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BIMONTHLY NEWSLETTER FOR CLUB OFFICERS AND LEADER MEMBERS

AMA INSIDER

In this Issue

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

Information Resources

Bob Brown, AMA President, bobb@modelaircraft.org

Approximately 25 years ago, the AMA *Insider* was created to assist newsletter editors by providing information that could be utilized within their publications. Throughout the years, *Insider* served its purpose well. However, the age of electronics has made it easier to acquire such information. To say this is the last issue is not entirely true. Those needing the information can find it at:

- AMA Today: www.modelaircraft.org/publications/AMA_Today.aspx
- Flightline: www.modelaircraft.org/publications/Youth_Newsletter.aspx
- AMA Flight School: www.amaflightschool.org/

A special thank-you goes to Ed McCullough, Liz Helms, Ashley Rauen, Jim Wallen, Jim Rice, Rusty Kennedy, and Jim Tiller. These people know how to produce a fine newsletter.

AMA offers several scholarships. Information pertaining to them can be found at: www.modelaircraft.org/education/scholarships.aspx. One such scholarship is the Cliff Telford Scholarship Fund. The National Miniature Pylon Racing Association has recently been funding this with donations acquired from its members. In the past two years, roughly $15,000 has been raised. A special thanks is extended to this SIG for its fine efforts.

The funds keep coming for the Wounded Warrior Project. So far, the generous membership has donated approximately $75,000 for this great cause. Most of the money was raised through National Model Aviation Day activities. Thank you! ✈

Renewal Time

It's time to renew your AMA membership. You should have received your membership renewal notice in the mail by now, along with the ballot for the next AMA election.

Also included was an explanation of all of the exciting, new options for your *Model Aviation* subscription. You now have the choice of receiving either your printed copy of *MA* or a digital edition, or both! For only an additional $9.95 per year you can receive the printed edition of *MA*, plus read it on the go on your tablet, smartphone, or notebook. All subscribers will also have exclusive access to the *Model Aviation* Digital Library—allowing you to view all past issues of the magazine for free. You also have the option to subscribe to the quarterly-published *Park Pilot* magazine for an additional $9.95 per year if you already subscribe to *MA*.

For more information about your subscription options, visit www.ModelAviation.com/digital. For more information about *Park Pilot*, call (800) I-FLY-AMA. Don't delay … send in your renewal and ballot right away! ✈

Flightline Communication

Jim Tiller, jtiller@hotmail.com

This summer I attended an out-of-town event here in the outback of the US. At this fun-fly event, there were pilots and models of all types—from small electrics, to large Scale airplanes, to even larger 3-D aircraft. The weather was great and lots of airplanes and pilots took to the air to enjoy the day and the camaraderie. The local club was well represented, but many of the pilots were from other towns and some did not know one another very well.

At the end of the day, I sat in on a conversation by a few of the modelers who were disgruntled about "hogging the airspace," near misses, and supposed malicious near misses. The biggest complainers were the smaller airplanes and the biggest targets were the large 3-D airplanes.

I don't have an answer to these types of problems and concerns, but I might have something in the way of a solution. At this event and some others I attended there was no requirement to fly with a spotter. I think there should have been.

In many competition events, spotters or callers are required. Obviously, they are there to aid the pilot in his or her own performance, but they are also there for safety. Their job is to monitor the flight path of other airplanes and inform their flier if they pose a threat. It is also the spotter's job to call the pilot's intentions to other fliers in the pilot station.

Surely, the pilot can also make these intentions known, but his or her full concentration should be on flying his or her airplane. It is the spotter's responsibility to make sure the other pilots understand his or her pilot's intentions and that his or her pilot is aware of the intentions of other pilots.

I think requiring a spotter should be part of all your event organizations whenever there will be multiple pilots on the line at the same time.

Obviously, it is a safer way to fly. The best way to see and avoid other aircraft is to have more eyes on the situation. Any in-flight emergencies should also be called in a loud voice so other pilots get out of the way. The spotter should loudly announce takeoffs and landings. It is also the spotter's job to retrieve the aircraft from the runway if necessary, but not before calling loudly announcing his or her presence there. Those are basic responsibilities of the pilot's second.

Back in the day, it was common for pilots to distance themselves from one another to avoid radio interference. With the new radios and improved technology, this is no longer a great concern. It is more important for the pilots to be able to communicate with one another. Your flightline should be arranged so that all pilots can easily hear what the others are saying.

