Task Catalogue
for the
WORLD PARAMOTOR CHAMPIONSHIPS 2009

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.

CONTENTS

Key to symbols used in the task catalogue

Marker Symbols

↗	Line drawn before takeoff	**FP** □	Finish point	**H**
↗	Line drawn after takeoff	**FP** △	Finish point with time gate	**I**
↻	Free flight	△ Π	Marker identity given before takeoff	**K**
▶	Direction of travel	⬭	Home airfield	**L**
□	Marker selected from list of Marker Symbols	✎	Outlanding airstrSP	**N**
○	Ground feature to be identified from photograph	⫽	Direction of landing	**T**
⬠	Turnpoint	⬦	Left hand circuit	**U**
⬠	Turnpoint to be identified from photograph	⬦	Right hand circuit	**X**
▦	Ground feature to be photographed or controlled by FR evidence.	⫽600'	Circuit height above ground in feet	**□**
△	Timing point or gate	⚑	Windsock	**=**
SP □	Initial or Start point	⊤	Landing direction indicator	**Π**
SP △	Initial or Start point with time gate	▭	Road or track	**△**

1.1   INTRODUCTION

This catalogue describes tasks which may be set in FAI World and Continental championships. It does not preclude new tasks provided they have been tried out satisfactorily in national competitions and are clearly described and accepted when the FAI Microlight Commission (CIMA) approves the Local regulations.

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 100m 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 15 kg or less.

C   Precision

The proportion of each task to be used is stated in S10, 4.24.3

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 4.13.7.

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.

1.3 EXAMPLE TASKS

The following tasks are examples of the tasks described above. Their purpose is to show the way in which real tasks have been designed using the generic principles outlined earlier. However, this is not an exhaustive set of tasks and others may be designed using these principles. Certain aspects of the scoring have been included in the task descriptions, in particular a schedule of penalties. However, the specific scoring for photos, markers and turnpoints etc to be used in the competition will be briefed prior to the task being flown.

3 THE TASKS

3.A1 PURE NAVIGATION

Objective

To fly a course between as many turn points or markers as possible within the time window and return to the deck.

Scoring

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

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

OR

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

NBMax = the maximum distance flown in the task.

3.A2 NAVIGATION, PRECISION & SPEED

Objective

To make a clean take-off from the deck, to fly a course between as many turn points or markers as possible within a given time, and to collect bonus points for landing at designated markers before returning to the deck.

Special rules

- The clock starts the moment the marshal makes the signal to take off.
- At the start, the pilot scores 300 bonus points for a clean take off at the first attempt, 200 for the second, 100 for the third, zero for any attempts thereafter.
- 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 line or lands back on the deck.
- Any outside assistance: Score zero.

Scoring

$$\text{Pilot score} = \left(500 \times \frac{NBp}{NBMax}\right) + Bto + \left(200 \times \frac{Bld}{BldMax}\right)$$

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

OR

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

NBMax = the maximum distance flown in the task.

AND

Bto = Pilot's takeoff bonus points

Bld = Pilot's landing bonus points

BldMax = The maximum landing bonus points achieved.

3.A3   NAVIGATION / ESTIMATED SPEED

Objective

To fly a course between any combination 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.

Special rules

-    The value of T, in seconds, will be given at the briefing.

Scoring

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

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

OR

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

NBMax = the maximum distance flown in the task.

AND

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

3.A4   NAVIGATION / ESTIMATED SPEED / PRECISION

Objective

To fly a course between any combination 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.

Special rules

-    The value of T, in seconds, will be given at the briefing.

-    At the start, the pilot scores 150 bonus points for a clean take off at the first attempt, 100 for the second, 50 for the third, zero for any attempts thereafter.

-    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

$$\text{Pilot score} = \left(400 \times \frac{\text{NBp}}{\text{NBMax}}\right) + (250 - T) + \text{Bto} + \left(200 \times \frac{\text{Bld}}{\text{BldMax}}\right)$$

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

OR

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

NBMax = the maximum distance flown in the task.

AND

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

Bto = Pilot's takeoff score

Bld = Pilot's landing points

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

3.A5　NAVIGATION OVER A KNOWN CIRCUIT

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

It may be required to distinguish between on-track and off-track markers and ground features.

