



The *SENIOR PATTERN ASSOCIATION*

Official S I G (Special Interest Group) of AMA

Dedicated to the Building, Flying and Competition of Vintage Pattern Model Aircraft

SPA NEWSLETTER www.seniorpattern.com JAN/FEB 2016

PRECISION AEROBATICS from PATTERN'S Golden Age

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FROM THE PRESIDENT-As I write this it is the start of a new year. So, Happy New Year to all the members of our SPA family! The weather is a bit cooler these days, so it is surely time to be doing some building. Jim Johns has been posting some really great looking new models from Jerry Black and Bernie Olson on the website. Check them out if you haven't seen them yet. (page 13—editor)

Traditionally, we have had the annual Board of Directors meeting in late January. The past few years have seen lengthy discussions of various rules proposals such as building to the original planform, electric propulsion, the cutoff date for maneuvers, and more. But things have been strangely quiet of late. No new rules proposals were put forward. Since the BoD meeting only lasts a few hours and it entails a lot of travel for the members, it was decided to handle whatever issues do come up via email. And if something does come up in the next few months there will be an opportunity for some discussions at the Perry Swap Meet (see the information on the contest calendar on the SPA website).

One item that is being researched, originally proposed by Newsletter Editor Duane Wilson, is the idea of creating a "Members Only" password protected section of the website where one can access a membership roster. Members could specify how much of their contact information, if any, would be available for other members. This would enable members to contact each other without having to send multiple requests to the Discussion List for someone's email or phone number. Webmaster Jim Johns is (re) learning the necessary material that will make this possible. Updates will be posted in the Newsletter and on the Discussion list.

Dan Dougherty has completed work on the new contest schedule and it has been posted on the web site. Gone is the Asheville contest, as the club decided to move on to support some different activities. And new to the schedule is a contest at the CMJ Hobbies field located just west of Perry. So, once again, we have a contest scheduled at a field with a hobby shop! CMJ bought out Mac's shop when he closed it and they have a big presence at Perry each year – that is where I get my fuel for the year and the price is great.

Keep up the good work on all those models for the new season. I look forward to seeing lots of SPA members at Perry!



Join our Discussion list from within the webpage or inform any officer and we'll "sign you up". It's like a gigantic Mailing-list, but at **NO CHARGE**. A service to membership and potentials from SPA.

ANNOUNCEMENT: *After several years of change with many issues to discuss, things are relatively quiet as we in SPA look toward the 2016 season. There are no real issues pressing to justify the travel and expense of a BOD meeting this month, so the formal meeting has been cancelled.*



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There may be a short meeting at the popular Perry show in March. Always feel free to contact any Board member regarding issues you would like the BOD to discuss.
SPA Board of Directors



FROM THE EDITOR—First, I want to wish all of you SPAers out there a happy, healthy, and successful new year. Whether or not you choose to compete on the contest circuit in the coming year, (of course we all hope you will), we on the Board of Directors, (BOD), appreciate you. We're glad to have you as an SPA member. May the upcoming year be one where crashes and other aerial heartaches, are few, and you are able to experience the joys of flying non-turnaround pattern to the fullest!
What ever happened to NOV-DEC you might ask? Well, let me tell 'ya-- a number of factors combined to make the NOV-DEC issue an impossibility. Simply put, I just ran out of the year 2015.

The last NL was released at the end of October, and before I knew it, January was looming with no time. The biggest factor however delaying the NL was that nearly all of the free time I had was poured into intensive work on a new magazine article I hope will be published by *Model Aviation* in the months ahead. I mailed it off just after Christmas. I had been working on it off and on since July, but really focused on it after the last NL was released. The article is based on the brief **Tom Brett TBX-I** re-creation article I wrote for our SPA JULY-AUG newsletter—only discussed in much more detail. It holds a lot of personal meaning for me because I saw TBX fly as a teen 50 years ago. Now it's time to try to catch-up in 2016. I apologize for the delay, but you haven't really missed anything. It's the building season, there are no contests, and flying activity is somewhat limited, (although as I write this the temperature is 65 degrees and beautiful in Asheville).

For the next few newsletters, I want to dedicate the cover colors to SPA pilots and builders who **USE THE SAME COLORS ON EACH OF THEIR PLANES**. This issue will be devoted to certain Jim Johns colors that were originally thought up by his daughter some time ago. Jim may use other color schemes, but this one is really memorable. I have a few additional pilots in mind for the months ahead, but if you have a certain SPA pilot who uses "signature" colors you'd like to nominate, send me an e-mail and let me know.

People are building. If you listen really carefully, you can almost hear the busy sounds of tools and sanders, (generating clouds of balsa dust), as people work on their airplanes for next years' competition. A few of those models will be featured in this newsletter, and as you get yours done, please send me photos or put them on the Discussion List for your fellow campaigners to admire, and they may be featured in future newsletters as well.

With the untimely demise of the Great Planes **Dirty Birdy** and Horizon **Phoenix 7** ARFs, many of us are pinning our hopes on the up-and-coming, newly available ARFs—particularly the **Tower KAOS 60 ARF**. We'll discuss the Kaos ARF as well as a new offering from Germany, the **MARIBU**, (winner of the 1969 and 1971 FAI Internationals). I personally got one of those, and will review it as I get it ready for 2016. The MARABU is the second European ARF entry, and an alternative to the popular, but higher priced, Curare ARF used by several within SPA.

We have two great articles in this issue. With more and more of us considering painting with Klass Kote instead of the traditional iron-on coverings, I'm very happy to have a "how to" **painting article** submitted by Vic Koenig. This article is intended for those who are contemplating taking the plunge into paint. The second is from Jim Johns who has worked hard to present an easy to follow article on battery options to the traditional NiMH battery packs—how about a **reliable LIPO alternative!** This article is specially written for the non-electric gurus, (i.e. most of us), at least that's the intention. He gives specific recommendations and sources for the products he talks about. Looking optimistically toward 2016,... and as Bruce might say,...

“Things will be keen in 2016”



ARFs TO YOU!

One of the factors that has really helped get people involved and flying with us has been the introduction of vintage pattern ARFs. While a traditional model builder may spend months building from plans or a kit, (including doing their own covering), the vintage ARF allows those not all that interested in building, or without the time. Some may need a plane in a hurry, (maybe due to an accidental you-know-what), and the ARF provides the opportunity to get in the air quickly, (and often at lower cost).

