



ACES INTERNATIONAL

INTERNATIONAL AIRCOMBAT NEWSLETTER

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Hello everybody,

the Aircombat sport class is often called “new”, since many people haven’t heard of it yet. But it has a long history.

ACES was founded 1996 in Sweden, 15 years from now. And even years before that, many attempts have been made to form a Dogfight-class. Martin Elmberg is one of the ACES founders and it’s great to have him back as 2nd IC. He started a series of articles, one per newsletter, each explaining one year of ACES history, beginning in 1990.

With two articles from Russia and Moldova, the other focus is on Eastern Europe. Most of our new ACES countries come from there. Their pilots are motivated, they have many contests and they build many planes. It’s interesting to have a closer look on that growing aircombat scene.

I wish you a great and exciting aircombat season 2011!

Timo Starkloff

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Also many thanks for all other helpers, who provided informations and pictures for the articles.

Fiberglass Art from Moldova

At WASG 2010 in Germany, many interesting aircombat planes could be seen. Some really nice ones came from Moldova, completely made of glass fibre.



The models are already coloured in the molding. Details like panel lines are included. Even the thin elevator and vertical stabilizer are made from glass fibre.



Nevertheless, these great looking planes are constructed for hard aircombat fights. Glass fibre isn't easy to repair, compared to foam or wood. So all parts can be easily changed. Of course it's no big problem to change a broken wing, but elevator is a different thing. They solved it with a really good idea. All you need is a sharp knife. You first have to take the rudder away. Then you can loosen and pull out the elevator. Place new elevator inside with some glue and then fix the rudder again.





Following models are actually available: Il-10, Hawker Tempest Mk V and Mk II, Focke-Wulf Fw 190 A and D, Spitfire, Curtiss P-40.

If you're interested in these planes, you can contact Igor Bereket (ibereket@yandex.ru).

Russian Aircombat Models

The Russian ACES Squadron "YAMshiki" is flying aircombat fighters, mainly constructed from EPP and coroplast. All pilots come from Moscow. The models are constructed by Andrey Zazulin.



The planes are more or less built using the same simple technique. The fuselage structure is made of coroplast, the upper part from shaped EPP. The firewall (forward frame) is 4-6 mm plywood.

Wings are made of EPP and get their strength from carbon or fibreglass sticks.

Cowlings are made from plastic bottles, heated with hot air to shrink over wooden moulds.

The planes are covered with coloured scotch tape or covering film.



The Il-2, Il-10 and Fairey Fulmars are equipped with OS25FX or ASP25 and 9x5 APC.



Technical Data Il-10:

weight	1350 g
accumulator	4S4500 Nanotech 25-50c
version 1:	
motor	3542-1000 Turnigy
prop	10x7 Master Airscrew or APC
version 2:	
motor	4240-900 Turnigy
prop	11x7 APC
speed control	60A



Technical Data Il-2

weight	1450 g
accumulator	4S4400 Flightmax
motor	3542-900 Turnigy
prop	11x7 APC
rpm	9.900 – 10.300 min ⁻¹
current	36-37 A
speed control	Hobbywing Pentium 60A

A short movie from the Eurocup in Moldova was taken for television. Alexey had a collision with his Il-2, but was able to repair it in ¾ hour and finished with 3rd place.

http://www.publika.md/in-moldova-au-avut-loc-ambele-razboaie-mondiale_80951.html

Another video captured by TV, shows the Yak-9 below and other models (GWS Fw 190, P-40, Spitfire and others), which was our first step to ACES 1/12. <http://rutube.ru/tracks/1175968.html?v=99f6de58542a6a6eb4b6993c10153d32>

Very interesting, at 1:00 you can see collision of Yak-9 and how motor-frame-cowling works to save motor, which can be fixed back to fuselage easily.



