



President to President

New Year, New Ideas: Incorporating Your Club

by Dave Brown, AMA President

I want to wish a Merry Christmas to all of the officers of AMA clubs. You all work very hard to make this hobby/sport enjoyable for the members.

Winter brings its share of challenges to the officers, trying to keep the members involved during those long, cold winter months. It is during this time that we have moments to reflect on those things which may help our clubs survive in an ever-challenging world.

How long has it been since you reviewed the basic structure of your club? Do you have bylaws? How long has it been since you audited the treasury? Has the proper, paperwork been filed with the government? Have you picked up that last minute Christmas present for your site owner?

Please don't forget to do a safety audit of the field. This is a good time to do it since the grass is low and some of those safety threats are more visible than they are when the grass cov-

ers them. Keep in mind the number of trip-and-fall type of accidents we have.

This would be a good time to consider the need to incorporate your club. Without incorporation, your club is typically a nonentity in terms of its legal status, and any legal problem the club encounters can result in the personal involvement of the officers and the

The basics of non-profit incorporation:

1. acquire the proper paperwork
2. choose a name
3. file the paperwork and pay the filing fee
4. apply for tax exemptions
5. write bylaws
6. elect or appoint initial directors
7. hold a board of directors meeting
8. acquire all licenses and permits

*This is a basic outline. Please see the regulations for your state for exact filing procedures.

individual members.

This varies from one state to another, but there is a lot of protection offered by going through the steps required to incorporate your club. Yes, it will require some annual paperwork and a few formalities such as having official minutes of meetings, but the protection of your individual assets is well worth the effort.

I can't give you the whole process for accomplishing incorporation, but there are a number of books available that will guide you through the process. Most clubs can qualify for one of the not-for-profit classes, but probably not the 501(c)3 status which would allow tax-deductible donations to the club. For most clubs, that isn't something which would have any practical effect.

This is one case where seeking the advice of a lawyer is effort well spent.

For many of us, our wives think of the club we serve as "the other woman," given the time we spend there. Why not make it legal by incorporating it? ♦

Tips for Clubs

Planning a Successful Mall Show

by Erin Dobbs, Programs Coordinator

Malls shows are an excellent tool for building community relations. What better arena can you find? You can have center stage at one of the most heavily populated spots in town. You'll be able to show the non-modeling public who you are, what you do, and how you do it. You can show them that your airplanes are beautifully built flying machines that are sophisticated and designed for specific purposes.

When the National Mall Show program began in 1983, several AMA clubs were able to reap immediate benefits by being part of it. As the number of participating clubs grew in subsequent years, so grew our national image and overall membership. Today, the number of mall shows has increased to an exceptional level, and each one helps to promote the appreciation of model aircraft in that particular geographic area.

AMA has several ways of helping your club make a good presentation. We can send you

informative brochures and other handouts that will aid you in your conversations with the general public. Each district vice-president has video tapes and a table top display booth that are free for you to borrow.

Also available from AMA's Supply and Service department is an extensive selection of video tapes to help you build a club library to explain the fun and intent of our hobby. Hundreds of clubs have found that these professionally produced tapes entertain and stimulate aeromodeling interest in mall show observers.

Why not have a club representative contact AMA headquarters? Ask for Erin Dobbs. I'll be happy to talk with you and encourage you with helpful hints on how to make your mall show a success. This information is free, and you can only gain from using it to improve your public image.

When you run a mall show there are many things you can include. Of course, you want to

please see **Tips** on page 2

January 2006

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Safety in the Workshop

It's winter and the building season is in full swing. Just as the safety coordinator focuses on flight safety during the flying season, he should not forget about shop safety during the building season. Below are some general tips to share with your club:

Keep it Clean

Many injuries result from poor housekeeping in the shop. Trips, slips, and falls account for the bulk of these mishaps.

