

Issue
04
Sept
2013

BIMONTHLY NEWSLETTER FOR CLUB
OFFICERS AND LEADER MEMBERS

AMA INSIDER



In this Issue

President to President
On the Safe Side
Leader to Leader
Club Corner
Editor's Picks
Tips & Tricks

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.

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

EVENTS WRAP UP AND RENEWAL SEASON BEGINS

Bob Brown, AMA President, bobb@modelaircraft.org

Congratulations to our FAI teams!

The majority of this year's FAI World Championship competitors were very successful in earning a spot on the podium. Very few realize the time and effort put forth by these people.

The International Radio Controlled Helicopter Association's (IRCHA) annual Jamboree was a huge success. More than 1,100 pilots attended the event to participate in great flying demonstrations and visit the numerous vendors. During the event we were fortunate to host several families of veterans that were brought to the event by the Snowball Express. This group provides joy and friendship to families of fallen military service members.

Renewal time is just around the corner. Often, we hear that members did not receive their magazines during the winter month—usually

the reason is they forgot to renew on time.

Also included in your renewal package will be the ballot for the 2013 AMA election. Offices include president and vice president for Districts I, V, and IX. Please vote for the candidates of your choice.

How can a club can generate a positive event. One suggestion would be to start early for next year.

Jamie Corn, AMA sanctions coordinator, offers some suggestions to help make your event a success.

A minimum of 30 days is required to process sanction applications. Also, contest/event sanction applications and payment (payable to AMA) are to be mailed to the contest coordinator for the district in which the event will take place. A current list of all coordinators may be found (bimonthly) in *Model Aviation* and on the AMA website. →

AMA INSIDER TO RETIRE IN 2014

Ashley Rauen, AMA *Insider* editor

After more than 25 years, *AMA Insider* will come to an end. With all of the new resources available through AMA's continually growing website and other e-newsletters, members have plenty of places to get information on clubs and flying. *Insider's* final issue will be November 2013.

I would like to take the time to thank all of the authors and contributors who have helped shape this publication throughout the years. A special-thank you to Ed McCullough, technical editor for many years, and columnists Rusty Kennedy, Jim Wallen, Jim Rice, Jim Tiller, and AMA president, Bob Brown. →

FRANKENSTUDENT

Jim Tiller, jtiller@hotmail.com

Last month's article discussed the Frankenstructor and listed a few ways not to be remembered as one. For every instructor, there has to be a student. This month, the topic is how not to be remembered as a Frankenstein student.

We should all be lifelong learners, so being a student not only applies to the newbie who has never flown an RC airplane but also the seasoned veteran who wants to learn how to do a blender or how to sheet a foam-covered wing.

It is no coincidence that the same topic headings appear here that started this discussion from an instructor's point of view.

- **Be Prepared.** Yes, this is the Boy Scout motto and it *does* apply here. It is your responsibility to do your homework.

Read your club's instruction manual or other written information that is given to you. It is a waste of flying time for you and your instructor to rehash what should already be second nature to you.

- **Learn the Lingo.** A stall is not to keep a horse in and a flare is not something to light the sky. Eventually, you will know the correct meanings of these terms.

Try to shortcut what you can by reading and listening. There are plenty of references. They might be in your flying manual and other local resources. If not, there is a ton of material for beginners on the AMA website. Start here: *The Newcomer's Guide* www.modelaircraft.org/files/education/docs/newcomerguide.pdf. For more, browse or search the AMA website.

When at the field, ask plenty of questions. Your fellow fliers are a wealth of information. The hardest part, in many cases, is to get them to shut up after they get started.

- **Safety.** As I wrote in the last column, safe flying habits are learned behaviors. We will abide errors because of ignorance or shaky flying skills, but not for long. Becoming a safe pilot must be your number-one priority.

Learn your field safety rules the first day and abide by them. Be determined to be a safe and courteous flier. There is no place at any field for irresponsible or reckless

flying—especially when there are agencies watching and trying to regulate what we do.

If you are a danger to yourself and those around you, we cannot afford to have you around.

