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for Newsletter Editors and Club Officers



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PRESIDENT TO PRESIDENT

Diversity and Accommodation

by Dave Brown, AMA President

Ed. note: the following is a compilation from Dave Brown's "President's Perspective" in Model Aviation. Dave had medical problems and was unable to complete his "President to President" column for this issue.

In thinking about our hobby and the development that I have seen during my 50 years of involvement, it's astounding to realize just how far we have come.

Fifty years ago, RC was reserved for those who were radio amateurs, the glow plug was a relatively "new" thing, CL was the rage, and kids were a high percentage of those of us who were involved. My, how it has changed!

One of the great things about aeromodeling is the diversity of activities that are contained within the overall hobby. In general, hobbies can be divided into four categories: active, passive, possessive, and creative. In the case of aeromodeling, there are aspects that involve each of these categories.

Because we participate in actually flying our models, most of us are involved in the active part of the hobby. A day at the flying field is the best part of the hobby to most of us.

There are a few—and we all know

someone who fits this category—who get their enjoyment of the hobby from watching others fly. Many get enjoyment out of the social aspects of the hobby and seldom fly a model themselves.

Those of us who are into collecting all aspects of aeromodeling are the possessive types. I have seen a few amazing collections of model airplane paraphernalia. We hold "collectos" and revel in the swap-shop areas of many trade shows. We don't need to be just collectors to enjoy this part of the hobby.

How many of us have a few kits stashed away, just waiting for the time to build them, and how many of us will ever find that time?

The creative aspect of aeromodeling is shown in the building of our models. Even those who have ARFs exhibit their creativity when they finish up their models. And we have all figured out some creative ways to crash a model, haven't we?

Yes, it's a diverse hobby, but we need to stick together in order to be able to enjoy our hobby and to pass this passion on to the next generation. Our greatest strength is that diversity and our ability to bond together for the common good.

I seem to be getting more E-mails from people who are encountering restrictions to what types of models are allowed on their club flying sites. Often this seems to involve clubs that exclude helicopters from flying at their

field, but an occasional situation crops up with gliders as well.

I encourage clubs to *try* to provide for all of their members' interests in aeromodeling by exploring ways in which the incompatibilities between disciplines can be overcome.

Sometimes a slight adjustment in the field layout can accommodate the "minority" categories. Scheduling of days on which those activities are allowed can be another potential solution. Working together to affect a solution would be the best remedy, but for a variety of reasons this is sometimes impossible.

It's funny that if the number of club members involved in the "different" activity is just one or two, it seldom creates a problem; nor is it a problem if half of the club flies that type of model. The problem seems to lie between those two extremes.

Restricting the flying site to certain types of models is a common requirement in order to allow for use of that site. Many sites are restricted to Sailplanes, electric models, or CL models, and some to helicopters. This is a matter of practicality and is often a necessity.

In any case, it is *not* a matter of discrimination. AMA does not support any form of discrimination, particularly those involving the federally protected categories of people. Restricting a site to certain types of models is common, and it is not a violation of the nondiscrimination requirements for an AMA charter. →

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TIPS FOR CLUBS

Protecting the Assets of Clubs and Special Interest Groups

by Carl Maroney, Special Services Director

One of the advantages afforded a club, chapter, or Special Interest Group (SIG) associated with the Academy of Model Aeronautics is the presence of various levels of insurance protection.

The major portion of this protection is directed toward liability concerns primarily arising from incidents associated with flying activities. There are, however, other areas of concern that each of these groups should address, whether they are incorporated, have officers, or written bylaws.

While some clubs, chapters, or SIGs do not maintain large balances in their treasuries, others do. This may be the result of the creation of a flying site development or acquisition fund, or because of monies which are to be dispersed later for community projects or major events.

The protection of those funds is very important, therefore, the group should consider various operational and insurance protection procedures.

please see **Protecting Assets** on page 3

How Do You Get Started in CL Combat?

by Tom Siegler

Wow, that's a loaded question. I can relate because I have only been flying five years now, and Combat for only three years. The biggest thing in getting started is finding help. This can come from many places: online, local fliers, even some RCers have experience and can help.

Second is simple and reliable equipment. This does not mean cheap! I spent the first two or three years trying to save money. I now feel this was the wrong approach because it was false economy.

