

# World and Continental Helicopter Championships

## Chapter 2

### Event Rules and Regulations

#### Event 1 - Long Navigation with Timed Arrival and Load Drop Off

##### 1.1 Event Description.

Event 1 is a Timed Arrival with Load Drop Off and Long Navigation.

Event 1 will include a long navigation course; on-route search zone on second or third leg; aerial drop zone between exit of search zone and MFO 2; timed arrival at Line “A”; manoeuvring box between Line “A” and Line “F”; a load drop off at Line “C”; and end-of-event landingzone.

##### 1.1.1 Course Length.

The route, including identification of panels will be 90 - 120 kilometres.

##### 1.1.2 Flight Height:

The route and the mandatory points will be flown at a height of + / - 250 metres AGL, except for the turning points. The turns at the “orange triangles” will be flown in accordance with the drawing, Annex 1.0, at a height of 50 metres. Mandatory Points must be clearly marked.

##### 1.1.3 Flying Time:

Identical for all competitors of the same helicopter type. The flying time will be computed by the organizers based on the speeds defined in para 15.10 of the Chapter 1 listed by type in Appendix A .

##### 1.1.4 Navigational Course.

The long navigation course will include 6 legs; three (3) Turning Points (TPs) and two (2) Mandatory Fly Over (MFO) points.

LEG	FROM	TO
1st Leg	Line “D”	MFO 1
2nd Leg	MFO 1	TP1
3rd Leg	TP 1	TP2
4th Leg	TP2	TP3
5th Leg	TP3	MFO 2
6th Leg	MFO 2	Line “A”

1.1.5 TP1, TP2 and TP3 will be identified on the ground by orange 2 x 2 metres triangular panels with black numbers on them. The competitor must identify each sign at its specific location.

1.1.6 At TP1, TP2 and TP3 plus search zone entry and exit gates markers shall be overflown at 50 metres AGL height. Intermediate time will be recorded at TP1, TP2 and TP3, for control purposes only.

1.1.7 MFO points must be clearly marked and identified to crews during the briefing.

## 1.2 Start Time.

Start times will be given in exact minutes and seconds.

There are penalties for early and late departure. During the event briefing each crew will receive the time the helicopter has to be at Preparation Line and the exact departure time the helicopter has to pass the Line D. Departure Time will be as appropriate to ensure proper aircraft separation.

1.3 Ten (10) minutes before departure time the helicopter will come to the preparation line (Line “P”). At the preparation line, the Organizers/designated event official will give to the crew, the skittle with rope attached, and two (2) numbered fabric bags (filled with rice weighing 1 kilo each).

1.4 The helicopter will then move to and land in front of the Departure Line (Line “D”). A sealed envelope containing the Competition map and instructions will be given to the crewmember at Line “D” exactly 5 minutes before the scheduled departure.

The envelope must be retained for handing in results at the end of the event. All helicopter doors must be fitted.

1.4.1 The sealed envelope will contain the following information:

- + The flying time for the event from Line “D” to Line “A” will be stated on the outside of the envelope.
- + The elapsed time from scheduled departure to arrival at the search zone exit in accordance with 15.10 of the Chapter 1 and the distance.
- + The route heading to be followed from the departure line to the first MFO.
- + Geographical position of TP1 and TP3, in latitude and longitude.
- + Schematic of the search zone.
- + The Competition map with the following information indicated:
  - The position of MFO 1 and MFO 2
  - The position of TP 2
  - The location of the targets for the rice bags
  - The search zone
  - The entry and exit gates of the search zone
  - Target panel locations

1.4.2 No other map will be allowed on board during this event.

## 1.5 Departure Line.

The helicopter will depart Line “D” on its given departure time. Early or late departures receive 200 penalty points.

## 1.6 Search Zone.

The search zone will include ten (10) 3 x 2 metre orange panels, on which black letters or signs will be painted. The entry and exit gate will be marked on the ground by one metre wide and 15 m long white stripes, with the I ( in ) and O ( out ) orange panels in the centre space of five ( 5 ) metres. The competitor must identify each sign at its specific location. The elapsed time from the scheduled departure to the search zone exit will be stated in the envelope to ensure proper aircraft separation.

Penalty points will be incurred for not vacating the search zone on time, and for not entering or exiting the search zone correctly. The panels must be placed in such a manner that the distance covered to overfly all search zone panels is less than 10 nautical miles (18.5 km).

#### 1.7 Leg TP3 to MFO 2.

The helicopter will be flown from TP3 to MFO 2 in a straight line.

#### 1.8 Enroute Drop Zone.

After passing search zone exit and before MFO 2 in a determined drop zone, the competitor will drop a rice bag on each of the two five (5) metre diameter target circles, which are marked on the ground and 100 metres apart in the direction of flight.

1.8.1 Dropping the rice bags will be performed at a height of not less than ten (10) metres AGL and at a minimum ground speed of 30 kph.

1.8.2 The time elapsed between the first and second bags touching the ground shall not exceed 12 seconds. The compulsory target order is "Target One" then "Target Two".

1.8.3 Hovering at drop points is forbidden incurring a penalty.

1.8.4 Where the rice bag stops will be considered the impact point for scoring purposes.

Measurement of distance from circle to bag will be the shortest distance from any part of the bag to the outer edge of the circle.

#### 1.9 Leg MFO 2 to Line "A".

The helicopter will be flown from MFO 2 to Line "A" in a straight line.

1.9.1 The descent will start progressively in the last 3 kilometres, in order to pass vertically overhead the Line "A" at a height of 30 +/- 15 metres AGL, to determine the arrival time.

1.9.2 Any change in direction of more than 30 degrees, and / or ground speed less than 30 kph during the last two (2) kilometres to the Arrival Line "A" will result in a 15 point penalty per infringement.

1.9.3 The landing light must be on for the final two (2) kilometres.

#### 1.10 Arrival Line "A".

Line "A" will be identified on the ground by one (1) metre wide and two 15 metre long stripes, with a blank center space of five (5) metres.

#### 1.11 Determining Arrival Time.

The time will stop when the nose of the helicopter crosses Line "A" or its extensions to left or right side. Arrival time will be based on the corresponding flying time initially determined (prior to the event) for the helicopter category. ( see 1.1.3 ).

#### 1.12 Manoeuvring Box Line "A" to Line "F".

After crossing Line "A", the helicopter will then enter a rectangular box.

- 1.12.1 All competitors will perform turns in the box in the direction assigned during the pre-event briefing (see drawing, Annex 1.0 ).
- 1.12.2 This is a timed manoeuvre. Imposed flight time between line “A” and line “F” will be 1 minute to complete this manoeuvre. Time begins when the nose of the helicopter crosses Line “A” and stops as the nose of the helicopter crosses Line “F”.
- 1.12.3 The descent will take place inside a rectangular frame, including 3, + or - 90 degrees turns. The rate of descent between “A” and “F” must be constant. Any hovering between Lines A and F will be penalized for each infringement.
- 1.13 Line “F”.
- The helicopter will pass Line “F” at a height of 15, +/- 5 metres . Passing Line “F”, the competitor will continue in a straight line to reach the 45 degree target (Dog House) positioned 50 metres after line “F” ( see drawing, Annex 1.0 ) to put down the load.
- 1.14 Dog House and Load Put Down.
- The target (see drawing, Annex 1.1) is composed of two white 2 x 2 metre panels, assembled at an angle of 90 degrees, resting on the ground and forming two 45 degree angles. The load-receiving hole is a 0.4 x 0.4 metre square, the centre of which is one metre above the ground. Only the hole facing the arrival direction will be valid for scoring.
- 1.14.1 The crew member will, after crossing Line “F”, deploy a rope (see drawing, Annex 1.1) seven (7) metres long, on the opposite side to the pilot, at the end of which a bowling skittle will be attached.
- 1.14.2 This is a timed manoeuvre. Maximum time between Line “F” and releasing the rope is 20 seconds.
- 1.14.3 The rope must be fully extended and free of knots prior to crossing the line five (5) metres short of the dog house. Hovering between Lines “F” and “C” is permitted.
- 1.14.4 The rope must remain held at a grip at its end by the crewmember who must have both hands visible to the judges.
- Manoeuvring of the rope is allowed provided the rope is not shortened by any part of the body below the upper ball.
- 1.14.5 The crewmember will remain fastened and seated on his seat at all times.
- 1.14.6 The crew must put the skittle down into the square hole without touching the surface of the doghouse releasing the rope as soon as the exercise is finished. The doghouse open sides are not part of the roof. Time stops when rope is released.
- 1.14.7 If the skittle is dropped in the box, penalty points will be incurred for every tenth of a second above 20 seconds from Line “F”. A skittle dropped outside box incurs 200 penalty points.

### 1.15 Landing Zone.

A 10-metre landing zone next to the Dog House will be designated for the competitor to handover the envelope.

1.15.1 The Landing Zone is positioned at a safe distance from the Dog House (approx. 25 - 30 metres). Competitors who do not land in the Landing Zone receive 50 penalty points (see infringements).

1.15.2 Immediately after landing in the Landing Zone, the crew member hands to the Judge, the envelope containing the identification sheet for the ten panels and turning points and the competition navigation map. The competitor's competition number and name will be clearly featured on the outside of the envelope, on the map and on the identification sheet.

### 1.16 Black Flag / Disqualification.

A competitor will be given a black flag during the event if any of the following situations should occur:

1.16.1 All communications are strictly forbidden before, during and after the task, and will result in the disqualification of all crews involved. This will be enforced by Judges/Event Officials, especially for crews sharing the same helicopter.

1.16.2 A black flag will be shown at Line "A" when a competitor is more than 200 seconds early or late on his given time of arrival. Over 200 seconds, the competitor may be waved off and should vacate the vicinity of Line "A" immediately to avoid conflict with the next aircraft, and return directly to the landing zone.

1.16.3 If the rope is caught on the helicopter as it departs pulling or dragging the Dog House, this will be considered as unsafe flying.

1.16.4 For any flight violation and/or unsafe flight manoeuvre / act during the event including aircraft movement to and from the aircraft parking area, i.e., parking area to the preparation line or from the landing zone to aircraft parking area.