- **What we have here is a failure to communicate.** Communication requires not only sending, but receiving. This applies to the student as much as the teacher. If you do not understand the instructions, say so. Don't nod your head, hoping that the meaning will somehow come to you as you go. This not only impedes your learning, it can be a safety issue. Make sure you *do* know what you are supposed to do.

- **Give your full attention.** You may have heard about the man driving down the interstate eating a sandwich and sending a text message. Multitasking may have a time and place, but this is not it. As a student you have to be ready to learn. If the water pipe broke just before you left the house for your RC lesson and all you had time to do is turn off the water, you may just as well have stayed home and fixed the pipe. Your instructor requires your full attention.

This also applies to your electronic devices. Turn them off. Inattention also is a sign of disrespect. Not only will calls and texts distract your attention, they give a visual signal that your priorities are elsewhere. Once again, your instructor requires your full attention

- **Objectives.** From the last column, you know that one sign of good instruction is defined objectives. If your instructor does not outline what you should do on this flight, ask. If he or she gives you a to-do list, repeat it back. It will not only help you remember, it will make sure you are both on the same page.

- **Visualize.** See it before you do it. If you can't make a mental picture, ask your instructor to fly the procedure once before you attempt it.

- **Accept Criticism.** Criticism is meant to help you, not hurt you. Don't take it personally. Take the grit out of it, and put it to use. None of us are perfect, although we like to think so.

- **Patience.** All of those hours on the simulator have paid off, believe me. Flying in the true light of day is something else. You have to develop the habits and muscle

memories to guide your movements. All of us are different in that respect.

Even with the best instruction, most students retain less than 15% of what they are taught. The only way to absorb the total lesson is to practice it until you have it. There are few shortcuts.

- **Learning Curve.** It is okay to be determined, but smart fliers know when to call it a day. If the last 10 landings have gotten progressively worse, you probably won't see much improvement if you force yourself to do 10 more. Take a break and come back to it later.

- **Replay the Day.** As you are driving home, review what you did. Reify some of the new things in your head. Memories stick better the more they are replayed.

- **Common Sense.** Make sure you are on time for each lesson. Treat your instructor with respect. If something breaks, help fix it. These are things that should become second nature to you as a student.

Above all, remember that this is supposed to be fun. A few months from now those awkward landings may come back to haunt you during the hangar flying, but that's what it's all about. God gave us all just a short time to enjoy this life and those flying experiences—the good and the not so good—will become cherished memories.

Frankenstructor—Follow-Up

I received this message from David Hogue about an error in my last article:

I'm teaching my son to fly, when I can pull him away from the phone and video games, and your column made me think. I did notice what I think is a typo here.

Safe flying habits are learned behaviors. Safety should not be the glue that holds your plan together.

Shouldn't that "not" not be there?

You are exactly right. It certainly did change the meaning of that sentence didn't it? Ashley Rauen, my AMA editor, does a great job pointing out my obvious mistakes, but I can't expect her to read my mind. Thanks for the note and keep on proofreading. I am sure I will make other similar mistakes. →

WORK TOWARD COMMON GOALS

Rusty Kennedy, Chairman Leader Member Program, amalprogram@gmail.com

I attended the July 2013 AMA Executive Council meeting and for the first time I was not on the agenda to speak. This was my choice because I didn't have anything to share. I *did* spend a lot of time with the new district vice presidents (VP) and spoke with them about the Leader Member program and they are anxious to have their associate vice presidents (AVPs) and Leader Members (LMs) work together toward common AMA and club goals.

Seven clubs in my local area have formed an AMA chartered chapter (www.modelaircraft.org/files/910.pdf). Gary Fitch, AMA executive vice president, wrote, "The idea behind a chapter is to bring club representatives, Leader Members, and their AMA associate vice presidents together in a face-to-face meeting, at least once each year.

"Other meetings can be Webinars, phone conference calls, Skype meetings, or whatever works. This allows the clubs to interact with each other, discuss their event and fun-fly dates with each other, and talk about problems and potential solutions,

etc. It also allows AMA to provide detailed information concerning governmental issues like the FAA and discuss AMA programs that can help a club."

