The AMA INSIDER
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for Newsletter Editors and Club Officers

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PRESIDENT TO PRESIDENT

Involve the Community: Protect Your Flying Site

by Dave Mathewson, AMA President

When I was a district vice president, hardly a month went by when I didn't get at least a couple of calls from club officers saying that their club flying site was in jeopardy of being lost and asking for help and advice on what to do to save it.

The first thing I would do is to ask the officer to tell me what the club has done over the years to be involved in its community. Do the members run an event and donate some of the proceeds to a local charity? Do they hold "try model aviation days" to attract their neighbors to their fields? Do they participate in events that introduce model aviation to groups like the Scouts, Civil Air Patrol, or 4-H groups? Or do they maybe become involved in their community's parks and recreation programs, or make visits to senior citizen centers?

If the answer was no, or "we've been thinking about doing some of that," it's almost always too late. If a club can point out several instances of where it has become involved in giving back to its local community then, there's almost always a chance something can be worked out.

As you might expect, charities appreciate all the financial support they can get. In return for a club's generosity they will almost always stand up for the club when issues arise.

Parents appreciate the fact that groups such as model airplane clubs take an interest in introducing their children to a new recreational activity. Parents who think you've done something nice for their kids can be some of the most vocal in support of what we do. When you need it, ask for their help. Town boards and town councils will stand beside you if they feel that your group has had a positive influence in offering some type of benefit to the constituents that they represent.

If a club has chosen not to do any of this, more often than not it is left standing alone in a fight to save a flying field. There's much more to running club events than the prospect of making a few dollars for the club treasury. There are several intangible benefits that may not be evident the weekend of your event, or maybe not even in the near future. But by becoming involved in your community, what you're banking is "good will" and you can't put a price on that. ✈

TIPS FOR CLUBS

AMA's First Chartered Park Pilot Club

by Ashley Rauen, *AMA Insider* Editor

The first members of the Vegas Aces Park Pilot Club at their flying site, Robert O. Gibson Middle School, in Las Vegas, Nevada.

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ON THE SAFE SIDE

From the Temple Aero Modeler's newsletter, Temple, Texas

Summer Safety Steps

by Don Mondrik

Summer is here! Some key points to keep in mind as our days get hotter: stay hydrated, take frequent breaks, and keep some shade handy.

Heat can create extra stress on your body, so it's important to pay attention to that inner voice. Don't y'all hear that voice sometimes? Seriously though; know your limits. Some of us can't plow through the days like we used to.

We might remember having done strenuous work during the summer months, but do you remember how old you were then? Sad but true, age can make a difference on how well your body can tolerate the hot days ahead.

The summer months will afford more flying days, but they'll also be hot. Sunscreen is another agent to protect your skin from the damaging effects of long exposure to Sol, our sun. I'm sure that at some point during our lives we have all experienced a sunburn or two, which probably led to "I ain't gonna do that again."

You have better protection from the sun's effects available these days than you did in the past, so take advantage of sunscreens and wear a hat to protect your head. A wide-brim hat will offer more protection than the plain old baseball cap most of us wear. The straw hats, like you see on the golf course, are a good choice too. They allow air to circulate to keep your head cool, similar to a cowl on an airplane. The sun can cause skin cancer, a topic I would just as soon avoid.

In addition to protecting yourself from the ravages of the sun, add insect repellant to your list of stuff you'll wish you had in your flight box. Mosquitoes are a real nuisance, but they can also carry some nasty parasites in addition to disease. The mosquito problem is really noticeable at the end of a day of flying. As the sun starts to get low on the horizon, the little bloodsuckers seem to come alive.

The ingredient I have heard the most about in insect repellants is DEET. I know that like everything else, people tend to get the products with the highest DEET content.

While the stuff works fairly well, keep in mind that you are spraying a chemical on your body on purpose. If you're serious about not donating blood to perpetuate the mosquito population, you'll be spraying a chemical on your hands and rubbing it on your face, neck, hair, shirt, shorts, legs, and just about anything else you can reach. Go easy on the DEET—I don't know what it is or how it works, but I would be willing to bet that it doesn't taste good and it really could cause red, bloodshot eyes. Take some time, read the label and buy small quantities just in case you don't like it or it has some other undesirable effects.

How about wasps? It's wasp season too, you know. People usually get into a wasp nest because they were unseen, hidden under something, and so on. Wasp spray would be a good idea for the club to keep in the storage shed just in case.

