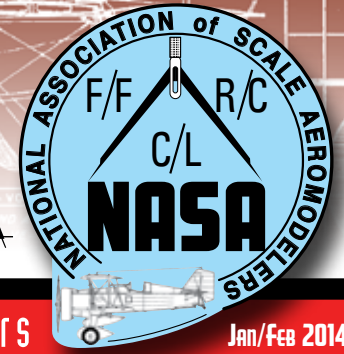


REPLICA



Newsletter of the National Association of Scale Aeromodelers

Jan/Feb 2014

NASA AIRPLANE RAFFLE

To raise funds to help with the expense of the Scale Nationals operations, we are selling raffle tickets to a brand new, fully completed, Robert P-47-D ARF.

Once again, Dick Petit has donated his time and skill to assemble this fantastic scale airplane for us. Dick was also instrumental in getting several other companies to donate items needed to complete the process.

The model is completely finished, test run, and test flown. It is eligible to enter in Fun-Scale competitions with the appropriate photo and any giant scale fun-flies (IMAA).

Tickets are \$5.00 each, 3 for \$10.00 or 7 for \$20.00 and can be purchased through the NASA website using PayPal. We can also send any number of tickets to those willing to sell them. The drawing will be held Saturday night at the Scale Banquet at the 2014 Scale Nationals.

Please everyone, help sell tickets and support NASA in our quest to make the Scale Nationals better than ever.



CLICK HERE TO BUY YOUR RAFFLE TICKETS

To see the raffle P-47's build, visit NASA's Flickr site by clicking the Flickr logo.



THE VOTES ARE IN!

Thank you to all our members for taking to the time to vote and to guide NASA for the next 2 years. We have the results of the 2014-2015 NASA elections.

Congratulations to Mike Barbee for winning another term as NASA President.

Congratulations to Dale Arvin as we welcome him back for another term as NASA

Vice President, and to Tina Patton for being elected to the board as our new NASA Secretary/Treasurer.

Here are the results of the voting and we thank all of those who took the initiative to run for office.

President

Mike Barbee - (Winner with 68.5% of the votes)
Ted Kraver (31.5%)

Vice President - runoff election

Dale Arvin - (Winner with 65% of the votes)
John Boyko (35%)

Secretary/Treasurer

Tina Patton - (Winner with 98% of the votes)

Change to bylaws to allow for electronic voting:

Yes - (Winner with 92% of the votes)
No (8%)

I wish to thank everyone for their support in the recent NASA VP election. I am very pleased to be able to support NASA in this position. I would like to thank you personally so if you are at the Toledo Show please stop by the NASA booth to say Hi.

It is very cold and snowy here in southern Indiana so I have taken this time to do some serious building.

The B-25 is about ready for final detailing and painting. (I know, I know it has been this way for a couple years. But this time I really mean it.) I have built a Top Flite giant scale Corsair. A Balsa USA 1/4 scale Cub which my wife won in a NASA raffle about a million years ago and another AT-6.

If you have any tips for me on flying the Corsair please let me know.

Happy flying.

DALE ARVIN
darvin8094@aol.com

I just wanted to say thank you to everyone who voted for me to enable me to become the Secretary/Treasurer for NASA. I look forward to working with all of you in 2014. One of the things my husband and I have always said that we enjoy about the hobby, is that when we travel to contests and fly in's, we get to meet new people and make new friends that are interested in the hobby. I've already had the pleasure of meeting new people in this position via e-mail. I hope this term enables me to continue to, hopefully face to face too! I also hope to grow our membership numbers during my term. All of you can help me accomplish this with word of mouth. I've always felt that's the best source of communication! Tell your fellow hobbyist about NASA, at your local field and at your club meetings. Don't forget to mention the awesome raffle we have going on for the 1/5 scale P-47! Let's have a great year flying in 2014!

TINA PATTON
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PRESIDENT'S NOTES

To all NASA members and scale enthusiasts, thank you for your vote of confidence. I am looking forward to the 2014-2015 season to strengthen our organization. Some in our group did not realize NASA includes R/C, Control-line, Free-Flight, and Helicopter scale. I would like to see more interaction and action by all these disciplines. We usually see this interaction at the AMA NATS once a year. They are often on different days or even different weeks. This year we are proposing a NASA Scale Classic event. We would like all our NASA counterparts participate and run a scale event this weekend. Our dates are October 3-5 at the AMA site. We have the site reserved for that weekend. There will be some expense involved in running the event, so it looks like entry fees will apply. Current NASA members will enjoy a discounted rate and those non-members will pay a higher fee, but that will include their NASA membership for the rest of the year. There will also be qualifying necessary to entering; we will designate contests throughout 2014 that will allow you to qualify. This design will be spelled out in another section of this newsletter. I hope all of our NASA members plan on flying at one of the qualifying events this year then joining us in October for the NASA Scale Classic.

