



PRESIDENT TO PRESIDENT

If There Was Just One Thing ...

by Dave Mathewson, AMA President

If there was just one thing that AMA could do for your club and your members, or if there was just one thing we could do better, what would it be?

AMA has several programs designed to provide various benefits to our chartered clubs and to enhance our members' enjoyment of model aviation; programs like AMA's Flying Site Assistance Grant Program, which provides grants to our clubs that help purchase new sites or improve current sites. The program provides 10% or up to \$5,000 of a club's planned expenditure. Or our Club Disaster Assistance Program that provides small grants to help clubs begin the process of getting back on their feet after being

affected by natural disasters such as hurricanes, floods, or tornados.

Community outreach should be an important part of our clubs' activities. It's this type of outreach that pays dividends if the time ever comes that a club may need the support of its neighbors and local government officials to acquire a new, or save an existing, flying site. Take off And Grow (TAG) has made financial resources and support materials available to clubs throughout the country who host TAG events. TAG has helped many of our chartered clubs not only to introduce model aviation to those in the local community, but also helped build strong and valuable relationships within the

community. Our Club Recognition Program offers cash awards to clubs that work with local media to get the story of model aviation in newspapers, on radio, and on television. AMA's Mall Show Program provides materials that help clubs host successful presentations and demonstrations highlighting aeromodeling. And, of course, our insurance program that provides \$2,500,000 of primary, first dollar, liability insurance protection to site owners who allow the use of their properties as model aviation flying sites. This coverage is in place at more than 2,500 AMA chartered club flying sites throughout the United States. All of these

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TIPS FOR CLUBS

AMA Nationwide Membership Drive 2009

Goal: To utilize/involve the Academy's largest outreach component—the membership—to recruit new members for the AMA so more people can participate in the fun of flying model airplanes.

Time Frame: April 1-September 14, 2009.

Methodology: Train, equip, and challenge the Academy's leadership with the knowledge and materials that will encourage and empower the average AMA member to recruit new members.

Relationships to other AMA membership-development programs: The Bringing Modelers Together Challenge replaces no current AMA membership-development program. All prizes and awards that are currently in

effect will be honored in addition to the new incentives developed for this effort.

Membership Drive: This effort will center on a competition between the following groups to sign up the highest number of new members*. Awards/recognition will be given to the highest producer in each division.

Club to Club: The highest number of new members* gained through the efforts of the club. Does not require that new members join the local club, but it is greatly encouraged. Calculations are based on new membership applications* with a club-orientation designation noted from April 1 through September 15, 2009.

There are five subdivisions for clubs in this competition: Small, membership of

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Think Again—Blink Again!

Don Nix, *Insider Safety Column Editor*

In my last column (In the Blink of an Eye), I told of a personal mishap with CA adhesive. Shortly after that issue went online, reader Darwin Hawkins of Kansas responded with his own personal incident:

“A few years back I put some CA on a rather involved joint. Hit it with the kicker and the joint exploded in my face. I had not noticed that a pool of it had formed in a corner. Lucky for me, I had my reading glasses on, as the CA splattered right into the line of vision in the center of my right lens and actually etched the plastic in several places. I still have those glasses. They hang on the end of the pull cord I use to turn on the light over my work bench. I can never turn on that light without being reminded that safety glasses can save your eyes. Who would have ever thought you need safety glasses when working with CA?”

Thanks, Darwin. Personal experiences from you readers out there are usually more interesting—and likely to be taken seriously—than anything I can preach about. Keep ‘em coming on any subject related to safety.

Since writing the previous column, I remembered a second personal experience with CA that threatened to be more serious than just getting my face spattered. I can’t imagine any modeler who hasn’t read the warnings on CA bottles about minimizing the inhalation of fumes, using with plenty of ventilation, etc. However, I have to admit that I sometimes become pretty casual about such warnings, especially after using a particular product for a while without incident.

These days, we are inundated with a virtual Niagara of warnings. So much so that they become like wallpaper, and our eyes glaze over when reading them. Because of the litigious society we live in these days, lawyers insist manufacturers warn about every possible hazard, however slight the likelihood or how silly it might seem. For example, some manufacturers of model propellers are putting stickers on them saying something like “Do not put fingers in spinning propellers.” Uhhh ... yeah. As the old saying goes, “It’s impossible to make anything foolproof, because fools are so ingenious!”