Scrap material and wrappings, loose parts, scattered tools and equipment, or oil spills can cause injury. Debris should be swept up and disposed of. Parts should be kept on work benches. Tools should be placed where they cannot fall and cause damage or injury. Oil spills should be covered with

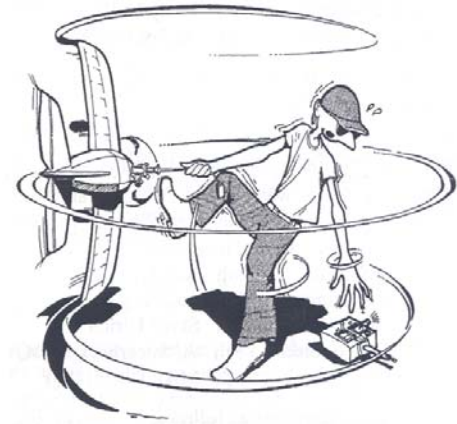
absorbent material and cleaned up.

Lighting, Heating, and Ventilation

Enough windows and overhead lights are required for a good level of overall illumination. Additional lighting should be available over benches and stationary tools.

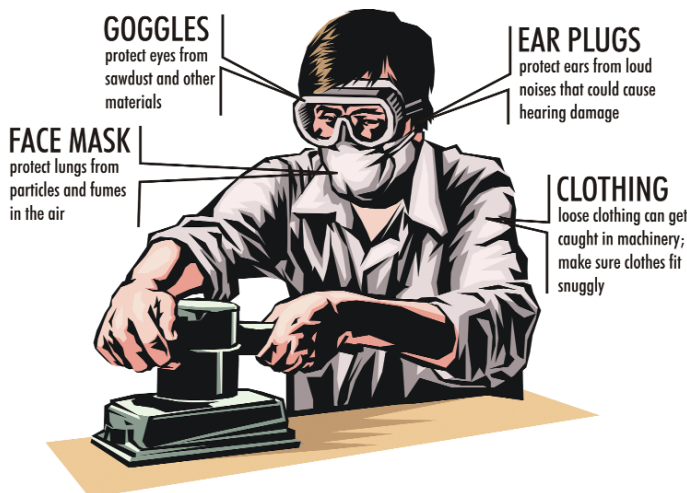
When supplemental heating is required for winter workshop operations, the heating unit should be located to provide an adequate, even distribution of heat, but should not cause a fire hazard.

Adequate systems are needed to vent smoke, fumes, and exhaust gases. Open windows and doors may provide enough ventilation in the summer. Special systems may be needed to remove exhaust fumes and other gases during the cold-weather months. ♦



Little things make a big difference

When working on your next building project do not forget the safety precautions below:



Sources: www.safety-council.org and Microsoft Clipart (image)

Tips continued from page 1

show off your models and please the mall management, but you also want to entertain and inform the general public. Many mall marketing offices report that a well run model aviation weekend brings in more foot traffic than any other event they hold. This is a good reason to get invited back!

Let's look at what you can have:

- finished models of all types
- open-framework models
- covering demonstrations
- cut-away working model with radio installed
- building demonstrations
- audio-visual center (VCR and monitor)
- club brochure or pamphlet
- ballots for viewers to vote for "Best of Show"
- Delta Dart building sessions for kids
- invite another AMA club
- invite a local RC car group
- invite a local model train group

Normally the mall marketing office will provide ropes and stanchions for crowd control, tables for displaying models, and chairs for the participants. If it is possible, models can be hung from ceilings or beams to create an illusion of flight.

The goal of mall marketing is to get people to their mall and into their merchant's stores. Your goal is to get the message out that the sport is great; that your club is responsible and creative; and that you are an integral part of the community. ♦

Editor's Pick

From the Columbus-Fort Benning RC Flyers, Columbus GA

Make a Custom Gas Muffler for your Model

by Roger Sailors

Technical Editor's Note: This article does not cover how to braze. If you do not know how to braze, get instructions before attempting this.

Making a muffler for a gas engine, or even a glow engine is not beyond the abilities of most modelers. Careful browsing of hardware stores with an imaginative eye is all it takes.

All of the mufflers I have made have been for Scale airplanes with gas engines. The finished product may not be attractive, but it will be durable and functional. It may weigh a bit more than an off-the-shelf component, but most of the Scale models I have built needed nose weight.

Basic Tools

First you will need low-fuming, flux-coated, brass brazing rod. This material is available where welding supplies are sold. One tube is virtually a lifetime supply. I have an oxygen/propane torch, but a MAPP gas torch will do the job. A propane torch alone may not get components hot enough for the process to work well.

You will also need a vice or some other fixture to hold items being brazed. If you configure your components to mechanically hold position prior to brazing, you may be able to skip this item.

