



# Aces Germany WWI rules



Revision 13.01.2016

**NOTE:** Changes to the last versions are blue. Please pay extra attention to the **highlighted text**. This rule is equal to the international WW1 rule 2016.

## §1. R/C WWI Air Combat

### §1.1 About R/C WWI Air Combat

The game R/C WWI Air Combat is designed to recreate the aerial battles of WWI in a historical perspective, in an enjoyable and 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 judges 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 1/8 scale warbird.

## §2. Contest site

### §2.1 Airfield

Figure 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 flight area and the Safety fence. Distance guidelines can be seen in the diagram figure 1.

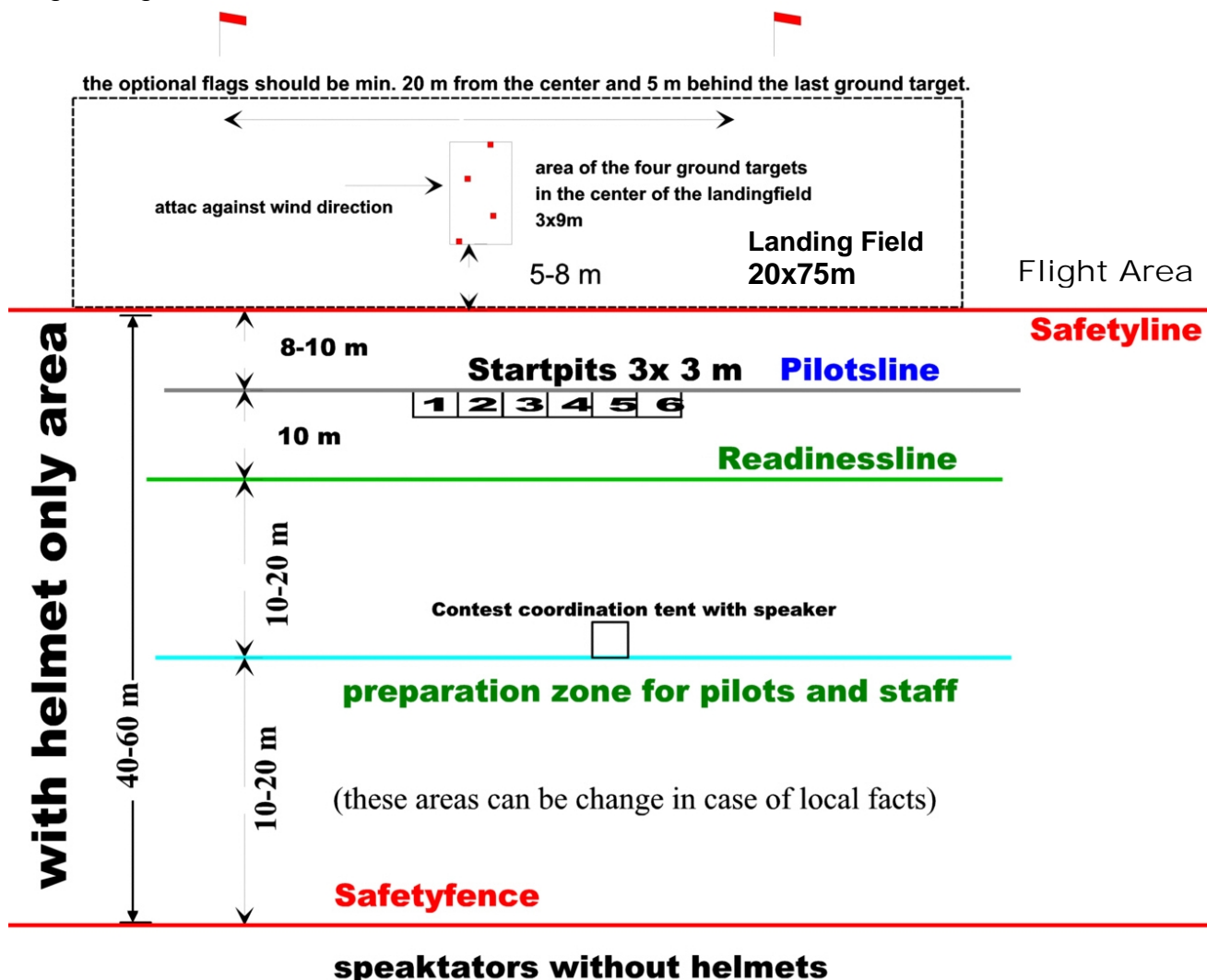


Figure 1

### §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 field may not be fetched during the fight, or while other models are airborne.