Why? The \$35 eBay motor that you spend \$10 for a head, then \$15 more for a needle-valve assembly that you cannot get parts for any longer after the piston and liner gets burned up is not economical. No engines that take six months to a year to get and then longer to get a new needle valve to replace the one that broke off can ever be called economical.

Looking at what is readily available today, I'd recommend to start flying Combat by practicing with 1/2As. It is the most economical in terms of surviving damage. Boy, will there be a lot of carnage!

For me, the setup of choice would be to get some Lite-Hawks from Larry Driskill or some Little Hackers from Core House. Two of either of these airplanes (both come two in a kit) will get you a long way toward learning to fly and maybe even start learning to fly Combat. The foam-wing airplanes bounce off the grass and take impacts a little better than built-up models and their lighter weight allows use of plastic propellers that bend and not break on every impact.

Start with 42-foot .012 lines. The 35-foot lines make you spin much too fast for comfort starting out.

My engine of choice for starting out would be an AP Wasp or Norvel (any version) .061. While not legal in AMA Combat, these two are available, so are parts, and they will pull almost as well as a *real* .051 Combat engine at roughly a third of the price. See Larry Driskill's Web site (kittingitogether.com) for an excellent article on using bladders; don't be afraid to try them.

Real engines include the VA from Larry Driskill, the Profi from Jim Booker, the Cyclon available from Doug Galbreath, and the Fora from George Cleveland. These screamers run from \$70 for the VA up to \$180 for the Cyclon. I have at least one of every type and they are all good. My Cylons have been economical to run. The VAs I've had take the most maintenance and spare parts. Of this list the Fora would be the first choice for economy and usability. All the available RTF planes will balance with the Cyclon or Fora on them. The VA and Profi are much lighter and the Cyclon is about \$40 more.

Next class is speedlimit. This is a "run-what-you-brung" type event in most parts of the country—usually 75 mph on 60-foot lines. Most older slow and fast Combat airplane designs will work fine. F2D airplanes with a .15 or light .25 will also do nicely.

I spent much time, money, and frustration with getting set up for this class early on. I tired the eBay engine shop. This works but I have found that it is more important, much more economical, and extremely more satisfying to use good equipment.

What do I mean by "good equipment?" Well, first of all that can be cheap, but does not necessarily mean the lowest price. Most important is to have a setup that is easy to work on and start well. If you can't get a \$10 engine started to begin the match, you spent way too much and just get to feverishly work on the engine for five minutes while your opponent flies level and gets to the next round. Three or four different engines mean everything is different: propellers, needle valves, maybe plugs, and hardware. It is best to stay with one engine type.

I have found the .25 to .28 O.S. Max-type engines reliable. They

make enough power to go 75 or 80 mph and parts are available out there in RC land. The ball-bearing-style engines balance older fast or slow airplanes better. The plain bearing or bushing engines work with F2D-size models. Propellers are cheap; most plastic propellers from RC work in 8 x 4 though 8 x 6 is what I use on the .25s.

I use two-volt starting batteries with a small inline resistor and a 1-5-amp meter. This is a light, simple setup. Clothespin-type glow-plug clips are a must. RC push ons don't work on Nelson Plugs.

Fuel? A quart of Sig or Norvel 25 or 30% nitro with 20% oil is a good place to start for 1/2A. For speedlimit I use roughly 10% nitro and 25% oil. Less than 25% oil and I burn up cylinders on a regular basis.

Here are my top three things to keep in mind when starting out in Combat:

1) Maximize the fun by flying more. The only reason any of us are in this sport is for the fun. Every person's definition of fun is different. In some cases it is the competitive man-on-man nature of the match; for others it is in tinkering with equipment, engines, and airframes; while there are those who enjoy the camaraderie of the participants. For me it is a mix of all of these.

One aspect that makes this more enjoyable is a conscious commitment to the sport. I have a good idea of how much time and money it will cost to fly next season and I have balanced my desires as a Combat flier with the needs of my family, career, and other interests. Being realistic about my financial and time commitments lets me enjoy the sport without conflicting priorities in the rest of my life.

For the beginner, it is not obvious what it will take to compete in this sport. Fortunately, for someone who already flies Control Line, getting started in Combat can cost as little as a few hundred dollars. The time required to get equipment set up, practice, and compete can be significant, but not outrageous. In the end, I figure I spend less money and comparable time to just about any other hobby I have been serious about, including athletic sports, crafts, travel, music, and the arts.

