Event 5.3.1 – Fender Rigging

5.3.1.0 Event description:
This event requires precise flying with a load (fender) and rope lengths in a sequence of 4, 6 and 8 metres and a flying time of 50 seconds.The sequence for the containers will be decided by the Organiser and made public at the event briefing.

5.3.1.1 General requirements:
The helicopter will be configured with a closed door on the pilot's side. Special window bubbles in cockpit doors are not allowed. Outside mirrors and technical aid such as radio altimeters are not permitted and such use will result in disqualification.
The crew will be correctly harnessed. The crew member is in the normal seating position, both legs are to be kept within the cockpit.
During the morning briefing competitors will receive their start time at which the helicopter must be at the preparation line (line P).

5.3.1.2 Departure line:
Once the start position is free, the responsible judge will call the next competitor from the preparation line (line P) forward to the departure line (line D). The helicopter must land in front of the departure line. An assistant judge will hand the crew member the fender with its rope with 3 red painted balls fixed in distances of 4, 6 and 8 metres from the top of the fender. There are 2 additional wooden balls as handling aid, each 20 cm above the balls. At the end of the rope a grip 20 cm above the 8 m ball is fastened (see Annex 3.1). The fender will remain outside the helicopter on the ground. The crew member will hold the rope at the respective handling aid.

Upon an indication of ready from the pilot (or crew member), the judge will signal the start for the competitor by dropping a 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.

5.3.1.3 Manoeuvering through the course:
The pilot will take off 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. If the fender misses either Gate "D" or the entrance gate and the crew decides on another attempt in order to avoid penalties, it must be taken back around the outside of the markings/poles before another attempt to correctly pass the gate is made.
The rope must be fully extended and free of knots prior to crossing the departure line (line D).
The pilot will fly in direction of the first container to drop the fender into it.
The rope will remain held at the handling aid above the relevant red ball by the crew member, who must have both hands visible. Manoeuvering of the rope is allowed provided the rope is not lengthened or shortened by any part of the body below the ball.

After dropping the fender into the first container, the crew member will deploy the rope to the appropriate length for the next container. He/she should then lift up the fender again out of the container. The pilot will proceed to the next container.
After dropping the fender into the third container and letting go of the rope, the helicopter must leave the competition area by passing the exit gate.

5.3.1.4 Timing:
The time starts when the start signal is given at departure line and stops when the crew member has let go of the rope. The total time for this event is a maximum of 50 seconds.

5.3.1.5 Tie breaker:

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

5.3.1.6 Scoring:

300-P = Score. Score is determined by subtracting Penalty Points from 300. The minimum score achievable is zero.

Scoring Event No. 5.3.1 (Fender Rigging)

Infringement	**Penalty points**
For each tenth of a second flown over total times limits	0.1 *
Touching the external sides of the container with the fender: For each touch:	5
Touching the ground with the fender between D-line and containers: For each touch:	15
Fender not dropped into the container for each occurrence or lost en route	80
Fenders dropped in wrong sequence and/or wrong rope length for each occurrence	30
Crew not staying seated or harnessed:	50
Rope shortened or lengthened, has knots, or handled below the wooden ball or grip (for each infringment)	30
Rope not deployed to full metres or has knots when flying over the Line D or lifting out of the containers (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 :	10
Fender not passing the Gate “D”	10
Missing the Entrance-Gate by missing or fender over poles (for each infringement)	25

* Black flag if total time exceeds 4 minutes

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

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

Departure line “D“ : two 5 metre-long lines with 3 metres between the two lines, to be positioned 30 metres after the line “P“.

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 line “D“.

Competition square : 50 x 50 metre square, clearly marked, to be positioned 20 metres after the line “D“.
Three numbered containers : to be positioned in the competition square and filled with water or other heavy material to prevent moving. The amount of water or heavy material in the containers must not hinder the throwing in of the fenders.