Some heavy leather gloves will save burned

digits, and last, you will need some basic metal working tools—files, drills, stone grinders, and a saw(s).

Basic Parts

All basic mufflers have some common components. You will need a piece that mates with the exhaust manifold of the engine, a part that carries the hot gasses to the expansion chamber, and an expansion chamber where hot gasses expand and cool prior to exiting the unit. Lastly, you will need an exhaust stub (or stubs) that will carry the exhaust out and away from the airplane.

The plate to mate the exhaust manifold must be flat and heavy enough to resist both heat

please see **Mufflers** on page 5

Flying models with a Plan

by Bill Coombes

One of the benefits of flying Pattern competition (as it was called in the olden days) was that it forced you to fly a predictable, recognizable sequence of maneuvers on every flight. In other words, it imposed some discipline in your flying.

Although I have not flown in competition in many years, I still try to remember the lessons I learned when I did compete. Every time I fly, I have a mental plan of what I want to accomplish during the flight.

When instructing school children, I've found that making them do repeated maneuvers allows them to move more quickly toward their first solo. They become disciplined fliers.

Planning Prevents the Airplane from Flying the Pilot

Watching pilots at our field and at my electric field of choice, I have seen guys who could be skilled fliers constantly chasing their airplanes through the sky until they find themselves disoriented and their airplanes at risk.

They aren't flying with a plan, but rather the airplane is flying them.

With the Commemorative Air Force, I have participated in the hardest kind of flying to learn—formation. Believe me, discipline and a plan are the only things that prevent catastrophic accidents (besides a thorough briefing and an understanding of the flight formation rules). Guys who can fly an airplane well enough when alone suddenly discover a whole new set of skills necessary to master before they are safe in a formation.

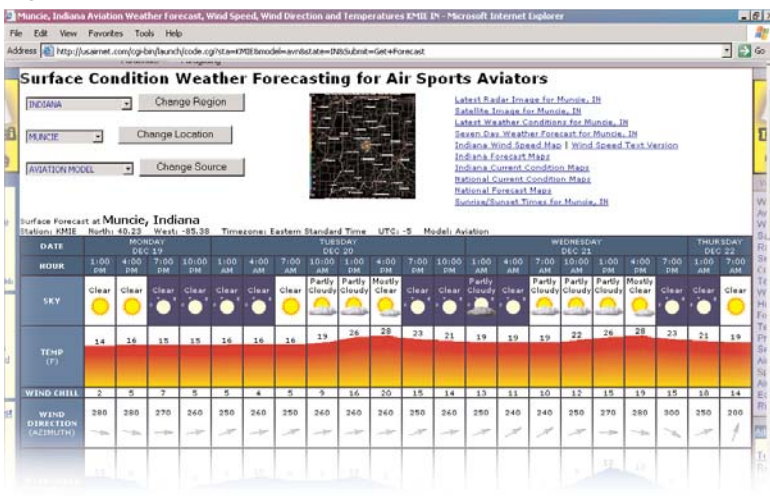
I'm not advocating that all of us in the RC world rush out and become International Miniature Aerobatic Club (IMAC) pilots, but I am saying that flying each flight with a specific plan (like really round loops, or skillfully centering maneuvers in front of you, or a perfect landing pattern) will impose some meaning to your flying and you will become a safer, better pilot (and your airplane will last longer as well). With the high price of these Alfa warbirds that I am into right now, economy forces me to always fly with a plan. ♦

From the Checkerboard Field RC Club, Chicago IL

USAirNet Provides Weather/Wind Forecasts

This Web site provides accurate weather and wind forecasts. Other sites do the same thing, but this one actually graphs the wind speed over the course of the day in three hour increments.

Try it for yourself at www.usairnet.com. Click on weather, and then choose a region and location. ♦



Need Articles for your Club's Newsletter?

Visit the newsletter archives online at www.modelaircraft.org follow the links to the *National Newsletter* and then click on Archives

In the Archives section of the Web site you will find every issue of the *National Newsletter* published since 1997! It's a great resource for construction, safety, and how-to articles as well as hints, jokes, and cartoons all for your to use in your club newsletter!