After using CA for years with no problems, I had assumed I was immune to any adverse effects. Well, we all know what happens when we assume something.

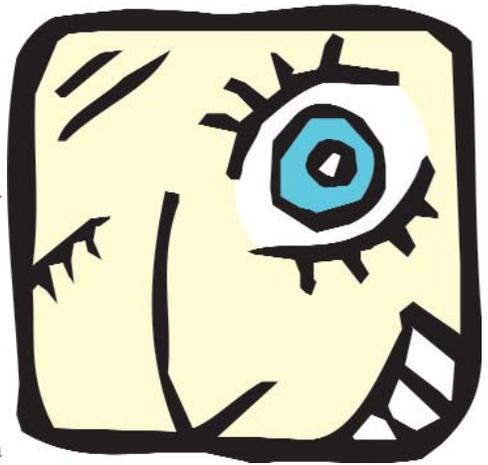
Staying up late one Friday night, I was doing a lot of sheeting on the leading edges of a pair of wings so I could cover them the next day. I spent a couple of hours using copious amounts of CA, with my face up very close so I could see in all the nooks and crannies.

Near the end of the task, I noticed I was beginning to wheeze a little, and by the time I cleaned up and made it to bed, I sounded like someone in the last stages of emphysema. Having had a daughter with severe asthma, I began to realize what she must have gone through in many of her attacks.

I spent the next two nights propped up about 30° in my bed so I could breathe. The first thing I did the next day was to order one of those masks that control such problems. I think the one I bought was made by 3M and cost perhaps ten bucks. Yeah, it was a bit of a nuisance to wear the thing, but a couple of days wheezing around the house made a believer out of me. And my wife thought the Darth Vader look improved my appearance.

Now might be a good time to review the precautionary information on the various products you use—household materials as well as hobby products. They are there for a purpose, and usually because somebody somewhere has suffered ill effects.

I’m always happy to answer reader questions (if I can) at FLYERDON@aol.com. Until next time, happy modeling and flying ... safely. →



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programs are designed to help our clubs be successful.

One of our programs that we are exceptionally proud of is AMA’s Charles H. Grant Scholarship Program. This program has now awarded more than \$1,000,000 in scholarships to many of our young, college bound members, a number of whom eventually went on to successful careers in the aerospace or aviation industries.

We also invest heavily in many activities that aren’t quite as visible to our members as the programs above, yet still are important in maintaining and enhancing our member’s enjoyment of model aviation. Our work with government agencies, especially the Federal Aviation Administration (FAA), the Federal Communications Commission (FCC), and the Department of Homeland Security (DHS) is ongoing. Our work

with the US Environmental Protection Agency (EPA) has resulted in a Memorandum of Understanding (MOU) signed by both AMA and EPA that endorses the use of reclaimed Superfund Landfills as model aviation flying sites. And, as a result of this MOU, the EPA recently released a short DVD, both produced and funded by the EPA, that will be of value to virtually all of our clubs looking for flying sites.

AMA is always looking for new ways that we can be of more value to our clubs and members.

That brings us back full circle to the beginning of this column. If there was just one thing that AMA could do for your club and your members, or if there was just one thing we could do better, what would it be? Let me know. Your idea might become one of AMA’s next programs. →

Tips for Clubs continued from page 1

5-10; Medium, membership of 11-24; Large, membership of 25-49; X Large, membership of 50-99; XX Large, membership of 100 or more.

Awards:

1. Recognition in *MA/Park Pilot* and all Web sites as the top-producing club in each respective category.
2. Brick in AMA "Walk of Fame" in new club-recognition section denoting club winner for 2009.
3. AMA banner and plaque proclaiming that "TBA club signed up the largest number of AMA members in 2009."
4. Waived recharter fees for 2010.
5. Cash award of \$500 to club.

District vice presidents are encouraged to develop a corresponding intradistrict "Bringing Modelers Together Challenge" program, with recognition and awards within their respective districts, to encourage participation.

The AMA will develop support materials that can be used by AMA vice presidents, AMA associate vice presidents, AMA Leader Members, and AMA's general membership to recruit new members from April 1-October 2, 2009.

