

Model Flying NZ Flying Rules
Section 10a: Radio Control Aerobatics Clubman Schedule

1. CLUBMAN

1.1 General

Please note the general guidance of the FAI F3A sporting code applies – you will find a link to this on the [NZRCAA website – downloads section](#) – the rules below highlight some of the differences and deviations allowed in Clubman. The sporting code contains lots of useful information regarding the judging process, manoeuvre positioning, etc. Clubman is the entry-level class to precision radio control (R/C) aerobatics in New Zealand. It is a great next step following completion of the Model Flying New Zealand (MFNZ) wings program and gives R/C fliers an opportunity to improve their R/C flight skills and aerobatics competence. The schedule is designed using manoeuvres that demonstrate three fundamentals of aerobatic flight - lines, loops and rolls. The manoeuvres shall be executed as follows:

- 1.1.1** Most manoeuvres are centred directly in front of the judge's line.
- 1.1.2** All manoeuvres begin and end with a clearly visible section (one to two seconds) of straight and level flight.
- 1.1.3** All manoeuvre names must be clearly announced by the pilot or caller.
- 1.1.4** All manoeuvres must have a clear announcement of commence and complete. Judges will only score announced manoeuvres flown between the calls of 'commence' and 'complete'. The 'commence' call should happen immediately prior to the one to two seconds of straight and level flight preceding the manoeuvre (section **1.1.2**). The 'complete' call should happen immediately following the one to two seconds of straight and level flight at the end of the manoeuvre. These sections of straight and level flight are judged as part of the manoeuvre.
- 1.1.5** The schedule must be flown in sequence as described in section **1.5** (schedule of manoeuvres).

1.2 Who can enter?

As an entry level class, clubman is aimed at those who have not flown aerobatic competitions. Anyone past the 'solo' stage (and a MFNZ member) is welcome to come along and give it a go! If you need help, please ask..... More information can be found in the MFNZ Aerobatics Rules (found in the [downloads section of NZRCAA website](#))

1.3 Type of model

Because we wish to encourage participation, you can fly any MFNZ legal model in this class. The schedule is designed so even a club trainer can be used.

1.4 Competition Format

- 1.4.1** To enter, competitors must register. This enables a draw to be made to determine flying order. A pilot's briefing will be held prior to commencement of the contest, and this is a good time to ask any questions. Time permitting, a demonstration flight of the schedule will follow for the benefit of both contestants and judges.
- 1.4.2** The contest will consist of several 'rounds'. A line director will let you know when to start your motor. The contestant can have a helper/caller to assist with the engine starting, placing the aircraft on the runway, calling the manoeuvres during the schedule, and retrieving the aircraft after the flight.
- 1.4.3** The Clubman sequence is flown as a series of centre manoeuvres, one on each upwind and downwind pass. Provided there is neither a call of 'commence', nor the aircraft flown past centre, the pilot may manoeuvre the aircraft to position it to his/her satisfaction prior to execution of the manoeuvre. However, all manoeuvres must be flown in the order listed and the schedule completed within the allocated flight time (as per the FAI rules).

1.5 Clubman Schedule

- 1. Take-Off Sequence (K=1):** The model must stand still on the ground with the motor running without assistance. 'Commence' is called, and the model will then smoothly accelerate and shall then take off. The take-off run must be straight, and the model shall lift gently from the ground and climb at a gradual angle. The first turn is 90 degrees out, away from the judges. The climb must be finished before the end of this first 90 degree turn, and the rest of the manoeuvre flown at constant altitude. The model then flies in a straight line for a short length of time and then completes a 270 degree turn in the opposite direction, with the model finishing flying downwind in the opposite direction to take-off. The manoeuvre finishes when the model passes through 'centre', and at this point 'complete' must be called. Like all other Clubman manoeuvres, the take-off will be scored zero to ten.

Possible downgrades include:

- *Model does not track straight and lift off smoothly*
- *First turn not exactly 90 degrees*
- *Second turn not exactly 270 degrees*
- *Turn radii not the same*
- *Bank angle not the same and constant in both turns*
- *Climb angle not constant and climb not complete by the end of the 90 degree turn*

- 2. Cuban Eight (K=2):** The model starts in straight and level flight, flies through centre, pulls up into a $\frac{5}{8}$ inside loop, continues until heading downwards at 45 degrees, pauses, does a half roll, pauses, followed by a $\frac{3}{4}$ inside loop. When again pointing 45 degrees downwards the model pauses, does another half roll, pauses, and recovers at the same altitude and heading as the entry.

Possible downgrades include:

- *Loops not round and the same size*
- *Flight path not at 45 degrees at the start and finish of the half rolls*
- *Rolls not superimposed on centre*
- *Changes in heading during loops and half rolls*
- *Line length before and after the half rolls not the same*
- *No straight lines visible before and after the rolls*

- 3. Half Reverse Cuban Eight (K=2):** The model starts in straight and level flight, flies through centre. Two seconds after passing centre the model pulls through a $\frac{1}{8}$ inside loop into a 45 degree upline, pauses, does a half roll to inverted, pauses, and then pulls through a $\frac{5}{8}$ inside loop to recover at the same altitude but opposite heading to entry.

