PARAMOTOR FREESTYLE TASK CATALOGUE

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INTRODUCTION

Freestyle is NOT acro, Freestyle is not intended to be a replacement for 'traditional' championships, Freestyle is actually not really even something completely new, it's the preferred word for what may best be described as Spectacular precision tasks for Paramotors. Being able to show off their pilot skills in an entirely local environment is something which is highly attractive to many Paramotor pilots, particularly young pilots, and may well serve to raise the profile of this sport. This task catalogue attempts to define some possible tasks, but is definitely not intended to be a static document. As the sport develops people will think of many more possibilities including team relay tasks.

Important themes should include:

- The task is obviously difficult and skilful to do well, ideally it should be possible for a layman to recognize and appreciate skilful flying in a task.
- Spectacular and interesting to spectators and the media; think music, flags, streamers, large inflatable obstacles, flashes, bangs, smoke Etc.
- The possibility of simple instant scoring which can be allied to scoreboards and PA systems.
- Wind neutrality, or ideally complete wind independence (eg *Chasing the dragon*)
- Happens at some height, or in a way all spectators can easily see a performance (which is why the standard precision landing isn't too interesting).
- One on one competition and/or team relays may be more exciting than tasks against the clock.

If some aspects of these tasks don't work, then they should be discarded, if new variations, or indeed whole new tasks are found to work successfully then they will be included here. The latest version will be maintained on **http://www.flymicro.com/freestyle**

NECESSARY EQUIPMENT

Effective freestyle competitions will need more equipment than the computers, stopwatches, clipboards, pens & pencils of a regular paramotor competition. Most of the equipment below is capable of being 'branded' with a sponsor's logo. In order of expense:

- **Plastic or paper tape**. 'Barrier tape' is an ideal solution and very cheap. Beware that custom printed barrier tape may be stronger than the cheapest red and white varieties and should be tested to disintegrate easily in a propeller.

- **Small and large latex helium balloons**. Sausage shaped balloons 2m x 40cm can cost as little as 1.2€ each
- **Large plastic balls**. At least 50cm diameter and lighter than regular footballs (eg for *Basketball* below)
- **Kicking sticks**. Regular ski slalom poles work very well. Thought should made into devising ways of generating a flash and a puff of smoke whenever a stick is kicked.
- **Pyrotechnics**. Smoke generators are very effective when slung under a paramotor on a rope.
- **A good PA system.** Some tasks are flown to music. All tasks should be commentated on in the local language in an effort to inform and interest spectators.
- **Electronic scoreboards.** Instant and clear scoring is vital to media and spectator interest.
- **Giant inflatables.** At least one task below (the *Giant Slalom*) really needs 10 – 15m high inflatable pylons. Other devices, for example a giant 'cake' could make precision landing tasks more interesting.

THE TASKS

1 CHASING THE DRAGON

Objective

To release a streamer and try to catch it again as fast as possible.

Description

The pilot takes off with a plastic or paper streamer of between 25 and 50 metres length rolled up in a pocket or bag. Once airborne the pilot releases the streamer so it trails behind him. When the pilot reaches a height of his choice, or at a signal (as briefed), the pilot releases the streamer and tries to catch it again as fast as possible.

Special rules

- Zero score if the streamer is released before the signal (if briefed).
- Zero score if no part of the streamer is caught around the pilot's body.
- Zero score if any part of the streamer is on the ground before the pilot catches it.

Scoring

Pilot Score = $\left(1000 \times \frac{\text{tMin}}{\text{tP}}\right)$ *or, if flown one-on-one:* $\left(850 \times \frac{\text{tMin}}{\text{tP}}\right) + \text{W}$

Where:

tMin = The pilot's elapsed time in seconds between release (or signal) and recapture.

tP = The fastest time (in seconds) of any pilot who completed the task without penalty.

W = 150 points winner's bonus when the task is flown 'one-on-one'.