I won't go into detail here but if you want more information, email me and I'll explain what we've done locally.

The 2013 AMA elections are approaching and I encourage all Leader Members to vote. Please inform your club membership about the importance of voting.

AMA has done wonders in developing youth and education programs. With that being said, this coming membership year (AMA's membership numbers run from September 16 to September 15 the following year) I would like to see Leader Members and their clubs work on bringing former AMA members and contacting potential new Open members into and/or back to AMA.

As a club president, I have asked a couple of members to go through past club rosters and determine who has not rejoined the club. We will then contact them and

ask what we can do to encourage them to return to model aviation and AMA. Some may no longer fly because of age or physical limitation such as eyesight. Consider making them associate club members and rejoining AMA. They could be great mentors to other club members and teach them what they have learned through their years in model aviation.

Another place to find potential members is fast-food restaurants. I'm sure many of you have seen the Saturday morning "coffee klatch" at the local Hardees and McDonalds. Sit with them and ask if they might enjoy some Saturday morning model flying. Leave them with a few copies of *Model Aviation* and some club information.

By the end of the year, the new duties and responsibilities for district VPs, AVPs, and LMs will be completed and implemented. Leader Members will have an active role at the local club level. Take a few minutes and send your VP and AVP a note telling them you are willing and available to assist them. →

Club Corner

BEST FLYING SITE IN THE CONTINENTAL US

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

The votes are in and the ballots have been cast.

Many votes were cast for Joe Nall (Triple Tree Aerodrome), located in Woodruff, South Carolina, with its vast, well-manicured grass runways.

The more than 1,100 acres at our flying site in Muncie, Indiana, also gathered numerous votes.

Oshkosh, Wisconsin, had the benefit of full-scale aircraft to bolster its votes.

Several other sites were in the running, but one was singled out as the most popular among RC fliers. That is the site in your

own backyard. It may have some bumps and bruises, trees and other obstacles that interfere, but it is your home site! It is the element that acts as the glue that keeps your club together. Where else can you pour a cup of "Joe" and enjoy it with all of your friends? Where also can you organize a potluck dinner for club wives?

Your own chunk of dirt has tremendous value. Make sure you protect it. Always maintain a good relationship with the site owner or any government agency that regulates it. Your club has a diamond in its possession. Treat it accordingly. →

Do you know what products the
AMA has to offer you and your club?

Discover what's available at www.modelaircraft.org/shopama/shopama.aspx

www.modelaircraft.org/shopama/shopama.aspx | 1-800-I Fly AMA (435-9262), ext. 212



HOW TO SELECT YOUR FIRST RADIO

Ed Anderson, aeajr@optonline.net

If you go through the beginner section on any of the major forums you will frequently see this question, or some version of it. And you will see it in the advanced flying sections, too. That's because a radio is the most important tool you will use to fly your model aircraft. Without the radio-control system, there is no RC flying. So, how to choose?

If you are new to the hobby, have never flown, and if you plan to learn without a buddy box, I recommend an RTF package that includes the airplane, radio, and all of the electronics already installed in the airplane. It typically includes the battery and charger, too.

This eliminates so many decisions, considerations, and points of confusion. It allows the pilot focus on learning to fly.

Which RTF? That is a question for another discussion but there are plenty of good ones out there. They all come with a radio that should be adequate to the task of flying that aircraft. And the value of the radio, in that package, is typically so small that even if you never use it for anything else, that's okay.

When you have mastered your basic flying skills, it's time to consider what you want and need in a radio. You may have begun to learn about the aspects of RC flying from other pilots. You should be better prepared to understand the information below and to address the questions we will ask as we try to guide you.

Standard vs. Computer Radios

A standard radio is one without model memories and few, if any, mixing capabilities. The Spektrum DX5e or the Hitec Laser 4 would be examples of standard radios. These are fine when you get them in RTFs or if you plan to have a dedicated radio for each airplane. Otherwise, purchase a radio that has model memories. (This is typically called a computer radio).