### 1.17 Tie Breaker.

If there is a tie for a place, the crew with the most accurate arrival time at Line "A" will be the winner. Should these time be the same, then the shortest time between "F" and "C" will be used to determine the place.

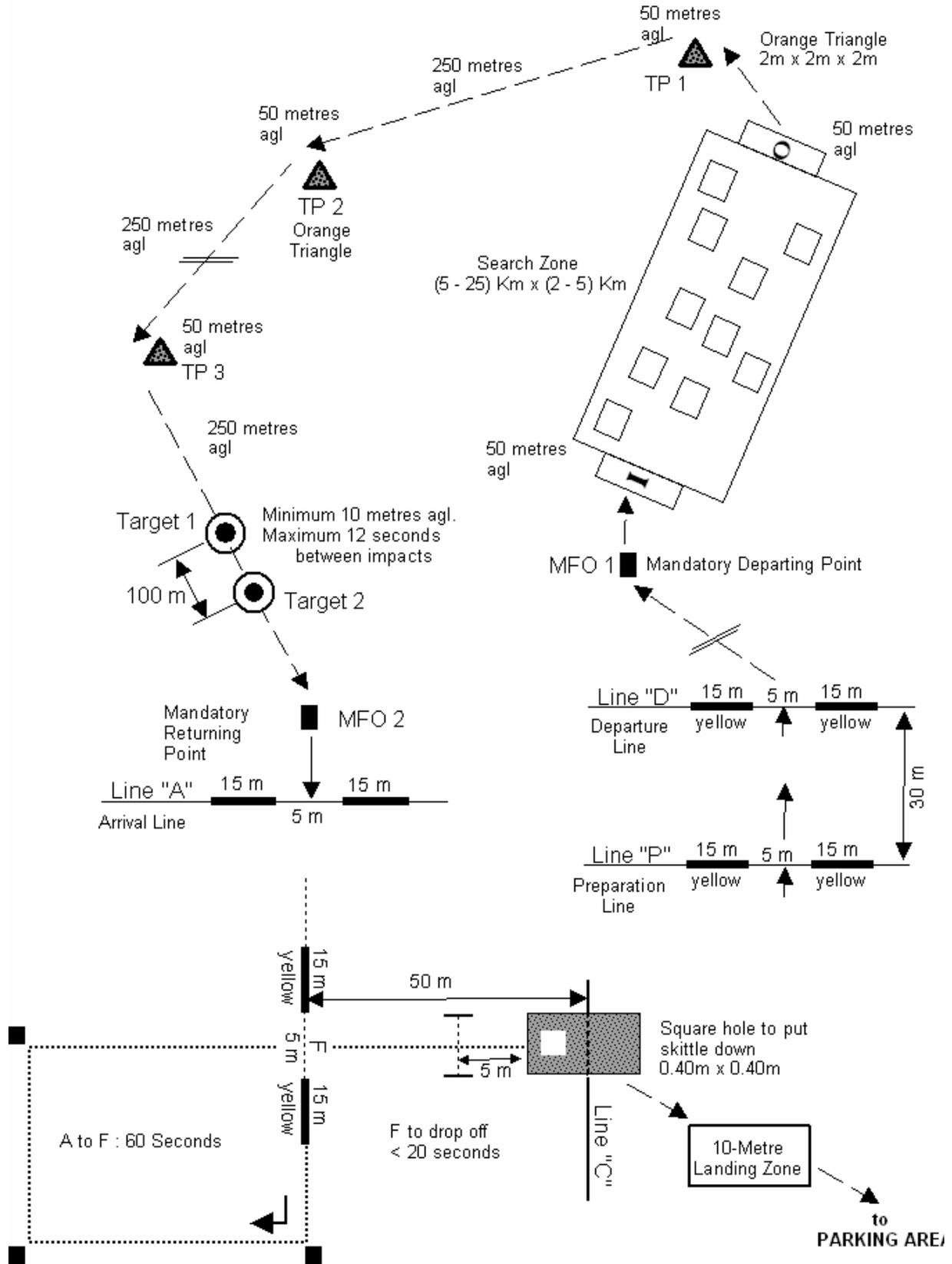
### 1.18 Scoring.

$400 - P = \text{Score}$ . Score is determined by subtracting the Penalty Points from 400. The minimum score achievable is zero.

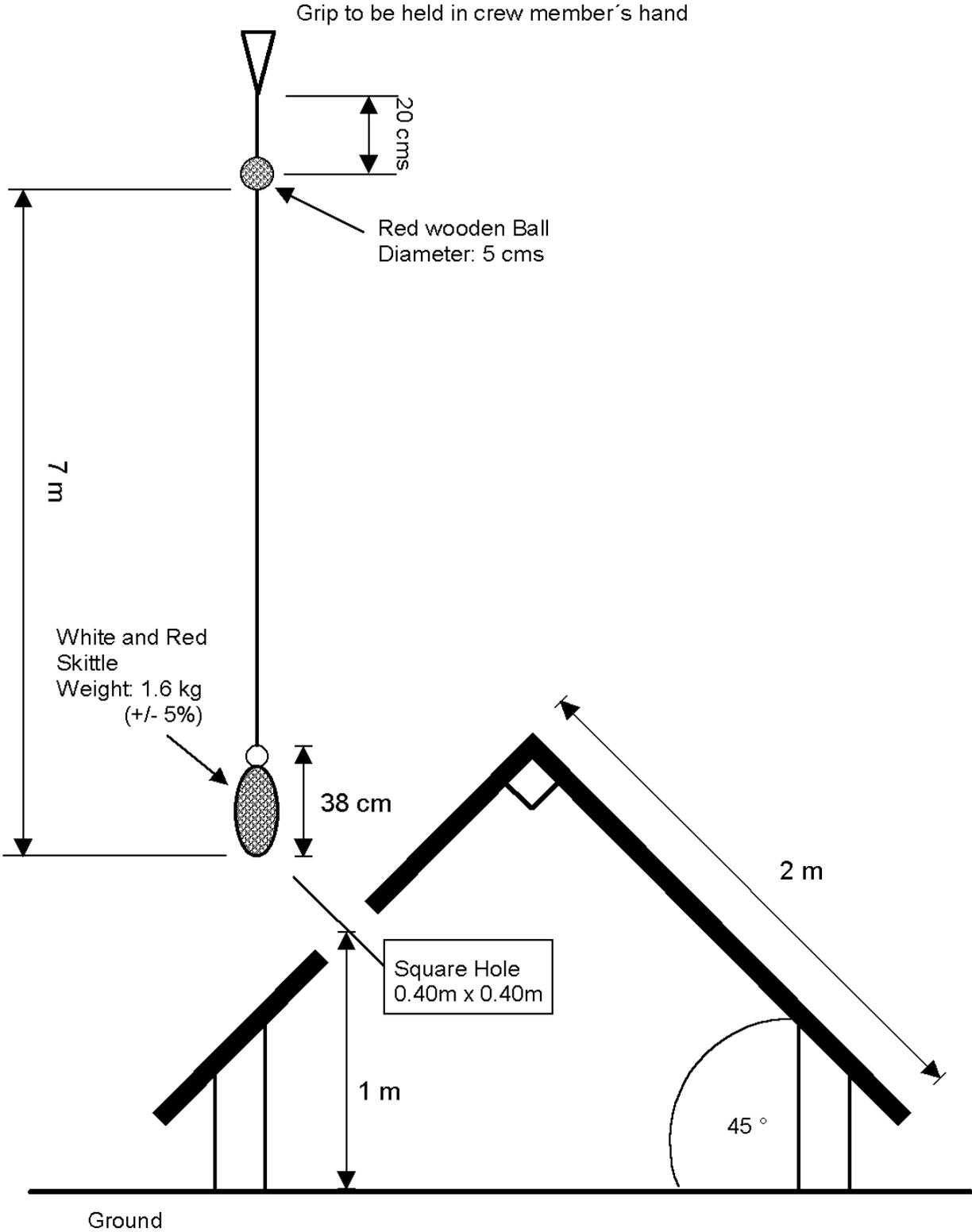
## SCORING – EVENT No. 1 ( Long Navigation )

EVENT 1 INFRINGEMENTS	PENALTY POINTS
Early departure from Line “D”	200
Not departing Line “D” within 10 seconds of Departure Time	50
Not departing Line “D” within 15 seconds of Departure Time	200
Each missed or not identified number of Turning Point	50
Entry outside the gate to the Search Zone (not using the Entrance Gate)	20
Exit outside the gate of the Search Zone (not using the Exit Gate)	100
Each Target/Panel in Search Zone missed or incorrectly identified	15
Each tenth of a second late in exciting the Search Zone (maximum 100 points)	0.1
Each tenth of a metre out of the target circle. Maximum 30 points per bag.	1
All measurements will be rounded up to the next full tenth of a metre.	
Violation of the minimum dropping height	20
Violation of the minimum dropping speed. More than 12 seconds between bag Impacts	20
Failure to drop a bag	30
Bags dropped in the wrong order	35
Each change of course more than 30 degrees during the last 2 km before Line A	15
Ground Speed less than 30 kph during the last 2 kilometres before Line “A”	15
Missing Line “A“( crossing Arrival Line outside given dimensions of 35 metres )	20
No landing light “ON” during the last 2 kilometres before Line “A”	5
Hovering ( no visible or measurable forward motion ) at Drop Point, or during the last 2 kilometres before Line “A”	50
Each tenth of a second early or late on Line “A”	0.1
Late arrival over 200 seconds at Line “A”	400
Each tenth of a second early or late on Line “F”	0.1
Each tenth of a second more than 20 seconds between Line “F” and Line “C”	0.1
Each hovering event ( no visible or measurable forward motion ) between Line “A” and “F”	50
Each contact of the skittle with the ground between Line “F” and Line “C”	15
Crew not remaining seated or fastened (both hands and legs not visible)	50
Rope shortened, or has knots, or handled below ball	50
Rope not deployed 5 metres before the dog house	20
Each touch of the skittle on the Dog House roof	3
Skittle dropped outside the Dog House Box	200
Unsafe flight manoeuvre, violation or act before, during or after the event	400
Not Landing in the 10 Metre Zone	50

