## TASK CATALOGUE

## FOR THE $6^{\text {th }}$ <br> EUROPEAN <br> PARAMOTOR CHAMPIONSHIPS

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## ON BEHALF OF THE FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE

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## AUTHORITY

This Task Catalogue is to be used in conjunction with the Local Regulations. The General Section and Section 10 of the FAI Sporting Code takes precedence over the Local Regulation and Task Catalogue wording if there is ambiguity.

## CLARIFICATION

Classes PF1, PF2, PL1 and PL2 are "Paramotors"

## Task Catalogue

## TASK CATALOGUE for PARAMOTOR CHAMPIONSHIPS

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## 1. INTRODUCTION

This catalogue describes tasks which may be set in during the 6th FAI European Paramotor Championships 2015. It includes several new tasks that have been tried out satisfactorily in national competitions and shall remain in this catalogue subject to approval of the Local Regulations and Task Catalogue by the FAI Microlight and Paramotor Commission (CIMA).
Any tasks not approved may be deleted prior to approval of the document, rather than the entire catalogue failing to be approved.

### 1.1 PRINCIPLES

Good tasks make for good championships, but tasks also drive the design direction for the aircraft. For example, Microlights would soon lose their short field capability if no more precision landing tasks into a 100 m deck were given.
Flight planning and navigation tasks develop good pilot skills but they, too, affect the characteristics of competition aircraft so a Director must try to set a reasonable balance between tasks where ultimately speed is the advantage and economy is the advantage. These tasks should be as long as possible, so that pilot skills are tested by having to fly over new and different country.
Competition Directors are cautioned against setting a few complicated tasks in favour of lots of simple ones. It is all too easy for a Championship to end with the minimum of tasks required (S10
4.3.3) and there is nothing more likely to upset pilots than if they think they have not flown enough in a championship to properly demonstrate their skills.

### 1.2 TASK TYPES

### 1.2.1 GENERAL

Tasks fall into three Categories:
A: Flight planning, navigation estimated time and speed. No fuel limitation.
B: Fuel economy, speed range, duration. Fuel limited to maximum 15 kg for aircraft flown solo and 22 kg for aircraft flown with two people.

## C: Precision

The proportion of each task to be used is stated in S10, 4.29.3
Any task may be set more than once, either identically or with variations.
Distances should be as long as possible referring to the recommended still air range of the competing aircraft stated in S10 4.17.7.
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 penalised. No information will be given at briefing on the existence or whereabouts of hidden gates, or the method by which they are controlled.
The Director may set a time period for completion of a task in addition to the last landing time. Where 2 m Pylons are defined in tasks, at the discretion of the Competition Director these may be replaced by inflatable pylons of $8-12 \mathrm{~m}$ in height. Shorter pylons have proved to be more resilient to gusts, so are preferable to the larger pylons in many cases.

## 2. NAVIGATION TASKS

### 2.1 NAVIGATION - SPEED

## Objective

Fly a course between as many turn points as possible or as maximum distance as possible within the time window and return to the deck.

## Summary

Competitors will be given:
The location of the start point (SP); time window start.
The location of the finish point (FP); time window stop.
A list of turn points.
Planning may be done in quarantine.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

$\mathrm{P}=$ number of turn points crossed by the pilot
Pmax = maximum number of turn points crossed in the class
or
$P=$ distance flown by the pilot in straight lines between consecutive turn points
Pmax = maximum distance flown in the class
Pilot score $=1000$ * $\mathrm{P} / \mathrm{Pmax}$

### 2.2 NAVIGATION - SPEED \& DISTANCE

## Objective

Fly a course between as many turn points as possible and as maximum distance as possible within the time window and return to the deck.

## Summary

Competitors will be given:
The location of the start point (SP); time window start.
The location of the finish point (FP); time window stop.
A list of turn points.
Planning may be done in quarantine.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

Turn points
T = number of turn points crossed by the pilot
Tmax = maximum number of turn points crossed in the class

## Distance

D = distance flown by the pilot in straight lines between consecutive turn points Dmax $=$ maximum distance flown in the class

Pilot score $=(500$ * $\mathrm{T} / \mathrm{Tmax})+(500$ * D / Dmax $)$

### 2.3 NAVIGATION - ESTIMATED SPEED

## Objective

Fly a course between any combination of turn points as defined at the briefing having declared estimated flight times from the start point to each timing gate and return to the deck.