Measurement of each container:
Height: less than 1.20 metre
Diameter of container opening: 48 cm +/- 2 cm
Measurement of 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

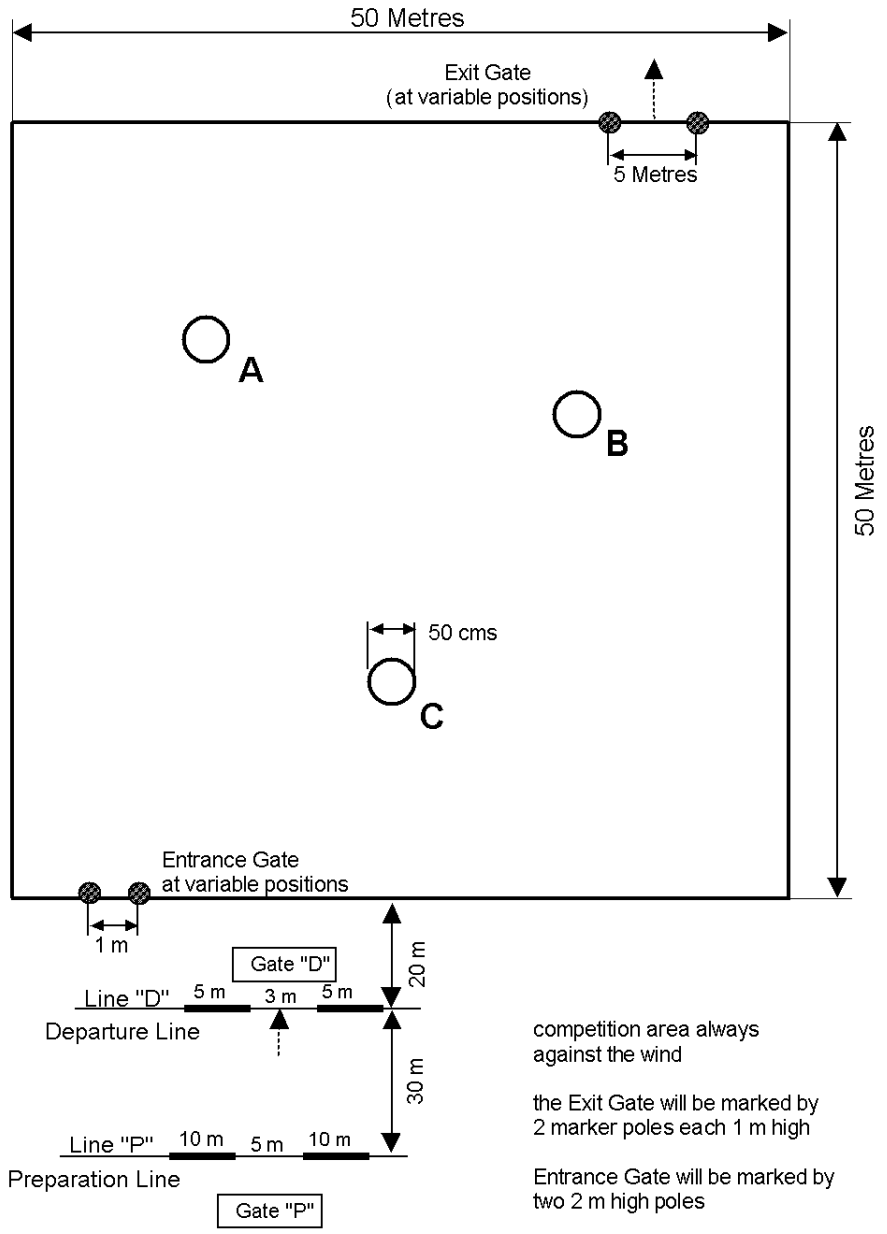
Length of rope: 8, 20 metres from the top of the fender to the grip.

Red painted balls at distances of 4, 6 and 8 metres from the top of the fender.

Wooden balls, 20 cm above the red balls at 4 and 6 metres.

