

Issue
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BIMONTHLY NEWSLETTER FOR CLUB
OFFICERS AND LEADER MEMBERS

AMA INSIDER



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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.

AMA Vision

We, the members of the Academy of Model Aeronautics, are the pathway to the future of modeling 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.

President to President

National Security: Everyone's Responsibility

Bob Brown, AMA President, bobb@modelaircraft.org

The FAA Notice for Proposed Rulemaking (NPRM) has again been delayed until late summer. In some ways this is good news, however, the inevitable will come. Please stay informed by monitoring the AMA website. Your assistance will be needed!

National security is everyone's responsibility. Recently we had a modeler flying an FPV over a large sports arena from the field of a local club. He then illustrated his ability with numerous posts on YouTube. Needless to say, law enforcement became very interested. In the end, the person was arrested and is awaiting trial. I am sure the club involved did not realize the potential of the member's activity. However, if you witness anything similar, do not hesitate to inform the police. Please adhere to the AMA Safety Code.

What have you done to make your membership in your club more positive within the past year? Hopefully the answer is something you consider worthwhile. A major concern illustrated in almost all organizations is the lack of enthusiasm from the members. One of the best ways to recognize a positive club is through the AMA Leader Club program. Information pertaining to the simple tasks within the program can be found at: www.modelaircraft.org/files/708.pdf. Perhaps your club can be a Gold Leader Club in 2012.

This year we have tried to hold the AMA Council meetings at venues where a large number of members can attend. Meetings were held in Ontario, California, and Toledo, Ohio, in conjunction with major trade shows. The July Council meeting will be in Muncie, Indiana, during the Nats. The general membership meeting will be held at the Joe Nall on May 17, 2012. If you desire the latest information, please attend.

Do you carry a first aid kit in your car? Is there a complete, up-to-date first aid kit at the flying field? If you or your club is missing a first aid kit we would suggest you obtain one. No one is perfect and accidents do happen.

Did you know the AMA has a new email newsletter for the youth membership? This effort is produced by AMA Headquarters and contains articles and information relevant to youth in aeromodeling. Check it out here: www.modelaircraft.org/publications/Youth_Newsletter.aspx. A contest was held to name the newsletter. The next issue will feature the new name and announce the winner of the RealFlight 6 simulator. Check it out! →



What better way to honor a club member or celebrate your club than to sponsor a symbol of support for your national organization? This gift to the Academy is not only tax-deductible, but is a permanent sign of your dedication to aeromodeling. The bricks are already placed in the Walk of Fame awaiting engraving. Decide which you would like and we'll start yours today!

Visit www.modelaircraft.org/brickad.aspx for more information!

The God Complex

Jim Tiller, On the Safe Side author, jtiller@hotmail.com

I recently viewed a presentation by Tim Hardy, a noted economist, on what he called the God Complex. I am including a link to that YouTube thread if you want to see the 20-minute presentation. It is well worth your time. In a few words, he espouses the value of trial and error in systems rather than the “God Complex” approach. The God Complex means someone who is an “expert” in a particular area and thinks he knows all the answers.

The God Complex: www.ted.com/talks/tim_harford.html

How does this relate to RC safety? The first conclusion would be to comment on all those on the Internet who obviously seem to be “experts” on almost everything. There is no better place to see the God Complex gone wild than on the Internet. Spend a few minutes on any of the RC forums and you’ll know what I mean. And did you notice that the more they “know,” the more they post. How generous of them. This discussion would take all day to finish.

Here is a simpler example. You built the airplane you now fly. You have the God Complex about that airplane just because it is the result of your efforts. More than anything, it just means that you are the only one who knows how it was put together and more importantly, how well it was put together.

One of the symptoms of the God Complex is that you become oblivious to input and especially, criticism. This is where the safety issue is. You should have other eyes looking at it besides your own.

I heard a story from a gentleman who attended a large Scale contest. One of the competitors was having trouble starting his engine and enlisted help from several in attendance.

While trying to troubleshoot the problem, they discovered that all four engine mounting bolts were loose. It seems the owner had mounted the engine several times during the last building stages and simply had meant to tighten the bolts later and forgot to do so. The test flights he did prior to the event were enough to make the bolts work themselves loose. A disaster was narrowly averted.