I would like to implement a health care plan for NASA; the president did it for the country, why not NASA Care? What do I mean? Let's strengthen our organization a couple of ways. First put focus and attention on scale competition thru local contests and magazine coverage. Second, and very important, give our group a shot of adrenaline thru volunteering and helping in the running and promoting our scale events. Offer your services as a judge, a flight line coordinator, registration, concession stand, etc. You can help or you can fly, and you can do both! I used contestant judging at our first contest in Columbus. We had a mix of judges, some did not fly. We need raffle ticket sales people all year, until the NATS. Tina, Mark, Jim Martin, or myself will be glad to send you tickets to sell at an event or just your club meetings. Just let us know how many you want.

I belong to many organizations and all have something to do with airplanes, go figure. One of the largest is the EAA which most of you are familiar with or are members. Did you know that their premier event OSHKOSH is all volunteer run? The air show participant's planes,

pilots, bus drivers, ticket takers, site workers, airplane repairmen, and symposium speakers all volunteer their time to promote the event. Work on the event starts early April for site painting and repairs then continues throughout the event. This I believe builds a strong, well respected organization and attracts interested people because they see the commitment of the members. Let's try to infect our members with volunteerism and this will cause more to chime in and help. This is what we need! Don't sit back and just say, "Jim Martin is the CD of the NATS. He doesn't need any help or he would ask if he needs it". He would love you to volunteer. Let's make scale strong for the coming years.

The NASA Scale Classic is proposed for October 3-4-5, 2014; we will need everyone's help and support. We are even thinking of running our own concessions for the event, because of the poor performance of vendors at the NATS. Got any ideas or any experience with this? How about getting your club to do this and take home the profits? Want to volunteer? Dale Arvin will be the R/C CD and he would like to start lining up key people to volunteer at the event. Contact Dale if you are interested.

Thanks again for your interest and support of Scale Modeling

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SCALE EVENT CALENDAR

*Click on any event name for more information.
NASA Scale Open events are noted in blue boxes.*

TOP GUN

April 30-May 4, 2014 - Lakeland, FL

EAA AIRVENTURE

July 28 - August 3, 2014 - Oshkosh, WI

FCM AT AMA

August 23-24, 2014 - Muncie, IN

MIAMI VALLEY SCALE CLASSIC

May 16-18, 2014 - Lebanon, OH

HOOSIER SCALE CLASSIC

August 2-3, 2014 - Seymour, IN

BROKEN ARROW

September 20-21, 2014 - Valley Park, MO

MINT JULEP

June 13-15, 2014 - Rosewood, IN

HOOSIER DAWN PATROL

August 15-17, 2014 - Muncie, IN

NASA SCALE CLASSIC

October 3-5 - Muncie, IN

BRODAK FLY-IN

June 10-14, 2014 - Carmichaels, PA

WENATCHEE SCALE RALLY AND NW SCALE CHAMPIONSHIPS

August 15-17, 2014 - Wenatchee, WA

AMA NATIONAL SCALE CHAMPIONSHIPS

July 11-13, 2014 - Muncie, IN

COLUMBUS SCALE CLASSIC

August 16-17, 2014 - Westerville, OH



12 INCHES TO THE FOOT

To Practice or not to practice- that is the question?

Ever go to the flying field and just bore holes in the sky? We've all done it, some of us most of the time, instead of flying maneuvers. Maybe not scale maneuvers, but just maneuvers.

It takes time, practice, practice, and more practice to get it right sometimes. It also takes a model that you know, and that's set up correctly for the type of flying you like to do. Many "flyers" are now flying micro-lites or small field flyers (we used to call these school yard scale). Some call them park flyers and that may be all well and true. But it's a good idea before you go and purchase one of these to see just how fast the little bugger is going to fly in the first place. Some are like rocket ships, while others tend to float and float and float.

For a few years now, I've had a Fokker DRI that I used in the magazine trying to give an idea of what you can do with an ARF, by detailing it and changing it up a bit. I stripped the airframe and re-covered it, then painted all the parts and added hand made crosses and details. The model looks ok, and at the local field it receives *ohhhs* and *ahhhs* but the little bugger is as fast as a bullet. It takes off straight up unless you really control the rudder and throttle at the same time, and from the time you touch the throttle. So check out those ARFs before you purchase one and you expect one thing but get another.



A modeler recently sent an e-mail wanting to know some of the in's and out's of selecting maneuvers for a competition he's planning to attend this summer. I tried to help him with some of the common mistakes I've seen in the past, especially with cross winds. Taking a model into a cross wind and trying to do a Stall Turn can be a disaster if the model turns the wrong way after it stalls. I recommended to him to try Inverted Flight, 2 Point Roll as well as positive G maneuvers. **The quicker the type of maneuver in front of the judge the better.** Long drawn out maneuvers like the sequence of Straight Flight Out, Procedure Turn, Straight Flight Back is just a target waiting to happen. Too much time for the judge and the model in front of each other!