Brands vs. Off Brands

There are plenty of good radios out there. The major brands in North America are Futaba, JR, Spektrum, Hitec and Airtronics. I am going to add Tactic here because it is sold and supported by Hobbico, a major distributor/retailer that also distributes

Futaba. I don't think Tactic's market share is all that big, but I think it will grow. All others have relatively small market presence, but that doesn't mean they are bad.

The major brands are all safe bets and have great service. You will find those who love one over the other, and those who hate one vs the other. But in the end, they all have good products. If you use different brands you may get a great radio too, but the level of service and support may not be up to the standards of the aforementioned brands.

If you choose an off brand, consider where you will get help if you need it. This could be easy if your friend has one or if you a member of a forum with plenty of users of this radio.

Budget

How much are you willing to spend? As you shop for radios notice that they often come packaged with other stuff. That might include receivers, servos, cables, switches, etc. When you evaluate the price of one radio as opposed to another, you must take into account what is included in the package. A \$150 radio is not cheaper than a \$180 radio package that comes with a \$50 receiver.

The more you can spend the more capable radio you can buy and the less important the rest of the questions become. After you get over \$400 for one of the brand-name radios, they all can do what you likely will need to fly nearly anything, as long as they have enough channels.

You will get various opinions from advanced pilots as to what is better for what, but they are talking shades of gray here. If you can spend \$400 or more on a major-brand radio, then buy whatever you like, whatever your friend has, or what you see the champion pilots flying in the radio ads.

If you don't have \$400 for a radio, then you have to be more selective. But you can still get a capable radio for less than \$250. You have to be more specific as we start finding limitations. Of course, these limitations may not matter to you.

When discussing budget, state a number. Asking for an inexpensive radio means nothing. When considering my needs, I consider \$250, for the radio alone, an inexpensive radio. How about you? No

matter what it is, start with a number. Does your budget include a receiver? Servos? State a number and then define it.

Naturally, there are plenty of used radios. Buying a used radio is similar to buying a used car; it may be great or it may be a lemon. When you buy used you take a risk. As long as you accept that, you can consider used. My two main radios were purchased used.

Last, forget about the "best" radio or the one that will last you for the rest of your flying career. There is no best and we all tend to want to trade up after a while. But even a basic six-channel computer radio can serve you for decades of flying fun if your needs are basic.

I have friends who have been flying for decades, who are instructors, and who are flying with radios that they love but that would not meet my needs.

Trainer Port

Trainer ports have two main uses: working with a simulator and attaching to a buddy box. Will you be working with an instructor using a buddy box? If so, what radios will work with your instructor's radio?

If you are buying a simulator and want it to work with your radio, make sure the trainer port on your radio will work with that simulator. Buying a cool radio then not being able to get flying instructions or use it with a simulator is disappointing.

Types of Aircraft

Computer radios typically have software for airplanes and helicopters. This programming can range from basic to advanced, and the more advanced the software the higher the price. Many do not include specific software for sailplanes/gliders. That does not mean that you can't use them to fly gliders—gliders are simply specialized forms of airplanes. What it means is that the radio's software will not include the special mixes that many glider pilots want. If you plan to fly gliders, you may want to look for a radio that includes glider mixes. If gliders/sailplanes are in your plans then read this article: www.flyesl.org/

HOW TO SELECT YOUR FIRST RADIO continued from page 4

forums/topic.asp?TOPIC_ID=223.

There are also quadcopters, aerial photography, and FPV as other forms of flying. They may require special software or extra channels. Before you buy a radio, talk with people who do this type of flying. It would be disappointing to buy a radio only to find it can't fly the aircraft you purchased.

How Does it Feel in Your Hand?

For many pilots, this is the deciding factor between multiple radio choices. Let's face it—we each have different hands and how the radio feels matters. One of my good flying buddies purchased the same radio I have. I love it. However, he hates how it feels in his hands so he purchased something else.

If possible, try to pick up several radios and see how they feel. Can you easily put the sticks in the far corners? Are the switches convenient? If it has side or rear sliders, are they convenient to work and reach? Don't overlook the feel. For many this is *the* key factor.

How Many Channels?

