The AMA INSIDER
The National Newsletter
for Newsletter Editors and Club Officers

VOLUME 5 ISSUE 3 MAY 2009

PRESIDENT TO PRESIDENT

AMA–MAAC Reciprocal Insurance Agreement

by Dave Mathewson, AMA President

Over the last several weeks, there has been some confusion regarding the reciprocal liability insurance agreement between the Academy of Model Aeronautics and the Model Aeronautics Association of Canada. I'd like to explain the history of that agreement, how it works, and try to clear up any misunderstanding that may have resulted from the actions of the past few days.

Several years ago, AMA, and MAAC discussed ways in which each of our members could participate in events of the other organization without having to join both organizations. Obviously, more so than any other country, this is a significant issue since there is so much crossover between Canada and the United States.

Although not the case today, back when the first agreement was drafted, both AMA and MAAC had the same insurance carrier. As a result, with the carrier's concurrence, the simple solution was to add language to both policies that would provide coverage to each organization's members while flying in the other's country. In other words, AMA covers AMA members while flying in Canada and MAAC covers MAAC members while flying in the United States. This agreement has worked flawlessly for a number of years.

On March 21, 2009, MAAC posted an "urgent message" on its Web site regarding changes to the insurance protection it provided its members. The notice on the MAAC Web site quotes the following language from its liability policy:

The following is added to Section 11- WHO IS AN INSURED -as item 2. (e):

The Named Insured's members and affiliate members in good standing of the Model Aeronautics Association of Canada, but only while engaging in the operation of model aircrafts, model watercrafts, model vehicles or model rockets at events and activities organized by the named Insured.

please see President to President ... on page 3

TIPS FOR CLUBS

Clubs from the Grass Roots

by Jim Wallen, *Insider* Club Column Editor

Welcome to the "Club Corner." In this segment of *AMA Insider*, I would like to focus at the "grass roots" level to share thoughts and creative ideas that could play a helpful role in your club. Pick and choose ideas that you think may work for your particular club and put them to work. Nothing new will happen in your club unless you take the time and effort to go make it happen. If you have ideas you think may be of value to other clubs, let me know (sjwallen@tde.com) and I will pass them along.

Every AMA chartered club should strive to provide a safe, fun, and interesting environment for all its members. New and progressive ideas will make your club and AMA healthier organizations.

Let's start with the premise that our clubs should be all inclusive and cater to varied interests. It's amazing how many facets of our sport you find in any random club across the country. We find there are designers, builders, fliers, socializers, and about every other category you can imagine. There are interests in electric, glow, gas, Free Flight, CO^2 power, Control Line, competition, and Sport flying. We are truly an all-inclusive hobby. As club members and officers, I think it is important to keep in mind that we run the gamut of varied interests when we conduct business with our membership.

Encourage "Fun Flys" for different interest groups. Cater to all at your club meetings. For sure, don't forget the

please see Tips for Clubs... on page 3

May 2009 CONTENTS

101 Ways to Stop a Spinning Propeller

Don Nlx, *Insider* Safety Column Editor

Unfortunately, we are limited to only a single safe one: Stopping the engine.

Yeah, yeah. Everyone knows that. Right? Well, if so, then why are more than half of all model accidents caused by model propellers—while turning? Because we do very stupid things sometimes. Because we get careless. Because we get too casual. Because we are inexperienced. Because we are so experienced we think common sense safety is for beginners. Because, because, because.

Well, that be the cause!

K&B engines might not be very familiar to newcomers to the hobby, but oldsters will remember that K&B was the leading American manufacturer of model engines for decades, having been started by Johnny Brodbeck back in 1946.

About 20 years ago, I was flying at the pilot's station next to one occupied by my good friend, John Brodbeck; the "B" of K&B engines, and son of Johnny, the founder. John was test flying an engine sent in by a customer seeking a solution to a puzzling problem. (Yes, company owners really used to do such things.) John had made a couple of laps around the field, but felt the engine was too lean, so he landed and taxied to the front of the pit to change the needle setting.

Now here's a fellow who is the owner of a model engine company, who had probably been weaned from Mama Brodbeck to a baby bottle filled with glow fuel, and had been around and using model engines since the earth cooled. One would think he would be extra careful; be sure the model was secure and tune the engine from behind. Instead, wanting to get on with the test, he reached across the propeller from the front. I can tell you it stopped the engine. However, flying was over for the day for both of us because I had to drive him to the emergency room to have a deep 3-inch gash in his forearm neatly stitched.