Starting with the World Models' version of Jim Kirkland's **INTRUDER**, the ARF has been very popular and a boon to SPA for a long time. The Intruder is a good compromise: for the pilot in a hurry, but it admittedly isn't a close reproduction of the Intruder as Jim designed it, and isn't highly competitive at the highest level of competition. In recent years, the **Phoenix 7 and Dirty Birdy** ARFs have been very popular as well, but unfortunately, both have been discontinued. **The Dirty Birdy in particular will be sorely missed** because this ARF was very close to the original **and** was highly competitive. Everyone from NOVICE to EXPERT used it with great success!

New Kaos 60 ARF--Tower Hobbies has had their small, inexpensive version of the Kaos for a long time, but it never caught on in a big way, probably because it was a bit too small for most SPA pilots. Now, (it would seem in the nick of time), Tower has finally released a full-size, (actually larger than full-size), version of the KAOS and several of us have already ordered them. The jury is still out on that promising ARF, but early reports indicate it will be a welcome addition to SPA. Still, as with the Intruder, some license has been taken with the design relative to the original. Certain changes were made to either update, or reconfigure the Kaos to make it acceptable to a wider audience, which is probably a good idea from a manufacturing viewpoint. This is not meant as a criticism of the new Kaos ARF per se; the changes most likely actually **improve** performance of the plane. One example is the new top hatch that allows greater utility, and easier access to the battery compartment if the plane is finished as an "electric". Yet, for those interested in flying an AUTHENTIC ARF true to the original plans, these changes are **NOT** necessarily a positive thing.

While we welcome the introduction of more vintage pattern ARFs, to meet our needs **they must be built well**. Attention to quality is probably less critical for trainers and slower flying sport planes, but by their very nature as fast-flying, competitive machines used to fly PRECISION aerobatics, pattern planes must be true, straight, and properly set up. There is no room for warps, gaps, or misalignments. Unfortunately, we have seen several of our classic ARFs being discontinued--probably **not** due to slow sales, but instead poor quality control issues, possibly resulting from an effort to reduce cost. We in SPA quickly became aware of these problems, and being the competitive and innovative souls we are, took our own steps to remedy or reduce them. With a little "tweaking", they could perform well.

Pattern pilots demand excellence from their planes--when a wing panel is warped, or something else isn't quite as it should be, we want a new one, to make it right. While never admitting it, these ARFs likely went away because the manufacturer and selling outlets got tired of gripes and requests for new parts to replace poorly built ones. Long-term success for an SPA ARF means it must be well-built **and readily available** when needed. Discontinued ARFs are lost to us.

Jim Johns "nailed it" when he described the new Kaos ARF as a **"Stand-Way-Off"** scale version of the Kaos. Per Jim

"There are lots of differences. It's sort of a modified hybrid of the original Kaos and Super Kaos. Here are a few differences:

- The ARF fuselage is taller, wider and longer = more side area for better knife-edge.***
- 2-piece (low to) mid-wing vs 1-piece bottom wing on original.***
- wing area 748 vs 644 sq in. on original***
- length 57.5" vs 54.25" on the original--wingspan 62" vs 58.5" original***
- cowl shape is totally different than Super Kaos. Original Kaos did not fair into a spinner.***

The most recent edition of Model Aviation did a "soft" review of the Kaos, meaning nothing negative was mentioned. Indeed it seems the basic configuration and quality of the plane is good, but there are a few things to watch out for, mostly pre-flight fixes. One person on RCU said, ***"Warning to anyone who purchases one, cut the covering and add some epoxy to the landing gear assembly. One local flyer had one rip out of the wing on a normal landing. Found it lacked sufficient glue. I opened mine to see that there too was a lack of epoxy. I could actually slide a piece of paper between the rib and the block under the slotted landing gear piece. The one that ripped out had an even larger gap between it and the rib. The quality of construction is not up to the par of the Schweighofer Curare import that I have"***.

Ken Knotts had a spinner out of balance that caused him trouble, and Jim Johns mentioned top hatch latching problems, but these are correctable details. Certainly the \$179 price can't be beat, making it the lowest price large full-size pattern ARF available--a great value. Hope the long-term quality control is where it needs to be--time will tell. 3

<http://www.towerhobbies.com/products/towa2058.html>

A NEW "BIRD" CALLED MARABU



Bruno Giezendanner's World Champs winning MARABU

Bruno poses with his 1969 AND 1971 winning Marabu

According to the dictionary, a Marabu is "...A large black-and-white carrion-eating stork..." I don't see the similarity, but the name at least sounds COOL! This new ARF offering for vintage aerobatics is from Sky Aviations of Germany. The ARF is legal for SPA but that's not all. Potentially the best thing about the Marabu is that (like the Curare), it closely resembles the original. In fact, the goal of the manufacturer was to "...replicate the exact flight characteristics of the original model". The Marabu comes in two color schemes--the 1969 version (Black/Red/White), and the 1971, (Red/White/Blue) scheme flown in the Doylestown, Pa championship. I am told the drawing used for the ARF was taken from the MKIII 1971 plane. I decided to build and test the Swiss MARABU ARF in the hope of finding a high-performing, yet accurate to the original ARF to replace the Dirty Birdy, and for once to be the "first kid on the block" with the new toy.

We have all heard of Wolfgang Matt and Hanno Prettner and their models, but just prior to their fame as European designers and pilots, Switzerland's Bruno Giezendanner was the reigning world champion--winning the 1969 and 1971 FAI Championships with the MARABU. I'm not quite sure why Bruno's designs aren't a "household name" in the USA as well. Maybe the name "Giezendanner", [pronounced **GEE'**-ZEN-DANNER], was hard for us to pronounce, but during the late 60s and early 70s, the Swiss pilots, (and brothers) Bruno and Emil, (I had the chance to meet Emil on my trip to Switzerland this past summer), were dominating in Europe. In the history of FIA, it was unusual that the same plane would win in two consecutive events, yet Bruno did it with the Marabu. Their web site: <http://www.classicpattern.com/>



