

RADIO CONTROL HELICOPTER SCALE

For UK League and National Competition

- 1. General:** All pertinent BMFA regulations with regard to model helicopters shall be applicable except as specified below.
- 2. Safety:** Safety consideration of spectators, event personnel and participants shall be of primary importance. All models shall be subject to a safety inspection at the discretion of the Contest Director. A model judged to be unflyable due to a crash must be reinspected prior to reuse. Dangerous flying or poor sportsmanship shall be grounds for disqualification. All maneuvers shall be flown in front of the dead line which extends to infinity. At no time shall the helicopter come between the pilot and the judges! Violation of these rules will be grounds for disqualification!
- 3. Model Requirements:** There shall be no limitation on the types of equipment that can be fitted to the helicopter with exception of metal main or tail rotor blades, which are not allowed. Each contestant shall be permitted one (1) model entry.
- 4. Builder of Model Rule:** The builder and flier of the model helicopter shall be one and the same person. There are no team entries.
 - 4.1:** The Contest Director shall make every reasonable effort to assure himself that each contestant "constructed" the model used in competition. "Constructed" shall be interpreted as the action required to complete a model with no more fabrication than the usual helicopter kit.
 - 4.2:** Helicopter kits containing a large amount of prefabrication are permissible as long as the contestant completes all of the final assembly.
 - 4.3:** The contestant must be the original owner and the one who prepared the helicopter for flight, regardless of the scope of the work required to finish the helicopter.
 - 4.4:** The contestant will include in a declaration statement that he/she completed the final assembly of the subject aircraft, including and not limited to: preparing the fuselage for the mechanics, building of the mechanics, installing the radio equipment, and test flying the aircraft. The contestant shall also list which items or construction steps that he/she did not complete or fabricate.
- 5. Proof of Scale:** Contestants shall present the following materials with the helicopter for static judging:
 - 5.1:** A published 3-view or more drawings.
 - 5.2:** Pictures, published or otherwise, pertaining to color, markings and details.
- 6. Static Judging:** Static judging is to be done at the flying site when possible. The model shall be placed on an elevated or rotating table.
 - 6.1:** The judges shall be allowed to approach the model but may not touch it.
 - 6.2:** The contestant shall be the only person to move the model and/or open any panels or doors for the judges to inspect.
 - 6.3:** The contestant shall have up to 5 minutes to show the judges any special features which appear on his model such as lights, or other working detail.
- 7. Static Scoring:** Total 3 judges, maximum 300 points per judge gives a total 900 possible points for static. Entries shall be judged on the following items with the maximum point values listed next to each.
 - 7.1:** Fuselage (Maximum 50 points).
 - 7.2:** Cockpit (Maximum 50 points).
 - 7.3:** Landing Gear (Maximum 50 points).
 - 7.4:** Rotor Systems:
 - 7.4.1:** Tail rotor (Maximum 10 points).
 - 7.4.2:** Main rotor (*Maximum 40 points). *Helicopters using a main rotor system that features a flybar to enhance flight stability will receive a maximum of fifteen (15) points unless their system replicates the full size helicopter.
 - 7.5:** Craftsmanship (Maximum 50 points).
 - 7.6:** Finish & Markings (Maximum 50 points).
- 8. Flight Guidelines:** The contest layout will be as per figure 1, with the pilot located behind a line seven (7) meters from the center of the scale (S) helipad.
 - 8.1:** The scale (S) helipad shall be a 1.2 meter circle, and all flights shall commence and end at the (S) helipad.
 - 8.2:** The pilot shall stand behind a line seven (7) meters from the center of the scale (S) helipad. The pilot shall stand in this position during the entire flight.
 - 8.3:** Each contestant is allowed 3 minutes in which to start their model, transport it to the scale (S) helipad, and test hover or perform adjustments as required. Heavy models or those with on board start systems may be carried to the (S) helipad prior to the initial start, but only after the previous pilot has completely cleared the flight area. The contestant shall wait until the preceding competitor has completed their flight and shut down their model prior to starting and beginning the start time interval. Test hovering shall be done from the scale (S) helipad. The helicopter may only be hovered up to eye level, without practicing maneuvers, and the model must not be rotated beyond 90 degrees left or right relative to the pilot. If the contestant is not ready after the 3 minute start time interval, they are allowed to complete their adjustments; however, their

flight time will have started at the end of the 3 minute interval.

