



**PRESIDENT TO PRESIDENT**

# Leadership Comes with Responsibilities

by Dave Brown, AMA President

Membership may have its privileges, but leadership comes with responsibilities. As club leaders, we owe it to our members to do our best to serve their needs while doing what is best for the club or organization as a whole. Sometimes we must walk a fine line—particularly since our members' desires are quite varied and the needs of our respective organizations are great.

Moving the club field can be a traumatic experience. Members may not want to move, but the future of the club might rely on that larger site and the number of potential members created by the movement of our population base.

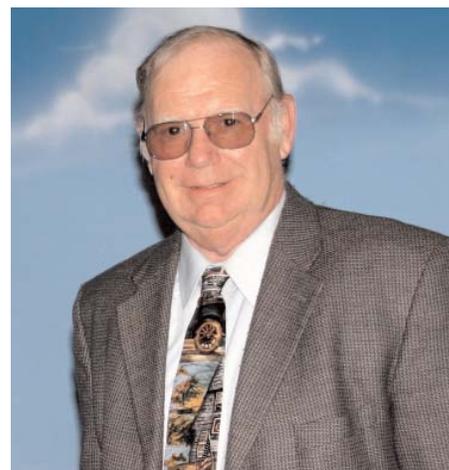
Decisions such as that are difficult whether it is at the local club level or at the national AMA level. It seems that no matter what you do some will be upset with your decision. This is the burden that one bears when he or she becomes an

officer or board member in an organization.

The longer we are in office, the easier it may appear to make those decisions, but we will always churn at night, concerned that we are doing the right thing. The picture always seems to be clearer from the outside than it appears from the position of having to make those decisions. I think that is what is called "Monday morning quarterbacking."

Every club or organization has its Monday morning quarterbacks and guess what? They are usually right, but they usually know that they are making their pronouncements only after seeing the end result of your decision.

In real life there aren't many opportunities for a "do over." Decisions must be made based upon the information one has at the time and we must live with the result. Sometimes we are right and



sometimes we are wrong, but that is the way life is.

When making decisions it is important

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**TIPS FOR CLUBS**

# Club Activities for the Winter Months

What do you do with a club whose primary activities are outdoors when the cold season comes?

Aside from constructing your latest model design, there are several things that clubs can do during the cold season.

Following is a list of ideas your club can utilize during the winter months.

**Fundraisers:** The holidays are filled with chances to volunteer and help others who have a need. One of the most popular events is fundraising. Volunteers work together to collect money or items that can be given to those less fortunate. Try holding a fundraiser, such as Toys For Tots, within your club membership.

Toys For Tots is a program run by the United States Marine Corps Reserve that donates toys to children whose parents cannot afford to buy them gifts for Christmas. The mission of the program "is

to collect new, unwrapped toys during October, November, and December each year, and distribute those toys as Christmas gifts to needy children in the community in which the campaign is conducted."

Your club can hold a collection for toys and take them to any Toys For Tots donation site. To learn more about this charity or to find places to take your collected toys, visit [www.toysfortots.org](http://www.toysfortots.org).

**Mall Shows:** Holding a mall show is a great way to show your community what aeromodeling is all about. It's an easy way to introduce the many facets of model aircraft to outsiders as well as gain new members.

You can set up your club's show with a variety of models and much more. A simulator can be set up to allow visitors to take a spin at the transmitter control. Even bringing in projects that are not yet

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# Safety is Everybody's Business

by Jim Rice



If you are an AMA member, you need to be concerned with safety at your flying field. It is easier to take the heat from a fellow club member for correcting him or her for a safety violation than it is to take that same person to the hospital or the morgue.

I own a hobby shop and it used to worry me to stop people and correct them on safety issues but one day it dawned on me that if one person creates a serious enough safety incident it could cost us a field, which would really hurt my business. If that person maimed or killed another good customer/friend, I would be out a customer anyway. If they did any of that without me trying to intercede and make a difference, then I would probably never forgive myself.

So, the result has been that I take safety to heart every day at every field and I am as gentlemanly and tactful as I can possibly be so as not to aggravate a customer while at the same time fixing a problem at the field. Generally it is not necessary to scream at or humiliate a person who is violating safety rules, a gentle reminder can usually do the trick.

However, if it is really serious and a nudge doesn't do the trick, it may be necessary to take a more forceful approach or even call in assistance from your club's board of directors.

It is important that we all have the opportunity to fly in a safe environment. I have seen pilots land, pack, and go home to avoid flying with or being around a pilot who is dangerous or drinking and

flying. That only allows the standard to be lowered.

I worked for a really smart Major General once who drilled into all of us the fact that if you walked past a problem and didn't correct it, you set a new standard and it was lower.

That same philosophy applies to our flying fields. If any of us observes a problem and doesn't try to fix it, we have told the perpetrator that what they are doing is okay with us.

Complaining to each other about the problem without confronting it only aggravates you and your friends while appearing to condone the activity. Find a way to bring it up or get someone else to do it but don't wait until the next club meeting or tattle to the Safety Officer. It really needs to be fixed at the time of occurrence so it can be discussed, if necessary, between all parties present at the time.

