

# NZMAA FLYING RULES

## Section 9: Helicopter

### 1. **HELICOPTER : APPLICABILITY**

R/C Helicopter classes flown in New Zealand include the FAI International class of F3C which is flown to the rules in the latest edition of the FAI Sporting Code .

There are two domestic (non-FAI) classes for Beginners (Clubman) and Intermediate fliers (Sportsman). Rules for these classes follow.

### 2. **CLUBMAN HELICOPTER**

#### 2.1 **PURPOSE**

To offer a beginners class of competition to New Zealand Helicopter pilots. It will also promote the development of flying skills that are necessary to be able to participate in Sportsman Helicopter events with confidence and safety.

#### 2.2 **NATIONAL COMPETITION**

If there are sufficient entries, the Clubman Helicopter event will be flown at all four Masters series competitions held at various sites throughout New Zealand, including the New Zealand National Aeromodelling Championships, as an official event. The overall winner of the four Masters Series events will take the title of New Zealand Masters Series Champion - Clubman Helicopter. The winner of the National Championships event will take the title of New Zealand National Champion - Clubman Helicopter. The winner(s) of these titles, from that date on, will be allowed to enter any Clubman Helicopter event in New Zealand, but the final score for the competitor(s) will not be considered when calculating the placings for the event.

#### 2.3 **GENERAL RULES**

NZMAA General Competition Rules and judges guide of the FAI F3C rules also apply to this competition.

#### 2.4 **MANOEUVRES**

2.4.1. The flight program consists of 5 compulsory manoeuvres. These manoeuvres are scored in the same way as the F3C competition. The competitor has 9 minutes to complete the flight program in the following order:

1. 10 second Hover
2. Hovering M
3. Tail In Circle
4. Vertical Triangle
5. 180 Degree Landing

2.4.2. In the following sections, hovering the model at eye level means that the model's landing skids must be at the same altitude as the competitors' eyes.

2.4.3 For the first three hovering manoeuvres, the pilot must stand within a radius of 0.6 metres of one of the centre flags. The pilot must then stand in any position outside the square to complete the Vertical Triangle and 180 Degree Landing manoeuvres. The pilot may move between these two manoeuvres but not during them.

**1. 10 Second Hover**

Model takes off from central helipad, climbs to eye level and hovers for 10 seconds. Model then descends to a landing on the central helipad.

**2. Hovering M**

Model takes off vertically from central pad and stops at eye level. While maintaining a heading parallel to the judges line and a constant altitude, the model moves along a diagonal line to the left or right near corner flag and stops. The model then moves forward to the second corner, stops, then moves sideways to the third corner and stops. The model then moves backwards to the fourth corner, stops again, then proceeds to move along a diagonal line back to the central helipad where it stops again. The model then descends to land on the central helipad.

**3. Tail In Circle**

The model ascends vertically to eye level and stops. The model then flies in a circular path to the left or right while maintaining a constant altitude and distance from the pilot finishing back over the central helipad. The tail must always point towards the pilot. The model then descends to land on the central helipad. (Pilot then moves to a nominated pilot position outside the square)

**4. Vertical Triangle**

Model takes off from central helipad, climbs to eye level and stops. Model then flies backwards from the helipad to one of the centre flags and stops. Model then climbs forward at a 45 degree angle to an altitude of 5 metres above eye level directly over the central helipad and stops. Model then descends forward at a 45 degree angle to eye level directly over the opposite centre flag and stops. Model then flies backward to central helipad, stops, then descends to landing.

**5. 180 Degree Landing**

The model takes off and flies at a minimum altitude of 5 metres. When it reaches a position directly in front of the judges it commences a 180 degree turn and descent and lands in the central helipad. The model should exhibit a constant rate of turn and constant rate of descent to a point just prior to touchdown on the pad. The flight path must appear as a semi-circle when viewed from above.

### 3. SPORTSMAN HELICOPTER

#### 3.1 PURPOSE

To offer an intermediate class of competition to New Zealand Helicopter pilots. It will also promote the development of flying skills that are necessary to be able to participate in F3C events with confidence and safety.