Yes, he was hurt, but said the worst pain was the embarrassment of being an engine manufacturer who would do such a dumb stunt (his words, not mine) at Southern California's busiest flying field in front of about 60 modelers.

My guess is, there are very few modelers who have been flying more than a couple of years who have not donated a little blood and possibly flesh to carelessness with propellers. For some of us, once is enough. Others have a little slower learning curve. It would be bad enough if their carelessness just injured themselves, but all too frequently an innocent person is hurt; sometimes more than just stitches.

I think I'll cut this column shorter than I had planned to allow you faithful readers (all six) to submit some of your own experiences that might quite possibly make others think twice before doing something stu … er, ill-advised.

Always glad to hear from you: flyerdon@aol.com or flyerdon@yahoo.com.

You will get a reply. ✈

A Note From the *AMA Insider's* Technical Editor

A short time ago, a modeler wrote Ed McCollough (your humble technical editor) the following:

"Noticed and noted on the foot of page 66 of March Model Aviation *underneath the picture of the Spektrum/JR flight logger, it is recommended that six-volt battery packs be used on* ALL *2.4GHz receivers.*

Called Horizon Hobby on the phone; they confirmed this statement. It was suggested the same six volt usage for other brands also.

Would like to suggest the general membership be made aware of this when 2.4 GHz receivers are used in glow/gas airplanes/helis to preclude possible in-flight loss."

When I read this, I agreed with him and wrote him I would get on the problem. Please, read what he wrote and consider it very, very carefully. Unfortunately, the answer to his question hasn't been that quick or easy, but for the time being, here it is:

If you are flying a 2.4 GHz system, follow the manufacturers' specifications for the voltage. If you are using a separate voltage pack for the receiver, be absolutely sure it has enough voltage to run the receiver. A common 5.0-volt receiver pack may not have sufficient voltage to run your particular receiver. Actually, if you used a six-volt pack and it was adequately charged, it should be sufficient, regardless of the manufacturer.

There is one problem, when using a six-volt pack if it isn't required by the manufacturer of your system. That problem will likely happen if you are using digital servos. If you drive some digital servos with six volts, there is a high probability you will damage the servos because of the higher voltage. Remember, if the servos fail, it won't make much difference that your receiver is still working.

You always need to be flying with a functional receiver pack, one that is as close to fully charged as possible. Remember, insufficient volts to the receiver and you crash.

Lastly, as in all things, and in all cases, read the instructions. ✈

President to President continued from page 1

The notice then goes on to say: "This means that 'individual' or 'casual' members operating models when essentially 'unorganized' at a park, a school yard, their home property, someone else's property, or at a pond or lake, are not covered by MAAC insurance. We have sought coverage extensions without success so far and our broker has advised us that this is unlikely to change in any major way."

Finally, the notice summarizes its position by stating, "The current liability insurance provided by MAAC is not intended to cover the modeling activities of members when they are 'on their own,' such as the operation of models in their back yard, on someone else's property, in a park, at a school yard, or lake. In other words, whenever the activity is not MAAC or club organized."

One of our members brought this notice to AMA's attention on March 23, 2009, and we immediately contacted MAAC for a clarification. Our concern was that the language in the added section limited coverage for MAAC members only while engaging in the operation of model aircrafts, model watercrafts, model vehicles, or model rockets at events and activities organized by the Named Insured. AMA is not a named insured on the MAAC policy nor is MAAC a named insured on the AMA policy. Nor should either be. So, in essence, with this added language it appeared that MAAC was no longer able to provide liability protection for its members while flying in the United States, therefore rendering the reciprocal agreement void. To its credit, the MAAC president and chair of the MAAC Insurance Committee have worked tirelessly to try to resolve this issue with its insurance carrier.

In the meantime, AMA determined that this was a relatively low-risk situation and wanted to give MAAC as much time as possible to resolve its problem with its insurance carrier. At the April 25, 2009, AMA Executive Council meeting—more than a month since the issue was first brought to our attention—the situation was discussed at length. AMA's Insurance Committee had developed a "Plan B" in case MAAC couldn't get this resolved. This plan was approved by the EC.

Among other things it included dissolving the reciprocal agreement and requiring that MAAC members would now have to join AMA as affiliates to fly at AMA chartered club fields and at AMA sanctioned events.

