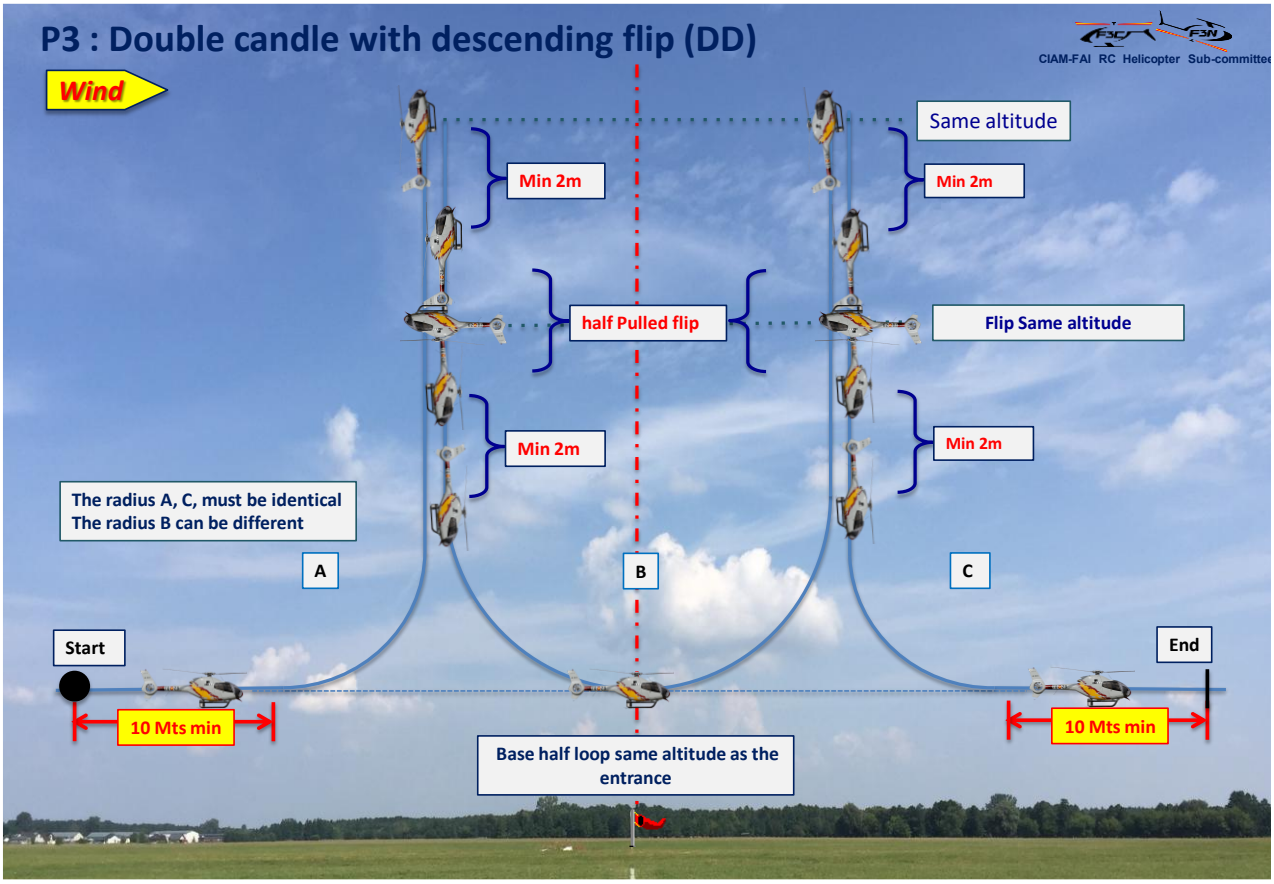


Presentation created by Eladi LOZANO and LACÔME Roger

P3 : Double candle with descending half flips (DD) **K Factor = 1.0**

Specificities : **Unofficial but precise and clear description.**

- The bottom of the half loop must be at the same altitude as when entering the figure.
- Flips must be performed at the same altitude.

Description :

MA flies a straight **horizontal** line for a minimum of 10 m then performs a quarter inside loop followed by a **vertical** ascent.