Another aspect of having fun in the sport is pushing your limits. By nature, all Combat fliers are risk takers, joy riders, and living in the moment (at least during the five minutes of a match).

Not sure if you are good enough to enter a contest? Not sure if your equipment will hold up? You will never know if you don't take a stab at it. Combat (at its best) is a participant's sport that cannot be fully appreciated as a spectator. Of course, pushing your limits will result in failures in many instances, but what the heck? If your expectations are realistic, losing matches or breaking equipment isn't be a big deal.

2) Steepen your learning curve. The absolute best thing you can do to get started or improve in Combat is to find a flying partner—preferably someone who is experienced and can show you the ropes, but anyone who will get in the circle and work with you is better than flying alone. Seek someone out at the next contest or at the practice field. If you are like me and live in a place with few local fliers, try to carve some extra time out during contest weekends to fly before or after the event in practice matches.

There are many treatises on practicing Combat, Phil Carter and Rich Lopez have had several good columns in the model magazines regarding improved practice. I would add to their advice by suggesting that you make practices mimic matches. Fly the same

please see **How Do You Get Started ...** on page 3

The Art of Whipping

by Jim Varno

This last year I have seen three airplanes lost because the pilot did not know the art of whipping. In Racing and Speed events, whipping is a bad word and can cause a disqualification, but it is still needed in these events for proper takeoffs and landings.

In Precision Aerobatics and sport flying, it is not only allowed but necessary to properly fly the airplane. Loss of line tension means loss of control, but with proper whipping, just the right amount of line tension can be achieved most times.

On takeoff, most have learned to step back for correct line tension but by walking one-quarter lap ahead of your airplane in a small circle greatly increases the line tension. When flying in wind, walk even with the airplane downwind and ahead of it upwind. This whips the aircraft into the wind giving a more even lap speed and better control into the wind.

A wingover can be intimidating in strong wind but is much easier with whipping. Just as you come to the upwind side of the circle, give up control and quickly step back, whipping the airplane up and the wind will blow it over the top with good line tension. Be sure to keep your arm extended all the way, pointing at the airplane. This gives you approximately six feet to whip with your arm in case you do lose tension at the top of the wingover.

When doing loops in calm air, try to step back when going up and forward when going down in the loop. This gives a more even speed throughout the loop.

When it is windy, start the loops roughly six steps back from the center of the circle. Walk forward one step on the upside and downsides of each loop. This is kind of “antiwhipping” and will keep the airplane from going faster in each loop, but be sure the aircraft is still in the flying area of the circle.

When landing, learn how to walk backward in a circle whipping the airplane so you can pick your landing spot. The best place to land is just as your model is flying downwind. As soon as it touches the ground, give down control and it won't bounce; it will just come to a nice, rolling stop.

By learning to whip you will have much more confidence and may even save your airplane. Whipping is easy to learn. Try it next time you fly, and see what gives more and less line tension. →

How do you get started ... continued from page 2

equipment (airplane, engine, fuel, etc.) as at contests. Saving the “best” equipment for the day of the contest means it will be unfamiliar and will result in undue frustration.

There is no substitute for the experience of being “on the handle” at a contest. The more matches you fly, the more comfortable you will be with the procedures, and the more you will be able to focus on flying well and improving. I suggest flying as many events as possible at a contest; take advantage of every opportunity to be in the circle.

In general, you have an opportunity to learn from every match. Whether you have flown the national champion or a local hack, take the time to think back on the match and figure out what you did well or poorly and the same for your opponent. Did they do something you need to learn or try in the next match? Think about position in the air, recovery from vulnerable positions (and how to avoid them), and pilot position in the circle.

3) Reduce equipment frustration. New pilots can quickly become frustrated with their flying ability and their equipment. The former can be helped by the items discussed above. Some simple guidelines around equipment can further reduce equipment frustration.

In the good old days equipment was finicky and required significant “tuning” to be competitive. Beginning pilots generally had low-performing equipment which improved over time with their flying as they became experts in flying and in setting up equipment.

Nowadays, excellent equipment can be purchased flight-ready at reasonable prices. It behooves a new pilot to start with proven equipment that requires a minimum of tuning. With experience will come a better understanding of how to further improve equipment. A new pilot has a long way to go before he or she will be limited by the performance of the ARF Combat equipment available today.