With the flying season underway and several major events scheduled for May, including SEFF, Top Gun, and Joe Nall, AMA felt that it could wait no longer than Wednesday morning April 29, to make a decision. Since SEFF began on April 30, we were already concerned that a change in policy would mean extra work for the SEFF management team. However, we couldn't control what was happening between MAAC and its insurance carrier. Our plan was to call the SEFF CD on Wednesday morning, inform him of the problem, and make available AMA support from Headquarters if he felt they needed it.

The notice of our proposed plan was made known on Tuesday morning, April 28, as there was no resolution yet. As it seems to so often happen, later that day, around six in the evening, I received a call from the MAAC president indicating that they had finally received word from their carrier that MAAC's liability coverage did extend to MAAC members when flying at AMA chartered club fields or at AMA events.

So, as of April 29, the reciprocal agreement between MAAC and Canada is in effect pending written confirmation to MAAC from its carrier. If any of this changes, and there is no reason at the moment to think it will, we will notify by e-mail all club contacts as well as all of our CD's. ✈

Tips for Clubs continued from page 1

spouses and kids! The sense of equality as we interface with our club members makes us a well-rounded organization. After all, our mission is to create an environment in which we can all have good, safe fun. New approaches can create a more exciting atmosphere that everyone enjoys!

All clubs need a sense of stability in order to grow and prosper. Regularly scheduled club meetings are one of the basics in fulfilling this need. Hold a regularly scheduled meeting each month so the members can get it on their calendar.

It may be the same booth in a local restaurant or a meeting hall in the church basement for a hundred members. You may want to conduct the club business at a member's house. If you must vary the meeting location or time, make sure all members are notified well in advance.

Add a little pizzazz to your monthly club meetings. Once you get past the report on finances, notice of upcoming events, and safety issues, add a special feature like Show-and-Tell. Everyone has an interest in new and creative ideas as well as taking a look at the latest project a member has completed.

Isn't everyone interested in a special configuration of magnets to hold hatches in place? Special tools are always of interest. How many times do you open your new magazine issue and immediately zoom in to the "new tool and ideas" section? Members have an uncanny ability to design special tools that make building easier.

We all like to take a look at the latest kit that was built. Even ARFs can exhibit creativity in the building process. Kit bashing always gets a few chuckles. Are you proud of that old engine you dug out the other day? Bring it in to the meeting and chat about its history.

Don't forget to reward those who take the extra step and bring in an item to talk about. Small rewards and recognition go a long way in promoting members' interest and keeping them active. It's often the little things that keep your meetings more interesting and well attended.

I look forward to hearing from you with ideas you may want to share with others. Let's chat again in the next issue.

'Till then, Jim. ✈

From the Wiregrass Radio Control Club, Enterprise, Alabama

Refuel Fill Valves

by Jim Kale

I have noticed many having problems with refuel fill valves for the last couple of years. It is just my opinion; however, many of the refuel valves that require a special plug to be inserted into a special jack just don't work too well in the long run. Valves such as the DuBro quick fill often seem to work well in the beginning, but in a year or two, they become difficult to connect, possibly leak, can easily get dirt and debris into your fuel system when you connect the refill fittings, etc. When they have a problem like this, they often cause lots of difficulty, frustration, and bad language at the flying field.

Recently, Phil was trying to fly one of his big gasser models that was having engine run problems for more than two years. Phil had picked up the model at Perry, and it looked to be in great condition; however, there is no way to know how long it had been hanging in a workshop somewhere.

After lots of frustration, bad language, and trouble shooting, we finally traced the problem to the refuel fill valve. It was letting air get into the fuel line and the engine would not run reliably. When the refuel fill valve was removed and replaced with a short brass tube, all of the problems went away and the engine ran like a new one. Unfortunately, on the next flight, the airplane stalled and spun in, possibly because of radio problems. Phil said it was really great though to have the engine perform well—for at least one flight.

I am a firm believer that the best way to refuel is a dedicated third fuel tube that goes straight to the tank. It should have a plug to close it off after refueling is complete. That means you have three lines coming from the tank: one for the vent, one for the feed line to the engine with a clunk inside the tank and a filter as close to the engine as is practical; and one is the refuel line with a plug in it when it is not used for refueling. A fuel dot is the ideal way to keep this line easy to get to for refueling the model. This is about as simple and fool-proof as you can get. You could use a T-fitting in the fuel between the filter and the tank, and put a line on the end of the T and keep it capped off except to refuel. However the problem with this arrangement is that often when you pump fuel into the line, some of it will go out the carb and onto the ground.

