NATIONAL NEWSLETTER

Academy of Model Aeronautics March 2004

5161 East Memorial Drive Muncie IN 47302
Tel.: (765) 287-1256 Fax: (765) 289-4248
www.modelaircraft.org

In this issue

Getting young people involved	pg. 1
Building the ultimate combat machine	pg. 2
Mixing epoxy	pg. 3
Catapult gliders	pg. 4
Landings 101	pg. 5
Transferable skills	pg. 5
Pinning hinges	pg. 6
Hinge installation	pg. 7
Computer radios	pg. 8
Thermal entry, escape, recognition	pg. 9
Glassing, painting wooden surfaces	pg. 10
Contest fun	pg. 12
Drill sizes	pg. 12
Treating Japanese tissue	pg. 13
Hints and tips	pg. 14

About the *National Newsletter*

The *National Newsletter* is edited and published bimonthly at AMA Headquarters

Editor
Sarah Greiner

Technical Editor
Ed McCollough

Circulation:
AMA Chartered Club Newsletter Editors
The Model Press
Past Presidents
AMA Executive Council
Associate Vice Presidents
Special Interest Groups
Industry Associates

COMMUNICATION

Getting young people involved

By SCOTT RHOADES
Edited by MATTHEW RHOADES

Just about every Radio Control (RC) related publication, Web site, and organization has discussed efforts to introduce the youngsters to the sport of flying RC airplanes. It doesn't take rocket science to figure out that a majority of the current participants in RC are, shall we say, *old*.

As cool as RC is, the young folks just don't feel comfortable hanging out with geezers. We need to close the generation gap and one way to do that is by communicating on their level. By speaking their language, the youngsters will feel more comfortable and will want to come out to the field more often to learn about RC. So, I've compiled a few of the latest slang terms, along with definitions and a few examples.

Yo: Word used as an attention getter to start conversation. It lets everyone know the speaker is about to say something. *Example:* Yo! Your plane is on fire.

Dawg: (dog) Good friend. *Example:* The people in my club are my dawgs.

Whazzup: Hello. What is going on? It is a blend of the older slang term "what's up" *Example:* Whazzup dawg?

Whack: 1) Awful; 2) Crazy. *Example:* 1. Your airplane just crashed. That's whack. 2) Did you see what he did? That's whack.

Off the hook: Very good, great, outstanding. Variations are off the hingers, off the fa-sheezy, off the clock. *Example:* Yo dawg, that flyin' maneuver was off the hook!

(Note: It's important to point out that in words ending with "-ing," the "-g" is always silent. Examples: flyin', landin')

Dag: Darn, shucks. *Example:* Dag, I stuck my finger in the prop.

Fo-shizzle: For sure (definitely). *Example:* I'm ready to get this bird airborne, fo-shizzle!

My bad: Admission of guilt. *Example:* I turned on my transmitter and crashed your airplane. My bad!

Aaiight: (pronounced aw-ight) Used in times of intense emotion. *Example:* Yo I'm bringin' this plane in, aaiight!

Know what I'm sayin'?: This is only a rhetorical question; however, it should be used to finish many sentences or conversations. *Example:* blah, blah … know what I'm sayin'?

Please see **COMMUNICATION** on page 2

Beginning with the July 2004 issue, the *National Newsletter* will be available in an electronic version only. Notices will be sent to Club Newsletter Editors when each issue has been posted online. Please make sure a current E-mail address is on file at AMA headquarters. For more information, contact Sarah Greiner at sarahg@modelaircraft.org.

COMMUNICATION continued from page 1

Now you've been introduced to some basic slang that will allow you to communicate with the youngsters who come to the field. It will take some practice to become proficient with this lingo so I suggest practicing with grandchildren, nieces, nephews, or even unknown youths at the local mall. Fo-shizzle! Know what I'm sayin'?

from *Silver Lining*
Holly Cloud Hoppers
Scott Rhoades, editor
Holly MI

COMMENTS ON LIFE

A day without sunshine is like ... night.

On the other hand, you have different fingers.

I just got lost in thought. It was unfamiliar territory.

42.7% of all statistics are made up on the spot.

I feel like I'm diagonally parked in a parallel universe.

Honk if you love peace and quiet.

Remember, half the people you know are below average.

He who laughs last thinks slowest.

Depression is merely anger without enthusiasm.

The early bird may get the worm, but the second mouse gets the cheese.

I drive way too fast to worry about cholesterol.

Support bacteria. They're the only culture some people have.

Monday is an awful way to spend 1/7 of your life.

from the newsletter of the
Mississinewa Skyhawks Inc.
Dave Hecker, editor
Somerset IN

COMBAT

Building the ultimate machine

Looking back on a great day of combat, I thought I would share my set-up secrets to try to talk more people into coming out to join us.

Combat set-up centers entirely on aircraft agility. The more agile and quick your airplane is, the more chances you'll have at your opponent's streamer. It's all about turning performance. I did several things to improve this. Since we are all flying the same engine/airplane combo, several small things add up to sizeable advantage. Here's what I did:

1) Make the airplane as light as possible. This means use the smallest servos to do the job along with a tiny receiver and a small capacity battery pack. Ounces count here! I also cut the lightening holes bigger than marked.

2) To further lighten the wing loading, I added approximately seven inches to the span with balsa wing tips. This adds wing area at a minimal weight penalty, lowering the wing loading. This has a dramatic effect on turning performance.

3) When you glue in the tail boom, pull it out as far as possible to retain a good joint. Also, move the stabilizer about one inch further back than the stock location. This will make the airplane fly smoother at the more rearward center of gravity (CG) position discussed in Tip #4.

I added a small dorsal fin to the rudder to add directional stability. The stock bats I've seen fly need more fin area. When I build another one, I will cut a new one out with considerably more area. The extra area helps when turning hard on the edge of a stall.

4) The stock CG is a safe bet for a stable airplane, but we want a carving machine! You can move it back at least 3/8 inches if you are careful. It is very important if you move the CG aft to reduce elevator travel. The airplane will not be any more sensitive if this is done properly; it will just loop tighter. Once you have the CG set, increase travel slowly until it snaps out of a full throttle loop. Add about 30% expo to soften the center up and you're set.

5) The iron-on hinge is heavy! I used the covering material to make my hinges. This does two things: It lightens the aircraft, and it seals the gaps, making the controls much more effective.

6) I mounted the motor as far back as it would go in the mount and cut the rest off. Two more gains here. It's lighter again, and by moving the motor closer to the CG, you are reducing inertial movement making for a quicker turning airplane.

7) Make sure your vent line in the tank is as close to the top as possible. You want to get every last drop of fuel in the tank. You have to make it through the entire round to score all possible points and you can't do that if your motor runs out of fuel. In addition, with some of the power plant models discussed later, you will use more fuel.

As that pretty much wraps up the airframe portion, let's take a look at the business end. In Combat, speed is life! Speed will get you to the target quicker and get you out of harms way in a flash.

First, the little Magnum .15 is a hot engine when treated right. The most dramatic thing you can do is take the muffler apart and drill out as much of the exhaust baffle as possible. Use a lot of Loctite when reassembling. The baffle is there to keep the noise level reasonable, but the motor is so quiet anyway, the increase in noise is not out of line at all. This is good for at least 1,000-2,000 rpm increase.

Next, balance your propeller. These engines will turn over 17,000 and unload more in the air. An unbalanced propeller will rob rpm and make the airplane vibrate excessively. This could lead to premature breakage of the muffler bolts (more on this later). This alone is worth a few hundred rpm.

Please see **COMBAT** on page 3

COMBAT continued from page 2

The weak link is the muffler, or more specifically the muffler bolts. Do not use the gasket provided. This allows a small amount of play between the engine and muffler, and I feel this causes the bolts to break. Replace the bolts with Du-Bro ones as they are socket head and of a higher tensile strength. Use lots of Loctite for reassembly.

