snake.
- The following Performer(s) follow the leader throughout the illustrated pathway, with respect to top view. (Mirror image is not permitted.) Diagram shows First and Third Snake and Second Snake.



- During any Snake, each Performer crosses a Sideline six (6) times and crosses the Centreline three (3) times. Infringements Applicable to the Compulsory Entrance
- If the Compulsory Entrance is not performed correctly, a five (5) second penalty will apply. Infringements Applicable to Snakes
- If a Performer flies any Snake differently from that which is described, (e.g., failure to switch to outface during a Switching Snake, etc.) a five (5) second penalty applies.
- Apart from the Compulsory Entrance, if a 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.
- If a Sideline or Centreline 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.
- 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 (paragraph 6.3.3). Also see paragraph 6.3.1 to paragraph 6.3.6 for general busts and skips

## D4W & D2W ENTRANCE AND SNAKES

### Compulsory Entrance

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

### S-1 Head-down Inface Snake

Performers cross the Start Sideline in a head-down inface orientation and 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 centre 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 centre 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

Performers cross the Start Sideline in a head-down inface orientation and 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 centre 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 centre 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

Performers cross the Start Sideline in a head-up inface orientation and 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 centre 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 centre 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

Performers cross the Start Sideline in a head-up inface orientation and 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 centre 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 centre 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

Performers cross the Start Sideline in a head-down inface orientation and begin by head-down inface carving towards the Performers' left in the first and third Snake (right in the second Snake). When crossing through the Sidelines for 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 crossing through the Sidelines for 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

Performers cross the Start Sideline in a head-up inface orientation and begin by head-up inface carving towards the Performers' right in the first and third Snake (left in the second Snake). When crossing through the Sidelines for 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 crossing through the Sidelines for the second time, each Performer transitions through the backdown orientation to head-up inface carving towards his/her right in the first and third Snake (left in the second Snake).

**ADDENDUM – A2****D2W & D4W SPEED ROUTINE COMPULSORY PATTERNS****VERTICALS PERFORMANCE REQUIREMENTS & JUDGEMENT CRITERIA**

## Performance Requirements for Verticals

- For execution purposes, the definitions given in Addendum B for any orientation, rotation and pathway must be respected
- The Sidelines and Ring apply.
- During each Vertical (not including the Compulsory Transition), each Performer will cross a Sideline four (4) times.
- Any Vertical starts and ends in a head-down orientation with each Performer on their side of the Centreline. During a Vertical, the Performers may partially cross the Centreline, but must finish completely on the correct side of the Centreline. Any Vertical ends in a head down orientation.
- Apart from the Compulsory Transition to any Vertical, Performers must fly around the Ring, completely clear of the Ring. The Performers must completely cross a Sideline on each half of the Vertical.
- All 180° and 360°, head-up and head-down pirouettes must rotate away from the Start Sideline.
- All 180° and 360°, head-up and head-down pirouettes must be performed with all parts of the body completely above the Ring Plane. Infringements Applicable to the Transition from any Snake
- If the Compulsory Transition to the Vertical from the Snake is not performed correctly, a five (5) second penalty will apply. Infringements Applicable to Verticals
- At the beginning of the Vertical, while flying over the Ring, a performer must be, at some time, strictly on his/her side of the Centreline before reaching the Ring Plane; otherwise, a five (5) second penalty applies. At the end of the vertical, if each Performer is not on their side of the Centreline, a five (5) second penalty applies.
- If any Performer flies any Vertical Pattern differently from that which is described, (e.g., Performers not pirouetting in the correct direction, etc.) a five (5) second penalty applies.
- If a Sideline is not completely crossed, a five (5) second penalty applies.
- Apart from the Compulsory Transition to any Vertical, 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. Performance Requirements and Infringements Applicable to V-2 Butterfly
- The Centreline applies. While performing V-2 Butterfly and V-6 Crossing Classic, each Performer must cross the centreline twice. Any infringement will lead to a five (5) second penalty. Also see paragraph 6.3.1 to paragraph. 6.3.6 for general busts and skips.