Is anyone in your club allergic to bees and/or wasps? Perhaps keep a bee sting kit handy, again just in case. ✈

AMA's First Chartered Park Pilot Club continued from page 1

The Academy of Model Aeronautics has enrolled its first Park Pilot aeromodeling club, the Vegas Aces of Las Vegas, Nevada.

The club was started by Greg Clemenson, John Storick, Mark Rose, Darrell Stubbs, and Ben Storick. These pilots and several others in the area had frequently spent time at the Robert O. Gibson Middle School in Las Vegas flying their Park Flyer aircraft. This middle school became the foundation of the Vegas Aces club.

"There has been RC flying at the schoolyard for several years," Greg Clemenson explained. "Once the Park Pilot Program was introduced, it was just a natural thing to start a club."

Mark Smith, District IX Vice President, provided the inspiration for the Vegas Aces. He explained that the concept of the Park Pilot Program was to reach out to those who fly electric at parks and schoolyards—perfect for what this group of modelers does.

Greg downloaded the Charter Kit from the AMA Web site and formation began.

At the initial club meeting, the president asked everyone to share what interested them in joining the club. A laundry list of reasons was provided by the members.

Prominent wants in the club included people to fly with, instruction, a permit to fly at the field, the idea that more activities can be done as a group than individually, and most importantly, fun.

When word got out, the club grew fast. Over the span of a weekend, membership within the Vegas Aces nearly doubled. As of May 4, 2008, there were 23 members.

"Individuals have been flying at the schoolyard ever since electrics became popular." Greg said. "A lot of people have come and gone because they crash, get frustrated, and quit. Now with Vegas Aces Park Pilot Club, there is an avenue for newcomers to get the help they need."

"The Park Pilot Program was critical in starting the Vegas Aces. The Park Pilot Program provided the guidelines needed."

Greg and the Vegas Aces have several plans for the future of their club.

"The energy is tremendous! Working together makes all the difference. There will be a fun-fly and trainer day. The club is involving the students at the school. We expect the club to grow. Eventually, maybe a fundraiser." ✈

Should You Be a Leader Member?

by Jim Rice, District VIII Vice President

As I write this, the Leader Member (LM) vote is ongoing for AMA Bylaws changes. I have received phone calls from all over my district asking about the revisions in attempts to be better informed voters. It will be interesting to see how the vote goes but maybe even more significantly, how many LMs vote.

If the low participation in the Membership Dynamic is any indication, we have a lot of LMs who are not interested in participating in or helping with AMA programs. If that describes you, then perhaps you should not be a Leader Member.

Twenty years ago, as a member became a CD, he/she automatically became a LM. I suspect that we made many LMs who really only wanted to run local events and had no interest in the AMA business above their local level. I was one of those people myself. I became a CD back then and really only wanted to run local meets but accepted the LM status with the CD. I grew to enjoy the idea of having a role in the bigger picture but wasn't tasked enough to keep my interest until I became an associate vice president. Perhaps too much is expected of people who did not want to be LMs in the first place.

I have had people ask me if it is time for them to apply for Leader Member status to add to their AMA résumés. Unless you are going to run for a district or national office, the answer to that is no. But, if you want to be a LM to use your experience and expertise to become more involved in AMA business and have the opportunity to affect the direction of the AMA, then I say you should apply.

The following Code of Conduct is proposed for all Leader Members:

1. Represent Fellow Modelers and the AMA. When it is time to express opinions or vote on issues, determine what is best for the membership and the Academy and move or vote in that direction. Do not let personal agendas influence your professional efforts.
2. Respect Differences of Opinion. Differences of opinion strengthen the decision process and are healthy. However, these differences should not be allowed to become personal attacks. When you attack an idea, do not attack the person too. That becomes childish, petty, and nonproductive.
3. Remain Informed. You cannot represent or vote properly if you are not informed. Read your *Model Aviation* magazine, concentrating on the black-and-white pages in the back. Visit the AMA Web site regularly and read every issue of the *AMA Insider*. You are a main artery from Muncie to the local flying field; don't let it get clogged with inaccurate information.
4. Report Your Findings. If you discover issues that cannot be resolved at the local level, report them to the appropriate staff agency or the executive director at headquarters, or to your associate vice president or district vice president.
5. Be Creative and Thoughtful. Always be on the lookout for newer and better ways to do things. Keep your eyes and ears open for new flying sites and meeting places. Attend club meetings and provide your experience and knowledge to their agenda. Volunteer to find out why or how or who when the local knowledge is short.

