



**PRESIDENT TO PRESIDENT**

# Have You Cast Your Vote Yet?

by Dave Mathewson, AMA President

This issue of the *AMA Insider* will reach your E-mail inbox shortly before AMA's annual election season. Offices up for election this year include vice presidents in Districts III, VII, and XI, as well as a national election for Executive Vice President (EVP). Additionally, this year there is also a special election in District II to fill the vacancy created when I was elected president.

We were more than a little disappointed at the voter turnout last year and, because of that, have taken a close look at the voting process to see if there were changes that could be made to improve member participation. This research has resulted in some changes for this year.

Our members have told us that the primary reason they don't vote is because they aren't familiar enough with the candidates to make an informed decision. Candidate campaign statements can be posted on the AMA Web site. I also understand that both candidates for the national EVP position intend to participate in an open discussion area on at least one of the popular Internet forums.

The biggest change being made this year involves how our members will receive their ballots. In 2007 ballots were sent to our members as a two-part postcard. The member simply tore off the

ballot portion, checked a box, placed a stamp on it, and dropped it in the mail. This worked well for those that had at least some knowledge of the candidates, but we felt it fell short for those who needed more help in making a decision. To find that help required the member to hunt for information on the candidates since none was included with the ballot postcard.

This year the election ballot is included with membership renewals. There are a couple of significant advantages in doing it this way. First, now we are able to

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**TIPS FOR CLUBS**

## Fun-Fly Idea for Your Club

Need a new idea for your club's Fun Fly? Here is an idea for an event called the Bean Counter from the Prop Masters R/C Aero Club of Downers Grove, Illinois.

**How it works:** Each pilot is given a paper cup, some rubber bands, wooden dowels, and 20 beans, 10 for an electric. The beans are placed in the cup. The cup is attached to the model. Rubber bands and dowels will be supplied but pilots can attach the cup in any manner they choose. The cup can be placed anywhere on the model as long as the beans are not prevented from falling out of and free from the cup in any way. Nothing can be placed in the cup to prevent the beans from falling. Generally we recommend mounting the cup forward of the CG point. The pilot takes off and then must fly a specific set of maneuvers for his class while trying not to loose any beans. The pilot completing the maneuvers and landing with the most beans remaining in his cup is the winner.

**The rules:** Each pilot must fly the prescribed maneuvers for his class. The pilot, who after completing the maneuvers and landing has the most beans remaining in his cup, will be the winner. The pilot having the second most number of beans will finish second and so on. First, second, and third places in each pilot class will be awarded points as follows: 30 for first, 20 for second, and 10 for third. Duplicate bean counts will be awarded duplicate finishes.

**Possible flight maneuvers by class:**

Beginners: Fly at least one circuit of the field.

Novices: Fly two or more circuits of the field and perform one loop.

Advanced: Fly three of more circuits of the field and perform two loops.

Experts: Fly four or more circuits of the field and perform three loops. →

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# Safety Incident Reporting

by Chuck Waller

What is a model airplane pilot's worst nightmare? To me, it is the sight of a model aircraft out of control, or with no radio response, heading for a parking lot or spectator area filled with people.

As this unfortunate incident occurs, everyone who sees it starts yelling, "Heads up!" to get the attention of every one at the field and, hopefully, in the parking lot or wherever the airplane is heading. All non-flying pilots are focused on the airplane and do their best to help people get out of the way. The pilot never stops fighting. He keeps the throttle all the way back in case he gets one more command in before the inevitable.

I have personally witnessed this event at least four times and had it happen to me once. Fortunately, no people were injured in any of these events.

So what would happen if we were not so lucky? What happens next when an incident, with or without personal injury, occurs?

Obviously, the first thing is to take care of any injured persons, if there are any. Your club should have a first aid kit available if the injury is minor. For major injuries you should immediately call for emergency services (911) and give them directions to your field. (These directions should also be posted at your flying field.)

Now what do you do next? It is very important at this point to gather as many facts regarding the incident as you can. You should immediately appoint one person as the "investigating" official. This may be the club safety officer or another club

officer. It is actually better if the investigating official did not actually witness the incident. This way, his report will not be "clouded" by his own recollections.

Immediately talk to any one who witnessed the event. Make sure to get their name, address, and phone number for future interviews. Take down a statement of events and facts from each witness. Try to do this before the witnesses talk to each other if at all possible. You may want to assign several people to assist in getting statements at this time. It is very important to take pictures of any damage that was caused to any personal property including autos, buildings, trailers, other models, etc. Do not spare the film! You can always throw out or delete repetitive or nonessential pictures.

As soon as possible, you should contact AMA to report the incident and to request a claim form. Even if the incident results in no personal injury or property damage, all incidents (close calls) should be reported so they can be evaluated for any possible corrective actions.

From the AMA membership manual: During regular business hours (Monday-Friday, 8 a.m. to 5 p.m. EST) please call (765) 287-1256. To report an incident involving serious injuries after hours or on weekends please call (765) 749-9210 or (765) 212-0793.

