

## 1. R/C Air Combat

### 1.1 About R/C Air Combat

The game *R/C Air Combat* is designed to recreate the air wars of WW II in a historical perspective, in a enjoyable, safe, scale competition that will be interesting for spectators and challenging for the contestants.

### 1.2 General rules

All FAI regulations covering the R/C-flier, his plane and equipment, shall apply to this event, except as noted herein. The contestant is solely responsible for airworthiness of A/C used in contest. The arranging group and the main judge, are responsible of frequency control during the event.

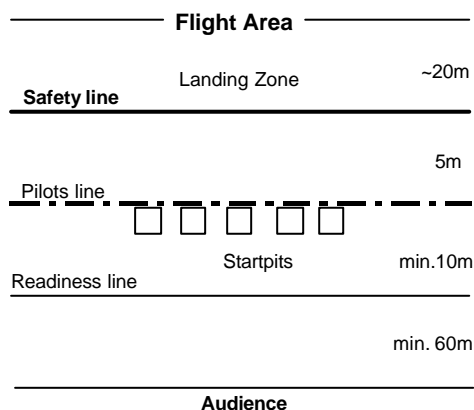
### 1.3 Safety

Safety matters have always highest priority. Any conduct by a contestant deemed by the main judge or contest arranging group to be hazardous will be cause for immediate disqualification of the contestant from the event.

Any contestant that is not known to the arranging group, might be ordered to make a test flight, to prove that he is capable of flying a 1/12 scale warbird.

## 2. Contest site

### 2.1 Figure



### 2.2 Flight area

The flight area is always in front of the safety line. The safety line is parallel to the pilots line, situated 5m in front of the pilots line. During all day of the contest, all A/C must fly in front of the safety line (as soon as the safety line is drawn up). Note that safety line penalties are given all day, if A/C crosses the safety line (including test-flights before, in-between and after fights). Any model that ends up in front of the landing zone may not be fetched during the fight, or while other models are airborne.

### 2.3 Start pits and readiness area

The *start pits* are placed with three meters in-between. The *readiness area* is placed behind a line approximately 10 meters behind the start pits. At readiness, pilots and helpers must be behind this line.

## **2.4 Audience**

The audience should be kept at a safe distance (at least 60m) behind the safety line, or be protected by protective devices, such as nets, etc. The area protected by safety nets is defined as an area starting from the point where the net ends, and to a distance equal to the net height. This means that for a 3m vertical net, the safe area is measured from behind the net and 3 meters back. In addition, the first meter behind the net should be considered as unsafe. All other areas within 60 meters from the safety line should be fenced off, for people not wearing hard-hats.

## **2.5 First Aid**

On the contest site, a spot should be marked up as the first aid spot. At this spot, basic first aid equipment should be available for instant use, in case of an accident.

# **3 Equipment**

## **3.1 The model**

The model must be a scale or semi scale A/C of a warbird built between 1935 and 1945. The original A/C engine must have a take off power of at least 500hp. The scale is 1:12 and the wing span and fuselage length may not deviate more than +/-5% from scale. All other measures may not deviate more than 2cm from scale. The fuselage length is measured in-between the leading edge and the rear edge of the fuselage, or the backside of the propeller(s), if any. The wing thickness must be 10% or more, measured at the thickest point of the chord. No protruding devices may exist on the front leading edge of the wing, stabilizer and fin. The A/C must look similar to the original A/C, including painting and decorations. The competitor should bring a published 3-plane view of the original A/C-type, in at least 1:72 scale, to the competition to show that his A/C is accurate according to measures. The contestant does not have to be the builder of the model.

## **3.2 Engine**

Mufflers made by other manufacturers may be used. Extension parts may be used to get the muffler outside of the fuselage. The contestant must be able to shut-off the engine in the air, whatever the attitude of the A/C. Engines that are used in ducted-fans, may use tuned-pipes, others may not.

## **3.3 Engine size**

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If the original A/C had a span of at least 12 meters and the model has a span of at least 1 meter, the model may use a .21 2- stroke engine or a .21-.26 4-stroke engine. If the original A/C had a span of at least 12 meters with a wing area of at least 25 m<sup>2</sup>, and the model has a span of at least 1 meter, the model may also use a .25 2-stroke engine. Other models may use a .15 engine. They may use a .21 - .26 4-stroke engine as well. Multi-engined A/C may use .15 engines, and the model must have the same number of engines as the original A/C. Single engined ducted fan models may use a .25 engine. Electrical engines may be used without limitations, but in accordance to 3.4.

