



## TASK CATALOGUE

Version – 01/2023

# PORTUGUESE PARAMOTOR NATIONAL LEAGUE 2023 - CHAVES

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## 2 INTRODUCTION

### 2.1 PRINCIPLES
















The purpose of the organization is to achieve a fair and safe competition for all pilots, as well as promote Paragliding to the public.

Since 1994, Chaves as a long tradition in paragliding, in the las 14 years also paramotoring. This year and for the first time, will have a Paramotor FAI 2 competition format.

There are three key objectives to our championship structure: firstly to award trophies to the pilots that demonstrate the highest degree of skill through tasks that accurately represent the flight planning, decision making, and aircraft control necessary to fly paramotors safely and enjoyably; secondly, to promote and encourage pilot skill development, providing a safe and nurturing environment in which pilots at any level can expand their skills by learning from the top pilots in the country; third, give a good show to the crowd making everyone happy and creating a bigger possibility of growing this spectacular sport.

Fundamentally, the competition is a compilation of navigational and piloting challenges, most of which can be attempted at any point during the allowed flying hours of the competition, that takes place over a period of several days. Further bonus points can be gained by collecting turn points en-route to and from the precision tasks. Pilots have several tasks to achieve within flying hours each day. Careful flight and weather planning across the period of the competition is therefore essential, as is equipment selection to maximise long-distance flight, fuel economy balance and precision handling.

### 2.2 SYMBOLS

Key to symbols used in the task catalogue				Marker Symbols
	Line drawn before takeoff	FP □	Finish point	<b>H I K L N T U X O = Π Δ</b>
	Line drawn after takeoff	FP Δ	Finish point with time gate	
	Free flight	Δ Π	Marker identity given before takeoff	
	Direction of travel		Home airfield	
□	Marker selected from list of Marker Symbols		Outlanding airstrip	
○	Ground feature to be identified from photograph		Direction of landing	
⬠	Turnpoint		Left hand circuit	
	Turnpoint to be identified from photograph		Right hand circuit	
	Ground feature to be photographed or controlled by FR evidence.		Circuit height above ground in feet	
△	Timing point or gate		Windsock	
SP □	Initial or Start point		Landing direction indicator	
SP Δ	Initial or Start point with time gate		Road or track	

### 3 TASK TYPES

The competition will be divided into three categories:

- N** Navigation: flight plan, estimated times, and speed. Without limiting fuel.
- E** Economy: Autonomy, speed range, and duration of fuel. With fuel limitation
- P** Precision: Flights by gates, around pylons, kicking sticks, knocking pins, making baskets, precision take-offs, and landings on the target.

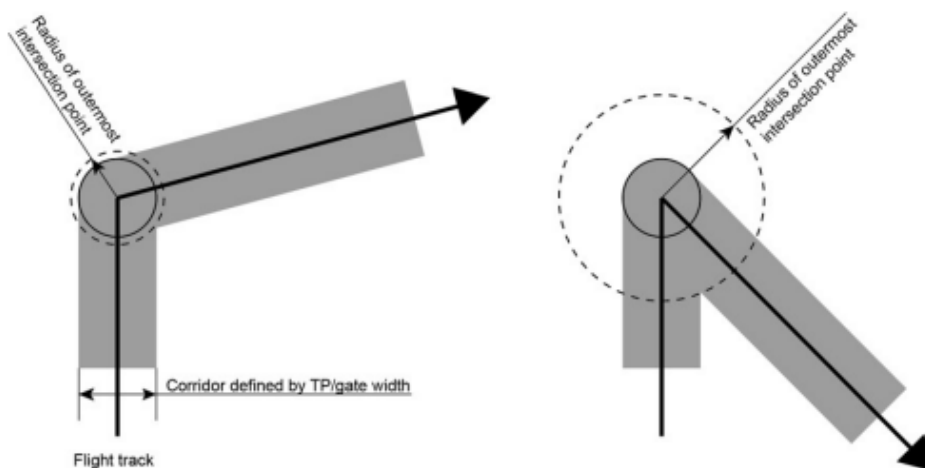
Each task will have a maximum score of 1000 points and the results normally have score normalized by higher performance pilot who receive full marks, and the other competitors will have score in proportion to the better performance.

Any task may be set more than once, either identically or with variations.

Distances and times to be flown will be defined at the task briefing.

In any task requiring pre-declaration of speed or elapsed time the Director may set up hidden gates through which the pilot would fly if on the correct flight path. Pilots failing to be checked through such gates or who are observed flying a devious path to adjust timing/speed errors may be penalized. No information will be given at briefing on the existence or whereabouts of hidden gates, or the method by which they are controlled.

Backtracking is defined as flying with an angle of greater than 90 degrees in respect to the intended flight direction. This limitation is extended to the corridor defined by the width used to score gates/turn points in the task. The only exception to this is within a corridor defined by the distance from the center of the turnpoint to the outermost point of intersection between the two corridors, as defined by the following diagram.



In tasks with more than one possible active track line (e.g. Cog wheel navigation with unknown legs), all track lines shall be considered as active.

#### 4 GENERAL SCORING CRITERIA

The maximum score may be up to 1000 points per task.

The results of the tasks will be standardized for the best performance according to the following formula:

$$P = (Q / Q_{max}) \times 1000$$

Where: Q = Pilot score, Q<sub>max</sub> = Best score of the task, P = Final Score for the Pilot

The Q and Q<sub>max</sub> scores are considered after the penalties applied.

In the specific case of minimum time control, the results are normalized by the better performance (less time) according to the following formula:

$$P = (T_{min} / T) \times 1000$$

Where: T<sub>min</sub> = min (best) time of task; T = pilot time; P = Final Score Pilot

The scores T and T<sub>min</sub> are considered after the penalties applied.

Depending on the task, some pilot performance evaluations can be measured with absolute scores functioning as bonus. When the combination of tasks is used, performance bonus must not exceed 50% of the total points available on the task, <= 500 points.

Ex.:  $P = Q/Q_{max} \times 750 + y$  (ex: where the maximum value of this item is 250 points)

In this case, Q = Pilot score, Q<sub>max</sub> = Best score of the task, y = a bonus for performance in some other category; P = Final Score Pilot. The Q and Q<sub>max</sub> scores are considered after the penalties applied. **If the main task result "zero" the pilot will not be entitled to the bonus.** In the task that have combined scoring, the best pilot maybe cannot reach 1000 points, because part of score is not normalized. See description in each task.

Some proofs may have only one category or combine with other categories of tasks, as long as the task is declared valid for the most relevant category (> 50%) and its result is specifically linked to that category (Navigation, Economy, and Precision).

A score given to a competitor shall be expressed to the nearest whole number, 0.5 being rounded up (S10 4.34.15) (Ex.: 600,25 = 600; 892,50 = 893; 783,68 = 784). This criterion will apply to score each task.

**5 SIGNALAZING**

**Flag on Main Mast will show:**

No flag on display	The championship window is closed.
<b>Green flag</b>	<b>Open Window for Flight</b> Authorized entering quarantine and flight to attend the task.
<b>Red flag</b>	<b>Closed Window Temporarily for Flight.</b> Pilots cannot take off. However, those who are in the air should continue the task.
<b>Black Flag</b>	<b>Closed Window for Flight.</b> Pilots must land immediately and cannot take off. Applies to all pilots.

**Handheld flags with Marshals.**

Marshals have flags in hands that will be used to authorize the take-off or stop, depending on the traffic of paramotor or poor weather conditions. In some precision tasks the flags may be used to signal for opening the gate or landing site, in addition to indicating the validity or penalty to the pilot shortly after his execution.