#### 3.2 NATIONAL COMPETITION

If there are sufficient entries, the Sportsman Helicopter event will be flown at all four Masters series competitions held at various sites throughout New Zealand, including the New Zealand National Aeromodelling Championships, as an official event. The overall winner of the four Masters Series events will take the title of New Zealand Masters Series Champion - Sportsman Helicopter. The winner of the National Championships event will take the title of New Zealand National Champion - Sportsman Helicopter. The winner(s) of these titles, from that date on, will be allowed to enter any Sportsman or Clubman Helicopter event in New Zealand, but the final score for the competitor(s) will not be considered when calculating the placings for the event.

#### 3.3 GENERAL RULES

All general rules and judges guide specified in the FAI F3C rules also apply to this competition.

#### 3.4 MANOEUVRES

3.4.1 The flight program consists of 8 compulsory manoeuvres and one free pass. These manoeuvres are scored in the same way as the F3C competition including the K factors for the hovering manoeuvres. This means that a pilots score for the hovering manoeuvres is multiplied by a factor of 2. The competitor has 9 minutes to complete the flight program in the following order:

1. Vertical Rectangle 1 **K-2**
2. Nose In Circle **K-2**
3. Vertical Triangle With 360 Degree Pirouette **K-2**
4. Loop
5. Split S
6. Roll
7. 540 degree Stall Turn
8. Free Pass (not scored)
9. Autorotation with 180 Degree Turn

3.4.2 In the following sections hovering the model at eye level means that the model's landing skids must be at the same altitude as the competitors' eyes.

3.4.3 The competitor must stand in the 1.2 meter pilot circle for all manoeuvres

## **Sportsman Schedule**

### **1 Vertical Rectangle 1**

Model takes off from helipad and ascends vertically to eye level and stops. Model then flies backwards to one of the centre flags (2 or 5) and stops. Model then climbs vertically 4m while simultaneously performing a slow 360° pirouette in either direction and stops. Model then flies forward 10m to opposite centre flag and stops. Model then descends 2m, stops, performs a 360° pirouette at that altitude in opposite direction to the first pirouette and stops again. Model then descends another 2m back to eye level and stops. Model flies backwards to central helipad and stops. Model then descends to a landing on central helipad.

Points will be subtracted for the following reasons:

1. Lateral position changed during 360° pirouette.
2. Pirouettes were not exactly 360°.
3. Pirouettes were not centered over the flags.
4. Model aircraft did not land smoothly on helipad.
5. Pirouettes were same direction (zero score).

### **2 Nose in Circle**

Model takes off from central helipad, climbs to eye level and stops. Model then flies backwards from the helipad to one of the centre flags and stops. Model then flies a nose in circle in either direction 10 meters diameter with the helipad as the centre. When model has completed 360 degrees stops at the centre flag, flies forward over helipad, stops, then descends to landing

### **3 Vertical Triangle With 360 Degree Pirouette**

Model takes off from central helipad and climbs vertically to eye level and stops. Model then flies backwards from central helipad to one of the centre flags (2 or 5) and stops. Model then climbs forward at 45° to an altitude 5m above eye level directly over central helipad and stops. Model performs a 360° pirouette in either direction and stops. Model then descends forward at 45° to eye level directly over opposite centre flag and stops. Model then flies backwards to central helipad, stops and descends to a landing on the central helipad.

Points will be subtracted for the following reasons:

1. Ascent and/or descent was not at 45°.
2. Model aircraft did not maintain lateral position during pirouette.

### **4 Loop**

Model aircraft flies straight and level for a minimum of 10m, then performs a single loop. Model then continues at the same altitude and heading at which it entered.

### **5 Split S**

Model flies straight and level for a minimum of 10 meters, executes a half roll to inverted followed immediately by a downward inside half loop. Manoeuvre is

completed by flying straight and level for 10 meters minimum. The half roll may be completed in either direction.

## **6 Roll**

Model flies straight and level for a minimum of 10 meters and performs an axial (aileron) roll . Roll may be in either direction. Model should be inverted when crossing centreline. Model then continues at same altitude and heading for a further 10 meters.

## **7 540 degree Stall Turn**

Model flies straight and level for a minimum of 10m, then transitions to a vertical ascent. After the model comes to a stop, model executes a 540° pirouette, so that the nose points downward, and transitions back to same path and altitude as at beginning of manoeuvre.