Possible downgrades include:

- *Part loops not round and the same radii*
- *Flight path not at 45 degrees at the start and finish of the half roll*
- *Entry and exit heights not the same*
- *Changes in heading during loops and rolls*
- *Line length before and after the half rolls not the same*
- *No straight lines visible before and after the rolls*

- 4. Two Point Roll (K=3):** The model starts in straight and level flight and before centre rolls at a uniform rate through 180 degrees to inverted then pauses ('for a heart beat'), then rolls another 180 degrees in the same direction to finish in upright flight. The model should pass through centre inverted. The approximate time of the manoeuvre is three seconds.

Possible downgrades include:

- *Changes in heading*
- *Changes in altitude*
- *Roll rate not constant*
- *The pause inverted excessively long or short*

- 5. 45 Degree Upline (K=3):** The model starts in straight and level flight and before centre pulls through a $\frac{1}{8}$ inside loop to a 45 degree upline. The model then flies on a 45 degree upline and eventually pushed out the top through a $\frac{1}{8}$ outside loop to level flight.

Possible downgrades include:

- *Changes in heading.*
- *Entry and exit radii not the same*
- *45 degree track not maintained*
- *Length of 45 degree line before and after centre not the same*

Hint: The plane is now positioned up high, and the next manoeuvre is a stall turn back down at base line height. If you are an experienced pilot, performing a 'Split-S' turnaround manoeuvre would position you well for the stall turn. Otherwise, a descending turn or any other manoeuvre can be used to position for the stall turn.

- 6. Stall Turn (K=3):** The model starts in straight and level flight. The model flies through the centre, and two seconds after centre executes a $\frac{1}{4}$ loop into a vertical climb. At the top of the climb the model should stop and execute a stall turn (in either direction) to a vertical down line. The model should pivot (yaw) about the centre of gravity, but a pivot radius of up to $\frac{1}{2}$ a wing span is allowed. It then flies vertically down and pulls through another $\frac{1}{4}$ loop to finish in level flight at the same altitude but opposite heading to entry.

Possible downgrades include:

- *Model track not vertical before and after the stall turn*
- *Model does not pivot about the centre of gravity*
- *Part inside loops not the same radii*
- *Changes in heading during half inside loops*
- *Entry and exit heights not the same*

- 7. Slow Roll (K=3):** The model starts in straight and level flight, then before centre starts rolling slowly through one complete rotation, equally spaced about the centre marker. The model recovers on the same altitude and heading as the entry. The model should be inverted as it passes the centre marker. The approximate time of the roll is to be three seconds.

Possible downgrades include:

- *Changes in heading*
- *Changes in altitude*
- *Roll rate not constant*
- *Model does not roll exactly 360 degrees*

- 8. Two Inside Loops (K=2):** The model flies straight and level then pulls up on centre and completes two inside loops recovering at the same altitude and heading as the entry.

Possible downgrades include:

- *Loops not same size and superimposed.*
- *Loops not round or segmented*
- *Wings not level.*
- *Changes in heading during loops.*

- 9. Two Rolls (K=3):** The model starts in straight and level flight then rolls at a uniform rate through two complete rotations, finishing in level flight on the same heading and altitude as the entry. The model should pass through centre upright (immediately at the end of the first roll). The rolls must be continuous with no pause between. The approximate time of the rolls to be three seconds.

Possible downgrades include:

- *Changes in heading*
- *Changes in altitude*
- *Roll rate not constant*

Hint: The next manoeuvre is a 45 degree downline so you are going to require some height. If you are an experienced pilot, performing a 'Immelmann Turn' (a half loop followed by a half roll) would be a great way to position for the 45 degree downline. Otherwise, a climbing turn or any other suitable manoeuvre may be flown.

- 10. 45 Degree Downline (K=3):** The model starts in straight and level flight at the top of the aerobatic 'box' and before centre pushed through a $\frac{1}{8}$ outside loop to a 45 degree downline. The model then flies a 45 degree downline and then performs a $\frac{1}{8}$ inside loop to recover at a lower altitude but the same heading as entry.

Possible downgrades include:

- *Changes in heading*
- *$\frac{1}{8}$ loops not the same radii*
- *Down line not at 45 degrees*
- *Length of 45 degree line before and after centre not the same*


Hint: Following the 45 degree downline (done into wind) you want to position the model heading downwind to start the approach followed by landing. A 'procedure turn' or a simple 180 degree turn are good ways to correctly position downwind for the approach and landing. Either way, give yourself plenty of room to correctly position the model downwind before the start of the approach. Remember you need to position the plane far enough out from yourself to do the upcoming two 90 degree turns, and a straight base leg of at least 'visible length' and end up lined up on the runway on finals.