Also stay inside the rule book. Sure a John Wayne maneuver may impress someone at the local field (*what the heck is a John Wayne maneuver anyway*) but most judges don't go outside the rule book looking for every odd ball maneuver out there. They will concentrate on what they are supposed to know within that specialty; ours happens to be scale.

The Loop. With smaller models especially, a loop can be a great maneuver or it can be a disaster many times depending on the wind strength and direction. These are items you want to take into consideration before you select your flight maneuvers. Of course in FAI Scale you always have the wind down the runway- right? But that isn't always the case in AMA, Scale Masters and Top Gun. More often than not a bit of a cross wind is the norm and not the exception. To me a 90° cross wind is just a no-no for the loop, if you can pull it off great.

If you plan to make a bomb run, you can do it several different ways including a straight line run or a dive bombing run. Kent Walters has done the dive bombing run for over 30 years, many times with the same model. But he always did a dive of 70 degrees or close to it. Making a "dive" at 20-30 degrees won't give you the scores you are looking for, either from the judges or the rules. Not having documentation to prove the model did something outside the AMA rulebook, well, it's just a waste of time and your own effort.

Having a caller you can practice with is a great idea. Some modelers have found their wives make the perfect caller, as they aren't afraid to let you know what you've done wrong in the flight, whether the judge sees it or not. Gee my wife never has a problem letting me know what I've done wrong. Does yours?

Make notes on when to flip a switch or lever in flight. Say after the figure eight you want to make a slow-dirty fly by. You could start this by dropping the flaps on the back leg after the figure eight, then on the cross pattern drop the altitude. Then after you turn for your pass, drop the gear and anything else you need to do setting up for the maneuver. Your all set and ready to go. Give the judges a good show, that will gain you points, especially in realism in flight. (But check the rules and see if there are particular points where they want things to be done). Some do and some don't.

Smoke. Maybe in-between maneuvers, but this is a scale contest we're talking about not the pattern or aerobatic specialties venue. It could be AMA, Top Gun, Scale Masters or FAI scale but judges are looking for each and every flaw in the flight performance of that model. Why give them the edge with smoke? If you aren't lined up correctly and are starting the maneuver off to one side or the other, the smoke is a dead give away. When you make that loop not perfectly round with an aerobatic scale model, well here we go again. Think about it!

Having mechanical options, or flight options as some rules call them, is great *if they work*. If they sort-of-work it can cost you points. Case in point: once a modeler had a J-3 Cub with what he thought as a great mechanical/flight option, a Parachute Drop, which worked most of the time. But once when we were judging that particular maneuver, the jumper came out of the plane and dropped like a rock to the asphalt far below- SPLAT! Uh, no chute opened at all. He came up to me and ask later why he scored a "0" and I had to tell him "the guy died, it was a parachute drop and the chute didn't open....."

Personally I enjoy doing the Split-S, the military roll with the hump in the middle, as well as the 360° descending circle, and the victory roll. I'll never enjoy the Figure 8, but I keep working on it even when I just fly sport models or park flyers, because we all need to.

Last fall we took a trip to the Smoky Mountains and stayed in a KOA Campground in Pigeon Forge, TN and I flew every day we were there (8-10 flights). It was the little Hangar-9 J-3 Cub. Just wish I'd had a more aerobatic slow flyer for that park. That would have been fun. Patriot Park is right next to the campground and it's pretty much hand-launch only but it's great to have a flying site next to your front door. Yes I practiced the dreaded Figure 8, time after time.

Go to the NASA website for the 2014 FAI Scale Rules and Regulations and take a look at the flight maneuvers included in the rules. These are some of the best diagrams I've ever seen and used. They can help both the contestant/modeler as well as the judges for what to expect. They also show when, where, and how to do the flight patterns, as well as the mistakes that are common. This is a great tool for anyone flying scale models in competition or just boring holes in the sky.

So practice when you fly, and fly when you practice. The more you do it the better we will all fly! These are just a few of the things I've experienced over the years and remember always work on the take-offs and landing also.

Hope you have a great time!

Fair Skies & Tail Winds,
STAN ALEXANDER
onawing4602@att.net

BEFORE YOU BUILD THAT SCALE MODEL, A FEW THINGS TO CONSIDER

It is easy to say to want to build a scale model but there are a few steps that have to happen first before you can actually build the model. One item that I have noticed is that the only real difference between a R/C scale model and a C/L scale model is that the flight portion is different. R/C scale flies with aileron, rudder and elevator, C/L flies in the circle with only the elevator. They both have challenges and the flight portion is different. Everything listed here can apply to either a R/C or C/L scale model because in the end we both have a scale model, we just fly them differently. In fact you can build a model today that can be flown in both R/C scale and C/L scale and have a 5 minute conversion. More about that in another article.