After a nose up stop and in a **vertical** trajectory, MA descends backwards for a minimum of 2m followed by a half pulled travelling flip followed by a descent forward for a minimum of 2m. MA then performs a centred half inside loop followed by a **vertical** ascent to the same altitude as the first ascent.

After a nose up stop and in a **vertical** trajectory, MA descends backwards for a minimum of 2m followed by a half pulled travelling flip followed by a descent forward for 2m minimum.

MA then performs a quarter inside loop which must end at the same altitude as when entering figure. MA then flies a straight **horizontal** line for a minimum of 10 m.

Penalities :

- If the ascent distance after the first quarter loop is shorter than the distance required by the helicopter to perform the three manoeuvres during the subsequent descent (2m descent, half flip and 2m descent), this will result in a downgrade of 0.5 points. If the vertical ascent is very short, this will result in a downgrade of one point.
- If the half flip is performed just after stopping the ascent (**no backward descent**), the penalty will be 1.5 points.
- If the backward descent is only half a fuselage, the penalty will be 1 point.
- If the backward descent is only the length of the fuselage, the penalty will be 0.5 points.

As with all aerobatic manoeuvres, before performing them in flight, it is necessary to study them and ask yourself three questions

- Will she need speed ?
- Will it need space or a compact format ?
- At what distance from the judges' line is it preferable to execute it ?

Answer :

Speed will be needed because the helicopter will need to ascent as high as possible in order to perform the 3 manoeuvres during each descent.

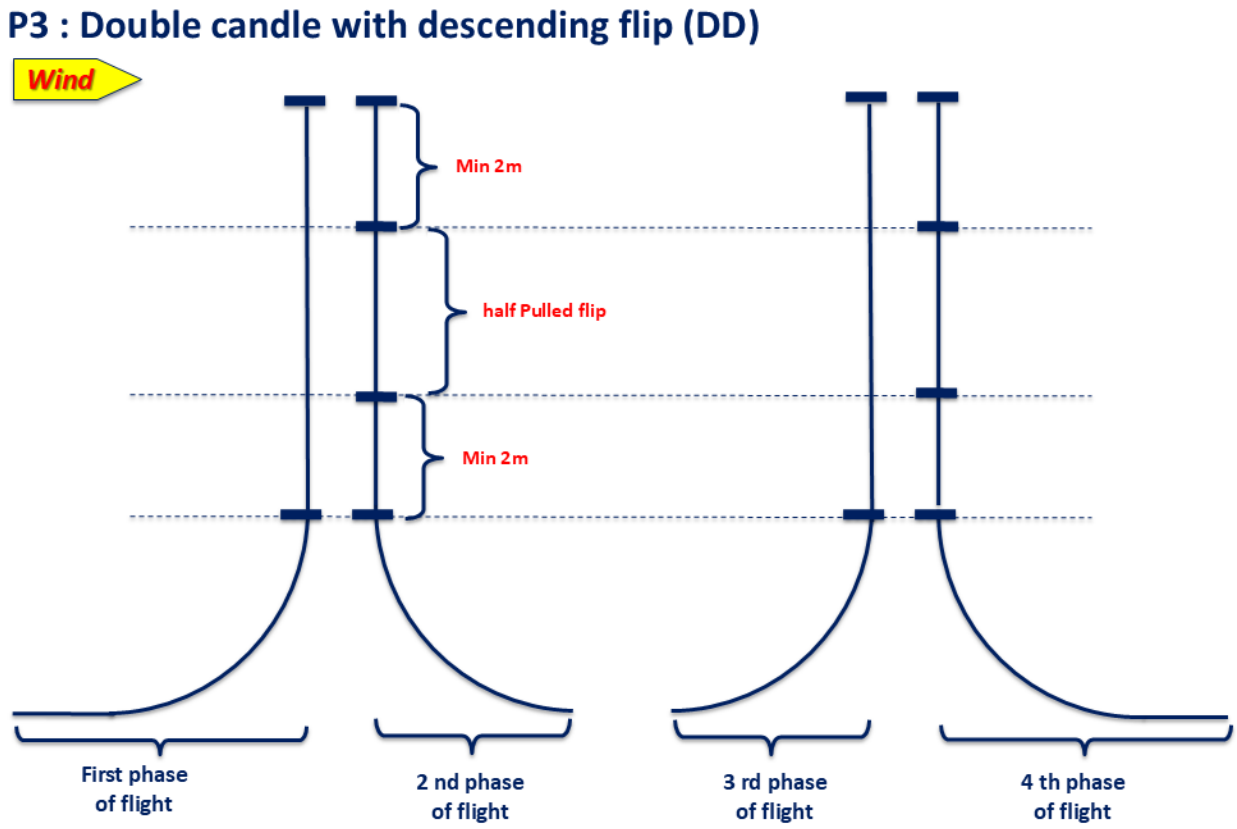
It requires enough space but the two vertical ascents must be quite close because the further apart they are, the more likely the final 10m of the figure is to fall outside the 120° frame.