Don't be tempted to run higher nitro. It won't help since the engine is timed conservatively.

Also, don't lean for peak rpm. The airplane will lean out due to the hard Gs it's pulling and from getting hotter from flying at a slower airspeed with full power due to all the maneuvering you'll be doing. Set it slightly fatter than you normally would and it will be fine.

I don't think anyone who saw my airplane fly in its last Combat competition would argue the fact that I had a considerable edge on the rest of the field. I could pick my targets at will and run away from the heat at anytime. There is nothing magic about my airplane; I just put a little extra thought and effort into the setup. When we all start with the same stuff, you have to work hard to find an edge. I will gladly help anyone who would like to get the most from their set-up. I don't expect to have an edge next time. C'mon, let's fight!

from *Wine Country Flier*
Wine Country Flyers
Phil Leech and Stevo Smith, editors
Santa Rosa CA

MIXING EPOXY

What to do when epoxy doesn't harden properly

Epoxy is one of the best modeling materials available. It's useful as an adhesive for wetting out fiberglass cloth, as a filler, and as a finishing material. It can be thinned or thickened for a variety of purposes. But, even though it is useful, epoxy also can be a pain when it doesn't harden properly.

There are two important issues when dealing with epoxy: proportioning and mixing.

Of these two, mixing is the most critical. Misproportioning the hardener to the epoxy generally leads to slow hardening, but lack of proper mixing can lead to permanently sticky epoxy. One hundred quick, hard strokes are recommended when mixing any amount of epoxy. Count them to make sure that your mixing is adequate.

Always mix your epoxy before putting in any additives. Both thinning or thickening agents can keep epoxy from mixing properly. Give the epoxy 100 strokes first and then put in the additive.

Thinning

Epoxy can be thinned using acetone or denatured alcohol. Either of these can be added to make it more watery. A mix of up to 50% doesn't seem to have any effect on the final strength of the epoxy. Thinning the epoxy will slow down the curing time and make it wet out fiberglass and carbon fiber better. Thinned epoxy also can be wiped onto balsa or obechi as a finish.

Thickening

Epoxy can be thickened by adding almost any inert fine-grained solid, from sand to cotton fiber. Modelers usually use microballoons for thickening epoxy since they are readily available and add little weight. Thickened epoxy can be used to make fillets or to fill gaps.

5 minutes, 15 minutes, 30 minutes, more?

Epoxy comes in formulations for different curing times. The times listed on the package are strictly nominal and generally refer to curing time. Five-minute epoxy does not give you five minutes of working time. At best, you will get 20 seconds of working time in which to place 5-minute epoxy before it starts to "hit."

Thirty-minute epoxy gives you around one to three minutes before it starts to hit. These times will vary with temperature, mix proportions, and proper mixing, but they are good reference points. In general, 5-minute epoxy is only for spot gluing. It is great for small, quick jobs but not for involved tasks.

A general rule of thumb is the working time for epoxy (after 100 strokes of mixing) is about 10% of the time listed on the package. Keep in mind that epoxy mixed and left in the cup will hit faster than epoxy that is spread out immediately.

Clean up

Epoxy on the hands can be cleaned with acetone, denatured alcohol, or vinegar. Vinegar is the most desirable of these three but it smells. I find that soft soap, when used straight and rubbed patiently and thoroughly on the hands, removes epoxy residue in a completely satisfactory fashion. Try it; you'll like it. The best thing to do is wear latex gloves while working with epoxy and toss them when you're done. It avoids any possible allergic reaction and eliminates the clean-up problem.

from the newsletter of the
R/C World Flyers
Al Sorensen, editor
Orlando FL

CATAPULT GLIDERS

Construction, trimming tips for better flying

By BOB JOHANNES

Construction tips

Wing leading edge: Use a thin strip of bass wood or spruce to keep the leading edge free from nicks. Plane and sand the wing blank to the airfoil shape, leaving the leading edge quite sharp. When you have finished sanding, hold the wing blank up to a light and you should see a dark center with lighter areas around the edges. Sand all parts quite smooth. Then, carefully cut the dihedral separations. Sand the dihedral angles accurately so you get good joints.

Alignment: Leave the fuselage sides flat as an aid in aligning the wing-fuselage joint. Make sure that the tip dihedral is the same on both wing halves.

Pin the wing to the fuselage with the center dihedral joint exactly aligned with the fuselage. Turn the wing/fuselage upside down on a flat surface. Using two squares against the flat fuselage sides, making sure that the fuselage is vertical. Tack glue the wing with thin CyA on both sides of the fuselage, then put a bead of thick CyA on each side.

Glue on the horizontal tail exactly aligned with the wing. Use slow-drying glue to attach the fin. Make sure the fin is straight on the fuselage. Turn the glider upside down and using a square, make sure the fin is perpendicular to the wing.

Finish: Dope provides a smooth surface that is fairly waterproof. Apply three coats of unthinned dope (I use Aerogloss) and sand all surfaces smooth after the first and second coats. Leave the last half inch of the fin and stabilizer undoped.

Copper wires: Glue $^3/_8$-inch lengths of thin copper wire to the rear of the fin and stabilizer. This enables you to bend the wood for adjustments, and the wires will hold the adjustments indefinitely.

Trimming tips

Wing flap: Cut a small flap on the left, main wing panel. The chord of the flap should be approximately $^5/_{16}$ inches. Bend it down $^1/_{32}$ inches and glue it in that position. The flap will prevent spiral dives.

Basic trim philosophy is to use decalage (stabilizer adjustments) to adjust the power (launch) pattern. Use the center of gravity (CG) and glide circle diameter to control the glide.

Rubber loop: Adjust the length of the rubber loop so you can stretch it to its maximum.

Hand glide: Balance the glider at approximately 50% CG. Hand glide and adjust the CG until you get a slight stall. Then, adjust the rudder to get a hint of a left turn.

First launch: Use full power on every launch. Once adjusted for full power launches, the glider will not recover properly from a partial launch and may spiral in. The stall that you put in during hand gliding should assure that the glider will not spiral in and crash on the first launch.

Observe the power pattern and glide circle diameter. If the power pattern is reasonable and the glider is stalling and turning, continue flying and adjusting rudder until you get the diameter of glide circle as you want it. It should be about 100 feet in diameter.

Don't try to adjust the recovery of power pattern at this point. Just get the circle the way you want it. Rudder setting will affect the power pattern and recovery.

Power trim: The power pattern should be straight up with a hint of barrel roll. The glider should flop into the glide at the top with no stall. If the glider tends to nose over on the way up, add up elevator to get the hint of barrel roll. If the glider is loopy, add down to get a more straight up pattern. If the glider stalls at the top, add a little more up elevator to get more barrel roll. The barrel roll is what controls the flop out recovery.

Glide trim: During the power trimming, the glider should still be stalling in the glide. Once you are satisfied with the power pattern and recovery, adjust the glide trim by adding clay to the nose. Never put clay on a wing tip to adjust turn. You need the rudder offset for the power pattern.

The glide should be slow and buoyant with a very slight hint of stall. Since all the adjustments are interrelated, you may have to go back and fine tune some of the previous adjustments. Once trimmed, the dope and the copper wires should keep your glider in trim indefinitely.

from *The Lone Eagle*
SAM NX-211
Frank Gruswitz, editor
St. Louis MO

LANDINGS 101

Mastering jet landings takes lots of practice

By LARRY LAUGHLIN

You've got to love this hobby!

No sooner do you say "I've done it all" than along comes something new and exciting to humble you.

This year, for me, it's the jet. The BVM BobCat has caused me to work extra hard on my landings. I've got about 30 flights on it now and without question, I am stunned by the challenging learning curve it requires. For sure, landing the BobCat has been the biggest trial of all.

The BobCat has several great flying characteristics. It will do just about anything you ask of it in the air-fast pace, great aerobatics, rolling vertical climbs forever, you name it. But getting it down to a super slow landing approach speed is not its best feature, or at least not mine.