Every accident involving safety should be drilled into your mind and reviewed from every aspect to ensure that you know what caused it, what should have been done to avoid it and what you will do in the future to prevent recurrence.

I had a friend hit in the face with a Taurus and it buried the Enya .60 in his cheek all the way to the carburetor. As it turned out, the injured guy had gone dead stick and was walking across the runway to retrieve his airplane and the other guy was making a low, fast flyby. He was turned toward his airplane and could not see the first guy walking onto the runway behind him. He saw him only as his airplane collided with him.

It was all avoidable! Simple communication between pilots would have prevented the incident. I make sure I loudly call out "On the field" and make sure everyone in the air at the time acknowledges before I walk across the dead line and then yell "Clear" when they can use the runway again.

A second incident involved a man starting a G-62 with a starter and the assistant holding the large aircraft by standing in front of the horizontal stabilizer. As the starter was pressed against the spinner, the airplane moved backward between the holder's feet and simultaneously the engine started. As the man with the starter looked down to put the starter down, the airplane at a high idle moved back forward until it came to rest on the holder's ankles.

The man starting the engine just saw the airplane moving and thought his friend had released the airplane so he tried to reach over the propeller and grab the fuselage to stop the airplane. In the process, he got his forearm in the propeller and got several deep cuts in his arm requiring a trip to the emergency room and several stitches.

I reviewed the incident with an eye toward ensuring it never occurred when I was holding an airplane. The best answer is to kneel or crouch down and hold the airplane with your hands, however many of us are older, heavier, and lazier than others.

What I do now is stand over the airplane with the leading edge of the stabilizer against one ankle and then I place the other foot forward so that the trailing edge of the wing is against the shin. That way, the airplane cannot move back as the starter is applied and cannot move forward when it starts.

If the airplane is big enough or is a biplane, I can stand with the stabilizer against both ankles then bend at the waist and hold the canopy or top wing to stop the airplane from moving to the rear. Restraints are good but they do not stop the airplane from moving back when the starter is applied.

Try to make something good come from every accident. Learn what caused it then plan to prevent it and educate others at the same time. →

## Tips for Clubs continued from page 1

complete allows viewers to see the inside and what it really takes to build a model.

The Academy of Model Aeronautics can provide your club with resources needed to organize a mall show in your area. AMA Headquarters staff will ship free handout materials to chartered clubs and award a commemorative pin to workers. Clubs need to notify AMA Headquarters 30 days prior to their planned show to allow time for shipping.

**Want to keep club attendance high?** It's much easier in colder weather to say, "I can miss this one meeting. Besides, I would have to shovel the driveway just to get there." Solve this problem with a few incentives for attendance.

Hold a fun-fly in the snow. A Frozen Finger Fun-Fly will have members' teeth chattering with excitement! It's a fun solution to

increase club attendance. If held at the beginning of January, it's a great way to kick off a new year of aeromodelling.

Too cold to go outside? Hold a building contest—indoors—at your club meeting. Give all members a time limit to complete a quick model design and select a winner at the end based on model completeness and craftsmanship.

Demonstrations of new products and ideas leave people thinking, "I bet I could do that." Inspire your membership to start fresh projects and learn new concepts by holding a demonstration night at your club meeting. Everyone is interested in learning new ideas to improve their models and piloting ability.

If all else fails, give away something free. Hold a raffle at your meeting. Simply use the disclaimer "must be present to win." Members will be tunneling out to their vehicles in no time. →

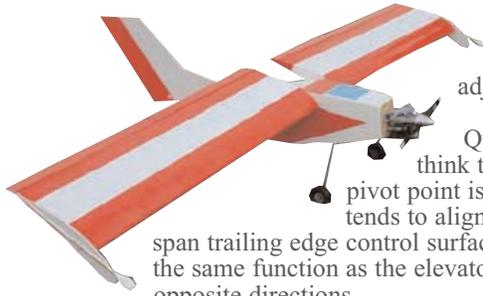
# Orin Brenning's Freewing Aircraft

by Orin Brenning, Neil Fosnaugh, and Dick Porter

## Preface

In the late 1960s and early 1970s, while on the staff at the Battelle Memorial Institute, I led four NASA-sponsored studies to predict the dynamic behavior and gust alleviation virtues of this unconventional freewing concept. I've been into Radio Control (RC) since the 1980s and had often thought about building an RC model of such an airplane, but never stayed with it beyond designing a suitable airfoil section. I happened to mention this to former Ohio State University classmate, Orin Brenning, who has a history of designing and building unconventional airplanes. After briefly thumbing through my dusty old project reports, Orin took it from there and produced a very impressive airplane. Neil Fosnaugh had successfully flown a variety of unconventional models, and readily agreed to be the project's test pilot.

—Dick Porter



## Design, Build, and Fly

A Freewing—What's that?—Will it fly? It sounds strange, but the freewing is mounted on a spanwise hinge on the fuselage so the wing angle of attack can be adjusted to change the lift completely independent of the angle of the fuselage.