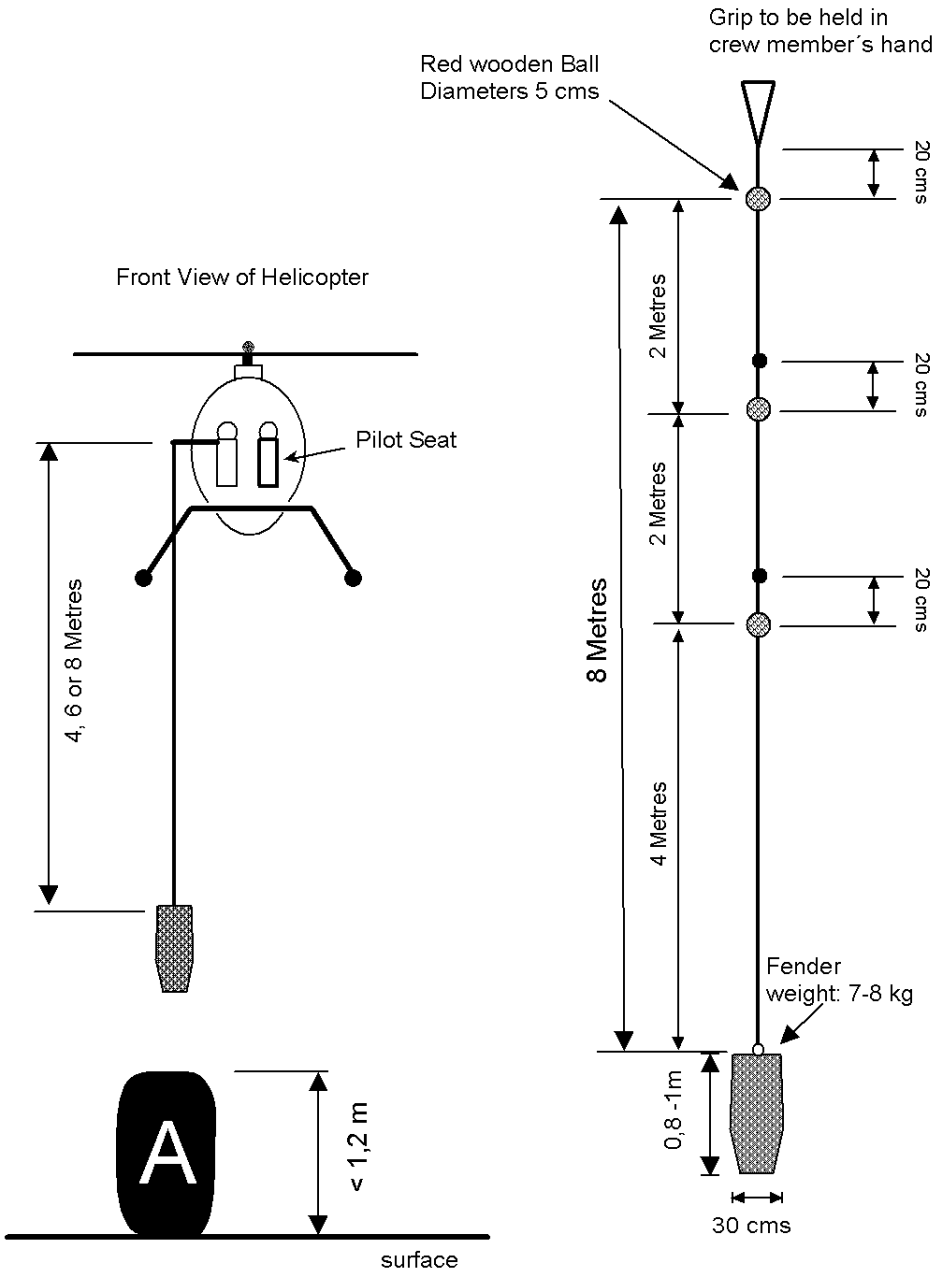
The containers and fenders can be made of any material or colour, but must be uniform.

Annex 3.0 - Event 3 - Fender Rigging



Annex 3.1 - Event 3 - Fender Rigging

NOT TO SCALE



Event 5.4 - Slalom

5.4.0 Event Description:
The Event requires precise flying to manoeuvre a bucket, attached to a rope, through 12 numbered gates and setting it down on a table target.
Flying time limited to 3 minutes and 20 seconds (200 seconds).