## Summary

Competitors will be given:
The location of the start point (SP); time window start.
The location of the finish point (FP); time window stop.
The location of each time gate (TG1, TG2, TG3...).
A list of turn points.
Planning may be done in quarantine.
Pilots will hand their declaration to a marshal before take off.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

Turn points
$\mathrm{T}=$ number of turn points crossed by the pilot
Tmax = maximum number of turn points crossed in the class
Time gates
Vt = Value assigned to each time gate (e.g. 180 points)
$\mathrm{Et}=\mathrm{Absolute}$ error in seconds in gate with a tolerance of 5 seconds (maximum error is Vt )
Qt = Sum of gate value minus time error each gate crossed
Pilot score $=(700$ * $\mathrm{T} / \mathrm{Tmax})+(300$ * Qt $/$ Qtmax $)$

### 2.4 NAVIGATION - KNOWN CIRCUIT

## Objective

Follow a known circuit, crossing hidden gates, finding markers or identifying ground features from photographs and locating their positions on a map.

## Summary

Competitors will be given:
Photos of any ground features or description of canvas markers to be identified.
Planning may be done in quarantine.
After completing the landing the competitor will be required to enter a quarantine area for scoring.
Certain of the ground features or markers could not be on the track (false).

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Safety

During the task competitors must not back track along the track line against the direction of the task. If there is a need to backtrack competitors must leave the track line and fly back minimum 1 km from the track before rejoining the track line at an earlier point.
Crossing a hidden gate twice invalidates the gate.

## Scoring

Hidden gates
$\mathrm{Vh}=$ Value assigned to crossing a hidden gate (e.g. 100 points)
$\mathrm{Nh}=$ Number of hidden gates correctly crossed by the pilot
$\mathrm{Qh}=\mathrm{Vh} \times \mathrm{Nh}$

## Ground features

$\mathrm{Vg}=$ Value assigned to properly placing a mark on the map (e.g. 100 points)
$\mathrm{Ng}=$ Number of properly placed marks on the map (less than 2 mm error)
Markers placed between 2 and 5 mm error score $1 / 2$ point
More than 5 mm or false ground feature declare score zero
$\mathrm{Qg}=\mathrm{Vg} \times \mathrm{Ng}$
Performance $=$ Qh + Qg
Pilot score $=1000$ * $\mathrm{P} / \mathrm{Pmax}$

## Task specific penalties

Backtracking or deviation more than $90^{\circ}$ : $100 \%$ penalty

### 2.5 NAVIGATION - KNOWN CIRCUIT - ESTIMATED SPEED

## Objective

Follow a known circuit, crossing hidden gates, having declared estimated flight times from the start point to each timing gate, finding markers or identifying ground features from photographs and locating their positions on a map.

## Summary

Competitors will be given:
Photos of any ground features or description of canvas markers to be identified.
After completing the landing the competitor will be required to enter a quarantine area for scoring.
Certain of the ground features or markers could not be on the track (false).
The location of the start point (SP); time window start.
The location of the finish point (FP); time window stop.
The location of each time gate (TG1, TG2, TG3...).
Pilots will hand their declaration to a marshal before take off.

## Safety

During the task competitors must not back track along the track line against the direction of the task. If there is a need to backtrack competitors must leave the track line and fly back minimum 1 km from the track before rejoining the track line at an earlier point.
Crossing a hidden gate twice invalidates the gate.

## Scoring

Hidden gates
$\mathrm{Vh}=$ Value assigned to crossing a hidden gate (e.g. 100 points)
$\mathrm{Nh}=$ Number of hidden gates correctly crossed by the pilot
$\mathrm{Qh}=\mathrm{Vh} \times \mathrm{Nh}$

## Ground features

$\mathrm{Vg}=$ Value assigned to properly placing a mark on the map (e.g. 100 points)
$\mathrm{Ng}=$ Number of properly placed marks on the map (less than 2 mm error).
Markers placed between 2 and 5 mm error score $1 / 2$ point
More than 5 mm or false ground feature declare score zero
$\mathrm{Qg}=\mathrm{Vg} \times \mathrm{Ng}$
Time gates
Vt = Value assigned to each time gate (e.g. 180 points)
Et = Absolute error in seconds in gate with tolerance of 5 seconds (maximum error is Vt )
Qt = Sum of gate value minus time error each gate crossed
Performance $=$ Qh + Qg + Qt
Pilot score $=1000$ * $\mathrm{P} / \mathrm{Pmax}$

## Task specific penalties

Backtracking or deviation more than $90^{\circ}$ : $100 \%$ penalty

### 2.6 NAVIGATION - UNKNOWN LEGS

## Objective

Follow a series of known lines, crossing hidden gates, finding markers and identifying ground features from photographs and locating their positions on a map.
Certain of the ground features or markers will indicate the start of a leg to another point.