Always use a filter as close to the engine as you can put it. If you use a filter on the clunk inside the tank and then refuel through this line, you will pump debris into the filter from the engine side and it will quickly go back up the line to the carb as soon as you start the engine. We have all seen pilots who spend the bulk of their day at the field having engine run problems because they failed to take these simple precautions when they installed the fuel system. Don't make your flying life miserable and difficult when it is easy to do it correctly the first time.

By the way, when you cut brass tubing to be used in the fuel system, file the ends of it smooth so they are not sharp and cut into the line making a very hard-to-find air leak. A little good building practice will make life much more fun on the flying field. We all want to fly when we go to the field, not spend all of our time troubleshooting problems that we inadvertently caused by poor construction.

If your model survives several years, you should remove the fuel tank system every couple of years or so to make sure you don't have any problems developing. Alex Perez recently brought his 12-year-old model to the field and found that the engine would not run correctly. Then Alex remembered he had not checked the tank system since it was new. He did the correct thing and went home and restored the fuel system to a serviceable condition and it ran great the next time he came out.

It is very easy to forget how old a model is if it has been performing well for several years. I once flew a model for six years without fuel difficulties. When the next flying season rolled around, somehow I thought about checking the fuel system. The fuel filter has so much crap in it that I doubt the engine would have run at all. So, I probably saved lots of possible frustration and agony at the field trying to get it started and running. ✈

Club Members, Tell Us Your Stories!

Are you a member of a club? Do you want more people to know about your club? Do you know its history? If so, we would like to hear from you!

The AMA's History Program was created to tell the complete story of model aviation through a collection of histories of modelers, clubs, and companies. There are thousands of model aviation-related clubs in the U.S., but our program only has the histories of seven in our online collection! www.modelaircraft.org/museum/clublist.aspx)

Please help us document the history of modeling clubs by sharing your stories with us. You help us by adding to the overall history of American modeling clubs, and we help you by getting the word out about your club and potentially attracting new members.

Telling Us About Your Club is as Simple as 1-2-3!

1. Print out our Club History Writing Guide online at www.modelaircraft.org/files/museum/PDF/clubwritingguide.pdf
2. Write as much as you can about the club. Make sure to read and complete the consent form, which is the last page of the guide.
3. Mail the completed Club History Writing Guide (with completed consent form) and additional materials to:

Academy of Model Aeronautics
Attn: History Program
5151 E. Memorial Drive
Muncie, Indiana 47302
or scan and send via e-mail to
historyprogram@modelaircraft.org

From the Rogue Eagles R.C. Club, Medford, Oregon

How to Convert a Gas Model to All Electric

by Melvin S. Harder

1. Determine weight from catalogue. In the case of the Ultra Stick 120, the published weight is nine to 11 pounds. An electric conversion will weigh about 10 pounds, total flying weight.
2. Determine desired performance. I selected unlimited aerobatic performance and 3-D; 150- to 200-watts-per-pound. 746 watts=one horsepower.
3. Motor selection. Ten pounds x 150 to 200 watts=1,500 to 2,000 max watts capability motor. I selected a Hacker C50-7XL, which has a max watts capability of 1,700 watts (again, watts=power). Select your motor based on cost, quality, and personal preference; my buddy has one. There's a lot to choose from.
4. Use the software program Moto Calc (motocalc.com).
    a. Enter in: wingspan, wing area, weight, wing loading, and wing shape.
    b. Enter in: motor constant, no-load current, resistance, weight, brushless, and out runner or in runner.
    c. Enter in: gear ratio, propeller diameter (from motor recommendation range), and propeller pitch (from motor recommendation range).
    d. You get from the Moto Calc calculated spread sheet: stall level, level flight speed, top speed, thrust, and max amps.
5. The speed of the propeller is regulated by the ESC, which regulates the frequency of the max amps—low speed is less frequent, high speed is more frequent. Pulse technology.
6. ESC. From the max amps listed in Moto Calc, plus a little head room, select an ESC. Moto Calc told me that my max amps was 107.5 so I selected a Castle Creations Phoenix 125 (max capability of 125 amps). Again, ESC selection depends on cost, quality, and personal preference. There is a lot to choose from.
7. Use Moto Calc for a battery recommendation starting point. Battery capacity is the battery's C rating multiplied by amps (5,000 mAh=5 amps). For me, 25C x 5 amps=125 amps drawn capacity. 125 amp>107.5 amps.
8. The battery tray is formed using 1/8-inch plywood and some ¼ x ¼-inch guide rails on both sides of the tray. I used a Velcro strap to hold the battery in place.
9. For an electric airplane, the CG is constant; no gas is used causing the CG to move backwards during flight. Battery placement is used to balance the model.
10. Safety
    a. Mount servo switch and motor arming plug well behind the propeller—best so you can stand behind the wing, well away from the propeller.
    b. Keep in mind that electric motors have 100% torque at 1 rpm. Gas motors build up to that point.
    c. Starting sequence
        i. Put throttle in middle position
        ii. Turn transmitter on
        iii. Turn servo switch on
        iv. Check control surfaces
        v. Plug motor arming plug (motor will make a tweaking sound)