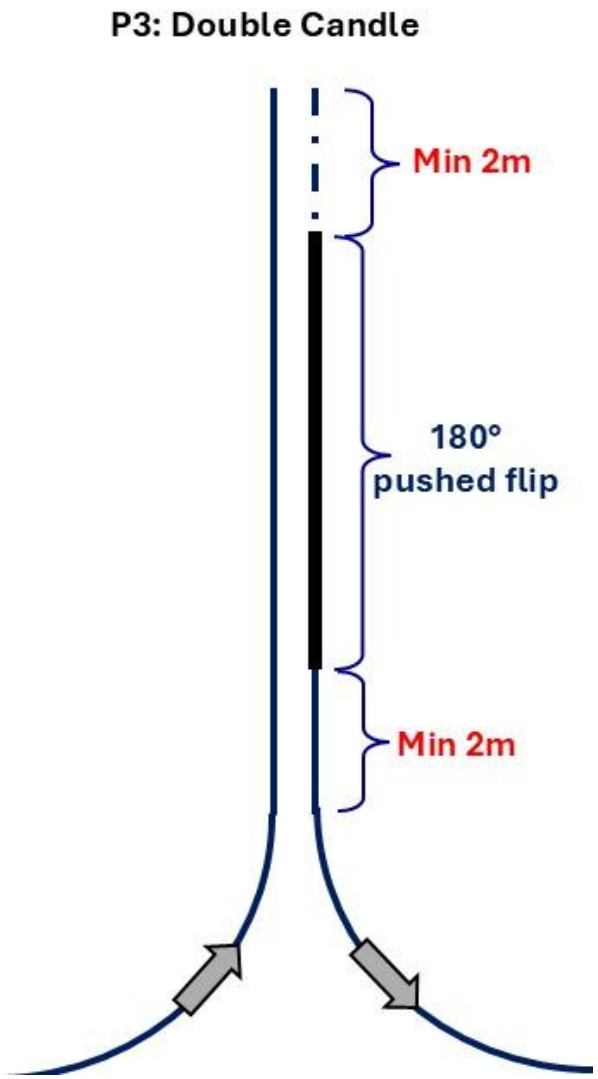
A distance of 70 to 80 m is correct ; it should be avoided to execute it closer because if the helicopter changes plane during the execution of a manoeuvre, it will very quickly be close to the pilot and therefore to the judges, whereas if the helicopter is further away, it will be less visible to the judges.

Comments :

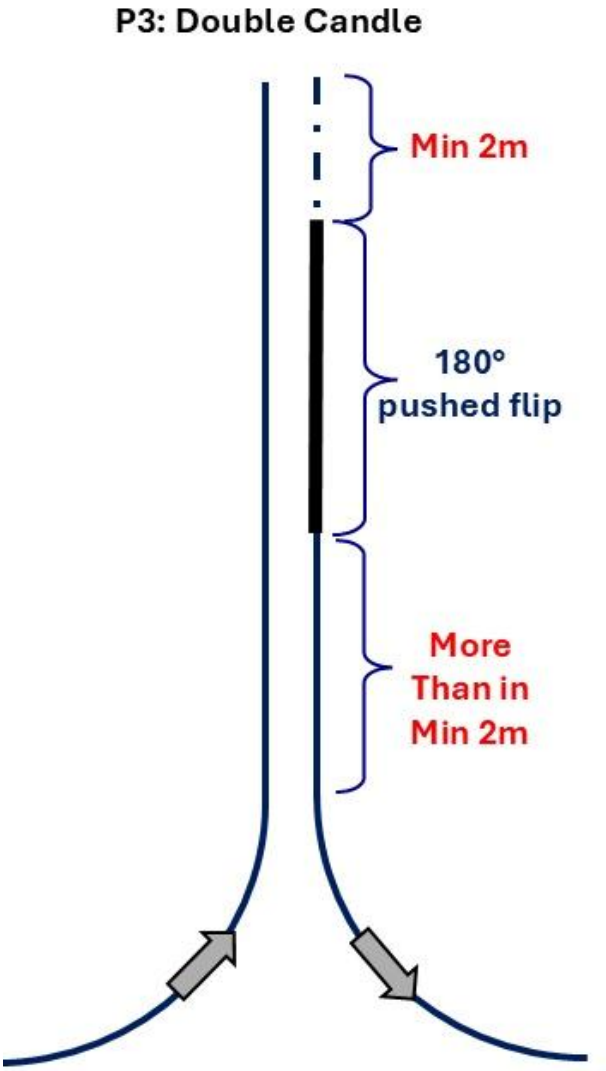
There is a great deal to say about this figure.