Obviously he did not do this maliciously, but his own God Complex had convinced him every task had been done on the model prior to flight. As the

“expert” mind, he was in control of the situation.

At our club we just talked about having a “buddy inspection” of your airplane when you bring it to the field. This just means that someone else takes a look at it while you put it together. The fresh eyes may discover something that your own God Complex blinders have overlooked or neglected.

Let’s also take a look at the value of trial and error. The point here is that mistakes lead us in the right direction. If that tail wheel mount in the ARF you just bought breaks after just two flights, you change it. If it still breaks you change it again.

The next time you buy an ARF, you might look more closely at the tail wheel mount and make modifications based on your past experience. This empirical data you gather makes you better, but the safety message is: be generous with this information to your fellow modelers. Make the knowledge base available to anyone who can use it.

Even if you don’t think you have much to share, put it out there. In the words of Thomas Edison when asked how his experiments with light bulb filaments were going. He said, “I know a lot of things that don’t work.”

Post Winter Equipment Check

If you are fortunate (?) enough to live in a part of the country that has a definite flying season like I do, you can appreciate the time to get into the workshop for a month or two (or three) and finish some projects. That means, however, that your normal flying equipment is lying dormant in your storage space. Digging an airplane out of storage and getting it back to flying gives you the opportunity to go over the moving parts and pieces.

Take this opportunity to give it a really good examination. Look for any damage that might have occurred last season that may have gone unnoticed. One of my flying buddies just found a broken elevator control horn while prepping his airplane for spring flying. It was a nylon piece and the break was very difficult to see, but the result was that only one screw of three was holding the horn in place. A good once over might catch things like this and prevent an accident.

Also, cycle those NiCds. There are charts on the Internet that show the indisputable facts. NiCds have a memory

and they lose power significantly when out of use. Cycle all your NiCd packs a couple of times before this summer’s use.

Disposing of Batteries Follow Up

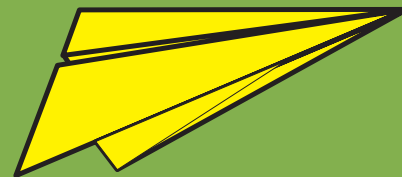
I received some feedback on the battery disposal information I provided in the last issue. A reader correctly pointed out that NiMh batteries are not on the list of hazardous materials for disposal in a landfill. I inadvertently listed them in with NiCd batteries, which are on the hazardous material list. Thanks for that input and clarification.

NiMh are okay to dispose of in normal garbage in many areas. However, many states and sanitation districts have banned, or are in the process of banning, batteries of all kinds from the waste stream. Make sure you check your local regulations before disposal.

The intent of my article was to point out that it is much easier to put your batteries—of all kinds—in a local recycling box and be done with them. Make sure your batteries are discharged, throw them in a bag and put them in the container at your home store or battery store. It’s simple, easy, and safe. ➔

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Become a Leader Member

Rusty Kennedy, Chairman Leader Member Program, rustylm@verizon.net

Does your club have a Leader Member (LM)? Someone who will keep the membership up-to-date on AMA programs? A member, who has demonstrated an above-average interest in AMA and/or participation in AMA matters. If you or another Open AMA member thought about becoming a Leader Member check out www.modelaircraft.org/membership/lm-application.aspx and see if you qualify.

Becoming a Leader Member requires careful consideration on the part of the applicant. AMA is looking for those members who will be actively involved in AMA and local clubs. You may be asked to help a district vice president (DVP) or association vice president (AVP) with their duties.

Working in the areas of Flying Site Assistance (www.modelaircraft.org/membership/clubs/fsap.aspx), AMA programs and membership are just a few of the areas the LM may be of assistance. Why would this be important? Some

programs are time sensitive and must be submitted by a certain date. Here are some examples:

- Take off And Grow (TAG): www.modelaircraft.org/files/tagpropapp.pdf. This is a great club program for building membership. Applications were due February 1, 2012, but the club LM can research it now for next year. Clubs can get up to a \$1,000 grant to hold the event.
- Scholarships: Approximately \$40,000 is available in endowments and scholarships to be distributed in various amounts on the basis of AMA modeling activities, scholastic achievement, and citizenship achievement. Deadline is April 30, 2012. See the website for complete details www.modelaircraft.org/education/scholarships.aspx.
- Camp AMA: www.modelaircraft.org/education/campama.aspx. Application due May 1, 2012.