## Summary

Competitors will be given:
Photos of any ground features or description of canvas markers to be identified.
After completing the landing the competitor will be required to enter a quarantine area for scoring.
The location of the start point (SP); time window start.
The location of the finish point (FP); time window stop.
Details of which markers or ground features indicate a point from which a new line must be drawn.
Certain of the ground features or markers could not be on the track.

## Safety

During the task competitors must not back track along the track line against the direction of the task. If there is a need to backtrack competitors must leave the track line and fly back minimum 1 km from the track before rejoining the track line at an earlier point.
Crossing a hidden gate twice invalidates the gate.

## Scoring

Hidden gates
$\mathrm{Vh}=$ Value assigned to crossing a hidden gate (e.g. 100 points)
$\mathrm{Nh}=$ Number of hidden gates correctly crossed by the pilot
$\mathrm{Qh}=\mathrm{Vh} \times \mathrm{Nh}$

## Ground features

$\mathrm{Vg}=$ Value assigned to properly placing a mark on the map (e.g. 100 points)
$\mathrm{Ng}=$ Number of properly placed marks on the map (less than 2 mm error).
Markers placed between 2 and 5 mm error score $1 / 2$ point
More than 5 mm or false ground feature declare score zero
$\mathrm{Qg}=\mathrm{Vg} \times \mathrm{Ng}$
Speed
S = Pilot's time between SP and FP
Smini $=$ Minimum time in the class
Qs $=200 \times$ Smini $/ S$
Performance $=(\text { Qh }+ \text { Qg })^{*}(1+$ Qs $/ 1000)$
Pilot score $=1000$ * $\mathrm{P} / \mathrm{Pmax}$

## Task specific penalties

Backtracking or deviation more than $90^{\circ}: 100 \%$ penalty

### 2.7 NAVIGATION - UNKNOWN LEGS - ESTIMATED SPEED

## Objective

Follow a series of known lines, having declared estimated speed for each known lines, crossing hidden gates, finding markers and identifying ground features from photographs and locating their positions on a map.
Certain of the ground features or markers will indicate the start of a leg to another point.

## Summary

Competitors will be given:
Photos of any ground features or description of canvas markers to be identified.
After completing the landing the competitor will be required to enter a quarantine area for scoring.
The location of the start point (SP); time window start.
The location of the finish point (FP); time window stop.
Details of which markers or ground features indicate a point from which a new line must be drawn.
Certain of the ground features or markers could not be on the track.

## Safety

During the task competitors must not back track along the track line against the direction of the task. If there is a need to backtrack competitors must leave the track line and fly back minimum 1 km from the track before rejoining the track line at an earlier point.
Crossing a hidden gate twice invalidates the gate.

## Scoring

Hidden gates
Vh = Value assigned to crossing a hidden gate (e.g. 100 points)
$\mathrm{Nh}=$ Number of hidden gates correctly crossed by the pilot
$\mathrm{Qh}=\mathrm{Vh} \times \mathrm{Nh}$
Ground features
$\mathrm{Vg}=$ Value assigned to properly placing a mark on the map (e.g. 100 points)
$\mathrm{Ng}=$ Number of properly placed marks on the map (less than 2 mm error).
Markers placed between 2 and 5 mm error score $1 / 2$ point
More than 5 mm or false ground feature declare score zero
$\mathrm{Qg}=\mathrm{Vg} \times \mathrm{Ng}$
Speed
Vs = Value assigned to each speed section (e.g. 100 points)
Es = Absolute error in km/h
Qs = Sum of speed section value minus $\mathrm{km} / \mathrm{h}$ error

Performance $=$ Qh + Qg + Qs
Pilot score $=1000$ * $\mathrm{P} /$ Pmax

## Task specific penalties

Backtracking or deviation more than $90^{\circ}$ : $100 \%$ penalty

## Declaration sheet for time gates

| Time gate | Estimated time of arrival in seconds counted from the start point |
| :--- | :--- |
| SP | 0 s |
| TG1 | in seconds |
| TG2 | in seconds |
| TG3 | in seconds |
| $\ldots$ |  |
| FP | in seconds |