Thanks to the drawing above we can clearly see that the figure is broken down into 4 phases of flight ; that phase 1 is identical to phase 3 and phase 2 to that of phase 4 and that the radii are identical.





Drawing 1



Drawing 2

The few pilots whose helicopter manages to climb very high can hope to perform the 3 manoeuvres during the descent as in diagram 1, but it is not a sure thing.
There is often a "but", a flip performed on a long descent is magnificent to see but the helicopter picks up a lot of speed and the pilot immediately performs the half loop without making the 2m descent, penalty 1.5 points.
When the helicopter makes the second 2m descent at this speed it only represents a few tenths of a second which is not perceptible to the judges with the risk of still having a penalty.
It is therefore preferable to execute the figure as in diagram 2, a flip over a relatively short distance so as to make a descent of more than 2m so that it is clearly visible because this will positively impress the judges.
Another important point is the radius of the quarter loops; the shorter it is, the closer the two climbs will be to the center line because most often the flight axis is not parallel to the judges' line and visually the second climb appears much further from the center line than the first ascent with a short radius this reduces this perception.

Having said all that, to properly execute this figure we must begin by discussing the second phase, which includes :

- A descent of 2m.
- A **translated** half flip.
- A descent of 2 m and a quarter loop (half of the half-loop).

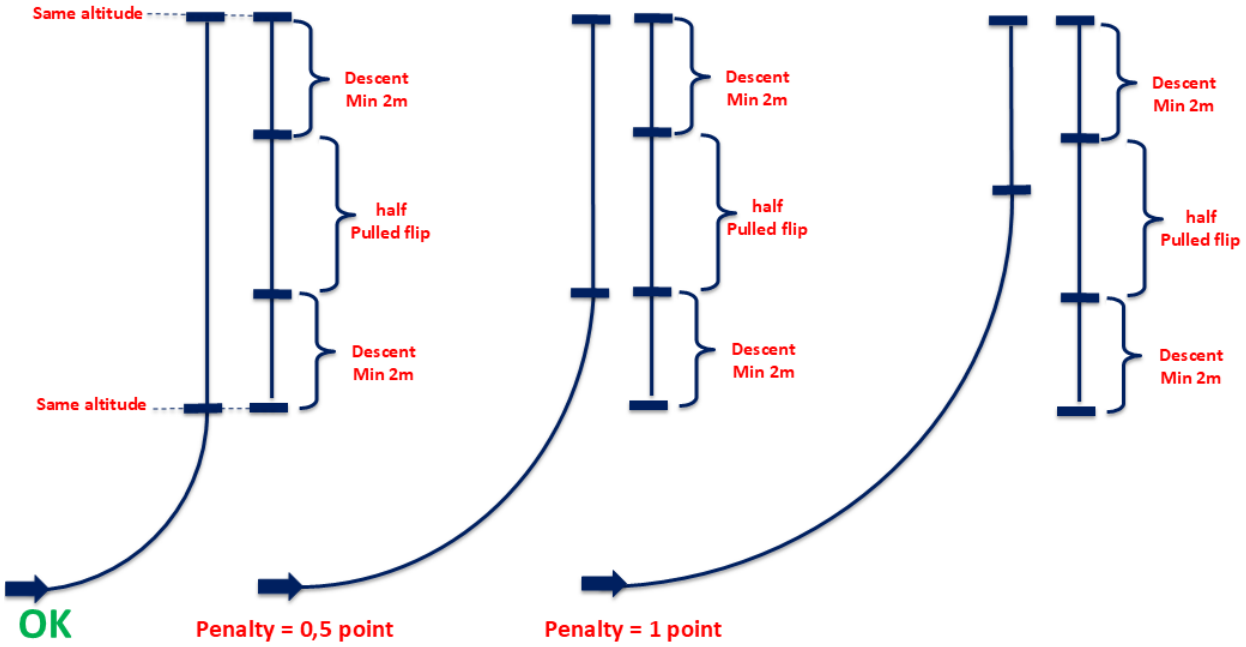
During these three manoeuvres, the helicopter will travel a large vertical distance, let's say for example 20m.

