



German Open Helicopter Championship 2023

Rules and Regulations



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1 General Rules and Regulations

The following rules are applicable for the "Open German Helicopter Championship 2023". The rules are available in two languages, in case of doubt the German version is valid. A crew consists of two persons no additional passengers are allowed in the helicopter. The pilot must provide a valid flight license, a valid type rating for the aircraft flown and a valid medical certificate, all valid for the duration of the competition. If one or more of the documents are missing, the crew will be disqualified.

All helicopters with appropriate performance are authorized to participate in the championship. A valid Certificate of Airworthiness or equivalent document and a Certificate of Registration issued by an appropriate authority must be presented to the organizer for every competing helicopter. A common VHF frequency will be provided to all competitors. A change in the given frequency will result in disqualification of the crew. The competition map has a scale of 1:250'000. Other maps are not allowed for navigation, except the current ICAO map 1:500'000, which is part of the necessary documentation in the aircraft. Up to three crews may share any one helicopter in any one event. The Championship Director can permit exceptions.

For all events the crew has to be correctly harnessed and seated in a normal position. For Fender rigging and Slalom events the door on the copilot side will be removed completely. On the pilot side the door must be closed during both competitions. Bubble windows in the cabin doors may not be installed. Use of special equipment, such as GPS, auto stabilizing equipment, auto pilot, Radar and Radio Altimeter and mirrors are prohibited, unless it is listed in the Operator Flight Manual as necessary to conduct normal safe flight. Any infringement will result in the immediate disqualification of the crew. Mobile phones or other means of communication or devices are prohibited during the events. Their use will result in the disqualification of the crew from the event.

Only competition material provided by the organizer may be used for the competition.

The Championship Director or his designated official is allowed choose participating crews and helicopters for inspection during the competition. All competitors shall allow this examination. The inspection will be made at the parking place before starting the engine and moving to the preparation line ("P" line). The Event Director or his designated official will inspect the cabin and search competitors for prohibited equipment and information.

No picture or video recordings will be allowed for competition scoring.

Any change in the schedule due to weather etc. will be posted on the information board and announced at the briefing. Crews will be given lift-off times and it is their responsibility to be ready at the "P" line with the helicopter at the indicated start time. In case of a proven technical problem, the Championship Director may allow a postponement of the start time. If a competitor interrupts his flight after crossing the departure line ("D" line) for any technical reason including low fuel during the event, they will be disqualified for the event and will not be allowed to repeat the event.

Practice flights during the whole competition are prohibited and will incur a penalty of 50 points per occurrence. Private flights may be made with special permission from the Championship Director.

The correct contest number must be attached to both sides of the helicopter during the entire competition and must be clearly visible. Each crew starts with 300 points in each event. Penalty points are subtracted until a maximum of zero points is reached. The crew with the highest score wins. Each course (slalom, fender and hover) will be flown twice in a row per crew. The better run will be scored for the ranking.

All times are to be measured to an accuracy of at least one tenth of a second.

Times from 0.01 to 0.04 of a second will be rounded down to the previous tenth of a second.

Times from 0.05 to 0.09 of a second will be rounded up to the next tenth of a second.

All lines or markings, fixed equipment such as the slalom course, the Fender rigging course or the doghouse, must be in place early enough before first departure to be inspected by competitors and judges.

There will be a time limit of 1 hour from the time the results are officially signed by the Chief Judge and published with the time entered on the result sheets during which a complaint may be lodged in written form. The form in section 9 is to be used for this purpose.

The Championship Director may disqualify a competitor for the any of the reasons stated below:

- For any flight violation and/or unsafe flight manoeuvre/act during the event, including aircraft movement to and from the aircraft parking area.
- Consumption or influence of alcohol or drugs.
- Use of forbidden equipment
- Change of the given frequencies
- Repeated unsportsmanlike conduct (insulting verbally or by gestures, or an attempt to influence decisions of the judges)
- In the Fender Rigging or Navigation events: If the skittle rope is caught on the helicopter during take-off or If the doghouse is dragged or lifted by a caught skittle rope on the helicopter this will be considered as unsafe flying
- Navigation: A black flag will be shown to signal disqualification at the arrival line "A" if a competitor arrives more than 200 seconds early or late compared to their given arrival time. In such a case the competitor must immediately clear line "A" to avoid conflict with other helicopters and they must go directly to the landing area if it is free.

In cases of disqualification, the entry fee is not returnable. This set of rules is binding. If a rule is described in the text, but not explicitly mentioned in the penalty list, then 10 penalty points will be applied. The Competition Director reserves the right to make changes and exceptions. In general, fair and sporting behaviour is expected for this competition by all participants.

2 Weather Conditions

Competition flights will be conducted under the following weather conditions:

- Navigation Competition: minimum cloud height of 300 metres AGL (1000ft) and minimum horizontal visibility of 2 kilometres.
- Slalom, Fender and Precision Hover Competitions: Maximum wind speed 15 knots including gusts, unless all the competitors unanimously agree otherwise at the event briefing.

3 Flight Safety

During the competition all competitors must observe and adhere to the rules of the air and special regulations applicable in the host country. Any violation of applicable flying or safety regulations may lead to the exclusion of the offender from the contest. The organiser assumes no responsibility for any violation of aviation safety by competitors or others.

4 Navigation Rules

4.1 Event Description

The competition consists of a navigation task with a timed approach between "D" and "A", a second timed approach between line "A" and line "F" with the dropping of two sandbags, a skittle insertion into the Doghouse and a final landing.

The route includes Three (3) visual signs at the turn points (TP) and two (2) mandatory flyover points (MFO). The length of the course will be announced at the briefing. A sketch of the course can be found at section 4.18.

4.2 Flight Altitudes

The route and the MFOs will be flown at a minimum height of 500 ft AGL.

If navigation is aborted by the crew (technical problems, loss of orientation, etc.), climb to a significantly higher altitude, if possible, and return directly to the airfield and parking area via the official entry points.

4.3 Flight Time

The flight time is calculated for every helicopter by the organiser on the basis of the list in section 8.

For reasons of flight safety and variations in weather conditions a minimum of Three (3) minutes is added to the calculated flight time.

4.4 Start Time

Start times are given exactly in minutes and seconds. There will be point deductions for early or late starts.

During the briefing each crew will receive their time to be at the "P" line and the exact start time at which their helicopter has to pass line "D". Departure times are calculated for sufficient separation between two consecutive competitors.

4.5 Preparation Line

The helicopter must be at the "P" line 10 minutes before the start time. At the "P" line, the crew will receive a skittle with a rope attached to it and 2 bags (1 kg each). All doors of the helicopter must be fitted.

4.6 Departure Line

Once the departure position at line "D" is clear, the judge responsible will signal the next competitor to hover from the "P" line to land in front of line "D". Exactly 5 minutes before the crews scheduled take-off time, a sealed envelope containing the competition map and instructions will be handed over to the crewmember. The envelope must be kept and returned with the results at the end of the event. The sealed envelope contains the following information:

The flight time for the contest from line "D" to "A" is written on the outside of the envelope.

A sheet with the following information:

- The true course from line "D" to MFO1.
- The position of TP 2 in longitude and latitude.

The competition map with the following information:

- The positions of MFO 1 and MFO 2.
- The positions of the visual signs to be identified (TP 1 and TP 3)

The helicopter will cross line "D" on its given departure time, early or late departures are penalized.

4.7 Leg MFO 1 to MFO 2

On route there are the TP's. The signs at the turning points consist of triangles with numbers. These must all be recorded on the sheet provided.

4.8 Leg MFO 2 to Line "A"

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

The descent should be commenced within the last 3 kilometre and flown in a constant angle till passing over line "A" at a height of 30 +/- 15 metre AGL vertically above. Any reduction of groundspeed to less than 30 km/h during the last 2 kilometres to line "A" will be penalized for each infringement. The landing light must be on for the final 2 kilometres.

4.9 Arrival Line "A"

Line "A" is identified on the ground by two white stripes, 1 metre wide and 15 metres long with a blank centre space of 5 metres.

4.10 Determining the arrival time

The time is stopped when the nose of the helicopter crosses line "A" or its extensions to the left or right.

4.11 Flight time between line "A" and line "F"

After crossing line "A" the helicopter flies a given pattern, specified by the organizer, to line "F". The flight time is limited to one (1) minute. The time starts when the nose of the helicopter crosses line "A" and stops when the nose of the helicopter crosses line "F". Each hovering between line "A" and "F" will be penalized per occurrence.

4.12 Drop zone

In a defined drop zone, the location of the drop zone will be announced at the competition briefing, the competitor must drop one bag into each of the two target circles, each with a diameter of five (5) metres, which are marked on the ground and are 100 metres apart in the direction of flight. The bags must be dropped from an altitude of not less than 10 metres above ground. The time between the impact of the first and the second bag must not exceed 12 seconds. The compulsory target order is first target circle No. 1 and then target circle No. 2. For scoring purposes the point of impact is considered to be the point at which the bag first touches the round.