I am starting a new C/L scale project for a Hawker Hurricane and following are the items that go through before I cut any balsa wood and actually build the model. A few of these items have to be done in a certain order or you might find yourself fixing major problems when it's too late. It may seem like a long list, but all of this planning will make it easier to build the model so that you don't have to go back and fix something after you have the model half built. Now let's go thru each item.

Pick the full size aircraft you want to build.

Sounds easy but if you go through your list of models you want to build, it is not a quick decision. I tend to pick models I can document really well since half the score in scale is based upon the documentation. Personally, I also pick models that have really good color information. Also make sure you pick the aircraft version "type". In the case of the Hurricane, I am building a Hurricane built in Canada and had to study the details on this aircraft so that you can get the right documents.

Pick the scale event you want to enter.

Reading thru the AMA rule book there are lots of events you can enter, everything from Fun-Scale, Sportsman, and Expert in R/C scale - and maybe even FAI scale. Fun-Scale requires less documentation and detail, FAI requires a lot of detail. You need a more detailed 3-view in FAI as compared to Fun-Scale, and FAI requires a detailed cockpit. The scope of the event you want to enter will determine how much information you will need when you build the model.

Pick the 3-view you will use in the documentation.

A common mistake is to pick your 3-view after the model is built which can be a problem. Not all 3-views are the same. I have one 3-view that is labeled as a P-51D Mustang that was published by Boeing, but the image is clearly a P-51H model. I don't use that 3-view any documentation. Get as many 3-views as possible, study them and find the one that best matches the detail you need based upon the event you want to enter and how correct the 3-view is. Also make sure it matches the type and configuration you are building. For example, there are differences between an Mk I and Mk II Hawker Hurricane and I picked the 3-view that matches the version I am building. There will be little details that set versions apart. For instance, the tailwheel on the Hurricane is very different between the Mk I and the Mk II.

3-views can be difficult to find. I have been collecting 3-views for over 25 years now from all sorts of magazines, books and lots of other sources. Bob's Aircraft Documentation has a very large collection and can be very helpful in finding that perfect 3-view for your project. Finding the right 3-view will be a challenge and may take some time.

Locate the photos you will use in the documentation.

Now that you picked the 3-view and the type and version you want to build, you need to find the photos that will go into your documentation. You will be using these to build the model, so now is the time to get the pile of pictures together. Get more photos than will go into your documentation package. You will only show the judges the ones you want them to see, but you will reference all of them to help you build the model. I have made a list of where you can get pictures in the references listed at the end of the article. Remember you are looking for photos of one particular aircraft; you are making a model of one particular aircraft.

Determine color scheme, color chips and color information on the final paint job.

I have one model that I have not finished for multiple reasons. The big one is that I don't have good color information on what color the aircraft is painted. They only made one of these aircraft back in

1934 and the only information I have found that it was painted a cream color and I have not found any cockpit photos either. There are lots of colors identified as cream color so I would be guessing on which one to use. Good solid color information makes a difference in the static score. Information such as color chips, glossy vs. flat, and other information like that goes a long way in boosting your static score.

Get as many books on the full size aircraft as possible and read about the aircraft.

Almost all aircraft had multiple versions, the P-51 had lots of variations, the A, B, D, and H models look kind of similar but have very different details. You want to understand these small differences because the judges will be looking for these small differences. The P-47D model has two different vertical fins, early models had a basic fin and they added a dorsal fin going forward on later models of the "D". These are the kind of details you want to know. Make sure the

3-view you picked reflects all of these details. Engines, propellers, and other details come and go depending on upon the version you are building.

Assemble the documentation package.

Now is the time to pull all this information together into one pile, take the time to put these into a binder because you will be referring to it while you build the model. The final version of the documentation will be cleaned up for competition and some items would be removed (like extra pictures) but do yourself a favor and get this all together while you are thinking about it.

Also remember that you copying one full size aircraft. You only want pictures of that one particular aircraft and make sure you have enough pictures to show the top, bottom, both sides and details whenever possible. For my Profile Scale B-29 I have a published color drawing that shows sides, top and bottom because it was a wartime aircraft. Then I have found several photographs that match the color drawing that was included in the documentation package.

Pick the options you plan to use during your flight options (R/C or C/L).

This will help determine what size you want to build your model. Let's say you want to install retracts, flaps, bomb bay doors, and a bomb drop on a 4 engine bomber. These options tend to be heavy so that

ONLINE BONUS

The author has supplied us with a copy of the Excel file referenced in this article. Click on the icon below to download your copy from the NASA web site.



...continued from page 4

room for the hardware and no wing area to carry those features. The options you pick will determine the size you will build the model.

Determine what size you are going to build the model.

The bigger models fly better because the wing loading (ounces per sq. ft. of wing area) can increase as the model gets bigger. For a C/L model in the 35-42" span I keep the wing loading at the 21 ounce per sq. ft. range or less, but if the wingspan increases to 55" I can bump up the wing loading to the 28 ounces per sq. ft. When I get to the 96" span like on my Profile Scale B-29 model, I am over 35 ounces per sq. ft. The small models don't fly well at 35 ounces per sq. ft.