As with most jets, slow flight is indeed the toughest skill to master, but I'm getting there. My first attempts at landing were way too fast, resulting in continuous landing gear damage.

As I began to figure out the slow flight characteristics, I was able to reduce the retract gear damage, but I still was smoking over the approach edge of the runway. I just wouldn't accept the fact that it would fly slower than I was willing to go.

My mentor's words were often, "Kill the power now. You've got the runway made." It never looked like I had the runway made and usually it still doesn't, but with that kind of coaching, I'm starting to get it.

Once I've mastered the short final approach speed, I can drag the airplane in lower, carrying more power with a nose high, slow flight attitude to touch down, but that's going to take another 20 flights or so.

Hitting that yellow center line and staying on it is key. I've worked hard with every airplane I've owned to score a 10 on the landing, and I think it's paid off.

from *Radio Flyer*
Pikes Peak Radio Control Club
Colorado Springs CO

TRANSFERABLE SKILLS

How changing a plug is related to Radio Control

I have one electrical plug in my garage and after 18 years in the house, it had finally worn out to the point where any cord plugged into one of the two outlets would easily fall out. Of course, this always happened while I was using the leaf blower on the other side of the house, so I decided to install the new plug while grumbling on my walk to plug in the leaf blower for the fifth time.

One Sunday afternoon, I drove to Home Depot, bought a new plug, and headed home thinking I had an easy task in front of me. After all, I ran all the wiring into my shop, so how much trouble could a simple plug be?

After I got the cover off, I noticed the plug in the garage also was serving as a connector for about three circuits in my house. Sitting in the electrical box were lots of wires, all of which used the existing plug as a connection point: three white wires, three black wires, and three ground wires weaved their way onto this old worn out plug—not at all what I was expecting.

After scratching my chin for a while and looking at the old plug, I came to the conclusion that I could easily create the same connections and proceeded to change the plug with only one "minor" spark event (I sure wish they made non-conductive needle nose pliers!).

How does this relate to Radio Control (RC) flying?

The RC skill set of working on things has become transferable to other areas in my life.

Well, I can honestly say that if I had looked at this mess of wires before I was into RC, I probably would have called an electrician (actually, my wife wishes I had, as my spark event threw the ground fault interrupt and cut power to about a third of the house until I reset it). The issue here is not that I muddled my way through changing a plug, but rather that I have gained confidence in taking on projects I wouldn't have looked twice at before I joined RC.

There are a couple of things at play here. First is the RC skill set of working on things that has become transferable to other areas in my life. I have become accustomed to working on electrical things from RC and my interest in computers, so I gained skills in soldering, tracing connections, etc. All of us in this hobby gain these same skills and I am sure you also have stories on how a particular skill learned in RC transferred to another task.

To me though, the most important is the mindset change that has slowly occurred to me over the years. When I was young, I loved building plastic models but lacked the gumption to build the high skill level ones. I tried a few times, failed, and went back to the easy ones (I think I must have built the Revell USS Missouri battleship about a million times, always sinking her with a strategically placed black cat firecracker).

While I may not be any better of a builder now, I would not hesitate to

Please see **SKILLS** on page 6

SKILLS continued from page 5

attempt building any model now, only because I know I can get help from fellow club members and I am much better at figuring things out because of RC. I am still in the early phases of designing a 1/5-scale F3F biplane and have recently concluded that I will need to design the landing gear for this to proceed. I was hoping the 1/5-scale Robart Wildcat (F4F) gear would work, but after much study of three views, it has become obvious to me that there are just too many differences in the gear to make them interchangeable.

The point here is that designing a gear like this will be a big-time challenge for me, as I will have to fake that I am a mechanical engineer, and then fake I am a machinist. My hesitation is now primarily one of time. Is it realistic in my home situation to take the six months or so to design and build (rebuild!) the gear given all of the projects I have going?

A second hesitation is a quality issue. Since these would be scale and most likely a focal point of the design, can I build these things to look reasonable? I won't shy away because of the complexity though, which I would have done before my time in the RC hobby.

While this article may seem a little abstract and perhaps a bit of a stretch, I would encourage you to think of this when are asked by an inquiring parent of a youngster if this hobby is good for them. All this from changing a plug … just wait until next month when I have to paint the library!

Keep the balsa dust flying!

from *Skywriter*
Skymasters Radio Control Club
Mark Smith, editor
Lake Orion MI

HINGES

Pinning hinges for increased security when flying

If you've ever had a control surface come loose in flight and lost an aircraft as a result, you've probably given serious consideration to "pinning hinges" for added security.

Sometimes you get away with a detached control surface, but when you've got no elevator or an aileron is partially pulled out at an angle, you can lose an aircraft quickly.

The most common hinge types used today are the nylon hinge and the flexible CyA hinge that Sig markets as the "Easy Hinge." You'll also find metal hinges used in some of the Almost-Ready-to-Fly (ARF) airplanes. Nylon and metal hinges are normally glued into position using epoxy glue. To avoid epoxy from getting on the hinge joint, modelers sometimes coat it with Vaseline or oil.

The installation of nylon or metal hinges is a more time consuming and tedious process than the installation of the Easy Hinge. The Easy Hinge is slipped into slots in the control surface and in the wing or tail structure after which CyA is dripped on to the exposed portion of the hinge and wicked into both ends of the hinge by capillary action.

In order to provide assurance that control surfaces won't detach in fight, many modelers pin their hinges. There are two basic methods.

The first is the use of the classic, round tooth pick. Using a 3/32 -size drill, drill through the hinge on both the control surface side and wing or tail structure side. Install the tooth picks using epoxy or white (aliphatic) glue. When the glue sets, clip the toothpicks as close to the surface as possible and then sand the ends flush.

Since sanding is impractical when covering is already on the aircraft, you can carefully grind the toothpick ends flush using a Dremel tool. Cover or paint as appropriate. *Note: Some articles recommend the use of CyA glue. I don't since CyA can set so quickly the toothpick may not be properly installed.*

Another method for pinning hinges involves using two types of steel pins in combination. This method won't work well with metal hinges due to the difficulty of drilling through the metal with the larger pin used as a drill bit, but I have used it with nylon hinges and it is especially suited for the Easy Hinge. I've found using the steel pin method with Easy Hinges is the quickest and most secure method.

Here's how the steel pin method works. First, you need two types of pins—a box of "Tailor" pins and some modeler's T-Pins. You can get the Tailor pins from any store that carries sewing items. Modeler T-Pins can be found at your local hobby shop.

You may encounter some difficulty drilling through nylon hinges. Conversely, your T-Pin drill bit will go through the Easy Hinges like butter. *Note: You might use a 1/16-inch drill bit versus the T-Pin bit. The diameter is slightly bigger than the T-Pin shaft but it should work and may make the job easier when dealing with a regular nylon hinge, and especially a metal hinge.*

Now that you've drilled your pin holes, it's time to install the Tailor pins. Since the shaft of a Tailor pin is thinner than the T-Pin, the Tailor pins fit easily into the drilled holes. Install them in the holes from the top down so the pin top will appear on the upper wing, tail, and control surface.

Leave about 3/8-inch of the pins exposed. Mix up a batch of 30-minute epoxy. Dab some epoxy on the exposed portion of each pin and slide all the pin tops flush. Let the epoxy set. Then, clip off protruding pins on the underside of the wing, tail structure, and control surfaces (or one side of the vertical stabilizer).

This method is fast! When you get done, the tops of the Tailor pins will show but they are quite small and far neater in appearance than the toothpick method, particularly when used to pin the hinges of an ARF.

from *The Beacon*
Miramar Radio Control Flyers
Dick Doucet, editor
San Diego CA

CONSTRUCTION

Hinge installation is critical

By JIM BRONOWSKI

If you are working with an Almost-Ready-to-Fly aircraft or are building from a kit or scratch, you will be installing hinges. This is a critical step in model construction. If the control surface binds or has too much of a gap, your baby is going to be a dog and you will have definite control problems.