4.13 Line "F"

The helicopter must fly over the line "F" at a height of 15 metres +/- 5 metres AGL. After passing line "F" the competitor must continue flying straight ahead to the doghouse positioned at a distance of 50 metres from line "F" and lower the skittle into the doghouse opening. Line "F" is marked on the ground by two yellow stripes 1 metre wide and 10 metres long with a centre space of 5 metres.

4.14 Doghouse load drop

The doghouse is shown in Section 4.19. Only the square hole facing the arrival direction will be valid for scoring. After passing line "F" the crewmember must lower the seven (7) metre long rope with the skittle attached at the end. This is a timed manoeuvre: maximum time between line "F" and fully extending the rope is 20 seconds. The rope must be fully extended and free of knots prior to crossing a line five (5) metres in front of the doghouse. Hovering between line "F" and the doghouse is permitted. The skittle must not touch the ground. The rope must be held by the grip at its end by the crewmember. Both hands must be visible to the judges. Manoeuvring of the rope is allowed provided the rope is not shortened by any part of the body below the red flag. The crewmember will remain with seatbelt fastened and seated on his seat at all times. The crewmember

must put the skittle into the square hole without touching the surface of the doghouse and immediately release the rope at the end of the exercise. The doghouse open sides are not part of the roof. Time stops when the rope is released.

4.15 Landing zone

A 10 metre landing zone next to the doghouse will be designated for the competitor to handover the envelope. The landing zone is positioned at a safe distance from the doghouse. Immediately after landing in the landing zone the crewmember must hand over the envelope containing the identification sheet for the TP's and the competition navigation map to the judge. The competitor's contest number and/or name should be clearly featured on the outside of the envelope, on the map and on the identification sheet.

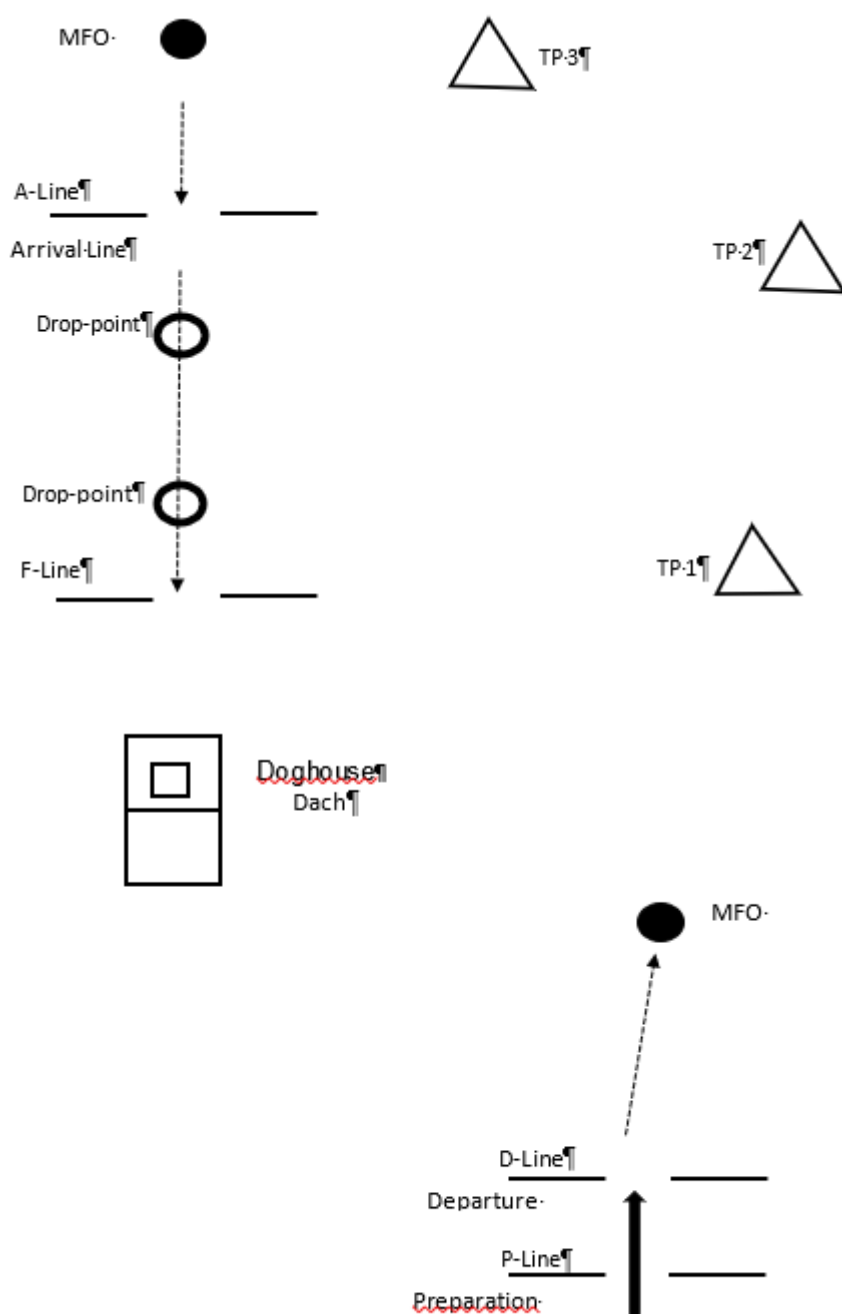
4.16 Points tie

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

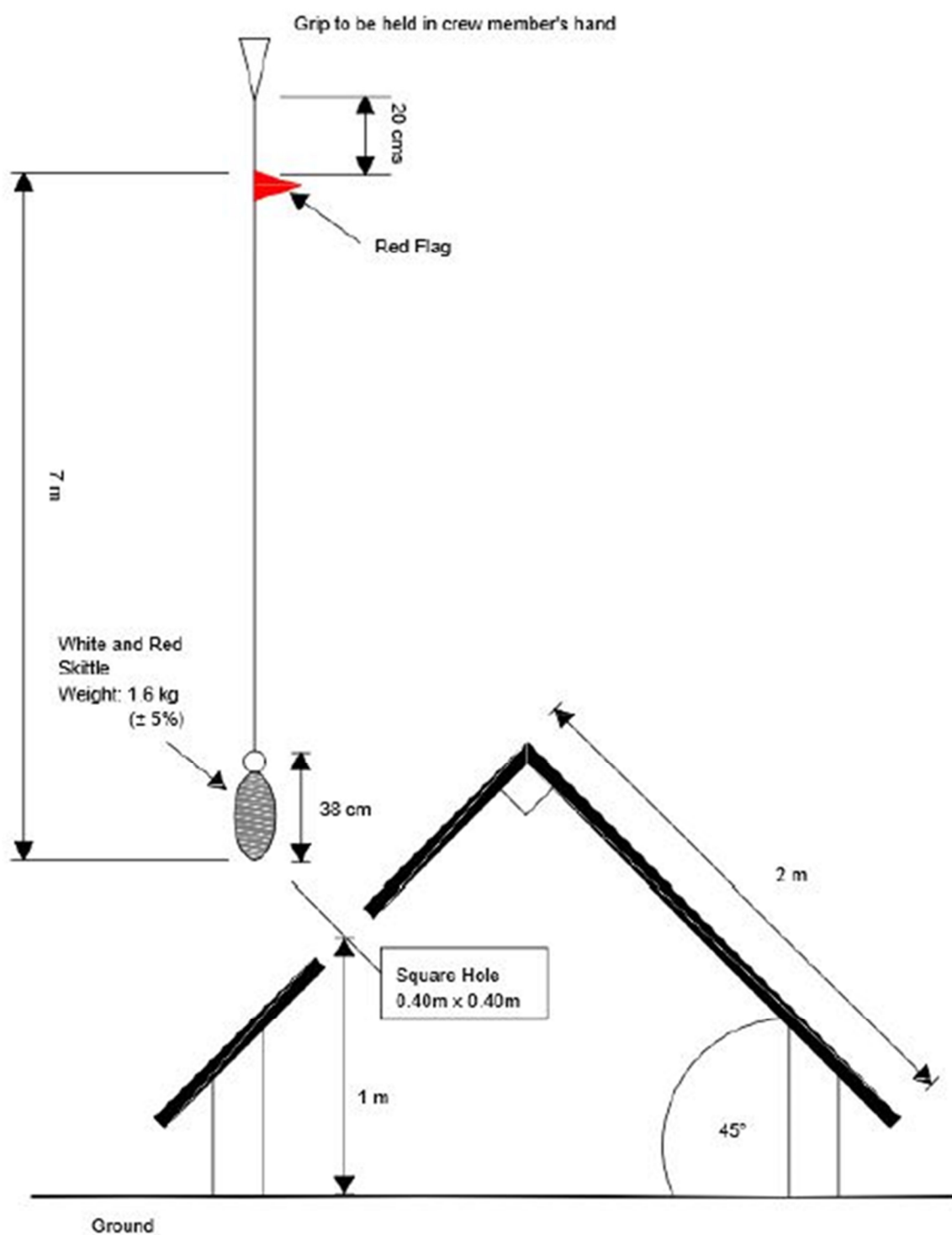
4.17 Scoring navigation

Violations	Penalty points
Early Departure line "D"	100
Not departing Line "D" within 15 seconds after the departure time	50
Each TP missed or not correctly identified	20
Each TP not passed within 500 metre radius	10
MFO not passed within 500 metre radius	20
Each target circle not hit or in wrong order	5
More than 12 seconds between bag impacts	15
Drop height clearly visible below 10 metre AGL	15
Hovering no forward movement visible for the last 2 km before line "A"	30
Ground speed clearly visible below 30 km/h 2 km before line "A"	10
Landing light off	5
Every tenth of a second early or late at line "A"	0.1
Missing line "A" by visibly more than 35 m	10
Height at "A" line not visible 30 metres +/- 15 metres AGL above	10
Omitted manoeuvre after line "A"	30
Hovering between Line "A" to "F" no visible forward movement	30
Height at line "F" not visible 15 metres +/- 5 metres AGL above	10
Each tenth of a second early or late at line "F"	0.1
Each tenth of a second over 20 second between line "F" and release of rope	0.1
Rope not fully deployed 5 metres before the doghouse, has knots, or each touch below the red flag	10
Each touch of the ground with the skittle	5
Each touch of the skittle on doghouse roof	2
Skittle dropped outside the doghouse	30
Crew not remaining seated or seatbelt fastened both hands not visible	30
Landing outside the landing zone	30
Handing over competition envelope with contents without competition number	5