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.

Summary

Competitors will 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.

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 start and finish with a Deck Takeoff and Deck 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.
Qh = Vh * Nh

Time precision (when included in the task):

V_t = Gate value (e.g. 180)
E_i = Absolute error in seconds in gate i.
    Maximum error is V_t.
    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):

V_s = Relative value for the speed term
S = Pilot's speed in the speed section
$Q_v = V_s * S / S_{max}$

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:
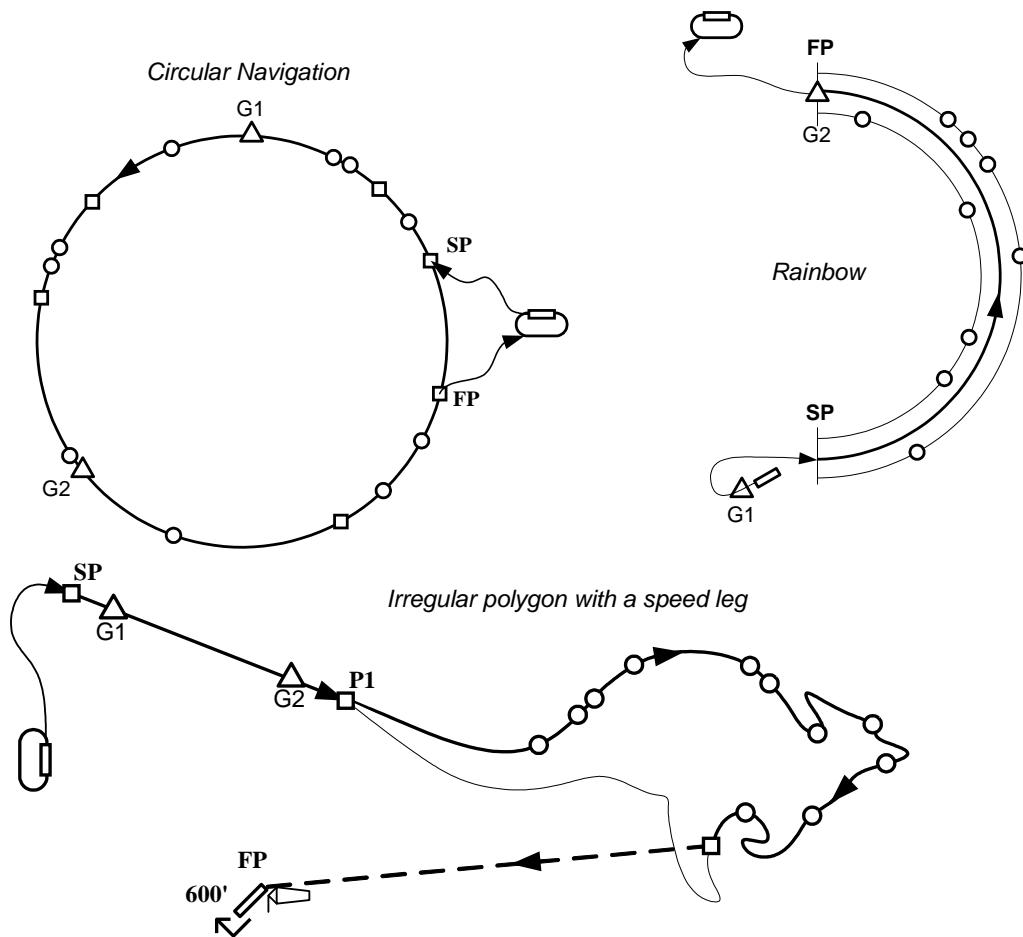
Takeoff deck penalty: 20%

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.

Examples

Circular Navigation

Rainbow

Irregular polygon with a speed leg

3.A6   NAVIGATION WITH UNKNOWN LEGS

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

It may be required to distinguish between on-track and off-track markers and ground features.

Certain of the 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.