Leader Members need not be old timers with years of membership in AMA. They need to be members willing to make a difference and help move the association forward in smart and productive ways. If you know someone who should be using their innate leadership abilities and their genuine concern for the forward progress of the Academy, suggest to them that they apply. Like the Marine Corps, we need a few good LMs. ✈

From the Anoka County Radio Control Club, Inc., Coon Rapids, Minnesota

Nail Those Landings

by Dan Stahn

Hello fellow members. I was looking through my latest *Plane & Pilot* magazine. Hang with me for a minute. It had an article about getting set up for landings. It was titled "101 Secrets for Super Landings." I picked out 22 that would apply to RC.

Now you're thinking, 101 secrets, that's a lot. How many things do I need to do or think about to land my airplane?

Landings are when you need to concentrate the most on what the airplane is doing and making the airplane go where you want it to go. I'm not going to use all 101 secrets here mainly because they don't all apply. Such as landing on a slope, and using the runway numbers through the windshield to control your glide slope, or even about warning your passengers about moving around during the landing. Or having you radios tuned to the correct ATC frequency before getting in the pattern. You know; stuff like that.

What I have done is to apply those that would help you to place your airplane in the pattern at our RC field as if it were the real, full-scale pattern. Over the years I have used these helpful articles to better myself and to help me make the landing to look much better and hit the runway as many times as I can. Give these a try and see if there aren't any of these secrets that can help you.

1. **Have a plan:** Don't let the airplane determine your approach. Plan out your landing well in advance. Maybe two or three circuits around the pattern before you make the landing.
2. **Visualize the flight path:** Think ahead of the airplane and imagine your flight path as a narrow rectangular tunnel with the runway at the end.
3. **Keep your downward approach consistent:** Put your airplane in the same place every time.
4. **Fluctuations in speed** are wasting precious altitude and energy.
5. **Deploying flaps at too fast** of a speed only messes up your trim and you can't keep steady throttle settings.
6. **Don't wrestle with it;** you make the airplane land.
7. **Think centerline:** Form a routine where you put the airplane on the centerline of the runway every time.
8. **Don't chase the airspeed:** Wind gusts can cause air speed fluctuations. Don't chase them; average out the fluctuations by holding the nose attitude steady.
9. **Have a go-around point selected:** Designate a place on the runway as your touchdown area. If you don't make it, go around. Don't make a bad situation worse.
10. **Don't forget to flare:** When you are short on final, be thinking of the flare before you touchdown.
11. **Make small power changes:** It's always best to make small power changes when needed rather than being behind a change and then having to play catch up.
12. **Correct flight-path changes immediately:** Either speed or position or whatever—if it isn't right, fix it. Don't let needed corrections pile up.
13. **Plan ahead:** This is very important. Compare where the airplane will go if you don't change anything to where it will go if you do. If they don't match, make it match.

please see Nails Those Landings... on page 6

From the Suffolk Aeromodelers, Long Island, New York

Sizing the Model Airplane Propeller

originally from Hooked-on-rc-airplanes.com

The manual for every engine will give you a range of propellers that is safe to use with that engine. The manual does not specify the exact size propeller because the propellers must be sized for the airplane they are used with. It is very important to stay within this recommended range.

You can also refer to the Top Flite propeller selection chart below to determine the range of propeller sizes that are acceptable for your engine size. Keep in mind that the Top Flite chart is sized for 2-stroke engines. Consult the manual for 4-stroke propeller sizes because these engines produce more torque at the slower speeds and will use a larger propeller.

The propeller puts a "load" on the engine. If the load is too small or too large it will damage the engine. You must choose a propeller within the recommended range that best suits your airplane and your flying style.

The characteristics of a propeller are defined by the diameter and the pitch. The diameter is the distance from one tip to the other. The pitch is defined as the distance the propeller would move the airplane forward in one rotation in a "perfect" world. Perfect world meaning that the propeller is 100% efficient and the air does not compress; neither of which is practical in the real world.

The "twist" of the propeller is what determines the pitch. Basically the length of the propeller and its twist defines its characteristics.

A model airplane propeller size is always referred to as its diameter x pitch. An 11-inch-diameter propeller with a 6-inch pitch is called an 11 x 6 propeller.

Generally speaking, the larger the diameter of the propeller the more thrust will be produced by the engine. The larger the pitch the more speed you will get out of your engine. A small diameter, larger pitch propeller will move a small volume of air really fast. A large diameter small pitch propeller will move a large volume of air at a slower speed.