There is a value in having your pilots and spotters talk to one another. They should make their intentions known to the other pilots. If a 3-D pilot wants to use the centerline to do some hovering, his spotter should announce it. If the Scale flier wants to make a low pass and a victory roll with his Mustang, his spotter should announce it. This not only allows the others to clear the space for those actions, it is simply common courtesy. It also asserts your rights to some of the airspace. If your small electric is in the air with a 50%-er, your words and intentions are the signal that you are going to use the airspace and that should be respected by the others on the flightline.

Your club safety officer or his or her designate should be the Air Traffic Controller. Even if the flying is intermittent he or she should have a presence. Have the person wear a colored shirt or vest and announce his or her authority at the pilot meeting.

The person should stand behind the flightline and monitor the fliers and those starting up, coming out to the runway, or leaving it for the pits. Once again, it is the spotter's eyes and ears that should be attuned to those directions.

This is the best way to avoid ruffled feathers when one pilot thinks another has wronged him. Many of those situations are simply a failure to communicate. This way you are doing your best to avoid them.

Yet another benefit is that the pilots get to know one another a little better.

I know what you are thinking. There are a few airspace bullies out there. In my experience, more often it is a perception or a lack of communication, but sadly, there are a few. If you have one at your event, your CD and safety officer should deal with it. Give a warning and if the actions are not corrected, ground that pilot. It is your event.

As I have said so many times in this column, the key to safe flying and having fun is the Golden Rule. By doing a few of these things you are simply facilitating it.

At my club field, this kind of pilot interaction is the norm, not just for events. That's how I know it works. It should be that way at your field too.

As the Sun Sets Slowly in the West

As most of you know this is the last issue of the AMA *Insider*. It has been a pleasure writing this column for the last few years. I have enjoyed it. I hope there is something in these columns that has been of benefit to you. Thanks for reading them.

I want to thank Ashley Rauen for being a gracious and patient editor.

Most of all, I want to thank all of you for your responses and kind words. They mean a lot to me.

As always, if you ever get out here to the outback of the US (the Black Hills of South Dakota), give me a holler. We don't get much company here. ✈

National Model Aviation Day was a Success

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

It has been nearly three years since the new Leader Member program was initiated and the results have been great. Leader Members are taking an active role in AMA programs and events. Good lines of communication have been established and the future looks bright.

This past year was a success. AMA has established duties and responsibilities for vice presidents and associate vice presidents, and at this October's EC meeting, proposed Leader Member duties and responsibilities were presented to the Executive Council for approval. 2014 will be a busy year.

The first AMA National Model Aviation Day was a success. One hundred seventy-six clubs participated, and as of the time of this writing, more than $75,000 has been raised for the Wounded Warrior Project. Many thanks go to everyone who participated.

Take a few minutes and send AMA a note acknowledging a job well done by its staff. They worked tirelessly and in a short time got everything out to the clubs that they needed for support. I have worked closely with AMA staff, and you will not find a more dedicated people.

For the second year in a row, AMA Open membership is up by 1,198 new members. I have no statics to back me up, but I'm sure Leader Member efforts played some role in this gain.

By now, you know this is the last issue of AMA *Insider*. I'm sure something new will be in the future. I thank Bob Brown, AMA president, for the opportunity to write; Dave Mathewson, AMA executive director for reviewing my articles; and finally to my editor, Ashley Rauen, Associate Designer/Editor, who made my ramblings look good.

I will continue to use the AMA Leader Member blog and email to keep information flowing, and as always, I'm available anytime at amalmprogram@gmail.com or (757) 812-2812 (EST). ✈

Know Your Site Owner's Policies

Tony Stillman, Flying Site Assistance Coordinator, fsac@modelaircraft.org

As I speak with AMA members across the United States, I learn a lot. Many have shared stories about their specific club situation that helps me learn things that can help other clubs. It is amazing how much we can learn and profit from each other if we are willing to listen!

While helping an AMA club, I learned how important it is to be a good steward of the land and support your landowner. The case that I am referring to occurred in 2011. Let me explain …

I had previously worked with a club that contacted me with a question about AMA's insurance coverage and how it protects the site owner. Specifically the question was about the Flying Site Owner's Insurance that is available to all AMA clubs for purchase. This insurance is a major reason that many of our clubs are able to obtain flying sites.