Pilot $\qquad$
Comp. No. $\qquad$ Team $\qquad$ Class $\qquad$
Task No. $\qquad$ Date $\qquad$ Time $\qquad$
Pilot's Signature

Marshal $\qquad$
Marshal's Signature

## Declaration sheet for speed sections

| Legs | Speed declaration in $\mathrm{km} / \mathrm{h}$ |
| :--- | :--- |
| A - B | $\ldots \mathrm{km} / \mathrm{h}$ |
| C - D | $\ldots \mathrm{km} / \mathrm{h}$ |
| E - F | $\ldots \mathrm{km} / \mathrm{h}$ |
| G-H | $\ldots \mathrm{km} / \mathrm{h}$ |
| $\ldots$ |  |

Pilot $\qquad$
Comp. No. $\qquad$ Team $\qquad$ Class $\qquad$
Task No. $\qquad$ Date $\qquad$ Time $\qquad$
Pilot's Signature

Marshal $\qquad$
Marshal's Signature

## Additional rules

Every navigation task may be scored with a take off precision.
The pilot scores 200 bonus points for a clean take off at the first attempt, 100 for the second, 50 for the third, zero for any attempts thereafter.

Every navigation task may finish with a precision landing.
If the pilot makes a first touch on the marker: 100 points.

## 3. ECONOMY TASKS

### 3.1 PURE ECONOMY

## Objective

Take off with a measured quantity of fuel and stay airborne for as long as possible and return to the deck.

## Summary

A standard fuelling operation will be performed. Each class will have a designated amount of fuel.
A start point (SP) and finish point (FP) will be given.
Free take off within the time window.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

Tp = pilot's time between first crossing of SP and last crossing of FP Tmax = longest time in the class

Pilot score $=1000$ * Tp / Tmax

## Task specific penalties

Land outside the airfield boundary: score zero
Land inside the airfield boundary but outside the deck: 20\% penalty

### 3.2 ECONOMY - LAPS DISTANCE

## Objective

Take off with a given quantity of fuel, fly as many sections as possible around a course of one or more sections and land in a landing deck.

## Summary

A standard fuelling operation will be performed. Each class will have a designated amount of fuel. Each section must be approximately 1 Km in length and must contain a landing deck. Lines of no return are arranged to prevent aircraft flying in the reverse direction to the general flow of traffic.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Special rules

Pilots must not exceed 200ft height at any time. Exceeding the height limitations or failure of the complete aircraft to round a pylon does not score that section.
Pilots should overtake on the outside of the course they may overtake on the inside but will not score that section if the manoeuvre is considered to be overly aggressive.
If the pilot or any part of his Paramotor touches the ground during the task and takes off again, score zero.
Flying back across a line of no return score zero.
Failure to land in a landing deck: 20\% penalty.

## Scoring

Lp = number of whole sections completed by the pilot
Lmax = maximum number of whole sections achieved in the class
Pilot score $=1000$ * Lp / Lmax


### 3.3 DISTANCE \& DURATION

## Objective

Take off with a given quantity of fuel, fly as many out and return distance as possible and maximum duration flight.

## Summary

A standard fuelling operation will be performed. Each class will have a designated amount of fuel. A start point (SP) and finish point (FP) will be given.
Free take off within the time window.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

Distance
D = pilot's distance measured in straight line between SP/FP and the most distant point in the track
Dmax = longest distance in the class
Time
T = pilot's time between first crossing of SP and last crossing of FP Tmax $=$ longest time in the class

Pilot score $=(500$ * D / Dmax $)+(500$ * $\mathrm{T} / \mathrm{Tmax})$

## Task specific penalties

Land outside the airfield boundary: score zero.
Land inside the airfield boundary but outside the deck: $20 \%$ penalty.

### 3.4 DISTANCE - 3 LEGS

## Objective

Take off with a given quantity of fuel, fly as many out and return distance as possible along the 3 legs.

## Summary

A standard fuelling operation will be performed. Each class will have a designated amount of fuel. A start point (SP) and finish point (FP) will be given.
Free take off within the time window.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

Distance 1 = pilot's distance measured in straight line between SP/FP and the most distant point in the leg 1
Distance 2 = pilot's distance measured in straight line between SP/FP and the most distant point in the leg 2
Distance 3 = pilot's distance measured in straight line between SP/FP and the most distant point in the leg 3

Performance = Distance 1 * Distance 2 * Distance 3
Pilot score $=1000$ * $\mathrm{P} /$ Pmax in the class

## Task specific penalties

Land outside the airfield boundary: score zero.
Land inside the airfield boundary but outside the deck: $20 \%$ penalty.