Recently a District II club wanted to send a young member to Camp AMA. A Leader Member stepped up, did the research, and wrote a proposal. Bottom line, the club provided funding and enough individuals donated that this young man is going to Camp AMA this summer. Job well done.

If you are already a Leader Member, contact your DVP or AVP and offer to volunteer your services. I'm sure there will be times when they could use some help. The Leader Member could be a conduit of information to and from district leadership. Ask what you can do to help with gaining new members.

So, if you think being a Leader Member is in your future visit the Leader Member webpage www.modelaircraft.org/membership/leadermember.aspx and read what is required.

Questions? Ideas? Contact me at rustylm@verizon.net. →

Club Corner

Let's Get Your Club on the Map

Jim Wallen, Club Corner author, sjwallen@tde.com

The great majority of clubs are formed to just go out and have some fun at a flying site they have worked to obtain and maintain. There is absolutely nothing wrong with that concept. There is nothing better than flying in a safe, comfortable environment with family and friends.

You can take your club to the next level, however, by being proactive and watching your club grow and prosper. Let's talk about some opportunities you have at your disposal.

There is no better way to make your club stronger than by making a conscious effort to add youth. Develop programs to entice youth to join your club by talking to schools and other youth organizations.

Youth adds energy as well as new and creative ideas.

Put your club in the spotlight by having a presence at a local mall or put together a float for a local parade. Youngsters love to see the airplanes and tossing out a few bits of candy helps as well.

AMA provides assistance to clubs to improve their flying sites. Take the initiative to investigate AMA programs such as Disaster Assistance and Flying Site Improvement Grants. The AMA website gives some simple guidance on how the AMA can assist you. In today's economic times, every bit helps. AMA makes it easy for you to apply for these economic assistance programs.

Contact the associate vice president or vice president for the area in which you reside to introduce yourself. *Model Aviation* magazine is always looking for input from local clubs to highlight their special events or human interest stories. Let your vice president know and he will get you in the spotlight in the magazine. A little bit of advertising for you goes a long way.

Putting together a list of good ideas for a club is a simple thing to do. The more difficult step is to be proactive and go make something happen. Watching one of your creative ideas take hold can be as satisfying as your first solo flight. Well, maybe that is a stretch! →

Nats is coming!

Want to catch the action of the National Aeromodeling Championships? Subscribe to the daily *NatsNews* and keep in the loop by visiting www.modelaircraft.org/subscribe.aspx.

Just Fly the Airplane

Bob Wilson, Macon Aero Modelers, Franklin NC, 3dbob37n@frontier.com

Okay, I'm going to do a little story telling here but I promise to get to the point as soon as possible. There are times when someone or something makes an impression on you that sticks with you for the rest of your life. This is one of those stories.

It was a dark and stormy night. Forget that, actually it wasn't stormy, but it was around 2 a.m. and my flight instructor and I had flown to Wichita as part of my multiengine instruction in an old Aztec to get my rating, and we had been battling bad weather for most of the day on our return trip to Florida. We had to land a couple of times to wait out some serious looking thunderstorms, and for this reason we were not only arriving late but dog-tired to boot.

I had lowered the flaps and the landing gear and had three green lights, which told me the gear was down and locked. On final approach at probably 200 feet or so, I reached down to check the landing gear lever to make sure it had fully notched, at which time my instructor slapped my hand and told me to "quit that, just fly the damned airplane." His point being that we already had the three green lights and I had no business fiddling around on final approach. He was right—just fly the airplane.

I'm lying a little here, he actually used a much harsher word, but I can't repeat it here. You can guess it.

In the following 25 years of flying, I kept remembering his words and I believe they saw me through some rough situations.

When you think about it, the advice can be applied to our modern day RC flying. Whether flying a glider, gasser, or a pylon racer, the point is that "just fly the airplane" is still good advice.