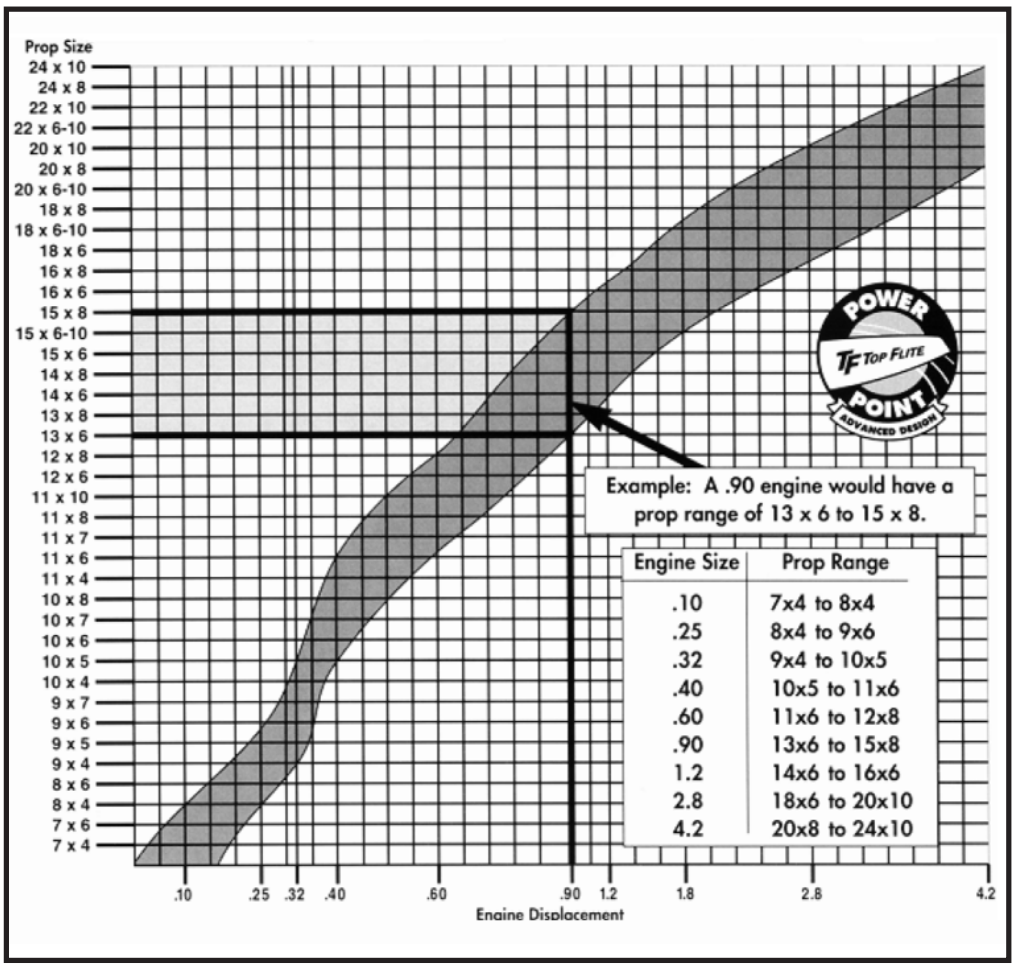
Increasing either the pitch or the diameter puts a larger load on the engine. To keep the proper load on the engine, you generally change the pitch and diameter together. For example, 9 x 7, 10 x 6, and 11 x 5 propellers would all put a very similar load on the engine.

If you want to change the maximum RPM, then you change the load on the engine. Replacing a 11 x 6 propeller with a 10 x 6 propeller, or replacing an 11 x 6 propeller with an 11 x 5 will decrease the load on the engine and raise the maximum RPM. Changing from a 10 x 6 to a 10 x 7 propeller, or changing from a 10 x 6 to an 11 x 6 will increase the load and lower the maximum RPM.

If the propeller load is too large, the engine will not turn fast enough to fly the airplane and could cause the engine to overheat. If the load is too small the engine will turn too fast damaging the engine. So it is important to stay within the window recommended by the engine manufacturer. It is also important to know that the engine must be tuned each time the propeller size is changed because of the change in load the engine sees.

When choosing a model airplane propeller you must keep in mind that you are choosing the propeller based on how you want the airplane to fly. This really has nothing to do with the engine other than the fact that you must stay within the recommended window of propellers to prevent damaging it. The same engine used on two different airplanes may be using two completely different propellers. If you have airplane with low drag designed for speed then you will want more pitch. If you have a slow airplane with a lot of drag, such as a biplane, you will want more diameter (thrust) and less pitch (speed).