FLAGS W/ MARSHALS	ON DECK	THE TASK SITE
<b>Green flag</b>	<b>Authorized take-off</b>	Signals that the gate, landing site, and the relaunch is authorized, and the pilot should continue in the task.  Started the task by the competitor, the green flag raised by the Marshals indicates that the competitor meets the task and is being properly judged.
<b>Red flag</b>	<b>Unauthorized take-off, and the pilot must wait.</b>	Signals that the Gate, landing site, or relaunch is prevented / closed, and the pilot must wait in flight (or no authorization to relaunch).  Started the task by the competitor, the red flag raised by the judge indicates that the time has run out and/or a problem in the circuit was detected. The pilot must leave the task course.  In timed tasks indicates that SP was not crossed properly
<b>Black Flag</b>	<b>The window was closed.</b> The pilot should abandon the launch area.	Signals that the gate or landing site is closed, and the pilot must land immediately

## 6 N NAVIGATION

### 6.1 N1 PURE NAVIGATION

#### Objective

This is a time-limited task in which the pilot must fly a course of their choosing from a given array of turn points, in order to collect as many points as possible within the time limit set for the task. The pilot must pass a starting gate (SP) and a finish gate (FP) and also pass individual intermediate gates during the task as specified in the briefing. There are no pre-declaration elements. Unless otherwise indicated, the pilots will perform free take-off from your designated deck, under Marshals supervision, and within the window of the task.

#### Special rules

**If the waypoint is collected two or more times during the task period, then it is deleted from the total count.**

Within the limited period for the task (T) 5 min tolerance for passing the PF is allowed, within which all the waypoints are counted. At the end of time T + 5min (inclusive) no further waypoints will be counted. If the pilot reaches the FP within the time T with 5 min of tolerance, 100% of the waypoints will be counted. If you arrive between 5 (exclusive) and 10 min (inclusive) will have 5 points deducted in its general computation of waypoints, and 10 (exclusive) to 15 min (inclusive) will have a deduction of 10 points. From 15 min (exclusive) the score will be "zero" for task. The WPT have different weights, with the closest weight "1", the intermediate weight "2" and the farthest weight "4". The value of each WPT will be informed on the map to be provided to pilots. The deduction of points for delay in passing the FP will be applied after applying the points of each turn point.

Times for open window, time to take-off, closing of take-off windows, turn points and last landing will be displayed in writing. If the start is delayed, given times will be correspondingly delayed unless specifically briefed to the contrary.

#### Score

$$\text{Pilot score} = P = (NBp / NBmax) \times 1000$$

Where, according to briefing;

NBp = The number of ground markers and/or turn points a pilot collects in the task, discounted penalties

NBmax = The maximum number of markers and/or turn points collected in the task, discounted penalties

#### Penalties

100% penalty will be applied for:

- Passing the finish gate FP more than 15 minutes over the specified task time;
- Not cross the SP or FP or crossing over into the wrong order;
- Cross the SP or FP outside the task window;
- Take-off or landing outside the task window;
- Flying in a prohibited airspace;



**Other penalties:**

- Landing outside the airfield - 50% penalty will be applied;
- Passing through the FP between  $T > 5$  and  $T \leq 10$  minutes late; deduct 5 points.
- Passing through the FP between  $T > 10$  and  $T \leq 15$  minutes late; deduct 10 point.

**Example:**

Take-off time window:	3 pm
Maximum Time of proof between SP and FP (T):	60 minutes (tolerance +5 min)
Pilot time held between SP and FP (T):	65 (ok)
Total waypoints and turn points available in the task =	20 waypoints
Collected by pilot x the weight points =	15 points (5wpt x 1+ 3wpt x 2 + 1wpt x 4)
Most points collected in the task by a pilot =	30 points
Pilot Score = $P = (15/30) \times 1000 =$	<b>500 points</b>

**Precautions**

Maintain eye contact with other pilots who may be in separate traffic of yours. Do not focus only on the map and on the ground because there are other pilots in navigation. Give preference to those who are lower altitude. As the circuit is free in this task, prioritize left turns and a maximum of 90 degrees. Fly predictable. Overtaking should preferably be done to the right of the pilot who will be overtaken.

**Landing**

After crossing the finishing point (FP = Finish Point), the pilot must start your landing procedure. Unless otherwise briefed, pilots should make a close circuit with preset at the designated location and other visual security pilots. Immediately after landing and have their paramotors in a safe place, pilots must take their tracking devices (GPS) properly sealed to the Judge or Marshals Proof.

**6.2 N2 NAVIGATION WITH PRECISION ROUTE - DECLARED TIME / SPEED / ACCURACY OBJECTIVE**

**Objective**

This is a task in which the pilot must fly a path defined by an arbitrary line on the map, providing time estimates and a time limit of the task.

**Planning**

A flight circuit will be set through the starting point (SP) and finish (FP) and a line drawn on a map with a small number of "Timing Gates" for taking the time (TG). All TG points will be known before take-off.

Pilots will fill a declaration sheet indicating the estimated arrival times for each TG in the circuit, including the point of arrival. The estimated time will be given in seconds starting from the SP, but it is recommended that the pilot has the same time in HH: MM: SS to use your timer for the task. You will have 10 min for flight Planning in quarantine. The pilots will deliver his statement to a marshals/judge immediately prior to take-off.

**Take-off**

Unless otherwise stated in the briefing, the pilots will perform a free take-off within the take-off window time.

**Timing / Cancelation**

Times for open window, time to take-off, closing of take-off windows, turn points and last landing will be displayed in writing. If the start is delayed, given times will be correspondingly delayed unless specifically briefed to the contrary.

All competitors in a class may have the opportunity to take off and complete a task, however the Director may suspend flying after take-offs have started, if to continue is dangerous. Pilots who do not take-off within the take-off window will score zero in the task.

**Flight**

The time will begin counting when the Paramotor cross the SP (starting gate). Pilots must remain precisely on the circuit trying to go through the time making Gates and Turn points in the defined order and the estimated times. Navigation and the end of time taking place in the FP (finishing gate). If a Turn point is collected two or more times during the task period, then it is deleted from the total count.

There will be Hidden gates (HG) throughout the path. The gates must necessarily be crossed in order and proper direction.

The time in this task will be measured normally at four crossing points (TG) and checked against pilot returns.

<b>SP</b>	→	<b>TG1</b>	→	<b>TG2</b>	→	<b>TG3</b>	→	<b>FP</b>
t=0	HG	T1	HG	T2	HG	T3	HG	T4/Tt

**Landing**

After crossing the finishing point (FP = Finish Point), the pilot must start the landing procedure. Unless otherwise briefed, pilots should make a close circuit with preset at the designated location and other visual security pilots. Immediately after landing and have their paramotors in a safe place pilots must take their tracking devices (GPS) properly sealed to the Judge or Marshals Task.

**Scoring**

There will be 3 known timing gates TG defined, and various Hidden Gates HG not known. The turn points and hidden gates will have R=100 m, so the corridor between each turn points will have 200m of width.

$$Q_{ht} \text{ (HG + TP - Hidden Gates/Turn points)} = (H_t / N_{ht}) \times 1500$$

N<sub>ht</sub> = Number of Gates and turn points used in the task

H<sub>t</sub> = Number of Gates and turn points correctly crossed by the pilot

$$Q_t \text{ (TG - Gates Timing)} = \sum H_i \text{ (Sum of points for each gate, zero to 1500, 4 x 375 Pts TG).}$$

H<sub>i</sub> = 375 - E<sub>i</sub> (value from 0 to 375)

E<sub>i</sub> = the absolute error in each gate in seconds with 5 seconds tolerance and a maximum of 300 sec (5 min). Difference between the stated time (ETA) and the one considered in the crossover point.

