

BMAA British Open Paramotor Championships 2010

Task Catalogue

The tasks described below are examples of tasks that may be set by the Championship Director.

The Championship Director is free to set any tasks, including some that are not in this catalogue. The Championship Director may also select tasks from previous European Microlight Championships (Paramotors and PPT Classes) and/or previous World Paramotor Championships Task Catalogues. Most of the tasks here are taken from the FAI-CIMA section 10 task catalogue.

Economy tasks have been modified to allow for fuel to be measured by weight rather than volume and to score the pilots' fuel consumption in relation to their bodyweight.

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A1 PURE NAVIGATION

Objective

To fly a course between turn points or markers (from a given array) within a given time window and return to the deck or finish gate. The task may be scored as the maximum distance flown or the maximum number of turn points visited, as stated at the briefing.

Scoring

$$\text{Pilot score} = 1000 \times \frac{\text{NBp}}{\text{NBmax}}$$

Where, according to briefing;

Either:

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

NBmax = The maximum number of markers and/or turn points collected in the task by a pilot landing/crossing the finish gate within the given elapsed time window.

OR

NBp = the distance flown by the pilot in the task.

NBMax = the maximum distance flown in the task by a pilot landing/crossing the finish gate within the given elapsed time window.

Penalties

- Pilots completing the timed element of the task outside the elapsed time window shall incur a 50% penalty on their NBp score if less than 10 minutes outside the window.
- Pilots 10 minutes or more outside of the window shall incur a 100% penalty on their NBp score.

A2 NAVIGATION, PRECISION & SPEED

Objective

To fly a course between as many turn points or markers (from a given array) as possible within a given time, and to collect bonus points for landing at designated markers before returning to the deck or crossing a finish gate. The task may be scored as the distance flown or the number of turn points visited, as stated at the briefing.

Special rules

- The clock starts the moment the marshal makes the signal to take off, when the pilot's feet leave the ground or when crossing a start gate, whichever is briefed.
- In the case of landing markers, If the pilot elects to switch off his engine at least 5m above the marker and:

Makes a first touch on the marker: Landing bonus: 200 points

Misses the marker: landing bonus: 50 points

- If the pilot elects to not switch off his engine and:

Makes a first touch on the marker: Landing bonus: 100 points

- If the pilot falls over as a result of a landing: zero landing bonuses for that landing.
- If the pilot obstructs another competitor attempting to land at a landing marker penalties will apply.
- The clock stops the moment the pilot either crosses a finish gate or lands back on the deck.
- Any outside assistance: Score zero.

Scoring (Example)

$$\text{Pilot score} = \left(700 \times \frac{\text{NBp}}{\text{NBMax}} \right) + \left(300 \times \frac{\text{Bld}}{\text{BldMax}} \right)$$

Where, according to briefing;

Either:

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

NBmax = The maximum number of markers and/or turn points collected in the task, by a pilot landing/crossing the finish gate within the given elapsed time window.

OR

NBp = the distance flown by the pilot in the task.

NBMax = the maximum distance flown in the task, by a pilot landing/crossing the finish gate within the given elapsed time window.

AND

Bld = Pilot's landing bonus points

BldMax = The maximum landing bonus points achieved.

Penalties

- Pilots completing the timed element of the task outside the elapsed time window shall incur a 50% penalty on their NBp score if less than 10 minutes outside the window.
- Pilots 10 minutes or more outside of the window shall incur a 100% penalty on their NBp score.
-

A3 NAVIGATION / ESTIMATED SPEED

Objective

To fly a course between any combination from an array of turn points, markers and gates as defined at the briefing having declared estimated flight times or estimated times of arrival as required at the briefing, and return to the deck or cross a finish gate, within a given maximum elapsed time.

Special rules

- The maximum elapsed time will be given at the briefing.

Scoring (Example)

$$\text{Pilot score} = \left(700 \times \frac{\text{NBp}}{\text{NBMax}} \right) + (300 - T)$$

Where, according to briefing;

Either:

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

NBmax = The maximum number of markers and/or turn points collected in the task by a pilot landing/crossing the finish gate within the given elapsed time window.

OR

NBp = the distance flown by the pilot in the task.

NBMax = the maximum distance flown in the task by a pilot landing/crossing the finish gate within the given elapsed time window.

AND

T = The total difference in seconds in between pilot's estimated and actual times for all timed sectors. ($\geq 300 = 300$)

Penalties

- Pilots completing the task outside the elapsed time window shall incur a 50% penalty on their NBp score if less than 10 minutes outside the window.
- Pilots 10 minutes or more outside of the window shall incur a 100% penalty on their NBp score.

A4 NAVIGATION / ESTIMATED SPEED / PRECISION

Objective

To fly a course between any combination from an array of turn points, markers, landing markers and gates as defined at the briefing having declared estimated flight times as required at the briefing, and return to the deck or cross a finish gate, within a given maximum elapsed time.

Special rules

- The maximum elapsed time will be given at the briefing.
- All landing markers may be attempted with engine on unless the marker is in the landing deck and is the final element in the task.
- If the pilot falls over as a result of a landing: zero landing score for that landing.
- If the pilot obstructs another competitor attempting to land at a landing marker penalties will apply.

Scoring (Example)

$$\text{Pilot score} = \left(500 \times \frac{\text{NBp}}{\text{NBMax}} \right) + (250 - T) + \left(250 \times \frac{\text{Bld}}{\text{BldMax}} \right)$$

Where, according to briefing;

Either:

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

NBmax = The maximum number of markers and/or turn points collected in the task by a pilot landing/crossing the finish gate within the given elapsed time window.