Materials/Actions Needs:

1. Program-announcement materials and communications to AMA leadership and members.
2. AMA application forms.
3. FAQs sheet on membership recruitment.
4. Poster suitable for club bulletin board, announcing the "Bringing Modelers Together Challenge."
5. Online registration to allow a sponsor/referring member or club to be recorded/tracked.

Time Line:

1. ASAP: Presentation to Executive Council, using a teleconference call, of concept and components.
2. Early February: Program-announcement materials and communications to AMA leadership and members developed.
3. *MA/Park Pilot* and all Web site announcements developed and placed in April, May, June, July, August, and September issues.
4. Monthly: Reports of membership challenge progress by all divisions reported in *MA/Park Pilot* and all Web sites in April, May, June, July, August, and September issues.
5. March: Mail materials to all clubs.
6. March: Push e-mail to all members.
7. March: Push e-mail to all associate vice presidents.
8. April, May, June, July, August, and September: Reminder push e-mail to all members and associate vice presidents with status-report information.
9. October: Calculate and notify winners in each division. Announcement made at October Executive Council meeting.
10. January 2010: Recognition of winners at January Executive Council meeting.
11. January 2010: Begin planning for the 2010 membership drive.

Note: The Membership Department supervisor has the final say if there are questions about whether or not a particular application counts toward this promotion.

* AMA \$1 Youth Memberships are ineligible for this promotion.

Approved by Executive Council telephone meeting February 9, 2009. →

From the Flying Aces

Trimming Tips for Scale Models

by Bill Henn

My experience has been that, after a scale model has been trimmed to glide straight ahead by hand gliding, then the flight turn during the power mode can be set using thrust changes alone. Some wash adjustment may have to be added at this point to prevent the inside wing from dipping. After a good power pattern has been established, the glide may have to be slightly reset by very carefully adjusting the rudder through the process of trial and error. Sometimes, some of the side thrust has to be removed to get the glide back the way you want it.

I often see many scale models flying fine in the early part of the power mode, or almost entirely through the power mode, which then suddenly turn in the

opposite direction and spiral in. I think this may be a case of the power turn being too tight, which often requires that a lot of wash be used to keep the inside wing up. When the torque burns off, the model spins in the opposite direction, especially if you are using a rearward CG. A lot of down thrust may counter this problem during the initial part of the power mode, but eventually, the model stalls and falls off to one side as the torque diminishes.

I set the CG where I think it should be, which is usually at 35% of the chord. I just tack in the horizontal stabilizer, leaving room for it to be shimmed if necessary. If the model dives during hand gliding, negative incidence is added. I

always go for a flat "floating" glide, never a shallow nose dive.

If the model turns slightly in either direction, something is probably out of alignment and should be corrected before power flying. This only exception would be a very gentle turn caused by wing wash that was put in deliberately to keep the inside wing up.

If the model stalls in flight, it may be because the motor has bunched up at the rear, even though it may be braided. When the model lands, check the CG on the spot without disturbing the way the motor has settled. Another cause for stalling is often that the glide turn is too wide. Tightening up the turn slightly may cure the problem. →

Choosing the Right Glow Plug

Several factors influence the use of the correct glow plug for your engine. Here are some guidelines:

Engine Type

Standard engines (engines with a 1-piece head) are most common. Standard plugs are easily available, inexpensive, and fit almost all standard engines. Standard plugs are installed with a washer, which creates a compression seal with the head.

Turbo. Many new O.S. engines, which feature a special 2-piece turbo head. The biggest benefit of turbo plugs is superior performance. Unlike standard plugs, turbo plugs (identified by a “P” in the description) feature a tapered “seat” that matches perfectly with the head. That creates a superior compression seal and with it, maximum efficiency and power. Turbo plugs are the choice for racers, who want, and need, top performance.

A word of caution: you should never install a turbo plug in a standard engine or vice versa. Doing so risks doing serious (and expensive) damage.

Displacement

Small displacement engines need a hotter plug than larger displacement because larger engines have more mass and retain heat better.

Nitro Content

Use of higher nitro fuels will require a colder plug than lower nitro fuels.

Temperature

The hotter the day, the colder the plugs need to be.