From the Willamette Modelers Club of Oregon, Albany OR

Solvents Toxicity

by David Rosenberg

Technical Editor's Note: Know your solvents—they can be very useful but can have serious health repercussions if used without sufficient ventilation. Never use an ordinary electric fan to "suck" air out of a room where solvents are in use—instead set up your workroom so the fan blows air through and out of the room.

Fire point: The temperature at which a material will take fire when exposed to a small flame.

Acetone (Dope thinner, both Nitrate and Butyrate)
Boiling Range: 130°-134°F
Fire Point: 0°F.

Toxicity: Acetone is a mild narcotic, skin irritant, and has a de-fatting action on the skin. Prolonged inhalation may cause headaches.

Storage: Use minimum volume containers, either High density polyethylene (HDPE) or Polypropylene (PP). They have low vapor transmission, minimizing evaporation.

Safety Precautions: Use with gloves and eye protection in well-ventilated area.

This is a very dangerous and underrated solvent. Store it in sealed, solvent-proof containers in a cool place away from ignition sources such as a furnace or gas tank heaters. Do not store in a refrigerator. Accumulated fumes can be ignited from a spark from the exposed door switch. Underwriter's Labs have confirmed home explosions from flammable solvents stored in refrigerators.

Methyl Alcohol (Methanol and Wood alcohol)

Boiling Point: 146°-153°F
Fire Point: 52°F (open cup)

Toxicity: It has distinct narcotic properties. It is a cumulative poison, affecting the nervous system, especially the optic nerve, causing optic neuritis and blindness. It is an irritant to mucous membranes and skin can become dry and cracked because of the solvent action

Isopropyl Alcohol (Isopropanol)

Boiling Point: 175°-178°F
Fire Point: 67°F (open cup)

Toxicity: Not rated as a toxic compound but it is an irritant to mucous membranes and eyes and is a mild narcotic.

Rubbing alcohol is a mixture of 70% Isopropanol, and 30% water. It should be in bottles made from HDPE which has a low vapor transmission and minimizes evaporation. It is an excellent industrial degreaser. I have used it successfully for decades at both General Electric and General Motors to clean both metal and polymer surfaces prior to adhesive bonding. Its flammability is one of its drawbacks. ♦

from the Tri County RC Club, Butler NJ

ParkZone Electric Models

by Dr. Alexander Szemere, AVP AMA District II
 John Donnelly, editor

Here is some information for all of you who may be worried about the influx of park flyers and their impact on our channels—especially after the holidays. As an aside, almost all of the models sold at toy and department stores operate on the 27 and 49 MHz frequencies—far from our 72 MHz channel frequencies.

Horizon Hobbies is marketing a series of electric park-flyer-type models under the brand ParkZone. These models come complete with a radio system installed. Some models in this line operate on 72 MHz. It's possible (expected) that some who purchase these models may be operating them at places other than what we think of as traditional model flying fields. Horizon recognizes this, and in an effort to minimize the potential of radio interference they have limited the channels these models operate on to six: 17, 19, 21, 50, 52, and 54. ♦

The Three Preventable Deadly Sins of RC Flying

by Jeff Procie

In the three years that I've belonged to the Knox County Radio Control club, Knoxville, Tennessee, I've witnessed my share of crashes and even thrilled my buddies with a few of my own. One thing that amazes me about this hobby is how often we crash. On any given weekend, one or two members will probably lose a airplane. What's even more amazing is that the vast majority of these crashes are entirely preventable.

Most crashes are caused by simple errors that we make before the airplane leaves the ground. Eliminate these errors and you'll have a far better chance of bringing the model home in one piece. Here are the three most common mistakes that lead to crashes and simple steps for avoiding them.

Wrong Model Number

Programmable radios make the sport more fun and arguably safer, too. One of the primary benefits of a programmable radio is that it can store settings for several models. With the click of a button, you can call up the settings for your favorite model, complete with trim settings, end-point adjustments, servo directions, dual rates, exponentials, and more.

But programmable radios have a dark side. If you fail to select the right model number before takeoff, you may find yourself flying with reversed ailerons, a reversed elevator, improper trims or throws, or other ailments. Rare is the airplane that lands safely when the radio is set to the wrong model number.

The solution is twofold. One, remember to

check the model number the moment you switch on your transmitter and make sure it matches the airplane you're about to fly. Two, always check the movement of the control surfaces before flying. Even if you forget to check the model number, you'll almost always catch the error if you check the control surfaces before every flight.