I take the full size aircraft numbers for wing span and wing area, then calculate the model's wingspan and wing area based upon several scale factors. I apply the proper wing loading based upon the wing area of the model and determine a target weight for the model. Then ask myself if I can build that model with all of those options and hit that target weight.

Here is an example of the calculations for the Hawker Hurricane. The target weight (colored in orange) is so low that it would be difficult to add any details like retracts or flaps that add weight. Models that small also do not have enough physical space for the parts. The green colored scale sizes allow you to add flaps and retracts due to the higher wing loading. The yellow colored scale sizes are just too big and do not fit into the rules for C/L scale except for the 1/6 scale model at 16.5 lbs. I try to keep C/L scale models under the 16 lbs. range.

Hawker Hurricane Numbers													
	Scale Factor												
	Full	14	13	12	11	10	9	8	7	6.5	6	5	4
span	40.000	34.286	36.923	40.000	43.636	48.000	53.333	60.000	68.571	73.846	80.000	96.000	120.000
length	32.250	27.643	29.769	32.250	35.182	38.700	43.000	48.375	55.286	59.538	64.500	77.400	96.750
wing area	257.500	1.314	1.524	1.788	2.128	2.575	3.179	4.023	5.255	6.095	7.153	10.300	16.094
ounces per sq foot		16.000	18.000	21.000	23.000	26.000	28.000	31.000	34.000	34.000	37.000	40.000	45.000
target weight (ounces)		21.020	27.426	37.552	48.946	66.950	89.012	124.727	178.673	207.219	264.653	412.000	724.219
target weight (lbs)		1.314	1.714	2.347	3.059	4.184	5.563	7.795	11.167	12.951	16.541	25.750	45.264

Locate a kit, plans or decide if you want to draw your own plans.

Now that you know what size you are going to build, you have pick if you are buy plans, a kit, or draw the plans yourself. Plans can be reduced in size or enlarged. The problem with enlarging or reducing plans is that you have to be prepared to mold your own cowls and canopies.

Some kits may have outline problems that will have to fixed. Some kits have so many outline problems that they may not be worth even considering. The Great Planes RV-4 kit (56" span) that I built with was ok in outline with the fuselage and wing but the horizontal tail was completely wrong and I had to make a new one based upon the 3-view. The rudder and fin were close but I had to make some changes there also.

Compare the 3-view to the plans, kit and make the modifications before you build.

Pull out the documentation and compare the kit or plans to your 3-view. If you drew your own plans this won't be a problem, since it would have been made from that 3-view so everything will match. But the case of the purchased plans or kit will you have to compare the outlines from the 3-view and correct any problems with the plans or kit and build accordingly. It is easier to find these differences now, then after the model is built and get a lower static score at the contest due to variations between the 3-view and the model.

Determine if the full size aircraft was modified in any way, update your kit or plans.

Sometimes the full size aircraft are modified from the original and won't match your 3-view or documentation. P-51 Mustangs have been known to have longer canopies and an additional second seat. If you built a model of this aircraft then you need to note that in the

documentation and modify your model to match the photographs. Remember that the photograph will take precedence over the 3-view during static judging. Look for additional details and for items that have been removed. There is a full size Hawker Sea Fury that was restored, the tail hook was removed, and new structure was installed to blend in to the rudder. This would be an outline change that would have to be noted on the 3-view.

How to control the throttle, R/C will be radio-controlled, but in C/L you have lots of choices.

In 2013 the AMA rules were changed to allow C/L scale to use 2.4GHz radio control for the throttle and other options. This means that we can now install 2.4GHz for C/L scale just like you would for R/C and control the throttle with that. I also use a 2.4GHz receiver to control the throttle, flaps, retracts and other options also. The rules for C/L scale also state that the elevator must be controlled by mechanical means with a bellcrank, handle, and flying lines. Before 2013 anyone that wanted to use electronic controls used a variety of systems which included converted radios, Clancy Arnold's system, JR DSC radios and single channel. All of these "down the wire" systems did not transmit any RF signals. The traditional 3-line throttle control can also be used for throttle if you like that better. Regardless of what you pick for the C/L scale they all work, just pick which one is right for you.

Determine what parts are required for each option, this will include servos, retracts.

Each option you picked has set of parts that need to go into the model. Get all of these items together and make sure they all work on the bench. Get the weight of these items and compare this weight to your target weight that you are shooting for. You might find your size of model may not carry all of these items. Figure out where all of these items will be installed in the model

and if you have enough room for these items. Take into consideration any items that require cooling, such as speed controls and batteries. Figuring this out now will have save time rebuilding something after the model is started.