I sincerely hope you never have this type of incident happen at your flying site, but if it does, keep cool and follow these steps as closely as possible.

Fly safely, and remember to have fun! →

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## Just One Vote!

by Jim Cherry, AMA Executive Director

Soon all current AMA members will be receiving their 2009 membership renewal notices and 2009 election ballots. In a cost-saving effort, the renewal notices and election ballots will be mailed together. The ballot will be a postage-paid postcard to encourage members to participate in the elections.

This year, the Executive Vice President's (EVP's) modified job description, which you can find on page 159 of the October 2008 *MA*, will go into effect. This new direction for the post takes it from being the AMA's financial advisor to assisting the AMA President, Executive Council, and Executive Director. This change will be challenging, and your vote will help determine who will fill this most important volunteer position.

Members in Districts II and III are having elections for the position of District Vice President (VP). Districts VII and XI are also scheduled for VP elections, but the incumbents are running unopposed.

Ballots will be mailed to all members to vote for the EVP position and to those who live in districts that are having VP elections.

Please note that the postcard ballots are to be returned to a different address than the dues renewals. Please don't include your ballot in your dues-renewal envelope. AMA elections have not been a membership priority.

If you don't think your vote counts, look what one vote has done in the past.

- In 1916, *one vote* won Woodrow Wilson the presidency by carrying California.
- The purchase of Alaska from Russia was ratified in 1867 by just *one vote*.
- One of the most important and least-cited single-vote decisions took place shortly after the American Revolution. In 1776, *one vote* gave America the English language instead of the German language.
- In 1923, *one vote* gave Adolf Hitler leadership of the Nazi party.

Don't know who to vote for? Campaign statements will be included with the ballots. Become informed, but most of all, *vote!*

You can save time and postage by renewing online at [www.modelaircraft.org/joinrenew.aspx](http://www.modelaircraft.org/joinrenew.aspx).

Do you know of someone who is thinking about joining the AMA? If that person does so after September 15, 2008, he or she will receive the membership for the balance of 2008 and all of 2009 for one \$58 fee. →

# A Lifetime of Balsa Glue and Dreams

by Bob Shernick

When one gets to the age of being qualified as an old fogey, there comes a time when you start to reminisce about how you got started in this hobby and what it was that kept you so interested for all those many years.

As we look around us, we again keep wondering what we can do to interest young people in learning how to build and fly model airplanes. I have come to the conclusion that there must be certain spark that is ignited either by a person, an event, or a very motivated author. Kids of today have such an abundance of external enticements; they flit from one thing to another, and never really get the full-bodied flavor of any particular, so to speak. Sports are so diverse in the schools that they can consume a youngster, so there is no time left over for other things like model building or flying.

I was born at the start of the Great Depression, which heralded a time of great personal deprivation and struggle. We have all heard and some of us have lived during that time, and I feel confident in saying that we would like to never go back. However, there was a greater simplicity to our lives then, and a whole lot more personal interaction. My dad was able to keep the family going with being a house painter, but keep in mind that he was coming down from being a nationally recognized fine arts muralist. He was lucky to make about nine to 12 dollars a week, and that was it.

A boy growing up during those days was just as curious and precocious as they are now or were before, but there was one great exception. If you wanted something to play with, or got tired of climbing trees, playing hide and seek, kick the can, etc., you had to figure out how to make it.

Thinking back on that kind of demand now convinces me that it gave me the ability to create something from practically nothing. One soon learned that what appeared obvious from one point could be thought of from a different viewpoint and made into something else.

A case in point: there was an open air fruit and vegetable market about a mile away from where we lived on the west side of Denver. My folks, my brother, and I would walk up on a Saturday, and do some modest shopping there. As a boy of six or seven, I was not interested in the quality of peaches or apples, but did love to rummage around in the back of the tent area in their scrap pile. There they had such things as grape baskets with delightful thin wood, and wire bales.

Asking if I could have a couple of them, I would later take them apart very carefully, and then go through a process of soaking and flattening the wood, using bricks or boards with stones on top. Once I had the raw materials, I could then use one of my dad's castoff razor blades, and follow my hand-drawn lines for a profile fuselage, the wing, and the tailpieces. My first efforts were very crude, but I gradually learned how to think about design, proportion, and even introduce some degree of

realism with colored pencils or watercolors.

One day, in the middle of summer, my attention was drawn to the sky above Denver where I observed something happening that I never thought possible. An airplane was flying quite high, but it was creating a line with smoke. As I continued to watch, the pilot would turn on the smoke, and cut it off while forming the letters of the drink Coca-Cola. I went to bed that night dreaming that maybe one day I might have such a wonderful job like that pilot. I saw more airplanes gradually flying nearby as World War II began. As the country became deeply involved with the war, more of my attention started to focus on heroes in airplanes, and I set out on a plan that later became a formidable task. I had decided to model one each of all the fighter airplanes in the war.

