

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 – relevant excerpts are in Section 9A of the NZMAA Flying Rules.

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 specified in section 5.4, 5D, and 5E 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 section 5.4, 5D, and 5E of the FAI F3C rules also apply to this competition.

3.4 MANOEUVRES

3.4.1 The flight program consists of 8 compulsory manoeuvres. 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 Triangle with 360 Degree Pirouette K-2
2. Horizontal Circle K-2
3. Vertical Rectangle K-2
4. Stall Turn
5. Roll
6. Loop
7. Split S
8. 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 For the first three hovering manoeuvres, the pilot must nominate and stand in a single pilot position outside the square. The pilot must move to the predefined outer pilot's circle following the Vertical Rectangle manoeuvre and stay there for the duration of the aerobatic manoeuvres. The pilot may not move at any other time.

1. Vertical Triangle K-2

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 performs a 360 degree pirouette 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.

2. Horizontal Circle K-2

Model takes off vertically from central pad and stops at eye level. Model then flies a circle passing over the two corner flags furthest away from the pilot and centred around the line between them. The tail of the model must follow the nose for the entire circle. Manoeuvre ends when model returns to a point directly over the central pad and stops. There is no landing at the end of this manoeuvre.

3. Vertical Rectangle K-2

Manoeuvre starts at eye level after final stop of previous manoeuvre. Model flies backward to one of the centre flags and stops. Model then climbs vertically 4 metres and stops. Model then flies forward 10 metres to opposite centre flag and stops. Model then descends 4 metres back to eye level and stops. Model then flies backward to centre pad and stops. Model then descends to a landing on the centre pad. (Pilot then moves to the outer pilot position)

4. Roll

Model flies straight and level for a minimum 10 metres 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 metres.

5. Loop

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

6. Stall Turn

Model flies straight and level for a minimum of 10 metres then transitions to vertical at 90 degrees. When the ascent ends, model executes a 180 degree pirouette so that the nose points downward. While diving, the model follows the same path and transitions back to the same altitude as it entered.

7. Split S

Model flies straight and level for a minimum of 10 metres, executes a half roll to inverted followed immediately by a downward inside half loop. Manoeuvre is completed by flying straight and level for 10 metres minimum. The half roll may be completed in either direction.

8. Autorotation with 180 Degree Turn

Model flies at a minimum altitude of 20 metres. Manoeuvre begins when model crosses an imaginary plane that ascends vertically upward from a line drawn from the centre judge out through the central pad. Model must be in autorotation state when crossing the plane. Engine must be at an idle with the throttle hold switch

activated and the model descending. The 180 degree 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 pad. The flight path 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 to the central pad.

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