Choosing a propeller that best fits your airplane and your flying style is a trial-and-error process. Pick up several propellers within the recommendation range. If your airplane seems too sluggish when taking off and accelerating, then change to a lower pitch, larger diameter propeller. If your airplane has plenty of pep and you want to make it go faster, then change to a larger pitch, smaller diameter propeller. It's really fun to experiment with different propellers and observe how the airplane reacts. ✈



How to use the chart to find the right propeller for your engine:

1. Find your engine size along the bottom axis.
2. Follow the line to where it intersects with the shaded area.
3. Follow each point within the shaded area to its corresponding propeller size on the left axis. This will be your approximate propeller range.

Note: Four-cycle engines are typically higher torque engines and should use the larger propellers indicated in the range. Recommended propeller ranges will vary depending on your particular engine and airplane. This chart represents average propeller usage and should be used only as a general guideline. Always refer to the manufacturer's instructions included with your engine.

From the San Gabriel Valley Radio Control League, South El Monte, California

Electric Motors 101

by Vic Walton

If you're like me, you sometimes use technology that you just don't know that much about. Take electric motors—how do they work really? I knew it had to do with magnets and electromagnets, and something about brushes, but I hadn't taken the time to figure out how they all worked together.

And now we have "brushless" motors—how do they work? So I did a little reading and have shamelessly cobbled together this primer from various Internet sources.

In a typical "brushed" DC motor, there are permanent magnets on the outside and a spinning armature on the inside. The permanent magnets are stationary, so they are called the stator. The armature rotates, so it is called the rotor. Clever, eh? Picture a big horseshoe magnet. Now take a big nail and drill through the middle cross-wise, and put a wire through the hole; now the nail can spin head-over-heels. Wrap some wire around it, and then attach it to a battery. You have an electromagnet right?

Now this particular arrangement isn't that useful; the nail just sits there. Of course, if you were to reverse the current, it would flip around, right? And if you were really clever and fast, you could reverse the current again, just as the nail was flipping, and it would flip back. This is what the brushes in a brushed motor do. They make contact with terminals on the rotor (called the commutator) and as it spins, at just the right spot they break contact and reconnect on the other side, causing the electric field to reverse, spinning the motor around another half-turn (or one-third turn, since most electric motors have three coils for efficiency). The horseshoe magnet is your stator, the nail the rotor.

This setup works and is simple and cheap to manufacture, but it has limitations because of the need for the brushes to press against the commutator:

- It creates friction.
- At higher speeds, brushes have increasing difficulty in maintaining contact. They may bounce off the irregularities in the commutator surface, creating sparks. This limits the maximum speed of the machine.
- The current density per unit area of the brushes limits the output of the motor.
- The imperfect electric contact also causes electrical noise. Brushes eventually wear out and require replacement, and the commutator itself is subject to wear and maintenance.
- Having the electromagnet in the center of the motor makes it harder to cool.

So in comes the brushless DC motor. In this design, you put the permanent magnets on the rotor and you move the electromagnetic to the stator. Think about that. The electromagnets are on the stator—they are stationary. That's a problem because now you need something even more clever than a commutator and brushes to flip the polarity of the current at the right moment. This very clever thing is the microcontroller in your ESC.

What it does is sense the position of the rotor (utilizing something called the EMF feedback through the main phase connections, which I have decided I don't need to understand) to switch the field rapidly at just the right moment to pull the permanent magnets on the stator around at the RPM that you have requested. This system has all sorts of advantages:

- There is no sparking and much less electrical noise. A happy situation for our radios, particularly as the motors get bigger.
- There are no brushes to wear out.
- With the electromagnets on the stator, they are easier to cool.
- You can have a lot of electromagnets on the stator for more precise control.
- The timing of the pulses sent to the electromagnets on the stator can very precisely adjust the speed of the motor.

So that's how it works. But one more thing: what's an inrunner and what's an outrunner?

An inrunner is a brushless motor with the permanent magnets rotating inside the electromagnets; in an outrunner this situation is reversed, with the permanent magnets on the casing of the motor and the windings of the electromagnets inside. Outrunner motors generally have some torque, but spin somewhat slower. This makes them better for spinning large propellers, which our airplanes need. Inrunner motors spin a lot faster but with less torque; this means that in order to get the same torque, you have to put the inrunner in a gearbox, adding weight, complexity, and most importantly, cost. However, if you can afford it, this is the most efficient setup for any given size motor.