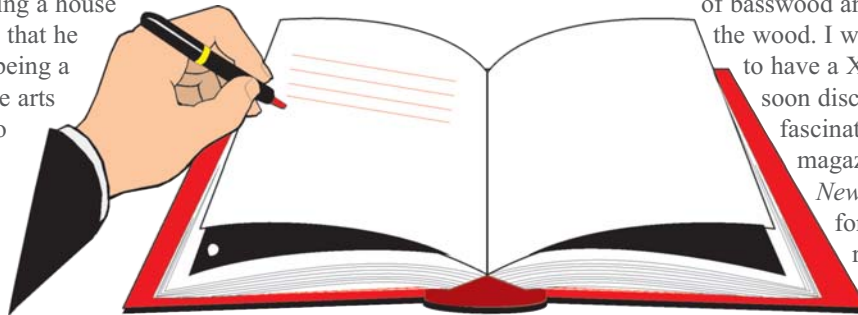
You could buy model kits for as little as 15-25 cents that were made by Guillow and Cleveland model companies. For a 10-12-year-old boy, they might as well have cost \$10, but I managed to scrimp and save, and do odd jobs to buy a few.

Many times the balsa was pretty inferior and had hard spots in it. Many of the cheaper kits were made from a very poor grade of basswood and had the lines printed on the wood. I would have given anything to have a X-Acto knife back then. I soon discovered there was a very fascinating world of reading in a magazine called *Model Airplane News* and I kept all my issues for reading; reading and rereading them over and over.

Through that magazine, I learned how to do tissue covering, build lighter, and how to construct models that actually flew. Those were exciting times and I can remember building one airplane that flew at the end of a fishing pole. I spun around in circles, making me so dizzy that I was sick for hours, but I would get up and do it again because that airplane could actually fly! I cracked it up many times, but thanks to a big tube of Ambroid cement, I stuck it back together. It was a continual habit, incidentally, to sit in class at school and peel Ambroid cement off my fingers.

I tried doing rubber-powered airplanes and had lots of fun with them, but the sheer joy of building a glider was the most fun and best learning experience. I probably would have gotten into CL flying earlier if I could have afforded a lot of equipment, but a good Ohlson & Rice engine during the late 1940s went for a hefty \$19.95. I would have to save a long time to get half of that. Besides, I could now keep a glider flying that was my own scratch-built design by just buying some better quality balsa, and learning things like how to balance and build lighter.

RC was just beginning to be talked about in the magazines, but it was not until the late 1950s that I ever saw an airplane fly with that kind of equipment, and even then, the transmitters and receivers looked like jury rigged chunks of tubes and wires. By this time I had quit being a loner and met some other fellows



please see **A Lifetime of Balsa ...** on page 9

# What Size Motor Should I Use?

by Gary Hinze

This article was written as part of a tutorial for kids in the Oakland Cloud Dusters and City of San Jose Parks, Recreation and Neighborhood Services kids' model airplane class. The tutorial was on building a Dick Baxter Big Pussycat and this is the section on the rubber motor.

For those of you who are curious about why each airplane has a different size motor, this section gives you some ideas. Someday some of you will be designing your own airplanes and you will want to know this. If all you want to do is make a motor, you can skip this section and go right to "Making the Motor."

The first step is to decide on the size of the motor. There are two measures of motor size: length and cross-sectional area. Cross-sectional area is the product of the thickness of the rubber strip, times the width of the strip, times the number of strands. Our little indoor airplanes are powered by a single loop of rubber having two strands. Put the two ends together and look at them straight on. That little rectangle is the cross-sectional area of your motor. The rubber strip comes in a standard thickness of about 0.042 inches. That means the motor size is defined by length and width. How long should the motor be and what width of strip should we use?

The motor must meet several conditions to do its job. The motor is the fuel for your airplane. You want it to carry as much energy as possible. That means the biggest motor you can get on the airplane. But the motor also has weight that pulls the airplane down; the bigger motor pulls it down faster.

As in every area of engineering, there is a balance. Here it is between the energy to go up and the weight to come down. In addition, the motor must turn the propeller with enough force to pull the airplane through the air. A thicker motor will produce more turning force, called torque, than a thinner motor.

You also want the motor to turn for as long as possible. A thinner motor will take more turns before breaking than a thicker motor. Again, there is a balance between torque to fly and running out of turns too fast. You must also consider the effect of the weight of the motor on the center of gravity (sometimes called the balance point).

If the CG is too far forward, the airplane will dive. If it is too far aft, it will nose up and stall. If you can move the wing, you can make adjustments to compensate for varying center of gravity locations, to some extent. But if the wing is fixed, that alone may require a certain motor weight, unless you can change the weight distribution by lightening parts or adding ballast weight. And last, but perhaps most importantly, the motor must fit and work in the space available.