When you are standing at the pilot station, move the throttle back to the idle position, which will arm the motor (motor will make another tweaking sound). You are ready to fly. ✈

Tips & Tricks

Sandblaster Sandpaper and Foam Sanding Blocks

There has been some recent discussion on SAM Talk about the merits of a 3M product called Sandblaster Sandpaper. It's available at Sherwin Williams Paint Stores and at Home Depot, and is supposedly superior to all other forms of sandpaper. It doesn't like getting wet or high humidity—not usually a problem in Southern California. But it's said to last for a long time and cut very well.

The SAM Talkers had another tip about a source for sanding blocks. Apparently paint and dry wall stores carry white foam sanding blocks that are about a foot long and two- or three- inches wide. The back of the block is molded in a curved shape to fit your hand. The large block would be just the ticket for sanding an old timer wings, and the foam backer wouldn't tend to dig in. Of course you can chop that foam block up into just about any shape you want for smaller sanding blocks.

—From the Southern California Ignition Flyers newsletter

Tail Weight

During the process of building your next masterpiece, it may become apparent that tail weight is required. Lead weight for fishing lines is available at most sporting goods stores in the form of round (about 1/8-inch diameter) strips, several inches long. The strip lead is easy to cut up and embedded in the model during construction. For example, strips of lead inserted under the triangle stock can be used to reinforce the fin or stabilizer on most model designs. It can also be inserted into wing tips to provide lateral balance.

—From the Concord Skyhawks, reprinted in Schoolcraft Skyhawks R/C Airplane Club newsletter

From the Central Indiana Aeromodelers newsletter, New Palestin, Indiana

Covering Model Structures With Tissue

by Robert Hatch, SAM Chapter 8, Pacific Northwest

There are a variety of tissue products available for covering model aircraft. They generally fall into one of two categories: domestic or Japanese. Excellent results can be obtained utilizing domestic tissue and it is available in a rainbow of colors. However, it is usually made with more coarsely ground pulp and is heavier than oriental tissue. Perhaps the best known of these is Esaki, a standard for many years. It's currently available in basic colors and they don't run when wet. It's light and relatively strong and available from a number of different sources one may identify as "Esaki Tissue" on the Internet. Esaki is suitable for any size and type of aircraft from Peanut Scale to "B" size gas models when properly applied and finished.

There are even lighter materials available that are used by individuals specializing in indoor and small rubber-powered Scale models. Gampi tissue and condenser paper are two such products, both available from Internet sources. Gampi is handled much like Esaki. The advantage with condenser paper is that it does not pass air, (unlike the author of this article), and therefore does not require any weighty coating.

The following tools are essential:

1. New double-edge razor blades. (These become dull quickly when trimming tissue.)
2. A good, sharp pair of scissors.
3. A sanding block with 220-grit aluminum oxide paper attached.
4. Various grades of aluminum oxide paper—220 grit and finer.
5. A hobby knife with #11 blade.
6. A round, pointed, synthetic artist's brush. About size eight.
7. A flat, synthetic artist's brush about one inch in size.
8. A spray bottle that delivers a fine mist of water.

Materials Required:

1. Tissue
2. Rubbing alcohol and/or water.
3. Non-tautening dope and compatible thinner, preferably nitrate.
4. Fuel proofer if using glow engines.