11. Approach and 12. Landing (each K=1): Commence should be called prior to centre while the model is being flown downwind at a comfortable distance out from the runway. Once a sufficient distance down wind, the model should be turned through 90 degrees to a base leg. Once on base leg a constant descent can be started at any time (and should then be maintained until the landing round out and flare). The second 90 degree turn should be started at a point that will position the model down the centre line of the runway. Once the model reaches a height of approximately two meters on the approach, the judges will start judging the landing. The model should smoothly flare to touch the ground in the landing zone (as defined by the contest director) without bounce or changes in heading. The model should roll to a complete stop before complete is called to end the landing manoeuvre. Note that the pilot does not make any announcement between the end of the approach and the start of the landing. The transition occurs at a height of approximately two meters.

Possible downgrades include:

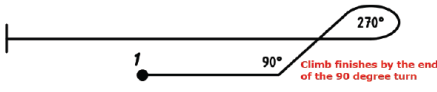
- *Descent not constant*
- *Turn radii not the same*
- *Bank angle not the same in both turns*
- *Model does not flare and touch down smoothly*
- *Landing not within the defined landing area*
- *Changes in heading during the descent or roll out*

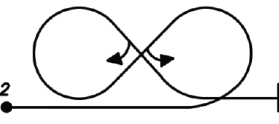
NZ Clubman Aerobatics

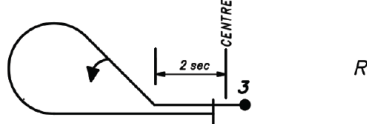


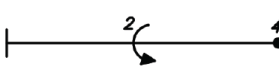
NEW ZEALAND RADIO CONTROLLED AEROBATICS ASSOCIATION

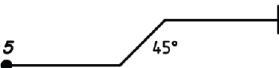
Wind ←

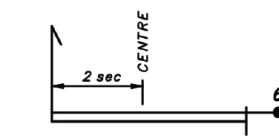
1 TAKE OFF

Climb finishes by the end of the 90 degree turn

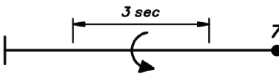
2 CUBAN EIGHT


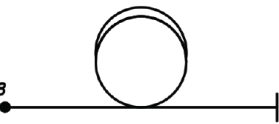
3 HALF REVERSE CUBAN EIGHT

CENTRE

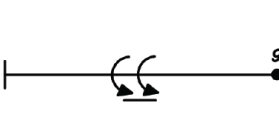
4 TWO POINT ROLL


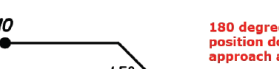
5 45 DEGREE UPLINE


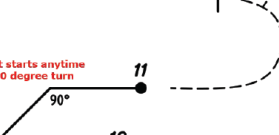
6 STALL TURN

CENTRE
CONTINUED ABOVE


7 SLOW ROLL


8 TWO LOOPS


9 TWO ROLLS



10 45 DEGREE DOWNLINE

180 degree turn or similar to position downwind for the approach and landing

11 APPROACH FOR LANDING

Constant descent starts anytime AFTER the first 90 degree turn

12 LANDING


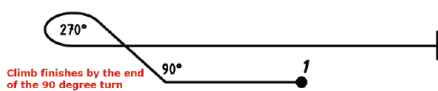
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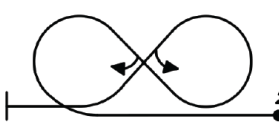
NZ Clubman Aerobatics

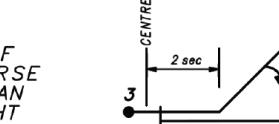


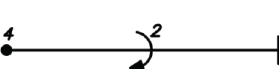
NEW ZEALAND RADIO CONTROLLED AEROBATICS ASSOCIATION

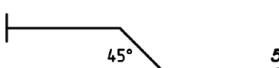
Wind →

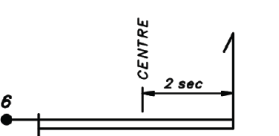
1 TAKE OFF

Climb finishes by the end of the 90 degree turn


2 CUBAN EIGHT


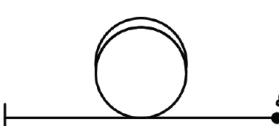
3 HALF REVERSE CUBAN EIGHT

CENTRE

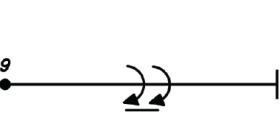
4 TWO POINT ROLL


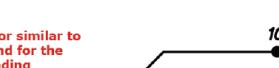
5 45 DEGREE UPLINE


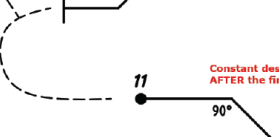
6 STALL TURN

CENTRE
CONTINUED ABOVE

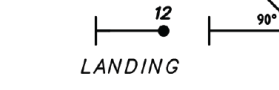
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