

## 1 OBJECTIVE

The object of RC Combat is to recreate the excitement of aerial combat in an enjoyable, safe competition that will be interesting for spectators and challenging for the pilots.

## 2 GENERAL

All general MAAA regulations covering R/C fliers and their planes and equipment apply to RC Combat. Combat competition pilots must act in a safe and sportsmanlike manner at all times. Any conduct by a pilot deemed by the Contest Director (CD) to be hazardous or un-sportsmanlike will be cause for immediate disqualification of that pilot from the event at the discretion of the CD. The judgment of the CD on safety matters must not be protested.

The builder-of-the-model rule does not apply to this event. There is no limitation on the type of equipment fitted to the model, or the number of controls, except as specified in the following sections. The pilot will be allowed only one (1) model per round and may switch to alternate models of their choice for any following rounds. All models flown may be inspected for airworthiness and compliance with the model weight and engine requirements prior to the competition by the CD or a representative appointed by the CD.

## 3 SAFETY

Safety for spectators, officials and pilots is of the utmost importance for this event. In particular the following safety requirements must be enforced at all times:

- (a) the CD has the authority to enhance safety requirements to suit the need of the flying site and the pilots;
- (b) the Flight Safety Line, pilot Line and Spectator Line must be clearly indicated for the duration of the event;
- (c) spectators must be at least 50 m from the Flight Safety Line;
- (d) hard hats are subject to the following requirements:
  - i) all individuals forward of the Spectator Line must wear hard hats for head protection;
  - ii) each pilot is responsible for providing their headgear and has the sole responsibility to provide for their protection;
  - iii) the contest organisers will provide helmets for the officials;
- (e) any pilots not known to the contest organisers may be requested to demonstrate their flying ability to the CD in order to participate in the contest;
- (f) the contest organisers must provide first aid facilities at the contest venue and be capable of contacting emergency services in the event of an incident;
- (g) pilots must thoroughly inspect their models prior to any competition and after any mid air collisions or heavy landings to ensure that the models are safe to fly.

## 4 OFFICIALS

The following officials shall control combat competitions.

### 4.1 Contest Director

The Contest Director (CD) will be in charge of each event and they or their appointed representative will:

- (a) lay out the field (see drawing in section 5);
- (b) inspect each aircraft and engine for conformance to these rules;
- (c) make flight matrices for all rounds and heats for the contest;
- (d) start the combat flying, ensuring each pilot has a Judge when two or more heats are flown;
- (e) stop the combat flying, giving the planes known to be low of fuel the first opportunity to land;
- (f) tally scores from the individual aircraft judges or maintain the scoring sheets if he is acting as overall scorer and judge for the contest or heat as the case may be.

### 4.2 Line Marshall

The Line Marshall (LM) will record all Flight Safety Line infractions and communicate details to the CD at the end of each heat. The CD will inform the pilot of the infraction(s). If a pilot is disqualified for that round the CD must direct the pilot to land immediately.

### 4.3 Judging and scoring

#### 4.3.1 Where two or more heats are flown in a contest

There will be one (1) Judge for each aircraft flown per round. Each Judge will register points gained or lost by the aircraft being judged, according to the scoring list. After the landing of that aircraft, the Judge will inspect the streamer for final streamer points. The CD will tally the scores at the completion of each round and ensure that scores are being correctly recorded by each judge.