Quite a few of you saw the model we had at the Shrine Temple show and you might think the wing would flop around and not know where it should be pointing. Not so. The pivot point is at the 15% chord whereas the center of lift is near the 25% chord, so the lift always tends to align the wing to the air flow at an angle of attack determined by the deflection of a full span trailing edge control surface. For this, the surfaces are controlled in the elevon mode on the transmitter, and serve the same function as the elevators on a conventional airplane. For roll control, they serve as ailerons and move in opposite directions.

So, in effect, the wing simply behaves as a flying wing. The fuselage just goes along for the ride, being balanced near the wing pivot point, and has no influence on the wing itself except to provide directional stability to the total airplane by the presence of the vertical tail.

Will it fly? We aimed to find out, although we already knew it should unless we goofed on something. We called upon Neil Fosnaugh for the initial efforts. The first attempt at flight didn't go too well. On the takeoff run, as it lifted off, the weight came off the wheels and the fuselage nosed down. Since it looked as if the propeller might strike the ground, power was reduced. The wheels touched down in high grass and it flipped over, breaking off the vertical fin. A week later, while taxiing for takeoff, the tail wheel mounting broke loose, apparently having been damaged in the earlier attempt.

On the next attempt, Neil made two flights that were flawless. In flight, the airplane looks like any other most of the time, but not always. The angle of attack of the fuselage is controlled, completely independent of the wing, by small horizontal stabilizers located at the rear. By deflecting these surfaces, the angle of the engine thrust can be "vectored" to help provide additional lift, allowing very slow minimum flight speeds. In the model, the stabilator has three positions. In the normal position, the airplane in flight appears as any other. The second position creates a moderate nose-up attitude, while the third might be called extreme. It creates a fuselage angle of attack approximately 45° larger than that of the wing. It looks a bit weird, but is completely controllable. Neil flew two more flights, doing loops, and even inverted flight. To a bystander, these appeared the same as they would for a conventional airplane. Then Orin flew, using a buddy box with Neil. All went well until the landing when the airplane flipped over its nose. A little practice should correct that.



Above:  
Freewing in flight

At Right:  
Freewing creators  
and test pilots



Now the bad news. At the end of the fourth flight, Neil took control and prepared to land. At the east end of the runway and close to the road, he suddenly had no control on any channel. The airplane went in nose down with significant engine power. It was badly damaged. The fuselage was demolished but wing damage was minor. At first, it looked like a winter project to rebuild, but after sorting things out, reasonable progress on rebuilding has already been made.

Immediately after the crash, finding the root cause was a first priority. As Neil started checking out the receiver, the crystal was found to be loose. At that point, the pins were completely free of the socket. That explained the loss of control, but not how the crystal came loose. It's unlikely that the crystal came loose during the crash. The other possibility is that it came loose over time in flight. Perhaps a small piece of Scotch Tape over the crystal is the solution.

please see **Freewing** on page 7

## Glow Plug Problems

Today's glow plugs are well made products and they should give you good service. Although the life of a glow plug is unpredictable, you should reasonably expect a dozen or more flights out of one. It's always best to follow the manufacturer's specific glow plug recommendations, but if you have an engine that seems to eat glow plugs, the probability is that it is suffering from one of the following three causes:

**Overheating:** A glow plug coil will melt if it gets too hot. Reasons why this happens vary. Sometimes the combination of running an engine wide open with a lean setting before you take the glow plug heater off is too much for the element. Quite often people use a power panel which has a built-in surge feature, which sometimes results in a momentary over-voltage to the plug when the power is first switched on. When a glow plug fails because of overheating, the end of the

element wire has a tear drop shape at the break. Sometimes a microscope is needed to see this affect.

**Vibration:** If the engine is soft mounted the element is shaken from side to side with tremendous force. This literally fatigues the metal until it breaks. When you look at the end of the element wire break through a microscope it has a jagged, rough type appearance. The only solution is to increase the rigidity of your engine mount.

**Shockwave:** Most model engines use a steel or brass liner mounted on top of a cast aluminum case. As the engine gets older, the liner flange works its way down into the case and lowers the head with it. When the piston clearance gets too low the increase in compression forces air out of the squish band area with supersonic velocity and the action on the glow plug elements is like when a jet plane zooms over

your house and knocks out the windows. The cure here is to raise the head with another head gasket.

Less often reasons why glow plugs sometime fail are:

Cranking the engine when it's flooded sprays raw fuel onto the plug and the droplets beat the element over to the side of the housing where it shorts out.

Another problem that occasionally occurs is that engines sometimes wear abnormally, causing a crankshaft to crack, bearings to fail, or a connecting rod to chew metal off the crank pin. Of course, when this metal goes up and deposits on the plug element, the plug burns out. →



## AMA Club Recognition and Reward Program

Involve your AMA Chartered Club in support of an activity that is beneficial to a local charity or community activity; receive positive recognition in the form of television coverage, radio coverage, or print coverage; and receive additional recognition and a financial reward from AMA.

It is important, in today's model-aviation environment, that model clubs become a viable part of their community in a manner to which the general public can relate. Support your favorite local charity or community project and enhance relationships that might someday pay a return in the form of keeping a flying site or establishing a new site.

AMA recognizes the importance of such club activity, supports that concept, and feels strongly that any clubs that take part in such endeavors need to be rewarded and recognized for their efforts.