This policy provides primary insurance coverage for the site owner in the amount of $2.5 million. The site owner has coverage for any issue that might result from flight operations on his/her property. You can find more information on this in the AMA Club Charter kit, which is available as a PDF in the AMA Documents section of the website at www.modelaircraft.org.

Here is what happened. The club had installed some fencing on its flying site for safety reasons. Although this is a good thing, they did not get prior written approval from the owner to do so. In this case, the site owner was the city and the flying site was on a landfill that had been capped by direction of the EPA.

This cap is a plastic membrane that keeps rainwater from penetrating the soil beneath it. The membrane is protecting environmental pollutants from seeping out and possibly polluting the ground water. In order for it to work, the cap must be protected from any punctures. This cap is approximately 24 inches under the site's topsoil.

When the city found out about the fencing, it required the club to remove it immediately and inspected the site to determine if the cap was damaged. Luckily, it was not damaged. Now, the problem …

The city contacted the club and now wanted the club to provide pollution insurance so that the city would be protected if the club punctured the cap and caused a leak. The problem is that our AMA insurance does not cover this. After a discussion with our insurance company, it became obvious that no typical policy would cover pollution. The coverage could be purchased, but the cost would be in the $25,000 per year range—minimum.

So, what was a club of 30 members to do? By not taking the terms of their site usage seriously, they may have ended up losing a great flying field.

The bottom line here is to make sure you know your situation with your site owner. Don't make any changes to the flying field without getting written approval first! It may seem like common sense, but the club I am dealing with did not think they were doing anything that would cause a problem.

In reality, they didn't puncture the cap, but it brought their actions in question by the site owner. Not a good place to be.

I hope you can take this tough lesson and apply it to your own case. Be a good steward of your flying field and make sure you do everything in such a way to make the site owner feel secure with your club. ✈

Six Keys to Success for New Pilots

Ed Anderson, aeajr@optonline.net

Whether you have a coach or you are trying to learn to fly on your own, you will need to be mindful of these six areas if you are going to become a successful RC pilot. After many years of working with new fliers at our club, and coaching fliers on the forums, there are a few things I have seen as the key areas to stress for new pilots. Some get it right away and some have to work at it. They are in no particular order because they all have to be learned to be successful.

- Wind
- Orientation
- Speed
- Altitude
- Overcontrol
- Preflight Check

Wind: The single biggest cause of crashes that I have observed has been the insistence upon flying in too much wind. If you are under an instructor's control or on a buddy box, then follow their advice, but if you are starting out and trying to learn on your own, regardless of the model, I recommend dead calm to 3 mph for the Slow Stick and Tiger Moth type airplanes and less than 5 mph for all others. That includes gusts. An experienced pilot can handle more. It is the pilot, not the model that determines how much wind can be handled.

Let me share a story:

The wind was roughly 8 mph steady with gusts to 12. That was strong enough that some of the experienced pilots flying 3- and 4-channel, small electric airplanes chose not to launch. A new flier insisted that he wanted to try his 2- and 3-channel park flyers. Crash, crash, crash—three models in pieces. He would not listen. Sometimes you just have to let them crash. There is no other way to get them to understand.

Many park flyers can be flown in higher winds by an *experienced* pilot. I have flown my Aerobird in 18 mph wind (clocked speed), but it is quite exciting trying to land it.

Always keep the airplane upwind from you. There is no reason for a new flier to have the model downwind ever!

Orientation: Knowing the orientation of your airplane is a real challenge, even for experienced pilots. You have to work at it, and some adults have a real problem with left and right regardless of which way the model is going. Licensed pilots have a lot of trouble with this one as they are accustomed to being in the airplane.

Here are two suggestions about how to work on orientation when you are not flying:

Use a flight simulator on your PC. Pick a slow-flying model and fly it a lot. Forget the jets and fast airplanes. Pick a slow one. Focus on left and right coming at you. Keep the airplane in front of you. Don't let it fly over your head.

An alternative is to try an RC car that has proportional steering. You don't have to worry about lift, stall, and wind. Get something with left and right steering and speed control. Set up an easy course that goes toward and away from you with lots of turns. Do it very slowly at first until you can make the turns easily. Then build speed over time. You'll get it! If it has sticks instead of a steering wheel, even better but not required. Oh, and little cars are fun too.

