

Expert Class Manoeuvres

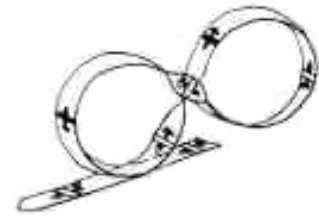
Mandatory Manoeuvres		
	Manoeuvres	K Factor
1	SLOW ROLL	11
2	CUBAN EIGHT	10
3	DOWNWARD FIGURE SIX	10
4	FIGURE M	12
5	THREE ROLLS	13
6	½ SQUARE LOOP with ½ ROLLS	14
Optional Manoeuvres		
	Manoeuvres	K Factor
1	REVERSE CUBAN EIGHT	11
2	THREE OUTSIDE LOOPS	12
3	SQUARE LOOP	12
4	TWISTED LOOP	12
5	FOUR POINT ROLL	14
6	ALTERNATING ROLL	14
7	ROLLING LOOP	14
8	HORIZONTAL EIGHT with ½ ROLL	14
9	FOUR POINT TOSS ROLL	15
10	EIGHT POINT ROLL	15
11	SHARKS TOOTH	16
12	FOUR POINT ROLLING CIRCLE	20

Mandatory Manoeuvres

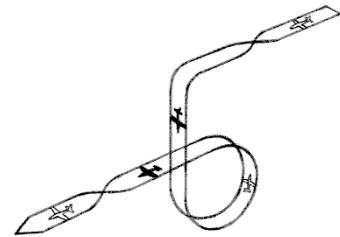
- Slow Roll** The model flies S & L, performs one roll then flies S & L. The roll shall be at a uniform rate and shall take approximately five seconds. **Note:** A significantly faster roll should be downgraded proportionately, e.g. a roll executed in approximately 3 seconds should be downgraded 50%, and a roll executed in 1 second scored zero.



2. **Cuban Eight** The model flies S & L, performs five-eighths of a loop (to an inverted 45° diving attitude), performs one half roll (the centre of the half roll being at the height of the centre of the loop), performs three quarters of a loop (to an inverted 45° diving attitude, with the centre of the loop at the same altitude as the first loop), performs one half roll (the centre of the half roll being at the height of the centre of the loop), performs one eighth of a loop then flies S & L at the same altitude and heading as the start.



3. **Downward Six.** Flying with wings straight and level near the top of the box, halfway along the top leg, half roll to inverted. At the end of the leg, pull to a vertical down line on the centre line. Before reaching the bottom of the box, pull ¾'s of a loop exiting inverted. A second later, half roll to upright and finish with wings straight and level. NOTE: The top radius must be the same radius as the ¾ loop.



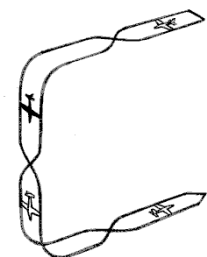
4. **Figure M** The model flies S & L, performs one quarter of an inside loop, continues to fly vertically upwards for a short distance, yaws (into wind) through 180°, flies vertically downwards for a short distance, performs one half of an outside loop, continues to fly vertically upward for a short time, yaws (into wind) through 180°, flies vertically downward for a short distance, performs one quarter of an inside loop, then flies S & L at the same altitude and heading as the start of the manoeuvre. **Note:** A score of zero should be awarded if, in either stall turn, the model falls more forward or backward than sideways.



5. **Three Rolls** The model flies S & L, performs three consecutive rolls, and then flies S & L.



6. **Half Square Loop with Half Rolls.** Start by flying straight and level near the top of the box, halfway along the top leg, half roll to inverted. At the end of the leg, pull to a vertical down line on the centre line. Halfway down, perform a half roll and at the bottom of the leg, push to horizontal. Halfway along that leg, half roll to upright and exit with wings straight and level.



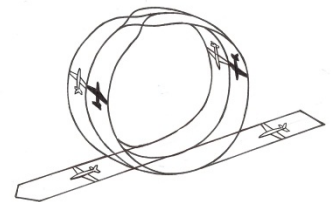
Optional Manoeuvres

1. **Reverse Cuban Eight** The model flies S & L with the manoeuvre starting before the centreline, performs one-eighths of a loop up the 45° line and half roll to inverted on centreline into three quarters of a loop, up the 45° line and half roll to inverted on centreline, performs five eighths of a loop then flies S & L at the same altitude and heading as the start.
2. **Three Outside Loops.** The model flies S & L, performs three consecutive outside loops (downward) and then flies S & L.