### 3.4 Engine performance and propeller

The following table applies for maximum engine performance and propeller used. The maximum propeller to be used is found by adding the propeller diameter and pitch (inches).

Engine size	RPM max	Sum of Prop. max (inches)
- .15	17.000	12
- .21	16.000	14
- .25	16.000	14
- electro	16.000	13
-.26 4-stroke	13.000	15

Revolution measurement is executed in certain cases, based on the main judges and/or organizers decision. Revolution measurement, if any, has to take place before the heat during readiness.

The RPM is measured at full throttle, and with the needle setting used in contest. The measuring party should have full access to both the engine/model and the controlling transmitter. It is the contestant's responsibility to ensure that the engine is within the limits using the RPM meter(s) used by the arranging group. Only propellers that are commercially available in the country the contest is held may be used. As commercially available means the propeller can be bought in normal hobby-shops.

### 3.5 Model weight

The following table applies on model weights:

Engine	(min.) Model weight
.10	500g
.15	700g
.21	1000g
.25	1000g
-.26 4-stroke	1000g
Electrical engine	700g
Single ducted fan	700g
Multi-engined	1200g
Max. weight for any model is 1700g.	

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### **3.6 Streamer**

The streamer is 12 +/- 0,5 meters long one piece. It shall be 10-15mm wide. Material shall be suitable for proper indication of cuts, e.g. withstand moisture.

The streamer is marked on both ends for about 0,5 meters respectively.

### **3.7 Helmet**

A *helmet* must be used by any person that is in front of the audience line. The helmet should cover the upper part of the head and put up with a direct hit of an A/C.

### **3.8 Radio equipment**

Every contestants radio equipment should be range checked before the contest. The contestant is responsible for proper operation of the radio equipment.

## **4 The contest**

### **4.1 Structure**

Each *fight* consists of at least two and at most seven pilots that fly against each other. When all pilots have flown exactly one fight, this is called a *round*. The next round, flight-lists are changed to make it possible for as many pilots as possible to meet each other in different fights. The number of rounds flown at a contest is decided by the arranging group, and must be told in the contest-invitation. The number of rounds is recommended to be 3. A contest also has a *final* which is flown after the rounds. In the final, the seven pilots with the highest scores meet. The pilot who has most points after the final wins the contest.

### **4.2 Fights**

A fight is divided into three parts: The *preparation*, *readiness* and *flight part*.

#### **4.2.1 The preparation part**

The length of the preparation part may be set by the arranging group, but is recommended to be 7 minutes at smaller contests. It is marked by the main judge blowing three signals in his whistle and calling out "Seven minutes to readiness". During the preparation-part test flights may be performed. 30 seconds before the preparation-part ends the main judge blows two signals in his whistle and calls out "30 seconds to readiness".

#### **4.2.2 The readiness part**

Readiness follows immediately after the preparation part, and is marked by the main judge calling out "Readiness". During readiness all pilots and helpers shall be behind the readiness line. Exceptions will be made in the case of revolution measurements (resp.3.4) All equipment must remain in the start

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pits, and engines may not be running. Readiness may vary in length, upon the main judges decision.

#### **4.2.3 The flight part**

The flight part starts when the main judge blows one long signal in his whistle. Pilots and helpers may now run to their A/C, and get them airborne. The flight-part ends when the main judge blows one long signal in his whistle. The pilots may now fly freely in front of the safety line, and land at their own discretion. As soon as all A/C has landed, the next preparation part may start.

#### **4.3 Helpers**

Every contestant may have a helper. Only one helper is allowed to stick with the pilots line during the fight.

#### **4.4 Take off**

Take offs are only allowed in the area between the pilot line and the safety line.

#### **4.5 Flight time points**

One point per three seconds airborne, is given. Maximum flight-time is seven minutes.

#### **4.6 Restarts**

An unlimited number of restarts are allowed during a fight. When a pilot attempts to fetch his plane from the landing zone during a heat he must get a permission from the main judge. The main judge then gives an alarm and ensures that all the pilots are aware of the situation. A restart must be made from the same place the first start was made. Restarts are only allowed if the model ends up in the landing zone, after landing. Restarts shall be conducted solely between the start pit allocated to the individual pilot and the safety line.

#### **4.7 Change of A/C**

The same A/C must be used throughout one fight. A new A/C may be used the next fight. The model is defined as main parts of fuselage and wing.

#### **4.8 Crossing of lines**

A crossing is made either the A/C is airborne or is moving on the ground. When airborne the A/C must be clearly over the line. On the ground, the engine counts. If a model has several engines, any engine crossing the line counts.