Additional Things to Know:

- Hot plugs promote better idling and acceleration. If your engine runs rough or accelerates sluggishly, a hotter plug will help.
- Cold plugs produce more power and may improve performance if your engine runs hot. The downside is rougher idling and more difficulty in tuning.
- Fuel-air mix not only affects how your engine performs; it can also have an impact on how long your plug lasts. If you run rich, it means that you’re using more fuel than necessary for top performance. Modelers are often advised to run rich during engine break-in, because it helps cool the engine. However, running too rich can also cause an engine to bog down or quit entirely. In addition, it also means that the glow element is being exposed to more contaminants than necessary, which shortens plug life. Running lean means that you’re using less fuel. “Leaning in” an engine has a positive effect on performance. However, care is needed here, because over-leaning an engine can harm it, by raising operating temperatures, and burn up a plug [**Tech Editor’s Note:** More than the plug might be lost, excessive leaning

can ruin an engine!]) before it’s time. Do not over lean!

Final Thoughts

Choosing the right glow plug not only improves performance, but can also extend the life of your engine and the glow plug itself. With the guidelines above and the tips below, you’re well on your way to achieving both.

- Buy quality plugs. You’re protecting your investment.
- Store plugs where it’s dry. Moisture can ruin them.
- Use the right glow plug. Follow the guidelines above.
- Follow the proper break-in procedures.
- Tune your engine carefully. Running too lean will make your engine “blow” plugs more often. Proper tuning helps extend plug life.
- Never touch the filament of a glow plug. Doing so can break the filament and ruin a plug.
- Don’t over tighten your plug. Tighten it until it’s just snug.
- Be sure to shim your engine correctly. A plug that’s too close to the piston can cause pre-detonation, which will quickly damage a glow plug.
- Use only a glow starter or 1.5V battery to heat your plug. Otherwise, your plug may burn out ahead of it’s time. Don’t be afraid to ask for help. Experienced modelers have already “been there, done that.” Their experience can save you time and money; and most are glad to help.
- Glow plugs get very hot, enough to glow the filament red or white hot, and removing a glow plug while power is applied can cause burning if appropriate care is not taken. [**Tech Editor’s Note:** Removing the plug while it’s still being “heated” strikes me as nearly impossible, since any attachment to the plug, that would be doing the heating, must be removed so that you can have access to remove the plug. The only other way to heat the plug is from the combustion in the engine, so if you are handling the engine, it’s generally a good thing to have stopped it running while you “fool” with it.] Special caution must be taken while near fuel sources.
- Some connectors for glow plugs can short circuit and damage batteries, or cause them to explode. Batteries may get hot during the use of a glow plug. This especially applies to homemade or nonstandard connectors.

[**Tech Editor’s Note:** One source of material that can ruin glow plugs is detritus left in the engine during/after manufacture. Before you run any new engine, it’s a good idea to flush, at least the combustion volume, to eliminate as much “stuff” as you can. Flush it with fuel or methyl alcohol, never water. The best way to flush is to remove the head and the back plate and flood the engine with the flushing fluid. If you are uncomfortable removing the engine parts, then take the glow plug out, move the piston down so that the top of the piston is below the exhaust port and run the flushing liquid down the plug hole and out the exhaust. If you catch the flushing fluid on a white paper towel, you should be able to see anything that the flush eliminated.] →

Hints for Airplane Set Up

by Richard Lindberg

1. Alignment of wing.
2. Incidence of wing.
3. Alignment of stabilizer.
4. Incidence of stabilizer.
5. Engine thrust line; all directions. Is it correct?
6. Ailerons: TE aligned with wing TE. Straight.
7. Elevators 1: TE aligned with chord line of stabilizer.
8. Elevators 2: TE aligned with each other.
9. Rudder: aligned with fuselage centerline.
10. Control travels 1: same both directions on all surfaces.
11. Control travels 2: balanced aileron and elevator throws. *
12. Radio: exponential on aileron, elevator, rudder; at least 25% to start.
13. CG: (static) set per the manufacturer, your experience, then forward at least ¼ inch. *
14. Landing gear: check every piece; align wheel track.
15. Control system: check every piece; Loctite, glue, tighten as needed, then check again.
16. Canopy, belly pan, cowling, propeller, spinner, tail wheel: check every screw, washer, nut, bolt, latch. They have to work here to work there.
17. Tank plumbing: tank tubes, lines, clunks, tees, check valves, plugs.
18. CG: see step 13. Write down someplace.
19. Control movements: correct directions and amounts. Write down.
20. Battery check: Check battery!
21. If transmitter permits, “copy” this airplane to another, save with a version name, and keep it there unchanged. It is your original, in case you program yourself into an unflyable condition.

