



**PRESIDENT TO PRESIDENT**

# Incident Action

by Dave Mathewson, AMA President

Between 12 columns each year for *Model Aviation* magazine, four for *Park Pilot* magazine, and six for the *AMA Insider*, I write 22 columns annually for AMA publications. In each of these columns I try to keep our members updated and informed about current issues affecting the model aviation community and the positive things that aeromodeling encompasses. So I gave considerable thought as to whether or not I wanted to write this particular column. In the end I felt that this story is important and worth telling. Read to the end and I think you'll agree.

An incident occurred April 16 when an AMA member who was flying a 450-size electric helicopter in a Tampa, Florida, public park lost control of the model and injured a young woman walking in the park. It appears that after calling 911, the pilot and his friends stayed with the injured person until EMTs arrived, then picked up their equipment and left. The local authorities will probably cite the men for ignoring a local ordinance against flying in that park.

This is an unfortunate incident that casts a cloud over what we do as model aviation enthusiasts. The local FOX News affiliate picked up on the story and ran a piece that included video that, by most standards, could be considered pretty graphic.

The potential for collateral harm to all of us as a result of this incident is significant. I've been asked a number of times whether or not the pilot and his friends involved were AMA members. In the end I'm not sure it matters. The news piece didn't say, "Park visitor injured by AMA member (or non-AMA member) flying a model helicopter." It said, "Park

visitor injured by toy model helicopter."

The non-modeling public that watched that news story will now have a negative perception of model aviation and question the safety of our models. To complicate matters further, the incident occurred in a major metropolitan community park system that already had a ban on flying models.

This incident will reverberate throughout the country and, no doubt, will become a topic of discussion with authorities of other park systems. AMA has many chartered clubs that have operated safely for years in local parks, and we are watching closely to make sure that we do what we can to support our members and clubs that may be challenged now as a result of this incident.

However, what follows is the reason I decided to write this column. I've been a modeler for a long time. In all of those years, other than regarding the frequency reallocation issue a couple of decades ago, I don't think I've ever seen the aeromodeling community come together as it has with this situation.

AMA has an internal response plan for incidents like this. We were notified of the accident by an officer of the International Radio Controlled Helicopter Association (IRCHA), one of AMA's Special Interest Groups. This triggered our response, which included working with IRCHA to identify a local responsible, articulate, RC helicopter pilot, Rolando Perez, who could speak on camera.

AMA's public relations manager spoke with Mr. Perez to go over significant points that should be made

regarding AMA's Safety Code and record. In addition, our PR manager spoke directly with the FOX reporter, by phone about model aviation and all of the positive aspects of modeling. A statement was issued by AMA.

At the same time, modelers from 33 states and 14 countries – some AMA members and some not – came together on popular Internet forums to express their concern over the incident and what had happened to this young woman. An initiative was even launched to generate

please see **President to President ... on page 3**

## May 2010 CONTENTS

<b>PRESIDENT TO PRESIDENT</b>	pg 1
<b>CLUB CORNER</b>	pg 2
<b>ON THE SAFE SIDE</b>	pg 2
<b>LEADER TO LEADER</b>	pg 3
<b>EDITOR'S PICKS</b>	
<b>A Lesson in How to Crash</b>	pg 4
<b>Improving Your Helicopter</b>	
<b>Flying Skills</b>	pg 4
<b>Failure Modes</b>	pg 5
<b>Crashless Flying</b>	pg 6
<b>NEFI</b>	pg 7
<b>Tips &amp; Tricks</b>	pg 7

# The Lighter Side of Safety: Revisited

Don Nix, *Insider Safety Column Editor*

A few months ago I wrote about some things I had seen at various flying fields that could have been safety disasters, but happily turned out funny instead. I decided to continue the subject because (1) I've remembered a few more, (2) many seemed to enjoy them, and (3) I drew a blank for a subject this month ... Seemed like good reasons to me.

As I've mentioned before, I've been a modeler since I was six years old, and a full-scale pilot for nearly 51 years. I got into RC a little late in life—back in the mid-1980s—after full-scale began to be almost prohibitively expensive for the average guy. I'm sure readers who also fly full-scale can understand what a humbling experience the transition to RC can be. Suffice to say it took a very long time to get my head out of the cockpit and fly the airplane viewing from the outside.