4.18 Example Navigation Course



4.19 Sketch Skittle and Doghouse (not to scale)



5 Precision Hover Rules

5.1 Description

This competition requires flying a set course at a constant altitude with variables around the vertical axis. The dimensions of the field and the locations of the turns are shown in section 5.14. The turns are described in section 5.10 and will be announced by the organizer at the competition briefing. The course should be laid out against the wind.

5.2 Event Description

All doors on the helicopter must be installed and kept closed during flight. Curved doors approved by the manufacturer may be used, special bubble windows in the cabin doors may not be installed.

1. The crewmembers will remain in the helicopter seated and harnessed in a normal position.
2. The crew must install attachment points for the ropes/chains and place tape markings on both sides of the fuselage or skids or wheels before the competition and mark them with their competition number for clear identification.
3. The attachment points must be designed so that when the helicopter is on the ground, the ends of both hangers just touch the ground. There must be a loop/ring at the end of the hanger and the hanger must be able to support a weight of at least 5 kg.
4. The attachment point of the short rope must be clearly marked.
5. At the competition briefing, each competitor will be given their time by which the helicopter must be at the "P" line.

5.3 Course layout

The course consists of a corridor laid out on the ground 50 metres long and 1 metre wide. At the end of the corridor a second 10 metre corridor is laid out at right angles to it on the ground to each side. This additional corridor should help the pilots to keep the helicopter in the 1 metre square when turning at the ends of the corridor. The landing line "A" is 20 metres from the corridor end. It is 5 cm wide and long enough to be visible to the crew on both sides of the helicopters. (See section 5.15)

5.4 Height control

Two ropes or suitable chains or a combination of both are connected with the shorter one connected on the fuselage under the pilot's seat, the longer one connected at the rear end of the skid opposite the pilot, as far as possible from the shorter rope or chain (See section 5.16).

The length is exactly two (2) metres for the first rope/chain and exactly three (3) metres for the second rope/chain measured from the lowest point of the landing skid or wheel to the lower end of the weights. The ropes/chains may be painted red or orange for easy identification.

5.5 Preparation line

Once the competitor has to come to the "P" line.

The judges will connect ropes/chains on to the attachment, which have been fitted by the competitors, and check the position of the two tapes, which the competitor has attached on both sides of the fuselage, skids or the wheels.

At line "P" the pilot may take off to hover while the second crewmember, either inside or outside the helicopter, can give the pilot indications about the flight height. One 360° clockwise and one counter clockwise rotation is allowed to check that the ropes are securely fastened. The helicopter should then landed again.

The judges are not allowed to give any signs or hints during this manoeuvre.

5.6 Start line

When the starting position is clear, the judge will call the next competitor from line "P" forward to line "D". When the previous competitor has left course, the judge will check the ready to start signal from the crew, the judge will then give the start signal by lowering a flag and the timing starts.

5.7 Flying through the course

The crew will fly the course marked on the ground at a height of 2 metres to 3 metres, keeping the long rope in contact with the ground and the short rope clear of the ground. The corridor is flown through five (5) times:

1. The first run is forward from line "D" to the top end and then complete with a 360° turn.
2. The second run is backwards to the lower end and then complete a 90° turn.
3. The third run is sideways upwards with a second 360° turn at the upper end.
4. The fourth run is sideways again to the bottom end and another 90° turn.
5. The fifth run is forward beyond the top end towards the precision landing arrival line.

The landing has to be done in one movement and glide and double landings will be penalized.

The competitor must perform 360° turns around the vertical axis (see 5.10) and each turn must last at least 15 seconds.

5.8 Performing the measurements

Corridor and altitude errors are recorded in tenths of a second with the final times are rounded to the nearest tenth of a second. (see section 1) The limits of the corridor are considered to have been exceeded if the suspension point of the short two (2) metre rope/chain is outside the corridor limits marked on the ground.

A height error occurs when either the short rope/chain touches the ground or the long rope/chain lifts off the ground. Landing line measurements are taken from the forward edge of the tape markings attached to the helicopter to the nearest edge of the 5 cm wide landing line. If the forward part of the tape marking is on the 5 cm wide landing line this is considered as zero deviation. If the tape marking is attached to the fuselage or to areas above the ground, a plumb bob is used as an aid to accurate measurement.

5.9 Timekeeping

Timing starts when the start signal is given by the judge at the start line and ends when the first part of the helicopters landing gear touches the ground.

5.10 Variables for the 360° rotations

- 1) First rotation clockwise, the second counter clockwise.
- 2) First rotation counter clockwise, the second clockwise.

5.11 Points tie

In the event of a tie in points the crew with the shorter flight time will be declared the winner.

5.12 Scoring

Scoring is done by subtracting the penalty points from 300 the lowest score is zero.

5.13 Scoring Precision Hover

Violations	Penalty points
Every tenth of a second over 2 minute and 15 second flight time (135 seconds) between the lines "D" and "A"	0.1
Exceeding the corridor boundaries through the suspension point of the short rope/chain every tenth of a second	0.1
Lifting of the long rope from the ground per tenth of a second	0.1
Ground contact by the short rope per tenth of a second	0.1
Duration of 360° hover turns less than 15 seconds*	15
For missing a manoeuvre	25
For each change in longitudinal axis direction of more than 30°	10
Set-down accuracy**	0 - 120
Double landing***	25
Glide landing****	25

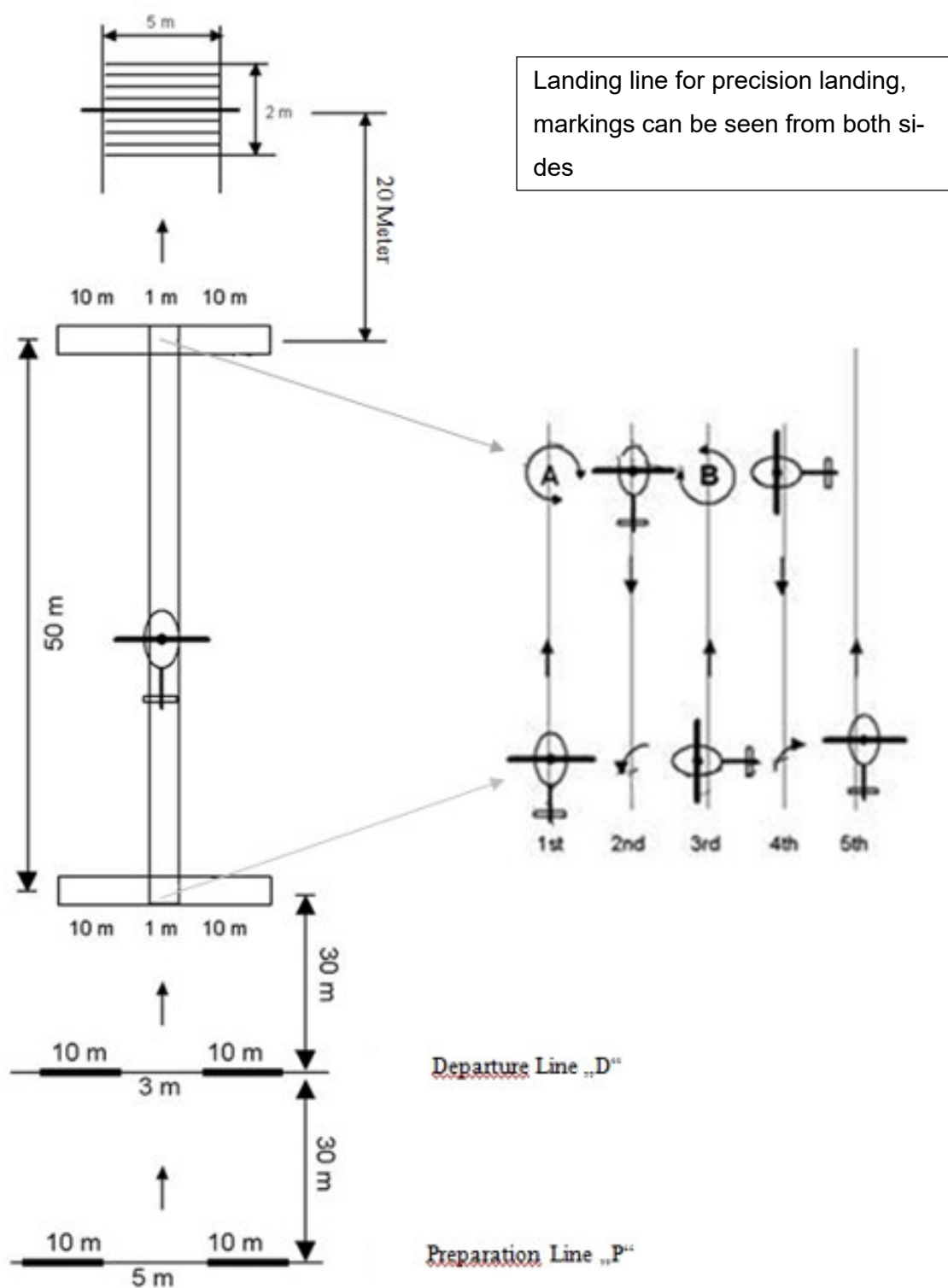
*This means that the turn takes 14.94 seconds or less.