The program is simple. If your club has received positive newspaper/magazine exposure, radio, or television coverage showcasing your involvement in community events, AMA wants to know about it. For your efforts AMA will recognize your club in *Model Aviation* magazine and reward your club's treasury.

Say your club has hosted a fun-fly and all proceeds generated during the event are donated to the local Ronald McDonald House. If your activity and donation are highlighted by a local newspaper/magazine, radio station, or television station, your club qualifies for the AMA Club Recognition and Reward Program.

This program is not intended for clubs that host a fun-fly and have that particular event written up in the local newspaper. It is intended for clubs that donate their time, funds, and efforts to their local community in an endeavor to "make a difference."

Your club may decide to donate a certain number of man-hours to a park for the purpose of picking up trash along the access road every month. If your club is recognized in a positive manner by the media for its ongoing efforts, you would qualify for the AMA Club Recognition and Reward Program.

This is how the program works. If your club has been involved in activities such as the ones mentioned, you will be rewarded on the basis of the type of media exposure you received. Positive newspaper/magazine coverage of your event will garner a reward of \$100. Positive radio and television coverage will garner \$200 and \$300 rewards respectively.

All your club has to do is complete a Club Recognition and Reward Program Application form, available at [www.modelaircraft.org](http://www.modelaircraft.org), along with verification of the publicity received by either including the original newspaper/magazine or CD of the radio airing or television broadcast.

The previously mentioned monetary awards will be given to clubs for their first year of recognition. Clubs that receive media coverage for the second year in a row (no matter what type) will have a brick engraved and placed in the AMA Walk of Fame. The third year your club receives media recognition members will receive a patch recognizing the program and your club's achievement. Remember clubs that have annual events will only be rewarded three times for the event; no exceptions.

Keep in mind that AMA only has a specific dollar amount budgeted for this program each year. It is based on a first-come, first-serve basis, and no application will be held until the following year for reward.

For more information contact Erin Dobbs at [erind@modelaircraft.org](mailto:erind@modelaircraft.org) or (765) 287-1256 ext. 272 →

# The Secrets Behind Building and Improving ARF Kits

by Jim Soque

I would like to contribute certain ideas of how to make your ARF airplane more signature and a better built ship. More familiarity with your model will only improve your piloting skills and increase your confidence as a flier. In more than six months, I have completed the following five ARF models: Great Planes Lancair ES 60, Great Planes Cessna 182, Jim Dymond Tiger Moth 120, Seagull Models PC-9, and the Kangke Monocoupe 60. These are all well-manufactured ARF airplanes, each having been tested by countless design pilots, and manufacturer experts. I fly them all with great confidence and have the utmost respect for each of their designers and engineers.

The suggestions I make in this article are my own and from my own experience:

- Read your instruction manual from cover to cover, then read it again.
- Take inventory of all the parts listed in the instruction manual.
- Measure the engine mounts; change them if you think they are too short.
- Mount the engine to the engine mount with socket-head screws, washers, lock washers, and lock nuts.
- Use a ball-link for the carburetor pushrod link on the engine.
- Change the tank to one you are familiar with.
- If a third tube is used for fuel-filling purposes, use additional hose and a clunk.
- Trim the cowl with a router/sander tool, and use a vacuum cleaner with hose to vent the fiberglass dust away from you.

**Tech. Editor's Note:** Best if this is *not* done in an enclosed space. No one, not you or anyone in your family or your neighbors, need to breath this dust.

- When drilling the holes in the cowl, enlarge them using a drill bit wrapped with some 220-grit sandpaper; enlarge gradually.
- Attach a flexible pushrod material to pull the fuel hoses forward through the firewall.
- Cut the ventral vent hole three times the size of the air intake hole. This allows for maximum cooling of your engine.
- Measure the stabilizer tips to a center point over the cabin using an aluminum ruler and take note in centimeters, not inches. Measure twice and always use epoxy.

**Tech. Editor's Note:** Do not use any string, line, cloth measuring tapes, or anything flexible to measure with. If the measuring device sags or bends, support it so it is straight over its length.

- Level any imperfect surfaces with your eyes, then put a level on it. Take away any balsa gradually with a hobby knife.
- Use a 90° angle device for your vertical fin, or try a laser leveling device.
- If your kit comes with 2mm or 3mm hardware, switch it to 2-56 or 4-40 hardware instead.
- Change the supplied wheels to wheels with tread. Don't use cheap wheel collars.
- Use a hinge-slotting tool (I prefer electric) to widen the precut hinges on control surfaces. Use slow cyanoacrylate glue on the hinge surfaces edge, then insert the hinge.
- Z-bend the links for the control rods at the servo arm end.
- Mount your cowl with beefier screws and washers.

**Tech Editor's Note:** Reinforce the part of the cowl where screws or bolts go through. Use a small piece of cloth soaked in epoxy and placed on the inside of the cowl or any other part that needs reinforcing. Fiberglass cloth is a good choice but any woven cloth will do.

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to get as much information as possible and work with the other officers or board members to make the best one based on input from many sources. Once a course of action has been determined, it is important that we all support it and do our best to make it work.