OR

NBp = the distance flown by the pilot in the task.

NBMax = the maximum distance flown in the task by a pilot landing/crossing the finish gate within the given elapsed time window.

AND

T = The total difference in between pilot's estimated and actual times for all timed sectors. ($\geq 250 = 250$)

Bld = Pilot's landing points

BldMax = The maximum number of landing points achieved in the task.

Penalties

- Pilots completing the timed element of the task outside the elapsed time window shall incur a 50% penalty on their NBp score if less than 10 minutes outside the window.
- Pilots 10 minutes or more outside of the window shall incur a 100% penalty on their NBp score.

A5 NAVIGATION OVER A KNOWN CIRCUIT

Note

This task is unlikely to be set in the 2009 British National Championships or in subsequent Open Championships. It is more likely to be used in the National League.

Objective

To launch from the deck, fly to a start point and follow a known circuit, finding markers or identifying ground features from photographs and locating their positions on a map or crossing hidden gates.

There may be timing gates to take times if part of the task must be evaluated for time precision or for speed.

The task may finish with an outlanding.

Description

Competitors may be given:

- A series of headings to follow or lines drawn on a map or a description of the procedure to draw them.
- The location of a start point (SP) before which no markers, ground features or gates will be found.
- The time at which they must overfly the start point.
- The location of a finish point (FP) after which no markers or ground features will be found.
- Photos of any ground features or description of canvas markers to be identified.

Special rules

If the task is to contain a speed prediction element before takeoff the competitor must either:

- Declare the ground speed at which he plans to fly, or
- Select a ground speed from those specified at the briefing, or
- Declare crossing times at certain turn points.

The task will normally finish with a Precision Landing and after completing the landing, the competitor will be required to enter a Quarantine area for scoring.

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 well clear of it before rejoining the track line at an earlier point.

Scoring

Spatial precision:

Vh = Value assigned to crossing a hidden gate or properly placing a mark on the map (e.g. 100)

Nh = Number of hidden gates correctly crossed or properly placed marks on the map (less than 2 mm error).
Markers placed between 2 and 5 mm error score ½ point.
More than 5 mm score zero.
Out of track marks score zero.

$Q_h = V_h * N_h$

Time precision (when included in the task):

Vt = Gate value (e.g. 180)

Ei = Absolute error in seconds in gate i.

Maximum error is Vt.

Time gates not crossed do not add error.

$Q_t = \sum (V_t - E_i)$ (sum of gate value minus time error each gate crossed)

Speed (when included in the task):

Vs = Relative value for the speed term

S = Pilot's speed in the speed section

Smax = the fastest speed recorded by a pilot who incurs NO penalties in the speed leg

$Q_v = V_s * S / S_{max}$

Total:

$Q = Q_h + Q_t + Q_v$

$P = 1000 * Q / Q_{max}$

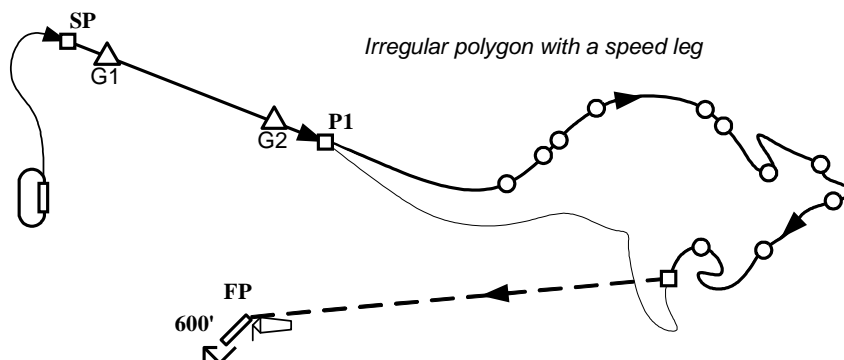
Penalties

Each photo or marker correctly identified and located on the map to within 2mm and any ground speed element in the speed section (if used) will score as briefed. The following penalties will apply:

- Takeoff deck penalty: 20%
- Landing deck penalty: 20%
- Backtracking against the task direction or crossing a hidden gate backwards: 100%
- Breach of Quarantine: 100%
- Crossing a hidden gate twice invalidates the gate.

- Failing to cross either start or finish gates on a speed leg: 100% penalty for that section

Example



A6 NAVIGATION WITH UNKNOWN LEGS

(May be offered as an optional overlay to a simpler task)

Objective

To launch from the deck, fly to a start point and follow a series of headings or known lines, finding markers or identifying ground features from photographs and locating their positions on a map or crossing hidden gates.

Certain ground features or markers will indicate a change of heading or the start of a leg to another point.

There may be timing gates to take times if part of the task must be evaluated for time precision or for speed.

The task may finish with an outlanding.

Description

Competitors may be given:

- A series of headings to follow or lines drawn on a map or a description of the procedure to draw them.
- The location of a start point (SP) before which no markers, ground features or gates will be found.
- Details of which markers or ground features indicate a point from which a new line must be drawn.
- The location of a finish point (FP) after which no markers or ground features will be found

Special rules

Depending on the specific task design, competitors may be given:

- Sealed instructions giving the location of next turn points or outlanding sites.
- The time at which they must overfly the start point.
- Photos of any ground features or description of canvas markers to be identified.

If the task is to contain a speed prediction element before takeoff the competitor must either:

- Declare the ground speed at which he plans to fly, or;
- Select a ground speed from those specified at the briefing.
- Declare crossing times at certain turn points.

The task will normally finish with a Precision Landing and after completing the landing the competitor will be required to enter a Quarantine area for scoring.

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 well clear of it before rejoining the track line at an earlier point.