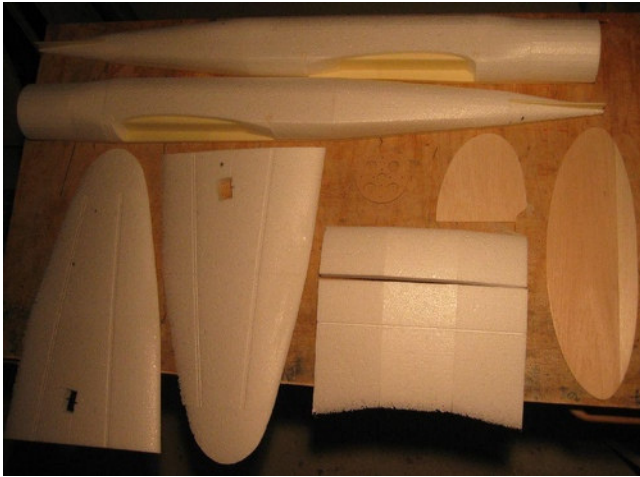
Technical Data Yak-9 and Sagittario

accumulator	3S3300
motor	1400 kV, 70 grams
prop	9x5 APC
speed control	40A



Heinkel He 170 from Bernhard

Bernhard from Augsburg in Germany has chosen a new plane for contest season 2011. The 170 is the license build Hungarian version of the Heinkel He 70, but fitted with a radial engine instead of an inline one.



The model is build from white foam with carbon reinforcements. The fuselage is covered with Koverall. The wing has a covering of 49g/dm² glass fibre, partially enforced with 65g/dm² carbon fibre. With a weight of only 1080 grams, he needs 120 grams of additional weight to comply with the rules, which require a minimum of 1200 grams for electric .25 models

Since Bernhard perfected his building technique over the years, he was really fast. Building started on 1st January 2011 with the maiden flight on 6th January.

Technical Data He 170

weight	1080 g (+120g to fit rules)
accumulator	4S2P2200 Zippy
motor	Kontronik Kora 15/12
speed control	Pix4000 or YGE60
prop	Aeronaut CamCarbon 10-11x6



ASP S21A two-stroke

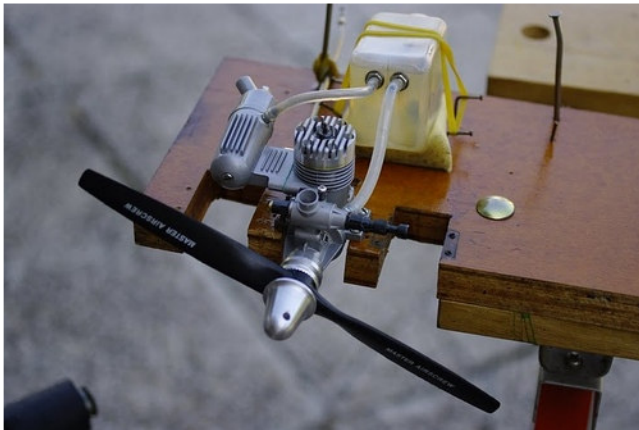
The .21-class is dead, long live the .21-class?

MVVS don't produce engine sizes .15, .21 and .25 anymore, but now there's a new engine from ASP which might be a suitable replacement. Some pilots have already tested them successfully.



The average power output of the ASP .21 is compensated by low weight and low price. The price is about 40-50 US\$. The engine should be suitable for planes like Ta 152 or Hawker Hurricane. Some of the smaller .25 planes could also profit from the lower weight of this engine. The engine weight including muffler is 233 grams.

The ASP .21 could be a more effective way to bring down speed on small or sleek .25-planes, better than using big props which could lead to overheating.



Andrej Pervinsek tested two ASPs. He used a 8x4 prop for running in, then tested the engine with a Master Airscrew 9x4. With that prop and standard 80/20 fuel, it turned about 14.300 rpms. Also with the 9x4 but with 15% nitro, the rpms have been between 14.700 and 15.000.

ACES History Part 1 - 1990

In a series of articles Martin Elmberg will tell of how WWII Scalecombat, Aircombat and ACES came to be. The series will tell the history year by year, starting in the year of 1990.