By the way, airplanes aren't the only things that use brushless motors. Computer hard drives, CD drives, and hybrid cars are some of the other uses. It's only a matter of time before someone takes the brushless motor out of a Pruis and uses it in an airplane. ✈

From RCadvisor.com

A123 Cells

by Carlos Reyes

Electric model airplanes have been around for roughly three decades. A huge problem in the early days was battery energy density. In other words, they simply weighed too much for the amount of juice you could get out of them. This situation has improved dramatically in recent years with the advent of Li-Poly cells, but a battery pack for a larger model can easily cost hundreds of dollars. The advent of electric cars, such as the Toyota Prius has spurred an enormous amount of research into new battery technologies. In this article, I will describe an alternative to Li-Poly batteries that offers intriguing possibilities.

A123 Systems (www.a123systems.com) produces Lithium-Ion Nanophosphate cells. These cells have a nominal voltage of 3.3 volts and can withstand continuous discharge rates of 30C. They can be safely discharged down to 2.0 volts. The voltage remains fairly constant through the discharge cycle, but they do have a sharp drop-off at the end. Expect 300 cycles before you notice any reduction in capacity while at 1,000 cycles you'll have 75% of the original capacity.

They are very safe. Overcharging or over discharging will not cause an explosion and will have little effect on the life of the battery. Balancing the cells when they are charged is still a good idea, but not absolutely required. They can be charged immediately after use in 15 minutes.

The cells are available in two sizes. The original M1 cell has a capacity of 2.3 Ah and weighs 70 grams (2.47 oz). A newer, smaller size can hold 1.1 Ah and weighs 40 grams (1.41 oz).

The primary source for A123 M1 cells has been DeWalt 36-volt portable power-tool battery packs. Each pack contains 10cells. I purchased two of these for $100 each through Ebay. The prices appear to have gone up recently to the $120-$130 range. Single cells can also be purchased online for $15 from a growing variety of vendors. You can find two of the smaller cells in a Black & Decker VPX battery pack which sells for about $15. The smaller cells can also be had for $12.50 each.

There are many Li-Poly chargers that support or can be modified to support the charging of these A123 cells. Because of the sharp voltage drop-off when discharged, you are probably better off using a timer when you fly. Otherwise you need your ESC to shut off the motor when 2.0 volts per cell is reached.

Bottom line? These cells give you 70% the energy density of Li-Polys for about 45% of the price. For many of us, that is a good trade-off. They are extremely safe and can be charged in 15 minutes. If you end up buying half as many battery packs because of the shorter charge time, then they become a much better value. ✈

From the Aero-Shaft newsletter, Flint, Michigan

ARF Tips

Manufacturers strive to design and build almost-ready-to-fly (ARF) kits that any RC pilot can proudly show off and enjoy for many years, and more often than not, they are enormously successful. The quality, appearance, and flight capabilities of the airplanes available today are truly outstanding, and I am among those who want to ensure that my new models will still be around for me to enjoy 10 years down the road. Fortunately, a little extra time during the final assembly will help extend the life of that new airplane. Try out some of these tips on your next ARF.

1. Seal down loose covering: This should be the first step in the assembly of an ARF that uses heat-shrink covering. Use an iron or heat gun to remove wrinkles that may have emerged during shipping, and then turn the heat up and go over all the surfaces where the covering overlaps or ends on bare wood. Be sure you don't melt or shrink the covering too much, and pay particular attention to the engine compartment and wing-saddle areas. After you've sealed the covering where it ends on bare wood, apply cyanoacrylate glue (CA) along the edges to ensure that it stays that way.

2. Fuel proof the firewall: After a few flights, the firewall or engine compartment of airplanes powered by nitro and gas engines can incur damage if left unprotected. Check these areas, and if needed, paint, epoxy, and CA can provide the necessary protection. (Heat-shrink covering material will not sufficiently protect these areas from repeated exposures to fuel and gas residue.) The paint can be sprayed or brushed on, and the epoxy should be thinned with a little rubbing alcohol and applied with a brush. Thin CA can be dripped on the surface and allowed to soak in, but thick CA should be rubbed in with your finger; of course, it's a good idea to wrap your finger in plastic.

3. Check high-stress glue joints: All visible glue joints should be checked for cracks or stress breaks when you unpack a new kit. Damage can easily occur during shipping; changes in humidity levels from one part of the country to another can warp parts and cause cracks or other damage to joints. When checking the joints, pay particular attention to high-stress areas such as the wings, stabilizer, rudder, firewall, landing gear attachments, and servo trays. Repair the damage with CA or epoxy, and reinforce that area with balsa triangle stock, plywood, or fiberglass cloth.

4. Rubber tubing around the clevis: When the control surfaces deflect, pressure builds on the control horn and the clevis. The weakest link is the clevis—specifically, on its tiny pin. The pressure can generate enough force to pop that clevis pin loose but rubber tubing will help prevent this.