If you are not sure about something, ask. I have yet to meet a pilot who will not be open and free with information and advice—sometimes too much advice—on equipment. When you see a good idea, copy it. Whether it is pit boxes, engines, hardware, starting procedures, or anything else, learn from the experienced fliers at the field. →

Protecting Assets continued from page 1

1. That the checking and/or savings accounts be established in the name of the group.
2. That more than one officer or director's name be on the account and/or that more than one signature be required on checks written, especially over a specific dollar amount.
3. That the treasurer be required to provide regular financial reports, preferably at least quarterly.
4. That the group maintain an accurate, up-to-date inventory of assets, including equipment.
5. That the individual or individuals responsible for the financial assets be covered by insurance referred to as Fidelity Bonding.
6. The bank account must be reconciled by someone who does *not* have check signing authority.

Items one and two may prove difficult to achieve with some financial institutions. They may require that the group apply for a tax number identification from IRS. This will result in the need to file a yearly federal return. In most cases the group's account can be established using the Social Security number for one of the officers. This individual then becomes the responsible party for the account.

Item five can be accomplished through a special type of insurance called Fidelity

Bonding. By contacting a local insurance agent you can obtain the rates and conditions associated with your area.

In general, bonding one or more individuals provides protection in the event an officer misappropriates funds by repaying the funds in part or in full, according to the terms of the agreement.

At the present time Fidelity Bond rates are fairly reasonable. For instance, \$25,000 of protection may be obtained for \$100-\$200 a year.

An additional item a group may wish to consider is referred to as “D&O” insurance. This is specifically designed to protect the Directors and Officers of the group.

Smaller groups with limited financial assets may consider these points unimportant or unnecessary; however, it should be noted that even a small amount of missing funds might create a significant hardship for the group.

Additionally, it may be thought that people with authority who engage in fraudulent or dishonest acts or who misuse or abscond with the funds of an organization is a rare occurrence. Unfortunately, such is not the case in today's world.

Each club, chapter, and SIG is encouraged to carefully study its needs and operational procedures in these areas. The old adage, “An ounce of prevention is worth a pound of cure!” is most appropriate in these matters! →

Painting Foam Models

From the "Robbins Nest" by Dennis Robbins



Many people are building with foam these days, and Blucore fanfold and Depron seem to be the material of choice. One drawback to scratch building with foam is the color choices. You get to choose from either blue (Blucore) or white or gray (Depron).

Most of us like a more visible color scheme, and painting is the only way to obtain the desired look. I paint most of my aircraft, and I'd like to share my simple techniques for painting foam.

The first step is to make a paper template of the design

you want. I then place this on the airplane in the desired location, and mark the corners of the template. I use some type of colored permanent marker which hopefully matches the paint color being used, and connect the dots, more or less. This gives me a border, and paint can be applied between the lines.

The paint I use is the cheap, acrylic, water-based paint found at your local craft store. These come in small plastic bottles and only cost roughly \$.75 to \$1.00. You will be amazed at the color selection.

All you need to get started is a small container to squeeze a small amount of paint into, and several sizes of inexpensive paint brushes. I also keep some craft sticks on hand for stirring the paint if needed.

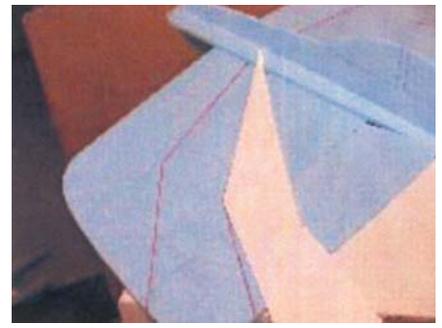
To thin the paint, add water and stir away! The last thing you need to know is be patient! Let the paint dry completely and you will be rewarded with a model everyone will be envious of. →



Needed supplies: paint, brushes, sticks.



Paper templates of desired design.



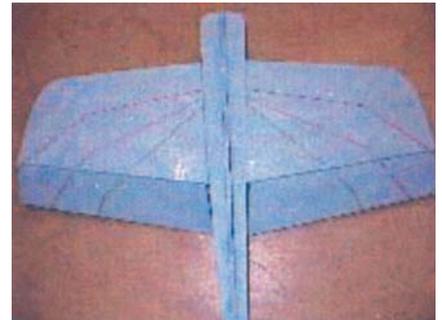
Additional template placement.