5.4.1 Preparation:
The helicopter will be configured with the pilot´s door on and closed.
The helicopter will come to the preparation line and wait for the previous helicopter to finish.
At a signal from judges, the helicopter will move to land on the Departure line. The Judges /Assistant judges will hand over the rope with the attached bucket, empty of water. The future water level is determined by 9 lateral holes.The 9 holes will each be of 1 cm diameter and the bottom of the holes will be 4 cm from the top of the bucket. (see drawing Annex 4.2).
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 correctly. The crew must remain seated. The rope will be placed on the floor of the cabin, either inside or outside the skids where fitted.

5.4.2 Start:
Upon an indication of ready from the pilot or crew member the judge will signal the start by dropping a flag or use of a suitable indication system (which must be demonstrated to the competitors at the morning briefing). The time starts.
The helicopter will take off from the Departure Line with the bucket resting on the ground, the crew member holding the rope above the red flag. The pilot will fly to the container filled with water. The crew member will fill the bucket with water.
Manoeuvering of the rope is allowed provided the rope is not shortened by any part of the body below the red flag.
After filling the bucket with water, the pilot will increase altitude and the crew member will deploy the 5 metre rope.
The pilot will fly to the first gate and the rope will remain held by the crew member by Ball No.2. Both hands of the crew member must be visible.

5.4.3 Course and Gates:
Manoeuvering of the rope is allowed provided the rope is not shortened by any part of the body below the appropriate red painted ball or lengthened by holding the rope above the Ball No.2. It is not allowed to hold the appropriate red painted ball.
The 12 numbered gates will be placed as per Annex 4.0 and the gates will be flown consecutively from 1 to 12 without hitting the poles of the gates by the bucket. However, the direction of flight through the each gate will be drawn randomly as described in Chapter 2 para 7.1 and made public by the Organiser on registration day. The choices are listed in 5.4.7. Arrows will be marked on the ground, but no sketch map will be provided.
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 gate it must be taken back 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.

5.4.4 Exit and Table:
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 before reaching the 5 metre radius circle around the centre of the table.
The rope will remain held by the crew member at the grip at its end. Manoeuvering of the rope is allowed provided the rope is not shortened by any part of the body below the upper ball. Both hands of the crew member must be visible.
The bucket must be put down as close as possible to the centre of the target table, in one try, then the rope must be dropped.

5.4.5 Timing:
The time starts when the start signal is given at departure line and stops when the rope is released over the table.

5.4.6 Measurements:
The reference point for calculating the distance of the bucket from the centre of the target will be the centre of the bucket base.
The water left in the bucket will be measured after the competitor has completed and water level below the holes will result in penalty points.
The measuring will be done on the table and the table wiped dry after the bucket is removed.
If the bucket falls down from the table, the measurement will be done from the bottom of the bucket to the center of the target by use of a plumb bob.

5.4.7 Variables:
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 1is always flown Up
2) Gates 4, 5, 6, 8 - Up or Down
3) Gates 2, 3, 7, 9, 10, 11, 12 - Left or Right

5.4.8 Tie Breaker:
If there is a tie for a place, the winning crew is determined by the shortest flight time.

5.4.9 Scoring:
300 – P = 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
Bucket touching ground before reaching container (per each infringement)	5
Rope shortened when filling bucket with water	30
Rope not deployed to 5 metres between container and gate No.1.	20
Rope shortened or lengthened, has knots or handled below red ball on the course and overhead the table (per each infringement)	50
Passing a gate in the wrong order or different direction than indicated on the ground	20
Failing a gate by missing or bucket over poles	10
Bucket hitting the poles, each infringement	5
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 200 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 radius 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
Crew member´s leg outside the cabin, per each infringement	20
Unsafe flight manoeuvres	300
Crew member handling the controls	300
Flight break-off	300