Gates not crossed, the score is zero at the gate.

$$Q_v \text{ (speed)} = (T_{min} / T_t) \times 750$$

T<sub>t</sub> = pilot flight time from SP to FP

T<sub>tmin</sub> = Less evidence of a pilot time from SP to FP

$$Q = Q_{ht} + Q_t + Q_v \quad \text{(Maximum 3750)}$$

At where:

Q<sub>h</sub> ranges from 0 to 1500 (40% of overall score)

Q<sub>t</sub> ranges from 0 to 1500 (40% of overall score)

Q<sub>v</sub> ranges from 0 to 750 (20% of overall score)

$$\text{Pilot Score } P = (Q / Q_{max}) \times 1000$$

Example:

**Hidden Gates/turn points**

N<sub>ht</sub> = 10 Locations total of task

H<sub>t</sub> = 7 crossed locations by pilot within the pin defined by the radius

$$Q_{ht} = 7/10 \times 1500 = 1050$$

**Gates timing**

NTG = 3 Legs

GATES TIMING	DECLARED TIME (ETA)	MEASURED TIME1	EI = TIME DIFFERENCE (SEC)	EI = TIME DIFFERENCE* (SEC)	SCORE (HI = 300 - EI)
SP	T = 0	T = 0			
TG1	T1 = 950 sec	1050 sec	[950-1050] = 100	95	205
TG2	T2 = 1500 sec	1900 sec	[1500-1900]=400	300*	0
TG3	T3 = 2200 sec	2205 sec	[2200-2205] = 5	0*	300
FP	T4 = 2800 sec	3000 sec	[2800-3000]=200	195	105
Tt		3000 sec		Qt =	610

**Velocity**

$T_t = 3000 \text{ sec}$  (measure time)

$T_{tmin} = 2000 \text{ sec}$  (best measured task time for a pilot)

$Q_v = 2000/3000 \times 750 = 500$

FINAL SCORE Pilot

$Q = Q_{ht} + Q_v + Q_T + 1050 + 61 + 500 = 2160$

$Q_{max} = 3300$  (best sum of one pilot in task)

$P = (2160/3300) \times 1000 = 654,54 = 655$

**P = 655 points**

**Penalties**

100% penalty will be applied for:

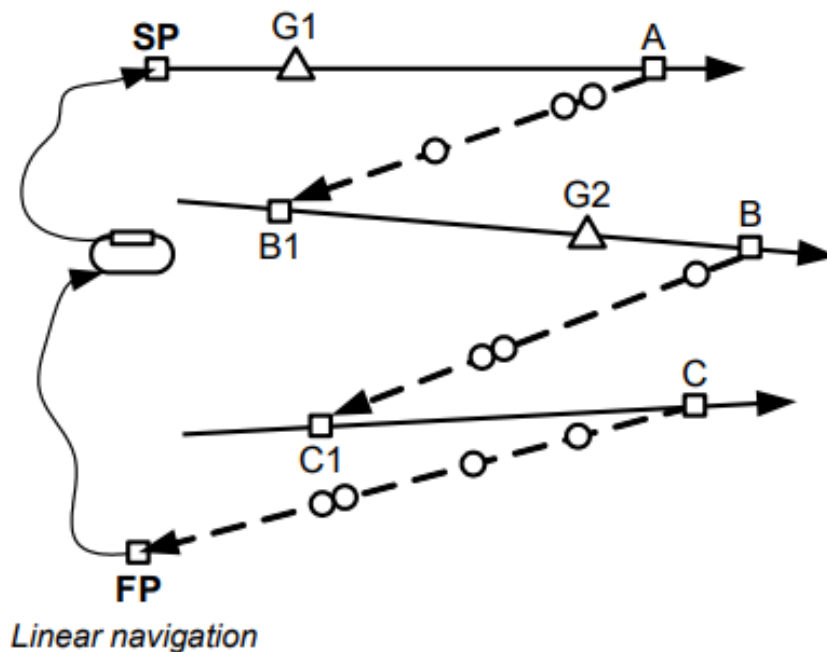
- Flying in the opposite direction of the defined circuit.
- Backtracking
- Not crossing the SP or FP or crossing over into the wrong direction;
- Cross the SP or FP outside the task window;
- Take off or land outside the task window;
- Flying in prohibited airspace;
- Other foreseen in the Local Regulation, including disqualification.

50 % penalty will be applied for:

- Landing outside the airfield;

**Precautions**

Maintain eye contact with other pilots who may be in separate traffic of yours. Do not focus only on the map and on the ground because there are other pilots in navigation. Give preference to those who are lower altitude. Prioritize left turns and a maximum of 90 degrees. Fly predictable. Overtaking should preferably be done to the right of the pilot who will be overtaken.



### 6.3 N3 NAVIGATION IN CURVE – DECLARATED TIME / ACCURACY

#### Objective

This is a task in which the pilot must fly a combined path of linear and curved sections defined by an arbitrary line on the map, providing time estimates to fly specific stretches (linear) and collect the largest number of checkpoints (Hidden Gates) arranged along the curved sections and arbitrary. The pilot will also have to demonstrate skill in take-offs.

#### Planning

A flight circuit is defined through the starting point (SP) and final (FP) with a line drawn on a map, with linear portions delimited by two waypoints (WPT) known for timing gates (TG) and a series of checking points over the curved sections not known (Hidden Gates - HG). The TG and HG are considered gates has R=100m, and corridor between them with 200m width.

Pilots will fill a declaration sheet indicating the estimated times for each of the defined linear sections on the map. The estimated time will be given in seconds between TG, but it is recommended that the pilot has the same time in HH: MM: SS to use your timer for the task. You will have 10 min for flight Planning in quarantine. The pilots will deliver his statement to a marshals/judge immediately before take-off or when the briefing indicate otherwise.

#### Timing / Cancelation

Times for open window, time to take-off, closing of take-off windows, turn points and last landing will be displayed in writing. If the start is delayed, given times will be correspondingly delayed unless specifically briefed to the contrary.

All competitors in a class may have the opportunity to take off and complete a task, however the Director may suspend flying after take-offs have started, if to continue is dangerous. Pilots who do not take-off within the take-off window will score zero in the task.

#### Take-off

Unless otherwise stated in the briefing, the pilots will perform a free take-off within the take-off window of time, but this will be scored. A take-off at the first attempt considered clean receive 150 points, the second 100 points and 50 points on the third attempt. Zero in subsequent attempts.

#### Flight

The flight should take place within the defined time window at the briefing. The task will be considered open after passage through the SP. Pilots must remain precisely on the circuit in the order defined on the map. The timing will be computed in the points of opening and closing of each linear section (T1, T2 and T3). The proof will be finalized when the FP is crossed. The gates must necessarily be crossed in order and proper direction.

The time in this task will be measured at different linear sections (Tn) and checked against the pilot's statements. If a waypoint is collected two or more times during the task period, then it is deleted from the total count.

#### Landing

After crossing the finishing point (FP = Finish Point), the pilot must start your landing procedure. Unless otherwise briefed, pilots should make a close circuit with preset at the designated location and other visual security pilots. Immediately after landing and have their paramotors in a safe place pilots must take their tracking devices (GPS) properly sealed to the judge or Marshals Task.

#### Score

Many TG points will be set in linear section, and several unknown HG over the curved sections. The HG/WPT result in a maximum of 400 points, the speed on linear section 450 points, and the take-off up to 150 points. The final score of the pilot will be normalized considering the best score 1000 points.

**Pilot Score  $Q = (NBp / NBmax) \times 400 + (450 - \sum Ei) + To$**

NBp = Number of HG/WPT collected by the pilot in the task, less penalties.