Mark the corners of the template.



Use permanent marker to transfer pattern.



Airplane is now ready for paint.



Use small paint brush to paint outline.



Fill in between outline with larger brush.



First color has been applied.

GPS and Albert Einstein

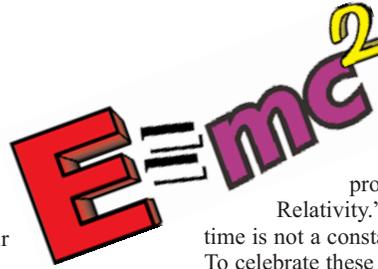
by Russell Knetzger

Some aeromodelers own hand-held GPS meters (global positioning systems) for their boats or full-scale airplanes. In remote areas they may even use them in their cars or for remote-area backpacking. Did you know the GPS technology relies upon the theories of Albert Einstein, the great physicist of the 1900s?

Last year, 2005, was the 100th anniversary of the publication written by Albert Einstein at age 26, of four astonishing technical papers, all in one miracle year, any one of which would have catapulted him to the stardom in physics that he achieved and still holds. Prior to Einstein, Sir Isaac Newton was the most revered physicist.

In his first 1905 paper, Einstein theorized why the “photo-electric effect” occurs when light hits metal—basically that photons of light are knocking surface metal electrons out of their orbits, causing an electrical current to flow. His second paper went further into the makeup of the atom. His third paper was the whopper: the contention in his theory of “special relativity” that produced the fourth dimension—time—along with length, width, height, and that nothing can move faster than the speed of light at 186,282 miles per second.

Einstein’s fourth paper was almost as big a whopper: the famous equation $E=mc^2$, that energy and mass are interchangeable, where energy released is m-mass times c-the speed of light, squared. The



formula later led to the atomic bomb.

Ten years went by and in 1915 he produced his fifth major paper: “General Theory of Relativity.” Both the general and special theories hold that time is not a constant.

To celebrate these remarkable insights, the 2006 edition of the *World Book Encyclopedia* supplement contains this quote by Alfred J. Smuskiewicz, a freelance writer in science and medicine:

“Almost 100 years later [of the 1905 special relativity and the 1915 general relativity theories], scientists used both theories to construct the global positioning system (GPS). This worldwide network of satellites transmits radio signals to receivers around the globe. By measuring the transit times for these signals—which travel at the speed of light—GPS allows people to identify their precise position anywhere on earth.

However, due to the effects of relativity, the clocks on the satellites tick at a different rate than clocks in the receivers. Einstein’s special theory of relativity showed that moving clocks—such as those on satellites—tick at a slower rate than clocks at rest. His general theory of relativity argued that clocks closer to a massive object—like the receivers on earth—tick at a slower rate than clocks farther away.

“Because the GPS computers need extremely accurate transit times to measure precise distances, engineers designed the GPS satellites to compensate both for special and general relativity.”→

Oakland Cloud Dusters newsletter, Oakland CA

Soaring Through the Clouds

by Chinmay Jain

As soon as the engine touched the starter, the screeching began. It was a high-pitched roar, deafening to all who were near, but I didn’t care; I was scrambling to get the model ready for flight. Just seconds after it started, the noise faded more and more until it was simply a distant whining—and click!

I tried to glance up, but finding the sun too bright, I looked away. I shaded my eyes with my hand and lifted my face up to the sky, feeling the warm sun graze my cheeks.

I could see the airplane getting smaller and smaller until it was but a red speck in the sky. Seeing it gliding through the clouds lifted me into the sky; I felt as light as a feather as I too soared alongside my airplane on invisible wings.

Building and flying model airplanes is an exacting hobby and requires a lot of time and effort. Most people don’t consider a muddy, thorny field a fun place to be, but for me, it’s my favorite place in the world. Nothing feels better than the excitement of winding up a powerful rubber motor, starting an ear-splitting gas one, or just heading off to retrieve a model out in the field.

Most model airplane fields are dry, dead, and grassy, filled with bugs and thorns that grasp on to pants and jackets. Some are moist and muddy, especially after the summer is over and the rainy season begins. And still some have such thick roots, that jokes are made about the existence of gnomes under the leaves that pull up your pants and pull down your socks.