No covering job is better than the preparation of the airframe underneath. Once the basic structure is complete, considerable time should be spent with sandpaper and sanding blocks to contour, remove pumps, sawyer' s marks, rough edges, excess glue, fuzzies, and the like. If the airframe has a round fuselage, sand scallops between the stringers. It's surprising how covering will accentuate any defects underneath.

Once the structure is smooth, it's time to apply the adhesive. On smaller aircraft the dope can best be applied with the round brush. Use both of them on larger frames. It is important that every part of the structure that comes in contact with the covering be doped. If not, those balsa areas not sealed will absorb the dope applied over the tissue and will cause an unwanted blotchy effect.

Modelers use two kinds of dope: butyrate and nitrate. Up until the time Ray Arden introduced the glow plug we all used nitrate. However, it did not stand up to glow fuels and butyrate was introduced to cure the problem. It did, to a certain extent, but some of the stuff the circle burners were putting in their mixes went right through it. A variety of final finishes sold as "fuel proofers" have appeared since. The best are two-part epoxies that seem to withstand any fuel mixture.

Butyrate does not have a good reputation within the stick and tissue fraternity. To quote Mr. AA Lindberg, butyrate has, "no redeeming qualities, poor adhesion, not really fuel proof, and clouds tissue colors." Most of us use nitrate that usually arrives in the shop undiluted. When preparing dope, the first additive should be a plasticizer, especially when the dope will be applied to lightweight buildups. For really lightweight structures, 20 drops of TCP per ounce of raw dope should be added. Use 10 drops per ounce for larger models. (TCP stands for tricresyl phosphate and is also called tritolyl phosphate). This is not found in your local hobby shop, but in a chemical supply house. The last I bought came from Spectrum Chemical Mfg. Corp. located in Gardenia, California.

Once the plasticizer has been added, cut the dope to a 50/50 mixture with nitrate thinner. Or you can purchase non-tautening nitrate dope from either Sig or Randolph. Sig is more expensive by unit volume, but Randolph is only available locally in gallons. Suggestion: buy Randolph and divide with friends.

Apply four coats of the prepared dope to every surface on the framework that will come in contact with tissue. Carefully sand off the fuzzies with fine sandpaper after each coat. When you are absolutely sure the structure is smooth, it's time for covering.

Although tissue is a wonderful material for our use, it does have one shortcoming: it does not like compound curves. There are modelers who can work with wet tissue; it's very difficult and requires tissue that has good "wet strength." I find that I waste a lot of material in attempts to cover compound surfaces and have become a "dry technique" builder.

Good tissue, like Esaki, has a grain that is easy to find by tearing a corner. The tissue should always be applied with the grain parallel to the long dimension of the part being covered. The four coats of dope you previously applied to the structure is the adhesive that holds the tissue. If the airplane is square, Powerhouse, I like to start with the top of the fuselage. Cut a piece of tissue and lay it on the structure. Use the pointed brush and thinner to adhere the tissue. Start forward and then tack it at the back. Work back along both sides evenly, gently pulling the tissue smooth as you go. If you get a wrinkle, go back with the thinner; soften the dope and smooth things out. When you have it right, trim the excess with a sharp razor blade, then apply a coat of dope all around the perimeter and work the edges down tight. It sometimes helps to use a little water or saliva on a finger to make the tissue conform to the round edge you sanded into that upper longeron.

I forgot to tell you that Esaki, and some other tissues, have two distinct sides. (Well maybe not too distinct.) If you

please see **Covering Model Structures with Tissue** ... on page 7

Covering Model Structures with Tissue continued from page 6

examine a sheet carefully, you will find there is a shiny side and a dull side. The shiny side should be on the exterior surface.

With the top covered, proceed to the bottom of the fuselage and repeat the process. With that completed the next step is to be sure there is enough dope, (adhesive), around the edges of the sides to hold the tissue. Use a small brush to apply two more coats of dope to the upper and lower longerons. Cover the sides, trim the excess tissue, and carefully seal it down using the same techniques you used earlier.

Round fuselages are an entirely different matter. The time honored method is to cut lengthwise strips of tissue—called "gores"— and cover the area between each pair of stringers individually. Once a strip has been applied and it's edges trimmed, two coats of dope are applied on the edges of the gore so the next one will adhere properly.