Too Much Speed: Speed is the enemy of the new pilot, but if you fly too slowly the wings can't generate enough lift, so there is a compromise here. The key message is that you don't have to fly at full throttle all the time. Most small electrics fly very nicely at $^{2}/_{3}$ throttle and some do quite well at $^{1}/_{2}$. That is a much better training speed than full power. Launch at full power and climb to a good height, say 100 feet as a minimum, so you have time to recover from a mistake. At 100 feet, go to half throttle and see how the airplane handles. If it holds altitude on a straight line, this is a good speed. Now work on slow and easy turns, work on left and right, flying toward you and maintaining altitude. Add a little throttle if the airplane can't hold altitude.

Not enough altitude: New fliers are often afraid of altitude. They feel safer close to the ground. Nothing could be more wrong. Altitude is your friend. As previously stated, I consider 100 feet—about double tree height where I live—as a good flying height and I usually fly much higher than this. Fifty feet, is minimum flying height for new fliers. Below that you better be lining up for landing.

Overcontrol: Most of the time the airplane does not need input from you. Once you get to height, a properly trimmed airplane flying in calm air will maintain its height and direction with no help from you. In fact, anything you do will interfere with the airplane.

When teaching new pilots, I often do a demo flight of their airplane. I get the model to 100 feet, and then bring the throttle back to a nice cruising speed. I get it going straight, with plenty of space in front of it, then take my hand off the sticks and hold the radio out to the left with my arms spread wide to emphasize that I am doing nothing. I let the airplane go wherever it wants to go, as long as it is holding altitude, staying upwind, and has enough room. If you are flying a high-wing trainer and you can't do this, your airplane is out of trim.

Even in a mild breeze with some gusts, once you reach flying height, you should be able to take your hand off the stick. Yes, the airplane will move around and the breeze might push it into a turn, but it should continue to fly with no help from you.

Along this same line of thinking, don't hold your turns for more than a couple of seconds after the airplane starts to turn. Understand that the airplane turns by banking or tilting its wings. If you hold a turn too long, you will force the model to deepen this bank and it will eventually lose lift and go into a spiral dive and crash. Give your inputs slowly and gently and watch the airplane. Start your turn, then let off, then turn some more and let off. Start your turns long before you need to and you won't need to make sharp turns.

I just watch these guys hold the turn, hold the turn, hold the turn, crash. Of course they are flying in 10 mph wind, near the ground, coming toward themselves at full throttle.

Six Keys to Success For New Pilots

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Fuel: The Ins and Outs

Mike Philips, mike@rcrenegades.com, North Dallas R/C Club

What is the best fuel to run? I hear this question ring throughout the flightline repeatedly from new pilots and longtime fliers alike. Many wonder what the best fuel is for their airplane, costs, protection, and other things associated with fuel and glow/gas engines for our RC aircraft.

This article will cover a month-long adventure I was on to determine just what fuel I should be using, along with field tests, a lot of reading on the Internet, and conversations with experienced longtime fliers. I hope to be able to explain what might help anyone determine the best type of fuel for them to use.

Being fairly new to this hobby, and absolutely no expert in this field, I will explain this in the best possible way in an effort to have something to point to when somebody asks "What is the best fuel to use."

Disclaimer: This information is provided as is, with no warranty. Use this information at your own risk. Feedback is always welcome; please feel free to contact me if you like.

Fuel: model aviation fuel contains three elements:

- Alcohol
- Nitro
- Oil

Engine fuel for RC aircraft known as glow fuel contains three elements that are determined by the manufacturer and usually printed on the gallon jugs or cans purchased when you buy your fuel.

Out of these three elements, only two are combustible: the nitro and alcohol. In my testing during the past month, my main concern was the oils used in these fuels. Allow me to explain.

I generally run Saito four-cycle engines and these engines require slightly less oil than their two-stoke counterparts. Determining the oil content is what has taken me down this road because of a malfunction on my Saito 100 that is currently flying in my U-Can-Do 60. A deadstick over the runway, inverted at about three feet makes you start figuring on things you had not thought of in the past. The airplane survived, however the rush I got from getting the model flipped over and back on the ground had me thinking.

After further examination, I discovered that the engine had a stuck tappet in the tappet guide; this caused the exhaust pushrod to hang and rip teeth off of the cam gear— a really ugly site too.