Practical notes

- This task is 'wind neutral' but the director should still take care not to run it in turbulent conditions.
- The streamer must be approximately the same length for all competitors and the material should have been tested not to break propellers.
- When flown 'one-on-one' a very clear signal must be set for the moment of release and the time starts at this signal. Both pilots must be well apart from each other either horizontally or vertically at this moment.
- On the basis that a shorter streamer is harder to catch, it may be possible to conduct a variant of this task where part of the scoring is based on the length of the streamer.

2 PINBALL

Objective

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

Description

Between 6 and 12 large helium balloons are tethered above a course not exceeding 1Km in length.

The clock starts the moment the signal is made or the pilot strikes balloon 1 (as briefed).

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

Special rules

- A valid strike on a balloon is one where the pilot or any part of the paramotor has been clearly observed to touch it and the balloon is not broken from its tether.
- A strike on balloon 1 starts the clock; a strike on the last balloon stops the clock.
- Pilots may have only one attempt at striking each balloon except for the first and last balloons where three attempts at each are permitted.
- Failure to strike the first or last balloon or at least two of the intermediate balloons or touch the ground at any point between them: score zero.
- Zero score if the course is started before the signal (if briefed).

Scoring

$$Q = \frac{bP^3}{tP} \quad \text{Pilot Score} = \left(1000 \times \frac{Q}{Qmax}\right) \textit{ or, if flown one-on-one: } \left(850 \times \frac{Q}{Qmax}\right) + W$$

Where:

bP = The number of balloons struck by the pilot.

tP = The pilot's elapsed time in seconds.

W = 150 points winner's bonus when the task is flown 'one-on-one'.

Practical notes

- The balloons should be sausage shaped between 1.5 and 3m long rather than spherical so they are likely to go through the canopy lines rather than get trapped there. They should be made of traditional latex rather than any more robust material. The tether should be of a relatively fragile material (such as the streamer material as used in *Chasing the Dragon*) and should have been tested not to break propellers.
- The tethers need not all be the same length but should not be so long that the wind or weight of the tether causes them to vary in height excessively.
- When flown 'one-on-one' a very clear signal must be set for the start, and the time starts at this signal. The two courses must be the same length and the balloons tethered at the same height.
- When flown one-on-one, both pilots should fly synchronized circles in the same direction in front of the start gate. The start signal will be made when the pilot demonstrating the most consistent circling technique is in the most advantageous position to start the task.

3 BASKETBALL

Objective

To pick up large balls between the pilots feet and drop them in a basket in the shortest possible time.

Description

Between 1 and 3 large plastic balls are laid out on the ground within a 'pickup area'.

The clock starts the moment the signal is made or the pilot touches the first ball (as briefed).

The pilot then picks up each ball in turn, flies over the 'basket' and drops the ball in it.

Once all balls are in the basket, or on the ground outside the 'pickup area' then the clock stops.

Special rules

- Should the ball touch the ground outside the 'pickup area' then it is deemed to be 'dead' and no further attempts may be made to pick it up. Zero score for touching any 'dead' ball.
- An overall time limit may be set.

Scoring

$$Q = \frac{bP^3}{tP} \quad \text{Pilot Score} = \left(1000 \times \frac{Q}{Qmax}\right) \textit{ or, if flown one-on-one: } \left(850 \times \frac{Q}{Qmax}\right) + W$$

Where:

bP = The number of balls dropped in the basket by the pilot.

tP = The pilot's elapsed time in seconds.

W = 150 points winner's bonus when the task is flown 'one-on-one'.

Practical notes

- The balls should be at least 50cm diameter and lighter than regular footballs.
- When flown one-on-one, both pilots should fly synchronized circles in the same direction in front of the start gate. The start signal will be made when the pilot demonstrating the most consistent circling technique is in the most advantageous position to start the task.

4 GIANT SLALOM

Objective

To fly a course in the shortest possible time.

Description

Between 5 and 10 large inflatable pylons are laid out, a course is set between them. Kicking sticks may be set between them.

