



# ACES-D EPA Rules 2016



EPA Changes in red

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## §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 EPA scale warbird.

## §2. Contest site

### §2.1 Figure

Fig 1 below shows a typical suggested layout for a large combat competition airfield. A safety line must be used to keep flying aircraft a safe distance from the pilot line. When space allows, the organizing authority should allow the maximum practical distance between the flying area and the safety fencing. Distance guidelines can be seen in the diagram (fig 1) below.

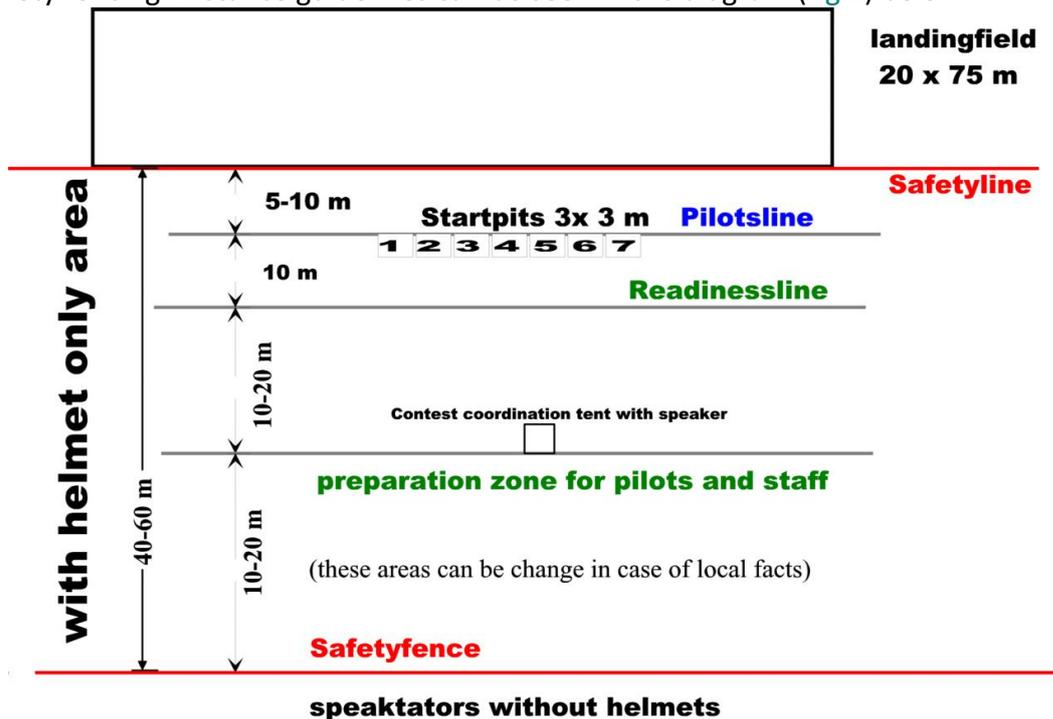


Fig 1.



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## §2.2.1 Flight area

The flight area is always in front of the safety line. Any model that ends up in front of the landing zone may not be fetched during the fight, or while other models are airborne.

## §2.2.2 Landing zone

A landing zone should be clearly defined by the contest organizers. Only aircraft landing inside the landing zone are allowed to be retrieved and allowed to attempt a restart.

Resp. § 4.6 Restarts

## §2.2.3 Safetyline

The safety line runs parallel to and is situated 5 – 10 meters in front of the pilot line. Aircraft are not permitted to fly closer to the pilots than this line allows. Any aircraft crossing this safety line will be subject to the penalty and disqualification rules that are in effect from the time the competition is officially opened until the competition is officially closed by the organizing authority. This includes all flights of aircraft for any reason. (See Fig 1)

## §2.3 Start pits and readiness area

The start pit area should allow a distance of 3 – 5 meters spacing between pilots. The readiness line should run parallel to and situated 10 meters behind the start pits. All pilots and helpers should start behind this line. At smaller venues it is possible to use the safety line as the readiness line. (See Fig 1)

## §2.4 Audience

The audience should be kept at a safe distance (at least 40-60m) 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. Model

The model must be a scale or semi scale A/C fighter built between 1935 and 1945.