## D4W TRANSITION AND VERTICALS

### Compulsory Transition from Any Head-down Snake to Any Vertical

While remaining head-down throughout the Compulsory Transition, P#1, followed by P#2 through P#4, must cross the Centreline and then the Start Sideline before starting any Vertical. P#1 and P#3 must continue across the Centreline again before starting any Vertical.

### Compulsory Transition from Any Head-up Snake to Any Vertical

While remaining head-up throughout the Compulsory Transition, P#1 and P#3 must cross the Centreline. 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

While head-down, the Performers separate into two (2) pairs. P#1 and P#2 will be the leading pair and P#3 and 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

While head-down, the Performers separate into two (2) pairs: P#1 and P#2 will be the leading pair and P#3 and 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

While head-down, the Performers separate into two (2) pairs. P#1 and P#2 will be the leading pair and P#3 and P#4 will be the following pair. While head-down and flying over the Ring, each Performer in the pair performs a 180° pirouette away from the start line. 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. The pair performs one-half inface Reverse Eagle under the Ring to head-down.

#### V-4 Head-down 360°

While head-down, the Performers separate into two (2) pairs. P#1 and P#2 will be the leading pair and P#3 and 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 the pairs fly over the Ring, they perform a 360° pirouette and perform one-half outface Eagle with one half back loop passing under the Ring to head-down. The 360° pirouette must rotate away from the Start Sideline.

#### V-5 Head-up 360°

While head-down, the Performers separate into two (2) pairs. P#1 and P#2 will be the leading pair and P#3 and 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 and then performs one-half inface Reverse Eagle under the Ring to head-down.

#### V-6 Crossing Classic

While head down, the Performers separate into two (2) pairs. P#1 and P#2 will be the leading pair and P#3 and P#4 will be the following pair. Each pair flies forward, and performs a 180° pirouette while the two (2) Performers in the pair crossing each other over the Ring Plane. Each pair then performs one-half Eagle under the Ring to inface head up. While head up and flying over the Ring Plane, each pair performs a 180° pirouette while two (2) Performers in the pair crossing each other. Each pair performs one-half inface Reverse Eagle under the Ring to head down.

## D2W TRANSITION AND VERTICALS

### Compulsory Transition from Any Head-down Snake to Any Vertical

While remaining head-down throughout the Compulsory Transition, P#1, followed by P#2, must cross the Centreline and then the Start Sideline before starting any Vertical. P#1 must continue across the Centreline again before starting any Vertical.

Compulsory Transition from Any Head-up Snake to Any Vertical While remaining head-up throughout the Compulsory Transition, P#1 must cross the Centreline. When crossing a Sideline, each Performer transitions to head-down in a half inface Reverse Eagle before starting any Vertical.

### V-1 Back Layout

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

### V-2 Butterfly with Bottom Loops

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

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 away from the start line. 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. The pair performs one-half inface Reverse Eagle under the Ring to head-down.

### V-4 Head-down 360°

While head-down, the two (2) Performers fly this Pattern as a pair. The pair flies forwards 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 and perform one-half outface Eagle with one-half back loop passing under the Ring to head-down.

### V-5 Head-up 360°

While head-down, the two (2) Performers fly this Pattern as a pair. The pair flies forwards 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 a 360° pirouette and then performs one-half inface Reverse Eagle under the Ring to head-down.

### V-6 Crossing Classic

While head down, the two (2) Performers fly this pattern as a pair. The pair flies forward, and performs a 180° pirouette while crossing each other over the Ring Plane. The pair then performs one-half inface Eagle under the Ring to inface head up. While head up and flying over the Ring Plane, each Performer in the pair performs a 180° pirouette while crossing each other. The pair performs one-half inface Reverse Eagle under the Ring to head down.