NBmax = Highest number of HG/WPT collected by a pilot in the task, discounted penalties.

$\sum Ei$  = Sum of differences of the stated times and measured in 3 sections (Maximum of 3 x 150 = 450).

To = Take-off (maximum 150 points)

$\sum Ei$  = Ei = the absolute error in each second portions with 5 sec tolerance and a maximum of 150 sec (2 '30 "). Difference between the declared time (ETA) and time determined by the intersection of the start and end points of each section. Gates did not cross the score is zero in that leg. Ei = (declared time - measured time) in each section being 150 at the maximum.

To Take-off Value = 150 points 1<sup>st</sup> Attempt.  
 100 points 2<sup>nd</sup> Attempt.  
 50 points 3<sup>rd</sup> Attempt  
 Zero > 3 Attempt.

**Final Score of the Pilot  $P = (Q / Qmax) \times 1000$**

Example:

**Hidden Gates (HG) / Waypoints (WPT)**

NHgw = 40 Hgw full on task

NBP = 14 HG/WPT crossed by the pilot within the pin of R = 100 m

NBmax = Maximum number of HG collected by a pilot within the pin R=100m; = 28

$NBP / NBmax \times 400 = 14 / 28 \times 400 = 200$  points (maximum 400 points)

**Gates timing**

NTG = 3 Gates Section's

TIMING LINES	DECLARED TIME (ETA)	MEASURED TIME2	EI = TIME DIFFERENCE (SEC)	EI = TIME DIFFERENCE* (SEC)	SCORE (HI = 150 - EI)
T1	T1 = 540 sec	580 sec	40	35	115
T2	T1 = 600 sec	540 sec	60	55	95
T3	T2 = 950 sec	1150 sec	200	150*	0
				240	210

\*Maximum value = off 150 sec (2.5 min)

$450 - \sum Ei = 450 - 210 = 240$  points (maximum 450 points)

**Take-off**

Took off on 2nd try To = 100 points (Maximum 150 points)

**Pilot Score**

$Q = 200 + 240 + 100$  Q = 540 points

**Maximum Pilot Score in Task**

Q max = 800 pontos

**Final Scoring of Pilot**

$P = 540 / 800 \times 1000 = 675$  points

**Penalties**

100% penalty will be applied for:

- Flying in the opposite direction to the defined circuit.
- Backtracking
- Not crossing the SP or FP or crossing over into the wrong direction.
- Cross the SP or FP outside the task window.
- Take off or land outside the task window.
- Flying in prohibited airspace;
- Other foreseen in the Local Regulation, including disqualification.

50 % penalty will be applied for:

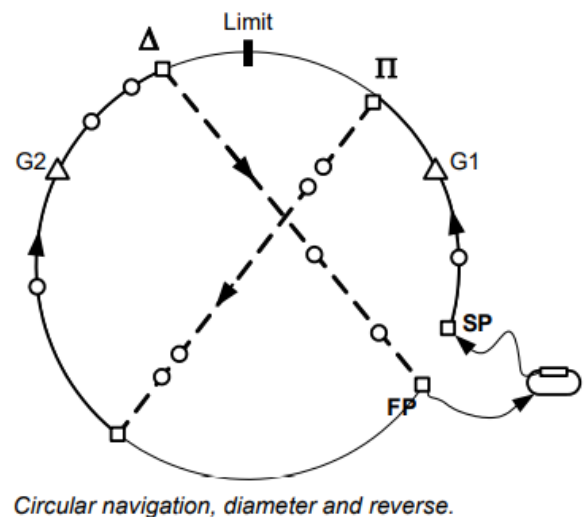
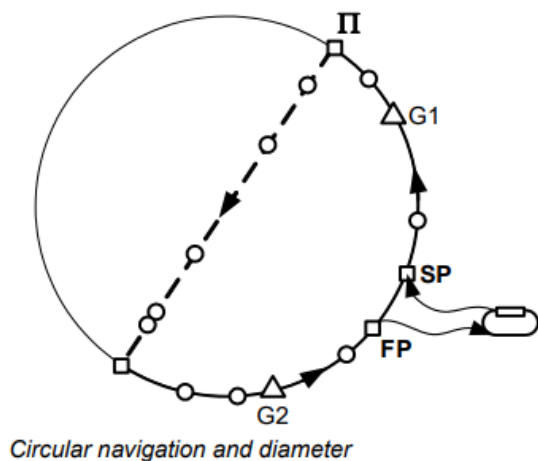
- Landing outside the airfield;

**Precautions**

Maintain eye contact with other pilots who may be in separate traffic of yours. Do not focus only on the map and on the ground because there are other pilots in navigation. Give preference to those who are lower altitude. Prioritize left turns and a maximum of 90 degrees. Fly predictable. Overtaking should preferably be done to the right of the pilot who will be overtaken.

**Landing**

After crossing the finishing point (FP = Finish Point), the pilot must start your landing procedure. Unless otherwise briefed, pilots should make a close circuit with preset at the designated location and other visual security pilots. Immediately after landing and have their paramotors in a safe place, pilots must take their tracking devices (GPS) properly sealed to the Judge or Marshals Proof.



## 6.4 N4 PURE NAVIGATION – Maximum Distance Travelled

### Objective

This is a limited task of time in which the pilot must fly a path of your choice from a given set of waypoints, in order to cover as much distance as possible within the stipulated time limit for the task (T).

### Timing / Cancelation

Times for open window, time to take-off, closing of take-off windows, turn points and last landing will be displayed in writing. If the start is delayed, given times will be correspondingly delayed unless specifically briefed to the contrary.

All competitors in a class may have the opportunity to take off and complete a task, however the Director may suspend flying after take-offs have started, if to continue is dangerous. Pilots who do not take-off within the take-off window will score zero in the task.

### Take-off

Unless otherwise stated in the briefing, the pilots will perform a free take-off from your deck and within the task window of time.

### Flight

The flight should take place within the defined time window at the briefing. The task will be considered open after passage through the SP. Pilots must remain precisely on the circuit in the order defined on the map.

The pilot must cross the starting gate (SP) and a final gate (FP) which can be set to one of waypoint, and may also be necessary to pass certain intermediate gates during the task, as specified in the briefing. There are no pre-declaration elements. The linear distance between waypoints will not be informed in advance.

### Landing

After crossing the finishing point (FP = Finish Point), the pilot must start your landing procedure. Unless otherwise briefed, pilots should make a close circuit with preset at the designated location and other visual security pilots. Immediately after landing and have their paramotors in a safe place pilots must take their tracking devices (GPS) properly sealed to the judge or Marshals Task.

### Score

$$\text{Pilot Score} = (NBp / NBmax) \times 1000$$

At where

NBp = Sum of linear distances between points collected by the pilot in the task  
 NBmax = Largest sum of linear distances between points collected by the one pilot in the task.

### Penalties

#### 100% penalty will be applied for:

- Passing the finish gate FP more than 5 minutes over the specified task time (SP-FP);
- Not cross the SP or FP or crossing over into the wrong order.
- Cross the SP or FP outside the task window.
- Take-off or landing outside the task window.
- Flying in a prohibited airspace.
- Other describe in the Local Regulation, including disqualification if is necessary.



**Other penalties:**

- Landing outside the airfield – 50% penalty will be applied:
- Passing through a point that has already been collected invalidate this point. It will be disregarded all of the distances within this point.