Scoring

Spatial precision:

Vh = Value assigned to crossing a hidden gate or properly placing a mark on the map (e.g. 100)

Nh = Number of hidden gates correctly crossed or properly placed marks on the map (less than 2 mm error).

Markers placed between 2 and 5 mm error score ½ point.

More than 5 mm score zero.

Out of track marks score zero.

$$Q_h = V_h * N_h$$

Time precision (when included in the task):

Vt = Gate value (e.g. 180)

Ei = Absolute error in seconds in gate i.

Maximum error is Vt.

Time gates not crossed do not add error.

$$Q_t = \sum (V_t - E_i) \text{ (sum of gate value minus time error each gate crossed)}$$

Speed (when included in the task):

Vs = Relative value for the speed term

S = Pilot's speed in the speed section

Smax = the fastest speed recorded by a pilot who incurs NO penalties in the speed leg

$$Q_v = V_s * S / S_{max}$$

Total:

$$Q = Q_h + Q_t + Q_v$$

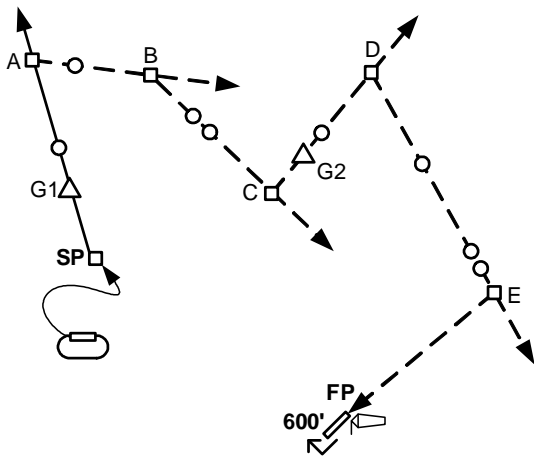
$$P = 1000 * Q / Q_{max}$$

Penalties

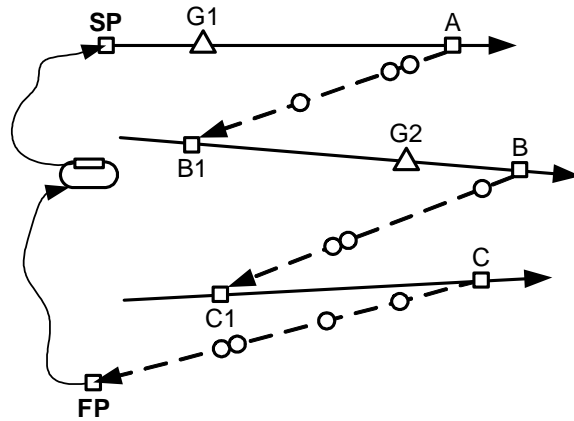
Each photo or marker correctly identified and located on the map to within 2mm and any ground speed element will score as briefed. The following penalties will apply:

- Landing deck penalty: 20%.
- Backtracking against the task direction or crossing a hidden gate backwards: 100%
- Breach of quarantine: 100%
- Crossing a hidden gate twice invalidates the gate.
- A penalty will be specified for breaking an envelope seal.
- Failing to cross either start or finish gates on a speed leg: 100% penalty for that section

Examples



Sequential navigation



Linear navigation

A7 NAVIGATION, SPEED, PRECISION

Objective

To take off from the deck, then, from the start gate, fly the largest possible equilateral triangle along pre-defined lines and return to the finish gate precisely on the imposed elapsed time, before landing back on the deck.

Description

There are 2 infinite lines drawn on the map at 60 degrees to each other, originating from the start gate.

Fly along one of the line and the furthest point crossing this line will define leg #1 of a triangle, fly towards the other line and, again, the furthest point crossing that line (from start gate) will define leg #2 of the triangle, before returning to the finish gate to complete leg #3 of the triangle.

The pilot's elapsed time (from start gate to finish gate) must be as close as possible to the imposed elapsed time. Time deviation above or under incur penalties.

Only the shortest of the 3 legs is scored and therefore, an equilateral triangle is the most efficient shape to fly.

Scoring

Pilot score = $[1000 \times (dp - div) / \max (dp - div)]$

Where:

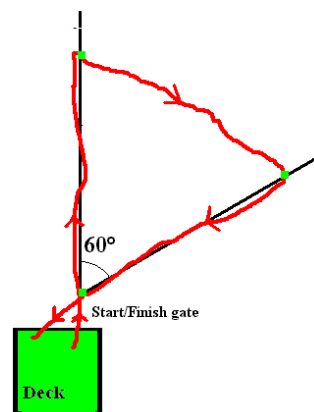
dp = the distance of the pilot's shortest leg

div = the pilot's deviation (+/-) from the imposed elapsed time, in minutes.

Penalties:

Landing outside the deck = 50%

Landing outside the field = 100%



A8 NAVIGATION, PRECISION, SPEED.

Objective

To take-off and navigate to 3 remote fields in a given order, returning to the airfield after each visit, performing given tasks as defined in the briefing and return to the airfield in the best possible elapsed time:

Description

The following description is an example of the format for this task, but the actual details may vary. Understanding this example will ensure pilots have the necessary knowledge to fly a similar, given task. Full details will be briefed as appropriate.

Take-off from the given deck.

Fly to remote field #1, land and stay there for at least 1 minute before re-launching.