8.4: All models, with the exception of those outlined in 8.3 shall be carried from the start circle to the scale (S) helipad. Models shall not be flown from the helipad to the pit area.

8.5: Once the contestant or his caller has announced the start of his flight, he is not allowed to make any adjustments to the helicopter. Engine restarts after the flight has commenced are not allowed.

8.6: The maneuvers shall be flown in proper sequence and away from the spectators. The maximum flying time is six (6) minutes beginning when the first maneuver is announced.

8.7: A flight shall be considered an official attempt once the contestant or his caller has indicated the flight has begun. All contestants may have at least two (2) official attempts to have their static score counted, but if circumstances such as weather only permit one round then the static score shall be halved and added to the single round flight score for final classification. Once a flying round has commenced it must be finished on the same day, otherwise those flights already completed during that round shall not be counted. A competition cannot be classified on static score alone.

8.8: All contestants shall be permitted to fly as many equal rounds as time allows or as directed by the Contest Director.

8.9: Contestants shall fly the same equipment that which was static judged. Should part of the aircraft be damaged so as to be replaced, that portion of the helicopter shall be rejudged.

9. Scale Flight Plan:

9.1: Ten (10) Second Hover with Clearing Turns (Maximum 15 points).

9.2: 45 Degree Climb Out to a minimum of eight (8) meters. (Maximum 5 points).

9.3: Translational Landing. Minimum altitude of eight (8) meters the helicopter will begin a translational straight-line descent to a soft landing on the helipad. (Maximum 10 points).

9.4. Scale Freestyle (50 points for nominated maneuvers, 20 for 'artistic merit'. Maximum 70 points). For this section the pilot must give each of the judges a flight schedule which would consist of five(5) maneuvers that replicate the style of the full size being modeled. The maneuvers must be flown in a smooth manner with the start and finish of each announced to the judges by his/her caller. Time to allow the judges to write down the score for each one should be allowed for. The take off and landing at the start and end of the freestyle can be included in the five maneuvers for individual scoring, or they will be scored according to 'artistic merit' as part of the overall flight.

9.5 Auto Rotation Option. Should a contestant wish to end his/her freestyle flight with an auto rotation maneuver to the scale helipad, he/she may do so for a potential bonus of up to 15 points. If the engine is running but disengaged then the bonus will be 5 points, if the engine is completely stopped the bonus will be 15 points.

10. Multi-Blade/Flybarless Bonus: Helicopters flying with a multi-bladed or flybarless rotor head that is "scale to their particular machine" will receive a fifty (50) point bonus added to each round's score. "Scale to their particular machine" shall be interpreted as a rotor head that matches the number of blades and flybar arrangement (if any) fitted to the full scale prototype.

11. Flight Scoring: Each rounds flight score shall be the sum of the scores from the three judges. Maximum 100 points per judge totals 300 possible points per flying round plus any Autorotation and/or MultiBlade/Flybarless Bonuses.

12. Official Score: The final score shall be the sum of the best two flight scores plus the static score. If only one round is flown then the static score shall be halved. If more than two rounds are flown then the best two scores will be counted. Maximum 1500 possible points (1630 with flying bonuses). In the unlikely event of a tie, the tie breaker shall be the highest single flying round score between the tied contestants.

SCALE HELICOPTER JUDGE'S GUIDE

13. Static Judging Guidelines:

13.1: Fuselage: Outline compared to 3 views and documentation, panel lines, and rivets. Must provide documentation for maximum score. (Maximum 50 points.)

13.2: Cockpit: Seats, belts, controls, instruments, consoles, map pockets, flooring, interior paint, etc. Match documentation for maximum score. (Maximum 50 points - Automatic zero for no cockpit.)