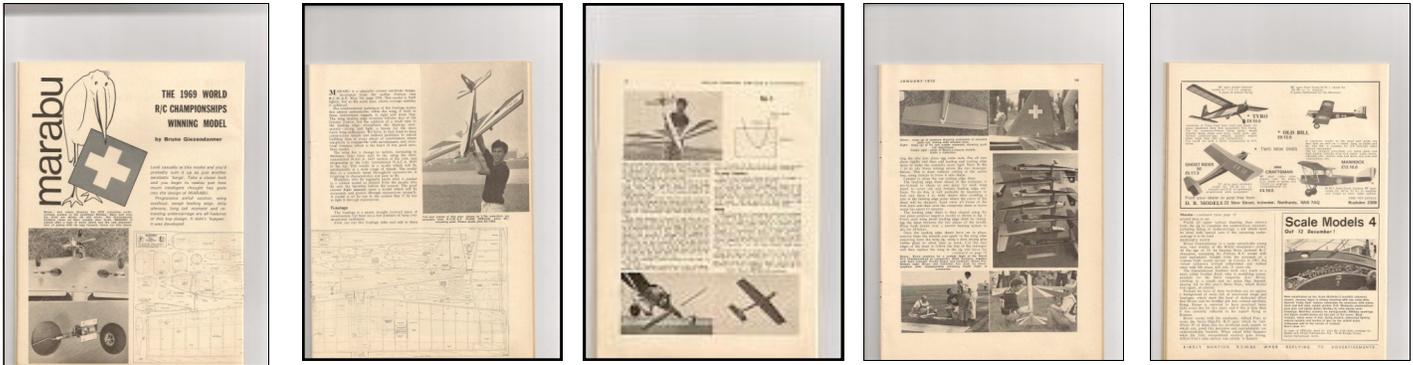
Marabu ARF as you open the box—looks well done. Currently waiting for instructions

The box from China, (direct from factory to customer), arrived after only five days shipping in my case. I haven't studied it carefully thus far, so there's more to come, but I could immediately see the covering material, (the German equivalent of Ultracoat), is high quality with no wrinkles to be concerned with. Looks like a good start. Compared to the Curare

ARF it is a good deal at \$390 plus approximately \$80 shipping.

My initial sense is that the plane is well built. There is a double, (box-in-box) that keeps the contents protected on its travels to you. Everything is packed-up nicely in bags. You can informally put together the basic pieces in minutes so you can see what the plane will look like. Everything is aligned for a tight fit. The wing halves are joined together on a CF tube, and dihedral is pre-determined. Blind nuts are pre-installed. Although you can build this plane with either a 2-stroke, 4-stroke, or build it as an electric, it is obvious that the Marabu ARF was originally intended to be the latter. You get both a plywood motor mount, and an electric mount ready to go. The plane is very complete, (includes fittings, horns, even clevises), if you are going to finish it as an electric, but it doesn't come with a fuel tank, (no big deal there). The Marabu is also designed to be fitted with retracts, (no landing gear blocks included), and you can buy matching retracts as a package deal with the plane. Retract cut-outs are completed, including the nose wheel that tucks slightly into the front of the wing. For SPA I plan to build this plane as my first with retracts (with the gear down during contests). It looks easier to do if you use the retracts, but the web site has a section on how to adapt to the regular gear. The plane is good-sized with a 66-1/2 inch wingspan. My version is the red-white-and black color scheme, which is very sharp, (translated cool-looking). The ARF is manufactured to be very close to the original, with the only deviation I see being a removable fiberglass cowl, (common with other ARFs), to make working on the engine/motor easier. To all but the most absolute purist, it is a welcome feature.

I found a neat demonstration video showing what the **MARABU** (in its 1971 color scheme), can do--enjoy! The original article from 1970 is posted below with 1971 article further down the page...

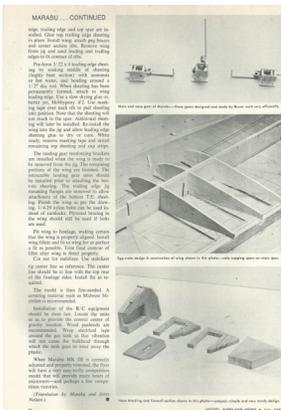
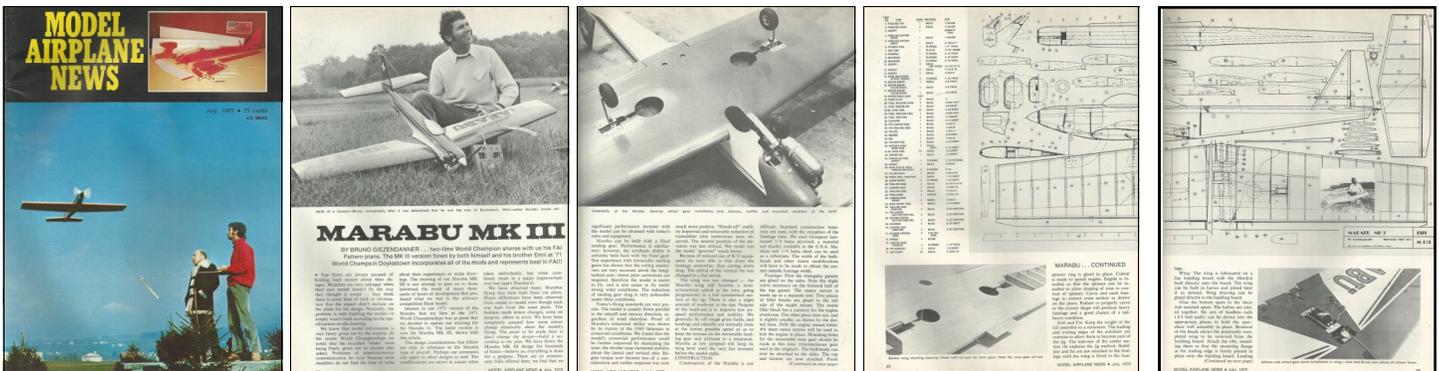


<https://www.youtube.com/watch?v=nYTpl7TnG80>

Please take note—because SPA is about actual contest competition rather than just flying vintage planes, many of us (often) tend to "tweak" our planes here and there in an effort to (possibly) improve the performance or looks of the model. A lot of time has gone by since these models were first designed, and it is a real temptation to want to "fiddle" with something here and there. I'm not going to go into the rightness or wrongness of this practice, (don't want to re-open that can of worms), but "tweaking" within limits is part of the fun for some of our pilots. Please note however that Bruno, (almost 45 years ago) anticipated this very thing and wrote about it. He advises that every design element in the drawings has been done for a reason, and advises his readers, (and future readers meaning us), to leave the design alone, and leave things be. He also directly addresses the performance with and without retractable landing gear, and although he says performance is fine without them, he advises the latter. I have never flown with retracts, but this bird is set-up for them, so if there **ever was a plane** I'd complete with retracts--this would be the one to try, (just for fun). As mentioned, material is provided to construct a fixed landing gear version.