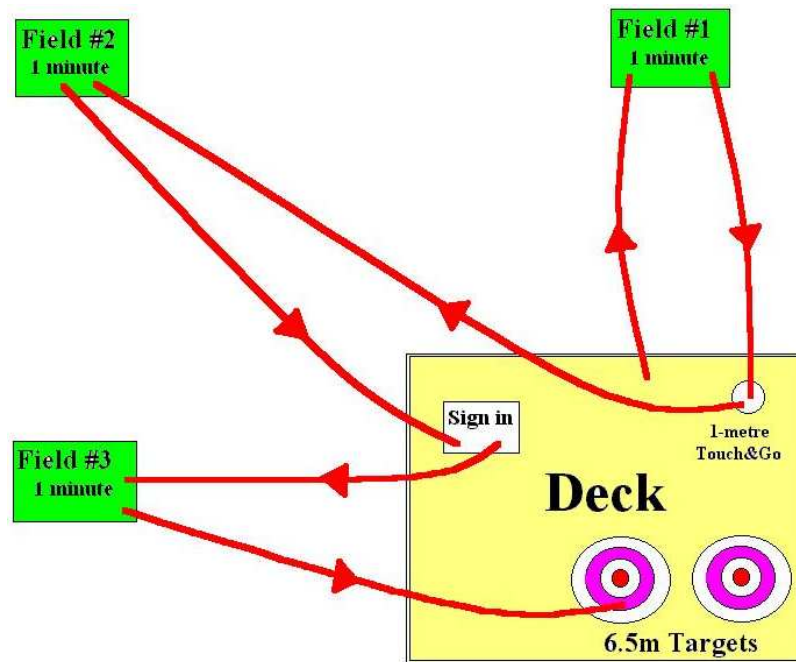
Fly back to the deck and perform a controlled Touch & Go.

Fly to remote field #2, land and stay there for at least 1 minute before re-launching.

Fly back to the deck, land, get out of harness and sign a form before launching again.

Fly to remote field #3, land and stay there for at least 1 minute before re-launching.

Fly back to deck and land on target.



Scoring:

The following scoring scheme is given as an example. Actual scoring details will be briefed.

Pilot score = $(500 \times \text{Fastest time} / \text{Pilot's own time}) + \text{landing points} + \text{bonuses}$

The winner gets 1000 points (normalised pro-rata)

Notes:

Again, these details are given as an illustration and actual details will be briefed.

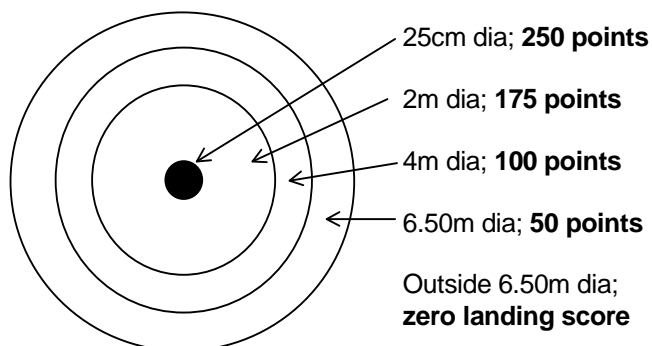
The 3 out-landings, the Touch&Go and the Sign-in are optional with a bonus of 100 points each (5 x 100 = 500 points), however in order to score speed points, the pilot must over-fly each landing spot.

The Touch&Go consists of a 1-metre circle that must be touched by the pilot, without any part of the aircraft or pilot touching the ground outside the circle, and with the pilot able to fly away. Only one attempt.

Bonuses for each of the 3 out-landings are awarded if the pilot lands there and remains stationary for at least one minute. Alternatively, pilots may be required to collect details of their next destination from a marshal at an outlanding site.

The bonus for the sign-in is awarded if the pilot lands on the deck, get out of the harness and sign a form in a specified spot, before launching again.

There are two targets, each consisting of a series of concentric circles, scored on the first touch as near as possible to the centre. The pilot must over-fly the target(s) with the engine off with at least 500 feet before proceeding to land on either of the two targets.



Penalties

There is no penalty for landing out in this task and in the event of not finishing the task, any bonus already collected will count.

Launching may be in Championship order, reverse Championship order or an open window. Method will be briefed.

The pilot's time starts when the pilot leaves the deck.

The pilot's time stops when crossing the finish gate, just prior to attempting to land on the target.

B1 PURE ECONOMY

Objective

To take off from the deck with an unlimited quantity of fuel and achieve the best possible fuel consumption (litres/hour), applying the weight-based handicap, remaining airborne for at least one hour. A handicapping system will be applied such that heavier pilots will be allowed proportionally more fuel

Special Rules

- Pilots are timed for their duration, from launch to landing. The amount of fuel used, divided by the duration gives the fuel consumption (litres/hour), then is divided by the bodyweight index.
- Pilots are weighed immediately prior to launch and immediately after landing in accordance with the process described in the Rules & Regulations
- Penalty for flying less than one hour (50%)
- Penalty for landing outside the deck (50%)
- Penalty for landing outside field (100%)
- Penalty for leaving the airfield after landing BEFORE being re-weighed (100%)
- There is a land-by time or period with penalty thereafter (100%)
- Pilots may carry as much fuel as they wish.

Scoring

Pilot score = (1000 x FCmin / FCp)

Where:

FCp = The fuel consumption of a pilot (litres/hour) divided by his/her bodyweight index.

FCmin = The minimum scored ratio of fuel consumption to bodyweight index.

Bodyweight index is based on 75% of the difference between the the pilot's naked weight and 100kg. This would give a 60kg pilot an index of 0.7; an 80kg pilot: 0.85; a 100kg pilot: 1.0; a 120kg pilot: 1.15, etc.