There are two basic types of hinges: the "living" hinge that is installed using CyA glue and the "pinned" hinge that is put in with epoxy. There are advantages and disadvantages to using either type.

I have used the living hinge for several years and like the fact that it only takes a few drops of CyA to set the hinges in the control surface; however, I have had these hinges break and always seem to get the CyA all over the covering, no matter how careful I am. I also have glued the control surface to the wing and tail.

Recently, I went back to pinned hinges. These hinges move with much less resistance and are more durable. I cover the hinge with lip balm before installing it with 5-minute epoxy. When the epoxy dries, the excess can easily be removed from around the hinge.

The Great Planes Slot Machine is a good investment, and it makes hinge installation much easier. Just hang on tight when you start it or you'll have a hinge slot where you probably don't want it.

There are two basic types of hinges: the "living" hinge and the "pinned" hinge.

Finally, after you have a control surface that moves easily and permits adequate throw, don't forget to seal the gap. It is amazing how much difference this will make in the performance of your aircraft. A roll of clear MonoKote will seal the control surfaces of all the aircraft you have. It also keeps the hinges secure and helps prevent control surface flutter.

from *Prop Talk*
Riverside Radio Control Club
Jim Bronowski, editor
Riverside CA

AVIATION TRUISMS

The following is a list of aviation truths compiled by a Continental airline pilot.

1) Every takeoff is optional. Every landing is mandatory.

2) If you push the stick forward, the houses get bigger. If you pull the stick back, they get smaller. That is, unless you keep pulling the stick back; then, the houses get bigger again.

3) Flying isn't dangerous. Crashing is what's dangerous.

4) It's better to be down here wishing you were up there than up there wishing you were down here.

5) The only time you have too much fuel is when you're on fire.

6) The propeller is just a big fan in front of the airplane used to keep the pilot cool. When it stops, you can actually watch the pilot sweating.

7) When in doubt, hold onto your altitude. No one has ever collided with the sky.

8) A "good" landing is one from which you can walk away. A "great" landing is one after which you can use the airplane again.

9) Learn from the mistakes of others. You won't live long enough to make all of them yourself.

10) You know you've landed with the wheels up if it takes full power to taxi to the ramp.

11) The probability of survival is inversely proportional to the angle of arrival. Large angle of arrival=small probability of survival and vice versa.

12) Never let an aircraft take you somewhere your brain didn't get to five minutes earlier.

13) Stay out of clouds. The silver lining that everyone's talking about might be another airplane going the opposite direction.

from *Space City Crash*
Space City R/C
Mike Crotts, editor
Houston TX

Computer radios add more responsibility to flying

By LARRY DUDKOWSKI

Computer radios are, in my opinion, one of the slickest inventions in our hobby today.

Until the advent of computer radios, if you wanted flaperons, you actually had to build them into your aircraft. Then, you needed separate servos and channels on your radio to activate them. Today, through the miracle of the computer chips, flaperons are available with a simple setting on your radio.

With a computer radio, you also can have elevons, V-tails, or any of a vast array of options with a few simple settings. And, by pushing a few buttons or turning a dial, you can correct almost every problem related to servo adjustment. Best of all, your computer radio will "remember" the settings of several models and recall them with the push of a button. Such is the power of the computer radio—multiple models, each with multiple settings, all at your fingertips.

Someone once said, "With great power comes great responsibility," and this is true of the computer radio. Let me relate a story.

I recently switched receivers in my Great Planes biplane, going from a 6-channel Airtronics to an Airtronics Radiant computerized 6-channel receiver. I had the biplane on the Radiant before as "Model 2" so I simply swapped receivers and checked the control throws. Everything looked all right, so I put them on charge and closed up shop for the night.

The next afternoon I went to get my stuff to go flying. I checked that the airplane and transmitter were charged, but when I did a quick radio check, I noticed the ailerons were full left. I thought I had checked everything the night before, but I must have forgotten. I centered the controls but found that I had to move the servo arm on the shaft to neutralize the ailerons. Funny, I had never had to do that before. I packed up and went to the flying field.

The first flight went well. I was a little out of practice but experienced no problems. I took a break, got some instructing in, and went out for another flight. This time, just as the model rotated into the air, it banked hard left. When I corrected, it bounced on the runway, breaking the tips off the propeller.

I picked up the airplane and headed back to the pits to replace the propeller. That's when I noticed that the ailerons were again full left. To say the least, I was puzzled. Thinking back, the transmitter had fallen off the workbench about a month before. I checked it out at the time and everything seemed fine, but I guessed something must have broken in the transmitter.

The next night, back at my shop, I tried to duplicate the problem. That way, I could tell the Airtronics folks what it was or at least how to make it happen. When I turned the transmitter and receiver on, the ailerons were centered again. I moved the sticks, shook the transmitter, shook the receiver, moved the trim tab lever, and turned everything on and off. Nothing I did caused the ailerons to lock up.

I tried some of the other switches and controls. Then I hit the flaps switch. Guess what. The ailerons moved. I moved the flap, adjusting dial and the ailerons moved accordingly. What was happening? Did I plug the aileron servo into the wrong channel? That's when it hit me. I selected "flaperons" from the computer menu. You guessed it. Flaperons were turned on. Thinking back, the biplane must have been "Model 3" instead of "Model 2." I should have checked all the settings when I defined the biplane to the transmitter.

Several lessons should be learned from this.

Lesson one: Be responsible. Check all of the computer radio settings when defining a model to your computer radio.

Lesson two: Don't trust your memory. Don't think you remember what the model was or the settings were—check. I keep a spreadsheet that lists specifications (flying time, engine, fuel tank, propeller size, etc.) for each of my models. Now, I've added a column for the model's name or number as defined on my computer radios.

Lesson three: If something doesn't seem right, it isn't. Make sure you find the problem and don't just correct the symptom like I did.

I hope you learned a few things. I did and it didn't even cost me an airplane.

from *Plane Talk*
Prop Master R/C Aero Club
Dave Masters, editor
Warrenville IL

LAUGHTER IS LIGHTER THAN AIR

A pilot was sitting in his seat and pulled out a .38 revolver.

He placed it on top of the instrument panel, and then asked the navigator, "Do you know what I use this for?"

The navigator replied timidly, "No. What's it for?"

The pilot responded, "I use this on navigators who get me lost!"

The navigator proceeded to pull out a .45 and place it on his chart table.

"What's that for?" the pilot asked.

"To be honest, sir," the navigator replied. "I'll know we're lost before you will."

You know you're a *real* modeler when you arrange your shirts in the closet in two groups—the ones with CyA glue spots and those without.

from *Space City Crash*
Space City R/C
Mike Crotts, editor
Houston TX

Thermal entry, escape, and recognition

You know a thermal is basically rising air. To take advantage of this knowledge, you first need to have an airplane that flies reasonably well "hands off."

Good thermal recognition requires you to detect the slightest rise or fall in our sailplanes. Many a thermal has been missed by pilots who are too heavy-handed on the stick in search of a thermal. Also, an airplane with a tendency to fly in a shallow left or right bank makes recognition more difficult.

I'm not talking about the ability to find a "boomer" thermal but the ability to find the hint of one. Anyone can find the "boomers," but the Sailplane bloodhound can catch the slightest whiff. This often is the difference between first and third place. The edges of thermals are not well-defined. If you can find the edge, you can find maximum lift.

Don't search for thermals constantly. Don't panic if you're in some sinking air. Better pilots will resist the temptation to turn the airplane every four or five seconds. When you come off the line, allow the airplane to fly straight for at least 15 seconds unless you launch right into a thermal. This allows the airplane to cover ground away from you. You launch into the wind anyway. After four or five circles, you don't want the airplane so far downwind that it takes a lot of work to get it back. Thermals are easier to work with if you work them upwind.