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

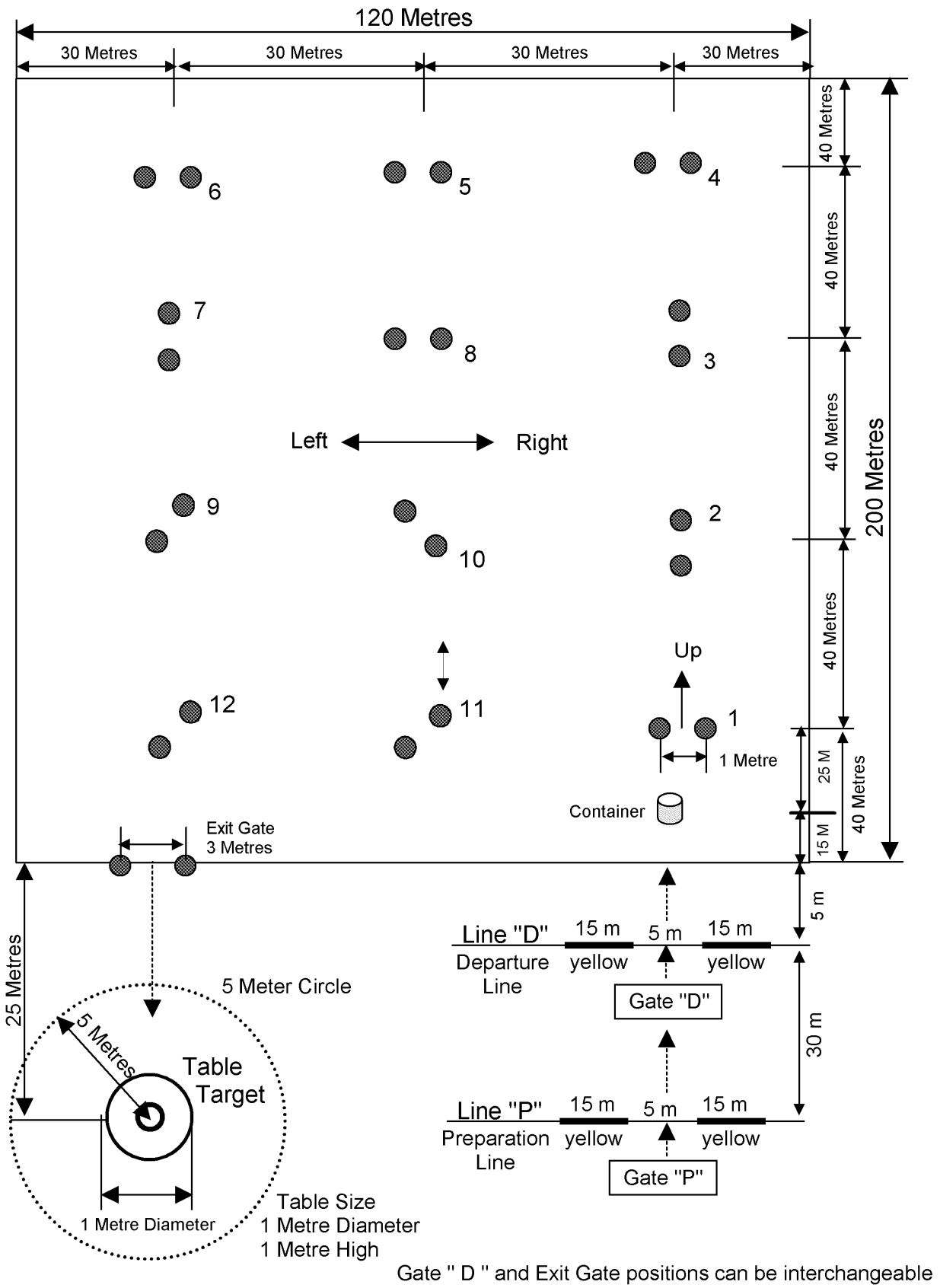
** Disqualification (black flag) if total time exceeds 6 minutes.

Measurements of competition area and equipment (see attached Annexis)

- 200 x 120 metres rectangular competition area (see drawing Annex 4.0).
- A 200 liters container, filled with water to a level of 10-15 cm below its upper edge, positioned 20 metres behind Line “D” and 25 metres in front of Gate No.1
- Twelve gates, internal width 1 m, each 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 same diameter as of the bottom of the bucket.
- A rope, equipped with a red flag 3 m high, 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 breakproof material and cylindrical form, containing 6.5 litres +/- 2 % with a maximum total weight of 8,5 kg.