**ADDENDUM – A3****D2W & D4W SPEED ROUTINE COMPULSORY PATTERNS****MIXERS PERFORMANCE REQUIREMENTS & JUDGEMENT CRITERIA****Performance Requirements for Mixers**

- The Sidelines apply during any Mixer. Each Performer must completely cross a Sideline during each part of a Mixer.
- The Centreline applies during any Shuffler.
- The Compulsory Transition to any Snake or Exit Sequence is considered to be a part of the Mixer.
- Mixers finish to a head-down orientation when all Performers have performed a bottom loop (onehalf outface Eagle with one-half back loop) to head-down and, then, inface carve crossing a Sideline. When head-down (before the inface carve), the Performers must be on the correct side of the Centreline.
- Mixers finish to a head-up orientation when the Performers have performed one-half outface Eagle to the head-up orientation and, then, flown backwards through the Sidelines again. When head-up (before flying backwards), the Performers must be on the correct side of the Centreline.
- During a Mixer, the Performers may partially cross the Centreline, but must finish completely on the correct side. Infringements Applicable to Mixers
- If any Performer flies any Mixer differently from that which is described, (e.g., failure to switch to outface during a Shuffler, etc.) a five (5) second penalty applies.
- If any Performer crosses through the centre in the incorrect order during any Shuffler, (e.g., P#2 crosses the centre before P#1,) a five (5) second penalty applies.
- If any Performer does not completely cross a Sideline during each part of a Mixer, (e.g., a Performer does not perform their circle sufficiently wide enough for their entire body to completely cross a Sideline on each half circle,) a five (5) second penalty applies.
- At the beginning of the Mixer, if each Performer is not on their side of the Centreline, a five (5) second penalty applies to the previous Vertical.
- At the end of the Mixer, if each Performer is not on their side of the Centreline when head-down, right after his/her half back loop, a five (5) second penalty applies.
- At the end of the Mixer, if each Performer is not on their side of the Centreline when head-up just before moving backwards during the transition to a head-up Snake, a five (5) second penalty applies. Performance Requirements and Infringements Applicable to Specific Mixers
- After the half back loop to head-up, at the beginning of each head-up Mixer (M-2 and M-6), a five (5) second penalty applies if any Performer, when proceeding into inface carving, is not in a headup orientation before reaching the Sideline.
- In D4W, during any Circling Mixer (M-1, M-2, M-3 and M-4), a five (5) second penalty applies if any pair of Performers (P#1 and P#3, and P#2 and P#4) does not fly the circles in a circular orbit in a horizontal plane. Infringements Applicable to the Transition from the Mixer to the Snake
- If the transition from the Mixer to the Snake is not performed correctly, a five (5) second penalty will apply to the Mixer. Infringements Applicable to the Compulsory Exit Sequence
- If the Compulsory Exit Sequence from any Mixer is not performed correctly, a five (5) second penalty applies to the Compulsory Exit Sequence. Also see paragraph 6.3.1 to paragraph 6.3.6 for general busts and skips.

## D4W MIXERS, TRANSITION AND EXIT

### M-1 Head-down Inface Circles

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 and P#3, facing one another, and P#2 and 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 and P#2 then become the leading pair and fly forwards, crossing through the Sidelines, followed by P#3 and P#4.

### M-2 Head-up Inface Circles

While head-down, each pair of Performers flies forwards, crossing through the Sidelines, performing one-half back loop to head-up. While head-up, 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-up, P#1 and P#3, facing one another, and P#2 and 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 and P#2 become the leading pair and perform one-half inface Reverse Eagle, crossing through the Sidelines, to head-down, followed by P#3 and P#4. P#1 and P#2 fly forwards, crossing through the Sidelines, followed by P#3 & P#4.

### M-3 Mixed Circles

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 forwards, 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 and P#2 become the leading pair and fly backwards, crossing through the Sidelines, followed by P#3 and P#4. Each pair, one after the other, then performs one-half inface Reverse Eagle, crossing through the Sidelines, to head-down. P#1 and P#2 fly forwards, crossing through the Sidelines, followed by P#3 and P#4.