The items marked * are based on my personal experience and are my preferences. I like a balanced feel to elevator and aileron, hence the setup I listed. Same for exponential. In most control systems we use these days, you need about 25% or so to get to the “linear” travel point on the system you have. So, if you set 30% exponential, remember it’s only 5% “real” exponential. The reason I recommend the forward CG is that many fliers mistakenly set the CG on their airplanes too far aft. Until you have personally tried a slight forward CG (like suggested above) you won’t believe how much better your airplane will fly. Trust me on this; try it, you’ll like it.

By the way: item 20. Everything associated with your airborne and transmitter batteries needs to be checked by you at least twice, then you spouse or significant other, then whoever is at the field when you put the thing together. Trust me.

Now, this is not a comprehensive trimming chart, but it is a handy reference checklist for that new airplane you’re either building or preparing to haul to the field.

Also, if you aren’t already in the habit of writing down your particular airplane setup, begin now. Knowing where you started from makes things a lot easier when you are at the field tweaking everything. And don’t forget to date your lists. The important idea is to keep a record of where you are, so you can more easily figure out where you went. →

Soldering Clinic

by Vincent P. Lipton

The following guidelines will help you achieve good, reliable solder joints, and will hopefully encourage you to be more adventurous with your model’s on-board control systems.

Rule One: Use a small soldering iron for small jobs (small wires and connectors) and a large iron for large jobs (landing gear wire, tinsplate, music wire, etc.). In a pinch, you can wrap a piece of thick copper wire tightly around the tip of your “blunderbuss,” extending the copper wire tip about ½ inch beyond the tip of the oversize soldering iron or gun, thereby creating a small iron. Be sure to run the solder around the contact region between the big tip and the coil of wire, to make a good thermal contact.

Rule Two: A good solder joint is usually made from the standard 60/40 blend of lead and tin. If this alloy is allowed to oxidize by being overheated, or heated for too long, the binding properties of the solder degrade seriously. Don’t use solder that has been sitting molten on the iron tip for more than five seconds. Wipe it all off. Discarded solder blobs are useless; don’t save them. Always use fresh solder.

Rule Three: Keep a piece of dampened (not soaked) sponge nearby to clean oxidized solder off the iron tip. This must be a natural sponge, not one made from foam or plastic (which melts). You’ll find the green Scotch-Brite kitchen pads ideal. Clean off your soldering iron tip on this just before you make any solder joint. The tip of your iron should look bright and shiny just before you apply it. Oxidized solder looks dull and grainy. Get rid of it! I find that I discard 70% of my solder by cleaning it off and replenishing it with fresh, but it’s well worth it.

Rule Four: Always use resin-cored solder. You should never need liquid or paste acid-flux if you prepare your work correctly. The resin core melts when you apply solder to the job and acts as a cleaning and flow agent so the solder will bind properly.

Rule Five: Use only enough solder to bind the two objects together. Extra solder does nothing to increase strength, but only adds weight.

please see **Soldering Clinic** ... on page 7

Need Articles for your Club’s Newsletter?

In the Archives section of the *AMA Insider Web* site you will find every issue of the *National Newsletter/Insider* published since 2003! It’s a great resource for construction, safety, and how-to articles as well as hints, jokes, and cartoons all for you to use in your club newsletter!

Visit the newsletter archives online at

www.modelaircraft.org/insider

Vibration: How to Keep it Out of Your Radio

by Dennis Vollrath, Editor of *The Flightline*

One of the real problems with our hobby is inevitable, the heartbreaking crashes that can occur with our flying models. Once our club members have some experience flying these airplanes, pilot error becomes less and less of an issue. What is a real concern is when the model suddenly fails to respond to the pilot's command.

Several of these crashes at our field have involved the larger, and more expensive, models. When these are lost, they can involve possible safety issues before the crash, along with potential total loss of all airborne equipment.