13.3: Landing Gear: Scale like landing gear (skids or retracts). Match documentation for maximum score. (Maximum 50 points.)

13.4: Rotor Systems:

13.4.1: Tail rotor systems including blades. Match documentation for maximum score. (Maximum 10 points.)

13.4.2: Main rotor system including blades. Match documentation for maximum score. (*Maximum 40 points.) *Helicopters using a main rotor system that features a flybar to enhance flight stability will receive a maximum of fifteen (15) points unless their system replicates the full size helicopter.

13.5: Craftsmanship: Items added or modifications made to enhance the scale appearance of the helicopter. These items may be hand made or obtained separately and could include; lighting systems, aerials and antennas, non-skid surfaces, latches, handles, opening doors and hatches, interior detail, tie downs, etc. Match documentation for maximum score. (Maximum 50 points.)

13.6: Finish and Markings: Painting and nomenclature. Paint scheme should reflect actual paint used.

Nomenclature could include registration numbers or maintenance and armament markings. Match documentation for maximum score (Maximum 50 points.)

14. Flight Judging Guidelines:

14.1: 10 Second Hover with Clearing Turns: Lift off smoothly with the tail towards the pilot and hover stationary at eye level over the pad for a minimum of ten (10) seconds followed by a 90 degree Clearing Turn either to the left or right, hover for five (5) seconds, followed by a 180 degree turn in the opposite direction, hover for five (5) seconds. Subtract points for; incorrect hover altitude, hovering less than the minimum time, non-completion of clearing turns, erratic movements. (Maximum 15 points.)

14.2: 45 Degree Climb Out: Following the final Clearing Turn the model shall perform a 45-degree Climb Out to a minimum of 8 meters. The pilot should perform the Climb Out so that the Judges have a good view of the model's angle of climb and altitude. Subtract points for; wrong degree of climb out, wrong altitude, erratic movements. (Maximum 5 points.)

14.3: Scale Freestyle: Scale Freestyle flight shall commence at the scale (S) helipad. The main objective is to demonstrate the flight capabilities & functions of the actual full-size helicopter, and all maneuvers should replicate the type of helicopter being flown. The pilot shall provide each judge with a description of his maneuvers. The flight duration shall be a minimum of two (2) minutes, not to exceed four (4) minutes. Scoring will be based on smoothness, precision, realistic speed, and judges' impression of the overall presentation. Subtract for erratic movements, non-scale maneuvers, non-scale speed, falling outside time constraints. The judges will award 50 points for technical merit in performing the maneuvers and 20 points for artistic merit for presenting a sequence of maneuvers which flows nicely and makes for a pleasing demonstration of the models performance (Maximum 70 points.)

14.4: Translational Landing. Following the Climb Out and at a minimum altitude of eight (8) meters the helicopter will begin a translational straight-line descent to a soft landing on the helipad. Maximum score is achieved when the touchdown is preceded by a minimum duration/altitude hover. Subtract for incorrect starting altitude, erratic movements, rough landing, or missing the helipad. (Maximum 10 points.) Should a contestant wish to end his/her flight with an auto rotation for a possible 15 point bonus, his/her caller must alert the judges to his intentions prior to starting the auto rotation. The maneuver must be performed from a minimum starting height of 8 meters and the engine must be switched off at the start of the maneuver. The engine may be left running if the entrant desires but for a reduced score. Lose marks for incorrect starting altitude, erratic descent, rough landing or missing the helipad. Maximum engine off bonus 15 points. Maximum engine running bonus 5 points. The bonus is in addition to the freestyle score.

15. Multi-Blade/Flybarless Bonus: Helicopters flying with a multi-bladed or flybarless rotor head that is "scale to their particular machine" will receive a fifty (50) point bonus added to each round's score. "Scale to their particular machine" shall be interpreted as a rotor head that matches the number of blades and flybar arrangement (if any) fitted to the full scale prototype.

figure 1