Summary

Competitors will 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

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 start and finish with a Deck Takeoff and Deck 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:

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

V_t = Gate value (e.g. 180)
E_i = Absolute error in seconds in gate i.
    Maximum error is V_t.
    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):

V_s = Relative value for the speed term
S = Pilot's speed in the speed section
$Q_v = V_s * S / S_{max}$

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:
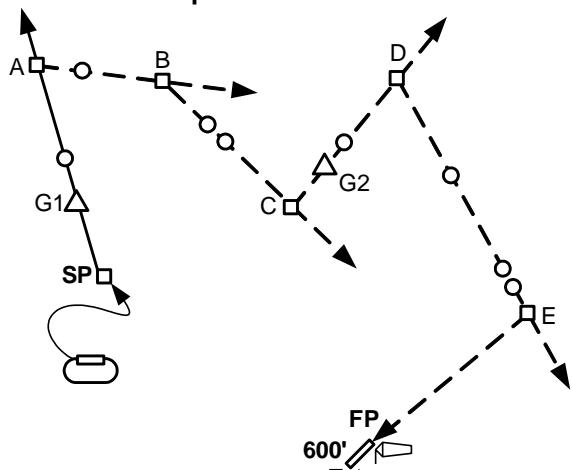
Take-off deck penalty: 20%.

Landing deck penalty: 20%.

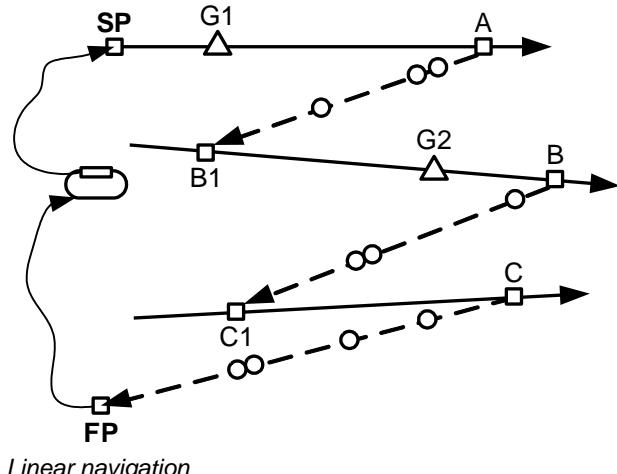Backtracking against the task direction or crossing a hidden gate backwards: 100%

Breach of quarantine: 100%

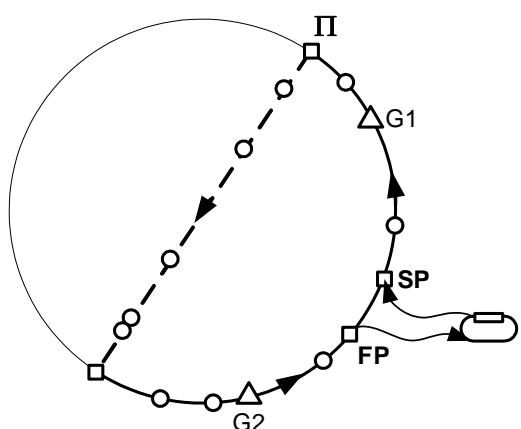Crossing a hidden gate twice invalidates the gate.

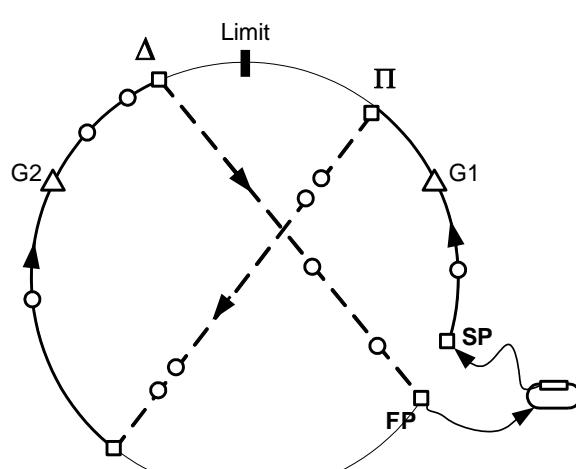A penalty will be specified for braking an envelope seal.
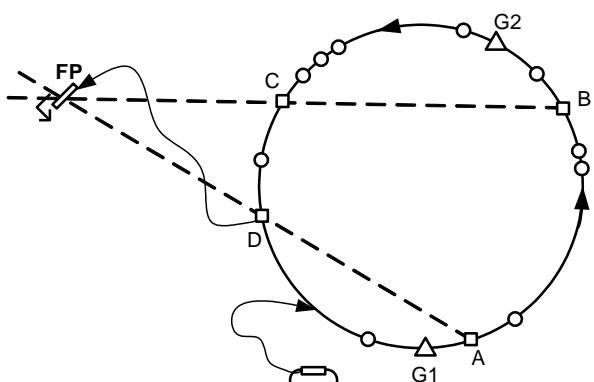
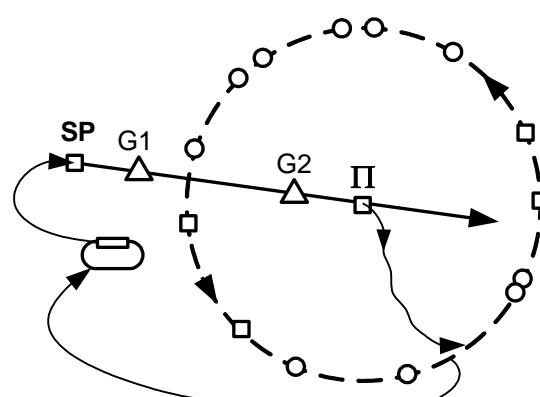**Examples**