On my Big Pussycat, there is 10 inches between the propeller hook and the motor peg. I decided to use a motor  $2\frac{1}{2}$  times this distance.

At three times that distance, the motor knots up when wound and put into the airplane, the knots hit the inside of the fuselage, wrap around the propeller hook and the propeller doesn't turn well. At four times the length, the motor turns into a knotted ball of tangles that won't turn the propeller at all and sometimes it comes entirely off the hook. The motor that balances energy against weight would be nine times the distance. Nice idea, but won't work. The motor has to meet all the required conditions to do its job.

I have done level flight tests with the Big Pussycat. I wind the motor up different amounts, launching it at shoulder height and adjusting the number of turns until it comes back to me at the same shoulder height. I measure the torque before and after the flight.

When it flies level, I average the torque at the beginning and end of the flight. I also weigh the whole airplane. This gives me the ratio of level flight torque to weight.

From these tests I can figure out how thick the motor must be. The thickness and length resulted in a motor weight that required me to lighten the nose block to get the center of gravity in the right place.

## Making the Motor

Start by collecting everything you will need onto your work table.



We are going to make a 25-inch loop of  $\frac{1}{16}$  rubber strip. This requires sufficient  $\frac{1}{16}$  rubber strip, a tape measure to measure it, scissors to cut it, a clean towel to dry it after washing, a  $\frac{1}{8}$ -inch O-ring, a vial of  $\frac{1}{3}$  strength lubricant, a bottle of motor lubricant, a Ziploc baggie, a vial to store the motor, masking tape, a pen to make a label and, if you want, a penny balance and centimeter scale to weigh the finished motor.



Start by measuring off the required amount of strip. A 25-inch long motor will require 50 inches of strip, plus  $\frac{1}{4}$  inch extra on each end for the knots, so a total length of  $50\frac{1}{2}$  inches is required. Usually I lay it out on the kitchen floor in a straight line, but that wouldn't fit on the table for the picture, so I doubled it over and measured off  $25\frac{1}{4}$  inches.



Cut with scissors, sharp razor blade, wire cutters, or fingernail clippers; whatever works. You star troopers can use your laser. But don't burn a hole in your building board!



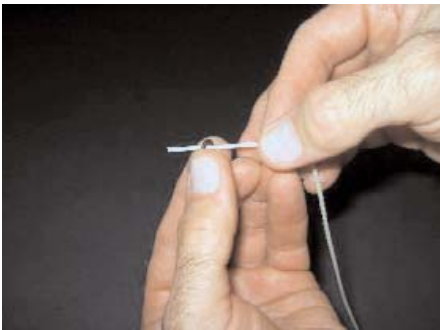
please see **Making the Motor**  
... on page 5

# Making the Motor continued from page 4

Wash the strip with liquid kitchen detergent and rinse it thoroughly. You don't know where this rubber has been and you don't want any hard, sharp grit that can start a tear in tightly wound rubber. This also gets your hands clean.



This isn't really necessary, but I like to blot it dry to keep drops of water from falling all over the place. Just be sure your towels are clean!



An O-ring makes it so much easier to get the motor onto the propeller hook without losing turns or having the slippery motor slide out of your fingers. This one weighs only 0.043 grams and is worth its weight in trouble avoided. Slip the end through the ring and slip the ring to the middle of the strip. This is very easy to forget. Every time you start to tie a knot in rubber, ask yourself "Did I put the O-ring on?"



Some people like to braid the motor. This is not actually a braid; it is done by twisting the ends of the strip so the two

halves twine around each other. This makes the motor a little shorter and stiffer so it doesn't slop around as much in the fuselage when it runs down.

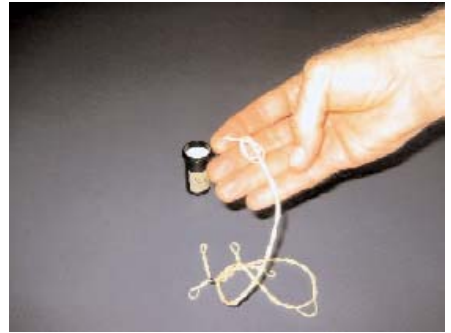
With a motor this long, that might be a good idea, although I'm not expecting this motor to ever run all the way down, since the ceiling limits how high the airplane can fly and keeps us from using all the turns on the motor. You actually turn each end in the same direction, here clockwise. If you turn them in opposite directions, no twist will result. (Because then they actually are turning the same direction.) Try it. You twist just enough so the entire length is twined.



Leave about two inches free on each end and dip them in some diluted lubricant. If you tie knots on full strength lubricant, you will be able to watch the knots slowly untie themselves. This is even more fun to do than watching glue dry. The straight lubricant is made of one volume of glycerine and one volume of green soap, both available at the pharmacy. (There are other lubricants available, you can buy proprietary mixes in little bottles or you can use silicon lubricants, but this stuff works just fine.) Shake and mix it well. The knot tying lubricant is one part straight lube mixed with two parts of water. It doesn't take much, one teaspoon of lubricant and two teaspoons of water is plenty. You can put it in a pill bottle or a plastic film can. Some people put the ends in their mouth and wet the ends with saliva. Okay with me if you want to do it that way, but I find that my saliva isn't slippery enough to prevent little tears in the rubber during the knot tying.