#### 4.3.2 Where only one heat is flown for each round of a contest

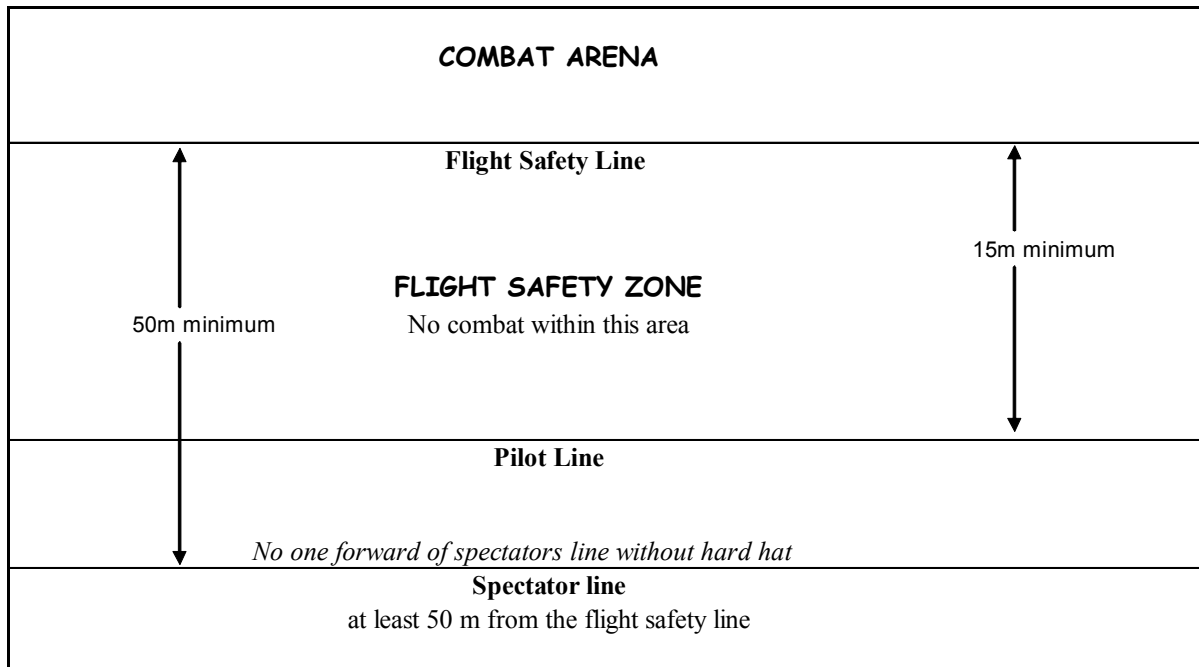
The CD will act as Judge and scorer and will record all cuts, which pilots launched on time, which were still airborne at the end of each round, their remaining streamer length and any safety line breaches reported by the Line Marshall.

It is the responsibility of each pilot to loudly call out their cuts as they occur and confirm that the CD has recorded that cut. Only cuts called out immediately by the cutting pilot will be recorded as such. No cuts will be recorded after the event.

### 4.4 Determination of points

Disputes in scoring will be settled by the CD, who's decision will be final.

## 5 COMBAT CONTEST SITE



The contest site will be comprised of the areas and lines shown above and described below.

### 5.1 Combat Arena

- The Combat Arena is an area of limited width and depth determined by the constraints of the flying facility and at the discretion of the CD with a minimum width of 150 m and depth of 100m.
- The boundaries of the Combat Arena designate the **only** location where aircraft may engage in the act of combat.
- Once an aircraft leaves the Combat Arena, for any reason whatsoever, the act of combat by, or against, that aircraft must cease immediately.

### 5.2 Safety Line

- The Flight Safety Line is a line no less than 15 m in front of the Pilot Line.
- At no time during the contest may an aircraft be flown behind the Safety Line - except when it is being launched.

### 5.3 Pilot Line

- The Pilot Line is a line no less than 15 m behind the Flight Safety Line.
- The Pilot Line will be marked by 2 witches hats spaced 15m apart and pilots will stand approximately 2m apart (to avoid aerials touching) in a line between the witches hats.
- Pilots must remain behind the Pilot Line at all times, except when launching or retrieving a landed aircraft.
- The CD will stand behind the pilots in a position where all the models can be seen and the pilots warned if an out of control model is heading for them.