Being AMA president isn't a bit more difficult than being a club president. It merely involves more time and more people who are involved in the decision-making process. I went through the normal progression of local club offices and appointed positions before I became an AMA officer and I went up through the various AMA offices to become the president of the organization.

If you are an experienced club president, it might be worth considering running for office in AMA. I would only encourage that if you have come to enjoy the responsibilities and pressure of being a club officer. Some of us thrive on that pressure while others only end up with headaches. It takes a certain type of person to thrive in either environment.

For all of us, the time comes to step down and let others take up the gavel in order to push the organization forward. The intensity wanes and the fervor with which one approaches the job diminishes.

In the corporate world this is referred to as burnout, but in the modeling world I'd just call it time to reset the priorities and get back to the activity that brought us into the sport in the first place. We all end up finding that our service as president of a club—or AMA—tends to reduce the time we have to enjoy the sport we all love.

I have served on the Executive Council for 28 years, and I have been president of AMA for 12 of those years. The time has come to pass on the gavel and there are people itching to give it a go, as I did when I became president.

I have never been a fan of term limits because I think the election process and human nature will suffice in ensuring enough turnover in AMA elected offices. I'm merely following that process.

We are fortunate that there are good people willing to stand for election in our organization. I hope you will support them and consider volunteering to help out. Who knows? Maybe one day you could be AMA president! →

### Save that stamp!

If your club newsletter is sent to AMA electronically there is no need to send a hard copy.

E-mail your newsletter to [ashlejr@modelaircraft.org](mailto:ashlejr@modelaircraft.org)

please see **ARF Building** on page 9

## Take More Chances—Enjoy More Crashes

by Bob Karasiewicz

As you gain in skills, you will take more chances. For instance, an outside loop with a trainer! Well, you just learned that the typical trainer will not do an outside loop (outside loop—from straight and level flight, push down; go down and around to straight, and level flight again.)

When your trainer has reached the inverted position and is trying to go up while inverted, it either won't climb or falls off to the side. The likely result is a crash. The definite result is a learning experience.

Don't give in to the temptation to blame your airplane, radio, the wind, the

sun, or anything else external. The fault lies with your urge to try something new. Congratulations! You are well on your way to becoming an excellent flier.

Now, how does a beginning flier get out of a difficult situation? The answer, my friend—it depends. In the above outside loop situation, the experienced flier would stay in inverted flight and level off. Then either give up to do a half-inverted inside loop, or do a half roll to level flight. This comes with experience—experience in getting out of tight situations. The flier who never gets into a difficult situation—that is, never

takes a chance—never progresses.

Is there a general method for getting out of trouble? Yes, only one. Before you try it, think about it and think about things that can go wrong. Remember the “three mistakes high” rule. You might want to discuss your attempts with an instructor beforehand. You definitely want to discuss your new maneuvers with someone more experienced afterward. If only to brag or find out what went wrong.

Oh, one more thing. Please make sure your attempts are safely out over the field, never near the pits. →

From the Camarillo Flying Circus, Camarillo, California

## Before the Wright Brothers, There was Gustave

source: [gustavewhitehead.com](http://gustavewhitehead.com)

1901: Gustave Whitehead purportedly travels a mile and a half in the air aboard his birdlike monoplane. If he did, that means he flew nearly two-and-a-half-years before the Wright brothers' celebrated flight at Kitty Hawk.

There is evidence that several aviators on both sides of the Atlantic preceded Orville and Wilbur Wright into manned, heavier-than-air flight, although Whitehead's claim appears to be the best documented.

That few people outside of aviation buffs have ever heard of Whitehead—originally “Weisskopf” before he immigrated to America from Germany—

can be attributed to several factors including, Whitehead defenders say, the outright refusal of the Smithsonian Institute to even consider the possibility that anyone beat the Wright brothers into the air.

Nevertheless, that's exactly what he appears to have done. Although there is affidavit supporting Whitehead's claim to make a bona fide flight as early as April 1899 (filed by an assistant who said he was scalded by steam from the aircraft's motor,) his August ascent was the first one clearly documented and witnessed by people not associated with the project.

The aircraft used for the August 14

flight was named Number 21, since Whitehead rather unromantically christened his experimental craft in numerical order. Number 21 was built with bamboo ribbing and covered in silk. (Number 22, which would fly the following January, substituted steel tubing for bamboo.)

Four flights were reportedly made that day, the first coming before daybreak. Three others followed in the afternoon, including a mile-and-a-half journey where Whitehead reached an altitude of 200 feet. In contrast, the Wright's historic first flight in 1903 lasted a mere 12 seconds while traveling 120 feet. →

### Tips & Tricks

#### Got fuel-soaked balsa?

Fuel leak from the fuel tank all over the tank compartment? If so I have the solution! First, remove the fuel tank if able. Next, try to dry as much as possible. When finished, get some regular corn starch and dump it in the compartment and leave for 24-48 hours. After that, dump out the excess (if able) or use the vacuum cleaner. You will probably have corn starch stuck on the balsa where the fuel was. Just push the tank in and take it back out and use the vacuum to get the rest out. If it is still damp reapply the corn starch for another 24 hours.

Repeat as you feel necessary. Yes, there are other methods to use but I have found this one to be best.