Technical Editor’s note: This catches the thrill and excitement of FF but not the terror that grips you when you watch your creation do a figure nine right in front of you and all your flying buddies—but you can’t have everything!

The prospect of walking through any one of these fields, especially when the chases can be half a mile or two miles long, might seem just crazy to some, but I would do almost anything to get my airplanes back so that I can have the joy of flying them once again.

The fields need to be big and open and they are very important because the size and the weather determine if you can actually fly a model and dictate your chances of getting it back. They’re a thrill to fly, but they also take hours of precise work and meticulous effort to build, so each one is priceless. Once you’ve built it, a model is a part of you and it’s hard to give it up.

One category of model airplanes is rubber. These tend to be smaller, less powerful, and a little more forgiving than gas aircraft when you mess up. Still, when 30 grams of rubber are packed into a tiny airplane with a lot of turns on it, it can out-accelerate a gas model.

It’s truly exciting to wind up a rubber motor to its breaking point and then see the model shoot up as you release the propeller. Then, when the plane is in the air and in a thermal, it feels as if you’re flying along with it. Just watching your creation spiraling higher and higher until it is almost out of sight gives you an ineffable feeling of freedom.

Rubber models are in general slower, and more relaxed. But they can’t give the same excitement as a gas model screaming up into the endless reaches of the sky.

My first experience with gas models showed me how astonishing and thrilling they can be. As soon as I started the small, powerful engine,

the airplane struggled to free itself from my grasp and shoot skyward.

The loud noise caused so much confusion that I almost fumbled with the aircraft. Noting its power for the first time, I redoubled my grip and then remembered what I had to do. I hastened to get it ready, but my first attempt was unorganized and awkward. Finally, I had everything set and I released it.

The model ripped itself from my hands and raced away from me, spiraling into the endless reaches of the sky. When my heartbeat finally slowed down, I glanced up to find my model gently floating among the clouds. Starting the motor for the first time was a little tricky, but now, it is much easier since I got used to it. The routine gets etched into your mind every time you do it until finally you can do it with your eyes closed.

Competing with the gas model is very exciting because it is so fast-paced and exact. Out on the field, the terrain is terrible and there are long chases but the satisfaction of seeing something you made soaring hundreds of feet in the air makes the effort to build it worthwhile.

Anyone can fly a pre-made airplane, and it may seem more fun than to build your own, but I think that nothing can match the satisfaction of having your own model fly.

Be it model building, sports, music, or any other hobby, I believe that working toward a goal and finally reaching it is the best thing in the world. I can work toward my goals and dreams in a place where I can fly my models.

That is why a model airplane field is my favorite place to be.→

Priceless Fun

by Paul Billings

This quick and fun activity came from the June 1997 *Model Aviation*.

For only a penny and a few minute of your time, you can do more for the future of our hobby, indeed the AMA itself, than any other effort I am aware of! A lifelong fascination with flying and things that fly is easily developed in the very young, given the proper exposure. This project is dedicated to the young—from 6 to 66 and on.

Everyone gets caught up in the fun, flying this simplest of all flying machines.

What you'll need:

- the lid from a styrofoam egg carton that holds one dozen eggs.
- wing template (available on the AMA Education Department Web site at www.buildandfly.com/manager/pricepattern.pdf).
- scissors or razor knife
- pen
- penny
- white glue

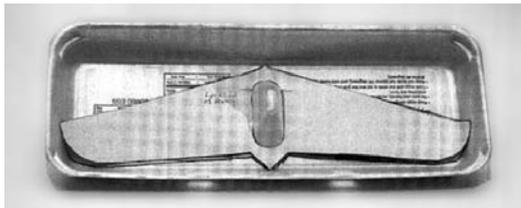
Cut out the wing pattern including the hole in the center. Place the wing pattern inside the foam lid with the hole fitting over the center hump or "cargo bay."

Trace the outline with a ball-point pen then cut along the tracing with a sharp knife or scissors. The

wingtips will curve with the edges of the lid. Press a penny down into the forward part of the "cargo bay" and secure with a drop of white glue on either side and wait for the glue to dry.

That's it—grab the glider by the cargo bay and give it a good overhand toss. Adjusting the speed and angle of the toss will allow for different maneuvers. Have fun!

Plans for other styrofoam gliders can be found on AMA's Education Web site at www.buildandfly.com. ➔



Tips & Tricks

Winter Wear

Here we are at the close of another flying season—for most of us anyway. We do have a few members who fly year round. But don't give up on the weather just yet.