The same could be said for completing it as an electric. This plane can easily be finished either way, but the prototype you see in the video was completed as an electric, and it is probably easier to complete that way—so for those thinking about trying an electric pattern plane, (like me--I've never had one), this might be a good choice for your first. Those who already fly electrics will find this plane ideally suited for electric power. They even give you the "velcro" straps for the battery.

Below is the 1972 MAN article about the Marabu Mk III. You will remember I said this Marabu ARF came from



the slightly improved **1971 Mk III** version.

I got a very early, newly released version of the Marabu--before the instructions were available, I'm told they will be out soon. I'm waiting 'till they are before assembly.

What is interesting to me about the Marabu is that it may very well be a better, more authentic, and more competitive plane than most ARFs. Like the Curare ARF, it is very close to the original. The manufacturer made a point of saying that they wanted their ARF to have the EXACT flight characteristics of the original--it is a high priority of theirs.

As an organization, although SPA was very disappointed that the Phoenix 7 and particularly the Dirty Birdy ARF was discontinued, early indications seem to show that all is not lost. The Kaos ARF is no doubt a tremendous value and good flyer, and the German Marabu ARF looks very promising. I hope they both have staying power. I would be happy to lend my Marabu to any SPA pilot, especially those in EXPERT or SR EXPERT, to see what it can do in EXPERT **HANDS**, (since I don't have expert hands). More to come

...Duane Wilson



LiFe RX Batteries for SPA Airplanes

Why and How to change from NiMH?...

by Jim Johns

I flew AMA pattern from 1982 through 2000, then took a 12 year break completely away from RC to do other things. I discovered that many things in the RC world had changed upon my return to flying in 2013:

- Engines had changed and some of my old favorites are no longer the hot ticket.
- Radios had changed a lot. Most are now on 2.4 GHz instead of 72 MHz and onboard telemetry is available.
- Batteries have come a long way. Most receiver – and transmitter - batteries are now NiMH (Nickel Metal Hydride) instead of the old tried and true NiCad (Nickel Cadmium) batteries we used previously.

I found these to be a mixed bag of changes. The first two are good things because they make our lives easier as modelers. Telemetry on my new 2.4GHz radio has **twice** saved airplanes for me in less than a year by detecting battery problems before they caused a crash.

Unfortunately, I can't say the same for NiMH batteries. While they are rugged and provide strong power for our models, they have several negative traits – they are heavy, take a long time to charge, and they self-discharge. Self-discharge means that if you leave your models unused for an extended period of time, such as over the winter, you'll find the receiver batteries very low or completely dead when you want to go flying again. Therefore, you have to recharge them approximately monthly while not in use to keep this from happening. I currently have five flyable aircraft in my stable and I wanted a better solution.

I had been using 5 cell 6 volt 2000 mah Hydrimax NiMH packs in my SPA competition aircraft to deal with the higher voltage and current requirements of digital servos and 2.4 GHz radio. I did a lot of online research and found that a lighter 2 cell 6.6 volt LiFe (Lithium Iron) battery pack could be used to replace the 6 volt NiMH pack without adversely effecting to my JR XG8 radio or DS821 servos, so I changed one of my aircraft over to a LiFe receiver battery to see for myself. The results were amazing – the LiFe pack held a charge for a very long time, wasn't affected by the high current draw of my digital servos and could be recharged very quickly.

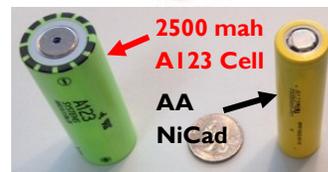
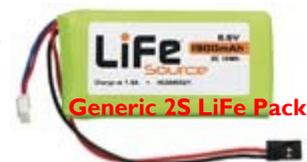
The rest of this article deals with how to convert your SPA airplane over to LiFe receiver batteries, but let's start with some basic terminology:

Battery - 1 or more cells connected together to give the desired voltage.

Cell - a single unit of a particular type of battery. A single flashlight battery is one cell. A car battery is actually six 2V Lead Acid cells connected together to give 12V. The LiFe pack shown at right is made up of two 3.3V cells to give 6.6V.

LiFe - Shorthand for Lithium (Li) Iron (Fe) Phosphate chemistry batteries. These are much safer to handle and charge than the LiPo batteries used to power electric aircraft. Read that "they won't explode or catch on fire in your airplane". Each cell has a nominal voltage of 3.3V, and there are two distinctive physical types of LiFe cells which both do exactly the same job. The most common are the thin, flat rectangular cells like the LiFe Source pack shown. The pack shown has two of these thin flat cells stacked on top of each other like sticks of gum in a pack. I refer to these as "generic" packs. The other type of LiFe cell is the A123, which are cylindrical cells similar in appearance to flashlight batteries. The photo shows one 2500 mah A123 cell compared to a AA NiCad. A123s are physically much more rugged than the generics, but also more expensive. Generics cost anywhere from \$6 to \$30 depending on capacity and source, while an A123 pack will cost in excess of \$50. An 2500 mah A123 pack weighs slightly less than a 6V NiMH pack and is twice as thick, while the generics weigh considerably less. A123s are typically used in large, gasoline powered models where vibration is a major problem. The generics work fine in our SPA planes, even with 4-strokes, if they are adequately padded to protect from vibration. I typically use at least 1/4" of foam all the way around and often 1/2".

Balance Charging - charging each individual cell of a pack to have as close to identical voltage as possible. This is done using a balance plug. Please go to one of my favorite RC battery related websites - NoBS Batteries - and read



continued...their very informative article on setting up and balance charging A123 LiFe batteries (<http://hangtimes.com/a123rxsetup.html>). The information in the article is applicable to any LiFe battery pack, not just A123s. It will help you understand the reason balance charging is so important.

Balance Plug - an additional plug on the battery pack to allow each cell to be charged individually. The most common type is a small white plug called a Molex JST-XH as shown on the Cheetah pack below.

Storage Charge - Lithium batteries last longest when they are stored at ~50% of full charge if they won't be used for a while. Any of the chargers below can do this for you - see charger manual.

Still interested? Here's the minimum you'll need if you've never used any type of lithium battery (LiPo, LiFe, etc) before.

- A 6.6V 2S LiFe receiver battery pack with an output plug to suit your radio brand.
- A charger that will balance charge LiFe batteries.
- Charging and balancing cables. These are not always included with the charger depending on brand.
- A special battery tester to check them properly.