#### Tip for those who have Real Flight G2

If you use the interface controller for real flight, take a small zip tie and secure the cord to the carrying handle that way it will relieve the stress on the wire going into the controller.

#### Tip for cleaning bolts

I saw this little tidbit on RunRyder on cleaning bolts before applying loctite to them. To do so, place the pile in a fine strainer (stainless) and sink it in a pot of boiling water and regular, not lemon, Cascade detergent for about 10 minutes. Dissolve the Cascade first. Rinse thoroughly and dry when complete. The parts are very clean when done. No further prep work is needed. This is easier on the fingers than the manual method, especially on a new model with a whole bag of screws to do.

#### Reinstalling the fuel tank with motor installed

Have you ever tried to run those pesky fuel lines through the tiny hole in the firewall while the motor is installed and you got a headache? Well here is your aspirin! If you have any old pushrods or old bent landing gear lying around, straighten them as best you can and route them through the front of the firewall to the radio compartment. Then hook your fuel lines onto the wire and pull the wire out of the firewall. Easy huh?

#### Reducing glitch

Use shrink or silicon tubing on metal parts such as throttle and linkages to reduce minimum glitching.

—All tips and tricks from Jim's RC.com (<http://jimsr.com/tips.html>)

## Neil Fosnaugh's Pilot's Report

Over the years I have had the opportunity to fly many different model aircraft. It has been interesting and a lot of fun. This freewing aircraft is the most unique and unusual I have flown by far. There were only a couple unexpected things on first flight attempts. Really, there were no more new airplane adjustments than usual with the average maiden flight. That's a real tribute to Orin Brenning's ability as a designer/builder with something so unique and no plans or instructions to follow. I wanted to add something to this report because flying this aircraft "feels" different more than it looks different. I have flown canards, autogiros, flying boats, and some other odd stuff. More relevantly I have flown deltas and tailless bats, etc., which are flying wings. Some fly well, but many don't.

The freewing flies extremely well. Unlike other designs, this one won't stall. I tried and it won't. The wing angle of attack freely and automatically adjusts itself to prevent stalling. With power off and full up in the ailevators, it has a rate of descent according to what forward speed and lift balances it out to be.

One of the first odd "feels" it has is when you put in up elevator to begin a climb. Nothing appears to happen—like it isn't responding, and that is always a bad feeling. Then it gradually begins to climb with no apparent pitch up on the fuselage. My eyes expect to see a change in pitch immediately when you pull elevator, whether the airplane is conventional, flying wing, canard, or whatever. A quick pull on the elevator gets a few feet gain in altitude and then it flies on. Now, with a more sustained pull on the elevator, it sets into a climb and will continue it without sustained elevator until it runs out of speed, then it levels off.

It takes a noticeable amount of time for the horizontal stabilizers to redirect the fuselage to follow the wing's changing direction of flight, but it does. Before I flew it, I didn't think the fuselage and engine thrust would follow the wing and allow a loop. I envisioned the thrust continuing forward more or less horizontally with the wing in a more positive angle of attack and overall the airplane climbing. Wrong visualization on my part. It loops well in a medium size. It won't loop small, since there's that little delay for the fuselage to adjust its pitch upward as the wing pitches up and the direction of flight changes upward. As this happens, the horizontal stabilizers get the fuselage and thrust angle to follow into the changing direction of flight as directed by the changing direction of airflow.

In a nutshell, the fuselage pitch doesn't determine the pitch angle of flight like "normal." The fuselage pitch follows the direction of flight after a discernable delay. Cause and effect are reversed for fuselage pitch angle. This is not as discernable when observing as when flying and watching the airplane respond to your stick movement. It feels odd.

It will fly upside down and does it pretty well for the airfoil that it has. It will roll if it has decent forward airspeed. Rudder response is medium effective; nothing strange.

Now for the more obvious strange part. The horizontal stabilizers are also on a transverse tubular spar, which can rotate into three positions. Usually the stabilizer is set to keep the fuselage pointed into the direction of forward air flow and keeps it level in horizontal flight. With the stabilizer position on a three-position switch, flipping the switch to the middle position rotates the stabilizer about 20-25°, I'd guess, which immediately pitches the nose of the fuselage up by that much while the wing flies on with no change in its angle of attack.

Tendency to then climb or fly level depends as much on the power setting as on the elevator since the thrust is pointed upward that much. Flipping the switch to the third position sets the stabilizer and the fuselage at nearly 45° up pitch. Going to the first setting is like slamming on the brakes. It takes significant power to keep forward flying speed and controllability reasonable. Flipping to the second position is like hitting something solid. It slows down so much and so quickly that it literally looks like it hit something head on. It takes all the power it has to keep moving forward. We need more flights to check these flight modes out and learn how to fly it on the throttle. Very slow forward speeds are certainly possible. It won't stall, but it can get really mushy and descend. We'll have to get a better feel for that.

Flying this thing has been a blast and a real mind bender. I felt really bad it was hurt by one of the million possible things that can go wrong with an RC system. It had nothing to do with the airframe, which performed so well. I hope it's a Phoenix and rises again.