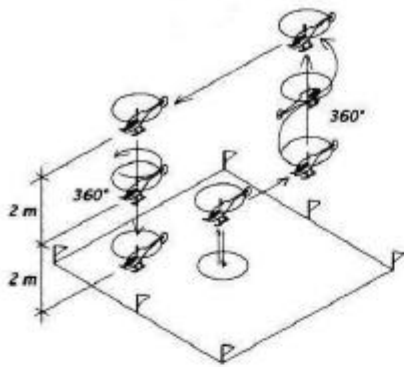
## **8 Free Pass**

This is to correct for wind

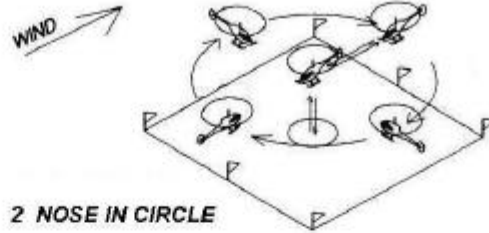
## **9 Autorotation With 180 Degree Turn - Downwind/Upwind**

Model flies at a minimum altitude of 20m. Manoeuvre begins when model crosses an imaginary plane that extends vertically upward from a line drawn from the centre judge out through the central helipad. Model must be in the autorotative state when it cuts this plane, the engine must be at idle at this point and the model must be descending. The 180° turn must start at this point and the turning and descending rate must be constant from this point to a point just before touchdown on the helipad. The flight path of the model must appear as a semi-circle when viewed from above, starting at the vertical plane and ending at a line drawn from the centre judge through the central helipad. The model's flight path must never be parallel to the ground or judge's line.

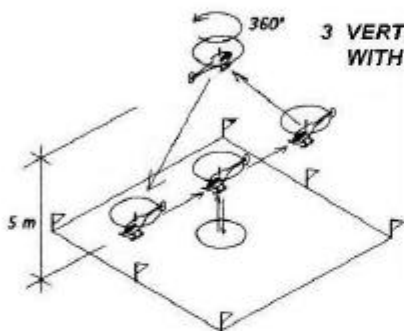
### 2002 SPORTSMAN MANOEUVRE SCHEDULE



1 VERTICAL RECTANGLE

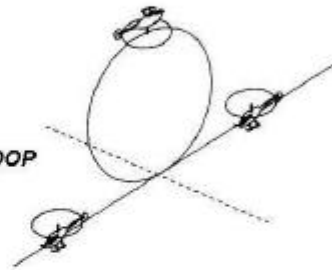


2 NOSE IN CIRCLE

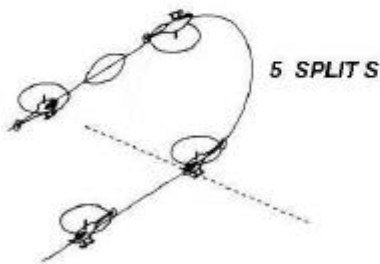
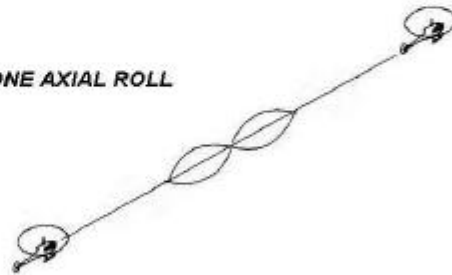


3 VERTICAL TRIANGLE WITH 360° PIROUETTE

4 ONE INSIDE LOOP

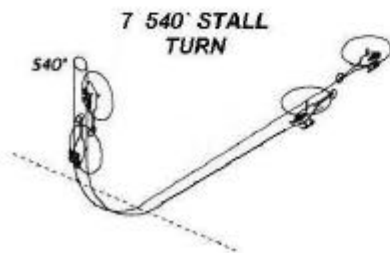
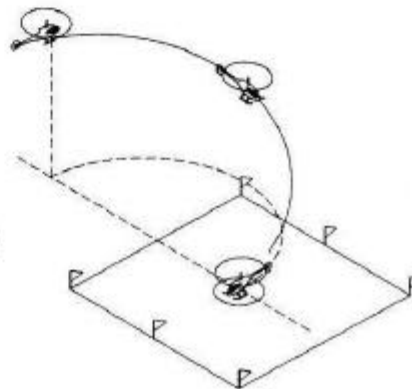


6 ONE AXIAL ROLL



5 SPLIT S

8 FREE PASS



7 540° STALL TURN

9 AUTOROTATION WITH 180° TURN