Early combat

R/C combat had been flown over the years, often in the form of simple combat wings. There was even kits produced for this type of event, but it never made a breakthrough. In the early 80s some kits were made by manufacturer Cambria, for .25 sized WWII-fighters in approximately 1/10th scale. These were easy to build and some model-aviators tried R/C combat using these. However, no organized events did take place.

In the mid 80s the Norwegian model-aviator Helge Örbö made some 1/14 scale WWII fighters, which were used for R/C combat. The plans were published in some magazines, but were only spread throughout Scandinavia.



The original Dogfight rules of 1990.

Dogfight!

In 1989, at the annual scale-contest at Barkarby, Stockholm, there was an informal WWII combat-event during the lunch-break shows. The arranging group in this event was the Norwegian pilots, who later in 1989/90 formed the contest-form "Dogfight" and the supporting organisation International Dogfight



Association – IDA. The scale of the models was 1/13th at the time.

In 1990 IDA had released a set of rules, printed in a very professional manner. The IDA leaders at the time were Pål Engelstad (founder) and Helge Örbö (Dogfight initiator, see above). Pål and Helge also started a company to manufacture models to be used in WWII Dogfights.

The Dogfight rules now stated the scale of the models should be 1/12th, which would become the standard scale in WWII scale combat over the following decades. The rules also contained many elements still recognizable in today's Aircombat-rules, like the Safety-line, the 5% deviation and the streamer-cut points. There are also much dissimilarity, like the side-lines, the radial vs. inline engine size rules and the collision and flight-time -points.

Scandinavian battle

To the 1990 Barkaby scale-event, a call for a Scandinavian battle was sounded! Dogfight-pilots from Norway, Finland and Sweden participated in a lunch-break Dogfight. This was actually a kind of contest-in-the-contest, as the scale-contest was the main attraction. In fact, this Dogfight-battle was not very well organized, but nevertheless some fights were flown and the several thousand head strong audience was pleased with the new and exciting show.



Barkarby – FW190: A Finnish model of a FW190A, landing after a flown mission at the Barkarby Dogfight

Yes, it was actually much of a show; Each fight started with a “scramble”, sounded by an authentic air-alert siren that was borrowed from a Norwegian museum, just for this event! Some of the Norwegian pilots wore authentic flight suits, marked with rank patches, order-ribbons and their own IDA fighter wing. The two founders of IDA – Pål and Helge – even used two similar type cars painted in P-51 Mustang D-day markings. That is, the cars had D-day stripes, US star emblems and one car bore the Mustang “Petie 3rd”

colour and markings! For a WWII warbird lover like me, this all was just pretty amazing.



Barkarby – KristianB: The pilot to the left is Kristian Berggren, Swedish Chapter Commander of IDA, readying a FW190D-9 for Dogfight

Who won? Well, the Swedish team won the contest, but I think this only showed that the rules needed some fine tuning rather than showing the dogfight-expertise of the Swedish team. Me and Johannes O was two out of four pilots in the Swedish team, and we had seen no R/C combat experience before this contest whatsoever.

modellflyg



Dogfight
det tuffa sättet att flyga!

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Apropå det upprop till alla sk "söndagsflygare", som inte tävlar i någon FAI-klass, så skulle jag vilja berätta lite om en tävlingsform som är både utmanande, rolig och spännande. Det handlar om den radiostyrda varianten av combat, alltså jakt av modell med serpentiner efter sig.

Infyllt över: Jan Claes
säger en FW 190 i en T v. Bredvid en mars febril aktivitet bland piloter och plan i en flyg.

Nedan i h: J 21 i när
Spärflyg. Det ser högt ut, men det är inte mer än en liten modell.

Foto: Johannes Ödqvist

När det gäller att skaf att flyga dogfight en väja mellan tre olika Aningen bygger man byggsatser eller så kan själv något nytt. Vi vi alternativet och börja bida.

Skulle en J 22 på
Jag fastnade för den: som alltid ligger mig i ut. Efter många timmar vi en ritning och bygg kort tid blev varsin börja flyga med. Enda förunda var så snabbi bilag som möjliga. I reserv skadar inte hel däck eller att prot färdiga. Började bygg till, så kom till den flygningen. Den gl förväntan och J22:an svarar mot så gott som väntningar!