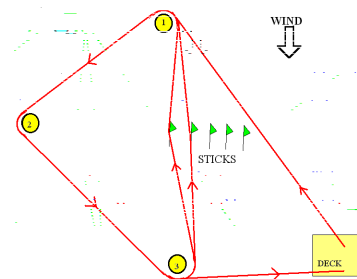
B2 ECONOMY & DISTANCE

Objective

To take off from the deck with an unlimited quantity of fuel, fly a given number of laps, ideally at least 40km total distance (for instance 20 x 2km laps) then return to the deck, having used as little fuel as possible.

Special rules

- Pilots are weighed immediately prior to launch and immediately after landing in accordance with the process described in the Rules & Regulations
- No height limit but each lap must be validated by kicking one stick on the upwind leg.
- Only one attempt at kicking a stick per lap. A missed stick results in a void lap
- There are several sticks available to kick to avoid congestion but some of the sticks are positioned in such a way as to increase the lap distance.
- Time starts from launch and ends on landing back on the deck.
- Reverse championship order is preferable.



- Pilots can carry as much fuel as they wish.

Penalties

- Penalty for landing outside the deck (100%)
- Penalty for leaving the airfield after landing BEFORE being re-weighed (100%)
- Penalty for not flying the minimum required number of laps (100%)
- No penalty for flying more laps than the required number

Scoring

Pilot score = (1000 x FUmin / FUp)

Where:

FUp = The amount of fuel used by a pilot to fly the task divided by his/her bodyweight index.

FUmin = The minimum ratio of amount of fuel used to bodyweight index.

B3 ECONOMY & NAVIGATION

Objective

To take off with an unlimited quantity of fuel and locate as many given waypoints as possible within the elapsed time window, whilst achieving the best possible fuel consumption (litres/hour) in proportion to bodyweight (if bodyweight index is used) before returning to the deck.

Special Rules

- Pilots are weighed immediately prior to launch and immediately after landing in accordance with the process described in the Rules & Regulations.
- Time limit (for instance 2 hours) with penalties for being late (for instance 50%).
- There may also be a minimum time limit (for instance 1 hour) with penalties for being early, e.g. 50%
- The Championship Director may set the task to either score on the number of waypoints visited or the distance flown.
- Pilots may carry as much fuel as they wish.
- Time starts from launch (or start gate) and ends on landing (or finish gate).
- Penalty for landing outside field (100%)
- Penalty for landing outside deck 100%
- Penalty for leaving the airfield after landing BEFORE being re-weighed (100%)

Scoring:

Pilot score = (500 x NBp / Nbmax) + (500 x FCmin / FCp)

Where:

NBp = The number of waypoints a pilot collects in the task (or the distance flown)

NBmax = The maximum number of waypoints scored or (maximum distance flown)

FCp = The fuel consumption of a pilot (litres/hour) divided by his/her bodyweight index.

FCmin = The minimum ratio of fuel consumption to bodyweight index.

B4 SPEED TRIANGLE AND OUT AND RETURN

Objective

To take off with an unlimited quantity of fuel and fly around a given circuit (for instance a triangle) in the shortest possible time and then fly as far as possible in the direction of the pilot's choice (unless briefed otherwise) before returning to the deck, whilst achieving the best possible fuel range (km/litre) for the whole flight.

The fuel range (km per litre) is calculated as the whole flight distance divided by the quantity of fuel used multiplied by the bodyweight index (if used).

Description

Part 1: Speed: Prior to launch, the pilot is weighed in accordance with the process described in the Rules & Regulations. The pilot's take off time is recorded. The pilot flies the given circuit and returns to the deck where he is timed, possibly kicking one or more sticks on arrival to stop the clock for the speed element or by crossing gates to be timed by the loggers

Part 2: Fuel Range: The pilot then flies to one or two points of his/her choice (as briefed) in order to maximise the distance and therefore, the overall range. He/she then returns to the deck where he/she is re-weighed to calculate fuel used. The direction of the first point may be given.

Special Rules

- There will be a maximum elapsed time limit.
- The second element may require pilots to fly to (and subsequently declare) 2 distant points on the map, such that the 'out and return' distance is calculated from the total of three legs. This may be used where available airspace is limited.
- Penalty for exceeding time limit (50% of range score)
- Penalty for landing outside the deck is 100%
- Penalty for leaving the airfield after landing BEFORE being re-weighed is 100%

Scoring

Pilot score = (500 x Tmin / Tp) + (500 x FRp / FRmax)

Where:

Tp = The pilot's time in the speed section

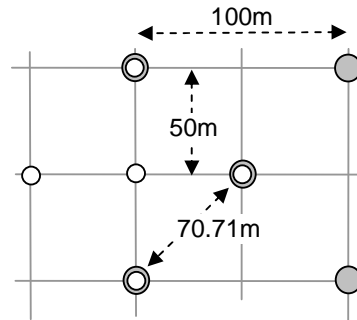
Tmin = The fastest time in the speed section

FRp = The fuel range achieved by a pilot (Km/litre) for the whole flight multiplied by his/her bodyweight index (if used)

FRmax = The maximum product of fuel range by bodyweight index (if used)

A note about Paramotor precision tasks

Most precision tasks with slalom poles and/or pylons are designed to be run in either a 50m grid, a 70.71m grid or a 100m grid. It is then convenient for the organizer to set up the task area according to the grid in the drawing which gives the maximum flexibility in any wind direction with the minimum of hole-digging.



C1 PRECISION LANDING

Objective

To land as near as possible to a target. This is likely to be run as an additional element to other tasks.