### §2.2.2 Landing field

A landing field should be clearly defined by the contest organizers. Only aircraft landing inside the landing field are allowed to be retrieved and allowed to attempt a restart. Refer to §4.6 Restarts.



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## §2.2.3 Safety line

The safety line runs parallel to and is situated **5 – 10 meters** in front of the pilot line. Aircrafts 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 aircrafts for any reason.

The safety line can be different for start and landing. But no flight over pilots or audience is allowed at any time.

## §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.

Resp. 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.



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## §3 Equipment

### §3.1 The Model

**§3.1.1 The model** must be a scale or semi scale A/C of a warbird, which took part in WWI battles from August 1914 to November 1918. The original A/C engine must have a take-off power of at least 60hp. The scale is 1:8 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.

#### §3.1.2.1 The wing

The wing thickness must be 10% or more, measured at the thickest point of the chord. Exception: Original concave profiles can keep the original thickness.

#### §3.1.2.2 Multiwing points

A model with more than one wing (biplane, triplane) gets **50** optional points.

#### §3.1.2.3 Wing structure

It is preferred to use wings of wooden construction. If the leading edge, the trailing edge and the ribs are made of wood the airplane gets **30 optional** points.

Foam wings can be used without any outer sheeting only (valid from 01.01.2017).

#### §3.1.3 Streamer catcher

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

#### §3.1.4 Colour and markings

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.

##### §3.1.4.1 Pilot

If the cockpit is open a pilot must be on board. (Note: Bonus points deleted)

##### §3.1.4.2 Wires and struts

If the wing of the original plane has struts, the model must have these, too. For wing wires, the model can get **10** optional points.

##### §3.1.4.3 Guns

If the original A/C has guns, **the model has to be armed, too.** (Note: Bonus points deleted)

##### §3.1.4.4 Builder

The contestant does not have to be the builder of the model.

### §3.2.0 Engine

All IC-Engines must have a muffler. The contestant must be able to shut-off the engine in the air at any time, regardless of the models attitude.



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## §3.2.1 Engine points

Four stroke Engines are the best for this model class and can get **20 optional** points.

## §3.3 Engine size

The model may use a 4-stroke engine up to the size of 0.30 cubic inch. Electrical engines may be used in accordance to §3.4.

## §3.4 Engine performance, propeller and model weight

The following table applies for maximum engine performance and the maximum propeller size.

	Max. rpm	Max. prop diameter, if model min weight is <1100g	Max. prop diameter, if model min. weight is >=1100g	Max. pitch in inch	PSS*)
-.30 IC-engine, 4-stroke	12.000	9	10	4	
E-engine, example	12.500	9	10	4	50.000
E-engine, example	10.000	9	10	5	50.000
E-engine, example	8.333	9	10	6	50.000

\*) PSS = max prop speed in rpm x pitch in inch = multiplying the max rpm by the pitch in inch

### §3.4.1 Revolution measurement

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 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.

### §3.4.2 Electric engine revolution measurement

It is the contestant's responsibility to ensure that the E-engine is within the limits after 20s latest and by using the RPM meter(s) of the arranging group.

### §3.4.3 Propeller homologation

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. All propellers used on the model aircraft must be of a safe design for its proposed use. The use of electric or slow fly propellers with an IC engine is prohibited.

## §3.5 Model weight



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The minimum weight is 800g (empty fuel tank), the maximum weight before start is 1.700g.

## §3.6 Streamer

The streamer is 15 +/- 0.5 meters long one piece. It shall be 7-10 mm 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.

Please refer to §2.1, Figure1 "spectators without helmets"

## §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 kind of electronic flight stabilization systems is not allowed.



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## §4 The contest

### §4.1 Structure

Each fight consists of at least two and at most six 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 recommended number of rounds is three. A contest also has a final which is flown after the rounds. The **6** pilots with the highest scores participate in the final. 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. All 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.