## Afterward

Orin completed the repairs and on July 23, Neil made a completely successful test flight. The freewing is once again capable of raising eyebrows and questions this flying season. →

## A Health Q&A Session: Medical Insurance Explained

### Q: What does HMO stand for?

A: This is actually a variation of the phrase, "hey Moe." Its roots go back to a concept pioneered by Moe of the Three Stooges, who discovered that a patient could be made to forget the pain in his foot if he was poked hard enough in the eye.

### Q: I just joined an HMO. How difficult will it be to choose the doctor I want?

A: Just slightly more difficult than choosing your parents. Your insurer will provide you with a book listing all the doctors in the plan. The doctors basically fall into two categories: those who are no longer accepting new patients, and those who will see you but are no longer participating in the plan. But don't worry, the remaining doctor who is still in the plan and accepting new patients has an office just a half-days drive away and a diploma from a third-world country.

### Q: Do all diagnostic procedures require precertification?

A: No. Only those you need.

### Q: Can I get coverage for my preexisting conditions?

A: Certainly, as long as they don't require any treatment.

### Q: What happens when I want to try alternative forms of medicine?

A: You'll need to find alternative forms of payment.

### Q: My pharmacy plan only covers generic drugs, but I need the name brand. I tried the generic medication, but it gave me a stomachache. What should I do?

A: Poke yourself in the eye.

### Q: What if I'm away from home and I get sick?

A: You really shouldn't do that ...

### Q: I think I need to see a specialist, but my doctor insists he can handle my problem. Can a general practitioner really perform a heart transplant in his/her office?

A: Hard to say, but considering that all you're risking is the \$20 co-payment, there's no harm in giving it a shot.

### Q: Will health care be different in the next decade?

A: No, but if you call right now, you might get an appointment by then.

To Your Good Health! Because, as you see, you'll need it! →

## History 101

### Story Number One

Many years ago, Al Capone virtually owned Chicago. Capone wasn't famous for anything heroic. He was notorious for enmeshing the windy city in everything from bootlegged booze and prostitution to murder.

Capone had a lawyer nicknamed "Easy Eddie." He was his lawyer for a good reason—Eddie was very good! In fact, Eddie's skill at legal maneuvering kept Big Al out of jail for a long time. To show his appreciation, Capone paid him very well. Not only was the money big, but Eddie got special dividends. For instance, he and his family occupied a fenced-in mansion with live-in help and all of the conveniences of the day. The estate was so large that it filled an entire Chicago city block.

Eddie lived the high life of the Chicago mob and gave little consideration to the atrocities that went on around him. Eddie did have one soft spot however. He had a son that he loved dearly. Eddie saw to it that his young son had the best of everything: clothes, cars, and a good education. Nothing was withheld. Price was no object.

Despite his involvement with organized crime, Eddie even tried to teach him right from wrong. Eddie wanted his son to be a better man than he was. Yet, with all his wealth and influence, there were two things he couldn't pass on to his son, a good name and a good example.

One day, Easy Eddie reached a difficult decision. Easy Eddie wanted to rectify the wrongs he had done. He decided he would go to the authorities and tell the truth about Al "Scarface" Capone, clean up his tarnished name and offer his son some semblance of integrity. To do this, he would have to testify against the mob, and he knew that the cost would be great. So, he testified. Within the year, Easy Eddie's life ended in a blaze of gunfire on a lonely Chicago street. But in his eyes, he had given his son the greatest gift he had to offer, at the greatest price he would ever pay.

### Story Number Two

World War II produced a number of heroes. One such man was Lieutenant Commander Butch O'Hare. He was a fighter pilot assigned to the aircraft carrier Lexington in the South Pacific.

One day his entire squadron was sent on a mission. After he was airborne, he looked at his fuel gauge and realized that someone had forgotten to top off his fuel tank. He would not have enough fuel to complete his mission and get back to his ship. His flight leader told him to return to the carrier. Reluctantly, he dropped out of formation and headed back to the fleet.

As he was returning to the mother ship he saw something that turned his blood cold. A squadron of Japanese aircraft was speeding its way toward the American fleet. The American fighters were gone on a sortie, and the fleet was defenseless. He couldn't reach his squadron and bring them back in time to save the fleet. Nor could he warn the fleet of the approaching danger. There was only one thing to do. He must somehow divert them from the fleet.

Laying aside all thoughts of personal safety, he dove into the formation of Japanese airplanes. Wing-mounted .50 calibers blazed as he charged in, attacking one surprised enemy airplane and then another. Butch wove in and out of the now broken formation and fired at as many airplanes as possible until all his ammunition was finally spent. Undaunted, he continued the assault. He dove at the airplanes, trying to clip a wing or tail in hopes of damaging as many enemy airplanes as possible and rendering them unfit to fly. Finally, the exasperated Japanese squadron took off in another direction.

Deeply relieved, Butch O'Hare and his tattered fighter limped back to the carrier. Upon arrival he reported in and related the event surrounding his return. The film from the gun-camera mounted on his airplane told the tale. It showed the extent of Butch's daring attempt to protect his fleet. He had in fact destroyed five enemy aircraft. This took place on February 20, 1942, and for that action Butch became the Navy's first Ace of World War II, and the first naval aviator to win the Congressional Medal of Honor. A year later, Butch was killed in aerial combat at the age of 29.