LiFe Receiver (Rx) Battery Packs: LiFe receiver battery packs come in many sizes, styles and prices. The 6.6V LiFe packs used for our receivers are referred to as "2S packs", meaning they have 2 cells in Series. They typically have two connectors – a servo plug to connect to the power switch and a small white Molex JST-XH plug for balance charging. Some add additional connectors to allow for multiple uses.



Cheetah 6.6V 1600 mah LiFe Receiver Pack

Chargers: Here are three chargers that I own and can recommend. Each has its strengths and weaknesses.



HITEC XI+

Balance Board

- **Hitec XI+ AC/DC charger:** This is a basic charger that will charge, discharge and cycle batteries of many different types (NiMH, LiFe, LiPo, etc) and can be powered by either 110 volt AC or 12 volt DC power supply at home or a car battery at the field. It's very versatile, but one disadvantage is that it uses a separate balance board instead of having the balance plugs built into the charger itself like the other chargers below. I use my XI+ at home and the others at the field.

- **SkyRC IMAX B6 charger (DC only):** This charger performs the same functions as the XI+, but does not have an AC



SkyRC IMAX B6

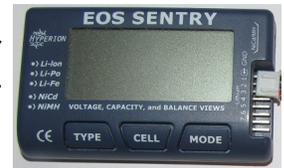
Balance Plugs

power supply built in. Therefore you must power it with either your car battery or a 12V DC power supply. The photo shows the genuine article that I bought from Hobby King. **IMPORTANT NOTE:** Be very careful of cheap knock-offs of this charger not made by SkyRC. Google "Imax B6 charger problems" to see some of the concerns associated with these cheap imitations.

Watch the video on the Hobby King page at the link at the end of this article for identification information.

- **iCharger 106B or 206B (DC only):** These are more advanced, higher quality versions of the B6 above. The 106B charges at a maximum of 10 amps while 206B charges at 20 amps max. Both are quite small and work very well, but you'll still need a DC power supply to use them at home. Note the balance connectors on the right end of this charger and the B6.

Battery Checker: You'll need to purchase a battery checker to properly check each individual cell of your LiFe batteries. The checker shown at right can check LiPo, LiFe, Lilon, NiCad and NiMH batteries. I purchased mine on ebay for about \$25, but similar ones can be found for less.



EOS Battery Checker



iCharger 106B

Power Supply: I bought the Pyramid PS-9KX 13.8 Volt, 7Amp power supply shown from WalMart.com. I chose this power supply because it has both banana plugs for my iCharger and a cigarette lighter plug for my IMAX B6 and Ace Smart Charge.



Pyramid Power Supply

Charging and Balancing Cables: Charging cables to fit LiFe receiver batteries often do not come with the chargers, so you'll need to buy them or build your own. They are readily available from many dealers.

Balance charging is simple with any of the above chargers when the battery is out of the plane. Simply connect the charger to the power leads of the battery, connect the small white Molex balancing plug to the appropriate balance connector of the charger and select the “LiFe Balance” mode on the charger. However, ***balance charging while the pack is mounted in an airplane is another story.*** The small Molex JST-XH balance plug on a short wire makes it very difficult to balance charge the pack when it’s installed in the plane and virtually impossible to do so when the plane is assembled. I’m a person who likes to check receiver voltage between rounds, so this is important to me. If you are interested in a low cost DIY solution, head over to http://www.seniorpattern.com/build_tips_LiFe_Rx_Part1.html for my multi-part “How To” tutorial for building these systems. If not, use the links below to order what you need.

LiFe Rx Battery Packs – make sure the discharge plug of the pack you order works with your receiver switch.

- LiFe Source - <http://www3.towerhobbies.com/cgi-bin/wti0001p?&l=LXDVCE&P=ML>
- GForce - <http://www.valuehobby.com/power-systems/batteries/life.html>
- Cheetah - <http://www.bphobbies.com/view.asp?id=C2116942>
- NoBS A123 - http://hangtimes.com/a123_packs.html

Chargers I own and recommend:

- Hitec X1+ - <http://www3.towerhobbies.com/cgi-bin/WTI0001P?l=LXBJBY&P=8>
- SkyRC IMAX B6 (the real thing) - http://www.hobbyking.com/hobbyking/store/65166_IMAX_B6_50W_5A_Charger_Discharger_1_6_Cells_GENUINE_AR_Warehouse_.html
- iCharger I06B - <http://graysonhobby.com/icharger-I06b-250w-balance-charger-w-free-paraboard.html>

Battery Tester: <http://www.valuehobby.com/accessories/battery-accessories/battery-capacity-checker.html>
<http://graysonhobby.com/graysonhobby-battery-checker.html>

Power Supply: Pyramid PS-9KX - <http://www.walmart.com/ip/Pyramid-PS9KX-Pyramid-PS9KX-Power-Supply-5A-7A-with-Car-Charger-Plug/22866706>

Charging and Balancing Cables:

- 2S Balance Extensions - <http://www.buddyrc.com/pigtail-2s-male-jst-xh-balance-connector.html>
- Servo Extensions - <http://www.bphobbies.com/view.asp?id=V827987> - use 22 AWG (Heavy Duty) extensions
- Banana Plugs - <http://www3.towerhobbies.com/cgi-bin/wti0001p?&l=LXL362&P=7>

Switches: ED Ultra Switch II - <http://www.electrodynam.com/rc/usw/index.shtml> This is the switch for the DIYer. Modification is simple if you can use an X-Acto knife - I’ll show you how. Read the review by a Chattanooga RC Club member Rick Curtis here - http://www.electrodynam.com/rc/usw/Ultaswitch_II_Review.pdf - to see why this is the switch to buy instead of some cheaper alternatives.

If you prefer a one-stop solution, here are two.

NoBS Batteries: http://hangtimes.com/a123_packs.html

Scroll down to Accessories for A123 Systems and order the following:

1. **NoBS Batteries 'Combo Solution' UltraSwitch II** and select “Single 18g JR/Universal to Rx”.
2. 'Combo Solution' Balance-Charge Cord for JST-XH two lead chargers
3. A123 Balance Tester with cable

If you want to use A123 batteries, order The NoBS A123 Combo Solution plus the A123 Balance Tester (#3 above).

If not, Order one of the generic packs listed above.