**Annex 1.0 - Event 1 Example of the Navigational Course**  
**NOT DRAWN TO SCALE**

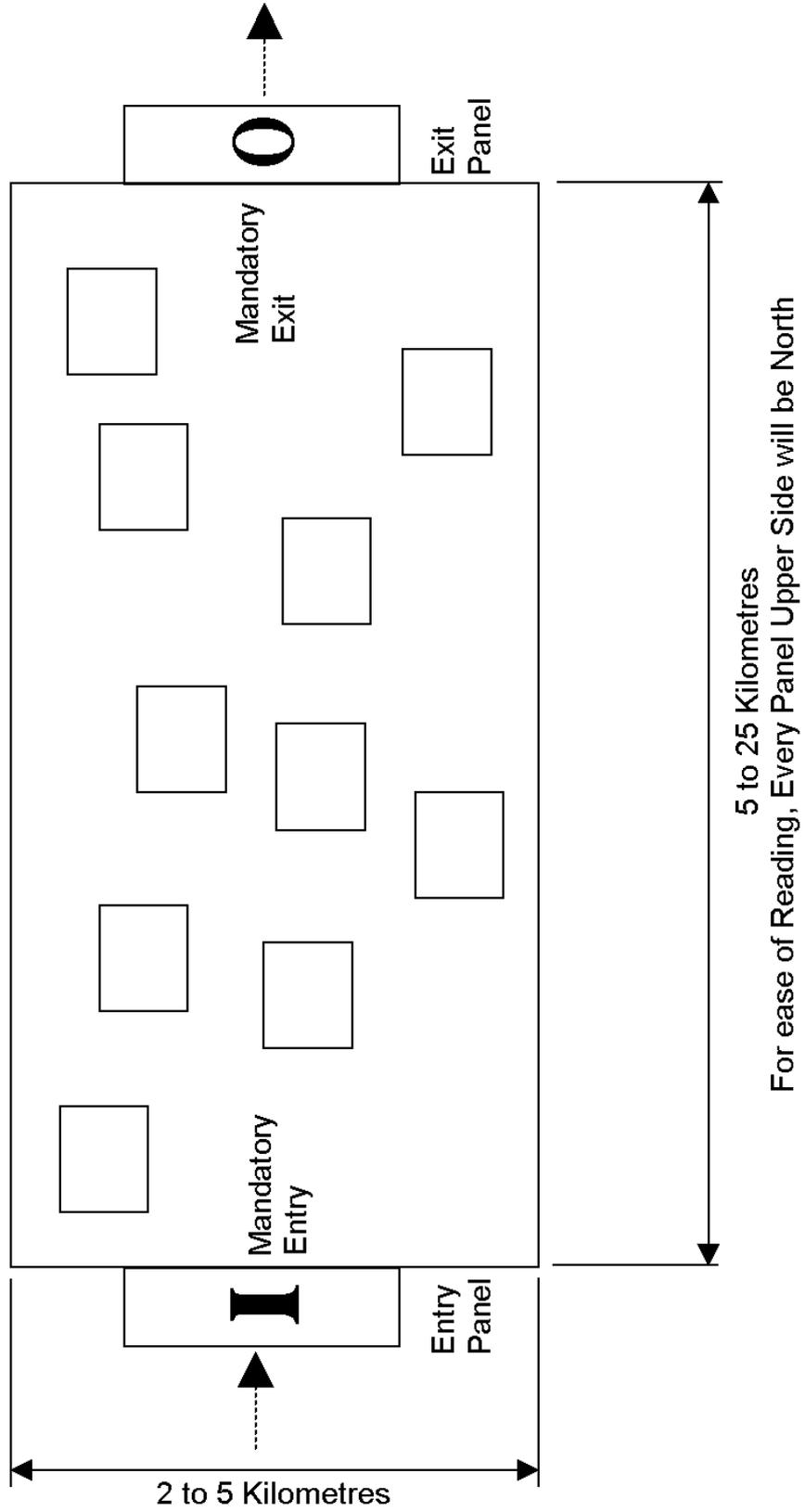


**Annex 1.1 - Event 1 Dog House and Load Put Down**



**Annex 1.2 - Event 1 - Search Zone Details**

Details of the Search Zone  
Examples of a Schematic given to the Competitors



Annex 1.3 - Event 1- Type of Panel to be used



Letters and Signs will be Black on Orange Panels.  
Size, 3 Metres Wide and 2 Metres High.

# World and Continental Helicopter Championships

## Chapter 2

### Event Rules and Regulations

#### Event 2 - Precision Flying

- 2.1 The event requires constant height, low level flying with manoeuvres on a course, of which the basic parameters are known with the details made public by the Organizer only on registration day. The course dimensions and turning corners are drawn randomly as described in Annex 2.0. The choices are listed in 2.22
- 2.2 The helicopter will be flown with all doors on and closed. Arched cockpit doors certified by the manufacturers may be used. Special window bubbles in cockpit doors may not be fitted.
- 2.3 The crew member must stay within the helicopter, on his seat and in the normal position. He will not be allowed to fly the helicopter except in case of absolute emergency which will result in disqualification. A third crew member will be accepted if required by the Operator Flight Manual. In this case provisions must be made for a Judge to be carried.
- 2.4 The competitor will fly the ground marked course, maintaining a constant heading and keeping the aircraft centreline parallel with Lines A/B and C/D and perpendicular to lines B/C and D/A, at a height ranging from 2 to 3 metres.
- 2.5 Flight Height Control: Two ropes will be attached by the Organizer, the shortest one attached to the aircraft fuselage under the pilot's seat, the longest attached to the skid opposite to the pilot side, as far as possible from the first rope (see drawing, Annexes 2.2 and 2.3). The rope lengths are approximately 2 metres for the first rope and exactly 3 metres for the second rope being measured from the lowest point of the undercarriage (skid or wheel) to the lowest end of the weights. Depending on the type of helicopter it is mandatory that the difference between the lower weight and the upper weight is one metre.
- 2.6 The course is flown keeping the bottom weight on the ground and the top weight off the ground.
- 2.7 The competitor will come to Line P (Preparation).
- 2.8 The Organizer will connect the ropes to attachment points provided by the competitor before the competition. These attachment points are such that when the helicopter is on the ground the ends of both attachment points are just touching the ground. There will be a loop at the end of each attachment point, and each attachment point strong enough to hold a weight of 5 kg.
- 2.9 Judges will check the positioning of the two tape markings, as chosen by the competitor on both sides of the fuselage, or both skids or both wheels.

- 2.10 At the P Line, the Crew are allowed to lift the helicopter into a hover with the crewperson either inside or outside the helicopter to communicate to the pilot the height of the helicopter and the status of the weights. One 360 degree clockwise turn and one 360 degree anticlockwise turn is permitted to ensure the weights are attached safely. The helicopter should then land again. Judges are not allowed to make any indications to competitors during this procedure.
- 2.11 The helicopter will then be landed on Line D. Upon an indication of ready from the pilot and when the course is clear of the previous competitor, the judge will signal the start by dropping a green flag or the use of a suitable indication system.
- 2.12 The violation of corridor limits is defined as when the attachment point of the shortest rope ( 2 meters long ) is outside the corridor limits marked on the ground.
- 2.13 The short rope attachment point should be clearly marked ( with a ribbon for example ).
- 2.14 The course is composed of a rectangle with total distance of 200 metres, measured to and from the midpoints of the corridors, with a 70 metres long oblique extension at 45 degrees to Line A/B. The dimensions of the rectangle will be announced by the Organizer on registration day. (see drawing, Annex 2.0)
- 2.15 The rectangle will feature, on each side of the course, a corridor, having a width of 1 metre, identified by ground markings.
- 2.16 At two corners ( B, C, D, and A ), the competitor will perform a 360 degree turn around the yaw axis, one turn will be clockwise and the other anti clockwise. Each turn must take a minimum time of 15 seconds. If corner A is chosen, the turn will be performed after the rectangle has been flown.  
The Organizer will announce on registration day which two corners the turns will take place, and in which direction the turns will be made.
- 2.17 After passing point A, the competitor will follow the exit corridor, still flying at a constant height and constant heading. At the end of the exit corridor markings and still parallel to reference Lines A/B and C/D the helicopter will land exactly on the arrival line, which will be 5 cm wide and long enough to be visible on both sides of the helicopter by its crew .
- 2.18 The measurement will be from the forward limit of the tapes installed on the helicopter (skids or fuselage) to the nearest limit of 5 cm arrival line. A forward limit of the tape within the 5 cm arrival line counts as 0 cm.
- 2.19 Should helicopter tapes be installed on the fuselage or above ground level, a plumb bob will be used to assist in accurate measurement.
- 2.20 Tapes will be installed on the helicopters during the technical checks.
- 2.21 Corridor and height violations will be recorded in cumulative tenths of a second. Final times will be rounded to the nearest tenth of a second as described in Chapter 1 para 16.13.

### 2.22 Variables for Draw of rectangle size:

- 1) AB & CD = 30 metres, BC & DA = 70 metres
- 2) AB & CD = 35 metres, BC & DA = 65 metres
- 3) AB & CD = 40 metres, BC & DA = 60 metres
- 4) AB & CD = 45 metres, BC & DA = 55 metres
- 5) AB & CD = 50 metres, BC & DA = 50 metres
- 6) AB & CD = 55 metres, BC & DA = 45 metres
- 7) AB & CD = 60 metres, BC & DA = 40 metres
- 8) AB & CD = 65 metres, BC & DA = 35 metres
- 9) AB & CD = 70 metres, BC & DA = 30 metres

### Variables for Draw of Corners:

- 1) B & C
- 2) B & D
- 3) B & A
- 4) C & D
- 5) C & A
- 6) D & A

### Variables for Draw of Direction of 360 ° Turn:

- 1) First turn Clockwise, Second Turn Anti Clockwise
- 2) First turn Anti Clockwise, Second turn Clockwise

### 2.23 Tie Breaker

If there is a tie for a place, the winning crew has the shortest flight time.