Smear a little knot lubricant on both index fingers and thumbs.



There are many, many kinds of knots. Some are so complicated that it takes an entire crew of sailors to keep track of all the twists and turns. This one is very simple and does the job well. It is just two overhand knots, tied in opposite directions. Start by putting the running end under the standing length and bringing it up over and down into the loop. This is about the simplest knot in the world to tie and you already know how to tie it.



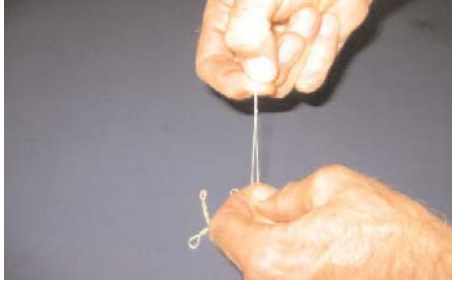
Pull the knot up snug a little distance from the ends.



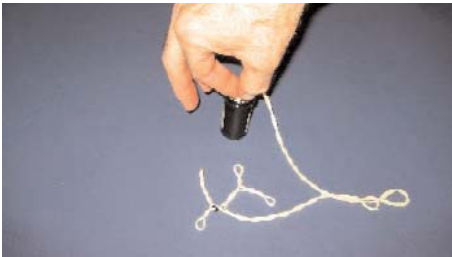
Pull the two lengths apart to pull the knot up to about  $\frac{1}{8}$  inch from the shortest end.

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# Making the Motor continued from page 5



Grab the two short ends and the long pieces and pull the knot as tight as you can get it. You will feel the rubber hardening as you reach its maximum extension.



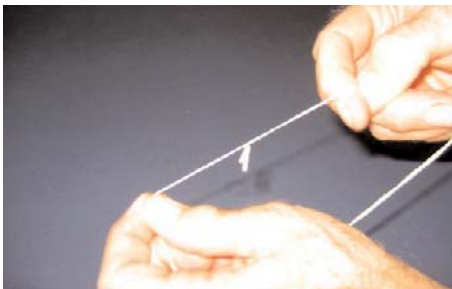
Dip the knotted end into the knot lubricant again.



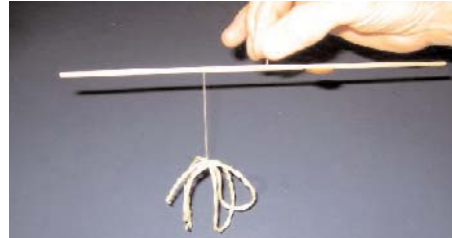
Tie the second knot in the opposite direction from the first one. This time the running end went over the standing length, down under and up through the loop.



Pull the knot up snug.



Pull this knot up against the first knot. Pull it pretty tight. You can grab the ends and pull tight again, like you did with the first knot, but finish by pulling the second knot tight up against the first knot.



At this point you may want to weigh the motor. This one weighed 2.13 grams, dry.



You will need a clean, dark place to store your motor. Keeping them inside a Ziploc bag inside a dark can or box will work. The main thing is to protect them from sunlight. Some people insist on storing their rubber in a refrigerator, but that does not seem to make much difference. You can use a black plastic film can. I am using the vial my blood glucose test strips come in. After peeling off the label and washing it (the vial, not the label), I put on a piece of masking tape so I can relabel it.



I wrote the length, width, weight, and estimated maximum turns on the label. You can also write the rubber batch, airplane name, and make a check every time you use the motor.



Pour about a teaspoonful of lubricant into the Ziploc bag.



Put the motor into the bag and massage it until the entire surface is coated with lubricant. The bag makes it unnecessary for you to take a bath after lubricating your motor. You will get only a little on your fingertips that you can wipe off on the towel.



Grab one end and pull the motor out between two fingers to squeeze off excess lubricant. You may want to weigh it again. Mine weighed 2.30 grams wet, meaning that the lubricant weighed 0.17 grams. Hmm, maybe I will wipe it again.



Loop and gently twist the skein...



...folding it until it will fit into the can. You are now ready to take your airplane and motor to the gym for test flying. →

# Carve Yourself a Balsa Pilot

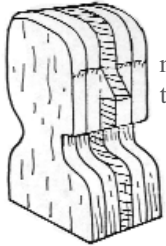
You don't have to be a sculptor to use this simple six-step formula to achieve realistic-looking pilots. And you'll get brownie points from some of the scale judges.

(Enlarge or reduce these drawings for different scale pilots. You can substitute blue foam for balsa.)