ElectroDynamics: <http://www.electrodynam.com/>

1. Charge Cord - <http://www.electrodynam.com/store/product295.html>
2. Switch - <http://www.electrodynam.com/store/EDR-77N.html>

I think that once you try a LiFe Rx pack you’ll love it. Please email or call me if I can explain more or assist in any way.

Jim Johns tr20pd@gmail.com



Klass(y) Kote Basics

Some lessons I've learned painting with Klass Kote

...by Vic Koenig



Klass Kote paints are gaining popularity within SPA

As we sometimes learn the hard way, so many things in life are technique sensitive. When was the last time you asked your wife for a (fill in the blank??), and been turned down? When the light finally came on you realized your timing was off. The same principle applies with many other things in work, raising kids, and being married. Well believe it or not, painting is just another item on that list.

We have a new paint available that, believe it or not, is really a joy to use, and will yield outstanding results if done correctly; it's called Klass Kote. So what are the things we have to know in order to get that outstanding gloss that Klass Kote can provide? It all starts with the surface prep. Each person has his own favorite way to prepare the wood surface prior to painting. The following is one method I've used to prepare my wood surface. I got this from Chuck Goodrum long ago and still like it. After the standard smoothing with coarser paper, you remove the roughness with finer grits until the balsa takes on what I would call a "sheen". At this point you are ready. Get the wood as smooth as you can. I usually start with 360 wet/dry. Anything you are already doing that works for you is fine.

Then get some **West System Epoxy** to fill and harden the wood without adding too much weight. I thin it down approximately 5:1, and spray it on with my trusty paint gun, usually two coats. It takes 24 hours between coats to harden unfortunately. Hand sanding gives you better fine control, but an electric sander can be used at first if you're careful. You can do a sanding with 220 wet/dry applied wet, just to get the peaks off the first coat, but then apply another final coat of epoxy. It's a good idea to wipe the coats down with some isopropyl alcohol first to prevent clogging your wet/dry sandpaper. This last coat will be the one that needs to get as close to right as possible. I say close because I'll shoot Klass Kote primer over the hardened, filled wood to create the final surface that is painted after final sanding. Invariably when doing the final sanding you get carried away a bit here and there, and get into the wood. To solve that, I found I can shoot some clear Krylon rattle can paint (it dries in 10 minutes), and a light 400 wet/dry, (applied wet), to make it all well again. Just don't spray any more wood surface than you exposed.

The finished paint surface depends on everything underneath it. No matter how good the paint or the painting process is, only a near perfect surface prep will give you the best result. At one time I was told the primer doesn't matter; "anything will do", but after using some rattle can primers, I found out the hard way you have to be selective. From my experience, the only primers that will not cause bubbling or hazing are the good automotive primers you may already have, or the Klass Kote brand. When discussing auto primers, I'm referring to PPG and Dupont brands. These come in gray. The Klass Kote comes in either grey or white. I'd suggest the white rather than the grey if your color scheme has predominantly light colors. The grey will work best on a predominantly dark paint scheme. Maybe someone, some day might want to try mixing the two colors of primer together to make a lighter shade of gray to accommodate any paint scheme. Both the white and grey primers are easy enough to sand when mixed as the directions say. Always keep in mind that primer is heavy, and should be sanded off as much as possible to control weight creep.

Klass Kote is a very thick paint when mixed one part each of color and catalyst. The individual primer parts, as well as the colors need to be stirred well in the can before you measure them out, because almost any paint will settle.

The directions say that you should give the two-part mix 40 minutes to catalyze after mixing. I have found that if you put the mix in a microwave you can heat it and speed the catalyzing process, cutting it in half. Caution needs to be exercised here to get the temperature slightly warm to the touch, (about 10 degrees). You do not want to cook it.

Paint outdoors if at all possible, (for reasons that will be all too apparent if you don't). A respirator is a must indoors. When painting outdoors, watch out for the inevitable gnat, (of course watching doesn't prevent them from taking "a swim" in the paint) :)

There are three parts to the mix, the color, the catalyst, and the solvent, (thinner). You add the thinner last. When you have the mix ready for the thinner, it's decision making time. A general rule of thumb is that you need a thicker mix for color application and a thinner mix for gloss. I will sometimes add one part thinner for the first one or two coats. After all, we want it thicker at first to lay the paint on and not have it run. This seems to be an effective way to get the majority of the surface covered. At this point we are not concerned with full coverage, or even a final gloss --only the principal color on the surface without much primer showing through. While the first coat/s are setting up (10-15 minutes between coats), I will go back and add additional thinner to the paint remaining because I want to do some filling of imperfections. The paint can fill small imperfections in the primer coat as it flows and smoothes out. Nothing shows where you missed smoothing and filling the wood like paint. To get the paint to flow better I'm looking for a mix of one part mix (paint and catalyst), and 1-1/2 to two parts thinner. This can be difficult to judge unless you take the paint mix out of the gun and visually view how much thinner you are adding. I make my mix in a glass jar, both for use in the microwave, and this last mixing process. This same sealable glass jar can be kept in your refrigerator and the remains will be good for about 2 weeks to touch up minor "mistakes" should there be any. The time may vary depending on color.



SIMPLE BUT EFFECTIVE device made by Vic to turn the fuselage during painting. Outdoors or garage painting is best, otherwise ventilation and a respirator is a must.

Final coats are added to finish applying color and to get a very smooth glazed, (glossy) look, (called a flow coat), on the paint. The appearance at this point is what you can expect the final result to look like. Since the paint is thinner during this phase, I have a trick I use to prevent runs. The paint solvents will flash off fairly quickly at this point but runs can also happen. To solve this problem, I have improvised a way to turn the fuselage using the tool pictured in the photo. I have a dowel going through the firewall and into the fuse where I have a removable dowel support. The dowel is supported in a block of wood with a hole in it. It's nothing special but it is very effective, I can easily rotate the fuse, shooting whatever surface is "up" and then turn it to another position. I will shoot the top and bottom and give the paint a few minutes to harden then do the sides in the same manner.

Let's talk about masking for a minute. If you make curved lines between colors get the good masking tape, (the automotive vinyl type). If you are making straight lines, the smooth "blue" painters tape works well and has little seepage at the edges. The gun I use is a **Vapor** (correct spelling), and I have two drier canisters, one on the gun and one at the hose that exits the tank. Tank pressure is set at 40/50 for best results. Guns are relatively cheap at Harbor Freight, (around \$20.00 or less). Compressors are slightly higher. Choice of compressor depends on your own taste, your budget, and frequency of use. Borrow your neighbors, or go to a tool rental place or look for one at a garage sale if you have the room to store your own.