### 2.24 Scoring

$300 - P = \text{score}$ . Score is determined by subtracting the Penalty Points from 300. The minimum score is zero.

## SCORING - EVENT No. 2 (PRECISION FLYING)

INFRINGEMENT	PENALTY POINTS
Each tenth of a second above 2' 15" of flight (135 seconds) between Lines D and A *	0.1
Violation of the corridor limits, of the short rope attachment per tenth of a second *	0.1
Each time the bottom weight is off the ground per tenth of a second *	0.1
Each time the top weight touches the ground per tenth of a second *	0.1
Duration of a hovering 360 degree turn shorter than 15 seconds ***	15
For omitting any of the manoeuvres	15
For each occurrence of a change of heading exceeding 30 degrees	10
Landing scale **	1 – 120
Double Landing ( after touching ground with any part – Time Stop – the helicopter rises completely free from the ground before next touch down )	25
Slide Landing ( visible and measurable forward motion or turn of the fuselage - skids , wheels - after first ground contact )	25

\* Rounded to the nearest tenth of a second as in para 16.13 of Chapter 1.

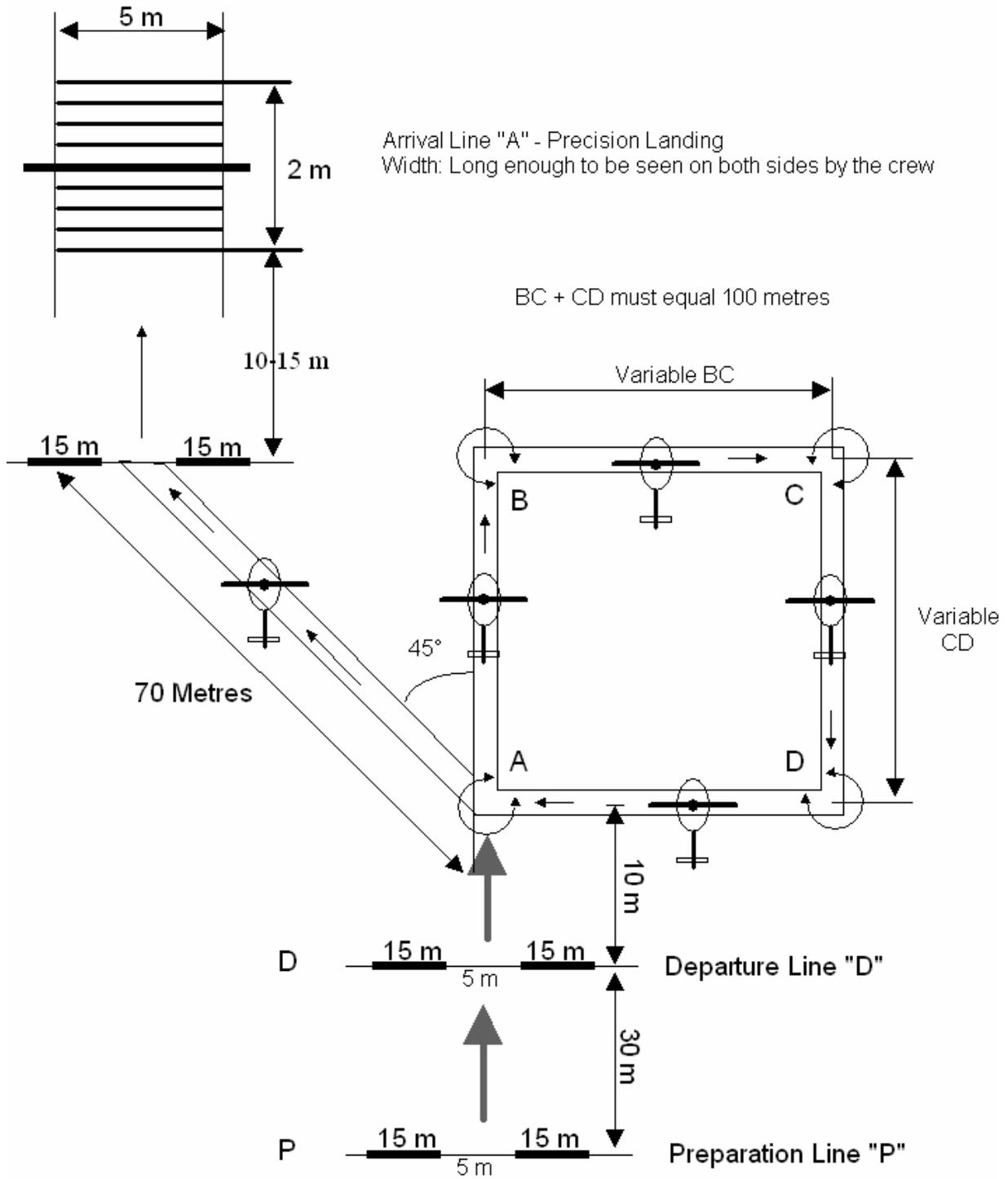
\*\* The distance of each skid from the nearest limit of the 5 cm arrival line is measured in cm and added together using 1 penalty point per cm. 120 points is the maximum penalty. Part of a cm should be rounded up to the next full cm.

\*\*\* i.e., turn duration is 14.94 seconds or less.

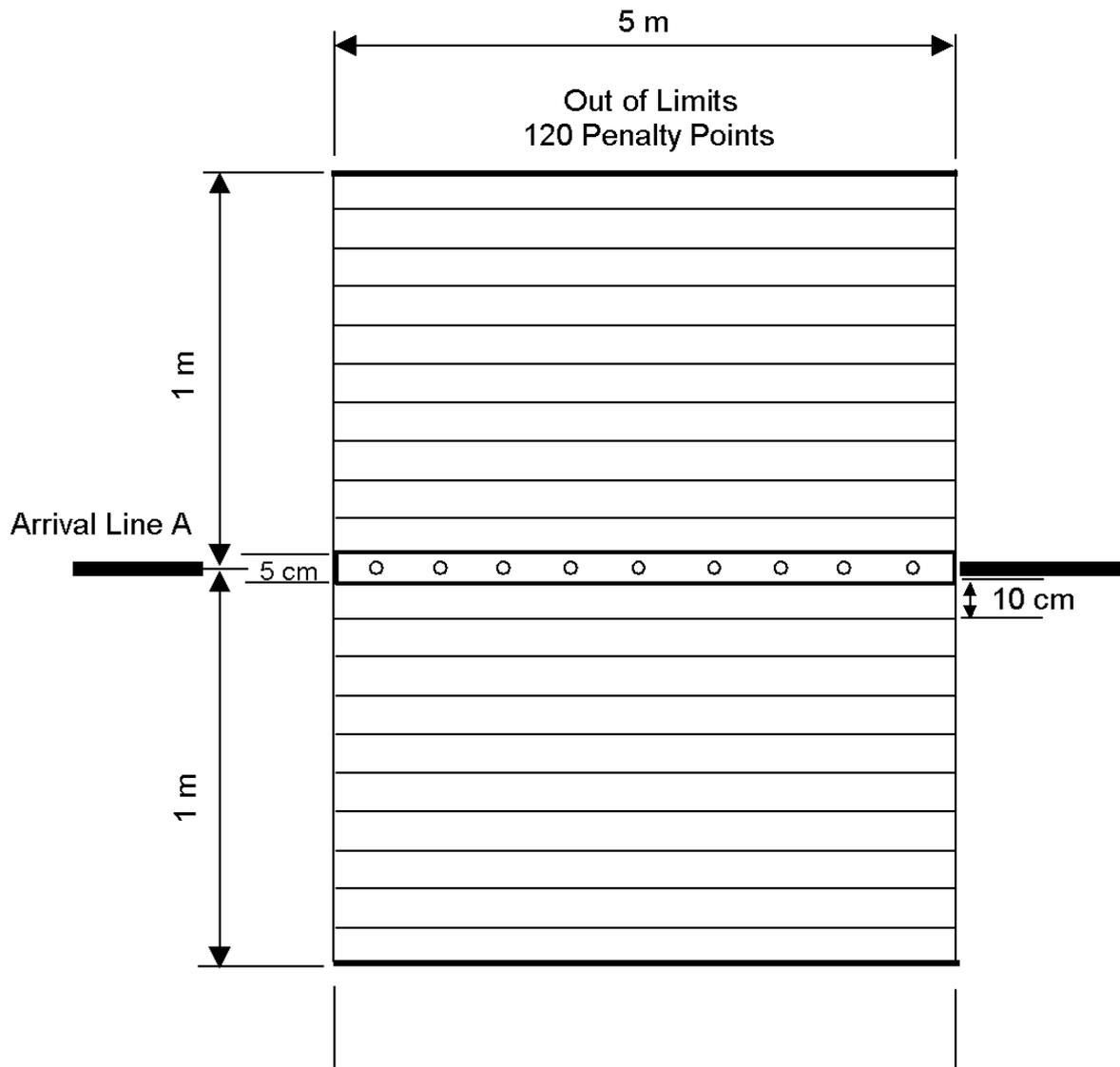
Time stops when the first part of the helicopter landing gear touches the ground