** The distance of each mark to the nearest point of the 5 cm landing line is measured in cm and totalled, with one penalty point awarded per centimetre. Parts of a centimetre are rounded up to the nearest full centimetre.

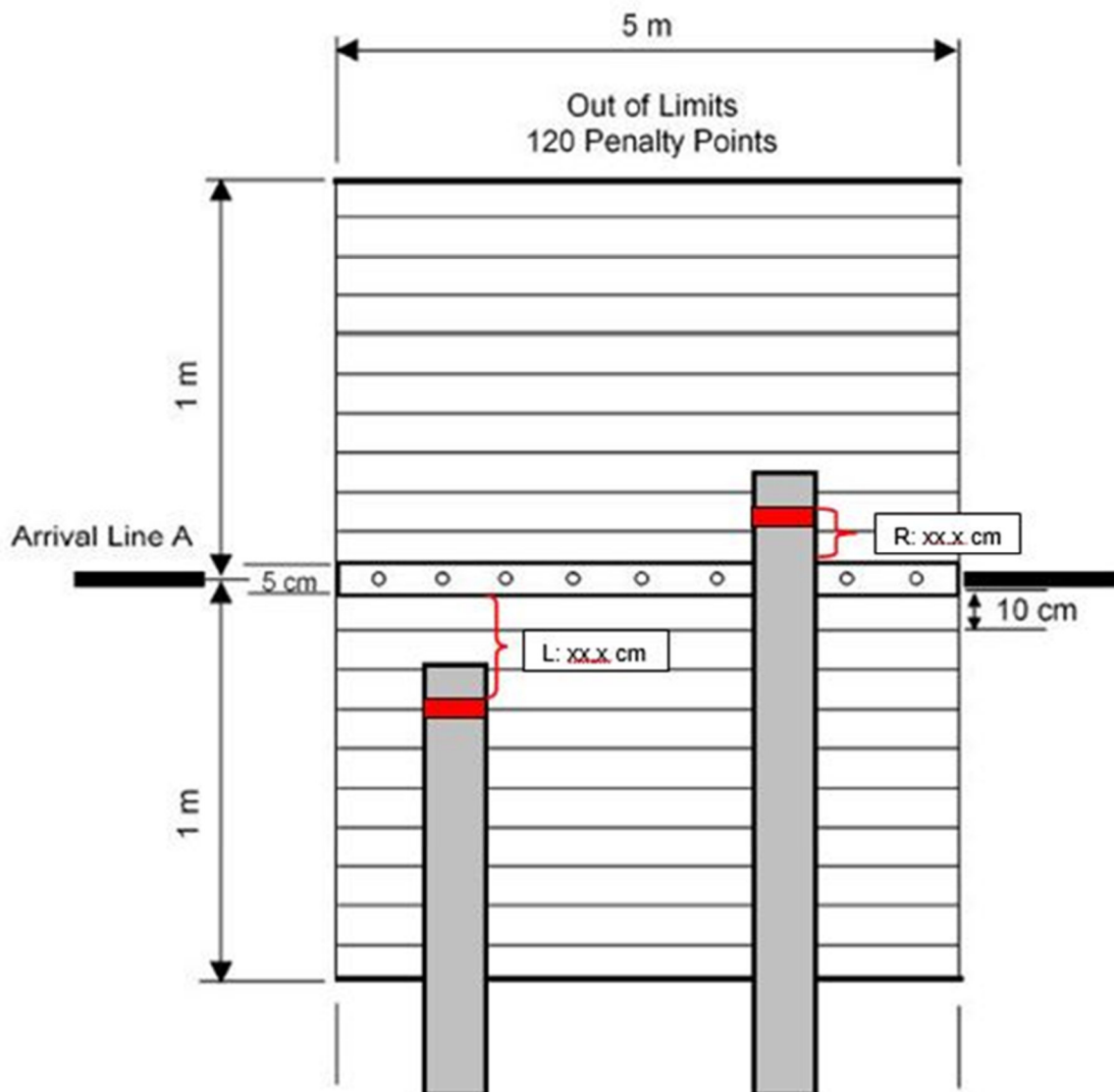
*** This occurs when any part of the landing gear touches the ground, end of timing, and the helicopter lifts off the ground again before the next touchdown.

**** This is when there is a visible and measurable forward or sideways movement of the fuselage, skids or wheels after the first contact with the ground.