#### 5.4 Spectator Line

- (a) Spectators must be at least 50 m from the Flight Safety Line.
- (b) Only pilots and contest personnel wearing hardhats may enter the area in front of the Spectator Line during combat.
- (c) There must be a minimum of 15 m between the Pilot Line and Spectator Line.

#### 5.5 Penalty Exceptions

- (a) Planes that cross the Flight, Safety Line or Pilot Line due to loss of control that is a direct result of a midair collision are not subject to penalty.
- (b) However, if an aircraft is involved in a midair and it is determined by the pilot and the pilot's Judge to be able to safely continue, and the aircraft is re-engaged in combat, the pilot forfeits any opportunity to have the penalty exception apply to a future violation due to **that** midair, regardless.

### 6 COMBAT AIRCRAFT REQUIREMENTS

#### 6.1 Engine requirements

- (a) Only the OS La15 RC engine may be used for Class A combat.
- (b) The engine must be complete with the stock carburettor and muffler catalogued for the engine by the engine manufacturer and be installed with no modifications except that:
  - i) the muffler baffle may be enlarged or removed, but no other modifications to the muffler are allowed;
  - ii) the remote needle valve may be removed from the engine and mounted on the fuselage to which the engine is attached;
  - iii) the plastic backplate may be replaced with a metal FP15 backplate; and
  - iv) JIS or Philips head screws may be replaced with Allen head cap screws.
- (c) The carburettor must be fully R/C functional as intended by the manufacturer, servo operated and capable of shutting down the engine in flight.
- (d) All aircraft must be fitted with a plastic spinner of at least 50mm diameter.
- (e) The only propellers permitted are the Master Airscrew 8"x3" black or blue propeller, or the yellow nylon Kavan 8" x 4" propeller whose areas must not be modified except for balancing.

#### 6.2 Aircraft requirements

The minimum requirements for Class A combat aircraft are:

- (a) flight ready unfuelled aircraft must weigh at least 1.2 Kg;
- (b) wing area must be at least 0.31 sq metres (480 in<sup>2</sup>).

#### 6.3 RPM limitations and testing

- (a) RPM on the ground with the throttle stick fully advanced must not exceed 17,500.
- (b) RPM testing may be performed as part of tech inspection as follows:
  - i) the CD or their designated technical inspector may test:

- every pilot's engine for maximum RPM compliance before the first match of the contest; or
  - any pilot's engine after any heat during the contest if there is reason to suspect that engine may be exceeding the limit;
- ii) each pilot will start their engine and ask the technical inspector to measure its maximum RPM;
  - iii) the technical inspector must have unrestricted access the engine's fuel supply line;
  - iv) holding the tachometer on the engine the inspector will "pinch" the fuel line to peak the engines rpm ability and if the engine exceeds 17,500 RPM the engine and airplane to which it is attached are declared "illegal" for combat.
- (c) When an engine and airplane is disqualified during a contest, it may be tested again and if passed, flown in later rounds, however, the pilot will not be allowed to fly in the following round.
  - (d) It is the pilot's responsibility to come to the technical inspection within the designated time with an engine and airplane that meet the specifications of the event.
  - (e) If testing disqualifies an engine and airplane the pilot is allowed to make changes necessary to meet the specifications, but is subject to the above noted forfeiture of one round of combat, and may be tested before every subsequent round for continued compliance.

## 7 STREAMER PREPARATION

Each pilot will provide and roll their own streamers and leader material while complying with the following requirements:

- (a) leaders must be at least 5m long and made from material that can be easily broken by hand;
- (b) Alpen brand multi colour crepe "Parties for Everyone" streamers or an equivalent, of 25 mm width and nominal 10 m length must be used.

## 8 LAUNCHING & RETRIEVING DURING THE CONTEST

### 8.1 Starting engines

- (a) The CD will give 30 seconds notice that the start engines signal is about to be given by loudly calling out "30 seconds to start engines" and loudly blowing a whistle 30 seconds later.
- (b) pilots may start their engines prior to the "start engines" signal but cannot remove their model from its starting position until after the "start engines" signal has been given.