**Step 1:** Cut this center template out of 1/4-inch or 1/8-inch balsa or scrap. Note: Only this center section has the nose.



Step 1



Step 2

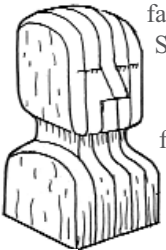
**Step 2:** All other laminates must conform to the center shape. Start sanding to match.

**Step 3:** Cut underside of pilot head to begin to approximate neck width.



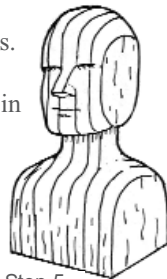
Step 3

**Step 4:** Using finished pilot in Step 6 as a guide, draw outline of face and head on flat face in Step 4.



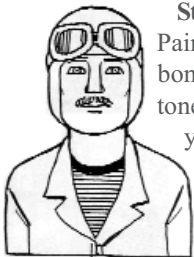
Step 4

**Step 5:** Continue sanding to finish head, neck, and shoulders. Add laminates to achieve full should width. Match drawing in Step 6. Thin nose slightly if using 1/4-inch sheet.

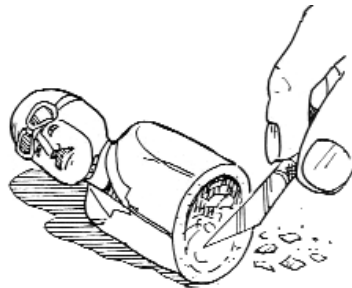


Step 5

**Step 6:** Paint finished pilot. Paint on goggles or cut out of bond paper and glue on. Flesh tone comes ready mixed in watercolor tubes at your local art store. Detail lines in dark brown. Hollow-out base of pilot for lightness.



Step 6



Use same formula for Jet Pilot or antique flier. →



# Getting Started

by Ward Van Duzer

When we all (most of us) started back in the 1950s and 1960s, Control Line was simple. You flew controlline, or Control Line, or C/L. The venerable Fox .35 was the basic choice engine for Stunt. Then came the K&B Greenhead .35, followed by the O.S. Max S.35. What more could you want?

Then came RC. No, RC wasn't bad, but the flying styles were significantly different. Slow flying, precision maneuvers were out. Boring holes in the sky were in. The engine manufacturers were sure to follow the needs/wants of their customers. And the 2/4 break was lost.

Engine technology today is so far advanced from those days it's hard to imagine. Horsepower to cubic-inch ratio has nearly doubled. Unfortunately that comes at the price of rpm. We ran our Foxes at about 8,800 rpm on 10 x 6 propellers. Today's engines are designed to be happy about 14,000 to 15,000 rpm. No longer can you get most engines to run at a 2/4 break and drive our airframes at a comfortable 55 mph.

These changes are based on metallurgy, and mostly, engine timing. The metallurgy is good news. No more iron pistons, and weak piston rings. But the timing, ah, that's where our problem exists. Our modern engines want to run, by design, at 15,000 rpm. Set the needle to on the ground at 9,000 rpm, launch it, and ... wahoo, 15,000 rpm. That is commonly called runaway; very frustrating for a Stunt pilot.

Frustration is something you should be leaving at work, not taking to the flying field. But it happens all the time. We've all seen it. Why does it happen?

There are folks out there using RC engines with carburetors wired open. Or, running engines that the manufacturers have claimed to be CL and believing that they really are. Sure, it has a Venturi in it, but the similarity ends there. Sad to say, but most manufacturers have no clue as to the size of the Venturi, or the timing that we require on our engines, to do our job. Now there are a couple of engines out there that either by accident, or intent, will work for us. But, even they can work better with some simple modifications.

Notwithstanding the fact that these engines were designed and timed to please RC enthusiasts whose sole purpose in life is to bore those holes in the sky. No folks, this just is not going to work for us.

Enter the engine guru. There are numbers of them out there. Their skills are in retuning these modern engines to work at our lower rpm, without giving up much of their horsepower. Now beware, almost anyone can detune an engine. The secret is to detune without giving away all that power. Secondly, your guru needs to be available when you need him if you're having a problem with his product.

If you want to get the maximum pleasure, with minimum frustration from the CL stunt hobby, you're going to have to run good, solid equipment that will be there tomorrow. Cheap equipment, built in countries that may not even exist tomorrow is not the key to success. Where will your parts and engineering help come from? We have already seen more engine manufacturers (and countries) disappear than we can count on

please see **Getting Started...** on page 8

## Getting Started continued from page 7

both hands. You don't need that to happen to you in the middle of your program.

So, what's a body to do? Talk, ask questions, think! Check with fellow club members. Talk to the advanced and expert fliers in your group. See who they trust to do their rebuilding. There may be someone in your club who does engines. But, make sure all of his engines are winners. You don't want one of his losers. If that source is not available to you, look to *Stunt News* advertisers. But, check them out too. Some only modify one brand, size, or kind of engine. Some have large epoxy bills. See just who builds what, and for whom. Remember, your money is just as green as that of a world champion. No, you probably don't need the latest \$300-\$400 piped Blunder-Buss .72, but a couple of solid O.S. .40s, .46s or T.T. .36s will keep most of us happy for sometime thank you.