### M-4 Reverse Mixed Circles

While head-down, each pair flies forwards, 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. While head-up, P#1 and P#2 then become the leading pair and fly backwards, crossing through the Sidelines, followed by P#3 and P#4. Each pair, one after the other, then performs one-half inface Reverse Eagle, crossing through the Sidelines again, to head-down. Each pair then 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. P#1 and P#2 then become the leading pair and fly forwards through the Sidelines, followed by P#3 and P#4.

### M-5 Head-down Shuffler

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, then P#4, passes through the centre 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, then P#4, passes through the centre into 180° of inface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. P#1 and P#2 then become the leading pair and fly forwards through the Sidelines, followed by P#3 & P#4.

### M-6 Head-up Shuffler

While head-down, each pair flies forwards, crossing through the Sidelines, performing one-half back loop to head-up. While head-up, 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, then P#4, passes through the centre 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, then P#4, passes through the centre into 180° of inface carving, with P#1, then P#3, crossing a Sideline and P#2, then P#4, crossing the other Sideline. P#1 and P#2 then become the leading pair and perform one-half inface Reverse Eagle, crossing through the Sidelines, to head-down, followed by P#3 and P#4. Each pair then flies forwards crossing through the Sidelines.

### M-7 Mixed Shuffler

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, then P#4, crosses through the Sidelines 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, then P#4, crosses through the Sidelines and performs 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 and P#2 become the leading pair and fly backwards through the Sidelines, followed by P#3 and P#4. Each pair, one after the other, then performs one-half inface Reverse Eagle, crossing through the Sidelines, to head-down. P#1 and P#2 fly forwards, crossing through the Sidelines, followed by P#3 and P#4.

### M-8 Head Down inface Shuffler

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, then P#4 passes through the centre (completely crossing the Centreline) into 180° of inface carving, with P#1 followed by P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. Continuing the Shuffler, P#1, then P#2, then P#3, then P#4, passes through the centre (completely crossing the Centreline) into 180° of inface carving, with P#1 followed P#3, crossing a Sideline and P#2 followed by P#4, crossing the other Sideline. P#1 and P#2 then become the leading pair and fly forwards through the Sidelines, followed by P#3 and P#4. Thence...

### Compulsory Transition to any Snake or Compulsory Exit Sequence:

#### To transition to a Head-down Snake or Head-down Compulsory Exit Sequence:

Each pair, one after the other, performs one-half outface Eagle with one-half back loop, crossing through the Sidelines, to head-down, ending with each Performer head-down completely on his/her side of the Centreline, right after his/her half back loop. While head-down, each pair then inface carves, crossing a Sideline, before starting any Head-down Snake or Head-down Compulsory Exit Sequence.

#### To transition to a Head-up Snake or Head-up Compulsory Exit Sequence:

Each pair, one after the other, performs one-half outface Eagle, crossing through the Sidelines, to head up, ending with each Performer completely on his/her side of the Centreline. While head up, each pair then flies backwards through the Sidelines, before starting any Head-up Snake or Head-up Compulsory Exit Sequence.

### Head-down Compulsory Exit Sequence

While head-down, P#1, followed by P#2, then P#3, then P#4, will inface carve towards the Performers' right, completely crossing the Centreline, then the Start Sideline before exiting the flight chamber from the far side, while maintaining sequential order.

### Head-up Compulsory Exit Sequence

While head-up, P#1, followed by P#2 then P#3, then P#4, will inface carve towards the Performers' left, completely crossing the Centreline, then the Start Sideline before exiting the flight chamber from the far side, while maintaining sequential order.

## D2W MIXERS, TRANSITION AND EXIT

### M-1 Head-down Inface Circles

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 forwards, crossing through the Sidelines.

### M-2 Head-up Inface Circles

While head-down, the two (2) Performers, as a pair, fly forwards, crossing through the Sidelines, performing 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. 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 forwards, crossing through the Sidelines.