Scores from two or more precision landings may be aggregated to form a single task. The scoring from this single aggregate task may also include an element to reward consistency, e.g. if there were four precision landings, pilots scoring on all four, there may be an additional 300 points awarded, 200 points for scoring on 3 and so on. This would help to differentiate between the pilot who happens to score 250 points for one good landing whilst wildly missing the other three and the pilot who scores a lower aggregate score despite hitting the 50 point ring consistently on all four landings. With the consistency score included, the former pilot would score 250 points, whilst the latter pilot would now score 500.

Description

The pilot over-flies the target at a minimum of 500ft, 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.

The task may be scored in one of two ways:

1. a. A target consisting of a series of concentric circles for PF1 and PF2 classes.
 - b. A series of 5m wide parallel strips for PL1 and PL2 classes (where possible)
2. a. A point for PF1 and PF2 classes
 - b. A 5 m long line marked on the ground perpendicular to the wind direction for PL1 and PL2 classes.

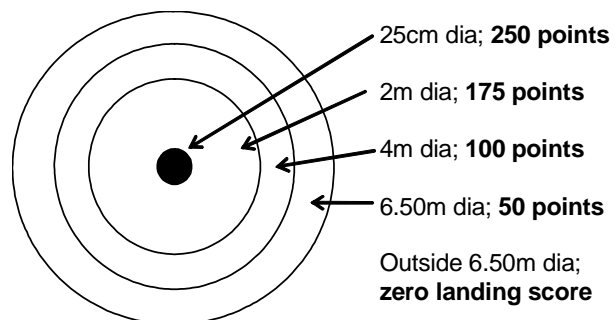
Special rules

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

Scoring

Method 1.

Pilot score is dictated by the first touch on the target as shown on the diagram.



Method 2.

The distance from the first touch of the ground by the pilot's foot (PF) or the aircraft wheels (PL) to the centre of the point is measured.

$$\text{Pilot score} = 250 \times \frac{D_p}{D_{\min}}$$

Where $D_p = x$ – the pilot's distance to the target

And $D_{\min} = x$ – the minimum distance to the target

The value of x , in metres will be given at briefing but may be between 10 and 25 metres depending on the meteorological conditions. This outer zone should be marked by cones or some other visual

Penalties

Zero Landing Score for falling over on landing.

Zero Landing Score - Only feet and one knee can touch without penalty. If the pilot falls to TWO knees OR if any part of the power unit chassis/cage touches the ground during the landing process. The speed bar or a dangling throttle will not incur penalties.

C2 FAST / SLOW SPEED

Objective

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

Description

A straight course consisting of four equally spaced 'kicking sticks' between 250m and 500m 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 any stick is one where the pilot or any part of the aircraft has been clearly observed to touch it.
- 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: $VP1 = \text{zero}$ and $EP = \text{zero}$
- If the pilot zigzags: Score zero.

In the fast course;

- If the pilot or any part of his paramotor touches the ground: $VP2 = \text{zero}$ and $EP = \text{zero}$
- The pilot may have three attempts at kicking the fourth stick.

Scoring (Example)

$$\text{Pilot score} = \left(125 \times \frac{V_{p1}}{V_{\max}}\right) + \left(125 \times \frac{V_{\min}}{V_{p2}}\right) + \left(250 \times \frac{E_p}{E_{\max}}\right)$$

Where:

V_{max} = The highest speed achieved in the fast course, in km/hr

V_{p1} = The speed of the pilot in km/hr in the fast course.

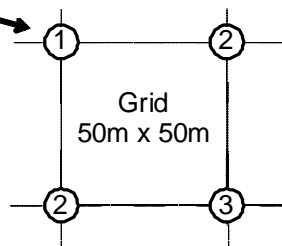
V_{min} = The lowest speed achieved in the slow course, in km/hr

V_{p2} = The speed of the pilot in km/hr in the slow course.

E_p = The difference between the pilot's slowest and fastest speeds, in km/hr

E_{max} = The maximum difference between slowest and fastest speeds, in km/hr

Approach from
direction of
pilot's choice



C3 THE FOUR STICKS

Objective

This task is intended as a small break task between elements of an overall task.

Description

There are 4 standard kicking sticks set at the corners of a 50m x 50m square. The pilot must kick 3 of the 4 sticks. The first stick the pilot kicks may be any of the 4 sticks. The third stick the pilot kicks must be diagonally opposite the first, the second stick may be either of the two other sticks.

Special rules

- If this task is used to take a time for the purposes of an element of the overall task then the time shall be taken the moment the pilot strikes the first stick.
- A valid strike is:
EITHER one where the pilot or any part of the paramotor chassis/cage 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.
- The pilot may have as many attempts as necessary at striking the first stick.
- Only ONE attempt is allowed at kicking both the second and third sticks.
- There shall be one group of 4 sticks for every 15 competitors in the task.
- For class PL2 landing markers may replace sticks.
- On approach to the task, pilots should choose a "free" group of sticks. However if, in the opinion of the marshals on duty a conflict with another aircraft existed (depending on the overall task, for example if there is a timing involved) both should kick only one stick and then depart on the rest of the overall task. Both pilots will then be given the opportunity to have ONE further attempt at this task as soon as possible after the end of the overall task.

Scoring

The scoring should be integrated into the overall task as NQ. If the pilot fails to kick either the second or third stick then for each stick then the penalty shall be no more than 5% of the overall task score.

C4 SHORT TAKE-OFF OVER A FENCE

Objective

To take off and clear a fence from as short a distance as possible. This task is intended to be included as a small element of another task.

Description

A fence 2m high and 10m long is manoeuvred into a position of pilot choice.

When takeoff permission is granted, pilots takes off and tries to fly over the fence. Maximum distance of pilot's feet on the ground to the fence is scored.