Think about your engine selection before you pick up the phone, but do discuss this with the rebuilder. Don't even think about making a final selection until you know the weight of the engine.

(There are plenty of really good anchors out there!) Is there a custom (light weight) muffler available for your choice? Are you basing your decision on a current fad engine, or will your choice be around for years? Are repair parts available? Will repair parts remain available? Don't select some copycat clone because it's \$5 cheaper. Run the good stuff. You'll use more than \$5 worth of aspirin with the cheap stuff.

Now remember, these are custom-built engines. They are not just sitting on the shelf waiting for your phone call. And the better rebuilders do have a waiting list. Not to mention that some engines can go off the manufacturers shelves for month at a time. So do order as early as you can. Don't wait till the end of the weekend before the contest, or you'll be disappointed, or worse yet, you'll be forced to use some rebuilder who is sitting around with nothing to do. While you're at it—since there may be some wait time for your number to come up—why not order a second engine at the same time. If you are like me, or most other sport fliers, you do have (or will have) more than one airplane in your fleet. And there is much to be said for reliability, consistency, and understanding when running similar engines. And if you do have a problem on

contest day, you now have the ability to swap out engines!

More good news with a custom-built stunt engine is that it can be built to run the way you want it to. Like the fast food folks say, "Have it your way." Do you want a 2/4 break like a classic Fox .35? Tell your rebuilder. How about a high-speed stunt run—using low-pitched propellers—on a muffler? Want to try a tuned pipe? You'll get what you want when you ask a talented engine guru. And, listen to what he tells you about running his engine.

You really do need some quality equipment designed for our purposes to enjoy your hobby to the max. One good solid O.S. or Thunder Tiger will cost you less than two afternoons chasing a little white ball around and, you'll have that engine for years after you've lost that little white ball. For more information on engine rebuilds, proper fuels for your engine, and how to go about breaking in that new BelchFire .46, ask your clubbies. They are there to help you. →

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## Have You Cast Your Vote? continued from page 1

include all of the candidates' campaign statements in the same mailing that includes the ballot. That puts the information directly into the hands of the voters without them having to make an effort to go look for it. The most significant change this year is that the ballots will be postage-paid, return mail. Putting the ballot in with renewals saved an additional mailing and that savings was more than enough to offset the cost of a postage-paid ballot.

We're looking at additional changes for future elections, possibly even making the option to vote electronically available to our members. However, we're hoping that the changes we've made this year will at least result in a step in the right direction.

Even with these changes we could still use your help. We're asking club officers to encourage their members to become involved in the system and vote. Like local club elections, this is an opportunity for a member to play a part in selecting the person he or she feels is best suited to lead AMA in the direction he or she thinks it should go. And, in those cases

where there may only be one candidate, the incumbent, running for a position, please still consider casting a vote. Doing this will act as a barometer and help give that person an indication of how the membership feels about the job currently being done. As officers, you all know how important this is.

Finally, it's important to make sure the ballot is sent to the auditors at the address on the front of the ballot. In the past, some members have returned their ballot to AMA Headquarters in Muncie along with their membership renewal. AMA can only count ballots that are sent directly to the auditor.

See you next time ... →

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From the Suffolk Aeromodelers,  
Long Island, New York

## Multiblade Propellers

originally from [Hooked-on-rc-airplanes.com](http://Hooked-on-rc-airplanes.com)

Three-bladed model airplane propellers are less efficient than two-bladed propellers. In fact, the more blades that are added, the less efficient the propeller becomes. The only advantage of a multiblade propeller is a smaller diameter.

Multiblade propellers are used with full-scale airplanes when ground clearance is an issue. World War II fighter planes are a good example. For this reason, many pilots use multiblade propellers on their scale model airplanes to make it look more like the full-scale airplane.

Twin-engine airplanes often use multiblade propellers because the smaller diameter is needed for the propeller to clear the fuselage. This is true of full-scale airplanes and often the case with twin-engine model airplanes as well.

Evolution Engines offers a three-blade propeller to be used with a trainer. The inefficiency of the propeller "tames" the engine a bit for the beginner by allowing the airplane to fly slower while maintaining the thrust needed for easy takeoffs and climbs. The extra blade also helps to slow the airplane down when landing. After the beginner becomes comfortable flying the airplane, he or she can tap into the rest of the engine's power by changing to a more efficient two-bladed propeller. →

# A Lifetime of Balsa

continued from page 4

who taught me how to do CL flying, but even then I still did not really feel comfortable with the tethered aircraft. Sailplanes had a certain majestic, pure flight, regal aura about them, and seeing a few full-scale sailplanes in flight one day made my heart pound and shivers run up my spine from their sheer beauty.