You're out flying your gas-powered Decathlon and you have a lot of wind and if you have some trees near you, you will have turbulence, your airplane is bouncing all over the sky, going up and down like an elevator and now you're faced with making a landing. Whaddya do now? You guessed it, "just fly the damned airplane." And being the brave soul you are, you fly again, but this time, the wind shifts and you now have a 90° crosswind.

There are two basic methods for landing in a cross wind. The slickest way is to drop a wing into the wind and use opposite rudder to maintain a straight heading to the runway. Being the chicken soul that I am, I never learned to do that since it takes more coordination than I have, especially at my age. I simply crab the airplane enough to offset the wind and maintain

my heading to the runway and then, just before I touch down, I straighten out.

Horrors, some will say. Well heck, it works for me and I haven't knocked a landing gear off yet—maybe from some bad landings, but not doing a crosswind landing at least.

Actually, if you've seen some of videos of crosswind landing airliners make, they use the crab method so I'm not alone in this.

All right, you ask, what's this got to do with "just fly the airplane?" Well, now that you ask, I think it has to do with a mindset. Whichever system you prefer cross-control or crabbing, forget about the wind, forget about the turbulence, just concentrate on flying the airplane, and the rest will take care of itself.

It is obvious that you should have mastered your flying to the point where things are more or less automatic and you no longer have to think about which way to push the sticks to raise a wing, but this comes with practice and time. And this leads to another point, which is flying instinctively. Let your instincts run free, for when you do, things become more automatic and you don't have stand there sweating over what to do next.

In other words, "just fly the damned airplane." →

Tips & Tricks

Unclog your CA Tips

Those tips that come with your jar of CA clog much too easily, right? To keep them ready to use, get a small plastic bottle with a tight lid and fill it partway with acetone, available from the home center. Make sure that the bottle/container is impervious to the acetone, just to be safe.

Now, when you're done with your building/repair project for the day, drop that tip into the acetone until your next session. Any dried CA will be dissolved by then. When you need to retrieve one, use some needle nose pliers or a dental pick with a hook to extract it from the jar. Drain any leftover acetone from the tip and let it air dry for a few minutes before use. Remember to use a plastic jar to reduce breakage, and follow all the safety warnings on the container of acetone.

After you've built up a supply of them from successive

purchases of CA, you can swap them out midway through a building session to keep things moving.

—*Wing Busters Model Airplane Club, Massachusetts*

RapidDry

Maybe it's just me, but every time I buy CA kicker, the spray nozzles becomes a "stream" nozzle after a few uses. That mystical smelling stuff has a habit of evaporating right through the bottle too.

I have found an easy solution to this problem. My wife uses a fingernail polish dryer called RapidDry. This is in a two-ounce spray bottle. The pump and composition of the bottle work great with kicker. I wouldn't be surprised if the stuff in the bottle works as well as kicker too. All I get are the empties.

—*Russ Whitford, www.slopeflyer.com*

Scale Plans Building for the Novice: Part 6

Jerry Bates, www.rcscalebuilder.com

Installing canopies, windshields, and windows

This is an area that can bring your model to life if done well. We will only be discussing fixed canopies, windshields, and side windows for high-wing cabin aircraft. In most instances, you can install these items after the model has been painted.

High-Wing Cabin Airplanes: The windshield and side windows are normally cut from a sheet of clear plastic and installed in place on the model. Some plans do not have a windshield pattern. In either case, you should first make a windshield pattern from cardboard. I like to use the cardboard from the back of a writing paper tablet. Leave about ¼ inch of material at the top and sides to attach it to the airframe. You may need to crimp the top and side edges to get a good, tight fit. Trim the pattern until you have achieved a good fit and then trace the outline on the plastic with a fine-line, felt-tip pen and cut the plastic windshield to match.

You should use an adhesive specially formulated for gluing clear plastics to your model. These adhesives dry clear, will fill voids, and are flexible when dry. The two most popular are J&Z R/C-56 Super Z Glue and Pacer Canopy Glue. Both are available from Tower Hobbies.