Det som överraskade förtu flygningarna va som upplevdes som i snabbi och energiska. Vi märkte förunda i bara var en varans. I mig att just detta skul en avstämmande fakt var att en rit ritning gl som på rit och ha ju faktiskt att reglera. Dessutom som sagt snabbi byggda, så man var så ridd om det mot de flera modell. Här skummande i sista här var en fråga som skul till Barkarby

Barkarby 1990 – This is an excerpt from an article in the Swedish Modell Flyers Federation (SMFF) newspaper, telling of Dogfight and the fight at Barkarby 1990.

Continued marketing

During the rest of 1990 the information of IDA Dogfight was starting to spread across the world in model-aviation magazines. Pål and Helge worked on selling their kits and thus spreading the word of 1/12 scale WWII combat. National contact-persons – called IDA Chapter Commanders – were appointed in different countries across the world.

You could say that 1990 was the year when it all started, even though there was a history of R/C combat before that. But now the "ball was rolling" and the coming years would show the great interest in this kind of model-aviation.

Text: Martin Elmberg

Model Zoom 1990: P-51D Mustang

For each year of the ACES history we will take a closer look at a model to represents that particular year. In 1990 the two most important models were the FW190D-9 and the P51D Mustang kits from Pål Engelstad and Helge Örbö. We will take a closer look at the P51D Mustang.



Martin's Mustang built from the 1990 kit, in Swedish Air Force colours (J26 Mustang).

The context

Now, let us go back in time to the year of 1990. The Berlin-wall had just fallen and the cold war was about to end. There were no cell-phones around, not many had heard of the "internet" and NiCd batteries were the only ones available to be used in R/C equipment. A standard size servo weighed 40g and pulled 2kg. A standard receiver weighed 40-50g and a receiver battery normally weighed in at over 100g having a capacity of only 500mAh.

There were "micro"-servos around, weighing in at circa 25g, but they cost from 80 Euros and upwards. Besides, the Euro was not invented yet either. Petrol on the other hand was far cheaper in those days, some 25% of today's price. In short, the 1990s were different times from today.

In model aviation people in general thought it was very difficult to fly WWII warbirds and flying warbirds with smaller wingspan than 1,2m was believed by most to be impossible. Flying combat was by most considered madness – why risk your fine built model in flying combat to others?

The kit

First impression of the kit was different from anything I've seen to that point. The box it was shipped in, it was not really a box - it was an aluminium taped paper tube with two plastic endings. I never quite understood why this was so, it might be that it was better protection for the kit inside it. I can tell it was impossible to get all of the content inside the tube



again, so they must have had a pretty good idea of exactly how to stuff the content into that tube!

The second extraordinary thing was that the kit contained lots of vacuum-moulded plastics, to form the scale-like look of the model. The fuselage was built upside down with the straight top flush to the building board. Then a plastic top was attached to form the complete top side of the fuselage. In addition plastic parts formed the exhaust pipes and machine gun nozzles in the wing leading edges. There were also plastic parts for the canopy interior, like the pilot seat, the radio gear behind the pilot seat and the instrument panel.

The wing was of ordinary balsa design, with wing-formers sheeted by balsa. One special thing was the vacuum moulded plastic wing formers used in this kit. I have never before or after seen such, but from a manufacturing point of view this must have been a brilliant idea. (Remember, at the time laser cut balsa parts was not even close to reality). The airfoil used was some kind of semi-symmetric. Stabilizer and fin was made out of balsa. The .15-sized engine was mounted inverted and the servos mounted in the compartment below the cockpit. The wing was secured to the fuselage using a nylon bolt.



Barkarby – Mustang: A Mustang flying low in front of the hill and trees, at the Barkarby Dogfight. The Mustang was built from the kit by Helge and Pål.

Flight-trials

To be quite honest, my P51 built from this kit newer flew. There were several reasons why. One was my P51 got real heavy (my fault, too much glue and paint). One other reason was I had no good .15 engine for it. The most important reason was that by the time I got this model ready it was already outdated by newer Dogfight-designs, which I will tell of later in this series of articles.