I have seen airplanes do several things when they encounter a thermal but will only mention a few of the important ones. A big thermal needs no explanation. Even if you're a new pilot, believe me, you'll know when you're in one.

1) Watch the horizontal stabilizer. It rises when encountering a thermal, more so than the wing, and especially in weak or edge thermals.

2) Watch the wing tips. They often will bobble. The airplane goes through a series of rapid, but small, left and right roll gyrations.

3) Watch for an unexplained turn. Often a thermal will pull an aircraft toward it. This is further evidence of the rotating nature of a thermal.

So when do you launch? Don't launch when the wind is picking up. You probably just missed a thermal. Wait until the wind subsides a little and let the airplane go. Be observant to subtle changes in air temperature. Sometimes, you'll notice a puff of cool air. This is thermal wind. When or if you feel a cool puff, launch the airplane. Be patient! I have a tendency to release my airplane as soon as possible, especially when using a hi-start. If you can, wait a minute; it can really pay off.

Look down field. If you're lucky, your field has trees at the far end. Optimally, a thermal will generate upwind of you. Those downwind at launch time are useless. The trees often will swirl. Straight line wind is one thing, but when the trees swirl or move haphazardly, they are probably in the midst of a thermal. If that's the case, launch your airplane.

Entry

When you encounter a thermal using what you just learned, ask yourself this: "Is the thermal to your left or right and do you feel lucky?"

Here's what you do. Turn left and begin a nice large arc. If the airplane does not climb, one of two things has occurred: You missed it entirely or it's on the other side. Continue your turn, straighten it out after 270° and begin a right-hand turn. The 270° is important. If you complete the turn and then initiate the right turn, the thermal has probably blown past your airplane and is now behind it. This basic pattern is based on a wind of about 7-12 mph.

The maneuver looks like a figure eight. You also have made efficient use of time and energy. Your first entry into a thermal should be smooth with the wings banked no more than 30°. Entering a thermal is a multi-staged event. The early stages must be smooth and controlled. Once you establish the strength of the thermal, you begin to work it.

Recognition, entry, and establishment should take about 30 seconds to one minute depending on thermal strength.

Escape

Sometimes, no matter how hard you try, you can't stay in the thermal. It happens to the best of us. Don't panic and don't sweat it. Some veteran pilots feel that escaping from a dead thermal is more important than finding one. Here's what you do.

Decide when to get out. This is subjective. I've seen thermal recovery from as little as 20 feet off the ground. Turn the airplane into the wind and fly hands off, as though you were starting from the launch release. I determine a thermal is dead when I cannot gain altitude and have been losing it steadily for 30 seconds. Your mileage may vary.

There is no substitute for practice. Most Sailplane pilots require two to four seasons before they master those techniques.

Don't get discouraged. I jokingly called this sport "The Hiking and Sailing Club." You do a lot of walking.

Sometimes the thermals are just bad. I have no formula for that; it all depends if you're happy just gliding around or not. This is usually when I quit and go home.

Keep the nose clean and your wings level!

from *Miss Information*
Michigan International Soaring Society
Norm Sorensen, editor
Detroit MI

Glassing and painting wooden surfaces

By HARLEY MICHAELIS

The objective is to get at least one layer of glass overall, plus additional layers in areas that take a pounding or otherwise need reinforcement. Then, smooth all to a glass-like finish for spray painting.

One approach to cloth application is to pre-cut pieces, spray with 3M77, press all in position, coat over with resin, then roll with toilet paper to sop excess resin. I prefer to apply, cure, and sand the pieces individually, without using the 3M. I feel this gives me more control of the outcome. This method is detailed below.

You need the softer cloth that will stay put around curves when wetted with resin. A 1.4-ounce item called WF-09A, from Aerospace Composite Products, stayed down well. The one received from Composite Structures Technology, although fine for bagging, was a stiffer cloth and did not stay down as well.

I'm unsure whether all batches are the same. If the cloth wants to spring away from a corner when wetted, it is too troublesome to bother with. I like to overlap around corners and this is easily done with pieces progressively applied using a polyester "coating" or "finishing" resin, such as the K&B Hobby Poxy. Unlike slow curing and critical mix epoxies, polyester resin is easily mixed in small quantities, such as ¼ to ½ ounce. Working time is adjusted by the amount of catalyst used. Heat quickly reduces cure time. It is tough, scratch-resistant, forms a good base for commonly used paints, and sands easily when fully cured. Acetone cleans up. *Note: Polyester resins won't cure over epoxy other than some quick formulas. Check first on a piece of scrap.*

You will need the following supplies:

- 1 oz. plastic mixing cup
- Popsicle stick
- Scissors
- Squeeze bottle for acetone
- Roll of toilet paper
- Acid-type brush
- Fine camel's hair brush (¾- to 1-inch wide) and a container to clean it in
- Newspapers
- No. 80 or 100 aluminum oxide sandpaper (in wet or dry, medium 220-grit and finer 400- to 800-grit, etc.)
- K&B 2-part brushing primer makes a good filler

Other hobby or automotive parts may be used. Other than on the fin, where 0.5- to 0.75-ounce cloth is preferred, 1.4- to 1.5-ounce cloth is used.

Make a sanding block about 1½ by 3 by 3/8 inches with rounded edges. Small pieces of sandpaper can be wrapped around this and used to prevent sanding dips that could occur by pressing your fingers against the sandpaper.

Ten minutes is almost right to spread ¼ ounces or so, clean up your fingers and brush. Three to four drops of catalyst per ¼ ounce usually gives 10 minutes. This is smelly, messy work, so do it outside if possible.

As a piece is brushed on, promptly sop up excess resin with the toilet paper roll. Roll from the center toward the edges to press to the structure and avoid puckers. The work goes easiest with one person holding the fuselage and another applying.

After a piece is applied and sopped, make 15-20 passes over it with a heat gun, but don't boil the resin or scorch the work. If the resin and catalyst are fresh, it will cure quickly enough so you can apply successive pieces. In hot sun and low humidity, polyester resin may cure in 30 minutes. Direct exposure to the sun's rays speeds cure more effectively that heat alone. In cool, humid conditions, cure may be quite slow, even with heat. The surface may feel tacky and could gum up the sandpaper for days. If it's freezing but sunny, cure can be affected by placing the work in a window in direct sunlight.

Wraps

Prior to applying overall layers, certain areas, such as just behind the wing where the airplane would be gripped for launching, can have carbon fiber strands, spirally wound around the fuselage, pulled flat and attached with thin CyA. This leaves a ridge that can be made unnoticeable by adding layers of glass cloth of different lengths to feather out before applying the overall glass.

If there is a former in the area, this also helps prevent the sides from parting from it. Apply, sop, roll edges, and cure the glass layers with the heat gun. (Let's call those steps ASRC from here on.) Snip any loose strings, as pulling on them will dislodge the cloth. Well-cured, the layers can be feathered nicely.

Towhook block

Similarly prepare carbon fiber strands or tape to wrap the towhook block about halfway up the fuselage sides.

Extreme noise

Cut 10-15 skinny pie-shaped pieces about four or five inches long. Mix ¼ ounces. Brush on around the nose area, coming over, under, and around all parts. Try to get a couple of layers everywhere. ASRC.

To reinforce the nose block and stabilizer sides butt line with three glass layers, on either side, cut two each of 2-inch, 3-inch, and 4-inch glass pieces in increasing width. ASRC.

With resin only, coat the raw structure where the canopy butts and rests, the saddle top and turtle deck front, fin top and rear, avoiding any pre-made hinge slots. If possible get this in the sun to fully cure. Using the sanding block and the 80- to 100-grit sandpaper dry, sand off the bumps.