The model dimensions are determined as follow:

- Wingspan for single engine model max 850 mm
- Wingspan for double engine model max. 1000 mm
- Minimum wingspan for model is 800 mm

Recalculations of all other model dimensions are needful to be in the corresponding scale to the chosen model wingspan scale. Max. 2 cm difference of these other dimensions comparing with the corresponding wingspan scale will be tolerated.



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It is not mandatory having the three-dimensional fuselage, "flatline"-fuselages are allowed. The length is measured from the rear line to frontline of the fuselage, or to propeller (if the propeller exists).

The model should be build from EPP or similar material. It is not allowed to coat surface of model or fill the surface with putty.

Reinforcements of the leading edge of the wing and tail are not allowed.

Horizontal and vertikal tailplane may be build using Coroplast (c) like materials.

Leading edges covering by glass-tape or textile-tape up to 10mm depth will be tolerated.

No protruding devices may exist on the front leading edge of the wing, stabilizer and fin.

Only wing-streamer-catchers are allowed in a maximum length of 297 mm from the fuselage side (or Twin-engines cowling outer side) into the wingtip direction.

The A/C must look similar to the original A/C, including painting and decorations.

The competitor should bring a published 3 view drawing of the original aircraft, of 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

It is only possible to use AC electro engine.

## 3.3. Accumulator specification

Only LiPol (LiOn, LiFe) accumulators, maximum 3 cells are allowed.

## 3.4. Accumulator Capacity Limitations

### Single engine model:

max 1350mAh;

### Multi engine model:

Max. 2500mAh

## §3.4.3 Propeller homologation

Only propellers that are commercially available in the country the contest is being held may be used. "Commercially available" means the propeller can be purchased in normal hobby-shops. All propellers used on the model aircraft must be of a safe design for its proposed use.

## § 3.5. Weight limit

The maximum weight incl. accumulator of a EPA Aircombat Model is 520g.



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## §3.6 Streamer

The streamer is 12 +/- 0,5 meters long one piece. It shall be 6-10m 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.

The streamer marking at the model must be seen at the A/C tail unit end.

## §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.

## §3.9 Flight stabilization systems

Any electronic flight stabilization systems are not allowed.

## §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".

It is normal for rpm measurements (resp. § 3.4) to be taken during this time.

#### §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. All



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equipment must remain in the start pits, and engines may not be running. Readiness may vary in length, upon the main judge's 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 and pilot per aircraft are allowed to stay at the pilot line during the flight.

## §4.4 Take off

Take offs are only allowed in the area between the pilot line and the safety line. If the streamer is not intact at the take off moment, no point is counting. The AC must land and pick up a new streamer.

## §4.5 Flight time points

Maximum flight-time is seven minutes. One point per three seconds airborne, is given. Flight time points start with the first second of flight time. Flight time points are awarded up to a maximum score of 138 (6:54 min).

## §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 (resp. § 2.2.2), (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 model and/or accumulator

The same model and accumulator must be used throughout one fight. A new model and accumulator 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

If a pilot crosses the safety line with a model during a contest, flight time is stopped and he is ordered to land immediately if airborne. The contestant receives a penalty of -200p. The second time a pilot crosses the safety line with a model, the pilot is immediately disqualified from the contest and he lost his right to start again in this contest. He keeps his positive and negative points awarded up to the time of his second SL crossing.

## §4.10 Lost streamer



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It is the contestant's 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 kill, more or less at the same time (during one fly by), the cut doesn't count (no cut points awarded).

## **§4.12 Collision**

If two or more A/C has 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 or 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**

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 contestant's 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.



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## §4.17 Protest

Any contestant can make a protest against judge's 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 judge 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 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 points system is used. Note that no decimal points are given.

### §6.1 Minus/plus points

Crossing safety line (applies all day)	-200
Non-engagement	-50
Engine over rpm limit.	-50
Own streamer uncut during fight	+50
Cutting streamer off enemy A/C	+100
Flight-time, per 3 seconds	+1 up to +138
Multiwing Airplane	+25
Multiengine Airplane	+25