Sequential navigation

Linear navigation

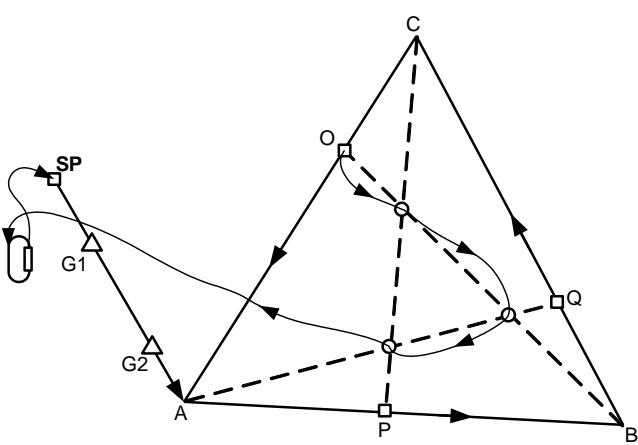*Circular navigation and diameter*

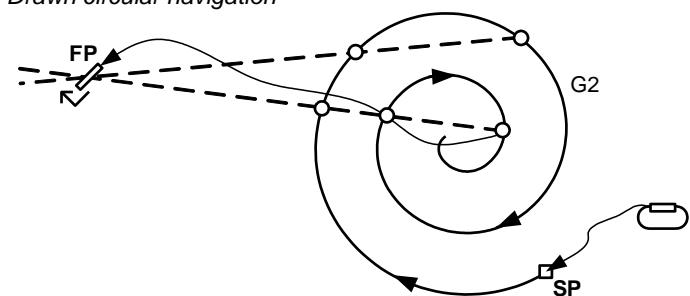*Circular navigation, diameter and reverse.*
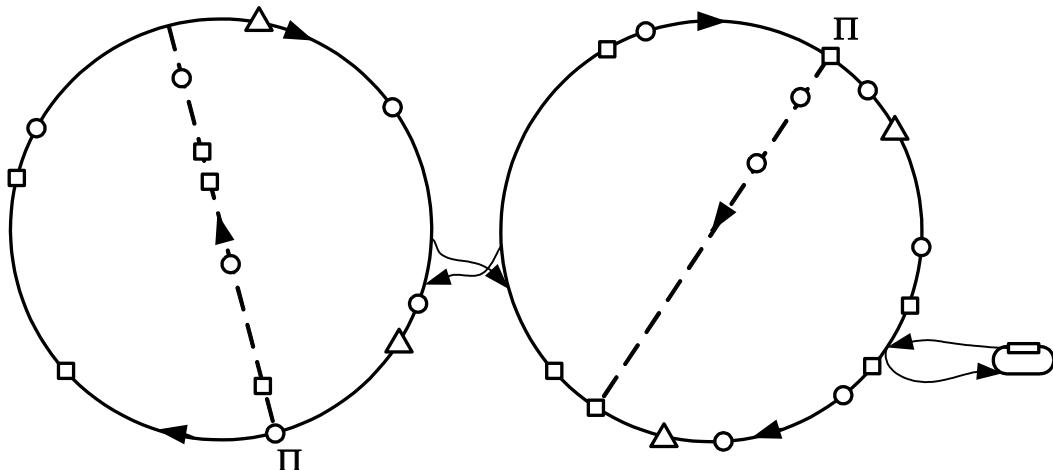
Circle and two lines

Drawn circular navigation

Speed spiral and two lines

Triangle and three lines

Double circular navigation

3.B1. PURE ECONOMY

Objective

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

Special rules

- Free take-off within the time window.