Please see **COVERING** on page 11

COVERING continued from page 10

Gently feather the edges that are not flat. Once the glaze is cut, the fully cured resin sands off easily in a white powder that won't gum up the sandpaper. Don't worry about scratches on the cloth but avoid cutting through it.

Bottom front

Cut pieces to fit from near the front of the nose back to the towhook area. These should wrap around the bottom corners of the fuselage 3/8 inches or so. ASRC.

Bottom rear

If a solid fin is installed, cut a piece to wrap at the tail end underside to extend up the fin ½ inches or so. Like the bottom front, similarly size two layers to go from the towhook area to the tail end. ASRC.

Top/sides

Cut a piece to drape over the area ahead of the canopy and to wrap 3/8 inches around the bottom SS edges. Cut pieces to similarly extend down the sides and 3/8 inches around the bottom corners in the area of the canopy and saddle. Cut a 6-inch piece to fit over the area near the tail end of the wing. Place it two inches ahead and four inches behind. This is your primary "grab" area for launch.

Brush it to any fillet under the saddle edge. Cut a single piece to drape over the entire turtle deck and down 3/8 inches around the bottom corners, without overlapping on itself on the underside where it will want to pucker. Finally, cut odd-shaped pieces to complete an overall layer on each side or where otherwise missed. At this stage, it won't look like much. Don't fret.

Fin

Preferably using 0.5- to 0.75-ounce cloth, cut a single piece to wrap around the leading edge, reach down the fuselage sides and extend back to the fin tail end. This does not wrap around the tail end. Brush one side down, avoiding resin at the fin leading edge. Sop and cure enough to handle. Pull cloth around the leading edge. Catch the other side and the leading edge. Sop and cure enough to handle.

Let everything thoroughly cure to sand off in a white powder. Using the block and 100-grit sandpaper dry, sand off excess cloth at fin, saddle, canopy area, etc. Sand down high spots where pieces overlap. Sand off any puckers, dab with resin, cure, and smooth. If rudder cables are used, open the exits for the cables. Sand off all shine or the flow coat, which will be added next, will bead up.

I prefer to apply, cure, and sand the pieces individually to give me more control of the outcome.

Flow coat

Clean the work area. Wipe fuselage clean with acetone. Tack. An overall coat of resin is applied next to fill weave and pits with minimal runs, drips, and brush marks to sand out.

Mix ½ ounce of resin. K&B is quite thin and will brush and flow well, but for thicker formulas, add acetone to increase volume by 10 to 15%. Mix well and then add catalyst. With the camel's hair brush, quickly coat the fin, and then work forward to mid-saddle. Weight the front end so the rear can stick out over the workbench (fin horizontal). Clean the brush.

When cured enough to handle, sand the area of overlap and apply the remainder of the flow coat. When cured, it may look like sandpaper. Don't worry. Lightly sand over any spots of unfilled weave. Dab resin to fill. Cure thoroughly! If not using a filler, you can smooth to a glass-like finish using wet/dry sandpaper damp, starting with 220-grit and going to progressively finer sandpapers.

An "I" shaped pedestal to jam fit into the saddle area, former to former, as a handle and support for priming and painting, is very handy.

Primer/filler

Scratches and low spots need filling. The K&B 2-part primer works well, but other paintable hobby fillers could be used.

If you can get the 2-part primer, mix ¾ ounces and wipe the fuselage with acetone. Quickly brush on a thin, overall coat. After a few minutes, dab obvious pinholes. When cured, this readily sands off in a powder as there is no glaze to cut. If dry, you can start lightly with 100-grit sandpaper, then go to progressively finer wet/dry sandpaper, moistened to pick up the powder. 220-grit sandpaper cuts quickly. Rinse the sandpaper frequently. 400-grit sandpaper leaves fine scratches only noticeable up close. Progressively finer grits and enough sanding make them hard to find when painted. To preview the excellence of your work, tack and apply a light coat of quick-dry, high-gloss, spray enamel. Sand and fuss until satisfied.

Painting

If you have no spray outfit for K&B, etc., Krylon (the quick-drying formula using lacquer thinner as a base) is a favorite rattle-can paint. Lacquer-based Glossy White has a number of 1501. Read the manufacturer's instructions.

Remove hand oils with acetone, then wipe clean and tack just before spraying. If possible, work outdoors. Wear protective glasses to avoid spray. Test paint on a scrap. White makes a good base for other colors. Twelve or 15 light coats applied at 1-minute intervals give a smooth, semi-gloss finish.

Catch the nose tip, fin edges, saddle edges, and others first with each coat. Spray light passes while holding your breath and move from the mist to breathe if not wearing a protective respirator.

Get the work inside to a clean area. When dry, lightly sand off any bugs and paint clumps. Follow instructions regarding cure time before trim colors may be applied. When fully cured (after many days), Krylon can be worked into a deep, satin gloss with a polishing compound, such as Dupont #7. Chips will feather out to repaint.

from *Bass News*
Baltimore Area Soaring Society
Randy Kleinert, editor
Baltimore MD

Contest fun from the River District Eagles

Blind taxi

The pilot attempts to taxi out and hit a balloon while obeying the instruction of the navigator. Since the pilot has his or her back to the balloon and the airplane and cannot look without being disqualified, it makes for some fun antics.

Bomb drop

The only condition is keeping the bomb on the airplane until you are ready to drop it. Then, without looking, the pilot drops the bomb and hopes it hits somewhere near the target.

Dice throw

The pilot starts the engine. The spotter holds the airplane while the pilot rolls a die. The pilot must take off and do as many loops as shown on the die. Then, the pilot must land, hand the transmitter to the spotter, grab the die, and re-roll his or her number. The best pilot in the world will lose if he or she can't roll the number quickly.

from *The Eagles' Nest*
River District R.C. Eagles
Ed Olszewski, editor
Smiths Creek MI

CONSTRUCTION

Drill size chart could be useful

I once was asked if I had a No. 29 drill. I went home and looked it up on my chart and responded no, but I had a 9/64. Perhaps someone else could use this information. (from the newsletter of the RAMS Aero Model Society, Jim Golla, editor, Rochester MN)

DECIMAL EQUIVALENTS OF WIRE, LETTER, AND FRACTIONAL SIZE DRILLS

DRILL SIZE NO.	DECIMAL	DRILL SIZE NO.	DECIMAL	DRILL SIZE NO.	DECIMAL
80	.0135	29	.1360	**21/64**	**.3281**
79	.0145	28	.1405	Q	.3320
1/64	**.0156**	**9/64**	**.1406**	R	.3390
78	.0160	27	.1440	**11/32**	**.3438**
77	.0180	26	.1470	S	.3480
76	.0200	25	.1495	T	.3580
75	.0210	24	.1520	**23/64**	**.3594**
74	.0225	23	.1540	U	.3680
73	.0240	**5/32**	**.1562**	**3/8**	**.3750**
72	.0250	22	.1570	V	.3770
71	.0260	21	.1590	W	.3860
70	.0280	20	.1610	**25/64**	**.3906**
69	.0292	19	.1660	X	.3970
68	.0310	18	.1695	Y	.4040
1/32	**.0312**	**11/64**	**.1719**	**13/32**	**.4062**
67	.0320	17	.1730	Z	.4130
66	.0330	16	.1770	27/64	.4219
65	.0350	15	.1800	**7/16**	**.4375**
64	.0360	14	.1820	29/64	.4531
63	.0370	13	.1850	**15/32**	**.4688**
62	.0380	**3/16**	**.1875**	31/64	.4844
61	.0390	12	.1890	**1/2**	**.5000**
60	.0400	11	.1910	33/64	.5156
59	.0410	10	.1935	17/32	.5312
58	.0420	9	.1960	35/64	.5469
57	.0430	8	.1990	**9/16**	**.5625**
56	.0465	7	.2010	37/64	.5781
3/64	**.0469**	**13/64**	**.2031**	19/32	.5938
55	.0520	6	.2040	39/64	.6094
54	.0550	5	.2055	**5/8**	**.6250**
53	.0595	4	.2090	41/64	.6406
1/16	**.0625**	3	.2130	21/32	.6562
52	.0635	**7/32**	**.2188**	43/64	.6719
51	.0670	2	.2210	**11/16**	**.6875**
50	.0700	1	.2280	45/64	.7031
49	.0730	A	.2340	23/32	.7188
48	.0760	**15/64**	**.2344**	47/64	.7344
5/64	**.0781**	B	.2380	**3/4**	**.7500**
47	.0785	C	.2420	49/64	.7656
46	.0810	D	.2460	25/32	.7812
45	.0820	**E 1/4**	**.2500**	51/64	.7344
44	.0860	F	.2570	**13/16**	**.8125**
43	.0890	G	.2610	53/64	.8281
42	.0935	**17/64**	**.2656**	27/32	.8438
3/32	**.0938**	H	.2660	55/64	.8594
41	.0960	I	.2720	**7/8**	**.8750**
40	.0980	J	.2770	57/64	.8906
39	.0995	K	.2811	29/32	.9062
38	.1015	**9/32**	**.2812**	59/64	.9219
37	.1040	L	.2900	**15/16**	**.9375**
36	.1065	M	.2950	61/64	.9531
7/64	**.1094**	**19/64**	**.2969**	31/32	.9688
35	.1100	N	.3020	63/64	.9844
34	.1110	**5/16**	**.3125**	**1**	**1.0000**
33	.1130	O	.3160		
32	.1160	P	.3230		
31	.1200				
1/8	**.1250**				
30	.1285				