For what it's worth, I've been flying electric models for 25 years, and outside of one or two issues where the electrical noise from the electric motors interfered with the receiver, I've never had a total loss of control with these electric jobs. Don't know, maybe I'm just lucky, but one big difference exists between the electric models and the glow/gasoline powered models—vibration.

I wrote an article in the defunct *RCM* magazine on vibration, and how to keep it out of our radios. This article required the entire airborne radio system to be installed inside a plywood box, with nyrods connecting all servos to their respective model surfaces. The plywood box could then be isolated from the fuselage with a few small, soft foam blocks. The effectiveness of this setup was easily verified by removing the wing, and running the engine. Just place your fingers on the fuselage near the radio system, and compare vibration levels at the fuselage to that of the receiver. If done right, the vibration levels at the radio/battery/servo box will be near zero.

Yes, this type of setup does have drawbacks, such as added weight, extra size of the radio box and whether it will fit inside the fuselage. And, obviously, no one in their right mind will connect a servo of a 50cc gasoline-powered model to the rudder/elevator with a nyrod.

Please read the following and determine for yourself if it would be useful for the models that you fly.

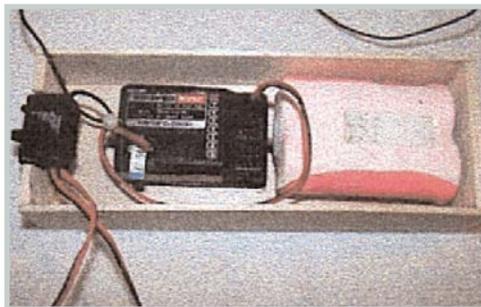
What options do we have? It's a given that we can't change how the servos are mounted. They absolutely have to be solidly mounted with very stiff linkages to

the elevator/rudder/ailerons to prevent soft control of these surfaces, or even worse, flutter of the surfaces. At any rate, most of the larger models have dual servos on the elevator and ailerons. Failure of one servo hopefully will allow enough control by the other servo to get it safely back on the ground in one piece. Even still, servo failures are rather unusual in modern radios, even with larger models.

This leaves the receiver, battery, and on-off switch. Try building a plywood box out of Lite Ply, maybe a 1/4-inch bottom, and 3/16-inch sides. Size this box to allow room for the receiver, battery, (or batteries in dual battery installations) and the on-off switch. The receiver/battery mounts can be hook-and-loop or Velcro.

Mounting this inside a model with foam will allow a considerable reduction in vibration levels to these components. The box should be mounted with soft foam, such that it is free to move perhaps 1/4 or 1/2 inch or so. Placing the on-off switch on the box gives it vibration protection as well.

Try this for a vibration-free connection of the switch to outside the fuselage: drill a small hole through the plastic tab of the switch slide. Then insert two lengths of fish-line-type cord through the small hole, one pulled through the right fuselage side, and the other the left. Just pull one for on, and the other for off. Using this setup should hopefully make this portion of the on-board system at least as reliable as my electric models.



Note the illustrative photo above. Normally of Lite Ply wood, the photo model is balsa to show the concept. It could even have a lid. All the wiring between the switch, receiver, and battery can be placed inside of the box. All that would exit the box would be the servo

leads. One way to mount this thing would be to construct another larger box with clearance on all sides. Then insert small pieces of foam between the large box and smaller box. The larger box would be solidly mounted to the model. It's worth thinking about. →

From the Schoolcraft Skyhawks, Portage, Michigan

Drilling Bolt Holes

by Rick Giannini, Desert Hawks R/C Club

On most of the glow engines we use today, the propeller reamers that are currently available usually work for propeller hole enlargement. However, when we move up to larger engines, there is a need for a hole larger than the reamer is capable of making.

If you have a drill press, try this:

- Move the drill plate off to the side a few degrees so the hole is not under the bit chuck.
- Drill and tap a hole for a 1/4-20 bolt.
- Thread a 1/4-20 bolt up from the bottom of the plate roughly 1/4 to 3/8 of an inch.
- Bevel the end of the bolt with a 1/4-inch bit.
- Set a new propeller over this short alignment pin (bolt) and accurately drill the larger propeller hole.
- Center the pin using the beveled tip of your drill bit to align it.
- Drill about halfway down the propeller hole, move your plate back to the regular position, and continue to drill through the propeller.
- Hold the spinner firmly to prevent spinning.