Repairing the Saito 100 (or better said, an attempt to repair) found that any small debris in this motor will cause damage. Finding that this motor did the same thing on the second flight after the repair, I found that microscopic pieces of the cam were lodged in the tappet guide once again.

A full breakdown of this motor and repair once again, replacing the bearings (rusted and pitted) and a complete cleanup and soaking helped put it back in the air.

With this information in hand, I was able to determine that rust had played a part in the first engine malfunction and pieces of the cam gear on the second malfunction.

This all started with rust. Where does this rust come from? There is moisture in the engine. Where does this come from? The adventure was on its way …

Moisture in your engine can cause damage, sometimes catastrophic damage and so, this takes us to the third element listed: oil.

Glow engines run fuel like our everyday two-stroke motors with a combustible (alcohol, nitro) liquid and a lubricant (oil). Oil is an important piece of ensuring that your engine does not rust and also keeps the engine running smoothly and well lubricated to prevent heat.

Rust can build in your engine, whether it is stored for long periods or short periods of time and thus, we simply should have oil in the engine to prevent the rust.

When an engine runs, it takes in moisture from the fuel source and carburetor. Nitro acts as a magnet to moisture and will draw the moisture into your motor. Have you ever noticed when you spill any of this glow fuel it will quickly obtain a milky looking film over the top? This is the nitro pulling in the moisture from the air.

The oil used in the fuel plays a big part in protecting the engine from moisture and preventing rust long term and short term.

Many fuel companies list what they use in their fuels. Many use synthetic oil and this oil allows the motor to run more rpm's than castor-based oil will. Castor is a thicker, natural oil and will protect the motor (long term) better than a synthetic fuel. If the motor is running a lot where it does not have time to ever be dry from a synthetic fuel, then synthetic fuel may be okay to run with no issues.

Castor being a natural lubricant (hey, this stuff comes from beans) is thicker, and will leave residue all over the motor, which will protect it while in storage helping to prevent rust.

So, I decided that I would want a fuel that had castor to beat the rust, but also wanted a synthetic fuel that would loosen up the mixture so I could produce the RPM range I was looking for.

Let's look at some of the fuel tested here (percentages are based on volume):

- Cool Power 2-cycle fuel.
  15% nitro/20% oil (10% low viscosity, 10% high viscosity)
- Cool Power 4-cycle fuel
  15% nitro/18% oil (9% low viscosity, 9% high viscosity)
- Cool Power 4-cycle fuel (castor based)
  15% nitro/18% oil (9% castor, 9% synthetic)
- Ritch's Brew 2-cycle fuel
  15% nitro/22% oil (known as the 11-11)

The goal was to use like brands to determine the best RPM and change the oil content. And with the findings, the Cool Power 15% 4-cycle, 100% synthetic has proven to provide the

Setting Up Your Servos

Bob Ackerman, Mid-Missouri Radio Control Association

One of the problems for most beginners is that they rarely set up the servos properly. I have said for years that you need to learn how to set up your aircraft mechanically before you touch the computer on your radio. Therefore, I am going to review what I do to set up any servo on my aircraft.

If I am going to re-set up an existing aircraft, first I copy the current settings to an unused memory location. See your radio manual for exact instructions. After the current settings are copied, clear all the programming for an unused memory location. Set all radio trims to the center. At this point the servo end points should be at 100% and the servo subtrim should be zero.

With the control rod disconnected from the servo, move the control rod until the control surface is centered. Center the servo arm as close to center as possible. The servo arm should form a 90° angle between the arm and the control rod. Reposition the servo arm on the servo until you have it as close as possible, adjust the length of the control rod to match as necessary, and then adjust any subtrim to center the servo.

Temporarily connect the control rod and look at all the links for that control. On a helicopter you may have two or three connections, as the control rods runs through bell cranks, before the servo actually connects to the control surface. Check each of these 90° connections and adjust as necessary. Now disconnect the control rod from the servo.

Now, turn on your radio and center the joystick for that channel. The servo arm should be in the center position. Move the joystick to one end of its movement and hold the joystick there. Manually move the control to where the servo arm is now positioned.

Notice the end of the control rod carefully. Does it move past the servo arm reach? Does it not move far enough? Make note of that difference then move the joystick to the opposite end and do it again. The difference between the servo arm and the control rod should be equal on both ends. If not, you may have something else not set properly.