Having a radio set to the wrong model number is the most common cause of reversed servos, but it's not the only cause. Occasionally we simply forget to program in the servo directions before flying a new airplane. Again—make it a habit to check the control surfaces before every flight and you'll head disasters off before they happen. Before flying a new airplane for the first time, get a second pair of eyes to go over it with you. If the ailerons are reversed and you overlooked it once, you'll probably miss it again.

Improperly Located Center of Gravity

There's an old saying in this hobby that says "A nose-heavy airplane flies poorly; a tail-heavy airplane flies once." Most beginners fail to appreciate how big a role balance plays in the performance of an airplane. Balance is important in full-scale airplanes, but it's even more important in RC aircraft, where an inch or so can make the difference between a model that flies well and one that's unmanageable in the air.

Most construction manuals specify where the model's center of gravity (CG) should be located, and a model shouldn't be considered complete until you've ensured that the CG is at or near the recommended location. If necessary,

you can add a few ounces of lead to the nose or tail to achieve the recommended CG. Often adding lead isn't necessary; you can achieve the desired CG by moving the receiver battery backward or forward.

Be certain to check the airplane's CG before flying it for the first time. I usually mark the location of the manufacturer's recommended CG with short pieces of trim tape. That way I can check the CG even if I don't remember precisely where it's supposed to be. Assuming your aircraft's fuel tank is on or in front of the CG, be sure to check the CG with the tank empty. Finally, if your airplane has retracts that fold backward (like the F4U Corsair), check the CG with the wheels up.

Deploying the gear prior to landing will move the CG forward, but it's better to be nose-heavy during landing than tail-heavy during flight.

Inadequately Charged Batteries

If you crave excitement, try flying your favorite airplane without charging the receiver battery. To double the fun, don't charge the transmitter, either. Then you can take bets on which will fail first. Joking aside, charge those batteries before flying, and check them at the field if you're not sure whether they're charged.

Most transmitters have built-in voltage meters; I don't fly if the voltage is less than 10 volts—just to be safe. You can check receiver batteries with an inexpensive voltmeter (which should be part of every flight box), or you can install an onboard voltage indicator like the Hobbico VoltWatch. Remember, low batteries lead to dead airplanes. This is one case where an ounce of prevention is worth a pound of cure. ♦

From the Catalina RC Modelers, Tucson AZ

Tuskegee Airman Visits Arizona Club

by Randy Wegner

I had planned to stay home that Sunday and catch up on some much needed sleep, but Tom Hope called me requesting that I bring my P-51 Mustang to our club meeting—the Tuskegee P-51 pilot from World War II was coming out. I debated on whether it was worth the effort, but reasoned that the new Mustang needed a test flight anyway, so why not go?

As I stepped from my truck at the field, I could see Tom's guest. He was an older man, with a slight frame, nothing special about him. "Well," I thought, "Let's meet the guy, go fly, and go home—a nap would be good after flying."

I walked up to Lt. Col. Luke Weathers and shook his hand saying how nice it was that he could join us. As we shook hands, I could feel the passage of 85 years. His hands were bones, but his grip was as sincere and firm as ever. From his manner and words, you could tell he was a giver—not a taker. I knew he was a war hero, but he seemed uncomfortable with the attention and directed compliments and

praise to us and our club instead.

I retreated to the club bulletin board, where I read up on our guest from a poster Tom had tacked up. I wanted more information about this guy. I had seen the movie *Tuskegee Airmen*, which was about the Black fighter pilots of World War II and the heroic acts for which they were responsible (you should see it if you haven't).

I began to realize the uniqueness of this moment. I had shaken hands with a true hero—a man who went head-to-head with eight German fighters, who never lost a bomber under his protection, who forgot about self for the benefit of his country, and was willing to give his life for those who refused him his rights as he fought for theirs. Suddenly, there was no one on earth whose hand I would rather shake.

I approached him again with my P-51 wing and marker in hand. I told him that I would be honored to have his name on my wing. He assured me that the honor was all his as he

reached out and wrote, "Thanks for caring, Luke Weathers." I thought how odd that he would write, "Thanks for caring." After all,

I began to realize the uniqueness of this moment. I had shaken hands with a true hero ...

who would not care? Here is a guy who fought for my freedom before I was even born—he perhaps could be the very reason that I am alive at all—of

course I care.

