



Judging the Figure of the Month

The Aileron Roll & Hesitation Roll

To start on how to judge the figure, let's first look at the Official Judging Rules from the **FAI/CIVA Sporting Code Section 6 Part 1 – Powered Aircraft**

B.9.24. Family 9 - Rolls

B.9.24.1. Rolls may be performed on horizontal, 45 degree or 90 degree lines; on complete loops; between part-loops; between part-loops and lines; and following spin elements.

B.9.24.2. They may be 1/4, 1/2, 3/4 or a full 360 degrees in their rotation, up to two consecutive full rolls. Additionally, slow rolls may be flown in combination with turns as prescribed in Family 2 (Rolling Turns).

B.9.24.3. In all cases, the same criteria apply: the rate of roll must be constant throughout the roll(s). The aircraft should continue to project, during the rolling portion, the prescribed plane and direction of flight.

B.9.25. Family 9.1 - Slow Rolls

B.9.25.1. The penalty for varying the rate of roll is one (1) point per variation. Any stoppage in the slow roll that could result in its being considered a hesitation roll, would Hard Zero (HZ) the figure.

B.9.25.2. The finish of the roll must be as crisp and precise as possible. Coming to a slow finish in fact represents a change in the rate of roll and should be penalized accordingly.

B.9.25.3. The wings must stop precisely after the desired degree of rotation and not go past the stop point and then return. This is referred to as "bumping the point". A deduction of 0.5 point to one (1) point is given depending on the severity of the "bump".

B.9.26. Family 9.2 - 9.8 - Hesitation Rolls

B.9.26.1. For hesitation rolls, the second digit in the catalogue number indicates the number of points: Family 9.2 is 2-point rolls; Family 9.4 is 4-point rolls; and Family 9.8 is 8-point rolls.

B.9.26.2. These rolls are judged on the same criteria as the slow roll, only the aircraft stops rotation during the roll for a pre-stated number of times, i.e., 2, 4 or 8, at regular intervals. The rate of the roll, when not in pause, must be constant throughout with the aircraft projecting the pre-stated plane and direction of flight.

B.9.26.3. The pauses will be of identical duration. Each pause of a hesitation roll must be clearly recognizable in every case, but it is especially important that in poor visibility or at high height, **the competitor pauses long enough to make them recognizable to the Judges**. If a pause is not recognizable to a judge, the figure is marked a Hard Zero (HZ).

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B.9.26.4. Angular errors at each pause are downgraded by comparison to the expected attitude. For instance, an angular error at an intermediate hesitation stop, that is corrected in the next stop, must be downgraded only once; an angular error at an intermediate hesitation stop, followed by the prescribed degrees of rotation (45, 90 or 180 degrees), thus showing a further angular error that is not corrected, must be downgraded twice.

B.8.1.2. Whenever any kind of roll is placed on an interior line (except when any type of roll follows

a spin), the lengths of the two parts of the line before and after the roll must be equal. Judges should take care to judge the symmetry of the length of lines in a figure using only the length of the lines and not by elapsed time taken to fly each segment. This difference in length versus elapsed time is most noticeable in figures where rolls are placed on up-lines. As the aircraft loses airspeed, the time it takes to fly a line after the roll will be greater than the time required to fly the line of the same length before the roll.

B.8.1.3. If within a figure two or more lines must be of the same length, an observed variation is penalised by reducing the mark in the following manner: (Figures 11 & 12) a) a visible variation - 1 point deduction;

- b) if the lengths vary by 1:2 - 2 point deduction
- c) and so forth up to a 3 point deduction.
- d) No line before or after roll, 4 point deduction.