Apply a bead of the glue to the top and side edges of the plastic windshield to hold it in place. I like to put shortened straight pins along the side and top edges through the plastic into the airframe at roughly ½ inch from center to stake the windshield in place.

Apply a bead of canopy glue to the junction of the windshield and the fuselage. You can trim the attachment areas by using a trim tape that matches the color of the model.

The side windows can be installed on the outside of the model or from the inside if the plans designer has made provisions to do so.

Vacuum-Formed Canopies: Vacuum-formed canopies normally require trimming to fit the model. Carefully trim the perimeter of the canopy a little at a time until it sets firmly all around the model. Use the Pacer Canopy Glue for the installation.

The canopy framework must be applied to the canopy. Some canopies have raised framework and some have no framework. You can apply the framework with different width trim tapes that match the color of the model.

You also can mask off the canopy and paint the framework on. Carefully lay out the canopy framework with trim tape. Mask the remainder of the canopy. Remove the trim tape. Make sure the masking tape is firmly pressed in place.

The best masking tape to use is the blue, low-tack stuff sold in automotive paint supply stores. Do not use drafting tape and inexpensive hardware/drug store masking tapes because you may not be able to get it off without damaging the canopy. You will need to mask the remainder of your model before spraying the canopy framework.

Clean the areas to be painted with a rag dampened with denatured alcohol. After the areas are dry, spray several light coats of paint on the canopy framing.

Fixing Scratched Canopies: Have no fear if you have scratched your canopy or would like to use an old one that has lost its luster. If it is a small scratch you can attempt to polish it out using toothpaste and a wet cloth. Most of us are not that lucky, though.

Here is a tip for the more severe cases: Sand out the deep scratches with 120-grit wet and dry paper. Do all sanding wet. Wet the paper in a container of water every so often while you are using it. Next, sand the entire outside surface of the canopy with 320-grit wet and dry paper. Follow this with 400-grit and 600-grit paper.

Wash the canopy in warm, soapy water and rinse to remove all soap.

Next, clearcoat the canopy. Make sure you are in a dust-free environment. Use a high-gloss clear, non-yellowing, two-part epoxy, or two-part urethane paint. Thin it and spray it. Start with a light tack coat and allow 10 to 15 minutes to start setting up, then apply one wet coat.

You will be amazed with the results.

Painting

There are many types of paints and primers available. I will discuss some of the major ones used for our models. Use all the paint products provided by the

manufacturer. The company can furnish compatible base coats, finish coats, and thinners. Do not attempt to mix and match products from various manufacturers unless you have previously succeeded.

In general, all finish painting should be accomplished by spraying the paint. One exception is dope finish. Unless you are experienced in the spray application of dope, use a brush. There are various ways to spray paint—from the use of aerosol paint cans, to small compressors with storage tanks and a spray gun.

Painting with aerosol cans may be the method you choose if you don't have a compressor, and do not want, to buy one. It will take more spray cans to complete the job than you think. Spray several light coats on the model, allowing it to dry between coats. The last application of paint should be a light coat, followed by a wet coat to bring out the gloss.

When choosing between an airbrush and compressor, and a larger compressor and spray gun, I recommend the latter. Two reasons for this are the economic impact, and the large range of use for the compressor and gun combination. A good air brush/compressor setup will often cost more than a compressor and spray gun. The airbrush has limited use when it comes to painting large areas such as wings, etc.

I suggest a tank-mounted compressor with at least a 2-hp motor and a minimum of a 6-gallon air storage vessel. Look for an air delivery rate exceeding 3 cubic feet a minute at 40 pounds per square foot gauge pressure. Discount stores such as Harbor Freight Tools have similar compressors for less than \$10. You can also find a cup gun and hose there for less than \$20.

Primers: The primers are used to give the model a smooth surface and prepare it for finish painting. I prefer to use automotive acrylic lacquer primer because it has excellent fill and coverage and sands easily. Many of the hobby paint manufacturers also have a line of primers specifically for finish paints.