Truly, I was humbled by his presence, thankful for his efforts on my behalf, and impressed by his humility and humanness. I know I speak for our club members when I say: "We are so thankful for Lt. Col. Weathers and the many who fought and served along with him."

There are a few words that are written on the wing of my P-51 that mean a lot to me. Although those words were directed to me, I would like to direct them back to a very special friend and guest: Thanks for caring Col. Weathers! ♦

and mechanical distortion. I have successfully used both large fender washers, and the plates used to protect electrical wires in walls. The washers have the advantage of having a centered hole already started while the plates offer more surface area for large exhaust manifolds.

I use a flexible gas hookup pipe made for gas appliances to route the gasses to the canister.

This pipe is available in several sizes. I buy the largest size available—one piece goes a long way. It is very flexible, and can be repositioned a few times before the metal begins to fatigue. The brazing rod will adhere to it. Keep in mind that it is thin wall material, and as such, will heat up very rapidly. It is possible to burn through this material.

To make the canister, I have used the sleeves that connect pieces of chain-link fence. I have also used lawn mower mufflers. Either works fine. The muffler made from the fence sleeve is actually quieter. It is sealed at each end by a steel electrical outlet plate trimmed to fit.

I use copper water pipes to make the stubs leading into and out of the canister body. The exhaust stub is brazed to the inside of the muf-

fler before the ends are assembled. It is then brazed through the opposite outside wall.

In order for the gases to escape, $\frac{5}{32}$ -inch holes are drilled into the body of the pipe that rests inside the canister. Gases come into the canister via the inlet, expand, and then exit the exhaust stub through these holes. I've read that this breaks up the gas waves and helps reduce engine noise. It worked for me—it was quieter than the stock muffler. The lawn mower muffler is pretty much self explanatory and surprisingly, it is not very quiet.

The Process
As the brazing material flows out, it will become liquid. This liquid has a very strong surface tension (what makes a water bead on a good wax job). It will flow into the opening via capillary action, but it will not flow across and

The Process

into a large opening. It is worth your time to make components fit as tightly as reasonably possible. The brazing material will move towards three things: heat, mass, or gravity. For example, a large clump of brazing material will be attracted

The consequences of vibrations should be considered. On a gas engine it can be significant.

I mounted the muffler on my Chipmunk to a plate on the firewall that was faced with some rubber mat about $\frac{3}{16}$ of an inch thick. It was set up snug, but still allowed a bit of insulation from vibration.

On the G-38 muffler, there is a separation between the exhaust tubing that is spanned with a piece of auto radiator hose. The muffler will be hard mounted to the side of the fuselage with this rubber spanner providing insulation from conflicting vibration between the engine and the airframe. I'd recommend some type of vibration protection.

into a large opening. It is worth your time to make components fit as tightly as reasonably possible.

The brazing material will move towards three things: heat, mass, or gravity. For example, a large clump of brazing material will be attracted

to its own mass. For this reason, use only enough to do the job. This material will make a very strong joint. If your fittings are reasonably tight, you will not have to rely on a big blob to hold things together. You can "pull" the material along a seam, leading it with the heat of the torch. The heat must be evenly distributed between the components being brazed. This is easy when the parts are of similar material and mass, but you won't get that lucky often.

When joining dissimilar materials, clean each thoroughly. Start the heat on the heaviest part. As you see it start to glow, move the touch to play across the lighter component.

Heat flows toward mass so it will try to travel away from the joint to the heaviest side. A lighter material means there is less mass to conduct the heat and it will heat up faster. This means you will need to concentrate the flame on the heavier side and play across to the lighter side.

Some of the heat will be already moving towards the lighter side, so it won't take much to bring it up to temperature. When both sides take on a light glow, apply the rod to the heavier component side of the joint. As it flows, move the heat along the seam keeping the distribution of heat even. The brazing material will flatten out and flow when you have it right. If it doesn't, then it probably isn't hot enough. Try to set up your work so that you start at a high point, heating from below and pulling the brazing material down with the torch.

Most of the parts you will be working with cost pennies, so do some practice work before you do the final part you are making. ♦

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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