### 8.2 Launching

Models must be launched in accordance with these procedures:

- (a) every pilot may have a launcher or, subject to specific field requirements, launch their own plane during the competition;
- (b) pilots from one heat will launch for the pilots from the other heat if required;
- (c) pilots must instruct launchers in the correct technique to safely launch their model;
- (d) the starting gate will be marked with 2 witches hats approximately 5 m in front of, and 15 m upwind of the Pilots Line;

- (e) all models must be launched from the starting gate directly into wind, with the markers moved as needed to keep them facing into wind;
- (f) models must not be launched until the CD gives permission to each launcher to launch;
- (g) any model not airborne within 2 minutes of the signal to start engines for that bout does not qualify for launch on time points nor the flight time points: the CD has discretion to award launch points where pilots are delayed from launching on time by other pilots.

### 8.3 Restarts and relaunches

If a pilot's aircraft fails to launch on takeoff or must land at any time during the Combat Period and is still airworthy, restarts and relaunches may be permitted during a bout provided that the CD is satisfied that the aircraft is down in an area that allows for its safe retrieval.

### 8.4 Retrieving models at the end of each bout

All pilots must comply with the following procedures to ensure safety when landing after a bout:

- (a) the CD will designate the landing area to be used by all pilots – they must not land behind the Flight Safety Line;
- (b) models must be landed as soon as possible after the “end combat” signal is given so that the next heat can commence on time;
- (c) models must not to be retrieved under any circumstances until all models are on the ground and the all clear has been given by the CD / LM.

## 9 CONDUCT OF COMBAT BOUTS

Combat bouts will be conducted in accordance with the following:

- (a) bouts will commence 2 minutes after the start engines signal is given – with the CD signalling “start combat”;
- (b) bouts will last for 6 minutes after the start combat signal is given – with the CD signalling “stop combat”;
- (c) CD will warn pilots if they are flying too close to the Safety Line;
- (d) CD will advise pilots if they are drifting too far away from the combat box, and will warn any pilots avoiding the combat zone by either flying too high or too far away and may disqualify them from the heat if they continue to avoid combat, points will be deducted for non-engagement;
- (e) the CD's word is final;
- (f) loss of streamer:
  - i) a streamer shall be considered lost if it was detached from the plane in any way other than being cut by an opponent;
  - ii) any pilot who's streamers has been lost, cut or not fully extended during launching for any reason shall be considered to have launched without a complete streamer;
  - iii) in these cases the pilot must land and secure another streamer, and the pilot is denied any positive scoring until a new streamer is attached;
  - iv) an aircraft that is airborne with a complete and extended streamer attached when the call to Start Combat is made will receive launch on time points, and is eligible for continuous flight points;
  - v) any time a pilot lands after Start Combat is called, continuous flight point will be lost.

## 10 REFUELLING BETWEEN BOUTS

If pilots are acting as launchers for pilots in the other heat of a round, the CD will allow a minimum three (3) minutes for both heats to fuel their planes and ready them for the next round – with the three minute period starting when the last pilot has retrieved his plane after landing and returned to the pits.

## 11 CONTEST FORMAT

The contest shall consist of at least 6 non-elimination rounds in accordance with:

- (a) each round shall include as many heats as necessary to allow all pilots to fly the round;
- (b) at least four (4) and no more than eight (8) aircraft will be flown against each other in each heat provided the number of pilots allow and no frequency conflicts exist;
- (c) after each pilot has had the opportunity to compete in at least six (6) rounds, the scores will be totalled;
- (d) the pilot with the highest total score throughout the competition is the winner;
- (e) if a point tie occurs, the tied pilot s will have a “fly off” to determine the winner.

## 12 SCORING

When two or more heats are flown for each round in a contest, the pilots from one heat shall act as separate judges for each of the pilots in the other heat. The CD will act as timekeeper and scoring judge when there is only one heat flown per round in a contest.