- Departure from view of the marshals or egress from the permitted flight area will incur penalties.

- Land outside the airfield boundary: Score zero. Land inside the airfield boundary but outside the deck: 20% penalty.

Scoring

Pilot score = $1000 \times \dfrac{Tp}{Tmax}$

Where:

Tp = The pilot's time,

Tmax = The longest time taken to complete the task

3.B2 ECONOMY & DISTANCE

Objective

To take off from the deck 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.

Description

Each section must be approximately 1Km 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.

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.
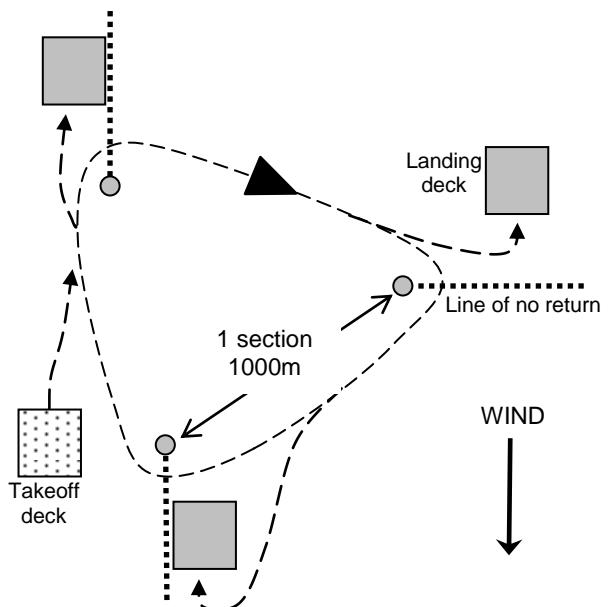
- If the pilot or any part of his paramotor touches the ground during the task and takes off again, score zero.
- Flying back across a 'line of no return' score zero.
- Failure to land in a landing deck: 20% penalty.

Scoring

$$\text{Pilot score} = 1000 \times \frac{Lp}{Lmax}$$

Where:

Lp = The number of whole sections completed by the pilot

Lmax = The maximum number of whole sections achieved in the task.

3.B3   ECONOMY & NAVIGATION

Objective

To take off with a given quantity of fuel and locate an unknown number of markers within defined sectors and return to the deck.

Description

Each sector will contain a given IP (initial point) and a FP (finishing point) which may be a turn point, marker or gate. The pilot flies a given track between the IP and FP. An unknown number of markers may be distributed along the track.

Special rules

- Outlanding: Score zero.

Scoring

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

Where:

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

3.B4.   ECONOMY & PRECISION

Objective

To make a clean take-off in the time window with a given quantity of fuel, stay airborne as long as possible within a defined area and land on landing markers situated within the deck before the end of the time window.

Special rules

- The pilot scores 300 bonus points for a clean take off at the first attempt, 200 for the second, 100 for the third, zero for any attempts thereafter.
- Departure from view of the marshals or egress from the permitted flight area will incur penalties.
- When landing, If the pilot elects to switch off his engine at least 5m above a marker and:

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

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

Makes a first touch on the marker: Landing bonus: 50 points

- If the pilot falls over as a result of the landing: zero landing bonus.
- If the pilot obstructs another competitor attempting to land at a landing marker penalties will apply.

Scoring

$$\text{Pilot score} = \left(500 \times \frac{Tp}{Tmax} \right) + Bto + Bld$$

Where:

TP = The pilot's time

Tmax = The longest time taken to complete the task

Bto = Takeoff bonus points

Bld = Landing bonus points

3.B5 SPEED TRIANGLE AND OUT AND RETURN

Objective

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

Description

Fuel quantity allowed: (Suggested: 6 litres)

Part 1: Speed; The pilot take off time is noted. The pilot flies to one or more turnpoints and returns to the deck where he is timed.