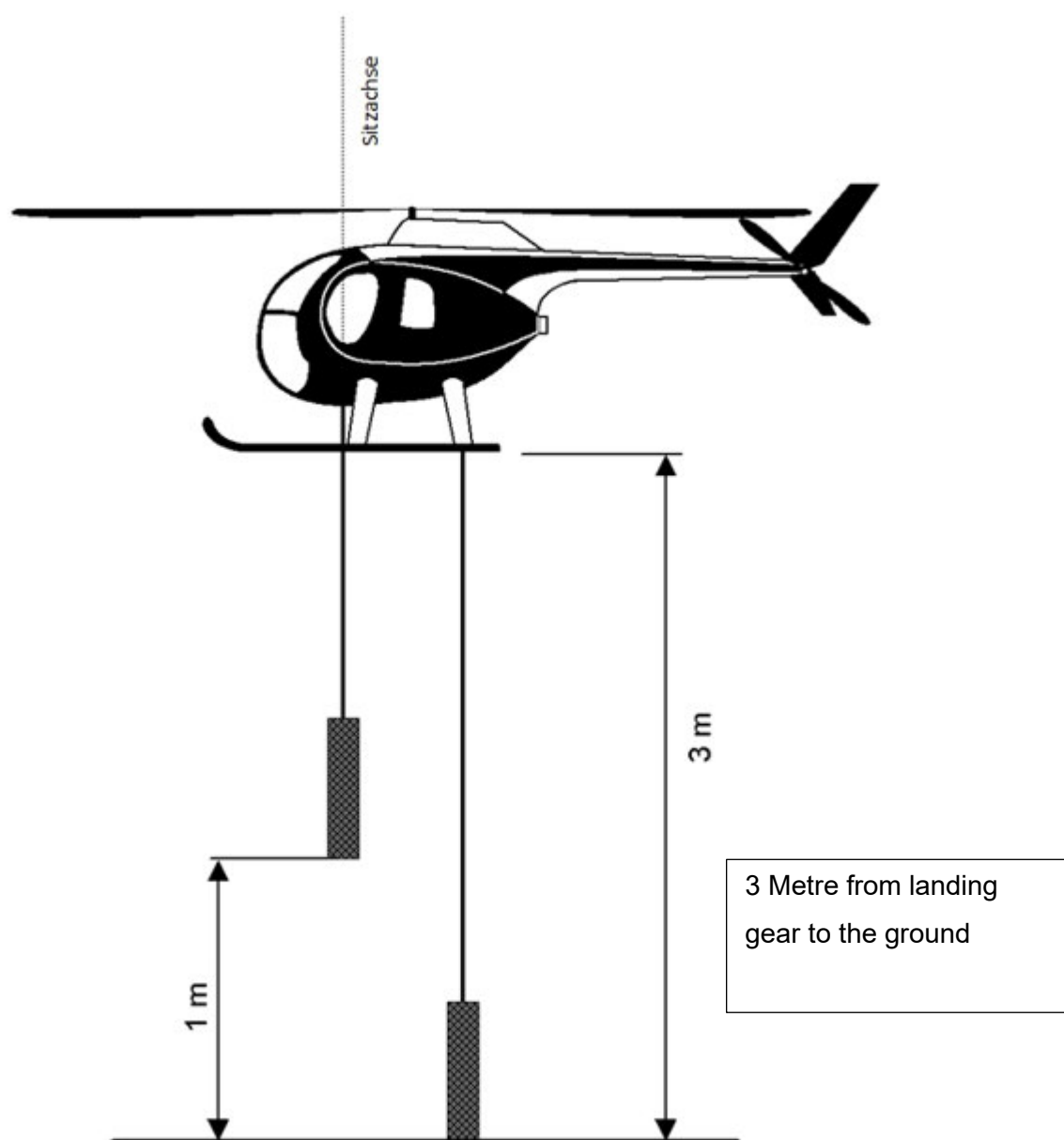
5.14 Example Hover Course

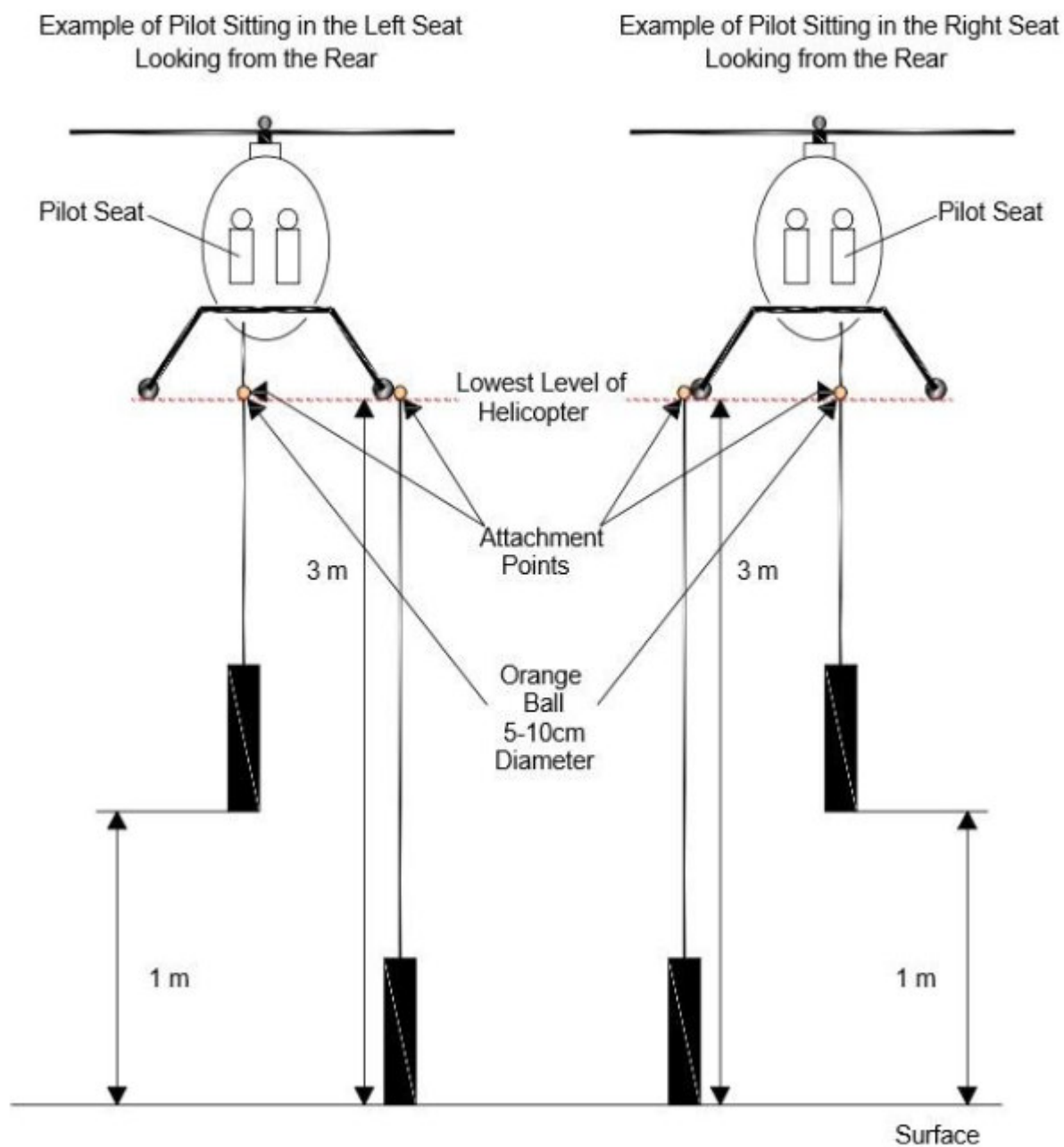


5.15 Hover Course Landing line



5.16 Hover Course Length and position of chains





6 Fender Rigging Rules

6.1 Description

The event requires precise flying with a fender and rope lengths in a sequence of 4, 6 and 8 metres and at the end to put a skittle in the doghouse. The sequence of the container will be drawn, the exact flight time, the positions of the gates and the doghouse will be announced at the event briefing. It is constructed in the following sequence: Departure gate, entrance gate, container "A", container "B", container "C", the exit gate and the doghouse.

6.2 General requirements

The pilot's door of the helicopter has to be closed. Special "window bubbles" in pilot's cockpit door are not allowed. The crew has to be correctly harnessed with the crewmember in a normal seating position, both feet are to be kept within the cockpit. At the briefing competitors will receive their estimated start time at which the helicopter should be at line "P".

6.3 Departure line

Once the departure position is clear, the responsible judge signals the next competitor to hover from line "P" to land in front of gate "D" marked by flags. Assistant judges will hand the crewmembers the fender with its rope and with three (3) red flags fixed in distances of 4, 6 and 8 metres from the top of the fender. There are two (2) additional wooden balls as handling aid each 20 centimetres above the flags. At the end of the rope a grip 20 centimetres above the eight (8) metre flag is fastened (see section 6.9). The fender remains outside the helicopter on the ground. The fender is to be held at the respective handling aid. Both hands of the crewmember have to be visible. Upon a visible indication of "ready" from the crew the judge signals with a start flag. The pilot can then take off and bring the helicopter to hovering height. The competition time starts when the fender passes the gate "D" or its extensions (called line "D").

6.4 Flying off the course

A sketch of the course can be found in section 6.8. The crew will take off, fly the fender through gate "D" and the entrance gate and manoeuvre the fender into the first container. The rope must be fully extended to the right length and free of knots prior to crossing the line "D". During flight manoeuvring of the rope is permitted provided the rope is not shortened by any part of the body on or below the red flag. After dropping the whole fender into the first container, the fender is lifted up again the rope extended to 6 metres and manoeuvred into the second container. The fender is lifted up again extend to 8 metres and manoeuvred into the last container. As soon the fender is dropped into the last container the crewmember should let go off the rope. After letting go of the fender into the last container the crewmember then deploys the seven (7) metre rope with a skittle attached at the end and has to manoeuvre it through the exit gate and put it into the doghouse (see section 6.10). The rope must be held at the grip at its end by the crewmember, both hands must be visible to the judges. Manoeuvring of the rope is allowed provided the rope is not shortened by any part of the body below the red flag. The area has to be left by passing the exit gate. Upon completion of the run the crew either flies back to the "P" line for the second run or back to the parking area if they have completed two (2) runs.

6.5 Timing

The competition time starts when the fender passes the "D" gate or its extensions and stops when the crewmember puts the skittle in the doghouse. This is the case when the top of the skittle is at the level of the top of the doghouse hole (see section 6.10). The skittle has to be put in the doghouse hole exactly by the specified time.