### 3.5 ECONOMY - NAVIGATION

## Objective

Take off with a given quantity of fuel, fly a course as many turn points as possible or/and as many distance as possible and return to the deck.

## Summary

A standard fuelling operation will be performed. Each class will have a designated amount of fuel.
Competitors will be given:
A list of turn points.
Planning may be done in quarantine.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

$\mathrm{T}=$ the number of turn points or distance a pilot collects
Tmax = the maximum number of turn points or distance collected in the class
Pilot score $=1000$ * $\mathrm{T} / \mathrm{Tmax}$
OR
Turn points
$\mathrm{T}=$ number of turn points a pilot collects
Tmax = maximum number of turn collected in the class
Distance
$D=$ the distance measured in straight lines between consecutive TP crossed by the pilot Dmax = the maximum distance in the class

Pilot score $=(500$ * $\mathrm{T} / \mathrm{Tmax})+(500$ * D / Dmax $)$

## Task specific penalties

Land outside the airfield boundary: score zero.
Land inside the airfield boundary but outside the deck: $20 \%$ penalty.

### 3.6 AREA TRIANGLE - SPEED

## Objective

With a given quantity of fuel, fly a triangular course with the objective of creating a maximum possible area. The first leg will be score for speed.

## Summary

A standard fuelling operation will be performed. Each class will have a designated amount of fuel. A single start and finish point (SP/FP) will be given at the briefing.
The triangle starts and ends in the SP/FP point. The other two turn points will be corners which the pilots choose freely. These turn points will be the points where the two consecutive sides of the triangle intersect when a precision turn is flown, so the new leg crosses the previous leg.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

Area
A = area of the triangle
Amax = largest area in the class
Speed
S = speed measured from SP/FP to the first intersection
Smax = fastest speed in the class
Pilot score $=(700$ * A / Amax $)+(300$ * S / Smax $)$

## Task specific penalties

Land outside the airfield boundary: score zero.
Land inside the airfield boundary but outside the deck: 20\% penalty.

### 3.7 SPEED TRIANGLE \& OUT AND RETURN

## Objective

With limited fuel, fly around a circuit in the shortest possible time, and then, fly in as far as possible and return to the deck.

## Summary

A standard fuelling operation will be performed. Each class will have a designated amount of fuel. Speed: Pilots will fly to turn points S1, S2 and S3 in sequence. Time will be taken from S1 and S3 and the difference will score for speed.
Distance: After crossing S3 pilots will fly as far as possible from it.

## Take off and Landing

Standard take off and standard landing in the designated deck will be performed.

## Scoring

Time
T = pilot's time to fly S1, S2, S3
Tmini = shortest time in the class

## Distance

$\mathrm{D}=$ pilot's distance measured in straight line between S 3 and the most distant point in the track
Dmax $=$ maximum distance in the class
Pilot score $=(700$ * $D /$ Dmax $)+(300$ * $($ Tmini $/ T)$

## Task specific penalties

Land out before completing speed part: score zero.
Land out before completing distance part: score zero for distance.
Land inside the airfield boundary but outside the deck: 20\% penalty.

## 4. PRECISION TASKS

### 4.1 PRECISION TAKE-OFF AND LANDING

## Objective

Make a clean take off at the first attempt in the deck and subsequently land as near as possible to a target.

## Summary

The pilot is permitted four takeoff attempts, climbs to 500 ft overhead the target, cuts the engine before passing through a gate and tries to make a first touch as near as possible to the centre of a target consisting of:

- A series of concentric circles for PF1 and PF2 classes.
- A series of 5 m wide parallel strips for PL1 and PL2 classes


## Special rules

- The pilot scores 250 points for a clean take off at the first attempt, 170 for the second, 90 for the third, zero for the fourth.
- The circuit to be flown will be detailed at briefing.
- The first touch of the ground by the pilot's foot (PF) or the aircraft wheels (PL) is the point from which the pilot's score will be derived. A first touch on the line scores the higher score. When more than one PL wheel touches simultaneously, the point chosen is the one in favour of the pilot.
- Contestants will be awarded a zero score if the pilot or any part of the aircraft touching the ground outside the deck while undertaking the task.
- Contestants will be awarded a zero landing score for:

Engine not stopped before the gate.
Gate not passed correctly.
Falling over as a result of the landing.