While there are some interesting four- and five-channel computer radios, I recommend that you get a computer radios with six or more channels. I don't see any real benefit for having less than six channels, The cost difference is small and the benefits of six or more channels is high. Even if you are flying a rudder-elevator glider or three-channel electric airplane today, next year you may be adding ailerons, flaps, and landing gear. So get a radio that can at least handle that. (A six-channel radio would work fine.)

Why would you ever need more? Here is a typical channel breakdown, regardless of whether you are flying electric, glow, or gas powered, or gliders, Giant Scale, or highly detailed Scale models. Jets, advanced helicopters, and FPV aircraft may have other needs, but it still comes down to channels.

- Rudder: 1 or 2
- Elevator: 1 or 2
- Ailerons: 1 to 4
- Spoilers: 1 or 2
- Flaps: 1 to 2
- Tow hook: 1
- Landing gear: 1
- Motor: 1 to 2
- Smoke, lights, other: 1 to ?

That makes 4, 5, 6, up to 18 channels depending on what kind of aircraft you have and how you set it up. So, how many do you need?

Most sport fliers will be well served for a long time with a six-channel entry to mid-level sport computer radio but more channels could come in handy in the future. If you plan to become a more serious competition pilot, plan to fly Giant Scale, full-house sailplanes, jets or are interested in having cameras, lights, smoke, or other things on your airplane, that you can control from the radio, plan for more than six channels.

Basic Features

Most new computer radios offer the following features. Regardless of what you are flying, I highly recommend your radio have these features.

- Model memories (at least 10)
- Low-battery warning
- Trims on the channels controlled by the stick(s)
- Timer—highly recommended but not required
- End-point adjustment/adjustable travel volume
- Subtrim (find centering on the servos during setup)
- Dual rates and/or exponential on ailerons and elevator
- If you are flying 3-D you want it on the rudder, too
- Elevon/delta wing and V-tail mixes

If it doesn't at least have these, don't buy it!

Model Memories

How many aircraft do you plan to own and fly? Twenty years ago, when everyone was building kits, when electronics were costly, you might have two airplanes flying and maybe three in the hangar without servos, a receiver, or a motor. There were always the pilots with 30 airplanes, but if you had three flyable models then three model memories were plenty.

Today, I would consider 10 the minimum. Airplanes and electronics are cheap, and Bind-N-Fly (BNF) types are so easy to pick up and fly.

Some radios now let you save models to a memory card or to download them to your computer. If you can save aircraft profiles

outside the radio, 10 model memories are probably plenty to hold what you are actively flying, but more is always better.

Type of Flying and Surface Mixes

Surface mixes also are one of the great features that computer radios bring to the game. Input to one control can move two or more servos in a coordinated fashion to create the type of surface control you need. I use some mixes that move five servos at once. This can reduce the pilot's workload while providing consistent behavior. In some cases, these mixes can be overridden during the flight or can be turned on and off.

In the following list where two surfaces are listed, the first is the master and the second (sometimes called the slave channel) follows. The following list is what I would consider the minimum set I would want in even an entry level radio. They may be named mixes or they may be able to be created by "user mixes."

- Flaperon—requires two aileron servos on separate channels
- Aileron-to-rudder mix (coordinated turns)
- Flap-to-elevator mixing for landing and glide-path control
- At least one user-defined mix after the above

You should find these on even the simplest computer radio. If it doesn't have these, don't buy it.

This is all many pilots will ever need. But if you plan to get into full-house sailplanes, competition Pattern flying, or other advanced forms of flying, you may need other mixes. Talk with friends and people on the forums and ask them what mixes they use.