Part 2: Distance; The pilot then flies in a given direction to a point of pilot choice and returns to the deck.

Special rules

- Land out before completing part 1: Score zero.

- Land out before completing part 2: Score zero for part 2.

- Failure to takeoff or land entirely in the deck: 20% penalty.

Scoring

Pilot score = $\left(500 \times \dfrac{tMin}{tp}\right) + \left(500 \times \dfrac{dp}{dMax}\right)$

Where:

tp = the pilot's time,

Tmin = The best time (Part 1)

dp = the pilot's distance

dMax = the greatest distance (Part 2)

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.
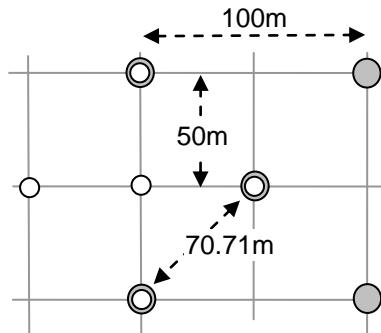
3.C1. PRECISION TAKE-OFF AND LANDING

Objective

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

Description

The pilot is permitted four takeoff attempts, climbs to 500ft 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 5m wide parallel strips for PL1 and PL2 classes

25cm dia; **250 points**

2m dia; **175 points**

4m dia; **100 points**

6.50m dia; **50 points**

Outside 6.50m dia; **zero landing score**

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

Pilot score = (Bto + Bld)

Where:

Bto = Takeoff points
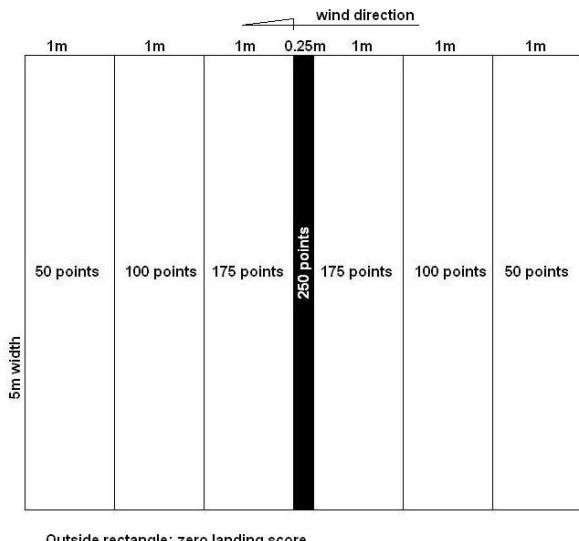
Bld = Landing points

Outside rectangle; zero landing score

3.C2   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.

Approach from direction of pilot's choice

Grid 50m x 50m

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.

- 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.

- 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.
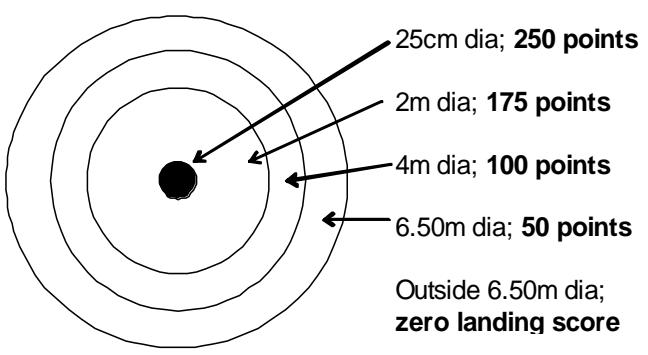
3.C3   PRECISION TAKE-OFF AND LANDING

Objective

To make a clean take off at the first attempt in the deck, and subsequently land as near as possible to a target which is:

- A point for PF1 and PF2 classes

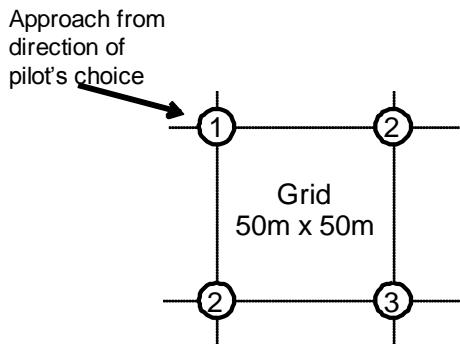- A 5 m long line marked on the ground perpendicular to the wind direction for PL1 and PL2 classes.