TREATMENT

Japanese tissue

By TIM JOHNSON

Over time, I have developed a method of finishing my models covered with Japanese tissue, which makes them fuel proof, water resistant, rather tough like MonoKote, yet light. My 1/2A Free Flight airplanes weigh less than seven ounces. Follow these steps:

1) Coat the structure with two coats of nitrate dope, thinned 50/50.

2) Lightly sand the structure.

3) Cover the structure with good Japanese tissue, block the structure, and shrink the tissue with distilled water.

4) Brush on two coats of nitrate dope, thinned 50/50. Block the structure a panel at a time while the dope is still wet.

5) Now is the time to put your AMA numbers on the tissue.

6) Brush on one coat of Minwax Polycrylic, thinned 25% with water. Use a foam brush to apply and let it dry for several hours.

7) Spray, brush, or use a foam brush to apply a thinned coat of epoxy finish. I thin it nearly 50% with appropriate thinner for the system (use a foam brush to apply).

I believe that the Polycrylic acts as a filler and plasticizer. The result is a light tissue covering that is tougher and not so brittle. The wing and stabilizer hold their shape even when damp.

from *Minneapolis Modeler*
via *Brainbuster Newsletter*
Brainbuster Free Flight Club
Abram Van Dover, editor
Newport News VA

THE OLD PHONE

When I was young, my father had one of the first telephones in our neighborhood. I remember the polished, old case fastened to the wall. The shiny receiver hung on the side of the box. I was too little to reach the telephone but used to listen with fascination when my mother talked to it. Then I discovered that somewhere inside the wonderful device lived an amazing person. Her name was "Information Please" and there was nothing she did not know.

"Information Please" could supply anyone's number and the correct time. My personal experience with the genie-in-a-bottle came one day while my mother was visiting a neighbor. Amusing myself at the tool bench in the basement, I whacked my finger with a hammer. The pain was terrible, but there seemed no point in crying because there was no one home to give sympathy.

I walked around the house sucking my throbbing finger, finally arriving at the stairway. The telephone! Quickly, I ran for the footstool in the parlor and dragged it to the landing. Climbing up, I unhooked the receiver in the parlor and held it to my ear. "Information, please" I said into the mouthpiece just above my head.

A click or two and a small clear voice spoke into my ear. "Information."

"I hurt my finger." I wailed, the tears coming readily now that I had an audience.

"Isn't your mother home?" came the question.

"Nobody's home but me," I blubbered.

"Are you bleeding?" the voice asked.

"No," I replied. "I hit my finger with the hammer and it hurts."

"Can you open the icebox?" she asked. "Chip off a little bit of ice and hold it to your finger."

After that I called "Information Please" for everything. I asked her for help with my geography, and she told me where Philadelphia was. She helped me with my math. She told me my pet chipmunk that I had caught in the park just the day before would eat fruit and nuts.

Then, there was the time Petey, our pet canary, died. I called and told her the sad story. She listened and said things grown-ups say to soothe a child. But I was not consoled.

I asked her, "Why is it that birds should sing so beautifully and bring joy to all families, only to end up as a heap of feathers on the bottom of a cage?"

She must have sensed my deep concern, for she said quietly, "Paul, always remember that there are other worlds to sing in." Somehow I felt better.

Another day I was on the telephone, "Information Please. How do I spell fix?" All this took place in a small town in the Pacific Northwest.

When I was nine years old, we moved across the country to Boston. I missed my friend very much. "Information Please" belonged in that old wooden box back home and I somehow never thought of trying the shiny new phone that sat on the table in the hall. As I grew into my teens, the memories of those childhood conversations never really left me. Often, in moments of doubt and perplexity I would recall the serene sense of security I had then. I appreciated how patient, understanding, and kind she was to have spent her time on a little boy.

A few years later, on my way west to college, my airplane put down in Seattle. I had about a half-hour or so between flights. I spent 15 minutes on the phone with my sister. Then without thinking what I was doing, I dialed my hometown operator and said, "Information Please."

Miraculously, I heard the small, clear voice I knew so well. "Information."

I hadn't planned this, but I heard myself saying, "Could you please tell me how to spell fix?"

There was a long pause. Then came the soft spoken answer, "I guess your finger must have healed by now."

I laughed, "So it's really you," I said. "I wonder if you have any idea how much you meant to me during that time?"

I wonder," she said, "if you know how much your calls meant to me. I never had any children and I used to look forward to your calls."

I told her how often I had thought of her over the years and I asked if I could call her again when I came back to visit my sister. "Please do," she said. "Just ask for Sally."

Three months later, a different voice answered, "Information." I asked for Sally.

"Are you a friend?" she said.

"Yes, a very old friend," I answered.

"I'm sorry to have to tell you this," she said. "Sally had been working part-time the last few years because she was sick. She died five weeks ago."

Before I could hang up she said, "Wait a minute, did you say your name was Paul? Sally left a message for you. She wrote it down in case you called. Let me read it to you."

The note said, "Tell him there are other worlds to sing in. He'll know what I mean."

I thanked her and hung up. I knew what Sally meant. Never underestimate the impression you may make on others. Whose life have you touched today?

from *The Sunny Times News*
Midwest Sundowners Club
Rick Johnson, editor
Wheeler IN

WORKSHOP ASSISTANCE

HINTS & TIPS FROM FELLOW MODELERS

TOP TIP

Less than perfect landings

Ever been at the field and had a less than perfect landing in the high weeds that put a small hole in your covering? I haven't either, but in case it ever happens, you might have to patch it. Usually you can do this at the field with a piece of adhesive trim strip, but unfortunately, this stuff is very hard to remove at home when you try to fix the hole permanently. Buy a roll of clear contact paper, cut it into small squares, and use them to do your patching. It matches any color you put it on, holds well (if you get all the oil off first), and comes off easily when you want it to. Note that when you cut any kind of covering to use as a patch, always cut so it has rounded corners or is a circle. You'll be amazed at how much better it stays on.

from *Servo Chatter*
via *WIRCS Touch & Go*
Whidbey Island Radio Control Society
Mike Mosbrooker, editor
Oak Harbor WA

Masking painted areas

Ever had paint run under masking tape, giving your model a jagged edge? Me too. Then, I discovered a method of masking off those lines. First, use good quality masking tape. Go to the paint department of a home improvement store and look for high grade painters masking tape. This is a plastic backed tape with excellent edges that produce a very sharp color demarcation line.