#### **4.9 Safety line crossing**

The first time a pilot crosses the safety line with a model during a contest, the pilot receives a minus point penalty. The second time a pilot crosses the safety line with a model, the pilot is immediately disqualified from the contest, and ordered to land immediately if airborne.

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#### **4.10 Lost streamer**

It is the contestants responsibility to get airborne with a streamer of appropriate and full stretched length attached to his A/C. After landing, missing or entangled streamer counts as lost (no +50p given), except if the streamer was lost during landing, which must be proved by finding the missing streamer. To gain the intact streamer bonus, the model and streamer must have been airborne during the fight at least 10 seconds.

#### **4.11 Streamer cut**

A contestant that cuts streamer off an enemy A/C in the air, gains +100p. If having an enemy streamer stuck to the model, the following rules apply:

A cut made to a stuck streamer, counts as a cut on enemy streamer, and the contestant making the cut gains +100p. If having a stuck streamer cut by an opponent, the contestant does not lose his streamer-points. Only cuts made to the streamer actually attached to the contestant's model count. If during one flyby cuts are made to several streamers (own and stuck) or several cuts are made to the same streamer, this only counts as one cut made to enemy streamer.

If a cut comes along with a collision more or less at the same time (during one fly by), only the cut counts.

#### **4.12 Collision**

If two or more A/C have been apparently involved into a midair collision, a clear proceeding is applied:

The contestant, whose A/C remains flying after a midair collision may decide to continue flying to gain further flight points.

No kill points nor consolation points will be given. Flight time shall be stopped when the fuselage of the A/C hits the ground.

#### **4.13 Non-engagement rule**

If a pilot stays away from combat for more than 30 seconds, he should be warned by the main judge. If the pilot still after this stays away from combat for an additional 30 seconds after the warning, the pilot should receive a non-engagement penalty of -50p. A pilot who after the first warning tells the main judge he has technical problems should immediately try to land his model, in a location and manner safe for the contestants and the audience.

#### **4.14 Tie**

If the final points are equal for two pilots, the one with highest points in the final wins. If it is still equal, the pilot with the highest points from one single fight (except from the final) in the contest wins.

#### **4.15 Frequencies**

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Contestants must be able to change between at least two frequencies. When a frequency collision occurs in the final, the contestant with the lowest total score shall change frequency. This change must be given extra time, so that the preparation part of the final does not start until the change is done. It is the contestants responsibility to avoid frequency-collisions at changes from the given frequency.

#### **4.16 Complaints**

If the weather or other conditions gets bad at a contest or as soon as a participating pilot complains about the weather or other conditions to the arranging group, the arranging group shall take a ballot among the pilots to decide if the contest should be postponed, or cancelled and how the results from the contest should be decided.

#### **4.17 Protest**

Any contestant can make a protest against judges decisions. Protests shall always be decided by taking a ballot among the contestants. This should be done as soon as possible. A protest charge should be taken. If the protest is sustained, the protest charge is returned.

### **5 Judges**

#### **5.1 Main judge**

The *main judge* is responsible for the overall timing of the contest. He is also responsible for keeping contestants behind the safety line when A/C are airborne.

Cheating resp. the attempt to cheat shall be avenged with disqualifying the contestant. The main judges decision shall be based on a pilots voting.

#### **5.2 Safety judge**

The *safety judge* is responsible for the overall safety of the contest. This judge has higher authority than the main judge, when it comes to safety. The safety judge should warn for safety hazards during a fight. He shall position himself in such a kind that he is able to spot safety line crossings clearly. He is also responsible of that there are no people not wearing hard hats outside of any safety net zone(s) or closer to the safety line than 60 meters.

#### **5.3 Pilot judge**

The *pilot judge* is obliged to note points for the pilot on a scoreboard, and keep record of the pilots flight-time. Furthermore he or she is responsible to register safety line crossing together with the safety judge, non engagement and collision and to check the pilot's streamer after the fight as well. The pilot judge shall check the A/C before and immediately after the heat regarding streamers or parts of it sticking to the A/C. This shall take place

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in accordance with the pilot, confirmed by a signature on the pilot's card. If situation remains obscure after landing, the main judge has to draw a decision immediately.

## **6 Points**

The following system of points apply. Note that no decimal points are given.

### **6.1 Minus/plus points**

Crossing safety line (applies all day)	-200
Non-engagement	-50
Own streamer uncut during fight	+50
Cutting streamer off enemy A/C	+100
Flight-time, per 3 seconds	+1