Example:

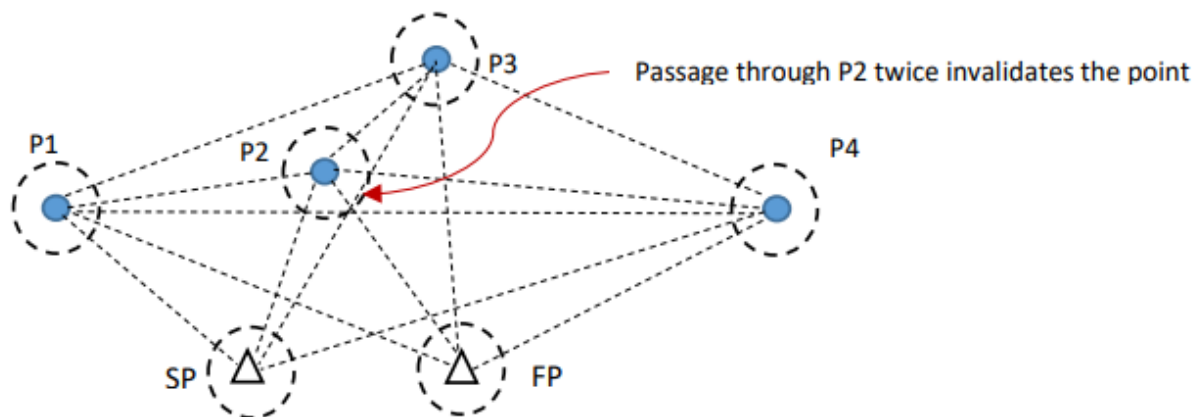
Take-off time window:	3 pm
Maximum Time of task between SP and FP (T):	1:30 pm (tolerance +5 min)
Time held between SP and FP (T):	1: 32 pm (ok)
Total waypoints and turn points the task =	5 locations (SP, P1, P2, P3, P4, FP)
And path points collected (within the pin of R = 100 m) =	SP-P4-P2-P3-FP
distance travelled (D sp-4 + D 4-2 + D 2-3 + D 3-FP) =	3.800 m
Distance Travelled most of the trial by a pilot =	4.200 m

Pilot Score =  $3800/4200 \times 1000 = 904.76$  905 points

Passing through a point that has already been collected invalidate this point. Ex .: SP-2-3-4-2-1-FP will result in SP-3- 4-1-FP.

**Precautions**

Maintain eye contact with other pilots who may be in separate traffic of yours. Do not focus only on the map and on the ground because there are other pilots in navigation. Give preference to those who are lower altitude. As the circuit is free in this task, prioritize left turns and a maximum of 90 degrees. Fly predictable. Overtaking should preferably be done to the right of the pilot who will be overtaken.



**7 E ECONOMY**

**7.1 E1 PURE ECONOMY**

**Objective**

Take off from the launch area with a limited amount of fuel (1,5l) and fly close to the airfield as much time as you can and land on the landing area (deck). The take-off and landing time will be noted by field marshals at the time that pilots remove the last leg from the floor or the last wheel paratrike on take-off until the first contact with the ground. The accuracy of this task will be seconds.

According to new rules in S.10 2020, PL2 class will be excluded from this task.

**Description**

The flight will take place around the airfield. The pilots will wait for their turn to take off in the launch area. You receive a green flag Marshals indicating that it is allowed to take off. Your departure time will be noted (or the timer triggered). Groups will be made 4-5 pilots for judge / Marshalls and take-offs will be made in simultaneous batteries of the same number of pilots with time intervals to release the airspace.

**Score**

*Score of the Pilot  $P = (Tp / Tmax) \times 1000$*

At where

Tp = pilot flight time

Tmax = Maximum time obtained in the task for a pilot

**Example:**

Window Proof:	2 pm
Take-off Time:	13 : 14 : 50
Landing time:	14 : 05 : 10
Take-off Time in seconds = (13 x 60 min + 14 ') x 60 + 50"=	47.690 sec
Landing Time in seconds = (14 x 60 min + 5) x 60 + 10"=	50.710 sec
Time in Flight of Pilot = 50.710-47.690 =	3.020 sec
Maximum time of a pilot in task =	4.000 sec
Pilot Score = (3020/4000) x 1000 =	755 points

**Penalties**

100% penalty will be applied for:

- Take off outside the take-off window or without notice of the Marshals / Judge;
- Flying in prohibited airspace or out of view of marshals;
- Landing outside the airfield or without prior notice to the Supervisor Marshal of his landing;
- Other foreseen in the Local Regulation, including disqualification.

50% penalty:

- Land off the deck (landing area), but within the airfield and visually Marshals / Judge

### Precautions

Maintain eye contact with other pilots who are on the same circuit around the runway. Give preference to those who are lower altitude. As this brief circuit defined in performing maximum in the curves 90 degrees to the direction of the circuit. Fly predictably. Overtaking must be performed on the opposite side to the circuit.

### Landing

Unless otherwise briefed, pilots must approach in a pre-established circuit at the landing area and visually secure to other pilots.

## 7.2 E2 ECONOMY / DISTANCE / ACCURACY OF TAKE-OFF

### Objective

Take off properly with a limited amount of fuel (1.5 l), fly the longest distance and land on the landing area (deck). Take-off, cross the SP (circle), fly the longest distance, return, and cross FP (circle) and land on the flying area Deck. The accuracy of take-off is measured in bonus.

### Description

The flight will take place in the predetermined flying area. The pilot will choose the best time to take off. You receive a green flag Marshals indicating that it is allowed to take off.

### Special rules

- Clean take-off at the first attempt: 250 points;
- Clean take-off at the second attempt: 200 points;
- Clean off at the third attempt: 100 points;
- Other attempts 0 points

### Score

Pilot Score  $Q = (D_p / D_{max}) \times 750 + B_{to}$

where

- $D_p$  = Distance travelled by the pilot in flight ( $D_p$  = distance between SP and forest point), in meters
- $D_{max}$  = Maximum distance obtained in the task for a pilot ( $D_{max} = d \times 2$ ), in meters
- $B_{to}$  = take-off bonus (maximum 250 points)

### Example

Distance Pilot =	6,300 m
Maximum distance obtained in task =	7,830 m
Take-off bonus (2nd try) =	200 points
Pilot Score = $(6300/7830) \times 750 + 200 = 803,44$	(803 points)

### Penalties

100% penalty will be applied for:

- Take off outside the take-off window or without notice of the Marshals / Judge;
- Land outside the deck area or without notice to the Marshals;
- Other foreseen in the Regulation, including disqualification.

"50% penalty":

- Land off the deck (landing area, but within the airfield and visually clear to the Marshals / Judge)
- Flying height outside the established limits.

**Precautions**

Maintain eye contact with other pilots who may be in separate traffic of yours. Do not focus only on your decision rout or on the ground because there are other pilots in navigation. Give preference to those who are lower altitude. As the circuit is free in this task, prioritize left turns and a maximum of 90 degrees. Fly predictable. Overtaking should preferably be done to the right of the pilot who will be overtaken.

**Landing**

Unless otherwise briefed, pilots must approach in a pre-established circuit at the landing area and visually secure to other pilots.

**8 PRECISION**

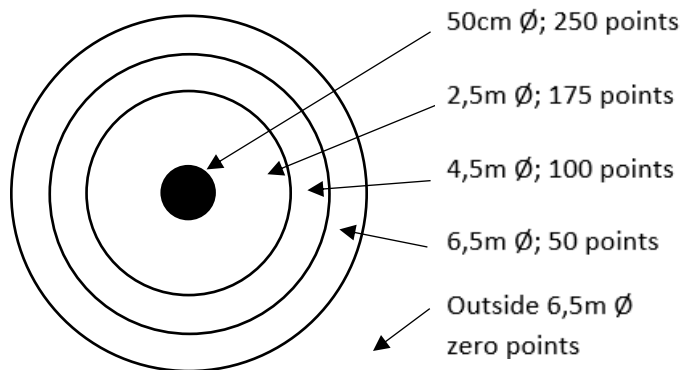
**8.1 P1 TAKE-OFF / LANDING PRECISION IN TARGET**

**Objective**

Properly take off and land with the engine off as close as possible to the target.