##### §4.2.3.1 Take off

The start can be made with several procedures: Start from the ground or hand launch. The location and wind direction is important, safety first. The pilot with the first running engine can use the landing field to take off first. After his start he goes back to the start pit and the next pilot starts. After leaving this starting area the game is on for this pilot. During takeoff, attacks on ground targets or enemy streamers are NOT allowed!

If the streamer is not intact at the take-off moment (first take-off), no point is counting. The AC must land and pick up a new streamer.

##### §4.2.3.2 Fight

The fights can begin after the start at that moment when the airplane is behind the landing field markings. When all airplanes are airborne the main judge gives the signal "ground targets free" and the landing field area is free to attack ground targets (resp. §4.11.2) and enemy airplanes. The main judge can stop the ground attacks with the signal "stay high". It is to allow recovering models for restarts from the landing field. If the situation is clear and safe, the main judge shouts: "Ground targets free" again. The flight-part ends when the main judge gives one long signal.



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## §4.2.3.3 Landing

The pilots may now fly freely in front of the safety line, and land at their own discretion. If they now land inside the landing field they get **50** points to end their mission at their home base. If you do not fly the complete mission in case of abnormal termination or intermitting flights the pilot gets no landing points. (Additional: the organizer can decide: the landing points only counts, if the model lands on wheels). 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 support the pilot at the pilots line during the fight.

## §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).

Resp. latest version of “\*\_Appendix\_4-5\_flight\_points.pdf”.

## §4.6 Restarts

An unlimited number of restarts are allowed during a fight. When a pilot attempts to fetch his plane from the landing field (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 field, after landing.

## §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 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 the model the pilot is immediately disqualified from the contest, and ordered to land immediately if airborne. He keeps his positive and negative points awarded up to the time of his second SL crossing.

## §4.10 Lost streamer

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.





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## §4.11.1 Streamer cut

A contestant who cuts the streamer off an enemies 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 the attacking plane makes a streamer cut and kills the defending aircraft, in the same attack/fly by, due to a collision. This streamer cut is not counted (no cut points awarded).

## §4.11.2 Ground target

The organisation can install **4** ground targets. A cut of these targets counts **50** points. To cut the targets, the organisation team define the cutting direction (against the wind, if possible) Remark: The airplane has to fly and not to touch the ground inside the landing field in front of the ground target.

## §4.11.3 Airfield flags

To organize the flying over the landing field, the organizer can install two flags (resp. §2.1 fig 1) Inside the area between the flags and the safety line, the models (all ground target attackers and model attackers) have to fly straight, not to fly in or out, sideways. All airplanes have to fly around the flags. (These flags are for safety, too. In front of the pilots, the models have to fly straight.) The attacking airplane is not allowed to short the way (inside the flag area) to make an easier streamer cut.

## §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 and no 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 contestants responsibility to avoid frequency-collisions at changes from the given frequency.



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## §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 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.



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## §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 respectively 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 issues. 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 only people wearing hard hats outside of any safety net zone(s).

### §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.



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## §6 Points

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

### §6.1 Plus/minus points

#### §6.1.1 Basic point system

Start from the ground	<b>+50</b>	(§4.2.3.1 Take off)
Landing in Landing field after end signal, including flying complete mission	<b>+50</b>	(§4.2.3.3 Landing)
Own streamer uncut during fight	<b>+50</b>	(§4.10 Lost streamer)
Ground target	<b>+50</b>	(§4.11.23 Ground target)
Cutting streamer off enemy A/C	<b>+100</b>	(§4.11.1 Streamer cut)
flight-time, per 3 seconds +1 up to	<b>+138</b>	(§4.5 Flight time points)
Crossing safety line (applies all day)	<b>-200</b>	(§4.9 Safety line crossing)
Non-engagement	<b>-50</b>	(§4.13 Non-engagement rule)

#### §6.1.2 optional points

Multiwing points	<b>+50</b>	(§3.1.2.2 Multiwing points)
Wing building material and structure	<b>+30</b>	(§3.1.2.3 Wing structure)
Model with 4-stroke engine	<b>+20</b>	(§3.2.1 Engine points)
Cable wires	<b>+10</b>	(§3.1.4.2 Wires and struts)

#### §6.1.4 Maximum optional points

The sum of the optional points is max **100** points. The optional points are only given, if the airplane has flown: No start = No points.