For C/L models, don't forget the bellcrank and to make allowances for the leadouts and the pushrod. It can take a considerable about of space to install the bellcrank. Decide if you want the bellcrank in the wing or the fuselage. Putting the bellcrank in the wing will require a connection between the wing and fuselage's elevator pushrod when you remove the wing. The bellcrank location is not critical since the line guide location at the wing tip controls the line tension. You draw a straight line between the handle, line guide and c.g. of the model. The bellcrank can be behind or in front of the c.g. and still work.

Determine where the receiver will be located, 2.4GHz can have multiple receivers.

Anytime you have servos in the wing and the fuselage you have to allow for extensions when the wing is installed. With 2.4GHz now you can install a receiver in the wing and one in the fuselage. In the case of electric powered models with BEC, the receiver in the fuselage would not require a battery, but the receiver in the wing would require a battery and on/off switch.

Figure out where access ports and removal panels will be located for field access.

Now that know where all of this hardware will be located in the model, figure out what removable panels and ports you will need to service this model at the flying field. I like to assemble the model and then have hatches, ports and other access points so I quickly take care of them without have to take the model apart. Update your plans to

...continued from page 5

incorporate these hatches and access points when you build the model.

On my RV-4, getting the batteries installed means taking the wing off so I installed an arming plug so I can easily arm the model. This means the batteries are in the fuselage ready to go but they are not fully plugged into the ESC until the arming plug installed. This safety device is getting used more and more these days.

If running an engine (glow, gas or other) run it on a test stand or test model.

I like to run my engines on a test stand before I build the model so that I know they work and ready to install and fly. If possible I will fly the engine on an older model and test it there. Taking a brand new engine, installing it, and breaking it in on the model is something that I do not do. You don't want that engine to quit during those first flights on the brand new scale model.

If running electric, figure out how to remove and replace the batteries easily.

Electric power is different, I don't run electric motors on test stand due to how they operate. But I do make sure I can easily remove and replace the batteries at the field without having to take the model apart. I learned this the hard way on my RV-4, as I have to take the wing off to swap out the batteries. Also make sure you have enough provisions for cooling air. I like to have easy access to the speed control and receiver. If for any reason the motor, ESC, battery, or receiver needs to be replaced you need to have easy access to these items.

Determine how you are going to cover and paint the model.

The covering material and paint you will use on the model will determine the order in which the parts are installed. For example on the Profile scale B-29 I recently built, I fiber-glassed the wings, fuselage, and nacelles before they were all glued together. If you decide to use iron on film then you might even cover the elevator before putting it on the model.

Now you are ready to build....Finally!

All of this planning will pay off when you build the model. You already know what you are going to install and where. This will reduce any surprises with outline problems and result in a higher static score when get to the contest. Hopefully this was helpful and good luck with the next scale project!

References - click the names to visit their web sites:

- **Airborne Media** - full size photos:
- **Airliners** - full size photos
- **Bob's Aircraft Documentation** - 3-views & full size photos
- **Jet Photos** - full size photos
- **NASA web site** - links to dozens of documentation sources
- **Squadron Model Supply** - books on full scale aircraft

FRED CRONENWETT
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Flickr Account Update

Share your current project with the rest of NASA. Gather your photos and a couple notes on the model - then send them to me - mark@airbornemedia.com and I'll get those posted in their own set.

To see all of NASA's photo collection, including pictures from the recent Horizon Indoor event, please the links below.

- Scale models from the 2014 AMA Expo - click here.
- 2013 St Louis C/L Scale Meet - click here.
- George Maiorana's Douglas C-133 Cargomaster - click here.
- Individual NASA photo sets - click here.

NASA SCALE CLASSIC

We hinted about this in the last Replica and we're happy to provide more information on this new, and exciting event.

The NASA Scale Classic (NSC) is an event where we celebrate the best in C/L and R/C scale competition.



October 3-5, at the AMA site in Muncie, Indiana.

- The NSC will be an invitational event supported by several other NASA Open scale events (see the contest calendar in this issue and on the NASA website).
- Invitations will be earned for the top 25% placements/category in a supporting NASA Open contest.
- Invitations will also be earned by winning the NASA Flight Achievement award and/or the High Total Flight Score in each of these supporting NASA Open contests.
- Entry fee is \$20 for NASA members, \$40 for non NASA members (with an instant NASA membership for the rest of the year).
- Awards will be given for 1st, 2nd, 3rd, NASA Flight Achievement, and Pilot's Choice.

Please note that we are early in the planning stages of the NSC and some of the details may change over time. The best place to find the most up-to-date information is on the NASA web site.

Also if you know of a scale event in your area which you'd like to see added as a NASA Open event, please contact one of the NASA officers for details.