Finally, there are really good--no, actually really great painters among us. All you need to do is look at their work and if you like what you see, pick their brains. This organization of SPA'ers has no secrets. We just want to enjoy our planes, fly, and enjoy the camaraderie with the friendly competition. Give it a try! ...Vic Koenig

*****TENTATIVE***TENTATIVE***TENTATIVE*****

April 30 and May 1 Prattville, AL, Jim Oliver CD
 May 21-22 Knoxville, TN
 June 11-12 Chattanooga, TN Scott Anderson CD
 July 9-10 Cullman, AL Steve Byrum CD
 August 6-7 Roberta, GA, (near Macon), Dan D CD
 Aug 27-28 TBA
 Sept 24-25 SPA Masters, Alabaster, AL Dave Phillips, CD

**Just Announced:
 SPA 2016 SCHEDULE**

April 23 (1 day) West, Ft Worth, Gary Alphin CD
 Sept 17 West, Ft Worth, TX Pat CD
 Oct 15-16 SPA Open Ft Worth Ken Knotts CD

1973 Internats Winner

Blue Angel

...by Duane Wilson



My Blue Angel in 1985

When I briefly flew AMA NOVICE pattern in 1984-1985, I went through airplanes relatively quickly. The one airplane that I managed to keep in one piece, and the only one I managed to win a contest with was an SBA, a Muechler's Hobbies fiberglass clone of the Blue Angel. I loved that plane, and remember feeling very confident flying it in spite of my being an aerobatic rookie. I remember it going where I wanted it to go easily and confidently—without the need for frequent corrections and without surprises. I remember it

being predictable and a joy to fly. When I moved to North Carolina in 1986, I got out of flying, but before I left, I sold it back to my mentor at the time. As mentioned, even with my skill level back then, it was the only pattern plane I didn't crash, and that speaks volumes about its manners in the air.

The Blue Angel was the winner of the 1973 Internats, and has always been one of the most popular of the vintage pattern designs within our time window, however until Bernie came along last season, I had never seen one at a contest. Maybe the Blue Angel's time has come. With its mildly swept-back wing similar to a Don Lowe Phoenix, (but with a larger wingspan), and a compound curved fuselage, most people feel the design is real "looker".

There are several Blue Angel threads on R/C Universe and R/C Groups. The main thread on the R/C Universe Classic Pattern forum is the second most popular thread with over 200, 000 views:

<http://www.rcuniverse.com/forum/classic-rc-pattern-flying-379/3973867-blue-angel-build.html>

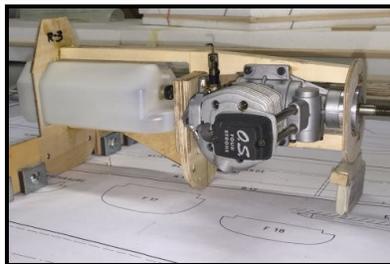
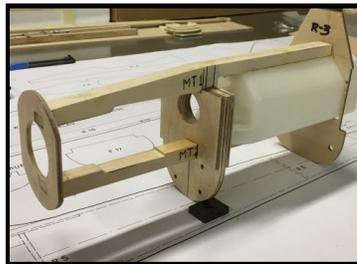
<https://www.youtube.com/watch?v=eXFqZK6WZ5c> (Flight demo)



After reading Bernie Olson's great article on his Blue Angel from a Eureka kit, I got "the bug", and decided that it would be my primary project this winter. The Eureka kit with all the trimmings, (plans, foam wing, and the complete wood package), wasn't cheap at \$305, (you can buy a simple short kit, and enlarge your own plans if you wish. With that cash outlay, I wanted to be sure to do it right. Vic Koenig was good enough to offer to work together with me to build the foam wing and stab, so I made the 1-1/2 hour trip to Johnson City, TN twice to work with Vic in his shop. Up to now, every wing I've ever built has been "built-up", the traditional way, so the foam wing route was new to me. Vic showed me the ropes, (next page), so hopefully next time I'll be able to do it myself.

This fuselage isn't built upside down on a flat surface in the traditional way.

Some construction pictures showing the B.A. motor mount "cage." It is the heart of the fuselage. Make it straight!



The fuselage is built in space UPRIGHT, but don't let that deter you. With a little care and attention to detail in keeping things aligned, anyone can do it.

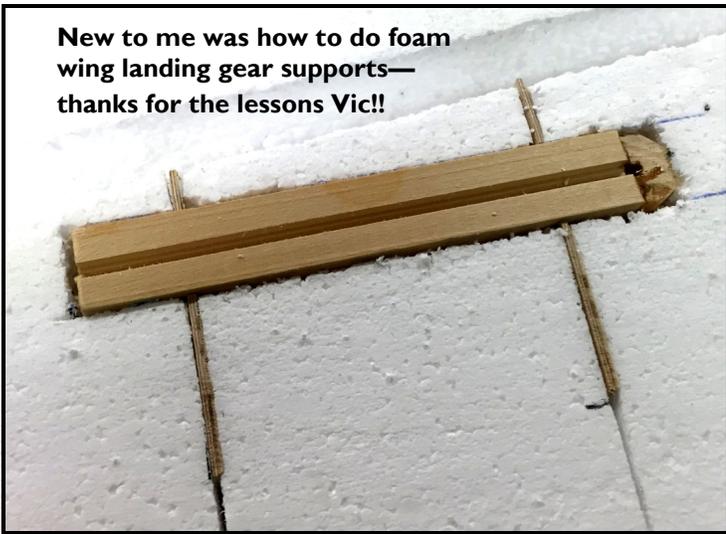
The first picture looks like a "forest" of right angle braces making sure alignment is perfect. You need to use several such braces, (essential), to make sure everything is square to the building surface. The motor mounts and the first three bulkheads come together in a kind of "fuselage core" that also holds the tank. The middle and right bulkheads happen to measure the same distance to a flat surface, so they can be laid directly on the building table. The front "nose ring" bulkhead, (make sure you figure in right thrust), has precise openings for the motor mount. All bulkheads are blocked up to the proper height for a little extra support. For proper alignment of the fuselage sides, the bulkheads are notched—the fuselage side fits into the notch. Attention to detail regarding alignment may entail a bit of extra work, but this plane is worth it. I also had to enlarge the motor mount cut-out somewhat to fit the OS .91 instead of the customary 2-stroke.