6.6 Points tie

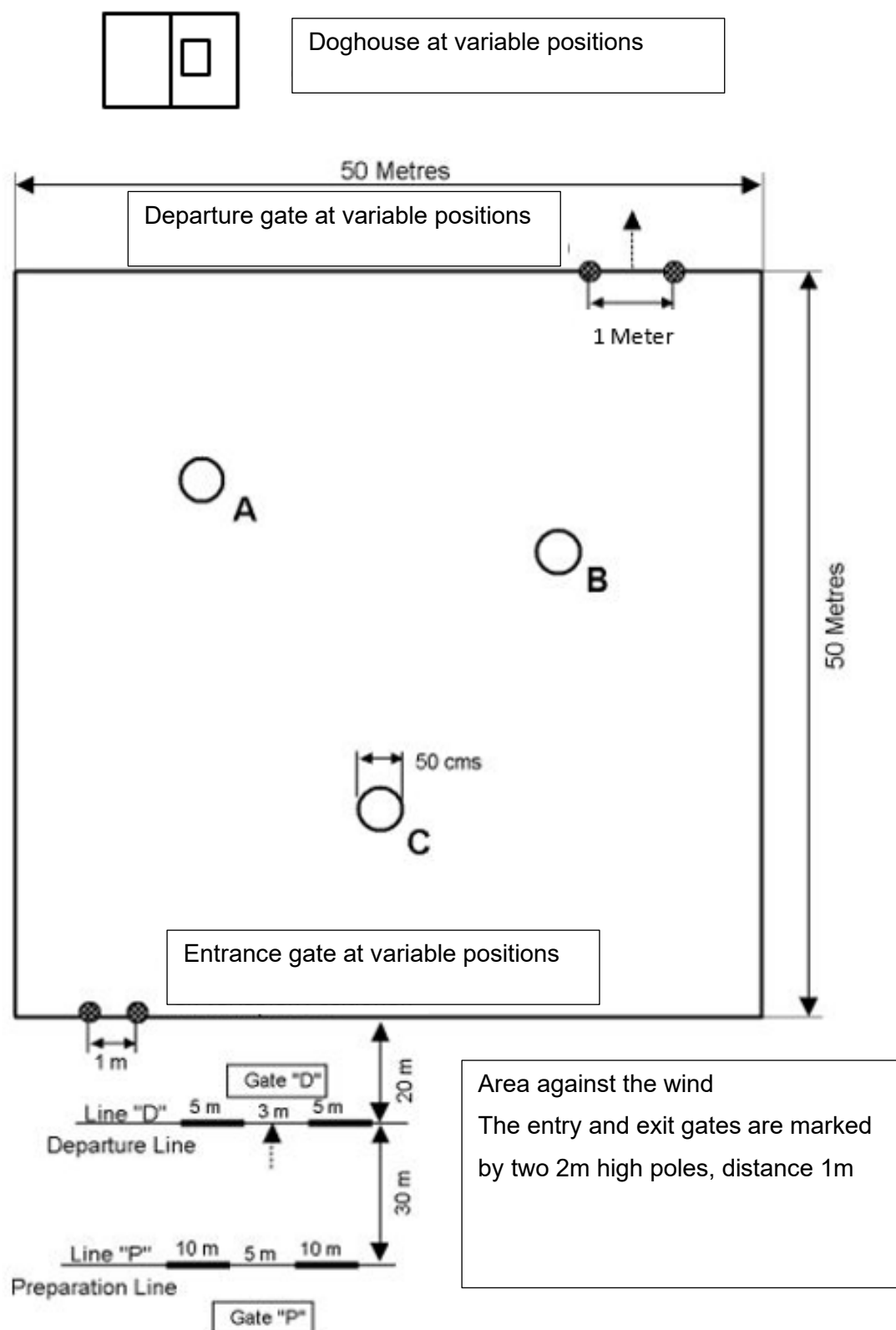
If there is a tie for a place, the winning crew is determined with the most accurate flight time.

6.7 Scoring Fender Rigging

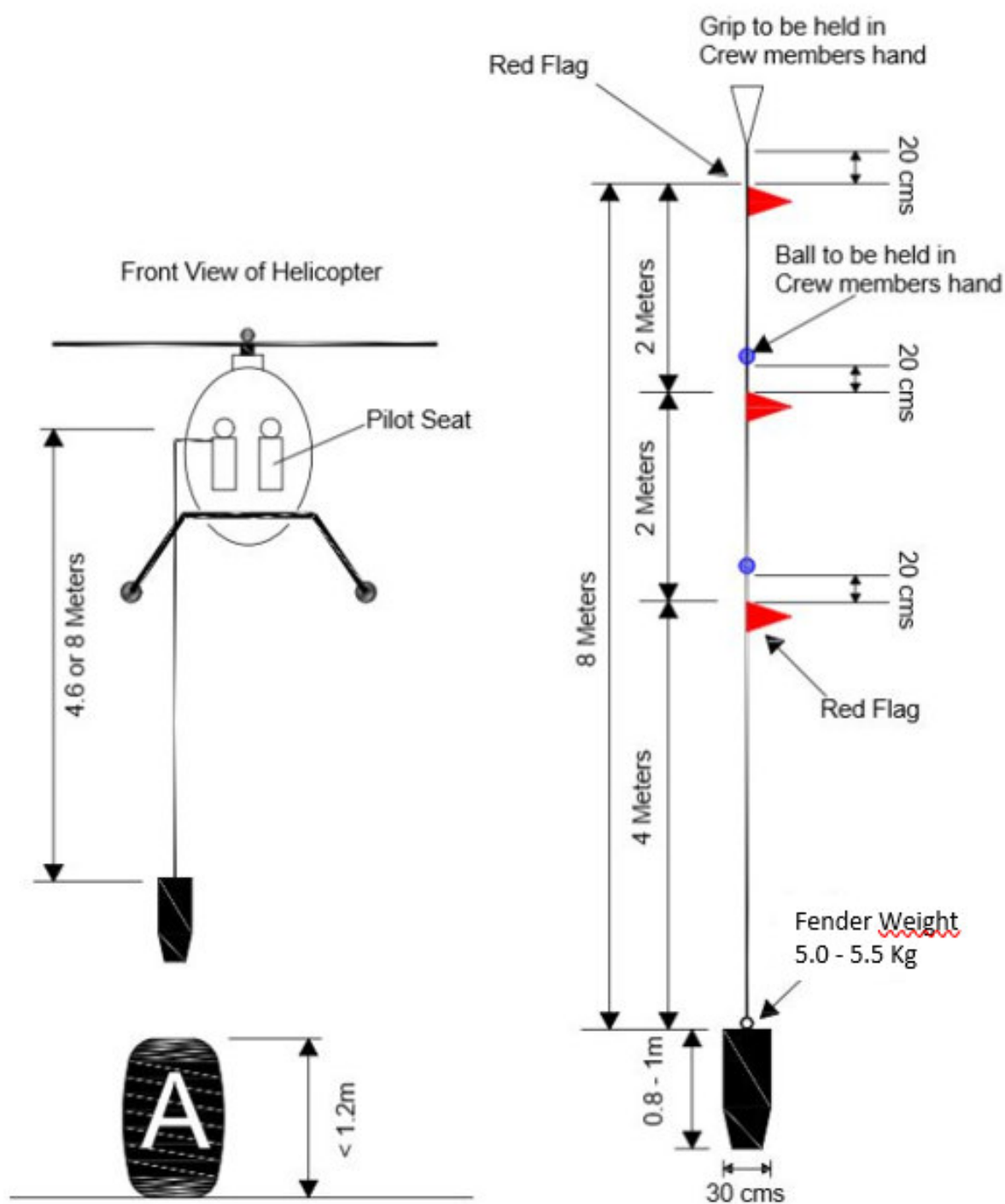
Violations	Penalty points
Per tenth of a second above or below the specified flight time	0.1
Each touch on the outside of the container	* 3
Failure to fully lower the fender into the container	50
Missing gate "D"	10
Fender touching the ground after line "D" per touch	10
Missing entry or exit gate fender or skittle above/over the poles	10
Fender lost on course	300
Each contact of the skittle with the roof surface	2
Missing the doghouse	30
Rope not deployed to full metres or has knots, rope shortened or is handled below red flag (each)	20

* no penalty points if the fender touches the edge of the barrel and then falls in

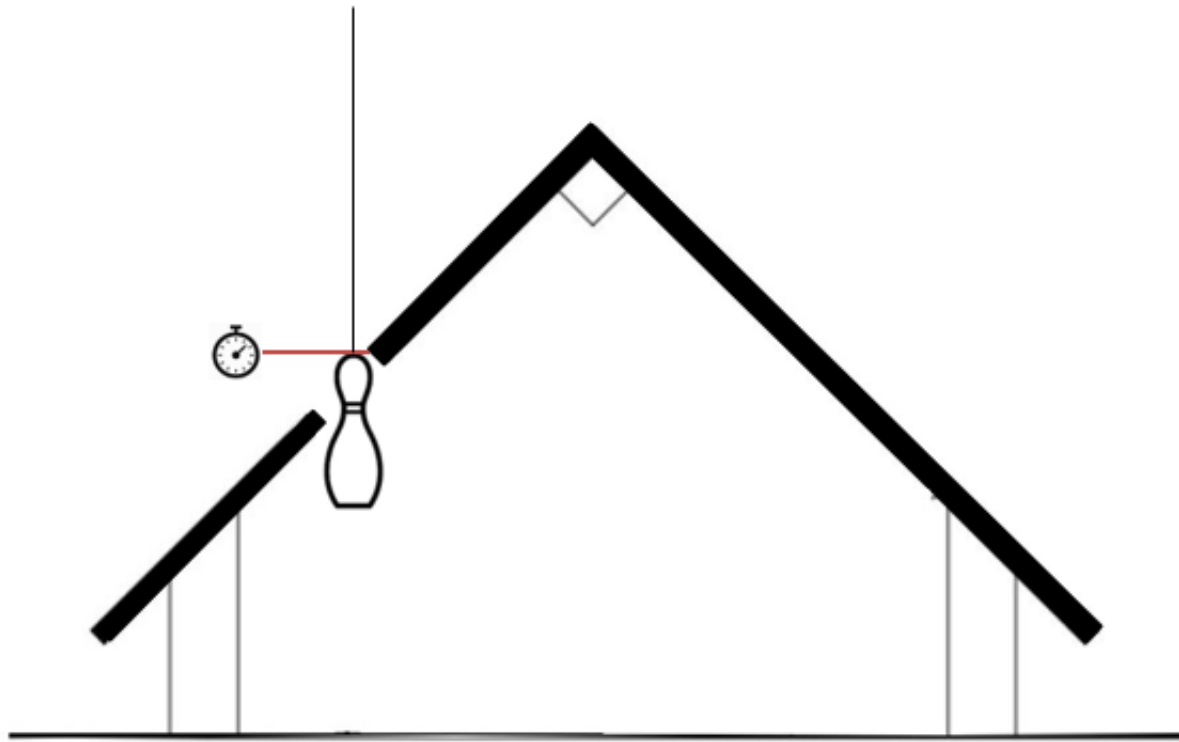
6.8 Fender Rigging Course



6.9 Fender (not to scale)



6.10 Doghouse



Sketch for Timekeeping at Doghouse

7 Slalom Rules

7.1 Description

The Event requires precise flying to manoeuvre a bucket filled with water, attached to a rope, through several gates and setting it down on a table (see section 7.12). The directions of the gates to be flown will be drawn and together with the exact flight time and the exact positions of the gates announced at the event briefing.