However, in 1994 I finally managed to mount an ASP engine into my P51 to try to get it airborne. After hand launch it immediately flipped left and crashed into the high grass. We tried this three times before giving up.

I think the behaviour was partly due to that the model was underpowered, overweight and that the semi-symmetrical airfoil was not the best.

A test in a Swedish hobby magazine showed the same tendency at take-off, so this was probably the behaviour of this model to count on. But I did see this kind of model fly at the Barkarby Dogfight in 1990 and those flew good enough so I guess with a lighter-built model and some more power this model would fly quite ok.

I still have this model lying around so who knows, I might get the time and energy to rebuild it from the original plans. Then I would make it some 400g lighter and put a hot electro engine into it, to make it real competitive in a contest as of today's Aircombat!

Text: Martin Elmberg

Photos: Johannes Odgren

Eurocup Mannersdorf, Austria 2010

There's a nice video from this Austrian contest on youtube. About 9 minutes long with WWI and WWII heats and many pilots from Austria and the neighbouring countries Slovenia, Czech Republic and Slovakia.



http://www.youtube.com/watch?v=jE6txQfFJ_Y&feature=related

Twin Engine Heats

In 2007 and 2008 we made three twin engine heats in Germany. Points were counted towards the final contest result like a normal heat. We flew with five to seven twins in those heats, including some very rare and special ones like the Tachikawa Ki-94 I.



Tachikawa Ki-94 I from Klaus Petersen from Germany

Around 2000, twin engines were a common sight. The strongest engines were .21s. If built light, a twin with two .15 had a good power advantage over other planes. With the going of .21 engines and coming of .25, mostly built as bigger bombers or reconnaissance planes, the twins got less common.



Our 2007/08 fights were quiet interesting. Everyone was keen to get a cut, but not at any cost. Each pilot was careful to avoid a collision with another model. It was a little bit like WWI flying but with WWII fighters.



Although we flew only a few times, we managed to bring back twin engine models to our contests. Of course twins are still rare, because of the bigger effort in building time and maintenance. Our heats proved twins are still competitive. Pär Bertilsson from Sweden showed this with his 7th place at WASG Italy 2008. And they sure bring back variety and excitement to the aircombat contests. Nothing can top the sound of two smooth running engines!

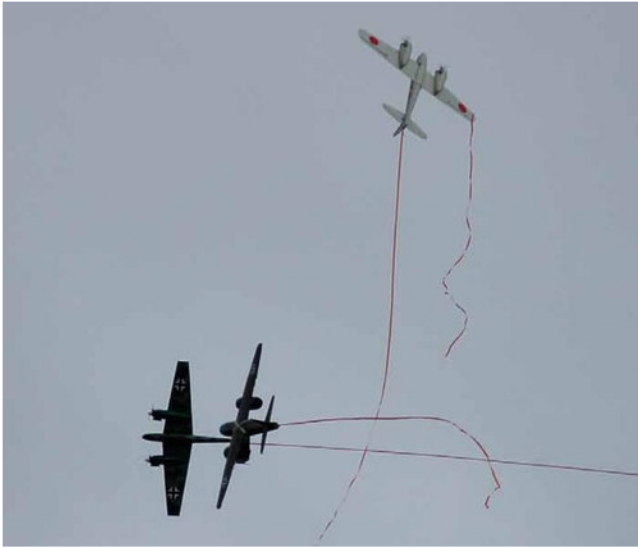


Twin Engine Heat in South Germany, November 2007



Gert König from Austria and his P-38 Lightning





*Twin Heat Trophy in Örebro, Sweden 2010
picture by Tomas Feldt*



*Pär Bertilsson and his Pe-2 at WASG 2008 Italy
picture by Patrik Svida*

Contest Season 2011

The central website for ACES contests is the CoRe database on www.aircombat.eu. If contests are put in the list by the National Contacts, you can print a calendar with all ACES events.