3. **Square Loop** This is a variation of the basic loop. The two vertical lines and the horizontal line on top have to be of the same length. The exit line at the bottom has to be at least as long as the other three sides. The quarter loops that connect the four sides have to have the same radius at each corner.

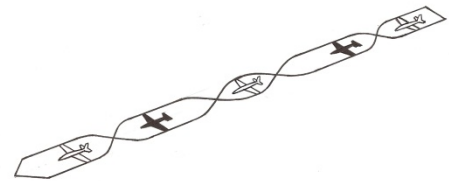
4. **Twisted Loop** The model flies S & L, on the centreline pull half a loop. At the top of the loop the model rolls 180° to upright then performs one full outside loop where at the top of the loop again the model rolls 180° to inverted and pulls half a loop to finish wings level and upright on the centre line. Model exits flying S & L.



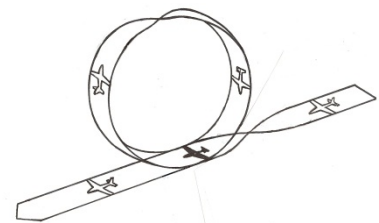
5. **Four Point Roll** The model flies S & L, rolls through 90° to a knife-edge attitude, hesitates briefly before repeating the quarter-rolls and hesitations back to a wings-level attitude, then flies S & L.



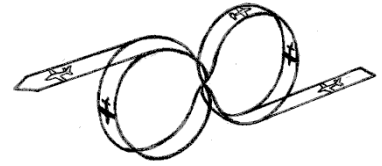
6. **Alternating Roll** The model flies S & L then rolls 180° to inverted, hesitates then rolls 360° in the opposite direction back to inverted, hesitates and then rolls 180° again in the original direction back to wings level and upright and exits flying S & L. Half way through the 360° roll must be on the centre line.



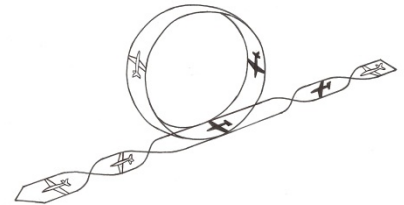
7. **Rolling Loop** The model flies S & L then rolls 180° to inverted on the centreline and immediately pushes half an outside loop. At the top the model rolls 180° to inverted and pulls the second half of the loop to exit wings level and upright. Model finishes by flying S & L.



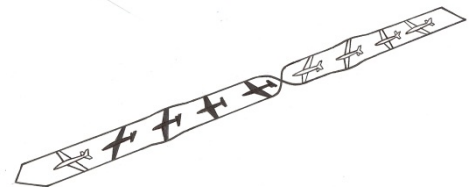
8. **Horizontal Eight with Centre Rolls.** Enter with wings straight and level, before the centre line, pull the first $\frac{1}{4}$ of a loop and perform a half roll which is on the centre line. Continue by pushing a complete outside loop and again on the centre line, perform a half roll. Push $\frac{5}{4}$'s of an outside loop to exit upright and with wings straight and level.



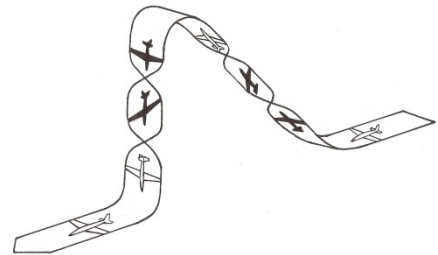
9. **Four Point TOSS Roll.** The model flies S & L then performs two points of a four point roll, on the centre line the model performs an outside loop followed by the remaining two points of the four point roll. Model exits flying S & L.



10. **Eight Point Roll** The model flies S & L then performs eight 45° rolls with equal hesitations between each 45° ending with wings level attitude and flying S & L. Plane must be horizontal inverted when on the centre line.



11. **Sharks Tooth** The model flies S & L then pulls to a 45° up line. Half way to the top the model performs two points of a four-point roll. At the top of the 45° line, pull a tight radius (as on a square loop) to a vertical down line which must be on the centreline. Half way down the model must perform two points of a four-point roll and then is pulled to wings level and upright on the base line. Model finishes by flying S & L.



12. **Four – point Rolling Circle** The model flies S & L across wind, turns (into wind) through 90° and performs one quarter roll to a knife edge attitude, turns through 90° and performs one quarter roll to an inverted attitude, turns through 90° and performs one quarter roll to a knife edge attitude, turns through 90° and performs one quarter roll to an upright attitude and then flies S & L at the same altitude and heading as the start of the manoeuvre.