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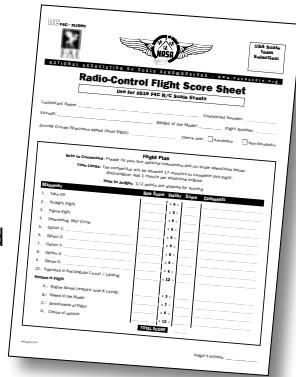
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NASA NEWS AND INFORMATION ON THE INTERNET

If you have internet access, you owe it to yourself to visit NASA's web site - www.nasascale.org. The NASA site was designed from the start to be the only place you need to go to find out everything that's happening in the world of scale aeromodelling - whether it's here on the National front, or on the International front - the domain of the FAI.



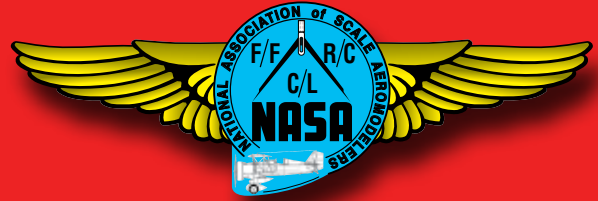
COMPETITION DOCS/FORMS

This is one of the more exciting features of the web-site. We have all the competition forms and documents for scale competition online in pdf form. Not only are the documents up-to-date, but we now have two versions of each.

One is the regular pdf that we invite contest directors to download and printout for use in their contests.

The second (and more exciting) version of the form is the "intelligent" form. Using this version and an up-to-date version of Adobe's Acrobat Reader, you can fill out all your information using your computer, then pre-print copies to take to your next scale event: information about yourself, your plane and your maneuvers/options. All AMA rule book maneuvers/options (as spelled out in the current AMA rule book) can be selected from pull-down menus; right on the .pdf. Imagine not having to spend time at your next contest filling out forms!