During the first phase of flight, the vertical ascent must be at least this same length of 20m, hence the need for speed in order **to ascends as high as possible** so as to be able to perform all the manoeuvres of the second phase of flight.

But you also have to think about the half-loop which is to be made at the end of the descent because the larger the radius of the first quarter-loop, the further the two climbs will be from the central line, so it is preferable to make a quarter-loop with a relatively small radius.

Finally, if this ascent is too short, the coach must realise immediately that this will cause problems during the second phase of flight.

It is important to specify the penalties regarding the first vertical ascent.

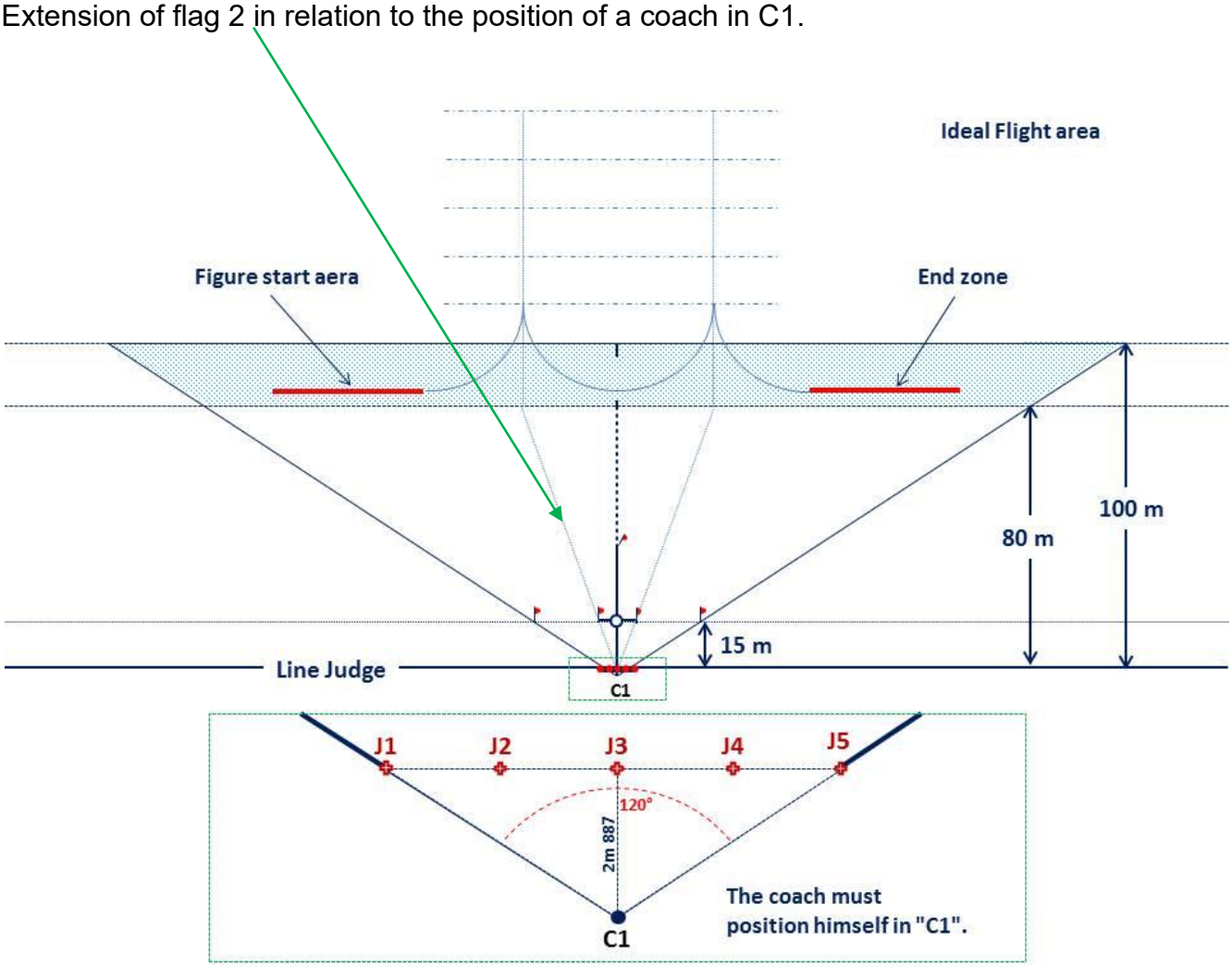


Conclusion : We realise that this first phase conditions the rest of the figure.

For the first ascent, flag 2 must be used. Everyone does as they please, but if the coach positions themselves in C1, the ascent must be to the right of the extension of flag 2, which means that the second ascent must be to the left of the extension of flag 1, provided that the flight path is parallel to the judges' line.

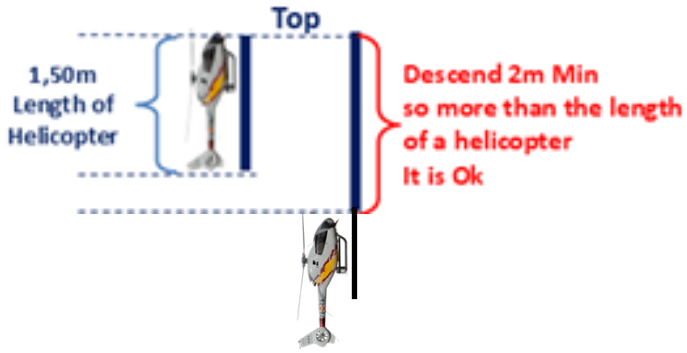
See the diagram below :

Extension of flag 2 in relation to the position of a coach in C1.



The fact that the coach positions himself in "C1" allows him to see the entry into the flight space (120° from the judges), the centering of the entire figure, and any possible exit from the frame at the end of the figure.

Second phase of flight. A helicopter is about 1.50m long and as the descent in reverse must be at least 2m, **therefore, this descent in reverse will need to be longer than the length of the fuselage**, see the drawing below.