7.2 General requirements

Both feet must be inside the booth. At the briefing, competitors will be given their estimated start time to be at line "P". During flight pilot's door must be fitted and closed. The crewmember must stay within the helicopter on his seat in a normal seated position and both feet must be inside the aircraft.

7.3 Start

Once the departure position at line "D" is clear, the responsible judge will signal the next competitor to hover from line "P" to land in front of line "D" (marked by flags, but not meant as a gate). A Judge will hand over the rope with the attached empty bucket to the crewmember (see section 7.11). Upon a visible indication of ready from the crew the judge will signal the start by dropping a start flag. The helicopter will take off from the "D" line with the bucket resting on the ground and the rope is held above the three (3) metre flag.

The time starts, when the bucket passes the departure line "D", the pilot has to fly to the large container filled with water. Manoeuvring of the rope is allowed as long as the rope is not shortened by any part of the body or touched below the red flag, both hands of the crewmember must be visible. After the bucket is filled with water the pilot climbs and the crewmember deploys the rope to five (5) metres, then the crew start to fly the course.

7.4 Flying through course and gates

Section 7.10 shows a sketch of a course. The gates shall be flown in the given order and back in reverse order. A gate is correctly passed if the upper edge of the bucket passes below the top of the gate poles. If the bucket misses a gate it must be taken back around outside of the poles before another attempt is made. Multiple opportunities to pass a gate correctly are allowed. The judge will score correct or incorrect gate passage once the bucket is flown to the next gate.

7.5 Exit and Table

After the last gate (gate 1) has been passed again the crew has to place the bucket on the table at the given total time. The time is stopped as soon as the bucket touches the table surface for the first time. The rope is held by the crewmember by the handle at the end of the rope. The rope must be completely deployed and free of knots before passing the five (5) metre circle around the centre of the table. Manoeuvring with the rope is allowed as long as the rope is not shortened at or below the upper flag by a body part. Both hands of the crewmember must be visible. The bucket must be placed as close as possible in or on the 20 centimetre circle (see section 7.12) and then the rope must be dropped.

7.6 Time

Timing starts when the bucket crosses the "D" line after the start signal and ends when the bucket touches the table surface for the first time. The total time announced in the briefing must be achieved as accurately as possible.

7.7 Measurements

The amount of water remaining in the bucket and the distance of the bucket from the centre of the table are measured.

7.8 Points tie

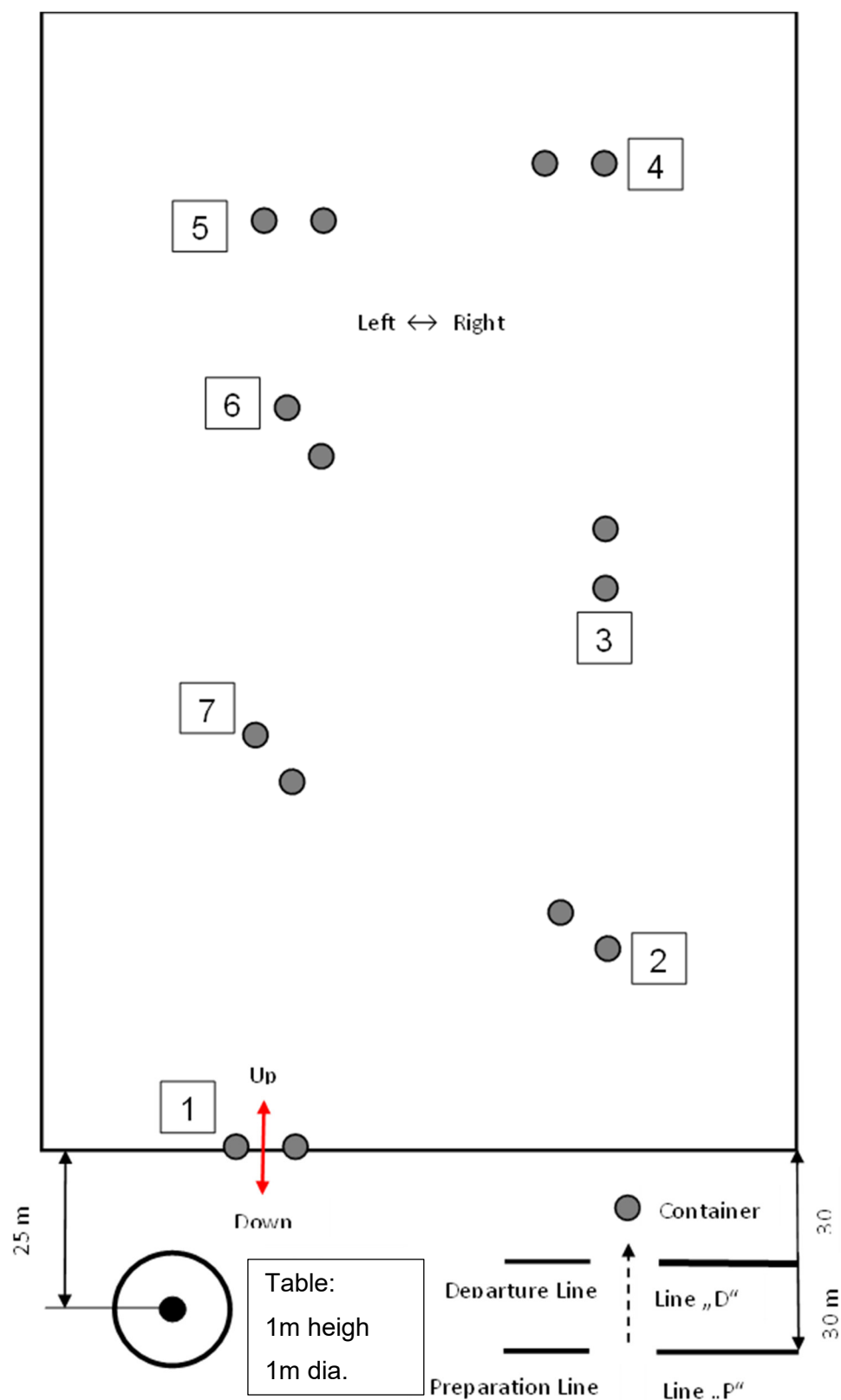
In the event of a tie the crew with the more accurate flight time primarily or the higher water level secondarily wins.