## Scoring

T = Take off points
L = Landing points
Pilot score $=\mathrm{T}+\mathrm{L}$


### 4.2 FAST / SLOW SPEED

## Objective

Fly a course as fast as possible and then as slow as possible (or vice versa).

## Summary

A straight course consisting of four equally spaced kicking sticks between 150 m and 300 m long is laid out facing approximately into wind.
The course shall be flown twice. The order will be briefed (fast then slow or slow then fast).
The pilot makes a timed pass along the first course, returns to the start, and makes a second timed pass in the same direction.
There may be two courses but they must be of equal dimensions and orientation and separated by at least 200m flying distance.

## Special rules

- A valid strike on a stick is:

EITHER one where the pilot or any part of the Paramotor has been clearly observed to touch it.
OR when electronic kick stick sensors which have been shown to meet the standard tests are used, a valid strike is one which is recorded by the device.

- For each course, the clock starts the moment the pilot kicks the first stick and stops the moment he kicks the fourth stick.
- The pilot may have 3 attempts at kicking the first stick on each run.
- If the pilot misses the second or third stick then he is considered too high, penalty $50 \%$ course score for each stick missed.
- The maximum time allowed for a pilot to complete each course is 5 minutes.

In the slow course;

- If the pilot or any part of his Paramotor touches the ground or the fourth stick is missed: Vp2 = null and Ep = zero
- If the pilot zigzags: Score zero.

In the fast course;

- If the pilot or any part of his Paramotor touches the ground: Vp1 = zero and Ep = zero
- The pilot may have three attempts at kicking the fourth stick.


## Scoring

Vmax $=$ The highest speed achieved in the fast course without penalties, in $\mathrm{Km} / \mathrm{H}$.
Vp1 = The speed of the pilot in $\mathrm{Km} / \mathrm{H}$ in the fast course.
Vmin = The lowest speed achieved in the slow course without penalties, in Km/H.
$\mathrm{Vp} 2=$ The speed of the pilot in $\mathrm{Km} / \mathrm{H}$ in the slow course.
$\mathrm{Ep}=$ The difference between the pilot's slowest and fastest speeds, in Km/H.
Emax = The maximum difference between scored slowest and fastest speeds after penalties, in Km/H.

Pilot score $=(125$ * Vp1 / Vmax $)+(125$ * Vmin/Vp2) $+(250$ * Ep / Emax $)$

### 4.3 BOWLING LANDING

## Objective

Land without engine hitting as many pins as possible.

## Summary

5 pins are placed along a line into wind in the landing area at regular intervals between 1 and 2 m . The pins are 50 cm high for PF classes and 100 cm high for PL classes and they are covered by dense foam.
They can simply stand on the ground or can be attached to a spring system like that of the kicking sticks. A pin is said to be hit when it is clearly seen by a marshal or electronic sensor, or when the pin falls down.
Pilots will fly to 500 ft and cut the engine before crossing a briefed gate.
Each pin hit before touching the ground will score 50 points (maximum 250 points).
This task may be combined with a precision take-off.

## Scoring

Pld $=50$ points for each pin hit (maximum of 250 points)

## Penalties

Not crossing the gate or crossing it engine on: zero landing score.
Falling over during landing or two knees on the ground: zero landing score.

### 4.4 THE PYLON SLALOM

## Course description

The course consists of a start gate, a finish gate and between two and five pylons.

## Flying the course

The pilot enters the course as briefed and flies through the start gate. He should then follow the course as briefed and leave through the finish gate.

## Detailed rules

- Every part of the aircraft must be clearly seen to round the pylons.
- The top surface of the wing may touch the pylons, but if any other part of the aircraft should make contact, that pylon shall be deemed to have not been rounded correctly. Pilots are encouraged to aim not to make contact - this provision is to make an allowance for the pylon moving due to the wind, wake turbulence or the venture effect.
- Pilots have only one attempt to cross SG and FG (gates).
- If a pilot touch one of the cells and the cell is not able to start or stop the clock, score zero.


## Flags signals

- The green flag means the pilot can enters the course through the start gate. Timing starts at this moment.
- The red flag means the pilot makes an error in the circuit or misses the start gate. He has to leave immediately the course, score is zero.
- The white flag means there's something wrong (e.g. problem with the cells). The pilot has to leave the circuit, come back to the waiting area and wait the green flag to enter again in the course.


## Scoring

T = pilot's time from SG and FG
Tmin = shortest time in the class
Pilot score $=1000$ * Tmin $/ \mathrm{T}$