5. Reinforce the screw holes with CA: All screw holes in wood (balsa, plywood, and hardwood) should be reinforced with CA, especially those for the control horns, servos, canopy, and cowl. Drill the hole, insert the screw and remove it, and then drop thin CA into the hole. This will strengthen the wood and prevent it from being stripped.

6. Seal fuel-tank tubing at the firewall: Tubing that exits through holes in the firewall will eventually wear out from vibration, but you can prevent this by sealing the fuel tubing at the firewall with silicone sealant. Tanks that extend through the firewall should also have sealant around the hole; this will stop any fuel from seeping into the tank compartment.

7. Properly installing the hinges: The CA hinges that are included in many ARF kits do a fine job of supporting the control surfaces. They are usually chemically treated to encourage the CA to wick to all parts of the hinge and provide good adhesion, but this process can be helped along by drilling a small hole ($^3/_{32}$ inch) in the center of each hinge slot. This gap above and below the hinge will allow the CA to penetrate all the way to the back of the hinge.

8. Foam tape on the wing saddle: Exhaust residue that enters through the wing saddle can damage unprotected wood in the airplane's interior and will eventually ruin it. You can protect this area by applying foam tape around the wing saddle. It will form a fuelproof seal and is soft, so it won't hinder wing alignment.

9. Thread-lock all bolts: With the exception of engine screws, all of the bolts that screw into nuts, blind nuts, and threaded metal pieces benefit from thread-lock. It reinforces the grip and provides a measure of insurance that the screws won't vibrate loose. This simple step can save you quite a bit of grief later.

10. Keep those wheels rolling: To ensure that the wheels remain in place, use a small file or a rotary tool to grind a small flat spot on the axle beneath the wheel-collar setscrew. This flat spot will prevent the wheel collar from sliding off. Don't forget to apply thread-lock to the setscrew. ✈

Nail Those Landings continued from page 3

14. **Don't fly the pattern too fast:** If you fly at a reduced speed, you lessen the chance of missing the runway.
15. **Practice approaches:** Spend a couple of flights just doing touch-and-gos or complete landings and then take off again. This will help you to get the "feel" for the runway.
16. **Think about the rudder as centerline control:** Use the rudder to keep the nose ahead of the tail, independent of the ailerons.
17. **Adjust for the crosswind before the flare:** Use the rudder to keep the nose and tail on the centerline and use ailerons to kill the crosswind.
18. **Adjust the landing pattern for the size of the airplane:** Small airplanes need smaller patterns. Big and fast airplanes need more room.
19. **Don't let the nose land first:** If you have tri-gear, hold the flare so you land on the mains first.
20. **Don't try to save a bad bounce:** Go around and try again.
21. **Break the glide then set up the flare:** On approach, don't fly into the runway and flare, it will bounce.
22. **After a crosswind landing, don't relax the ailerons:** Keep the ailerons into the wind until you stop. And use the rudder to stay on the centerline of the runway.

You might be thinking that these hints are not needed when you go out to fly that Pizazz or FunTiger or Ultrastik and that's okay. These airplanes are designed to do tight maneuvers and fly radically and fly slow with small amounts of wind, that's why we like them. But they too can be landed on the runway every time using these hints. It surely helps when you fly the scale or heavy wing loaded airplanes. You might even be able to step up to the next level of airplane with these hints.

See you guys at the field. ✈

From the Eglin Aero Modellers, Fort Walton Beach, Florida

Does Radio Control Flying Qualify as Exercise?

Is the flying of Radio Control aircraft considered adequate exercise? Arguments for and against are described below.

1. Almost every flier gets up at 6 a.m. to fly in the mild breezes of dawn. Problem: A person has to get up more than once before they are considered to be doing sit-ups.

2. RC fliers tend to have larger thumbs. Problem: There is no known association between cardiovascular fitness and large thumbs.

3. RC fliers often bend down or squat near their airplanes. Problem: It has been noticed that once they are down, they have a hard time getting up.

4. Some of the terminology sounds like exercise. For example, sport aerobatics, fuel, or gear. Problem: Terminology in and of itself is insufficient evidence of an adequate aerobic exercise program.

5. RC fliers often are seen walking in the woods. Problem: Generally, they only walk in the woods once a quarter, and that is not for exercise but to recover a downed aircraft.

6. Weight lifting involves a buddy to spot the lifter. Problem: Even though club members use a "buddy box" and often "spot" real airplanes, the concepts involved are quite different than those used in body building.