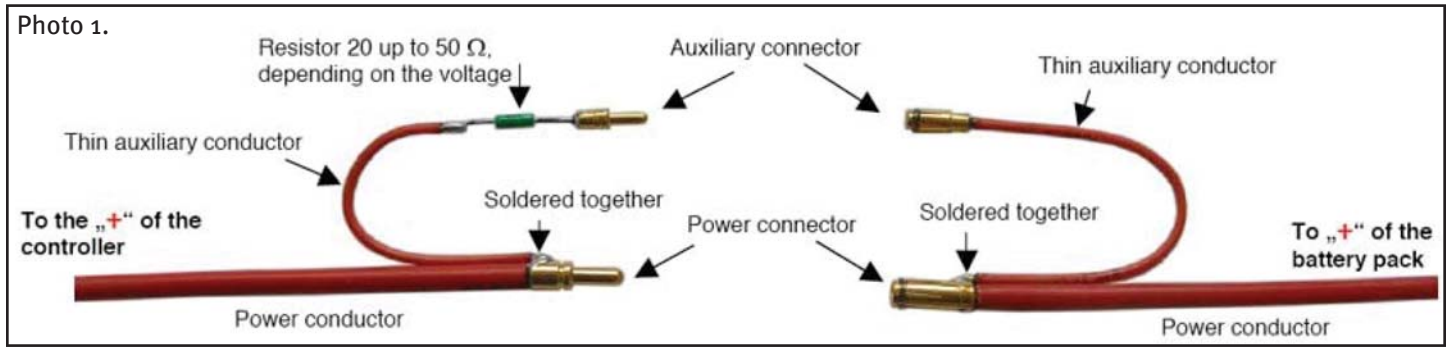
Some are only available in more expensive radios so don't put them on your required list unless you have the budget and really need it. Remember, people flew RC aircraft for decades with four-channel radios without any surface mixing, and so can you.

Receiver Selection

Without the receiver, the radio is useless, so receiver selection is important. If you are flying larger airplanes you may have plenty of room for the receiver. But if you are flying

HOW TO PREVENT SPARKING

Scott Paschen



When connecting a LiPo pack to the controller, strong sparking commonly occurs. Fast charging of the controller filter capacitors causes this.

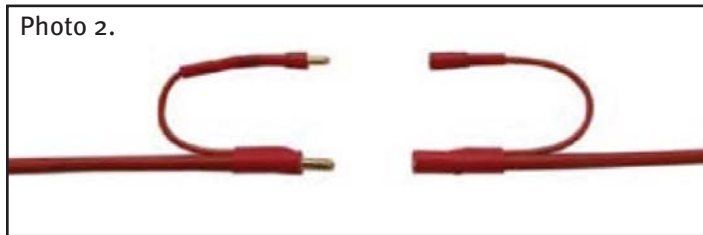
The higher the voltage equals the higher the cell count, and the lower the internal resistance means the better the quality of the pack. The better the capacitors in the controller and the higher the capacity of the capacitors, the bigger the spark.

In addition to the small shock (because of the sparking), the charging current of the capacitors may be, in extreme cases, so great that damage or destruction of the capacitors occurs.

A simple procedure can eliminate sparking when connecting the battery pack, thus protecting the filter capacitors.

How to connect the positive leg or wire is shown in Photo 1.

Connectors, as well as the resistor, are insulated by heat-shrink tubing and shown in Photo 2.



How to connect the battery:

1. Connect the “-” leg of the battery to the “-” on the controller.
2. In the positive circuit, first connect the “+” leg of the controller to the auxiliary connector (to which a resistor with tens of ohms is connected in serial). This will limit the charging current when connecting the wires and will charge the filter capacitors without sparking.

3. Now connect the power wires (sparking will not occur). You may start the motor now.

There are no special requirements on the auxiliary connector. The current is small (1 to 2 amps) and lasts for a short time.

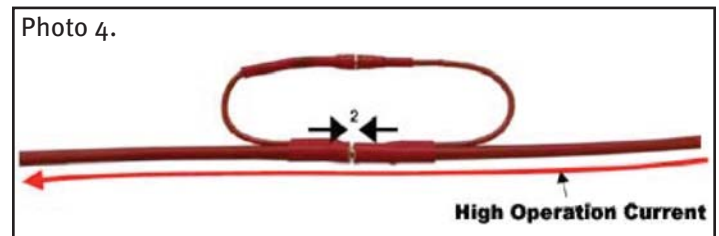
There are also no requirements on the resistor. Any type is sufficient such as metallized 0.6W, size 0207, value between 20 to 50Ω depending on the voltage of the battery pack. Also, those for 4-6 LiPos use 20Ω, for 10 LiPos 33Ω, those for 12-15 LiPos that use 51Ω will work. However, it is not necessary to use these exact values because of wide variation.