The past several weekends have seen good flying weather and we should have several more before the cold really sets in. When the cold does come our way, you don't have to go into hibernation until spring; just be prepared for it.

First, protect your body from the cold. I got myself a full cold-weather jump suit—you know the kind you see guys wearing at gas stations. In fact, my car mechanic got it for me.

Next thing is to protect your hands. Some fliers use transmitter gloves that cover both hands and the transmitter. Personally, I prefer gloves but I found that I couldn't feel the sticks and that bothered me, so I found a solution. I got a pair of hunting mittens.

They look like regular mittens, but the part that covers the fingers actually can fold back, presumably so you can fire a weapon. I just stick out one finger and my thumb to fly. Between flights, they join the other warm digits inside.

Also, remember to keep batteries fully charged because they lose their charge faster in the cold.

—Rob Coniglio

The R.J. Hhog Roslyn Heights, New York

Convenient Cleanup

Want a nice, neat, convenient way to clean up that airplane? Use baby wipes—those soft wipe tissues that come under various brand names and are packaged in handy plastic boxes. The wipes must contain some kind of cleaning agent because they remove oil well and the lanolin acts like a polish.

Marking Dark MonoKote

Putting any kind of decent marks on MonoKote is difficult, especially if the MonoKote is dark in color. This becomes a hassle for you when trying to accurately place control horns or mount a switch to a surface that's already covered.

Try putting down a piece of masking tape in the approximate location then line up the horn or switch plate and make your marks on the tape. The marks are visible and you can cut or drill right through the tape. You can pull the tape off easily by pulling it sideways over itself—don't pull straight up or you may lift off the covering.

—both from *Hangar Talk*
Orange City, Iowa

Rubber Bands Don't Hold in the Cold

This is probably one that many don't know about, but a temperature of anything below 40° is too cold for rubber bands. I've experienced it personally and it's *not* a good feeling watching the wing separate from the fuselage as you're flying across the field. Actually you stare at the wing because it flutters slowly down like a leaf, while all of the important stuff in the fuselage does a kamikaze dive into the woods. So keep those models where the wing or anything else is held on by rubber bands home when it's cold. This holds true for glow and electric models. After all, rubber bands are rubber bands.

Fly with a Buddy

In the wintertime there are fewer people using the flying site. This is both good news and bad news. The *good* news is that you have fewer people to watch out for, not to mention more parking. The *bad* news is you have fewer people watching out for you. If you get hurt, there are fewer people to help.

It's just good practice to fly with a buddy—especially in the winter months. We do this without thinking during the summer months. In the summer, usually every time I see someone flying, there is a spotter standing next to him watching out for all that ground clutter. In the winter, not only could we use the extra set of eyes the spotter gives us, but we're not alone in the "great white north" if a problem does arise. Besides, I always find it more fun to fly with friends than alone.

—both by Larry Dudkowski
Plane Talk, Prop Masters newsletter

How to Design Flying Scale Models

by Ted Schreyer

Suppose that you wanted to make a scale model of the Fairchild XC-31, a cargo transport, as a 24-inch-wingspan rubber-powered model, but you couldn't find a kit or plan for this aircraft. Don't tell the professionals, but all you need to get started is a three-view and maybe a photo or two of the original aircraft.

Finding a three-view might be the most difficult part of the process, but there are a number of sources including the AMA Plans Service, the Smithsonian, John McDonald's Aircraft Yearbook, Paul Matt's Drawings, and Golden Age Reproductions. There are many solid models and small drawings in publications such as *Air Trails*, *MAN*, *Flying Aces*, etc.

First take the three-view to a copy shop such as Mailboxes and tell them you want to enlarge it to a wingspan of 24 inches. You might have to cut and paste a bit because of the limited paper size, but you will end up with the basis for your model plan.

Most of you are familiar with the basic design and construction of a 24-inch rubber-powered scale model, but it might be helpful to have a guide for your work in the form of a plan of a similar size and type of model. In this case a Comet plan of the Fairchild 24 was used as a cheat sheet for frame layout, wood sizes, spacing of members, wing rib spacing, etc.

