

Expert Class Manoeuvres

List A		
	Manoeuvres	K Factor
1	TWO ROLLS	8
2	THREE TURN SPIN	8
3	OUTSIDE STALL TURN	9
4	ALTERNATING ROLL	12
5	SLOW ROLL	12
6	THREE ROLLS	13
7	CHING CHING CHONG CHONG	14
8	TWO OPPOSITE ROLLS	14
9	THREAD THE NEEDLE	15
10	SHARKS TOOTH	15
11	DAMIAN ROLL	16
12	EIGHT POINT ROLL	17
13	ROLLING STALL TURN	17
List B		
	Manoeuvres	K Factor
1	THREE INSIDE LOOPS	10
2	VERTICAL EIGHT	10
3	REVERSE CUBAN EIGHT	10
4	CUBAN EIGHT	11
5	THREE OUTSIDE LOOPS	12
6	TWISTED LOOP	14
7	OUTSIDE BARREL ROLL	14
8	EYE OF THE TIGER	14
9	OUTSIDE CUBAN EIGHT	15
10	HUMPTY BUMP WITH HALF ROLLS	15
11	SUNNY SIDE UP	16
12	HORIZONTAL EIGHT WITH CENTRE ROLLS	17
13	LOOP WITH TWO ROLLS AT THE TOP	18

* Red highlighted manoeuvres are new manoeuvres introduced in 2017

List A

- Two Rolls** The model flies S & L, rotates 720° around its longitudinal axis and then flies S & L.

K8



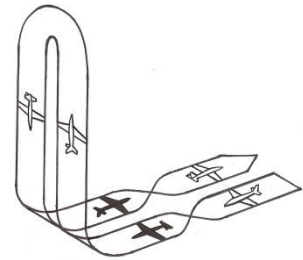
2. **Three Turn Spin** The model flies S & L into wind, slows down until it stalls and, in a fully stalled condition, falls into a spin on the centreline. At the end of three revolutions the model recovers from the spin, flies vertically downwards to regain flying speed, performs one-quarter of a loop, and then flies S & L in the same direction as the start of the manoeuvre.

K8



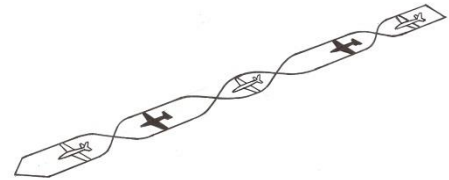
3. **Outside Stall Turn** The model flies S & L then rolls 180° to inverted on the centreline. The model then pushes to vertical and performs a stall turn. Push to inverted level attitude on the base line and roll 180° back to wings level and upright on the centreline. Model exits flying S+L.

K9



4. **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.

K12



5. **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.

K12



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

K13



7. **Ching - Ching - Chong - Chong** The model flies S & L then performs 2 out of 4 of a four point roll with hesitations at 90 degrees and 180 degrees then rolls in the opposite direction to perform another 2 out of 4 of a four point roll with a hesitation at 90 degrees to bring the model back to the upright position then flies S & L.

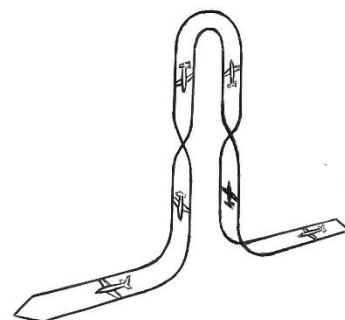
K14

8. **Two Opposite Rolls** Model flies S&L then performs one complete roll followed by a second complete roll in the opposite direction without hesitation between the two rolls. Centre of the manoeuvre is between the two rolls with the model in

the upright position.

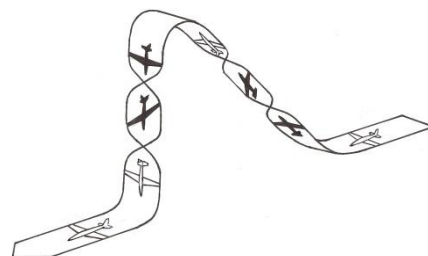
K14

- 9. Thread the Needle** The model flies S & L, performs one-quarter of an inside loop to a vertical up-line on the centre line. The model then rolls through 90° so that the top side (canopy side) of the model is facing the judges. The model continues on the vertical up-line then jaws through 180° as per stall turn manoeuvre. The model travels halfway down the vertical down-line before rolling through 90° followed by a second equal length down-line before performing a one-quarter of an inside loop, then flies S & L at the same altitude and heading as the start of the manoeuvre.



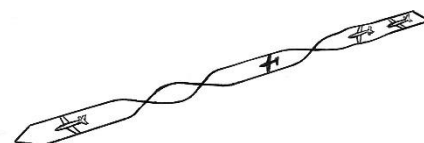
K15

- 10. 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.



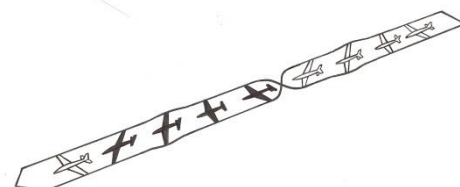
K15

- 11. Damian Roll.** The model flies S & L, rolls through 90° to knife-edge attitude, hesitates briefly before rolling in the opposite direction through 180° to knife-edge attitude, hesitates briefly, then rolls in the opposite direction through 450° to a wings level attitude, then flies S & L.