Connect the positive leg

Connect the new auxiliary connector first. Capacitors are charged with small current. Sparking will *not* occur. (Photo 3.)



Now connect the power connectors (sparking will not occur). The main current to the controller and the motor during operation passes through these power connectors and conductors. (Photo 4.) →



AMA PROGRAMS | CLUB RESOURCES | DIY ACTIVITIES | HOW-TO VIDEOS



AMA FLIGHT SCHOOL

AMAFlightSchool.org is the AMA's educational resource designed to answer the question...

HOW DO I?



AMA FLIGHT SCHOOL

WWW.AMAFLIGHTSCHOOL.ORG

HOW TO SELECT YOUR FIRST RADIO continued from page 5

small aircraft, the size and weight of the receiver can be critical.

Putting a 1-ounce receiver in a 6-ounce model doesn't make sense and it likely won't fit. If you are into indoor flying or micro aircraft, you want them small and lightweight. Some brands offer "bricks" that are ultralight packages that combine the receiver with the ESC and sometimes servos. If this is your interest, make sure these are available in your radio brand.

If you have a six-channel radio, you can use a receiver that has more than six channels. Sometimes we use those extra slots for things that the radio does not control, such as airplane locaters. Having receivers available with more slots than your radio can control might be useful.

Most 2.4 GHz radios have specific protocols that are used for the radio to communicate with the receiver. In many cases, you must buy the same brand of receiver as radio. There are also sometimes different protocols within the brand. For example, Futaba has FASST and FHSS radios in its line. The receivers are specific to the protocol. So a Futaba FHSS radio can't fly a Futaba FASST receiver although they are both Futaba 2.4 GHz systems.

In the 72 MHz days, it was common to find compatible receivers. You could buy a Hitec or Berg receiver to use with your Futaba, JR, or Airtronics radio. That went away with the dawn of 2.4 GHz, but compatible receivers are now available.

Today, there are compatible receivers for Spektrum/JR DSM2, Futaba FASST, and Hitec AFHSS 2.4 GHz radios. If the cost of receivers is important to you, and you would consider compatibles, then this may help influence your choice of radios.

BNF, TX-R, Others

In the old days, (10 years ago), you purchased an airplane and put in a receiver that worked with your radio. Today, you can buy aircraft that are ready to fly, including the servos and receiver. That is great, but you must have a matching radio to fly them. Horizon Hobby has a huge line of BNFs. If you have a Spektrum, JR DSM2, or DSMX radio you can buy these airplanes, bind them to your radio, and fly.

Hobbico also has a line of transmitter-ready (Tx-R) aircraft. The company's Tactic radios work with these Tx-R airplanes. However, they also have an external module—the AnyLink—which will work with many radios. When you have an AnyLink module, you can fly any of the company's Tx-R aircraft with a variety of radio brands.

If BNF or Tx-R matters to you, then you want a radio that will work with these aircraft. Not everyone cares, but if you do, take this into consideration.

Other Features

There are several types of special features on radios. Telemetry, touch screens, the ability to update the software through the Internet, and so on. How important are these? You decide. Talk with those who love them and those who laugh at them, then make your decision.

The Best and the Last

People ask which radio is the best. *There is no best.* The best is the one that you can't afford or that will be released six months after you buy one. Don't worry about the best. Decide with what will work for you, your budget, and your flying

style.

Some people want to buy the radio that will last them a lifetime. Even an entry-level computer radio can fulfill that, if your requirements never exceed the capability of the radio. But the fact is that we all get the bug to upgrade. Look at something you feel will last you three to five years. Who knows what you will want in a radio five years from now.

Ten years ago we did not have 2.4 GHz radios or those that could be upgraded through the Internet. Forget the forever radio. In the world of computers and electronics, five years is forever.

I have covered the basics and it is time for you to ask questions. Read the advertisements, look at the boxes, talk with friends, and ask your questions. We are all here to help.