### M-3 Mixed Circles

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 forwards, crossing through the Sidelines, and then perform 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 backwards crossing through the Sidelines. The pair then performs one-half inface Reverse Eagle, crossing through the Sidelines, to head-down. The pair flies forwards, crossing through the Sidelines.

### M-4 Reverse Mixed Circles

While head-down, the pair flies forwards, 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 backwards, 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 forwards, crossing through the Sidelines.

### M-5 Head-down Shuffler

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 centre (completely crossing the Centreline) 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 centre (completely crossing the Centreline) 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 forwards through the Sidelines.

### M-6 Head-up Shuffler

While head-down, the two (2) Performers, as a pair, fly forwards, crossing through the Sidelines, performing 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 centre (completely crossing the Centreline) 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 centre (completely crossing the Centreline) 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 forwards, crossing through the Sidelines.

### M-7 Mixed Shuffler

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, crosses through the Sidelines, while performing one-half inface Eagle to head-up and then performs 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, crosses through the Sidelines and then performs 180° of outface carving, with P#1, crossing a Sideline and P#2 crossing the other Sideline. Joining as a pair, the Performers fly backwards through the Sidelines. The Performers then perform one-half inface Reverse Eagle, crossing through the Sidelines, to head-down and then fly forwards, crossing through the Sidelines.

### M-8 Head down inface Shuffler

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 centre (Completely crossing the Centreline) into 180° of inface 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 centre (Completely crossing the Centreline) 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 forwards through the Sidelines. Thence..

### Compulsory Transition to any Snake or Compulsory Exit Sequence:

#### To transition to a Head-down Snake or Head-down Compulsory Exit Sequence:

The pair then performs one-half outface Eagle with one-half back loop, crossing through the Sidelines, to head-down, ending with each Performer head-down completely on his/her side of the Centreline. 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 or Head-up Compulsory Exit Sequence :

The pair then performs one-half outface Eagle, crossing through the Sidelines, to head-up, ending with each Performer completely on his/her side of the Centreline. While head-up, the pair then flies backwards through the Sidelines, before starting any Head-up Snake or Head-up Compulsory Exit Sequence.

### Head-down Compulsory Exit Sequence

While head-down, P#1, followed by P#2, inface carves towards the Performers' right, completely crossing the Start Sideline before exiting the flight chamber from the far side, while maintaining sequential order.

### Head-up Compulsory Exit Sequence

While head-up, P#1, followed by P#2, inface carves towards the Performers' left, completely crossing the Start Sideline before exiting the flight chamber from the far side, while maintaining sequential order

**ADDENDUM – A4**  
**SOLO SPEED DIVE POOL**  
**PERFORMANCE REQUIREMENTS & JUDGEMENT CRITERIA**

### Lines

- Head Down Switching Snake
- Head Up Inface Snake
- Head Up Switching Snake
- Head Up Mixed Snake
- Head Down Inface 360
- Head Up Inface 360
- Mixed Head Down Snake

### Verticals

Make sure you are on the correct side of the centre line before you begin the vertical. You will be in flyer 1 position in the D2W rules

- Back Layout
- Bottom Loop
- Classic
- Butterfly
- Bottom Loop 360 (Head Down 360)
- Half Barrel Roll 180
- Layout 360 (Head Up 360)

### Mixers

Make sure you are on the correct side of the centre line before you begin the mixer. You will be in flyer 1 position in the D2W rules for the first mixer and then you cross the centre line to be in flyer 2 position for the second mixer.

If you finish in head down after the first mixer, the connecting move will be a bottom loop (finish the bottom loop before crossing the centre line) and then you may need to do a second bottom loop if the next move starts in a head down position.

If you finish head up after the first mixer and start head down you need to connect with a bottom loop (you need to be head down before crossing the centre line).

- Head Down Inface Circles
- Head Up Inface Circles
- Head Down Shuffler
- Head Up Shuffler
- Mix Shuffler
- Mixed Circles
- Reversed Mixed Circles

## **ADDENDUM B**

### **BASIC ORIENTATIONS, ROTATIONS AND PATHWAYS**

#### **A. ORIENTATIONS**

There are six (6) basic orientations (not including diagonal orientations) which a body can have 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 ceiling).