As soon as the nose of the fuselage descends slightly lower than the tail rotor, that is sufficient; you must not descend for 4 or 5 meters because the longer the descent, the more speed the helicopter will gain, with the risk of not being able to make the second descent because the ground is approaching too quickly.

Next, there is the **translated** half flip which must be performed in a vertical trajectory.

If this half-flip is performed over a long vertical distance, it's magnificent to watch, but often there isn't enough room for the subsequent 2-meter descent, and this is penalized. It's therefore preferable to try it over a relatively short distance to allow for a nice 2-meter (or more) descent after the flip and that makes **a positive impression on the judges**.

The third phase of flight includes a quarter loop (the second part of the half loop) and the vertical ascent.
The base of the half-loop must be at the same altitude as the entry in the figure and be centred on the centre line.
The subsequent vertical ascent must end at the same altitude as the first ascent.

In order to visualise all the trajectories during the execution of the maneuver, some pilots have a device that records them ; this is a very effective way to improve.

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Summary of the main key points :
Three manoeuvres need to be practiced as a priority :
- The first ¼ of the loop, the smaller the radius, the closer the two climbs will be to the center line, which is important for the second climb so that it is not too far to the right as is usually the case.

- The first ascent must stop as high as possible, otherwise it will be impossible to perform all the manoeuvres of phase 2 correctly.

- You have to work on the translated flip, the shorter the distance it is done, the more room there will be to do the second descent of at least 2m and if it is 3 to 5m the judges will see it very clearly and the judges will be affected psychologically, it is very positive.

Thanks for your interest