If you have chosen a light finish for

Scale Plans Building

continues on page 7

When Epoxy Doesn't Harden Properly

The Rockland Country Radio Control Club, White Plains NY

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. Even though it is useful, epoxy 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. Mis-proportioning 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 and 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 micro balloons for thickening epoxy because they are readily available and add little weight. Thickened epoxy can be used to make fillets or to fill gaps.

Five minutes, 15 minutes, 30 minutes, more? Epoxy comes in formulations for

different curing times. The times listed on the packages 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 five-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, five-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. →

Field Safety: Flight Box Fire

Jim Coleman, Anoka County Radio Control Club, Coon Rapids MN

During a flying session at a British Model Flying Association-affiliated club site, the pilot and his helper noticed a flash of arcing inside the flight box. The starter was immediately disconnected and the 12-volt battery removed. After this it was noticed that the bottom of the plastic flight box was bubbling, the cause of which was not immediately apparent.

After 15 seconds or so, the pilot and his helper tried to remove the flight box from the pit area and, as the pilot's helper bent over to pick it up, the flight box exploded in his face, throwing him some 30 feet and causing burns to his face and scalp, which required specialist hospital treatment.

The explosion was caused by the ignition of half a gallon of methanol-based fuel that was stored inside the plastic flight box together with the 12-volt battery and associated circuitry.

Unfortunately the flight box was so badly damaged that inspection did not reveal the detailed cause of the ignition. However, it is probable that an electrical fault ignited spilled fuel, fuel vapor, or probably both causing the plastic flight box to melt and the fuel container to ignite. Unfortunately, methanol burns with a very pale blue flame that is barely discernible in daylight resulting in the pilot and helper being

unaware of the seriousness of the situation.

Fortuitously, there was a source of water nearby that was used to cool the burns while awaiting medical assistance.

Fuel fires of this nature are extremely rare, but to protect against a reoccurrence we advise the following:

1. Fuel containers are stored externally on flight boxes away from potential sources of ignition such as electrical equipment, lighters, and matches.
2. If you do store your fuel within the flight box, it should be within a separate compartment within the flight box. Drain holes should be incorporated to disperse spilled fuel and the compartment should be well ventilated to disperse fuel vapor. The design of the box should prevent fuel from migrating to other compartments within the flight box in the event of a spill.
3. Mop up any spillage immediately and dispose of the mopping up materials in a safe place.
4. Do not smoke in the vicinity of fuel.
5. If you have, or suspect you might have, a fire, warn your colleagues and clear the area immediately. Remember, methanol fires are not obvious in

6. daylight so stay well back if in doubt.
6. If the fire is small, attempt to extinguish it by using an approved extinguisher for fuel fires (foam or powder). If there is any danger of a large fire, i.e. the fuel container itself, do not attempt to extinguish the fire under any circumstances. Always exercise extreme caution and if in any doubt, stay well back and contact emergency services for assistance.
7. Do not attempt to move any burning material.
8. Be sure you know the first aid treatment for burns and where the nearest water supply is. The first few minutes in the treatment of burns is critical if the injuries are to be minimized. The quicker the burn is cooled, the less the damage to the underlying skin tissues. Burns can cause severe shock that will require treatment.

Remember to avoid putting your fuel container into an enclosed space and never adjacent to potential sources of ignition. Should you have a fire, do not take any risks; your equipment is replaceable but you are not.

Compiled with advice from the Leicestershire Fire and Rescue Service. →

Engine Maintenance 101

Richard Dvorin, Tri County RC Club, New Jersey

The objective of this article is not to make each person who reads it an engine mechanic, but rather to pass on a few tips that I have learned over the years that will help to make an engine last longer. After each flying season, I take the engines out of my airframes and clean them down.

I do so by plugging the carburetor and the muffler exhaust port with rolled up pieces of paper towels. Then I get a toothbrush (hard) and brush the engine off. After the dirt is off, then I spray on Dawn Power Dissolver. This will remove the burned-on grime and dirt. Wash the engine down with hot water being careful not to burn yourself, and then dry with paper towels or use a small air compressor, if available, to blow dry the engine.