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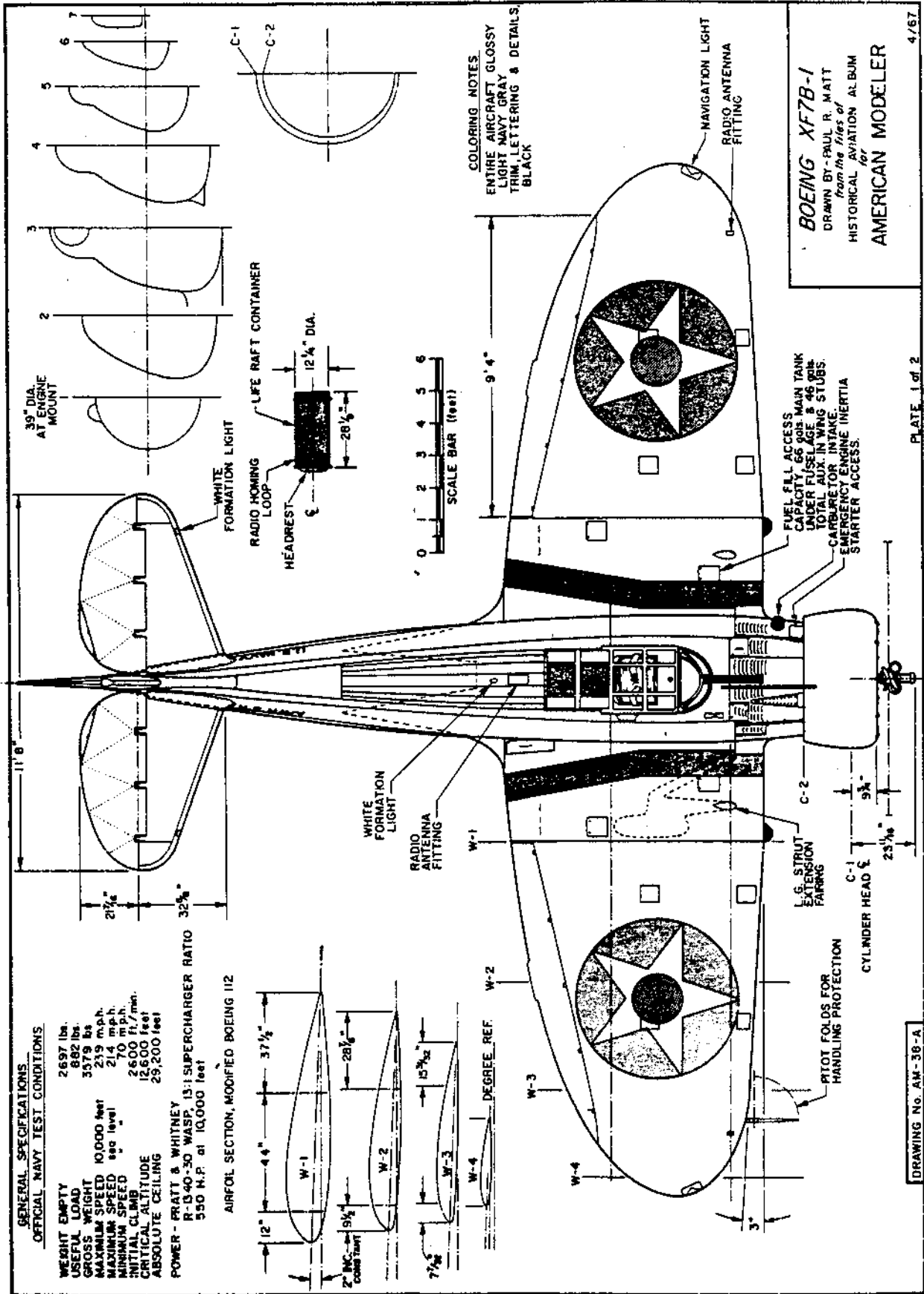
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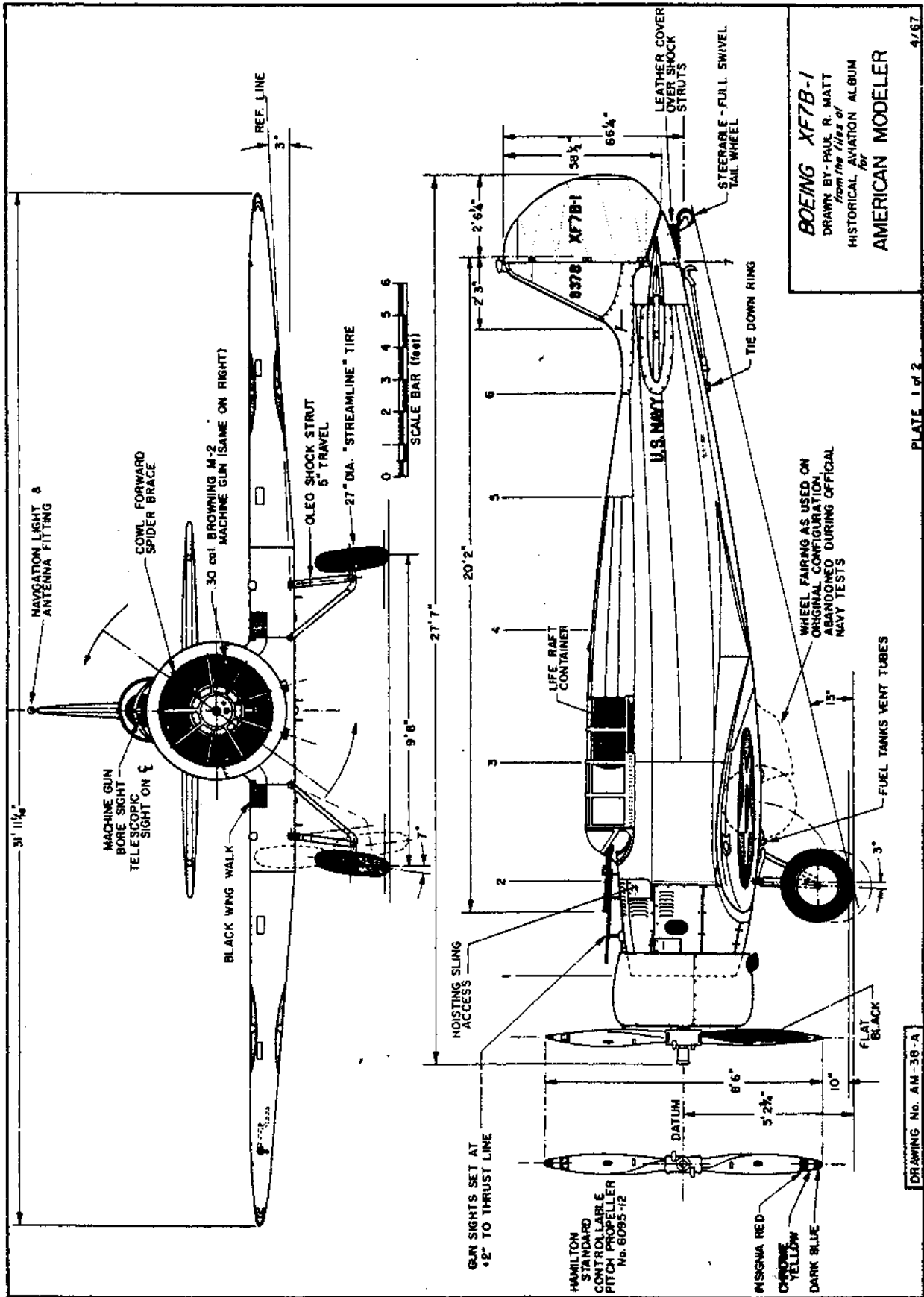
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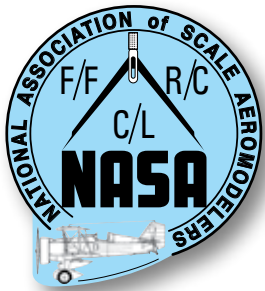


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