Special rules

- If the pilot's feet have not left the ground and the line of the fence is not reached at the first attempt then one second attempt is permitted.
- Zero fence score for breaking the fence or weaving.

Scoring

The scoring should be integrated into the overall task scoring. If the pilot fails to clear the fence then the penalty shall be no more than 10% of the overall task score.

$$\text{Pilot score} = \left(100 \times \frac{F_{\min}}{F_p} \right)$$

Where

F_{\min} = The shortest distance in metres for a takeoff over the fence

F_p = The pilot's takeoff distance to clear the fence.

Notes

A fence may simply be 2 kicking sticks with a plastic tape between.

To prevent unnecessary delay the fence should only be brought to the pilot when he is ready to take off.

The pilot should not be told the distance he is from the fence, the distance should be at the sole visual judgement of the pilot.

The distance measured is the maximum distance the pilot is away from the fence whilst touching the ground, thus if the pilot steps away from the fence during launch then this distance should be included.

The job of holding the two poles supporting the fence can be quite hazardous; it should be entrusted to marshals experienced in PF operations.

C5 PRECISION CIRCUIT IN THE SHORTEST TIME ('Clover leaf slalom')

Objective

To strike a number of targets laid out in a given order in the shortest possible time and return to the deck.

Description

4 pylons 2m in height are laid out

- At the corners of a 70.71m square for PF1 and PL1 classes.
- At the corners of a 100m square for PF2 and PL2 classes.

A fifth target is set at the centre of the square.

The pilot enters the course into wind and strikes the target T (strike 1). At this point the clock starts. The pilot flies around pylon 2 and returns to kick the stick T (strike 3), he then flies around pylon 4 and returns to kick the stick T (strike 5). This continues until all four pylons have been rounded. The clock stops when target T is kicked for the last time (strike 9).

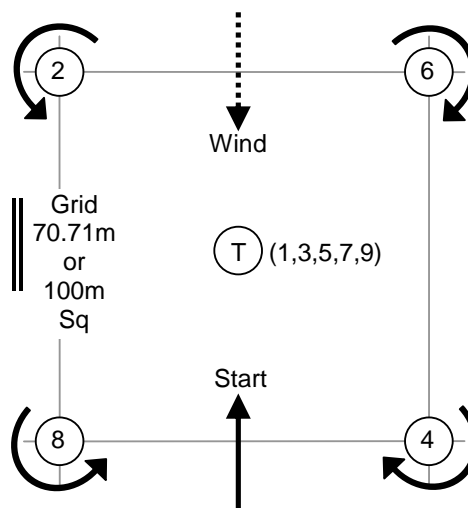
Special rules

- A valid strike on the target T is:

EITHER one where the pilot or any part of the paramotor chassis/cage has been clearly observed to touch it. For class PL2 the target T may be replaced with a landing marker.

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.

- To count as a strike, the pilot's body must be clearly seen to round each pylon and pylons 2 & 8 must be rounded in an ANTI CLOCKWISE direction and pylons 4 & 6 must be rounded in a CLOCKWISE direction.
- A strike on target 1 starts the clock, a strike on target 9 stops the clock.



- Pilots may have only one attempt at striking each target except for the first and last targets where three attempts at each are permitted.
- Failure to strike the first or last target or round at least one pylon or touch the ground at any point between them: score zero.
- The grid may be opened up to max. 100M at the briefing if the meteorological conditions dictate.

Scoring

N = number of targets

T = time from first to last target to tenths of a second if timed manually or hundredths if timed electronically.

Q = N^3 / T

P = $1000 * Q / Q_{max}$

C6 PRECISION CIRCUIT IN THE SHORTEST TIME ('Japanese slalom')

Objective

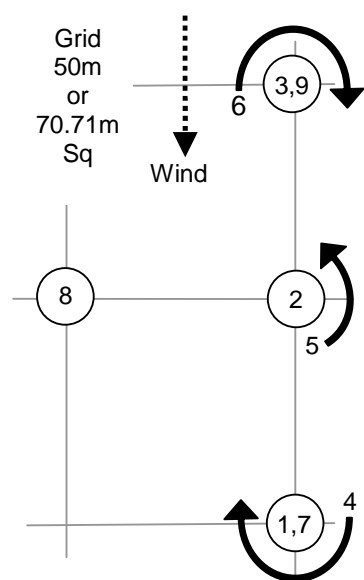
To strike a number of targets laid out in a given order in the shortest possible time and return to the deck.

Description

4 pylons 2m in height are laid out on

- On a 50 m x 50 m grid for PF1 and PL1 classes,
- On a 70.71 m x 70.71 m grid for PF2 and PL2 classes.

The pilot enters the course into wind and strikes target 1. At this point the clock starts. The pilot then strikes targets 2 and 3. He then returns to fly clockwise around target 1 (strike 4), anticlockwise around target 2 (strike 5) and clockwise around target 3 (strike 6). He then returns to strike target 1 (strike 7), target 4 (strike 8) and target 3 (strike 9). The clock stops when target 3 (strike 9) is kicked.



Special rules

- A valid strike on a target is:
EITHER one where the pilot or any part of the paramotor chassis/cage 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.
- When targets are acting as pylons, to count as a strike, the pilot's body must be clearly seen to round it, pylons 1 & 3 must be rounded in a CLOCKWISE direction and pylon 2 must be rounded in an ANTI CLOCKWISE direction.
- A strike on target 1 starts the clock, a strike on target 9 stops the clock.
- Pilots may have only one attempt at striking each target except for the first and last targets where three attempts at each are permitted.
- Failure to strike the first or last target or touch the ground at any point between them: score zero.