When you are satisfied that the engine is clean enough, remove the back plate being careful not to damage the backplate screws or the gasket. Look for signs of metal filings in the crankcase and scrap marks on the backplate. These marks

and filings are an indication that the connecting rod is rubbing the backplate. This condition can be caused by jamming an electric starter up against the spinner or spinner nut when starting your engine. If this condition exists, make sure that you wash the inside of the engine with kerosene or gasoline. If you use gasoline, do this outside for ventilation and do not work near open flame or spark and *do not smoke!*

When satisfied that the engine is clean, take a 1/2-inch dowel and a brass hammer and tap the back of the crank shaft to make sure that the connecting rod does not scrape the backplate. Check the rear bearing for dirt, rust, or corrosion. If rust or corrosion is present, send the engine back to the manufacturer for repair. Coat the inside parts with some after-run oil and close it. Make sure you inspect the backplate and if the screws are damaged, replace them with proper size socket head screws.

Check the rubber O ring seal that sits between the base of the carb and the crankcase for leaking or damage. Make sure the carb is tight. Remove the muffler, place a few drops of after-run oil on the piston and then on top of the piston. Place some after run-oil in the carb and then, with the aid of the propeller, turn the engine over several times to work the oil around.

Check the head screws and make sure the screws are tight. When you turn the engine over with the propeller, check the seat around the head and backplate.

If you see bubbles seeping out, you will have to replace the gaskets. Most parts can be purchased from your local hobby shops.

Reinstall the engine, hook up the throttle linkage, replace the muffler and you are now ready to take your airplane outside and start the motor. Make adjustments as necessary for throttle response and idle.

Now you're ready to go. →

Scale Plans Building continued from page 5

your model, I suggest applying a basecoat of light-colored primer to provide a surface that will give the finish coat an even overall color.

Finish Paints: When selecting finish paint for your model, I suggest you use paint from one of the companies that supplies products specifically for our hobby. These paints have finer pigments than commercially available paints. They offer better coverage and lower weight. Do not use hardware store paints.

- **Water-Based Paint:** Until recently, the trend has been to use water-based latex house paint for models. Now, there are several water-based hobby paints available. One of the preferred manufacturers for military aircraft colors is WarbirdColors. This paint is a two-part, water reducible, polyurethane. The paints are supplied to the correct color matches for military aircraft of nine nations. They are thinned with water, and water is used for cleanup.

Nelson Hobby paint from Nelson Hobby Direct is a supplier of similar

paint. It is available in a wide range of colors for both civil and military aircraft.

- **Traditional Polyurethanes:** Chevron Perfect Paint has a great line of polyurethane paints. There is a wide color range available for both civil and military aircraft.
- **Epoxies:** K&B Manufacturing Ultrapoxy paint system and Klass Kote paints make a full line of epoxy paints and primers. These are two-part, air-dyed epoxy paints available in a standard range of colors and can be mixed to provide colors for military models.
- **Enamel:** Sig Manufacturing Plastinamel is specially formulated enamel that will provide a light, high-gloss finish. It comes in eight colors and can be mixed to produce shades as required.
- **Dope:** Sig Manufacturing has a large line of nitrate and butyrate dope products designed for the modeler. The preferred "Sig System" is to use the manufacturer's dopes and Sig Koverall fabric.

Randolph Aircraft Products is the largest and oldest supplier of dopes for full-scale aircraft. Randolph dope products are ideal for modeling use. The preferred system is the use of Randolph dope products and Ceconite Light (uncertified) fabric covering. Ceconite fabric and Randolph dope are available from Aircraft Spruce and Specialty. Visit the company's website, www.aircraftspruce.com, to order a free catalog.

- **Automotive Urethane Paint:** An automobile paint store can mix your finish colors to match the Federal Standard (FS) numbers of the colors used on the full-scale airplane. Basecoat/clearcoat urethane paint with a flat, clear top coat is a popular option and is fuel-proof. Don't be alarmed if after applying the basecoat, it looks blotchy and the wrong shade. The appearance will improve when the clearcoat is applied. Various types of clear topcoat are available—from a high gloss "wet look," to dead flat. Be sure to tell the paint store what look you want to achieve. →

It's Coming ...

Indoor
May 23-May 27



Outdoor
July 9-August 15

www.modelaircraft.org/events/nats.aspx

are you ready?

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