Next, clean the area to be painted with rubbing alcohol to remove any finger prints, fuel residue, banana pudding, etc., that may be stuck on your model. Mask off the area to be painted. Make sure the edges of the tape are stuck firmly.

Then, spray the area with the same color you have hidden with the masking tape. The paint seals the edges to prevent paint from creeping under them. In the unlikely event that paint does seep under the edge, it will be the same color as the masked area and virtually invisible.

When that has dried, continue painting with the desired color of the stripe or panel you have chosen. When dry, remove the tape by pulling it back against itself to lessen the chance of damaging the finish. Clean any tape residue off with alcohol and you're finished.

from the Whitehaven Radio Control Club
via *WIRCS Touch & Go*
Whidbey Island Radio Control Society
Mike Mosbrooker, editor
Oak Harbor WA

Nylon wing bolts

from Jeffrey Mays

Usually nylon wing bolts come with round, slotted heads. They work, but your screwdriver can slip during installation and damage your wing. Take a $^{7}/_{16}$-inch hex nut and run it all the way up under the round head on the screw. Now sand the nylon bolt to match the hex pattern on the nut. When the nut is removed, the nylon wing bolt will be transformed into a hex bolt that can be easily tightened with your four-way glow plug wrench.

Protecting hinges

from Gene Davis

Petroleum jelly often has been used on pinned hinges to prevent epoxy glue from sticking to the hinge joint; however, it is difficult to get just the right amount on the hinge and to make sure the hinge is completely coated. A very cool way is to melt the petroleum jelly in a small dish such as a dessert dish (an oven safe type, of course). Use only enough to melt to a depth of about $^{1}/_{6}$ of an inch. Fold the hinge and dip the pinned end into the melted jelly. Remove and touch the hinge to a paper towel to remove excess. In a couple seconds, the petroleum jelly cools and has penetrated the hinge. You now have a completely coated hinge joint that epoxy will not stick to.

Two great tips

I use the clear backing on the MonoKote film to recycle my masking tape if it is still in fairly good condition. It keeps the adhesive from going bad. When I need the tape, I just peel it off.

I cut one inch (or whatever is needed) of the appropriate size fuel tubing and seal one end with clear silicone. I now have a way to seal my CyA glue bottles, etc. I also use them to seal the nipples on my engines when I clean them as well as when I store them.

Cool windows

Need windows for your airplane? Here is an easy way. Try cutting your windows out from a green, blue, or clear water or soda bottle with a pair of scissors. It will dress up your airplane and give it a streamlined look.

Fishing for servo wire

When you're trying to fish aileron extensions through a wing, tie a wheel collar to a piece of string and put it in the servo bay. Holding the wing upright, jiggle the wing to get the wheel collar to fall through the holes until it gets to the other end, tie or tape your servo wire to the string, and finish pulling it through. Now you don't have to worry when your Amost-Ready-to-Fly airplanes come with the strings already pulled out.

from the newsletter of the
Odessa Propbusters R/C Club
Keith Conrad, editor
Odessa TX

Reinforcing plastic cowls

How do you reinforce a plastic

cowl? One way is to rough up the inside of the cowl with heavy sandpaper (50- to 80-grit) or by scratching with the sharp point of a No. 11 X-Acto blade. Mix up a batch of resin (epoxy or polyester) and lay fiberglass cloth inside the cowl. The bigger the cowl, the heavier the cloth should be.

Another method simply requires the inside of the cowl to be cleaned. Sig Manufacturing Co. sells a product called Celastic. It comes in large sheets and is about 1/16-inch thick and fairly rigid. Cut a section of this material suitable for the area you want to reinforce and moisten it with acetone until it becomes limp and mushy. This doesn't take long nor does it take much acetone. Now lay this material inside the cowl and form it to the contours of the cowl with your fingers. The acetone literally will melt the cowl plastic and the Celastic together, making a rigid, tough structure. After the Celastic dries out, it can be sanded, cut, drilled, etc., and it will retain its strength. One sheet will last a lifetime unless you have the propensity to bust up a lot of cowls.

(Technical Editor's Note: Please remember to use rubber or latex gloves in handing acetone as well as remembering breathing acetone fumes can lead to nasty results, so use a well-ventilated area and blow the fumes away from yourself.)

from *The Flightline*
via *The Hawk Talks*
Concord Skyhawks
Rob Lawrence, editor
Bow NH

Colored epoxy

from Don Helps

Have you ever wished epoxy could be purchased in colors to match your aircraft? It can! After you have mixed your epoxy, small amounts of paint can be added to the mix. After the epoxy has cured, it will match the finish of your aircraft. Mix the epoxy/paint combination thoroughly before applying.

from the Flying Tigers RC Club
via *Flare-out*
Twin City Radio Controllers, Inc.
Jim Cook, editor
Minneapolis MN

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. This strip lead is easy to cut up and embed 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 also can be inserted into wing tips to provide lateral balance.

from *The Hawk Talks*
Concord Skyhawks
Rob Lawrence, editor
Bow NH

Tap dance

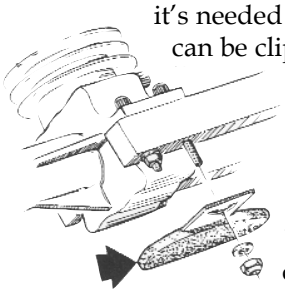
from Greg McFadden

Instead of using the sheet-metal screws that are supplied with plastic spinners (the slots of which are quickly destroyed by screwdrivers), tap the backplate posts to accept the appropriate size of Allen-head capscrews into which you can insert a regular Allen key.

Weight lifter

from Bruce Burns

An excellent way to add ballast to the front of your model is to straighten the tab of your old tire weights, then bolt them to the underside of your engine mount. This puts the weight well forward, where it's needed and where it can be clipped away with shears to adjust the balance point of the model. Do not bolt ballast to the cowls. More often than not, the little cowl mounting screws will be torn out by the vibration. Your friendly tire man will probably give you some old weights.



from *Prop Spinner Chatter*
Eugene Prop Spinners
Mel Marcum, editor
Eugene OR

Firewall fuel proofing

Firewalls of airplanes are usually coated with epoxy to help prevent fuel and oil damage to the wood. On airplanes with no cowling, apply a coat of epoxy on the firewall after you cover the airplane with film covering. Make sure the film overlaps a little onto the firewall. This way the epoxy seals the edges of the film covering. Besides, most film adheres better to wood than epoxy, so that's another plus.

UltraCote printing

Goldberg UltraCote film covering has a paper backing that you can print on. Cut an 8 1/2-by-11-inch sheet, put it in an inkjet printer, and print your design on the paper backing. *(Note: Don't use a laser printer or anything that uses heat as it will destroy the covering.)* This works well for large lettering. Make sure your image is reversed so when it's printed on the backing, you can cut it out and it will be correct when ironed on the airplane.

If you want to use a piece of covering that is smaller, print the design onto paper first. Then, carefully tape the UltraCote over the design on the paper and run the entire sheet through your printer. The design should print in the same place.

Cutting dowels

When cutting a dowel, it's easy to make the cut crooked. To ensure a 90° end, especially on larger diameters, try rolling the dowel into the bandsaw or scrollsaw blade.

Film covering degreaser

Have you ever wanted to add more film covering (MonoKote, UltraCote) to an airplane you've already flown? It's difficult to get all the oil exhaust off the aircraft so the film will stick. Try using CyA kicker (catalyst). Just spray it on and wipe it off. It works as a good degreaser.

from *Evergreen Flyer*
Evergreen Radio Modelers Association
Tim Shea, editor
Marysville WA

Academy of Model Aeronautics
5161 East Memorial Drive
Muncie, Indiana 47302

Non-Profit Org.
U.S. Postage
PAID
Permit No. 810
Muncie, IN