7. In an exercise program, an individual is known to sweat after about 20 minutes. RC fliers also are known to sweat after about 20 minutes. This is the only assertion where similarities exist between exercise programs and RC flying.

8. People who exercise usually have better eyesight. Fliers often have to see at great distances but generally cannot tell whether the object they are looking at is right side up.

9. Persons involved in exercise programs often are fixated on building the perfect shape. Similarly, RC builders are fixated on achieving the perfect shape, but in this case, we are talking about the aircraft, not the person. The individual may actually be way out of shape.

10. Those involved in exercise programs are concerned about weight gain. RC builders are equally concerned about weight gain, but again the focus is on the aircraft.

11. People who are successful in exercise programs generally work out at the same time of day, five times a week. RC fliers can be found at the field on the same days and times.

12. Conversations among those who exercise regularly often are laced with letter and number combinations, (B-6, B-12, the B complex). Similarly, RC flier conversations contain letter and number combinations (B-52, P-26). ✈

Tips & Tricks

Captured on Tape

Before cutting steel control cable, wrap it tightly with masking tape to prevent the strands from unraveling as you cut. It makes it easier to solder into a threaded push rod end too. Remember to wear safety goggles.

Paper Circles

Use a paper punch to cut out little circles of gummed paper. Stick these pieces to the backside of firewall blind nuts. Once you do this, you can fuel proof the tank compartment with resin without fouling the threads of the blind nuts.

Pellon

Fabric stores sell a product known as "pellon." This can be used for general reinforcement and is especially good for wing center sections. Be careful when you do apply it as it does have grain and should be applied in the direction that affords maximum strength.

Firewall Gasket

Where you have a screwed-on, removable firewall/motor mount, oil seepage can occur. RV suppliers have flexible "putty tape" that can be hand-formed into a squishable, removable gasket. Silly Putty might also work.

Custom Trim Sealer

Cut the ends of large aluminum rain gutter nails. Then bend, file, and polish the resulting "rods" to make custom trim-sealer tools that can be inserted into your Top Flite trim-sealing iron.

Push Rods

Did you ever go through all the trouble to make up your control surface push rods only to find at installation that they were a quarter inch too short? Try this easy way to get the lengths just right. Tie a string to the control horn on the control surface. Drop the free end of the string through the fuselage. With the control surface in neutral position, tie the other end of the string to the servo arm. Cut off the excess string at both tie points. Now, cut the string at the ties and what you end up with is a piece of string that is the exact length of the push rod you will need to fabricate.

Instrument Panels

An easy and cheap way to obtain an instrument panel for that sport model is to look through a full-scale airplane magazine for an advertisement showing instruments. I found one I liked and used my scanner to scan the image into the computer, and then pasted it into my word processor, scaling it to different sizes. This could also be done using a copy machine that will reduce. If using the computer any size can be easily scaled. I printed out several different sizes to have on hand. The ones I made were all in black and white, but if you have access to a color scanner and color printer, some really nice instrument panels could be created this way. You could also add color to black-and-white copy instruments using markers or colored pencils so they look more realistic.

Easy Mount Cowl

To prevent cowl screws from crushing balsa, drill a large hole through each side of the cowl. Drill holes through two dowels to make wooden brushings (if you are able, use a lathe). Finally, glue in the now suitable diameter hardwood brushings. The screws can be driven into the engine bearers.

—Taken from the Talon Tales newsletter, Schoolcraft, Michigan (collected from various sources)

Keeping Up with Club Web Sites

"Doesn't AMA review or require clubs to inform them when their Web sites are being shut down? A lot of clubs I try to look at have no current domain."
Roger Littleton
www.rld140@adelphia.net

As a new AMA member looking to join a local club, it can be quite difficult to determine which would suit you and your particular interests best. Not only difficult, but can become frustrating when, while researching, half the club's information is unavailable or inaccurate.

AMA has created a page on its Web site that enables members to see local clubs in their area. AMA provides page visitors with names of clubs, contacts, locations, and Web sites. The only way that AMA can maintain current records of club information is with each club's help and participation.

If you are an AMA Charter Club officer, visit www.modelaircraft.org /clubsearch.aspx to see if your club's information is current. Please send any discrepancies to AMA Club Secretary Lois Mock at loism@modelaircraft.org.

Most important: If you know that your club is shutting down its Web site or changing its URL, then also report these changes as soon as possible. ✈

AMA Vision

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

This vision is accomplished through:

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

AMA Mission

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

ABOUT THE *AMA INSIDER:*

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

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