Annex 2.0 - Event 2 - Precision Flying

NOT TO SCALE

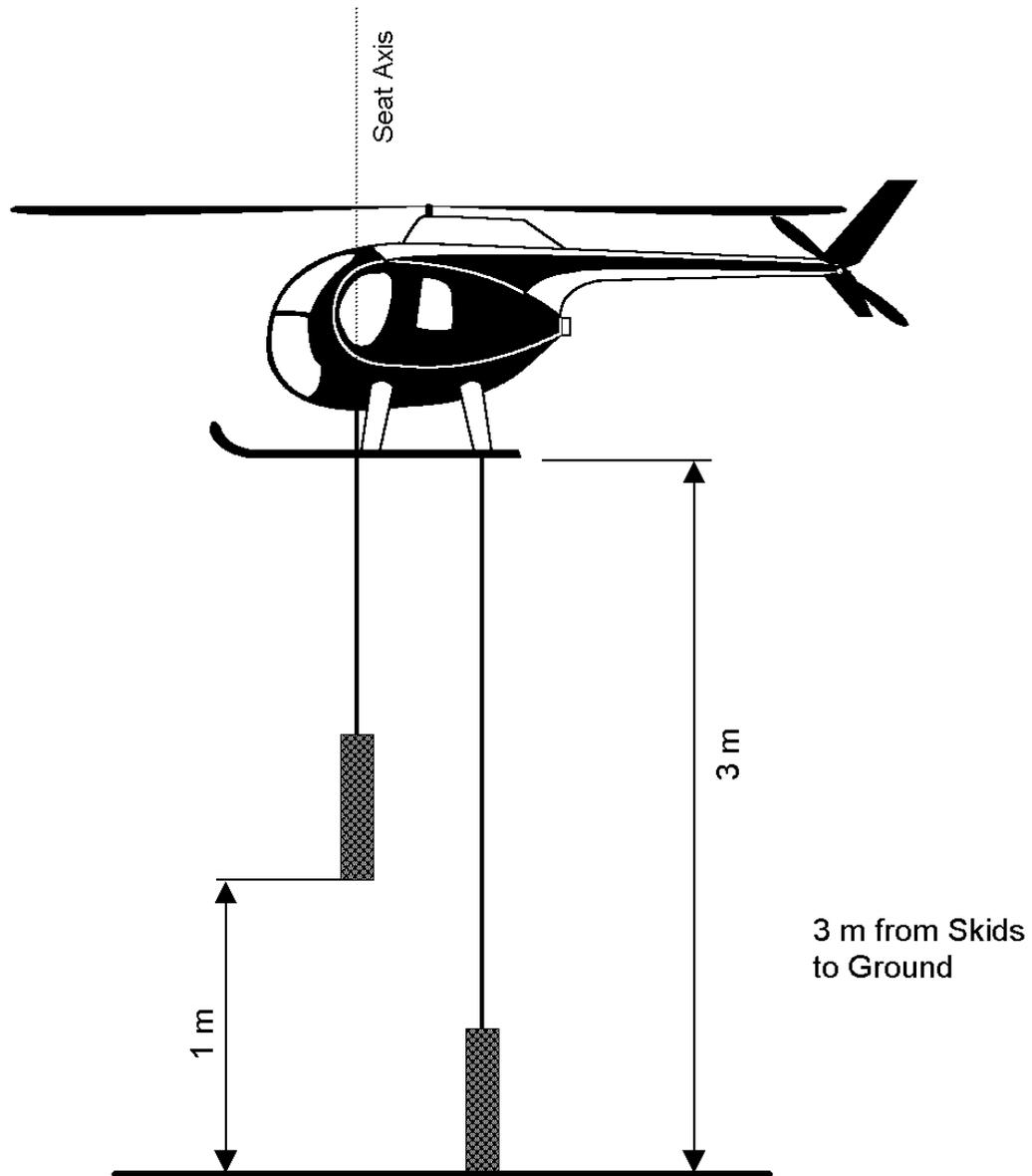


Annex 2.1 - Event 2 - Precision Landing Area



**Annex 2.2 - Event 2** - Length and Attachment of Ropes

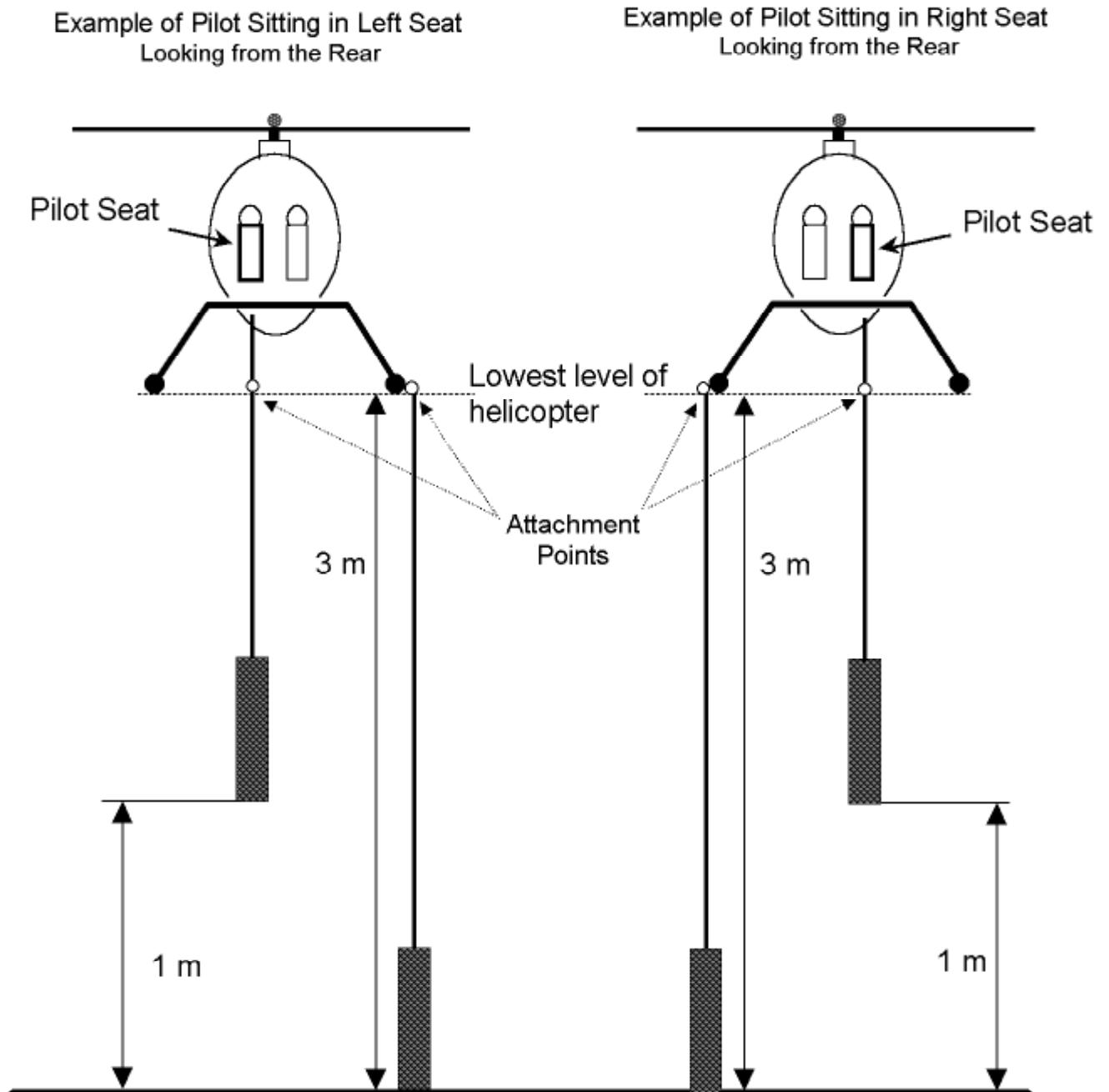
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It is essential to understand that from one helicopter to another, the short rope will differ in size. The objective is to have 1 metre difference between the bottom of the two weights.

The long rope will always be 3 metres. The short rope will vary in order to give one metre difference.

## Annex 2.3 - Event 2



The long rope will always be on the opposite side of the helicopter to the pilot.  
Attachment on skid or wheel.

The short rope will always be under the pilot's seat.  
Attachment on the fuselage.

The fixture for that attachment will be installed by the crew prior to arrival  
at the Preparation Line.

# World and Continental Helicopter Championships

## Chapter 2

### Event Rules and Regulations

#### Event 3 – Fender Rigging

- 3.1 This event requires precise flying with a load ( fender ) and rope lengths of 4, 6 and 8 metres, and a flying time of 30 seconds. The sequence and corresponding rope lengths are decided by the Jury President according Chapter 1 para 9.1 and will be made public at the event briefing.
- 3.2 The helicopter will be configured with a closed door on the pilot's side. Special window bubbles in cockpit doors may not be fitted. Outside mirrors and technical aid such as radio altimeters are not permitted and use will result in disqualification.
- 3.3. The crew will be correctly harnessed. The crew member is in the normal seating position, both legs are to be kept within the cockpit.
- 3.4. During the morning briefing competitors will receive their start time at which the helicopter has to be at the waiting position (preparation line – P-line ).
- 3.5. Once the start position is free, the responsible judge will call the next competitor from the preparation line (P-line) forward to land within the loading square. The helicopter must land in the loading square . An assistant judge will hand the co-pilot the first fender with its rope. The fender will remain outside the helicopter on the ground. The crew member will hold the end of the rope at a grip.
- 3.6. Upon an indication of ready from the pilot (or co-pilot), the judge will signal the start for competitor by dropping a green flag or use of a suitable indication system (Such a system has to be demonstrated to the competitors at the briefing). The competition time starts when the fender passes the departure line.
- 3.7. The pilot will take off from the loading square, and after passing the Gate “D“ ( marked by flags ), fly to the entrance gate. The crew member must manoeuvre the fender through Gate “D” and the entrance gate and into the containers. The pilot will fly in direction of the first container to drop the fender into it. The rope must be fully extended and free of knots prior to crossing the departure line (D-line).  
The rope will remain held at the grip over the ball ( 20 cm below grip ) by the crew member, who must have both hands visible. Manoeuvring of the rope is allowed provided the rope is not shortened by any part of the body below the ball.
- 3.8. Timing of all laps will start when the fender passes the D-line and stops when the crew member has dropped the fender and let go of the rope. After dropping the fender, the pilot must pass over the exit-gate for a landing in the loading square. The nose of the helicopter must cross the exit gate first before the body and tail boom.
- 3.9. Flight time between dropping a rope, flying over the exit-gate and landing in the loading square will not be counted.