Resources:

Most of the major radio makers have a customer support forum on RC Universe. It's a good place to see what types of questions/issues are being discussed. www.rcuniverse.com/forum/forumid_52/tt.htm

Radio Discussions:

RC Universe
www.rcuniverse.com/forum/forumid_224/tt.htm
RC Groups
www.rcgroups.com/radios-135/

It can be hard to separate fact from opinion or outright fiction, but at least you can see what is being discussed. It's a great place to ask questions. ➔

TIPS & TRICKS

Reasons why engines lean out and quit

1. The high-speed needle valve is too lean.
2. The muffler pressure line came off.
3. The fuel filter has opened up (the halves are loose).
4. There's a split in the fuel line, usually at the fuel tank.
5. The fuel tank is foaming, causing air bubbles in the fuel line.

—from the Rouge Eagles R/C Club, Medford OR

Fuel Proof that Firewall

The firewall or engine compartment of models powered by nitro and gas engines can incur damage if left unprotected. Paint, epoxy, and CA can provide protection. 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.

—from the Beresford Area Radio Flyers, SD



**JAN.
10-12
2014**

ONTARIO CONVENTION CENTER,
ONTARIO, CALIFORNIA



**ONE-DAY
PASS** \$10 member
\$12 non-member
GROUP PASSES 10 OR MORE \$8 EACH

**TWO-DAY
PASS** \$18 member
\$20 non-member

**THREE-DAY
PASS** \$24 member
\$28 non-member



Hundreds of exhibitors, aviation, and aerospace experts will greet thousands of attendees at the 16th annual AMA Expo in Ontario CA, January, 10-12, 2014, at the Ontario Convention Center.

The three-day AMA Expo provides a "whole family" experience for both experienced modelers and newcomers to the hobby, as well as enjoyment for all in love with flight. The Expo offers the latest products in radio-controlled model aviation, demonstrations, interactive displays, and exploration of intricacies of flying model airplanes, helicopters, rockets, gliders, and more.

WWW.AMAEXPO.COM

FOLLOW US ON TWITTER
@amaexpo

Thank you Castle Creations for sponsoring the AMA Expo lanyards again for 2014!

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 its chartered clubs.

The newsletter's contents are collected from Academy of Model Aeronautics club newsletters and various other sources within and outside of the organization. Implicit consent to reprint articles found in club newsletters is given whereupon the newsletter editor completed and returned the Club Newsletter Exchange form or initiated contact with the Academy of Model Aeronautics by sending a newsletter, either via mail or email, to the newsletter editor.

Articles or links to outside websites reprinted in the newsletter do not necessarily reflect the opinion of the Academy of Model Aeronautics nor are these articles or links intended to be endorsements of particular products.

Every effort is made to ensure that the information contained herein is accurate; however the Academy of Model Aeronautics is not responsible for errors or omissions. All articles are assumed to be original works authored by club members unless otherwise

noted in the AMA *INSIDER*. On such noted occasions, the Academy of Model Aeronautics has been granted permission to reprint the copyrighted material.

No responsibility is assumed, expressed, or implied by the Academy of Model Aeronautics as to suitability, safety, or approval of any material in this newsletter. Any person attempting an action described herein does so at his/her own risk without recourse against the Academy of Model Aeronautics.

Permission is granted to redistribute material found herein given that proper attribution accompanies the article. Proper attribution is defined as the original author's name and title (if given) and the name of the originating club or organization. In the event that an original author is unknown, the editor of the newsletter is a suitable substitution.

The Academy of Model Aeronautics reserves the right, in sole discretion, to edit or reject any material submitted for publication.

CONTACT US

We always welcome your comments and suggestions about the AMA *INSIDER* and any of it's content. If you have anything to share, please send it to:

Newsletter Editor:

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

Advisor:

Liz Helms, lhelms@modelaircraft.org

Director of Publications:

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

SUBMISSIONS

If you are a member of an AMA chartered club and would like to submit your newsletter or an article for consideration. Please send it to us via email or postal mail.

Email:

We will accept your newsletter in PDF format or as a Word document attached to an email. Please send the email to: insider@modelaircraft.org

Postal Mail:

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

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