I had had a ride once in a Piper Cub that was fun, but there is just no comparison to a fully dressed sailplane.

Naturally, when the Korean War came along, and I was about to be drafted, I joined the Air Force, and spent quite a bit of time in airplanes, but never learned to be a pilot. I never sat in a sailplane nor was I ever affluent enough to charter a ride in one.

No, I look back on it now, and really love the memory of all those cold winter nights crouched over my building table down in the basement next to the warm furnace. Learning what chord, empennage, dihedral, ailerons, etc. were about, and then the sheer joy of watching that new bird stay up in the sky, if only for a little while.

I have come a long way from the time of the grape baskets, but I have a tremendously long way to go yet. It wasn't until I joined the Pine Peaks Soaring Society that I realized just how much more I needed to know. There were guys like Bob Avery, Barry Welsh, Jack Dech, and Milt Woodham who were so very patient with me, trying to get my brain and transmitter to work together in this new challenge ... an honest-to-goodness flying kind of sailplane that could become a speck up there if you just learned how to "see" thermals, or watch the hawks.

What a great club to belong to. It makes all those years of Ambroid cement on the fingers have some meaning about quality time. So, go buy some balsa guys, and get out to the club field as soon as you can. →

## Save that stamp!

If your club newsletter is sent to AMA electronically there is no need to send a hard copy.

E-mail your newsletter to  
[ashleyr@modelaircraft.org](mailto:ashleyr@modelaircraft.org)

## Tips & Tricks

### Cooling Your Engine

If your engine is running hotter than you would like, how can you cool it down? Most people make the mistake of thinking more is better when it comes to the air inlet at the front of the cowl. This is a common error and, while it seems logical, the reverse is actually true. To properly cool your engine, you need more outlet, not more inlet. You want at least 2:1—preferably 3:1—air out to air in ratio. Otherwise, it makes a dam and the air cannot come into the cowl because it has nowhere to go out of the cowl. If your engine is not cooling properly, try blocking off the other air inlet or opening the belly of the cowl further.

### Wing/Tail Alignment

Get an old telescope antenna (the same type as found on transmitters). Use it as an adjustable-length measuring rod to compare critical measurements on airplanes during construction. This can help you compare the distance from one wingtip to the stabilizer and to make sure this distance is equal on both sides of the airplane. This ensures that the stabilizer is parallel to the wing.  
—Both from the South Bend Radio Control Club, South Bend, Indiana

### Soldering Advisories

Someone suggested that the use of a soldering gun was safer than other types because it would not roll off the workbench and burn you. It should also be mentioned over and over that soldering guns have a very strong alternating current magnetic field around the tip. When brought in proximity to electric motors and servos, this magnetic field de-gausses (demagnetizes) the magnets inside the motors and servos and causes permanent damage.

I have seen several people come to the flying field with a new electric-powered airplane that does not have enough power for flight. When asked if they soldered the wires to the motor with a soldering gun, the answer is usually "yes."

Also you should never stick the tip of a soldering gun into the airplane's radio compartment while soldering pushrods and etc. as it will presently damage the motors inside the servos.

If you must use a soldering gun, you should stay well away from electric motors and servos, meaning at least 24 inches just to be safe  
—From the Rogue Eagles RC Club, Medford, Oregon

### Those Handy LEDs

Those ubiquitous light emitting diodes (LEDs) are so handy they need to be used in even more places. Every RC transmitter should have a prominent red one on its faceplate to greatly reduce the incidence of switches being accidentally left on. And you can also use one exposed up front in your ship to assure that your receiver is or is not turned on. All you have to do it plug one into an unused channel on your receiver. And for the coil protection on a spark ignition system, a red "on" LED up front is useful as well. Not all wall chargers have them but they should! Dubro Ni-Starter chargers have handy LEDs, but for some reason I've had two of them fail. The chargers still work, but the LEDs stutter and kick off. Disappointing.

—The Central Coast chapter of the Society of Antique Modelers, California

# How're Your Nicads?

by Ted Brindle

The Nicad batteries that we use in our transmitters and aircraft wear out with time. If you have a battery pack that is more than three years old, you should be keeping a close check on it by cycling every month. If it is five years or older, you should replace it and be sure to properly dispose of the old cells. So, how do we tell the age of our batteries?

Most Futaba battery packs and individual Sanyo battery cells (which most OEM radio manufacturers use) have a two-letter date code stamped somewhere on the pack or cell. The first

letter of the code is the year of manufacture and the second letter is the month of manufacture. 1996=A, 1997=B, 1998=C, etc. January=A, February=B, March=C, etc.

If you have a battery or pack with a date code of IB, it was manufactured in February of 2004. Probably still okay but keep a close check on it. The pack in my 8UAF transmitter was ZF, or June of 1995 so I replaced it. I found one pack with a date code of WC which translates to 1992; replaced that one without question. →

## 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.

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

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