- 3.10. After the crew member has received the second fender from an assistant judge in the loading square, the pilot can take off again and fly over Gate“D“ and entrance gate to the second (correct sequence) container to drop off the second fender.
- 3.11. After receiving the third fender, the pilot takes off again from the loading square and overflies Gate “D“ and entrance gate to the third container. The finishing time is stopped when the crew member has dropped the third fender and let go of the rope .
- 3.12. The event is completed by the dropping of the third rope. The helicopter leaves the competition area by passing exit gate and flies to the parking position.
- 3.13. Event 3 total time is a maximum of 30 seconds.
- 3.14. Tie breaker.  
If there is a tie for a place, the winning crew has the shortest total time.
- 3.15 Scoring  
 $300 - P = \text{Score}$ . Score is determined by subtracting Penalty Points from 300. The minimum score achievable is zero.

### Scoring Event No. 3 ( Fender Rigging )

<b>Infringement</b>	<b>Penalty points</b>
For each tenth of a second flown over total times limits (total time is the sum of the three lap times)	0.1
Touching the external sides of the container with the fender: For each touch:	3
Touching the ground with the fender between D- line and container: For each touch:	15
Each fender not dropped into the container or lost en route	80
Fenders dropped in wrong sequence:	30
Crew not staying seated or harnessed:	50
Rope shortened, or has knots, or handled below the ball after passing D-Line ( for each infringement )	30
Rope not extended to full metres or has knots when flying over the D-line ( for each infringement )	20
Overfly of the exit gate – helicopter nose is not first part of helicopter to pass the marked gate or the helicopter does not pass the gate at all for each infringement:	10
Fender not passing the Gate “D”	10
Missing the Entrance-Gate by missing or fender over poles ( for each infringement )	25

Measurements of competition area and equipment (see attached sketch) :

Preparation line "P" : two 10 metre- long lines with 5 metres between the two lines

Loading square: 5 x 5 metres placed 5 metres before the Departure line (D- line)

Departure line "D" : two 5 metre-long lines with 3 metres between the two lines, to be positioned 40 metres after the "P" line.

Entrance Gate : Internal width 1 m, composed of two 2 m high poles, positioned on a line 20 metres after Line "D", but not direct opposite of "D" – Line.

Competition square : 50 x 50 metre square, clearly marked, to be positioned 20 metres after the "D" line.

Three numbered containers : to be positioned in the competition square and filled with water or other heavy material to prevent moving.

Measurement of each container:

Height : less than 1.20 metre

Diameter of container opening: 48 cm +/- 2 cm

Three fenders

Measurement of each fender:

Diameter of the fender is 30 centimetres

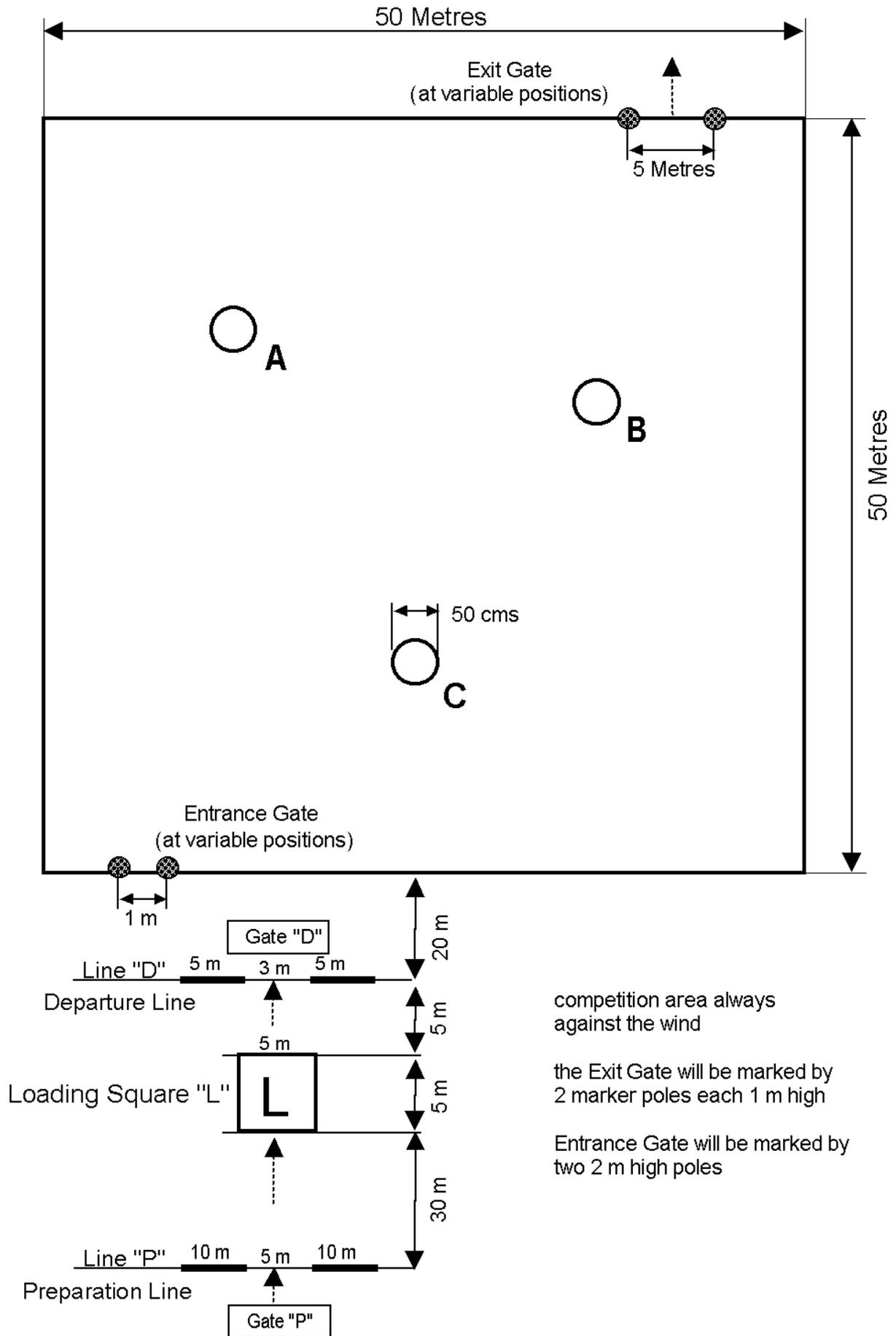
Height : 0,8 metres – 1 metre

Weight of fender (to be achieved by filling with sand or water) : 7 – 8 kg

Length of ropes: 4, 6 and 8 metres from the top of the fender to ball.

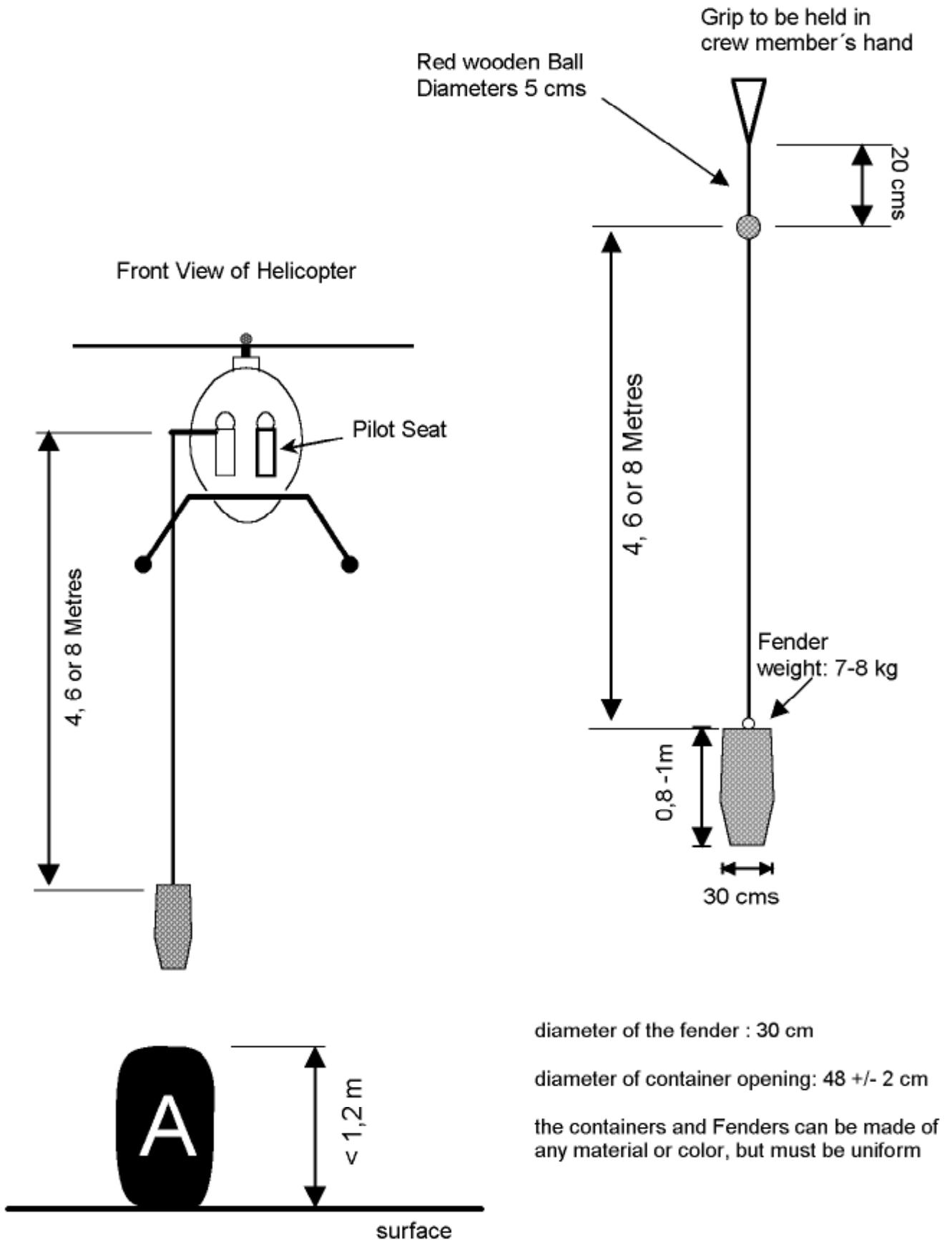
The containers and fenders can be made of any material or colour, but must be uniform.