All this requires careful fitting and trimming, especially on the last strips top and bottom. These cannot be trimmed in place. It's time consuming and tedious. So, the next time you see a really nicely covered Grumman Wildcat, offer the builder congratulations.

Prior to covering an under-cambered wing, it's best to put an extra two coats of dope on the bottom of each rib. Cover the lower surface first. Cut a piece of tissue about ½ inch oversize and lay it on the wing. Use thinner to tack down the four corners. Then, starting at the center section, move evenly along the leading and trailing edges toward the tip, attaching the tissue with thinner and gently pulling out the wrinkles as you go.

Again, you may have to use thinner in the trouble spots to loosen the dope and pull out the puckers. With the tissue in place and reasonably smooth, use the pointed brush to run a line of thinner down the length of each rib. Follow up with finger pressure, forcing the tissue down on the rib. Repeat the process for each rib. Then turn the wing over, and using the same pointed brush, carefully run a seam of dope chordwise along the joint between the rib and the tissue on both sides of the rib. I have never had a lower surface detach from the ribs using this method.

The top surface is not as tedious, except possibly the tip. If it's round, cover out to the last full-size rib and trim. Add a couple of extra coats of dope to the top of that last rib and then cover each remaining bay individually. Sometimes two can be done at once. Two extra coats of dope are required around the perimeter of each open bay for good adhesion.

Most fins and stabilizers are relatively flat and are not difficult. Under-cambered stabilizers are handled in the same way as similar wing surfaces. Ditto for elliptical tail areas.

Once the airframe is covered, it should be checked for any tissue-to-structure joints that are not well attached. The dope-finger-water method will fix most irregularities. Trim any excess tissue. A sanding block lightly applied at 45° to straight sections such as trailing edges will remove any excess tissue very nicely. Finally, seal all edges with dope, and sand away any fuzzies with very fine sandpaper.

It's time to shrink the tissue. Either water or rubbing alcohol will do the job. Water is the most aggressive; alcohol is less so and dries much more rapidly. Look for a spray bottle that puts out the finest mist and as few big droplets as possible. The best ones I've found are hairspray applicators. Hold the surface to be sprayed vertically and the sprayer about a foot away. That way, the bigger droplets don't get to the tissue. Do not force the drying with either heat or forced air. Allow the tissue to shrink at room temperature to minimize warping.

Very delicate structures require special treatment to avoid warps. Pre-shrinking tissue is perhaps the most important. Build an 18-inch x 24-inch frame out of hardwood stock. Apply four coats of dope. Then cover with tissue, spray with water, and allow to dry. Trim the tissue from the frame. Construct a frame from ¼-inch balsa that supports the leading and trailing edges of a wing or tail, and fasten it to a flat surface.

Cover the wing/tall with the preshrunk tissue, spray it with alcohol (not water), and quickly pin it down to the ¼-inch frame. Let this dry at least overnight; longer is better. Remove the wing tail from the frame. If dope is required, use one coat of thin, plasticized material on those areas that will not come in contact with the ¼-inch frame and pin it back down to dry.

Now, if everything has gone well, it's time for finishing. The dope has been plasticized and thinned. Use the flat brush and apply a very light coat to all surfaces. At this point be very careful not to slosh on a heavy application. The tissue is quite porous at this stage and dope will pass through and puddle on the inside of the surface, which would make it heavy and unsightly.

On the first coat, try to load the brush very lightly and scrub the dope into the tissue a small area at a time.

How many coats? That depends entirely on the model and how it will be used. I find that peanut-scale airplanes do not require more than two coats of thin dope. Medium size, (36-inch span), rubber, and electric models will take roughly four coats, and bigger airplanes will require more. Gas models should probably have at least five or six coats. The same for glow-powered models so long as there is no nitromethane in the fuel. If you are flying glow power with nitro, you should overcoat the dope with a two-part epoxy. Omit this step and you will be the proud owner of a soggy mess.

Registration numbers and decorations can be cut from tissue and attached to a doped surface with a careful application of thinner. Be very careful with the alignment prior to the thinner application. This should be done after the first coat of dope has been applied to the airplane. If applied late in the painting process they won't have the same sheen as the rest of the surface and will stick out like a sore thumb.