##### **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 ceiling). 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.

#### **B. ROTATION AXES**

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

##### **B-1. Wind Axes**

There are two 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 ceiling 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 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 travelled 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 travelled 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. For example, a Spinning Egg is 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 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° 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 may follow, which can be performed either in-facing or out-facing. Circular pathways may have embedded moves (e.g. Bottom Loop) or intermixing of Performers.

**Inface** The front of the torso faces inward towards the concave side of the pathway, usually, but not always, towards the centre 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 in-facing). An Eagle may begin from any orientation in this progression. A Half Eagle is when the Performer has travelled head first through 180° of vertical orbiting. A Full Eagle is when the Performer has travelled 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 in-facing). A Reverse Eagle may begin from any orientation in this progression. A Half Reverse Eagle is when the Performer has travelled feet (or tail-bone) first through 180° of vertical orbiting. A Full Reverse Eagle is when the Performer has travelled feet (or tail-bone) first through 360° of vertical orbiting.

**ADDENDUM C****DIFFICULTY**

**“Difficulty” is the combined result of several factors. The overall performance of the Flights (moves, patterns and transitions) counts for Difficulty. In general, Difficulty factors are:**

Easier	More Difficult
High drag moves flown with slow tunnel speed	High drag moves flown with fast tunnel speed, the longer duration of high drag move(s), the more difficult
Low drag moves flown with fast tunnel speed	Low drag moves flown with slow tunnel speed, the longer the duration of the low drag move(s), the more difficult
Moves executed individually	Moves executed in a connected sequence
Body position lost during move(s)	Ideal body position maintained throughout move(s)
Random Movements	Precisely choreographed movements
Move(s)/Pattern(s) without elements of precision	Move(s)/Pattern(s) with elements of precision. Eg. Head-to-head with no other grips
Easy natural body positions	Awkward body position and/or grip(s), such as a hand grip on one's own foot with that grip behind
Move(s) do(es) not require flexibility	Move(s) require(s) flexibility
Move(s) do(es) not require strength and power	Move(s) require(s) strength and power
Basic, simple Move(s)/Pattern(s)	Move(s)/Pattern(s) require(s) long learning progression
Performing previously seen Move(s)/Pattern(s)	Performing brand new Move(s)/Pattern(s)
Rotations on 1 axis	Rotations on more than 1 axis (in which use of 3 axes is more difficult than use of 2 axes)
Slow flying in close proximity	Fast flying in very close proximity
Performing moves, carving/rotating always in a preferred direction	Performing moves, carving/rotating in both directions
Performer(s) flying in clean airflow	Performer(s) flying across burble of other Performer(s) and/or doorway
Fast transitions through burble(s) of other Performer(s) and/or doorway	Performer(s) remaining in burble(s) of other Performer(s) and/or doorway for extended time
All Performers flying in same direction and pathway (carving, vertical orbiting, etc)	Performers simultaneously flying different directions and pathways, intermixing (while carving, vertical orbiting, etc)
Carving/Vertical orbits without embedded move(s)	Carving/vertical orbits with embedded move(s)
Transitions between Moves/Patterns with same axes	Transitions between Moves/Patterns with different axes at a precise heading/orientation
No direction change	Reversal of direction at a precise heading/orientation
Complex Moves/Patterns using arms and legs to control flying	Variety of complex Moves/Patterns without using arms or with arms and/or legs in fixed pose or in creative, artistic gestures
Eye Contact with other Performer(s)	No eye contact (blind) with other Performer(s)
Landing on the cable floor to exit and end routine	Landing exactly in the doorway with a complex move to exit and end routine

Combinations of multiple factors further increase difficulty. Teams are not expected to demonstrate all of the above difficulty factors within one routine. A difficulty factor may sometimes have the opposite effect of making a Move/Pattern easier. Eg. Retracting the arms keeping them fixed to the body may