A Blue Angel from the RCU Site



I also had to enlarge the bulkhead cut-out in order to fit the 12 oz. Hayes "Slimline" tank, but it slips in there perfectly now. The tank opening is tight, but I'll put a band of electrical tape around the tank to keep it from wearing on the tank side. An additional (self-fabricated), bulkhead, (the middle 1/4" ply R-2 Modified) was glued to the R-2 bulkhead supplied with the kit (see photo below), to handle the fixed nose-wheel, and conforms to the outer shape, to eventually hold a fiberglass cowl made by Bernie, (above photo). It works well and opens the whole area up. The supplied, original R-2 bulkhead was intended for retracts, and doesn't extend all the way down. You can see in the



New to me was how to do foam wing landing gear supports— thanks for the lessons Vic!!



Vic Koenig gives the Blue Angel wing the lightness treatment!



pictures of Bernie's plane that he also braces the newly made R-2 Mod. bulkhead, (firewall/landing gear mount) with a triangular ply piece for strength, (see left photo). It was very helpful to visit him a few months back to see how he did things. I plan to take it slow while working on the Blue Angel now that other projects are completed. I hope to have it completed by spring.

Wish I were here—my Swiss builder friend has nearly finished his own Eureka kit! He is an excellent builder, but still described it as a "complicated ship to build". If care is used to make sure alignment is correct, it should be OK. He has a built-up wing.



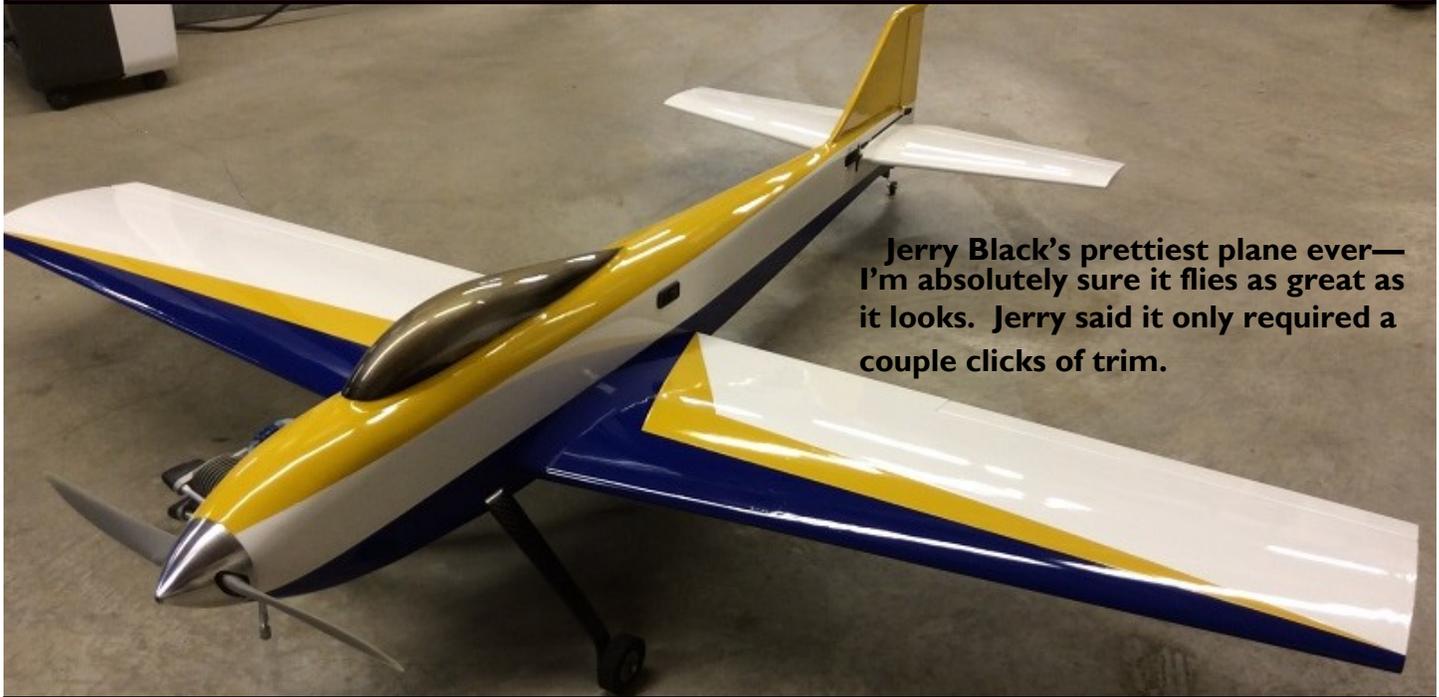
Original R-2 bulkhead that comes with the Eureka kit



Swiss Blue Angel (complete with retracts) almost ready to be finished.

2016 WARBIRDS

THE NEW PLANES WE'LL BE SEEING THIS YEAR

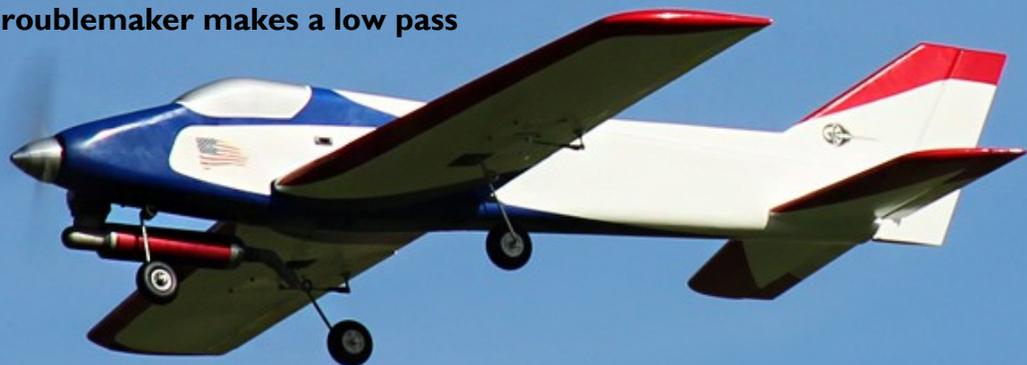


Jerry Black's prettiest plane ever— I'm absolutely sure it flies as great as it looks. Jerry said it only required a couple clicks of trim.



Bernie Olson does it again with this beautiful Tiger Tail. Fantastic use of color and contrast will make it easy to see.

Gary Kieliszek's Troublemaker makes a low pass



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