The clock starts the moment the signal is made or the pilot passes the start gate, or kicks the start stick (as briefed).

The clock stops when pilot passes the finish gate, or kicks the finish stick (as briefed).

Special rules

- Zero score for not flying the correct route, touching the ground in the course or the pilot's body exceeds the pylon height.

Scoring

$$\text{Pilot Score} = \left(1000 \times \frac{tMin}{tP}\right) \textit{ or, if flown one-on-one: } \left(850 \times \frac{tMin}{tP}\right) + W$$

Where:

tMin = The fastest time (in seconds) of any pilot who completed the task without penalty.

tP = The pilot's elapsed time in seconds.

W = 150 points winner's bonus when the task is flown 'one-on-one'.

Practical notes

- The pylons should be at least 10m, preferably 15m high, inflated in the same manner as a bouncy castle. They should not have any stabilizing ropes or wires but be anchored firmly at their base.
- When flown one-on-one, both pilots should fly synchronized circles in the same direction in front of the start gate. The start signal will be made when the pilot demonstrating the most consistent circling technique is in the most advantageous position to start the task.
- It could be possible to conduct a mega-slalom to these rules using tall buildings as the pylons.

5 BALLOON CHASE

Objective

To catch a rising helium filled balloon as soon as possible.

Description

Pilot takes off following a signal on the ground.

A helium balloon is released from the ground at a set interval after the takeoff signal. (Suggested 30 seconds).

The pilot attempts to burst the balloon as soon as possible thereafter.

Special rules

- A 'burst' is when the balloon is popped, or when the pilot's body is clearly seen to contact the balloon.
- An overall time limit may be set.

Scoring

Pilot Score = $\left(1000 \times \frac{\text{tMin}}{\text{tP}}\right)$ *or, if flown one-on-one:* $\left(850 \times \frac{\text{tMin}}{\text{tP}}\right) + \text{W}$

Where:

tMin = The fastest time (in seconds) of any pilot who completed the task without penalty.

tP = The pilot's elapsed time in seconds.

W = 150 points winner's bonus when the task is flown 'one-on-one'.

Practical notes

- Care must be taken to ensure the balloons will all rise at a uniform rate, and not too fast. A plastic streamer may be attached to the balloon as ballast.

6 DANCING

Objective

To perform an air show of two minutes to music.

Description

This task is performed in teams of two or three pilots, two flying a display, the (optional) third pilot films the display from the air on video.

Teams must have prepared in advance a music CD of two minutes duration (+- 15 Sec) and practiced their routine.

Scoring is done by a panel of judges based on choreography / artistic content, synchronicity with the music and how good the video is.

Special rules

- This task is a combined effort and each pilot in the team scores the same amount.
- A penalty of 30% total score will be applied for each collapse of more than one third part of the glider.
- Aerobatic manoeuvres such as full stalls, SAT's and other manoeuvres considered to be ACRO aerobatic tricks are not permitted. Penalty: score zero.

Scoring

Each pilot score = $c + s + v$

Where:

c = Choreography / artistic content; max 400 points.

s = Synchronicity; max 300 points.

v = Video; max 300 points.

Scoring criteria

For each of the three elements the panel of judges will consider:

Choreography / artistic content: Placement and drift (50), management of altitude (50), flow, rhythm, connection (100), originality (100) and diversity (100).

Synchronicity: Between the two pilots (200), with the music (100).

Video: Stability, position, artistic content (200), how informative the video is of the overall display (100).

Practical notes

- This task is intended to expose what paramotors can do at relatively low level in the hands of skilled pilots and is **not** an ACRO aerobatic competition which consists of a series of manoeuvres which must to be performed with any safety at great height over large bodies of water with a reserve parachute.
- Teams unknown to the competition director or panel of judges should be asked to demonstrate their routine in advance of the competition and on the grounds of safety may be asked to adjust their routine, or in extreme cases may not be permitted to perform it at all.