K16

- 12. 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.



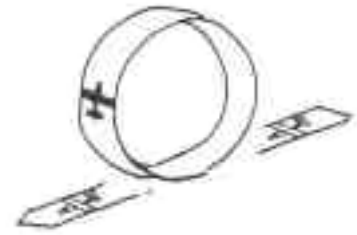
K17

- 13. Rolling Stall Turn** The model flies S&L on the base line, at the centre it performs a half roll to inverted, after 2 seconds the model is pushed to a vertical up line. Half way up, the model performs a half roll, at the top of the vertical line, a stall turn is executed, half way down the vertical line, the model again performs a half roll. The model is pushed to straight and inverted on the base line and when reaching the centre point, the model performs a final half roll to exit the

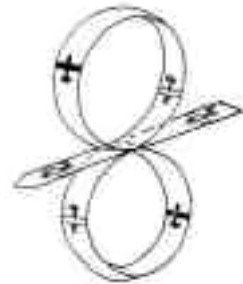
manoeuvre flying S&L.
K17

List B

1. **Three Inside Loops** The model flies S & L, performs three consecutive inside loops and then flies S & L.
K10

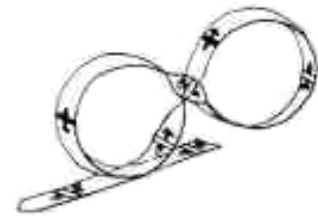


2. **Vertical Eight** The model flies S & L, performs one inside loop, immediately performs one outside loop, then flies S & L at the same altitude and heading as the start of the manoeuvre.
K10



3. **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.
K10

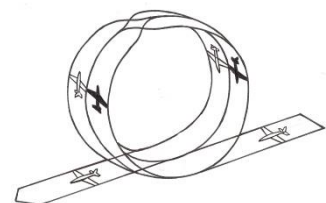
4. **Cuban Eight** The model flies S & L, performs five-eighths of a loop (to an inverted 45° diving attitude), performs one half roll (the centre of the half roll being at the height of the centre of the loop), performs three quarters of a loop (to an inverted 45° diving attitude, with the centre of 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.
K11



5. **Three Outside Loops.** The model flies S & L, performs three consecutive outside loops (downward) and then flies S & L.
K12



6. **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.



K14

7. **Outside Barrel Roll** The model flies S & L then rolls 180° to inverted then rotates at a constant roll rate around both the longitudinal and vertical axes (i.e. outside loop and roll at the same time). The model should enter and exit the manoeuvre on the same heading, but should be flying at 90° to this heading when the model crosses the centre line at the highest point of the manoeuvre. The model exits the manoeuvre by rolling 180° to upright then flying S & L at the same altitude and heading as the entry

K14

8. **Eye of the Tiger** Eye of the Tiger is a triangle standing on its head. The model flies S&L, on the centre of the base line the models pulls to a 60 degree up line, at sufficient height to create a presentable size triangle, the model is pulled through 120 degrees to fly level and inverted. Once the model has flown an equal length leg, it is again pulled through 120 degrees to fly a 60 degree down leg, once the model reaches the centre point of the base line, it is pulled through 60 degrees to exit the manoeuvre flying S&L.

K14

9. **Outside Cuban Eight** The model flies S & L, rolls inverted before crossing the centerline, performs 5/8 of an outside loop (to an upright 45 degree diving attitude), performs 1/2 roll (the Centre of the 1/2 roll being at the height of the Centre of the loop), performs 3/4 of an outside loop (to an upright 45 degree diving attitude), performs 1/2 roll (the Centre of the half roll being at the height of the Centre of the loop), performs one eighth of an outside loop then flies level inverted for a brief moment before performing 1/2 roll to upright and flies S & L to complete the maneuver.

K15

10. **Humpty Bump with Half Rolls** Model flies S&L then pulls to a vertical upward line. Halfway up the line a half roll is performed then the top a half loop is flown to a vertical down line. Half way down another half roll is performed followed by a pull to horizontal on the base line. All radii and half loop must be equal.

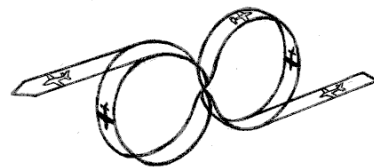
K15

11. **Sunny Side Up** The model flies S & L, starts 1/4 inside loop then rolls 1/2 roll as the model approaches vertical and continues to push 1/2 an outside loop until the model approaches vertical then does 1/2 roll and pulls 1/4 inside loop then flies S & L to complete the maneuver.

K16

12. **Horizontal Eight with Centre Rolls** Enter with wings straight and level, before the centre line, pull the first 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 5/4's of an outside loop to exit upright and with wings straight and level.

K17



13. Loop with Two Rolls at the TOP Model flies S&L and on the centre line begins to perform a loop. Two consecutive rolls must be performed at the top of the loop being centred on the centre line after which the model completes the loop and exits on the base line.

K18