The CD (or individual pilot’s judge as the case may be) will decide:

- (a) which pilots launched before start combat was signalled and award each of them 20 bonus pts;
- (b) which pilots were airborne for the complete bout and award them 50 bonus points;
- (c) any cuts made by the pilot on other pilots streamers and award 100 pts for each cut;
- (d) the length of each pilot’s streamer remaining after each bout is completed, provided that the pilot launched prior to the signal to “start combat” and was still airborne when the CD signalled “end combat” and award streamer points to each eligible pilot as follows:
  - i) 25 points for 2 to 4 metres;
  - ii) 50 points for 4 to 6 metres;
  - iii) 100 points for more than 6 metres. including the one metre tail tied at the knot if it remains after the bout;
- (e) any non engagement penalties, scoring – 25 pts per infraction; and finally
- (f) which pilots, if any, crossed the Flight Safety Line during the bout and deduct 100 pts from their score for the round.

### 12.1 Midairs

In the event of midair collisions during a bout, the following rules apply to scoring and safety:

- (a) any pilot involved in a midair collision must disengage from combat and leave the combat arena to the left, right or above, if possible;
- (b) at the moment of impact, the plane shall be considered dead from scoring or being scored against;

- (c) if the pilot can manoeuvre safely to an area outside the arena, and they and their judge or the CD agree that the plane can safely continue, the plane shall be deemed alive and the pilot may re-engage and become subject to Continuous Flight scoring;
- (d) if the plane is deemed unsafe, the pilot shall land immediately beyond the Safety Line;
- (e) if a flying facility makes the safe landing impossible due to its size restrictions, the pilot shall remain airborne in an area away from the Combat Arena, pilots and spectators;
- (f) after the round is complete and all other aircraft have landed, the pilot will be given clearance to land the crippled aircraft;
- (g) it is the CD's responsibility to give a "heads up" warning in such case;
- (h) at no time shall a pilot attempt to land any aircraft inside the Safety Line or near the pilots during the round;
- (i) aircraft that midair during launch are considered failed launches, and shall be treated as if the plane failed to launch.

### 12.2 Streamer Cut Scoring details

The following requirements govern the scoring of streamer cuts:

- (a) a streamer cut is defined as any time one pilot's aircraft removes any part of a streamer attached to or being towed (either by the leader string or by the wing that has snagged a streamer from a previous cut on an opponent) by another pilot's aircraft between the announcement of "Start Combat" and "End Combat";
- (b) cutting or removing any streamer being towed by another pilot's aircraft will be scored as a cut;
- (c) a cut must be verbally signalled immediately following the cut and confirmed by the CD or scorer to be eligible for scoring;
- (d) the decision of the judge(s) regarding scoring of cuts is final;
- (e) if two streamers intertwine during combat and any part of one becomes removed, the pilot whose streamer remains intact will be awarded the cut;
- (f) if more than two streamers are intertwined, the pilot (s) whose aircraft retain the original portions of their streamer will score the cut(s);
- (g) if two streamers become intertwined and any portion of both are removed, both pilots will score a cut;
- (h) multiple cuts on multiple streamers towed by a single aircraft in a single pass count as one cut;
- (i) multiple cuts on a single streamer in a single pass count as one cut;
- (j) streamers not being towed by a pilot's aircraft (i.e. floating unattached) are not eligible for scoring.

### 12.3 Scoring of Remaining Streamer

To be eligible for remaining streamer points:

- (a) the aircraft must start the heat by completely crossing the Flight Safety Line into the combat arena in controlled powered flight with an attached, intact and fully extended streamer and still be in the air combating at the end of the heat;

- (b) the streamer must still be attached to string attached to the model and may not be a streamer cut from an opponent.

Should a streamer, string or attachment break on landing or in recovering the model from a crash site it may be taped together for scoring in a manner that does not increase the length of the streamer, provided that such action is observed and approved by a judge.