**Annex 3.0 - Event 3 - Fender Rigging**



### Annex 3.1 - Event 3 - Fender Rigging

NOT TO SCALE



# World and Continental Helicopter Championships

## Chapter 2

### Event Rules and Regulations

#### Event 4 - Slalom and Skill

- 4.1 The Event requires precise flying to manoeuvre a bucket, attached to a rope, through 12 numbered gates setting it final down on a table target. The helicopter will be configured with the pilot's door on and closed.
- 4.2 Flying time limited to 3 minutes and 30 seconds ( 210 seconds ).
- 4.3 The helicopter will come to the preparation line and wait for the previous helicopter to finish.
- 4.4 At a signal, the helicopter will move to land on the Departure line. The Judges / stewards will hand over the rope with the attached bucket filled with water up to a level determined by 9 lateral holes to the rope. The 9 holes will each be of 1cm diameter and the bottom of the holes will be 4 cm from the top of the bucket. ( see drawing Annex 4.2)
- 4.5 The rope will be held by the crew member, sitting on a seat on the side opposite to the pilot, in a normal position and wearing the safety harness. The crew must remain seated. The rope will be maintained on the floor of the aircraft, either inside or outside the skids where fitted.
- 4.6 The helicopter will take off from the Departure Line at the sign of the judge ( lowering of a flag), with the bucket resting on the ground, the crew member holding the rope by Ball No. 2.  
The rope will remain held by the crewmember who must have both hands visible.  
Manoeuvring of the rope is allowed provided the rope is not shortened by any part of the body below the appropriate red painted ball.
- 4.7 The 12 numbered gates will be placed as per Annex 4.0 and the gates will be flown consecutively from 1 to 12. However, the direction of flight through the each gate will be drawn randomly as described in Chapter 1 para 9.1 and made public by the Organizer on registration day. The choices are listed in 4.18. Arrows will be painted on the ground, but no sketch map will be provided.
- 4.8 To correctly pass a gate, the top of the bucket must pass below the top of the poles in the direction of the arrows. If the bucket misses the poles it must go backwards around the outside of the poles before another attempt is made. Multiple opportunities to pass a gate correctly will be allowed. The judge will score correct or incorrect gate passage when the bucket is flown to the next gate.
- 4.9 After passing Gate 12, the crew member will deploy the 11 metre rope (Ball No. 3 ) and the pilot will increase altitude. The bucket must exit through the exit gate but the height of the bucket is not penalized. The rope must be fully extended and free of knots, deployed outside a 5 metre diameter circle around the centre of the table.

- 4.10 The rope will remain held by the crew member at the grip at its end. Manoeuvring of the rope is allowed provided the rope is not shortened by any part of the body below the upper ball. Both crew member's hands must be visible.
- 4.11 The bucket must be put down as close as possible to the centre, in one try, then the rope must be dropped.
- 4.12 The time stops when the rope is released.
- 4.13 The reference point for calculating the distance of the bucket from the centre of the target will be the centre of the bucket base.
- 4.14 The water left in the bucket will be measured after the competitor has completed.
- 4.15 The measuring will be done on the table and the table wiped dry after the bucket is removed.
- 4.16 Any difference of water level between Departure and Arrival will result in penalty points.
- 4.17 At the same time as the rope is released, the officials at the table will hold the bucket to ensure that it does not tip over or move.
- 4.18 There will be 11 different gate directions determined by the Chief Judge and Jury President. The references of Up, Down, Left, or Right refer to the direction of flight through each gate with reference to Annex 4.0 with Up being the top of the page.
- 1) Gate 1 is always flown Up
  - 2) Gates 4, 5, 6, 8 - Up or Down
  - 3) Gates 2, 3, 7, 9, 10, 11, 12 - Left or Right
- 4.19 Tie Breaker  
If there is a tie for a place, the winning crew is determined by the shortest flight time.
- 4.20 Scoring  
 $300 - P = \text{Score}$ . Score is determined by subtracting the Penalty Points from 300. The minimum score achievable is zero.

## SCORING - EVENT No. 4 (SLALOM AND SKILL)

INFRINGEMENT	PENALTY POINTS
Passing a gate in a different order than indicated on the ground	10
Failing a gate by missing or bucket over poles	10
Distance between the bucket and the centre of the target – per tenth of cm	0.1
The bucket exiting the slalom outside the designated area 200 x 120	10
Water level – per tenth of centimetre missing *	0.1
Each tenth of a second in excess of 210 seconds **	0.1
Placing the bucket outside the target table *	80
Losing the bucket during the course	200
Rope not deployed before the 5 metre circle around the table	20
More than one attempt putting the bucket down, per try	15
Crew not staying seated or fastened ( both hands and legs not visible)	50
Rope shortened, has knots or handled below red ball ( per each infringement )	50

\* If the bucket is landed on the ground, any water left in it will be measured and will incur normal penalties.

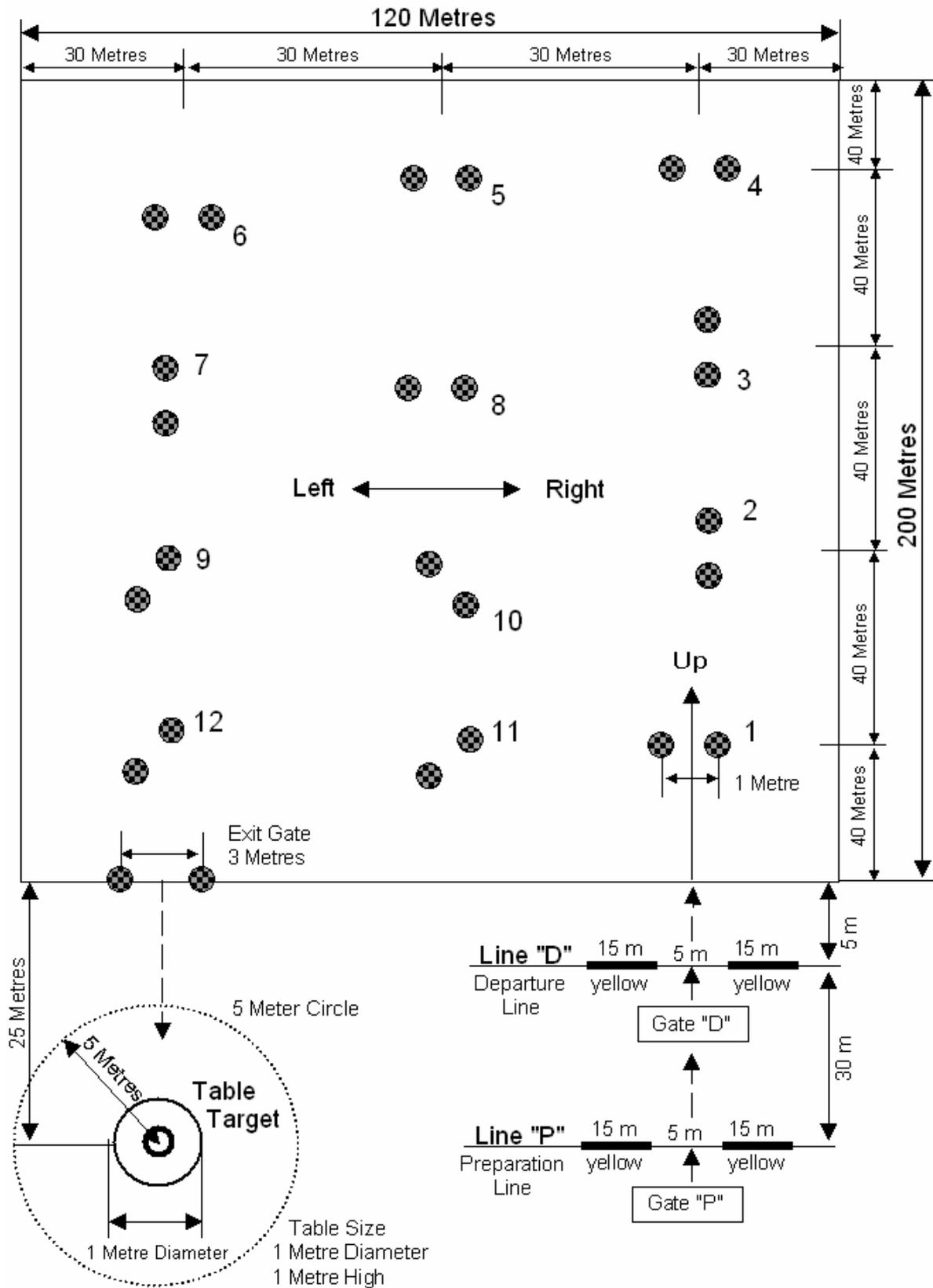
\*\* Black flag if total time exceeds 7 minutes.

### Measurements of competition area and equipment ( see attached Annexes )

- 200 x 120 metres rectangular competition area (see drawing Annex 4.0).
- Twelve gates, internal width 1 m, composed of two 2 m high poles.  
( see drawing Annex 4.1 )
- A round table, 1 m diameter and 1 m high (concentric circles 5 cm apart will be painted black and white). The centre – circle must have the diameter of the bottom of the bucket.
- A rope, equipped with 3 balls, first 5 m high and red painted, second 20 cm over this ball to be a handling aid , third also red painted 11 metres high and a grip at its end  
( 20 cm above the third ball ) (see drawing Annex 4.2)
- A bucket (see drawing, Annex 4.2) of metallic material and cylindrical form, containing 6.5 litres +/- 2 %.