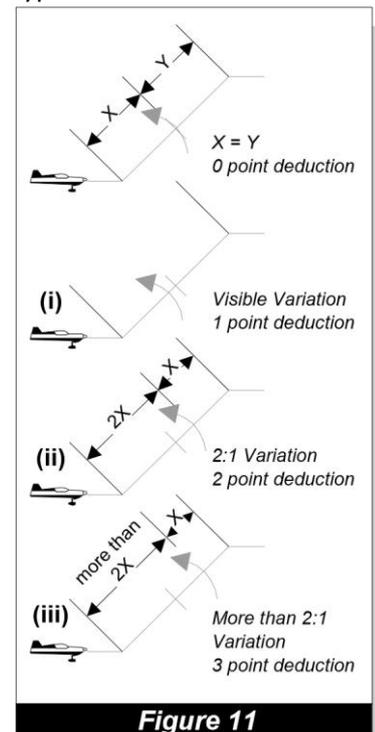


Figure 11

B.8.1.4. The basis for judging line length is the first line flown. The absence of one of these lines before OR after a roll has to be penalised by 1 additional point. If there are no lines before AND after the roll, the total penalty is two (2) points only.

Example: The competitor is to fly a 45 degree up-line with a full roll on the line. However, the airplane is returned to level flight immediately after the roll. The deduction is 4

points: 3 points are deducted because the lines are of vastly different length and another 1 point is deducted because of the absence of one of the lines.

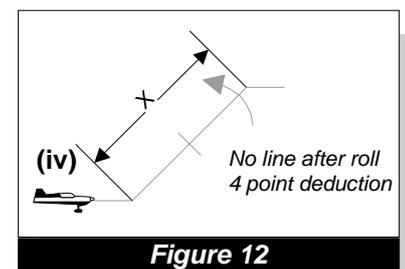


Figure 12

B.8.1.5. All 90 degree and 45 degree lines are preceded by the execution of a part-loop. Since we have in this part-loop a significant angle-of-attack, the aircraft's attitude in the part-loop will differ from its flight path. Therefore, when the aircraft's attitude reaches the desired line after transitioning from the part-loop, this difference between attitude and flight path will be carried on and will be the same as the angle-of-attack. For this reason, the

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only criterion for judging in that moment of reaching the desired line is to be the attitude of the aircraft and not its flight path. It would then be very illogical suddenly to change the criterion of judgement from the visible and straight line of attitude to the unrecognizable and curved line of flight path. Therefore, the judging of 90 degree and 45 degree lines can only be based on attitude, not flight path.

From CIVA Judges Training Seminar -

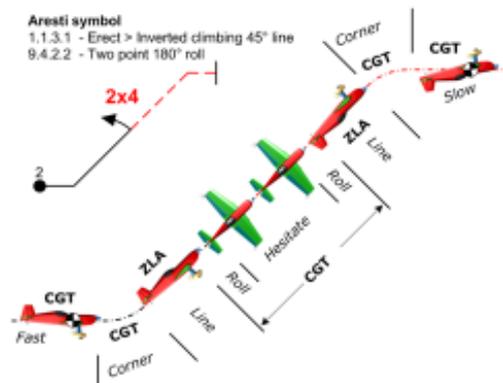
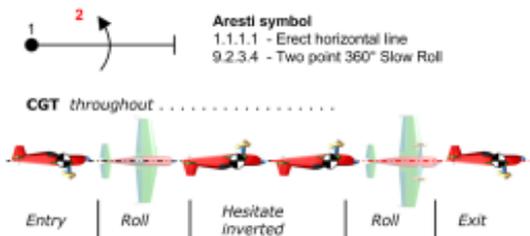


Slow Rolls

Slow rolls, many of which include hesitations, are sometimes called aileron rolls to distinguish them from flick or snap rolls.

In a slow roll the rotation is primarily driven by aileron action, whereas a flick roll combines yaw and pitch inputs to cause 'auto-rotation'.

Many variations of slow rolls are used in a great variety of figures, often preceded and followed by lines which must be judged for **CGT** (where horizontal) or **ZLA** (where at 45° or in the vertical) and also for comparative length.



Happy judging, be critical and fair.

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