His home town would not allow the memory of this WW II hero to fade, and today, O'Hare Airport in Chicago is named in tribute to the courage of this great man. So the next time you find yourself at O'Hare international, give some thought to visiting Butch's memorial displaying his statue and his Medal of Honor. It's located between Terminals 1 and 2.

### So what do these two stories have to do with each other?

Butch O'Hare was Easy Eddie's son. →

## Those Grand Old Burma Shave Road Signs

TRAINS DON'T  
WANDER ALL  
OVER THE MAP  
'CAUSE NO ONE  
SITS IN THE  
ENGINEER'S LAP.

SHE KISSED THE  
HAIRBRUSH BY  
MISTAKE. SHE  
THOUGHT IT WAS  
HER HUSBAND,  
JAKE.

### Remember these?

For those who never saw any of the Burma Shave signs, here is a quick lesson in our history of the 1930s and 1940s.

Before there were interstates, when everyone drove the old two-lane roads, Burma Shave signs would be posted all over the countryside in farmers' fields. They were small red signs with white letters. Five signs, about 100 feet apart, each containing one line of a four-line couplet. The obligatory fifth sign followed advertising Burma Shave, a popular shaving cream.

### Here are more of the actual signs:

DON'T LOSE  
YOUR HEAD TO  
GAIN A MINUTE.  
YOU NEED YOUR  
HEAD YOUR  
BRAINS ARE IN IT.

A GUY WHO  
DRIVES A CAR  
WIDE OPEN IS  
NOT THINKIN'  
HE'S JUST HOPIN'

DROVE TO LONG,  
DRIVER  
SNOOZING, WHAT  
HAPPENED NEXT  
IS NOT AMUSING.

BOTH HANDS ON  
THE WHEEL EYES  
ON THE ROAD  
THAT'S THE  
SKILLFUL  
DRIVER'S CODE

BROTHER  
SPEEDER LET'S  
REHEARSE, ALL  
TOGETHER, GOOD  
MORNING NURSE.

THE ONE WHO  
DRIVES WHEN  
HE'S BEEN  
DRINKING  
DEPENDS ON YOU  
TO DO HIS  
THINKING

CAUTIOUS RIDER  
TO HER RECKLESS  
DEAR, LET'S  
HAVE LESS BULL  
AND LOTS MORE  
STEER

CAR IN DITCH,  
DRIVER IN TREE,  
THE MOON WAS  
FULL AND SO WAS  
HE.

SPEED WAS HIGH  
WEATHER WAS  
NOT, TIRES WERE  
THIN, "X" MARKS  
THE SPOT

WHEN JUNIOR  
TAKES YOUR TIES  
AND CAR, IT'S  
TIME TO BUY  
ANOTHER JAR

AROUND THE  
CURVE LICKETY-  
SPLIT BEAUTIFUL  
CAR WASN'T IT?

### All time favorite:

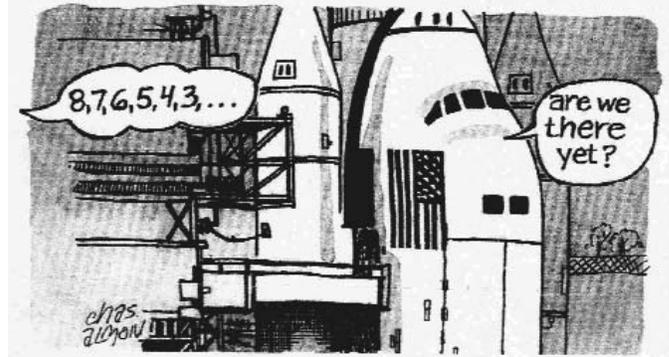
PASSING SCHOOL  
ZONE TAKE IT  
SLOW LET OUR  
LITTLE SHAVERS  
GROW

NO MATTER THE  
PRICE NO MATTER  
HOW NEW THE  
BEST SAFETY  
DEVICE IN THE  
CAR IS YOU

—Burma Shave

- Mount your switch harness and charging jack opposite from the exhaust side of the aircraft.
- Use a glow-extension device for any inverted engines.
- Use scrap fuel line pieces to secure your clevises.
- Tape any servo extensions to the servos main wire for insurance.
- Run the antenna wire inside the fuselage and out the back whenever possible.
- After you finish, test run your engine, high and low end, before coming out to the field.
- Fully charge everything before packing it up and heading to the field. →

## Why They Never Send Kids into Space



### AMA Vision

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

This vision is accomplished through:

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

### AMA Mission

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

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#### CONTACT US

We welcome your comments and suggestions about the *AMA INSIDER*. Please send them to:

##### Newsletter Editor:

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

##### Technical Editor:

Ed McCollough, vpxi@pacifier.com

##### Advisor:

Liz Helms, lhelms@modelaircraft.org

##### Director of Publications:

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

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**AMA Newsletter Editor**  
5161 East Memorial Drive  
Muncie IN 47302

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[www.modelaircraft.org](http://www.modelaircraft.org)  
Tel.: (765) 287-1256 | Fax: (765) 289-4248