If the control rod goes past the servo arm in both directions, then the control surface will move farther than the servo will allow. At this point, change the positioning of the control rod on the control horn closer to the control surface a hole or two. Reposition the control rod until you get everything matched up. Sometimes a longer servo arm is required.

If your servo arm moves farther than the control rod will move, then use an inner hole on the servo arm until you get everything matched up.

At this point you have technically setup your servo. The servo is centered to the control surface and the control rod will move the control surface through its maximum range.

Now you can use your computer radio to adjust the end points for each servo to get the desired amount of control movement. Many times the control surface will move farther than recommended for normal, sport, or 3-D flight. Check your aircraft instructions for recommended control surface throws.

One warning: Helicopter pilots must ensure to check for any control binding during extreme joystick movements. The controls on some helicopters can move farther than necessary for normal flight, which can cause control binding during flight. ✈

Eliminate Bounce In Your Landings

Twin City Radio Controllers, Inc., Minneapolis MN

In order for a taildragger not to tip over on its nose, its wheels must be ahead of the center of gravity (CG). As it is further forward, it can tolerate rougher ground, but the tendency to bounce is worse. But when a taildragger lands, the impact of the main wheels tends to push the nose up, increasing the angle of attack, lowering the tail, and increasing the lift—and the airplane is flying again.

Eventually, air speed is reduced and it falls to the ground again, maybe harder. The nose rotates, and the airplane becomes airborne once again. This process will continue until all flyable airspeed is exhausted. The aircraft may continue bouncing because of a phenomenon known as "loping."

Loping occurs in a taildragger when the bounce of the main wheels causes the tail wheel to slam into the ground while the main wheels are still in the air. Then, the tail wheel bounces, slamming the main wheels onto the ground. This argument between the front and rear continues until momentum is lost. But the severity of the loping can increase in the interim.

Loping can occur in trike-geared aircraft as well. If the nose wheel strikes the ground before the main wheels do, the nose is pushed up severely, slamming the main wheels onto the runway. Being behind the CG, the rebound of the main wheels rotates the airplane forward so the nose wheel slams down again, maybe harder than the first time.

The process repeats. Loping in a trike airplane can start with taxiing. If the main wheel hits a bump, weight is shifted forward onto the nose gear. It rebounds, returning weight backward. This ping-ponging can grow, especially if the airplane is accelerating. The only way to stop it is to stop the airplane. The longer the distance between the main wheels and the nose wheel, the greater the tendency to lope. Loping also increases if the main wheels are too far aft of the CG. Stiff struts and bouncy wheels aggravate matters.

Trike gear has less potential for bounce because the main wheels can be placed closer to the CG. When the main wheels touch down, the impact lowers the nose and the angle of attack, reducing lift. Some trike-gear designs actually have negative angles of attack when sitting on all wheels. This holds the airplane on the runway. Trikes have

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Six Keys to Success for New Pilots continued from page 4

Preflight check: Before every flight it is the pilot's responsibility to confirm that the model, the controls, and the conditions are correct and acceptable for flight.

Airplane:

- Batteries at proper power
- Surfaces properly aligned
- No damage or breakage on the airplane
- Everything secure

Radio:

- Frequency control has been met before you turn on the radio (this has gone away with 2.4 GHz systems)
- A full range check before the first flight of the day
- All trims and switches in the proper position for this model
- Battery condition is good
- Antenna fully extended
- For computer radios: correct model is displayed
- All surfaces move in the proper direction

Conditions:

- No one on the field or in any way at risk from your flight
- You are launching into the wind
- Wind strength is acceptable (see wind information)
- Sunglasses and/or hat to protect your eyes
- All other area conditions are acceptable

Then and only then can you consider yourself, your airplane, radio, and the conditions right for flight. Based on your model, your radio, and local conditions, you may need to add or change something here, but this is the bare minimum. It only takes a couple of minutes at the beginning of the flying day and only a few seconds to perform before each flight.

If this all seems like too much to remember, do what professional pilots do, take along a preflight checklist. Before every flight they go down the checklist, perform the tests, in sequence, and confirm that all is right. If you want your flying experience to be a positive one, you should do the same. After a short time, it all becomes automatic and a natural part of a fun and rewarding day.

I hope this is useful in learning to fly your airplane. ✈

Fuel: The Ins and Outs continued from page 5

most rpm and power however, running this fuel comes at a cost.