**Description**

The pilot will be evaluated for its take-off and flight. Will climb to a designated area, reaching at least 150 m in height. The Marshals or judge presents a green flag indicate that the target is released to the task.



In about 60 seconds after the green flag the engine must be turned off and the pilot goes to perform his first touch in the center of the target.

The point of touch will be considered the first foot or wheel to touch the ground. Two foots or wheels at the same time will be considered the closest in favor of the pilot.

The pilot must quickly leave the target area to a safe place.

If during the pilot's navigation red flag is raised, the pilot should abandon the procedure and wait in flight for new instructions. If the pilot is approaching with engine off, must land off target, leaving accuracy.

**Penalties**

- Engine off in less than 45 seconds before the first touch on the ground incurs 100% penalty;
- First touch off the deck results in 0 points;
- Fall during landing or two knees on the ground (PF) or roll over (PL) 0 points in the task;

**Special rules**

- Clean take-off at the first attempt: 250 points;
- clean take-off at the second attempt:200 points;
- Clean take-off at the third attempt: 100 points;
- Other attempts 0 points

**Score**

**Pilot Score  $P = (Np / Npmax) \times 750 + To$**

**where**

Np = Pilot score  
 Npmax = Highest score obtained by a pilot  
 To = Take-off Bonus

**Example:**

Np = 175 (2,5m diameter)  
 Np max = 250 (max, target)  
 TO = 200 (2<sup>nd</sup> Try)  
 P =  $175/250 \times 750 + 200 = 725$                       **P = 725 points**

**8.2 P2 PARABALL**

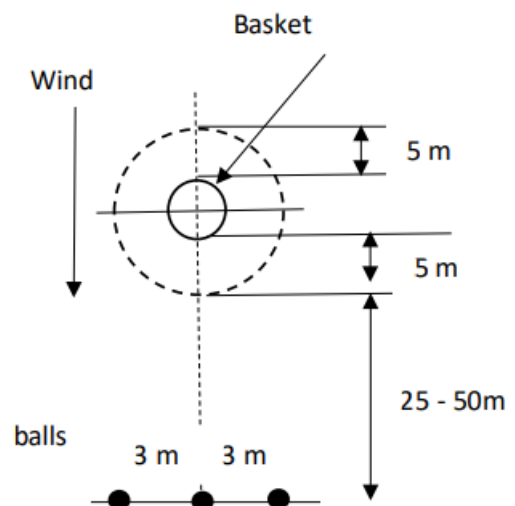
**Objective**

Deliver balls to a target (basket) or as close to the target as possible, either by carrying or hitting with feet, as quickly as possible.

**Description**

The target is a basket between 1-2m diameter and 0.5 to 1.0 m in height. 5m circle is marked on the ground around the target. 3 soft balls are placed in a line 25-50 m downstream of the target in marked initial positions, spaced 3 m from each other.

The pilot flies to the circuit designated area and waits to start the task as reported. A green flag will be waved to indicate that the pilot must start the task. A good start is when the line where the balls are is crossed within 60 seconds of the first green flag being waved.



The time starts when the line on which the balls are aligned was crossed (if the ball has been touched or not). The pilot approaches a ball, collect them with his feet and takes it to the target or kick the ball to the target. This is repeated until all the balls are in the target or the 3-minute time limit is reached.

The score is based on the time spent since the start of the task until all balls are on target and the number of balls in the basket. If the maximum time limit is reached, the number of balls at the target is counted and the distance of the target remaining balls are checked. The balls must stay on target. The balls in the basket worth 200 points, and those inside diameter of 5 m from the basket rim 50 points. The balls out of 5m diameter has no validity to score.

There are no limitations on the number, angle, speed, or height of the approaches to the balls, the number of times a ball may touch or technique to beat or carry the balls. The pilot can touch and move on the ground, but the wing must not touch the ground during the task. If the wing touching the ground the score is zero for the task.

If a pilot is carrying a ball in the air when the time limit is reached, it will take extra time to complete the delivery of the ball to the target. This extra time ends when the ball touches the ground or after 30 seconds, whichever occurs first. A red flag is waved when the time runs out. The results are then measured in this state, but the portion of timing in score is disregarded.

### Penalties

100% penalty will be applied for

- Enter the circuit out of order.
- Wing touches the ground during the task

15 seconds penalty will be added to the pilot if:

- It takes longer than 60 seconds between the green flag and the entry gate.

### Score

$$\text{Pilot Score} = (T_{\text{best}}/T_{\text{pilot}}) \times 400 + (B_n/B_{n\text{Max}}) \times 600$$

At where:

$T_{\text{pilot}}$  = measured pilot time after penalty increases (seconds) ( $\leq 180$  seconds) \*

$T_{\text{best}}$  = shorter time for a pilot in task after penalties (seconds)

$B_n$  = Pilot Points with the balls in the basket and 5m area

$B_{n\text{ max}}$  = maximum score of a pilot in the task with the balls in the basket and 5m area (max 600)

\*The portion of time is recognized only if the three balls have been scored in the basket or inside the adjacent area at the end of 180 seconds.

\* If the sum of the pilot time exceeds 180 seconds after the penalties applied, the portion of time will be discarded from the score.

### Specific rules

- Balls into the basket 200 points / ball
- Balls out of the basket, but within the area of 5 m from the basket rim 50 points / ball
- Balls will stand up to a total of 600 points (in the basket balls 3 x 200 points) 60% of the task
- Time will be worth a maximum of 400 points - 40%. The time will be counted only in if the score 3 balls have been scored (in the basket or within the 5 m), and the final time of the pilot, plus penalties, is less than or equal to 180 seconds (3 minutes). Otherwise, this portion will be eliminated from the pilot's score, with your valid task up to 600 points.
- Maximum Task Score 1000 points.

### Example:

- (1) Pilot made in 150 seconds, 2 balls in the basket and a ball 5m area. Best pilot made circuit 100 seconds and put the 3 balls in the basket.

$$T \text{ Pilot} = 150 \text{ sec}$$

$$T \text{ Best} = 100 \text{ sec}$$

$$B_n = 2 \times 200 + 1 \times 50 = 450$$

$$B_n \text{ max} = 600 (3 \times 200)$$

$$P = (100/150) \times 400 + (450/600) \times 600 = 266,67 + 450 = 716,67 = 717 \text{ points.}$$

- (2) Pilot one ball placed in the basket and one in the area of 5 m. Best pilot made circuit 100 seconds and put the 3 balls in the basket.

$$T \text{ best} / T \text{ pilot} \times 400 = \text{"zero"} \text{ (not scored 3 balls)}$$

$$B_n = 1 \times 200 + 1 \times 50 = 250$$

$$B_n \text{ max} = 600$$

$$P = \text{"zero"} + (250/600) \times 600 = 250 \text{ points}$$

- (3) Pilot three balls placed in the basket in 200 sec (the rule used for the last 30 sec ball). Best pilot made circuit 100 seconds and put the 3 balls in the basket.

$$T \text{ best} / T \text{ pilot} \times 400 = \text{"zero"} \text{ (Exceeded 180 seconds)}$$

$$B_n = 3 \times 200 = 600$$

$$B_n \text{ Max} = 600$$

$$P = \text{"zero"} + (600/600) \times 600 = 600 \text{ points}$$

### 8.3 P3 TAKE-OFF / PRECISION IN BOWLING / LANDING

#### Objective

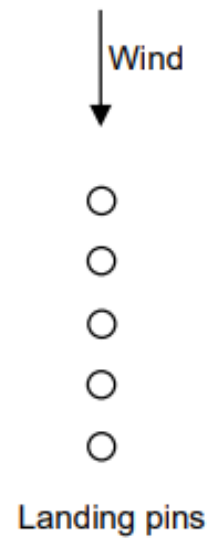
Perform a clean take-off and landing perform with the engine off, reaching as many pins as possible.