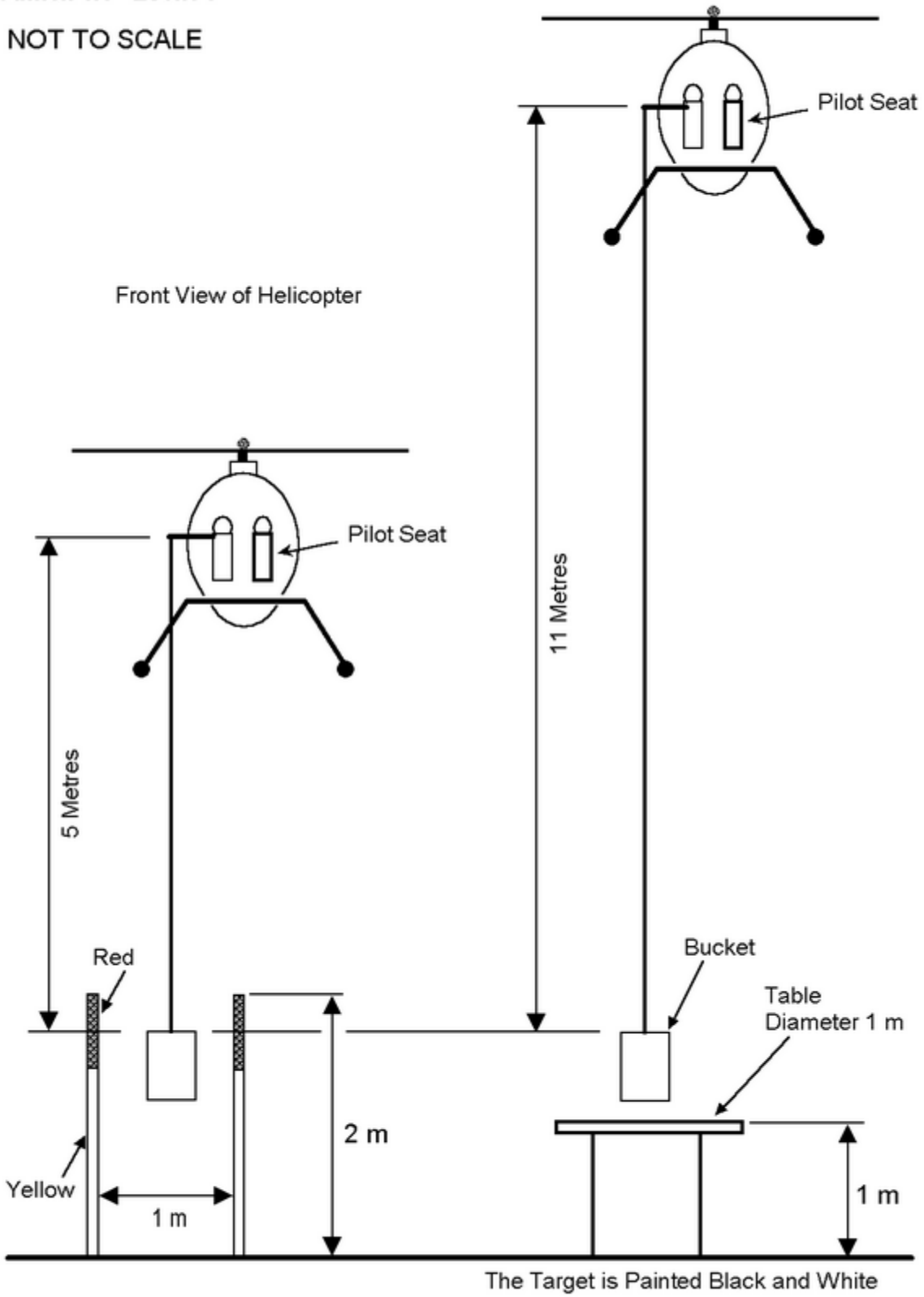
Annex 4.0 - Event 4 - Gates Position (NOT TO SCALE)



Gate " D " and Exit Gate positions can be interchangeable

Annex 4.1 - Event 4

NOT TO SCALE



Annex 4.2 - Event 4 - Rope Equipment

NOT TO SCALE