Back to the rust issue. (Note: This is on a four-cycle engine, for a two-cycle; you would want the 20% oil). Running a fuel that is 100% synthetic can prevent rust in a short-term period however, my feeling and understanding is that the castor would assist in preventing rust.

So, how can you run the best fuel and get away from the worry of rust? If you run a fuel with castor, there is probably nothing to worry about. If you run a fuel without castor you should use after-run oil.

If you read a label on the Cool Power (this was amazing to me) it states "after-run oil not required." After all I had read through and understood, this was somewhat of a mystery to me. How can you run 100% synthetic fuel and not have to use after-run oil? They attribute this to low-viscosity synthetic fuel from what I gathered in the information online at Morgan Fuels.

In short, use my recommendation because this is based on what I know to be the best fuel for me. But, if you're running a fuel and it does well for you, then that is the fuel for you. In my opinion all fuel is about the same: different manufacturers are the difference in the production of fuel. I personally like Cool Power however; another brand with the same mix would probably run the same. ✈

Eliminate Bounce In Your Landings continued from page 5

more positive ground steering because the nose wheel makes firmer contact with the runway than a tail wheel, especially at higher speeds.

Another little-known cause of bounce is main wheels that are too far apart. This may be shocking because this practice is generally considered good for ground handling. It usually is because it improves directional stability when rolling along the ground. What happens when the airplane lands and one wheel hit the ground before the other? A lateral form of bounce occurs from one wing to the other.

One might think that soft tires and springy struts would increase bounce. Not so. More often, bounce is aggravated by the landing gear that is too stiff. Rigidity does not absorb energy; it reflects it. The hardness of the runway contributes to bounce for the same reason. Some early racing airplanes, such as the Howard Ike, had landing gear so rigid they could not land on concrete runways because of the uncontrollable bouncing that occurred.

Moving the main gear close to the CG reduces bounce and improves tracking. The Spitfire, for example, is quite bounce resistant, but it tips over easily on rough ground.

Moving the nose and main gears closer together reduces bounce and loping, but it degrades tracking and increases the tendency to tip over on rough ground and in crosswinds.

Oleo struts help absorb impacts, but the spring tension must be just right—stiff enough to keep from bottoming out, soft enough to absorb shock. The same may be said of tires.

If your airplane rebounds into the air after a severe impact, head off further bounce by inching up the throttle slightly. Apply down-elevator if necessary to level the nose. This increases air speed, prevents a stall, and lowers the rate of descent. ✈

Tips & Tricks

Winter Spruce Ups

With the flying season at and end for a lot of folks, its time to think about other winter activities.

While you're planning your winter build, it's also a good time to go over your old machines and repair all those things that you swore that you'd get at right away back in July.

Some things to think about are:

- Repairing torn covering.
- Checking engine mounts for loose fasteners and firewalls.
- Have a plan to test and recycle your transmitter and receiver batteries once or twice.
- Stock up on propellers now while you have plenty of time to balance them.
- Clean gunk from that old engine.
- Redo the plumbing in your fuel tanks.
- Send in your transmitter or receiver for a checkup, either to the manufacturer or to a third-party vendor such as Radio South RC.

There are more things to think about, but this will give you a good start!

— From the Wing Busters Model Airplane Club, Massachusetts

AMA *Insider* Archives Will Remain

Ashley Rauen, AMA *Insider* editor

This is the final issue of the AMA *Insider*. It is bittersweet as we move on to new projects and new resources with the Academy of Model Aeronautics. Thank you to all the readers and contributors we have had over the past 25-plus years.

Again we say thank you to our writers and editors including Bob Brown, Jim Tiller, Jim Wallen, Rusty Kennedy, Jim Rice, Ed McCoullough, the late Don Nix, and many, many more.

And finally, thank you to all of the AMA Chartered Clubs. Without you, this newsletter would not have been possible. Your club newsletters submitted to AMA Headquarters served as a content menu for much of the material that appeared in AMA *Insider*. Thank you all for your time and your effort in helping produce this publication.

Although the *Insider* has been discontinued, the Academy will maintain an archive for our clubs and members. Past issues of AMA *Insider*, dating back to 2003, can be accessed on the AMA website by visiting www.modelaircraft.org/publications/amainsider.aspx. ✈

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