#### Description

5 pins are arranged along a line in the wind direction at equal intervals 1 to 2 m. The pilot will enter the circuit designated as soon as authorized by the Marshals reaching at least 150 m in height. A green flag will indicate that the target is released to the task. In about 60 seconds after the green flag the engine must be turned off and the pilot goes to perform his touch over the pins. The pins are simply placed on the ground and will be considered valid when they are overthrown. The pilot should remain in flight with the engine turned off at least 45 seconds before reaching any pin. Only pins overturned before the pilot touches the ground will be considered valid pins to score.

The pilot must quickly leave the target area to a safe place. If so briefed the pilot is already aware of your brand and signs the score sheet/app of the judge.

If during the pilot's navigation red flag is raised the pilot should abandon the procedure and wait in flight for instructions. If the pilot is approaching with engine off must land outside the pins, leaving accuracy.



#### Penalties

100% penalty will be applied for

- Engine off in less than 45 seconds before the first pin;
- Falling during landing or on both knees (PF), or roll over (PL);
- Touch the ground before the first pin and not score in the first pin.

#### Special Rules

- Clean take-off at the first attempt: 250 points; clean take-off at the second attempt: 200 points; Clean take-off at the third attempt: 100 points;
- Each pin is properly knocked down 50 points, totaling 250 points.

Take-off evaluation occurs from the time that the pilot intends to fly and makes the inflation of the wing.

#### Score

$$\text{Pilot Score } Q = (Np / Nmax) \times 750 + Bto$$

At where

Np = Pilot score per pins

Npmax = Highest score obtained by a pilot per pins

Bto = Take-off bonus



Example:

$N_p = 200$  (4 pins)

$N_p \text{ max} = 250$  (5 pins)

$B_{to} = 100$  (3a try)

$Q = (200/250) \times 750 + 100 = 700$

**Q = 700 points**

#### 8.4 P4 SLOW AND FAST SPEED

##### Objective

Flying a stretch as slow as possible and then fly as fast as possible, or vice versa order to be set at the briefing.

##### Description

The circuit will be performed at a maximum of 2m above the ground throughout gate SP and gate FP with a distance between 50 – 100 m from each other, where inlet and outlet electronic sensors are collecting pilots time of the task. Marshals/judges with a green flag will indicate that the field is released to the task.

If the SP fails on the finish point a red flag will indicate it, giving the pilot a second and last chance to validate the task.

The pilot must make a slow pass, return to the entrance gate and perform a fast pass in the same direction.

##### Special rules

- A valid start is considered when the pilot's body or any part of his aircraft clearly cross the start gate.
- The pilot will have 2 chances to pass the entrance gate that starts the timing.
- Booth paces slow and fast must be performed in the same direction.
- The task will be started by the slow pass, unless otherwise defined in the briefing.

##### Penalties

100% penalty will be applied for:

- Enter the circuit out of order when an order stipulated.
- Losing the SP (>2) or FP in one of the two compulsories passages.
- Touch the ground at any point between the start point and finish point.
- Pilots may only perform the task after otherised with a green flag (Marshals/judges)
- The task must be performed in a straight line, without curves.

##### Score

$Q = (T_{\text{Slow}} / T_{\text{Fast}}) \times 1000$

***Pilot Score  $P = (Q / Q_{\text{max}}) \times 1000$***

At where:

T slow = Pilot measured time in slow circuit (seconds)

T Fast= measured time pilot in the fast circuit (seconds)

Q = Pilot's score on the task  
 Qmax = Highest score of a pilot after applying penalties

**Example:**

Tslow = 45 sec  
 T fast = 28 sec Q = 45/28 x 1000 1607,14  
 Qmax = 2200  
 P = (1607/2200) x 1000 = 730,45 = 730 **P = 730 points**

**8.5 P5 SLALOM PARABALL – PRECISION / CONTROL / SPEED**

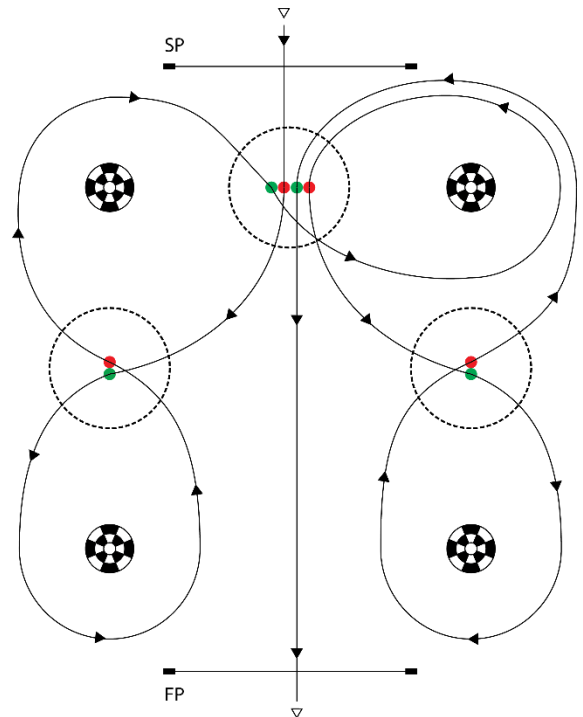
**Objective**

Perform a slalom circuit throughout the pylons and move the balls from target to target in a specific order, keeping the balls inside the circle target, either by carrying or hitting with feet, as quickly as possible.

**Description**

There are three targets marked with a 10m diameter circle. The first one as two balls and the other two have one ball each .

The pilot flies to the circuit designated area and waits to start the task as reported. A green flag will be waved to indicate that the pilot must start the task. A good start is when the pilot crosses the electronic SP line at a maximum height of 2m. where the SP is crossed within 60 seconds of the first green flag being waved. If SP fails a red flag will be waved.



The time starts when the SP is crossed. The pilot approaches a ball, collects it with his feet and takes it to the next target or kick the ball to the target. After releasing the ball on the target, go around the pylon and go get the next ball, take it to the next target, release it and continue until you complete all the steps. The last leg is as fast as possible until crossing finish point (FP) in the time limit of 5-minute. The balls released must stay inside the target circle.

The score is based on the time spent since the start of the task until the circuit is completed. If the maximum time limit is reached, the number of balls at the target is counted. The balls must stay on target. The balls in the target worth 100 points. The balls out of 10m diameter have no validity to score.

There are no limitations on the angle, speed, or height of the approaches to the balls, the number of times a ball may touch or technique to beat or carry the balls. The pilot can touch and move on the ground, but the wing must not touch the ground during the task. If the wing touching the ground the score is zero for the task.

If a pilot ends time limit after realising the last ball and immediately before the FP, it will take extra time to complete the task. This extra time ends when the FP is crossed. A red flag is waved when the time runs out. The results are then measured in this state, having a penalty of 10 points for each second in excess.

**Penalties**

100% penalty will be applied for:

- Enter the circuit out of order.
- Wing touches the ground during the task

15 seconds penalty will be added if the pilot:

- takes longer than 60 seconds between the green flag and the entry gate (SP);

**Score**

$$\text{Pilot Score} = (T_{\text{best}}/T_{\text{pilot}}) \times 600 + (B_n/B_{n\text{Max}}) \times 400$$

At where:

Tpilot = measured pilot time after penalty increases (seconds)\*

Tbest = shorter time for a pilot in task after penalties (seconds)

Bn = Pilot Points with the balls in the target

BN max = maximum score of a pilot in the task with the balls in the target (max 400)

\*If the sum of the pilot time exceeds 300 seconds after the penalties applied, the portion of time will be discarded from the score.

