

## Description of Manoeuvres – Sportsman 2012

Note: All manoeuvres to be centred and each manoeuvre begin and end with a straight line of flight.

### 1. Double Immelman K=2

The model flies straight and level past the judges then pulls up to perform half an inside loop. When inverted, it performs a half roll, then flies a straight line, performs a half outside loop followed by a half roll and another straight line to exit.

#### Downgrades

Top and bottom lines (including 1/2 rolls) to be same length as the diameter of the half loops.  
Half loops not round and of the same size.  
Straight lines not of equal length.  
Changes in heading during loops, straight lines and half rolls.  
Half rolls not immediately after half loops.  
Half rolls not the same roll rate.  
Exit line at different heading and /or altitude to entry.

### 2. Slow Roll K=3

The model establishes an entry line, and then rolls slowly through one revolution.

#### Downgrades

Roll rate not constant during the roll.  
Changes in heading and or altitude.

The roll is completed in less than four seconds.  
The exit line is at a different heading and /or altitude to the entry line.

### 3. Two Consecutive Loops K=3

The model establishes an entry line and then performs two consecutive inside loops.

#### Downgrades

Wings are not level during loops.  
Changes in heading during loops and or altitude.  
The model does not roll exactly 360 .  
Loops not superimposed.  
The exit line is at a different heading and / or altitude to the entry line.

### 4. Two Consecutive Rolls K=3

The model establishes an entry line and then performs two complete horizontal rolls at a uniform rate of roll.

#### Downgrades

Changes in heading and or altitude during rolls.  
Roll rate not constant.  
The model does not do exactly two rolls.  
The exit line is at a different heading and /or altitude to the entry line.

### 5. Top Hat K=3

The model establishes an entry line then performs a quarter inside loop to a vertical flight path, flies a straight line then performs a half roll then flies a straight vertical line then quarter inside loop to a horizontal flight path, flies an inverted straight line, then performs a quarter inside loop to a vertical flight path, flies a straight line, then performs a half roll followed by a straight vertical line to quarter inside loop to straight and level exit.

#### Downgrades

Changes in heading during quarter loops and/or straight lines.  
Changes in heading during half rolls.  
Quarter loops not of the same radius.  
Horizontal and vertical lines not the same length.  
Half rolls not at same roll rate.  
Exit line at different heading and /or altitude to entry line.

**6. Two Outside Loops K=4**

The model establishes an entry line, and then performs two consecutive outside loops.

**Downgrades**

Wings not level during loops.  
Changes in heading during loops.  
Loops not round.  
Loops not superimposed.  
Exit line at different heading and /or altitude to entry line.

**7. Square Loop on Corner K=3**

The model establishes an entry line then pulls up through 45° and continues upline and pulls a 90° corner then to the centre line pulling through another 90° downward to another 90° exiting with a 45° to establish an exit line.

**Downgrades**

Wings not level during loops.  
Changes in heading during straight lines.  
Length of four sides not the same.  
Corners not 45° or 90°.  
Entry and exit at different heading / or altitude to entry line.  
Part loops not at same radius.

**8. Straight Inverted Flight K=2**

The model establishes an entry line then rolls inverted, flies a straight and level inverted flight path of three to five seconds and then rolls upright. The rolls in and out are part of the judged manoeuvre.

**Downgrades**

Changes in heading and /or altitude during rolls.  
Roll rates not constant.  
Changes in altitude and /or heading during inverted flight.  
Inverted flight less than three seconds.  
Wings not level during inverted flight.  
The exit line is at a different heading and /or altitude to the entry line.

**9. Stall Turn, ¼ roll up and down K=2**

From upright pull to a vertical upline and execute a ¼ roll, followed by the stall turn, on the down line, perform a ¼ roll and pull to recover to upright.

**Downgrades**

Vertical lines not vertical at start and finish of rolls.  
Rolls not centred on vertical lines.  
Part loops not of same radius.  
Roll rates different.  
Wing over, severe downgrade or zero.

**10. Cuban Eight, with Half Rolls K=3**

The model flies straight and level past the centre line then pulls up to perform a part inside loop. When at 45° inverted, the model flies a straight line then performs a half roll followed by a straight line, then performs another part inside loop and again at 45° inverted flies a straight line, then a half roll and another straight line and a part inside loop to recover to straight and level flight.

**Downgrades**

Part loops not round and of the same size and radius.  
Changes in heading during loops, straight lines and half rolls.  
Half rolls not superimposed.  
Exit line at different heading and/or altitude to entry line.

## 11 Two Turn Spin K=2

Model establishes a heading and with reduced power the model is held in a nose high attitude until it stalls and commences to spin. The model auto rotates through two turns, holds a near vertical down line, and then recovers on the same heading as the entry but a lower altitude.

### Downgrades

Model deviates from line of flight prior to stall, 1 point per 15 deviation.

Wings not level during entry and exit.

The model climbs during the entry line.

Wing over.

Does more or less than two turns, 1 point per 15 deviation.

Exit line at a different heading to the entry line.

A spiral dive or snap roll on entry scores zero.

**Notes:** The following notes are recommendations only and are provided as a guide to Sportsman competitors.

Take off and landings are not scored.

Points from 0 to 10 are awarded for each manoeuvre and then multiplied by the K factor. Once all of the manoeuvres can be achieved, the higher K factor manoeuvres should be perfected first as this results in a higher score being gained.

Noisy models will be penalised 5 points from the total flight score.