7.9 Scoring Slalom

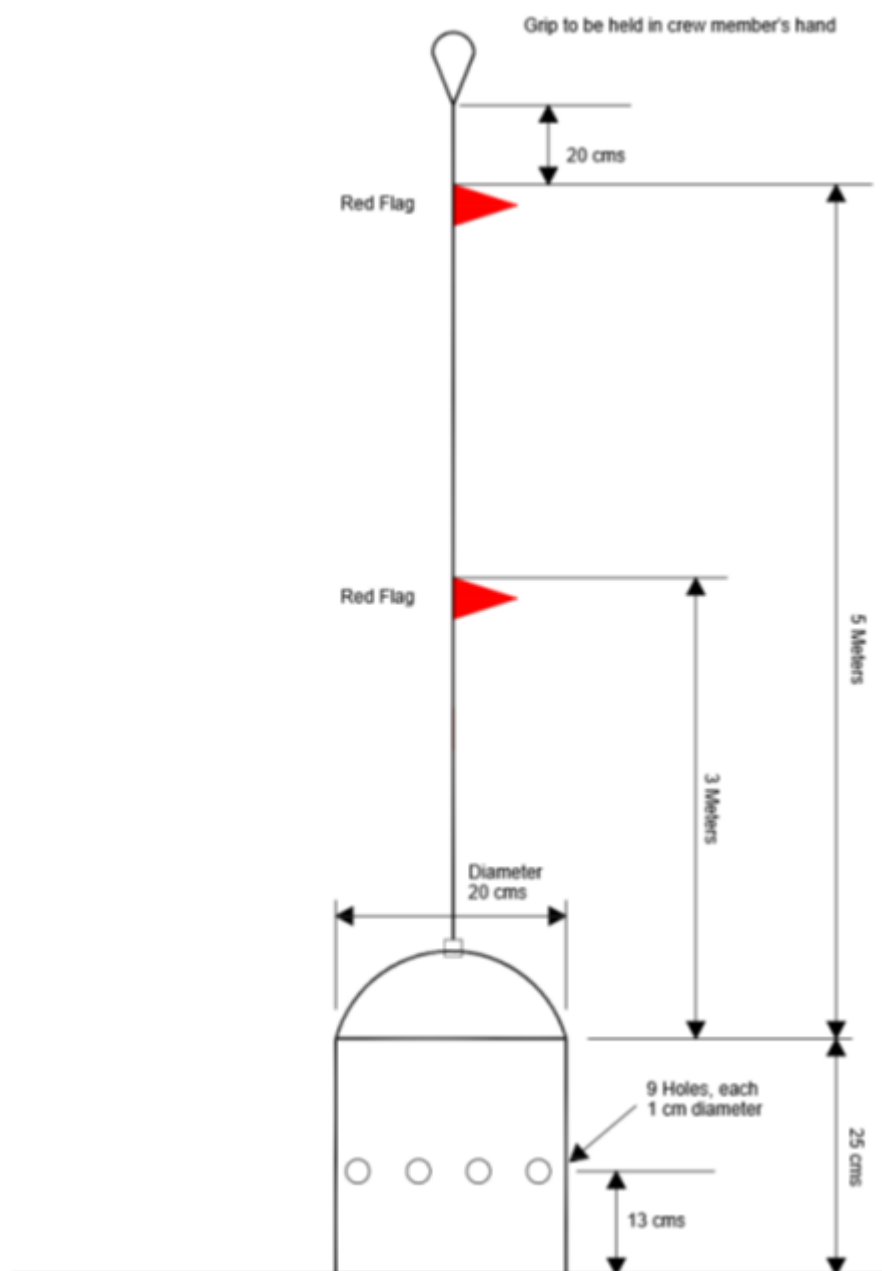
Violations	Penalty Points
Each tenth of a second over or under the allocated flight time	0.1
Passing a gate in the wrong order or different direction (each)	10
Missing a gate by missing or bucket over poles	10
Bucket lost on course	300
Crew not staying correctly seated or harnessed	50
Rope not deployed to full metres or has knots, rope shortened (each)	30
Distance between the bucket and the centre of the target per tenth of cm	0.1
Bucket not set down on the table*	80
More than one set down attempt per attempt	30
Each tenth of cm below the specified water level	0.1

* If the bucket is set down on the floor outside the table, the remaining water is measured and results in normal penalty points.

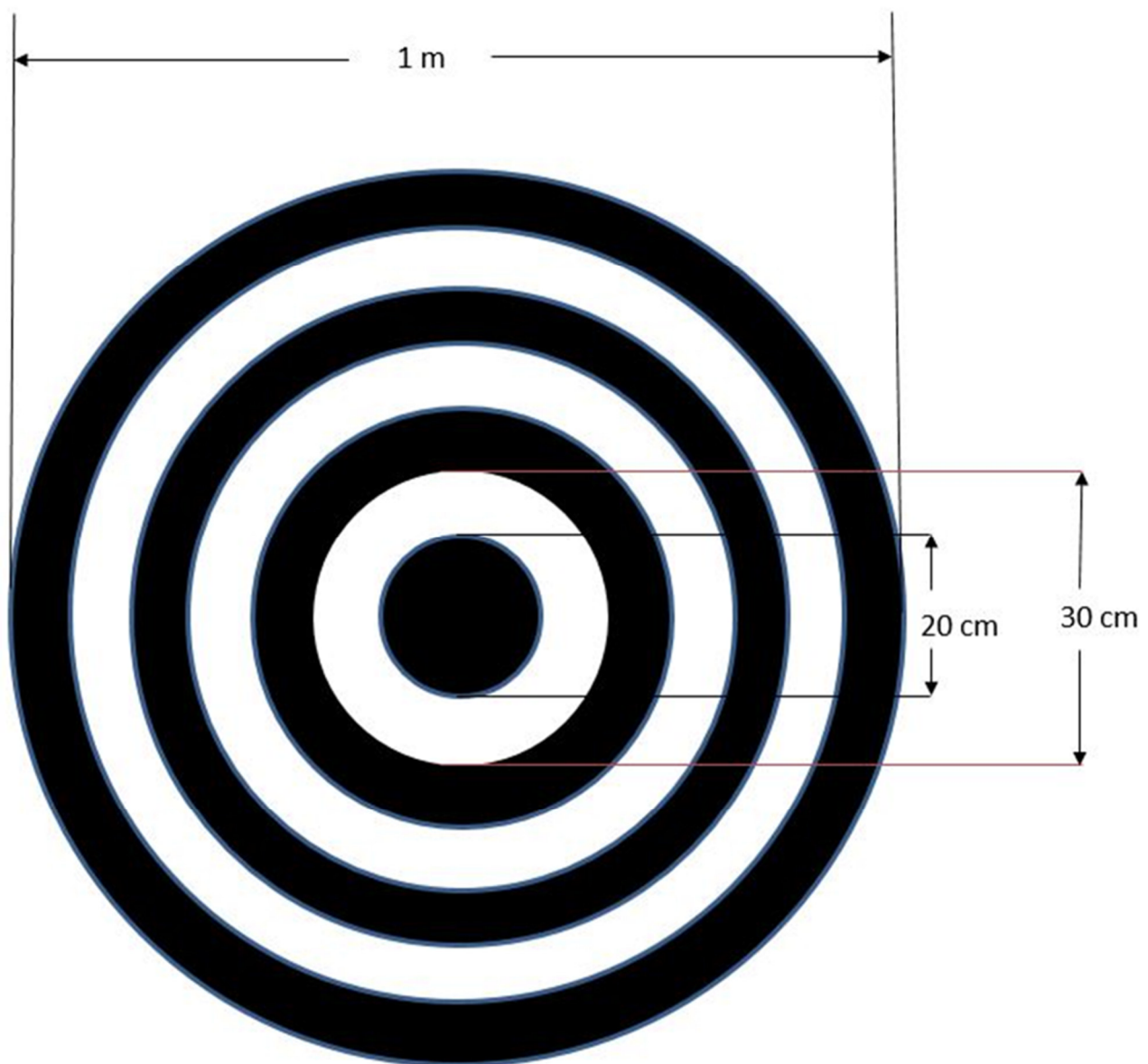
7.10 Slalom course (example)



7.11 Bucket with rope (not to scale)



7.12 Table (not to scale)



8 Helicopter Type and Competition Speed

HELICOPTER TYPE	COMPETITION SPEED (KTS)	COMPETITION SPEED (KPH)	CRUISE SPEED (KTS)
Robinson R22 – HP	64	118	80
Robinson R22 – Alpha	64	118	80
Robinson R22 – Beta	64	118	80
Robinson R22 – Mariner	56	104	70
Robinson R22 – Astro	77	143	96
Robinson R44 – Astro	88	163	110
Robinson R44 - Cadet	88	163	110
Robinson R 44 - Raven I	88	163	110
Robinson R 44 - Raven II	88	163	110
Robinson R 66	88	163	110
Bell 47	56	104	70
Bell 205 (UN-1H)	80	148	100
Bell 206 I Jet Ranger	80	148	100
Bell 206 II Jet Ranger	80	148	100
Bell III Jet Ranger	80	148	100
Bell 206 Long Ranger	80	148	100
Bell 212	80	148	100
Bell 214	90	166	115
Hughes 300A	60	111	75
Hughes 300B	60	111	75
Hughes 300C	60	111	75
Schweizer 300	60	111	75
Schweizer 300CB	56	104	70
Schweizer 330	72	133	90
Hughes 500HS	80	148	100
Hughes 500C	80	148	100
Hughes 500D or MDHC 500D	90	166	120
Hughes 500 or MDHC 500E or F	90	166	120
Hughes 500 or MDHC 530N or F	90	166	120
Aerospatiale Gazelle	90	166	140
Aerospatiale Ecureuil or ASTAR AS350B	90	166	115
Aerospatiale Ecureuil or ASTAR AS350B2	90	166	120
Aerospatiale Dauphin (HH-65)	90	166	140
Mil Mi – 2	72	133	90
Enstrom F28A	56	104	70
Enstrom F28C or F	64	118	80
Enstrom F280C	64	118	80
Enstrom 280 FX	72	133	90
Alouette II	64	118	80
Alouette III	72	133	90
Eurocopter EC 120	90	166	122
BO 105	90	166	120
Cabri	64	118	80

Helicopter competition speed will be 80% of the maximum safe sustainable cruise speed in straight and level flight with two average weight persons and 1.5 hours fuel on board.

The maximum competition speed will be 90 kts (166 kph)

9 Complaint Form

COMPLAINT FORM / EINSPRUCH FORMBLATT	
Event / Wettbewerb	
Nationality / Nationalität	
Competitor Number / Teamnummer	
Names / Namen	
Details of complaint / Details des Einspruchs	
Signature of competitors / Unterschriften der Crewmitglieder	
Date, Time / Datum, Uhrzeit	
Signature of reciving official / Unterschrift durch den erhaltenden Chefschiedsrichter/Wettbewerbsleiter	