A tissue-covered airplane that has been properly finished will last a long time. I have an 020 Replica Playboy that went 20 years before requiring a complete recover. The principle enemies of tissue covering are light (UV), moisture, and, in some cases, fuel. Rubber lube also helps hasten deterioration. So, if you want your models to last a long time, build a box for them. Keep them cool and dry and be sure you have a dependable DT that is lit, or wound, and running when you launch. ✈

Celebration of RC: September 22-26, 2009

The Celebration of RC is coming to the AMA International Aeromodeling Center in September.

This first-of-a-kind, five-day event is sponsored by the Vintage RC Society, a Special Interest Group of the AMA. It is for Radio Control airplane designs that are at least 35 years old.

Special events will include:

- Five days of open flying
- Competition in Scale, Pattern, and Concourse
- Rudder Only International Championships
- Vintage airplane and radio displays
- Bus trip to Air Force Museum
- Gala Banquet

Go to www.vintagercsociety.org for details.✈

AMA Vision

We, the members of the Academy of Model Aeronautics, are the pathway to the future of aeromodeling and are committed to making modeling the foremost sport/hobby in the world.

This vision is accomplished through:

- Affiliation with its valued associates, the modeling industry and governments.
- A process of continuous improvement.
- A commitment to leadership, quality, education and scientific/technical development.
- A safe, secure, enjoyable modeling environment.

AMA Mission

The Academy of Model Aeronautics is a world-class association of modelers organized for the purpose of promotion, development, education, advancement, and safeguarding of modeling activities. The Academy provides leadership, organization, competition, communication, protection, representation, recognition, education and scientific/technical development to modelers.

ABOUT THE *AMA INSIDER:*

The Academy of Model Aeronautics' *AMA INSIDER* is published electronically on a bimonthly basis for members of the Academy of Model Aeronautics. Its purpose is to create a network of information exchange between the Academy of Model Aeronautics-chartered clubs as well as the Academy of Model Aeronautics officials and chartered clubs.

The newsletter's contents are collected from Academy of Model Aeronautics club newsletters and various other sources within and outside of the organization. Implicit consent to reprint articles found in club newsletters is given whereupon the newsletter editor completed and returned the Club Newsletter Exchange form or initiated contact with the Academy of Model Aeronautics by sending a newsletter, either via mail or E-mail, to the newsletter editor.

Articles or links to outside Web sites reprinted in the newsletter do not necessarily reflect the opinion of the Academy of Model Aeronautics nor are these articles or links intended to be endorsements of particular products.

Every effort is made to ensure that the information contained herein is accurate; however the Academy of Model Aeronautics is not responsible for errors or omissions. All articles are assumed to be original works authored by club members unless otherwise noted in the *AMA INSIDER*. On such noted occasions, the Academy of Model Aeronautics has been granted permission to reprint the copyrighted material.

No responsibility is assumed, expressed, or implied by the Academy of Model Aeronautics as to suitability, safety, or approval of any material in this newsletter. Any person attempting an action described herein does so at his/her own risk without recourse against the Academy of Model Aeronautics.

Permission is granted to redistribute material found herein given that proper attribution accompanies the article. Proper attribution is defined as the original author's name and title (if given) and the name of the originating club or organization. In the event that an original author is unknown, the editor of the newsletter is a suitable substitution.

The Academy of Model Aeronautics reserves the right, in sole discretion, to edit or reject any material submitted for publication.

CONTACT US

We welcome your comments and suggestions about the AMA *INSIDER* Please send them to:

Newsletter Editor:
Ashley Rauen, ashleyr@modelaircraft.org
(765) 287-1256, ext. 228

Technical Editor:
Ed McCollough, vpxi@pacifier.com

Director of Publications:
Rob Kurek, rkurek@modelaircraft.org
(765) 287-1256, ext. 220

SUBMISSIONS

If you are a member of an AMA charter club and would like to submit your newsletter or an article for consideration. Please send it to us via E-mail or postal mail.

E-mail:

We will accept your newsletter in PDF form or as a word document attached to an E-mail. Please send the E-mail to:

ashleyr@modelaircraft.org

Postal Mail:

Hard copies of your newsletter can be sent to AMA Headquarters. Please mail to:

AMA Newsletter Editor
5161 E. Memorial Dr.
Muncie IN 47302

*The Academy of Model Aeronautics reserves the right, in sole discretion, to edit or reject any material submitted for publication.

*All reprinted articles become the property of the Academy of Model Aeronautics.

www.modelaircraft.org
Tel.: (765) 287-1256 | Fax: (765) 289-4248