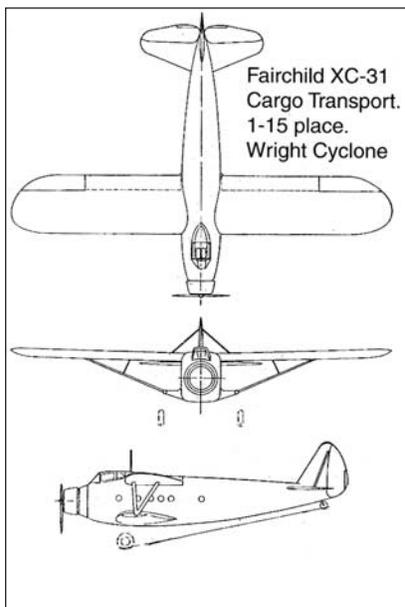
Before getting down to sketching in parts, use the ruler to check the enlarged three-view for distortions which sometimes get in during the enlarging process. Check the length of right wing against the left wing, the wing chord for uniformity, fuselage length, and cowl diameter.

To prepare for making your plan, get a flat surface and tape down the enlarged three-view. Tape down over the three-view a sheet of tracing paper or drawing vellum that is sold in art stores or engineering supply stores. Drafting tools need be only a No. 2 pencil, a good eraser, a ruler or straight edge, and an inexpensive French curve.

Before getting to the actual structure, a few decisions have to be made concerning changes in the three-view plan. In order to improve flight stability it might be advisable to increase the dihedral to that shown on the Fairchild 24 plan. Also, it might help to increase the size of the stabilizer and rudder. Just sketch in a larger size for these two units keeping the overall shape similar to the original.

Another consideration is that if your airplane will be taking off instead of hand launched, the landing gear will have to be extended to clear the big rubber-powered propeller. Once these considerations have been made and put on the plan, it is time to sketch-in the framework.

Begin with a simple framework such as the rudder. Pencil in the straight $1/16$ sticks and add the curved pieces to be cut from $1/16$ sheet balsa. Then do the stabilizer in a similar manner, referring to the



Fairchild 24 plan for guidance.

Wings are also easy to do. Choose the wood sizes and whether to have one or two spars and the rib spacing, and draw in the parts. Actually, with tracing paper you only have to make one wing because when building you can turn over the plan and build on the other side, which gives you the opposite wing. Wing ribs can be of a Clark Y shape which has an estimated center of lift at 30% back from the leading edge so you can locate the balance point of the model.

The fuselage is the most difficult part, but we all know the "make-two-sides-and-glue-the-tailposts-together-and-then-add-the-crosspieces" way of building, so just draw in the sides on the plan, leaving room at the top and bottom for formers to hold the stringers that will give the fuselage a slightly rounded top and bottom as the XC-31 three-view shows. Stop the sides at the rear of the cowl which can be a hollowed balsa block or a built-up balsa structure.

Go to the top view and sketch in the crosspieces. Certain places such as the wing mount and landing gear location will need some extra beefing-up. The landing gear is not shown on the three-view, so this is where the photo comes in handy. On the Fairchild XC-31 there is a small subwing and the landing gear comes down in one strut with a spat.

Now, before you start building, you may want to get a copy of your plan for posterity in case the building process ruins the original. Remember that what you are working on is a model airplane, not a precise replica of the original aircraft. A certain amount of liberty with exactness is helpful in order to produce an enjoyable and functional plaything, er, flying scale model. →



From Smoke Signals, Newsletter of the Meroka RC Club

Novice Notice

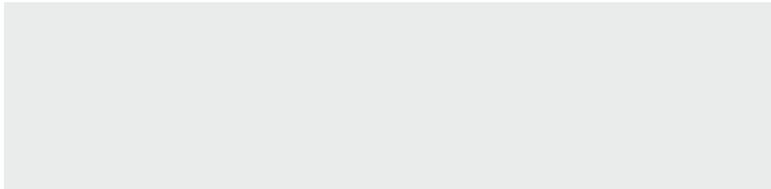
by Joe DiPrima

Some of my best friends are people whom I taught to fly. We hit it off during the instruction process and have continued our friendship through the years. This may happen with you and your instructor.

Why not give your instructor a call just to check in? Find out how he or she is surviving this long, dreary winter. If you've not spoken yet, introduce yourself. Let him know that you cannot wait for the warm flying weather.

Find out what his schedule looks like. Ask him if he will check over your airplane before flying season begins. Be friendly! →





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