Description

The pilot is permitted four takeoff attempts, climbs to 500ft 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.

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. When more than one PL wheel touches simultaneously the point chosen is the one in favour of the pilot.

- Zero score if the pilot or any part of the aircraft touches 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

Pilot score = $Bto + \left(250 \times \dfrac{Dp}{Dmin} \right)$

Where

Bto = Pilot's takeoff score.

Dmin = x - the closest distance to the target achieved by any pilot.

Dp = x - the pilot's distance to the target (> x m = zero landing score).

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 indication in the form of:

- A circle for PF1 and PF2 classes,

- Two 5m long lines parallel to the target for PL1 and PL2 classes.

3.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 as F. If the pilot fails to clear the fence then the penalty shall be no more than 10% of the overall task score.

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

Where

Fmin = The shortest distance in metres for a takeoff over the fence

Fp = 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 shall 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.

3.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).
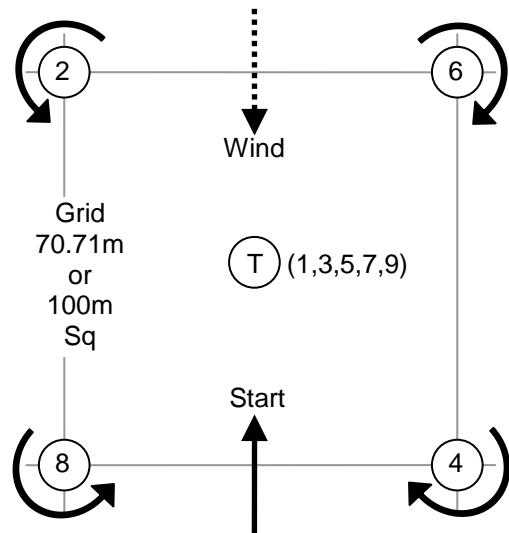
Special rules

- A valid strike on the target T is:

  EITHER one where the pilot or any part of the paramotor 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.

- 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 meterological conditions dictate.

Scoring

N   =   number of targets
T   =   time from first to last target
Q   =   N^3 / T

$$Pq = 500 * Q / Qmax$$
$$Ps = 500 – 30 * (T – Tpmin). \quad \text{Minimum Ps} = 0; \text{ if } N < 9, Ps = 0.$$
$$P = Pq + Ps$$

## 3.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.
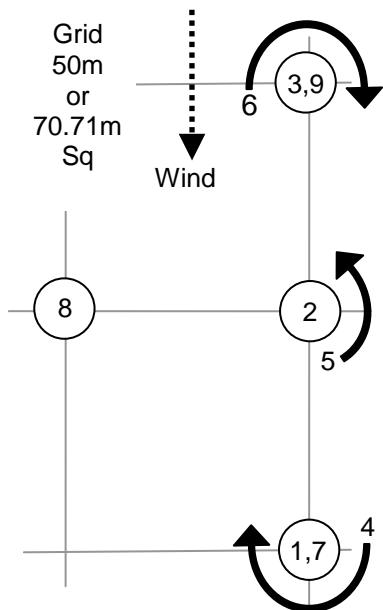
Special rules

- A valid strike on a target is:

    EITHER one where the pilot or any part of the paramotor 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
Q = N^3 / T
Pq = $500 * Q / Qmax$
Ps = $500 – 30 * (T – Tpmin).$ Minimum Ps = 0; if N < 9, Ps = 0.
P = $Pq + Ps$

3.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.

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 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.

- 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
T = time from first to last target
Q = N^3 / T
Pq = 500 * Q / Qmax
Ps = 500 – 30 * (T – Tpmin). Minimum Ps = 0; if N < 9, Ps = 0.
P = Pq + Ps

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.

3.C8   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 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.

$$\text{Pilot score} = \left(125 \times \frac{Vp_1}{Vmax}\right) + \left(125 \times \frac{Vmin}{Vp_2}\right) + \left(250 \times \frac{Ep}{EMax}\right)$$

Where:

Vmax = The highest speed achieved in the fast course, in Km/H

Vp1 = The speed of the pilot in Km/H in the fast course.