7 PRECISION TAKE-OFF AND LANDING

Objective

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

Description

The pilot is permitted four takeoff attempts, climbs overhead the target, cuts the engine before passing through a gate at a height from which it will take at least one minute to glide to the ground, and tries to make a first touch as near as possible to the centre of a target.

Special rules

- The pilot scores 500 points for a clean take off at the first attempt, 300 for the second, 150 for the third, zero for the fourth. (or 400, 240,120, 0 when one-on-one).
- The circuit to be flown will be detailed at briefing.
- The first touch of the ground by the pilot's foot is the point from which the pilot's score will be derived.
- If flown one-on-one then the winner's bonus is awarded to the pilot who lands first without having attracted any penalties. If both pilots have a penalty, no winner's bonus is awarded.

Contestants will be awarded a zero landing score for:

- Engine not stopped before the gate.
- Gate not passed correctly.
- Engine off for less than 1 minute before first touch.
- Falling over as a result of the landing.

Contestants will be awarded a zero score for:

- Starting before the takeoff signal.

Scoring

Pilot score = $\text{Pto} + \left(500 \times \frac{\text{dP}}{\text{dMin}}\right)$ *or, if flown one-on-one:* $\text{Pto} + \left(400 \times \frac{\text{dP}}{\text{dMin}}\right) + \text{W}$

Where

Pto = 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).

W = 200 points winner's bonus when the task is flown 'one-on-one'.

Practical notes

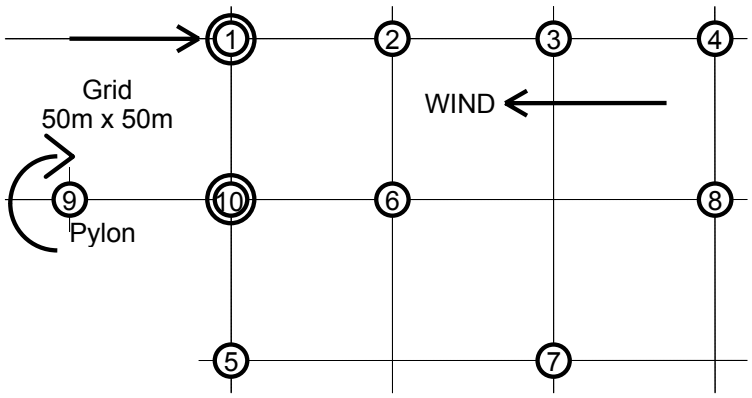
- The value of x, in metres will be given at briefing but may be between 10 and 25 metres depending on the meteorological conditions. This outer circle should be marked by cones or some other visual indication.

8 CLASSIC 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



8 targets 2m in height are laid out 50M apart in two arrays. The first array has 4 targets in a straight line, the second array has 4 targets in a slalom.

A further target is placed 50M behind target 10 to serve as a pylon which must be flown round (by the body of the pilot) before target 10 is struck.

Special rules

- A valid strike on a target is one where the pilot or any part of the paramotor has been clearly observed to touch it.
- To count as a strike, target No. 9, the pylon, must be rounded in a CLOCKWISE direction.
- A strike on target 1 starts the clock; a strike on target 10 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

$$Q = \frac{NQ^3}{Sp} \quad \text{Pilot Score} = \left(1000 \times \frac{Q}{Qmax}\right)$$

Where:

NQ = The number of targets struck by the pilot

Sp = The pilot's elapsed time in seconds between striking target 1 and target 10

Practical notes

- Although a fine task, this task needs a VERY large space, at least 300m x 200m (6 Ha) and is difficult to change around if the wind changes.