Scoring

N = number of targets

T = time from first to last target to tenths of a second if timed manually or hundredths if timed electronically.

Q = N^3 / T

P = $1000 * Q / Q_{max}$

C7 PRECISION CIRCUIT IN THE SHORTEST TIME ('Chinese slalom')

Objective

To strike a number of targets laid out in a given order in the shortest possible time and return to the deck.

Description

Between 6 and 12 targets are laid out on a course not exceeding 3Km in length. Targets are sticks. (landing markers for class PL2).

The pilot enters the course into wind and strikes target 1. At this point the clock starts.

The pilot then flies the course to strike all the other targets in the given order, a strike on the last one stops the clock.

Special rules

- A valid strike on a target is:
EITHER one where the pilot or any part of the aircraft including the wing 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.
- A strike on target 1 starts the clock, a strike on the last target stops the clock.
- Pilots may have only one attempt at striking each target except for the first and last targets where three attempts at each are permitted.
- Failure to strike the first or last target or at least two of the intermediate targets or touch the ground at any point between them: score zero.

Scoring

N = number of targets struck

N_{max} = number of targets

T = time from first to last target to tenths of a second if timed manually or hundredths if timed electronically.

Q = N^3 / T

P = $1000 * Q / Q_{max}$

Note to Director: This task is ideally suited for sites where there are physical features which obscure a direct view from one target to the next.

C8 ROUND THE TRIANGLE

Objective

To strike a number of targets laid out in a given order in the shortest possible time and return to the deck.

Description

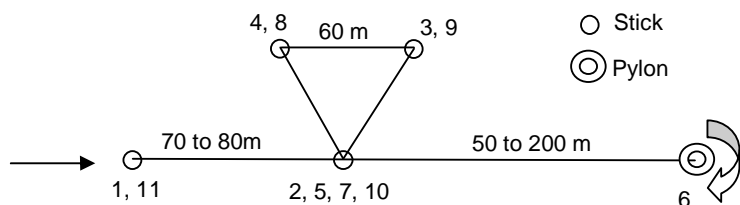
The course consists of 4 sticks to be kicked and another stick or pylon as a turn point.

The distance from stick 1 to 2 is 70 - 80 m, the side of the equilateral triangle is 60 m, and the distance between stick 2 to turnpoint 6 is 50 to 200 m.

The pilot enters the course as indicated by the arrow and strikes the first target (strike 1). At this point the clock starts. The pilot flies kicking the sticks in the triangle (strikes 2, 3, 4 and 5), then clockwise around pylon 6, returns to kick the sticks in the triangle (strikes 7, 8, 9 and 10) and then back to the initial stick (strike 11) The clock stops on strike 11.

Special rules

- A valid strike on a target is:
EITHER one where the pilot or any part of the paramotor chassis/cage 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.

- The pilot's body must be clearly seen to round pylon 6 clockwise.
- Pilots may have only one attempt at striking each target except for the first and last targets where three attempts at each are permitted.

Scoring

N = number of targets (sticks or pylons). Nmax = 11.

T = time from first to last target

Q = N^3 / T

P = $1000 * Q / Q_{max}$

Penalties.

Touch the ground at any point between first and last strikes: Zero score.

Any part of the aircraft crosses the crowd line or dangerous flying: DSQ

C9 THE EIGHT

Objective

To strike a number of targets laid out in a given order in the shortest possible time and return to the deck.

Description

The course consists of one central stick and another two sticks or pylons 50 m away on both sides.

The pilot enters the course as indicated by the arrow and kicks the stick (strike 1). At this point the clock starts. The pilot flies around the pylon ahead of him counterclockwise (strike 2), then kicks the stick (strike 3), then the other pylon clockwise (strike 4) and finally kicks the stick for the last time (strike 5). The clock stops on strike 5.

If briefed, the course can be repeated twice, accumulating a total of 9 possible targets.

Special rules

- A valid strike on a target is:
EITHER one where the pilot or any part of the paramotor chassis/cage 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.
- The pilot's body must be clearly seen to round the pylons clockwise or anticlockwise as indicated.
- Pilots may have only one attempt at striking each target except for the first and last targets where three attempts at each are permitted.

Scoring

Single course:

N = number of targets (sticks or pylons). Nmax = 5.

T = time from first to last target

Q = N^3 / T

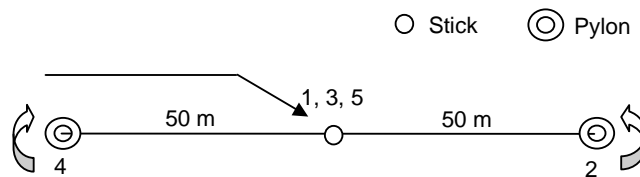
P = $500 * Q / Q_{max}$

Course flown twice:

N = number of targets (sticks or pylons). Nmax = 9.

T = time from first to last target

Q = N^3 / T



$$P = 1000 * Q / Q_{max}$$

Penalties.

Touch the ground at any point between first and last strikes: Zero score.

Any part of the aircraft crosses the crowd line or dangerous flying: DSQ

C10 BOWLING LANDING

Objective

Land without engine, hitting as many pins as possible.

Description

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 500ft and cut the engine before crossing a briefed gate.

They will fly a minimum of 60 seconds and will try to hit as many pins as possible before touching the ground. Each pin hit before touching the ground will score 50 points (maximum 250 points).

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.

Flying less than 60 seconds with no engine: zero landing score.

Only feet and one knee can touch without penalty. If the pilot falls to TWO knees OR if any part of the power unit frame touches the ground during the landing process - zero Landing Score. The speed bar or a dangling throttle will not incur penalties.