If your engine uses a multibolt hub, the front plate usually has a short-threaded post for a spinner bolt. This post is conveniently the same size as the factory centered hole on a big wooden propeller. Put the front plate on the propeller with the post in the hole and drill the outer holes as needed.

I suggest that if you are drilling larger propellers, you use a drill press. If you try this by hand, it is practically impossible to get an accurate hole, and on larger propellers, you get a lot of vibration from an inaccurately centered hole. →

Soldering Clinic continued from page 5

Rule Six: Always tin both parts before joining together. Tinning means heating the areas to be joined, applying solder to the junction of the hot tip and the part, and ensuring that the part is evenly coated with a good, shiny film of solder.

Joining Electrical Wires

1. Strip off $\frac{3}{32}$ - to $\frac{1}{8}$ -inch of insulation.
2. Tin the wire so it looks uniform and shiny.
3. If the solder “drags” and looks dull and grainy, apply the iron again, apply more solder, and clean off the excess.
4. Slide a piece of heat shrink tubing approximately double the wire diameter and about $\frac{3}{8}$ -inch long over one of the wires.
5. Lay the two tinned ends side by side.
6. Heat briefly with the iron so they flow together.
7. Slide the heat shrink tubing over the joint and heat with your heat gun or the barrel of your soldering iron. Once it cools, pull on the wires to make sure the joint holds.

Joining Steel Wire

1. Prepare the joining surfaces by thoroughly sanding them with sandpaper. This provides a good surface for the solder to stick. Treating each piece separately, heat the contact area with the iron and apply solder. Rub the tip all over the contact area, while applying fresh solder and flicking off oxidized solder, until the contact area is shiny and well tinned. While the steel wire is still hot and the surface solder is still molten, quickly wipe off the solder with a dry cloth. You’ll notice a different color between the rest of the steel wire and the tinned surface indicating that solder has penetrated the wire surface and has prepared the contact area for binding.

2. Place the two tinned areas together and wrap with fine copper wire. Strands taken from multistrand heavy electrical cable is ideal, but have the strands ready for use before you start. After wrapping tightly, twist the ends of the binding wire together (so they don’t unwrap). Heat the whole joint with the iron and apply fresh solder. Because you pretinned the steel wires, you’ll find that solder will readily flow into the joint and adhere properly to the surfaces. Any time you see convex blobs of solder you can bet the joint has not soldered properly. Apply more heat, flick off the old solder, and apply fresh. →

From the 1995 Warped Wings Calendar by Bob Zimmerman

Cartoons

Barney’s modified fuel pump needed to be closely monitored.



Carl was noticeably nervous during the hand-launch endurance event.



Tips & Tricks

Wires

Get a hold of a junk VCR and take it apart. Quite often there are a lot of wire harnesses in it. While the wire is other colors, as well as black and red, it is high quality and works very well for RC hookups.

Lite Ply Replacement

My favorite material is “doorskins” to use in place of Lite Ply. You can purchase these at your local building supply company for around 5 bucks. The sheets are 36-inches wide by 80-inches high and about $\frac{1}{8}$ -inch thick. I have used this in place of Lite Ply in fuselage sides, hatches, landing gear mounts, servo mounts, etc., and have never had a failure.

Plywood on the cheap

Also along those lines, cabinet makers have birch- and oak-faced ply pieces in different sizes $\frac{1}{4}$ -inches thick, that they will sell to you for a responsible price. I use these for firewalls, gear mounts in bigger airplanes, and you can double them up to make firewalls for gas engines.

Hardwood

For spars, I use $\frac{1}{4}$ x 8 feet poplar or maple. One board can be carefully cut in a table saw with a fine blade (be safe when you use power tools). You can cut these in $\frac{1}{4}$ x $\frac{3}{8}$, $\frac{1}{4}$ x $\frac{1}{2}$, etc. and make enough sticks to last for years!

—*all from the First State R/C Club, Wilmington, Delaware*

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*:

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CONTACT US

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

Newsletter Editor:

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

Technical Editor:

Ed McCollough, vpxi@pacifier.com

Director of Publications:

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

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ashleyr@modelaircraft.org

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

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