Vmin = The lowest speed achieved in the slow course, in Km/H

Vp2 = The speed of the pilot in Km/H in the slow course.

Ep = The difference between the pilot's slowest and fastest speeds, in Km/H
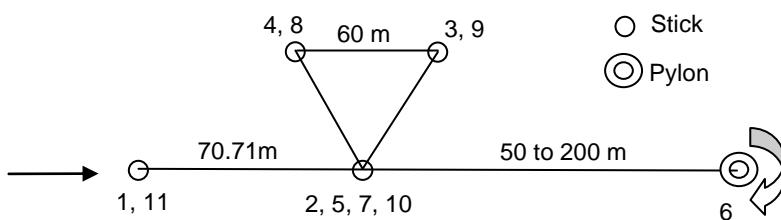
Emax = The maximum difference between slowest and fastest speeds, in Km/H

3.C9 ROUND THE TRIANGLE

Course 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 80 m, the side of the equilaterlal triangle is 60 m, and the distance between stick 2 to turnpoint 6 is 50 to 200 m.

Flying the course

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 ckockwise 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.

Detail rules

- A valid strike on a target 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.

- 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
Pq = 500 * Q / Qmax
Ps = 500 – 30 * (T – Tpmin).   Minimum Ps = 0; if N < 11, Ps = 0.
P = Pq + Ps

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

3.C10 THE EIGHT

Course description

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

Flying the course

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 aheado of him counterclockwise (strike 2), then kicks the stick (strike 3), then the other pylon clockwise (strike 4) and finally the kicks the stick for the last time (strike 5). The clock stops on strike 5.

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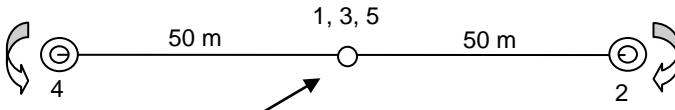
Detail rules

- A valid strike on a target 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.

- 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
Pq =   250 * Q / Qmax
Ps =   250 – 30 * (T – Tpmin).   Minimum Ps = 0; if N < 5, Ps = 0.
P   =   Pq + Ps

Courses repeated twice:

N   =   number of targets (sticks or pylons). Nmax = 9
T   =   time from first to last target
Q   = N^3 / T
Pq =   500 * Q / Qmax
Ps =   500 – 30 * (T – Tpmin).   Minimum Ps = 0; if N < 9, Ps = 0.
P   =   Pq + Ps

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

3.C11   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).

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.

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

Falling over during landing or two knees on the ground: zero landing score.

Wind

○
○
○
○
○

Landing pins

3.N1 NOISE IN CLIMB

Objective

From a stationary position on the ground in front of a line and using a fixed throttle (and propeller pitch) setting of pilot choice, the pilot takes off and climbs in a straight line over a microphone set 300m distant from the line. The max noise in dBA of the aircraft is measured.

Special rules

- Weaving, failure to fly directly over the microphone, changing throttle or propeller pitch setting: Zero score.

Scoring

Pilot score = $500 \times \left(\dfrac{nMin}{nP} \right)$

Where:

nMin = The minimum noise in dBA achieved in the class

nP = The noise achieved by the pilot in dBA

3.N2 MINIMUM NOISE IN LEVEL FLIGHT

Objective

To fly two legs of a course in opposite directions as quietly as possible.

Description

The course is between two points 300m apart and must be flown in a straight line at a height of 25ft (± 10ft). at a pilot selected constant throttle and propeller pitch setting. The microphone is positioned 100m offset from the centreline and equidistant from the two points.

Special rules

- Weaving, changing height, throttle or propeller pitch setting whilst in the course: Zero score for that run.

Scoring

Pilot score = $\left(250 \times \left(\dfrac{nMin_1}{nP_1} \right) \right) + \left(250 \times \left(\dfrac{nMin_2}{nP_2} \right) \right)$

Where:

nMin1 and nMin2 = The minimum noise in dBA achieved on each run in the class.

nP1 and nP2 = The noise achieved by the pilot in dBA on each run.