For Germany, there is an additional pdf-list on www.aircombat.dmfv.aero. This list also includes contests in Austria and Gnumpfcup pylon races in Germany.

Top Gun Cup 2011

This international .15-cup will be organized once again by Petr Hakl, 1st NC Czech Republic. All results have to be achieved by flying .15-powered models, glow engine only, but it doesn't matter whether single or twin-engined.



The CoRe (database for ACES contest results, <http://www.aircombat.eu/>) selects and memorises the engine size flown for each heat. Please talk with your contest organiser, to ensure your results are counted properly. Pilot judges should note the engine size for every heat flown on the scoreboard.

If you have any questions, you can directly ask Petr Hakl by mail: phakl@chello.cz



The goal of this special cup is to promote the classic fighter planes, which are mostly powered by .15 engines.

In contest they have a handicap because of their smaller wing span. But they sure benefit from faster



building time and if properly constructed less repair time – a crash with a model weight of 750 grams, is often less destructive than when 1400 grams.

It could be really exciting, to start at a contest with a smaller Spitfire or Messerschmitt, competing against bigger Fairey Battles or Shturmoviks, kinda like a an underdog game.

Annual Aircombat T-Shirt

Last year, I started the idea of an annual Aircombat-shirt. It should look like one of those tour-shirts of music bands.

The motif is on the back and contains all contest dates and a nice Spitfire. The response from ACES pilots was bigger than expected, I ordered 80 shirts! Quality was very good and price was low at about 10€ .



The shirt is not only a nice souvenir, it's also an advertisement. For people who don't know ACES, the contest dates and contact information is clearly visible. Aircombat is a sport class with many contests throughout the year.



Since we have more and more pilots with WWI-planes, we will have two versions this year, one with a Fw 190 and the other with an Albatros.



Global Aviation Resource

I found another interesting web link. Articles are constantly being published and written with great detail, containing many high quality pictures. Main themes are around aviation in Great Britain but also internationally, including airshows, restoration projects and interviews with people from general and military aviation.

www.globalaviationresource.com

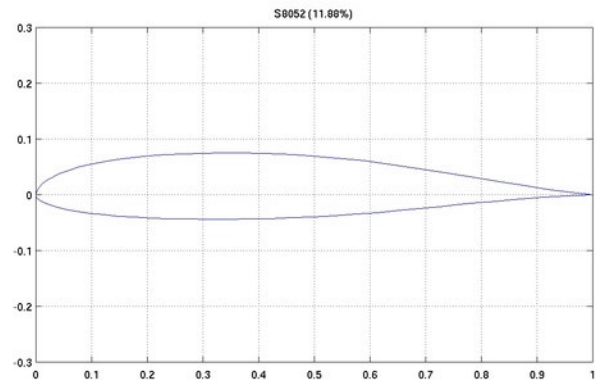


His website is worth a look for everyone interested in constructing planes. Many topics need a good theoretical background, but the huge listing of every kind of airfoil with graphics and xy-data is also very useful for the average model builder.

Currently they are measuring model aircraft propellers.

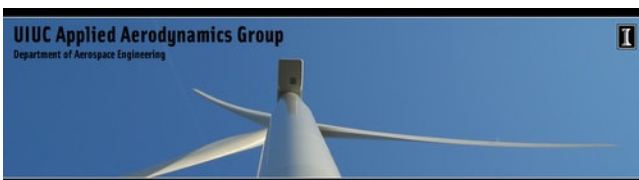
<http://www.ae.illinois.edu/m-selig/>

http://www.ae.illinois.edu/m-selig/ads/coord_database.html



UIUC Applied Aerodynamics Group

Some of us may know or use the developments of Michael Selig, a professor at the University of Illinois, USA. For many years, he and other people have been working to improve airfoils for radio-controlled models with great success.





ACES Links And Contacts

International Aircombat Forum

<http://aircombat.modelarji.com/>

CoRe, Rules and Regulations

www.aircombat.eu

www.aces-headquarter.de

IRC-Forum (International Rule Committee)

<http://www.dk-modelltechnik.de/forum3>

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