9 CLOVER LEAF SLALOM

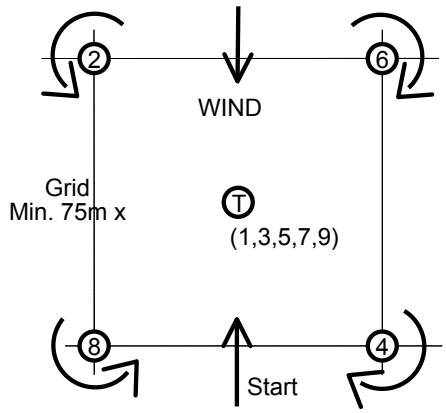
Objective

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 75M square. 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 one where the pilot or any part of the PARAMOTOR has been clearly observed to touch it.
- 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

$$Q = \frac{NQ^3}{Sp} \quad \text{Pilot Score} = \left(1000 \times \frac{Q}{Qmax}\right)$$

Where:

NQ = The number of targets struck by the pilot

Sp = The pilot's elapsed time in seconds between striking target 1 and target 9

10 JAPANESE SLALOM

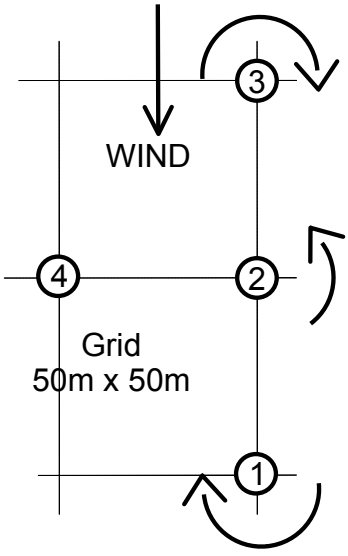
Objective

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 a 50m x 50m grid.

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 one where the pilot or any part of the PARAMOTOR has been clearly observed to touch it
- 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

$$Q = \frac{NQ^3}{Sp} \quad \text{Pilot Score} = \left(1000 \times \frac{Q}{Qmax}\right)$$

Where:

NQ = The number of targets struck by the pilot

Sp = The pilot's elapsed time in seconds between striking target 1 and target 9

11 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 sticks 2m in height are laid out on a course not exceeding 3Km in length.

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

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

Special rules

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

Scoring

$$Q = \frac{NQ^3}{Sp} \quad \text{Pilot Score} = \left(1000 \times \frac{Q}{Qmax}\right)$$

Where:

NQ = The number of sticks struck by the pilot

Sp = The pilot's elapsed time in seconds between striking the first and last sticks.

Practical notes

- This task is ideally suited for sites where there are physical features which obscure a direct view from one stick to the next; it is quite dull in an open space.

12 SLOW / FAST SPEED

Objective

To fly a course as slow as possible and then return along the course as fast as possible.

Description

A straight course consisting of four equally spaced ‘kicking sticks’ between 250m and 500m long is laid out facing approximately into wind.

The pilot makes a timed pass along the first course as slow as possible, returns to the start, and makes a second timed pass in the same direction along the course as fast as possible and then returns to the deck.

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 leg, 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% leg score for each stick missed.
- The maximum time allowed for a pilot to complete each leg of the course is 5 minutes.

In the slow leg;

- If the pilot or any part of his PPG touches the ground or the fourth stick is missed: VP1 = zero and EP = zero
- If the pilot zigzags: Score zero.

In the fast leg;

- If the pilot or any part of his PPG touches the ground: VP2 = zero and EP = zero
- The pilot may have three attempts at kicking the fourth stick.

$$\text{Pilot score} = \left(250 \times \frac{Vp_1}{Vmax}\right) + \left(250 \times \frac{Vmin}{Vp_2}\right) + \left(500 \times \frac{Ep}{EMax}\right)$$

Where:

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

Vp1 = The speed of the pilot in Km/H in the first leg of the task

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

Vp2 = The speed of the pilot in Km/H in the second leg of the task

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

13 SHORT TAKE-OFF OVER A FENCE

Objective

To take off and clear a fence from as short a distance as possible.

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.

$$\text{Pilot score} = \left(100 \times \frac{Fmin}{Fp}\right)$$

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 should be included.

Practical notes

- This task is intended to be included as a small element of another task. The overall task scoring should be adjusted in the brief to account for this.
- The job of holding the two poles supporting the fence can be quite hazardous; it should be entrusted to marshals experienced in PF operations.