**Specific rules**

- Balls into the target 100 points / ball
- Balls out of the target, 0 points / ball
- Balls will stand up to a total of 400 points (4 x 100 points) 40% of the task
- Time will be worth a maximum of 600 points - 60%. The time will be counted only if the final time of the pilot, plus penalties, is less than 300 seconds (5 minutes). Otherwise, this portion will be eliminated from the pilot's score, with your valid task up to 400 points.
- Maximum Task Score 1000 points.

Example:

- (1) Pilot made in 200 seconds, 2 balls in the target. Best pilot made circuit 180 seconds and put the 3 balls in the target.

$$T \text{ Pilot} = 200 \text{ sec}$$

$$T \text{ Best} = 180 \text{ sec}$$

$$B_n = 2 \times 100 = 200$$

$$B_n \text{ max} = 3 \times 100 = 300$$

$$P = (180/200) \times 600 + (200/300) \times 400 = 540 + 266.66 = 806.66 = 807 \text{ points.}$$

- (2) Pilot made in 250 seconds, zero ball placed in the target. Best pilot made circuit 180 seconds and put the 3 balls in the target.

$$T \text{ pilot} = 250 \text{ sec}$$

$$T \text{ best} = 180 \text{ sec}$$

$$T \text{ pilot} \times 400 =$$

$$B_n = 0 = \text{“zero” (not scored 4 balls)}$$

$$B_n \text{ max} = 300$$

$$P = (180/250) \times 600 + \text{“zero”} = 432 \text{ points}$$

- (3) Pilot three balls placed in the Target in 290 sec. (crossed SP 65 sec after green flag waved) Best pilot made circuit 180 seconds and put the 4 balls in the target.

T pilot = 290 sec + 15 sec (penalty) = 305 sec "zero" (Exceeded 300 seconds)

Bn = 3 x 100 = 300

Bn Max = 400

**P = "zero" + (300/400) x 400 = 300 points**

## 8.6 P6 PRECISION WING CONTROL – TAKE-OFF / LAND / TAKE-OFF / TIME

### Objective

Perform a clean take-off, enter SP properly, land and demonstrate precise control of the wing before taking off again and finish crossing the FP.

### Description

This task is usually flown in appropriate wind conditions. A path between two electronic sensors aligned with the wind direction (considered appropriate maximum variation of 30 degrees to each side) with 80 m from each other.

The pilot will be evaluated for its take-off, control of the wing and flight time. The pilot must enter the circuit into wind, pass through the entrance gate (SP) to open your time. Then the pilot must land between the gates, letting the wing touching the ground, so that the trailing edge is clearly seen to touch the ground. When marshal / judge confirmed that the wing touched the ground, a green flag will be waved indicating that the pilot can take off again. Pilot takes off and must cross the exit gate (FP) to close their time.

### Special Rules

- A valid SP is when the pilot crosses the electronic sensors successively, shown with a green flag.
- The clock starts the moment the pilot crosses the SP and stops the moment he crosses the FP.
- Pilots have 3 attempts to cross the SP.
- Clean take-off at the first attempt: 250 points; clean take-off at the second attempt: 200 points; Clean take-off at the third attempt: 100 points, other attempts 0 points
- If a launch fails the pilot may make as many attempts as they need to relaunch the wing, within the specified time limit.
- The maximum time allowed for a pilot to complete the course is 3 minutes.

### Penalties

100% penalty will be applied for

- Enter the circuit out of order.
- finishes the course with more than 3 minutes.
- pilot relaunches the wing before being shown a green flag by the marshal.

15 seconds penalty will be added to the pilot if:

- It takes longer than 60 seconds between the green flag and the entry gate.

**Score**

**Pilot Score  $Q = (T_{best}/T_{pil}) \times 750 + B_{to}$**

At where:

$T_{pil}$  = measured time pilot (seconds)

$T_{best}$  = shorter time of the pilot in the task after penalties have been added.

$B_{to}$  = Take-off bonus

**Example:**

$T_{pil}$  = 80 sec

$T_{best}$  = 60 sec

$B_{to}$  = 100 (3<sup>rd</sup> attempt)

$Q = (60/80) \times 750 + 100 = 662,5$

**Q = 663 points**

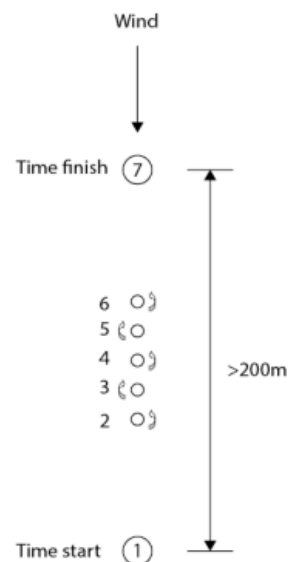
**8.7 P7 PRECISION WING CONTROL – GROUND ZIG-ZAG**

**Objective**

Land and display precise control of the wing before taking off again.

**Description**

This task is usually set during wind conditions in which a reverse take-off is possible. A straight course consisting of four pylons laid out facing approximately into wind. The precise distance between the pylons will be approximately 100m apart. At the center point between the pylons five pins are placed in line. The pins are small plastic of the type used in sports training. The task director will specify the distance between each pin at the briefing. The pilot must cross electronic sensors (SP, validated with green flag) to start their time, land before the first pin, keeping the wing flying in the air above them. Whilst kiting the wing, they should walk or run through the course of pins, turning in alternate directions around each one to follow a slalom course. The body of the pilot must be clearly observed to pass outside of the line of pins when making each turn, and they must not touch any of the pins. After the pilots has passed the final pin, they will then launch as quickly as possible and cross the FP to stop the timer.



**Special rules**

- A valid SP is when the pilot crosses the electronic sensors successively and shown with a green flag.
- The clock starts the moment the pilot crosses the SP and stops the moment he crosses the FP.
- The pilot may have 3 attempts to cross the SP.
- The pilot may turn either to the left or to the right when rounding the first of the pins, so long as they alternate the turn direction on each subsequent pin.
- If the wing drops to the ground whilst the pilot is running through the slalom course, they may relaunch it as many times as they need within the specified time limit.
- The maximum time allowed for a pilot to complete the course is 3 minutes.

## Penalties

100% penalty will be applied for:

- Enter the circuit out of order.
- Failed to Cross SP and FP.

15 seconds penalty (Vpen) will be added to the pilot:

- It takes longer than 60 seconds between communication or green flag and the entry gate.
- For each invalid pin.
  - Touch with the body, wing or equipment pins will be considered invalid pin.
  - Each pin that is touched by the body of the pilot in the course counts as an invalid pin.
  - Each time the pilot fails to turn outside the line of pins it counts as an invalid pin.

## Score

***Pilot Score = (Tbest/Tpen) x 1000***

$TPen = Tpil + M Vpen$

At where:

Tpil = measured time pilot (seconds)

M = number of invalid pin

Vpen = penalty for each invalid pin (15 seconds)

TPen = pilot time after addition of penalties

Tbest = shorter a pilot in the task after increases in penalties.

## Example:

Tpil = 80 sec

Tbest = 80 sec

Tpen = 30 sec (2 pins)

$Tpil = 80 \text{ sec} + 30 \text{ sec} = 110 \text{ sec}$

$Q = (80/110) \times 1000 = 727,27$

**Q = 727 points**