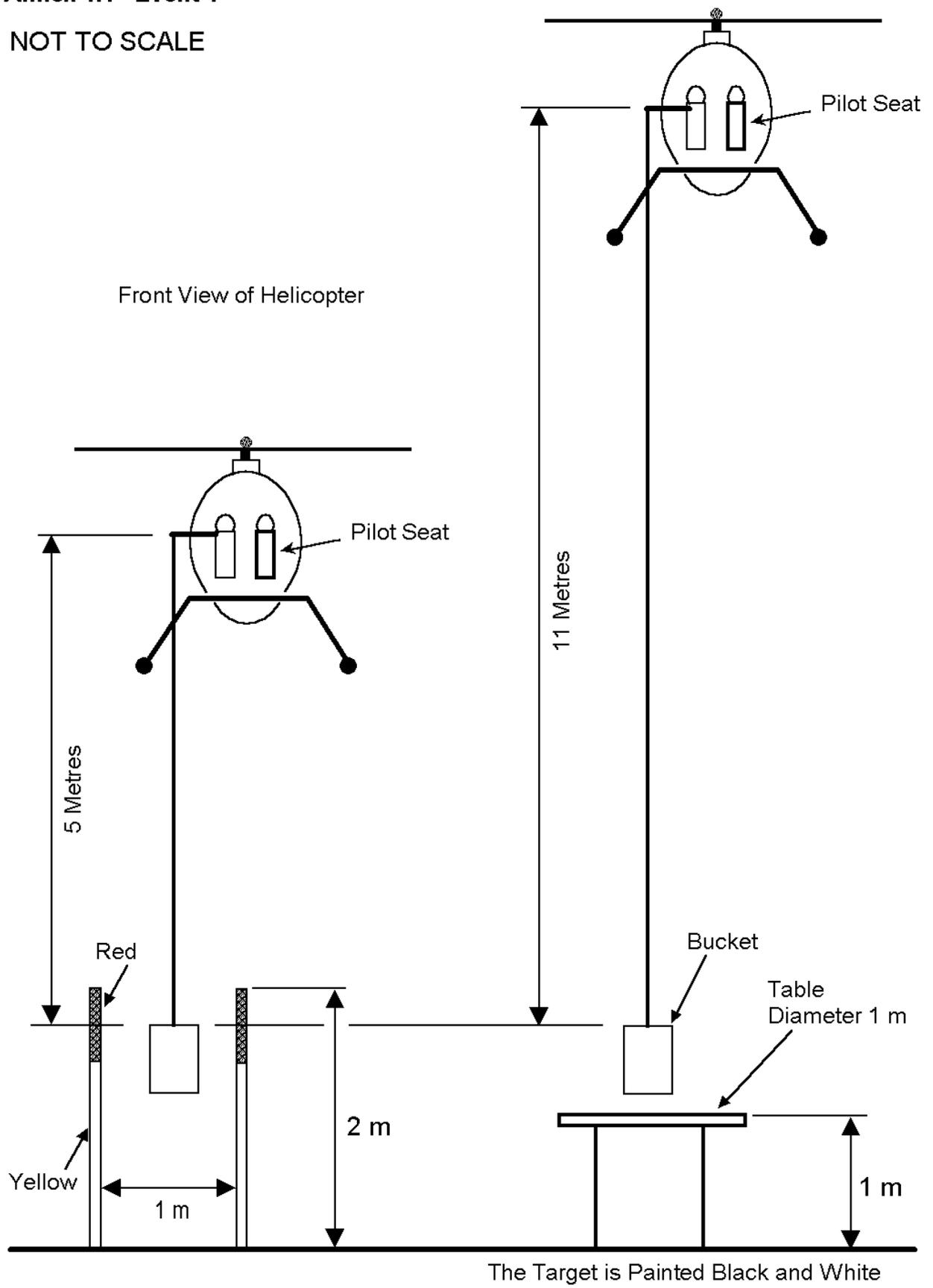
Annex 4.0 - Event 4 -

Gates Position (NOT TO SCALE)



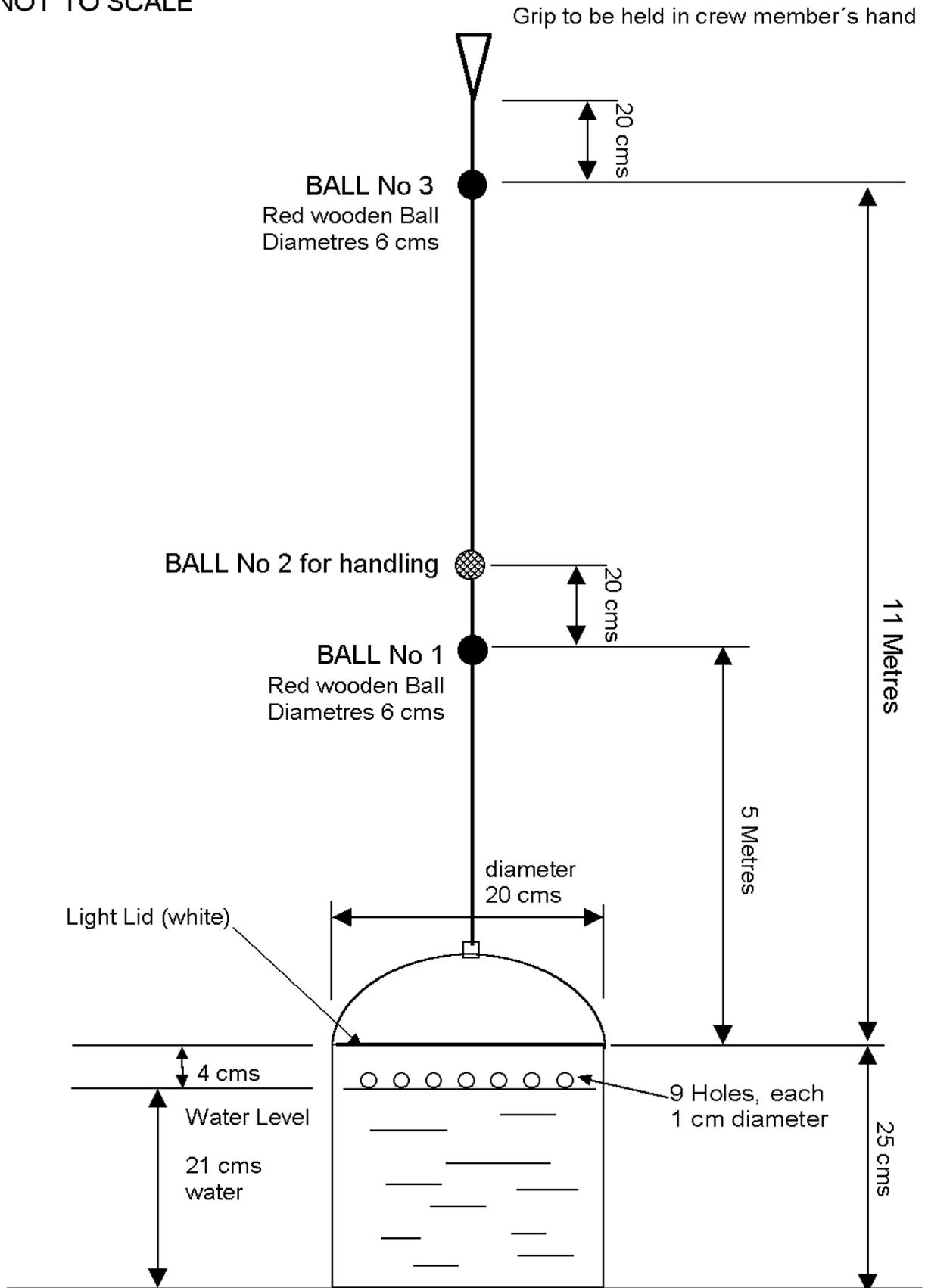
**Annex 4.1 - Event 4**

NOT TO SCALE



**Annex 4.2 - Event 4** - Rope Equipment

NOT TO SCALE



# **World and Continental Helicopter Championships**

## **Chapter 2**

### **Event Rules and Regulations**

#### **Event 5 - Individual Freestyle**

5.0 The aim of the non-obligatory free style event will be to demonstrate the top level of the helicopter manoeuvrability and to display the highest level of pilots' skill. The winner of the event will receive the "Rosemary Rose Memory Cup".

5.1 Any type of helicopter may be used but all proposed manoeuvres will not exceed the helicopter limitations contained in its Flight Manual and in the C. of A. and in no way decrease the level of flight safety.

5.2 Competitors may make use of smoke and/or music to enhance their display.

5.3 Competitors will compile and propose a brief and accurate description to their set of manoeuvres which will be submitted to the Judging Panel at least 48 hours before the event is scheduled to start.

5.4 The assessment of proposed manoeuvres will be made by the Judging Panel and the competitor will be informed on possible objections not later than 24 hours before the event starts. Competitors may be required to eliminate or alter any manoeuvre considered as unsafe by the Judges.

5.5 A briefing will be held prior to the event.

5.6 Each flight will be a maximum of 4 minutes and not less than 3 minutes 45 seconds.

5.7 The Freestyle event is open to any pilot or crew who paid the entry fee irrespective of whether they participated in events 1 - 4.

5.8 The Event will be flown within the defined area of 500 metres by 500 metres square marked out as in Annex 5.0 and below a height of 150 metres / 500 feet/ above ground level.

5.9 Each edge panel to be 1 metre long and 0.5 metre wide.

5.10 Judges will be placed at each corner to record infringements of the display box. Two Judges will be available for timing purposes.

5.11 The Competitor may start, on the ground, anywhere within the box.

5.12 Timing will commence from lift-off.

5.13 The competitor will finish, on the ground, in the centre square at the conclusion of his 4 minute program. Timing will finish at touch down of the helicopter in accordance with the submitted briefing.

5.14 Skilled Judges will be selected by the Chief Judge from the Panel or Judges and can include FAI CIG Delegates, but exclude Jury members.

**SCORING\* - EVENT No. 5 (INDIVIDUAL FREESTYLE)**

Degree of Program difficulty	0-70
Flying technique / skill	0-70
General Impressions	0-60
Infringement of box edge. Penalty/ each violation	20
Flight above audience	DQ
For the duration of performance longer than 4 minutes / 240 seconds/ or shorter than 3 minutes, 45 seconds / 225 seconds/ --- Each second over or under penalty	1

\*The highest and lowest scores will be eliminated. Of the remaining scores the arithmetic mean will be calculated, from which the penalty points will be subtracted.