My late wife was also a licensed pilot, and after I became fairly comfortable with a couple of RC trainers, it was her turn. Things went well for the first few sessions using the buddy box system, but she was a long way from soloing. After a takeoff one day, she said, "My transmitter is out of trim, and I don't feel comfortable enough yet to try to trim it myself." I replied, "Nooo problem. Here, swap transmitters with me, and I'll get yours trimmed up."

*(Rim shock....cymbals....think about it for a minute.)*

An incident some years earlier occurred while I was flying a full-scale airplane, but the lesson learned remains the same as for models. I lived in northern Illinois at the time and did a lot of business flying in my Piper Comanche.

One winter we had a several-week stretch of weather that I didn't care to attempt to fly in even though I was instrument rated. When the weather finally improved a bit, I departed one day on a long-delayed business trip. I had several thousand hours experience and hundreds in that airplane, but I was quite aware that inactivity for an extended period—models or full-scale—can be dangerous. I went through my checklists

very carefully before and after starting the engine, during taxi, and pre-takeoff.

Takeoff and climb to altitude proceeded without a hitch, so I trimmed for level flight, set the autopilot and began to relax, but not for long. My Comanche normally trued out about 180 mph, but after tweaking everything I could think of, I couldn't nurse more than about 155 out of the beast. I stewed and wracked my brain for at least 10 minutes. Remember the cartoons where the little light bulb suddenly lights up over the character's head?

In my special efforts to be very, very careful during takeoff and climbout, concentrating and perhaps too focused, I had neglected to retract the landing gear. I was alone with no witnesses, but shame and embarrassment washed over me.

Lesson: No matter how high one's level of experience, after a period of inactivity use a checklist—all of it.

Back to models. The first good-weather weekend after Christmas was always interesting at my favorite RC field in Southern California. All the people with new Christmas airplanes would show up, many of them beginners. I was hangar flying with a friend one January while we watched a young fellow about 14 getting his new ready-to-fly toy assembled. It was some sort of long-winged motor glider powered by a 1/2 A engine. His mother was standing close by watching sonny boy.

It quickly became obvious the lad had never flown before so my friend, one of our club's instructors, walked over and offered to help. Instead of gratitude, this whiz kid erupted with profanity, suggesting my friend perform an anatomically impossible act on himself.

The instructor said, "Oookay" and walked away. As we watched from the sidelines, the kid hand-launched the model and immediately pulled full up elevator, which was hooked up in reverse. Amazing how thoroughly and quickly a paved runway can convert a foam ready-built into a pile of packing peanuts.

The ironic part? My friend said to the mother, "Ma'am, that wouldn't have happened if your son had accepted my help." Her response was only slightly less

vile than the son's.

Clearly, the needless incident could have hurt someone, so to head off myriad e-mails asking why we allowed the boy to fly: it was a public county park, and we had no authority whatever to control operations; we just suffered the criticism if someone did something stupid or careless.

Afternote: While on a nine-month RV tour of the western states this past year, I visited the flying field at Wenatchee, Washington. This was perhaps the most beautiful RC field I've seen in years, and it was clear safety was high on their list of priorities. Unfortunately, I didn't make a note of the club name, but you folks know who you are. Congratulations!

Th-th-th-that's all, folks. I could use some suggestions for safety topics, so ring me up at flyerdon1@yahoo.com. →

## CLUB CORNER

# The Club Corner

by Jim Wallen, *Insider Club Column Editor*

Mike Brink of Arvada Associated Modelers (Colorado) brings us a great idea about working with your local hobby store to create interest and grow membership:

"HobbyTown USA owner Gary Kolm and Justin Mueller, owner manager, have been staunch supporters of our club for some time with club donations, club activities, club newsletter advertising, and several special sales for AMA members.

"Right in the middle of the aircraft department of the store stands the popular Real Flight Simulator. This display is very popular with the customers and is almost always in use. Gary and Justin have allowed us to put one of our club information pamphlet holders on the simulator.

"We use a six-part colored folder with all of the pertinent information about our

please see  
**Tips for Clubs**

... on page 3

## Safety is More Than Careful Flying

Jim Rice, Chairman Leader Member Development Committee

Recently, there was a serious incident at AMA HQ. A package was delivered that contained a suspicious white powder. Unfortunately, the package was carried through the building to be reported to the emergency preparedness officer for HQ. The actions taken from that point forward were exemplary and timely.

The building was vacated, the sheriff was notified, and the staff was sent home. This all happened on Friday morning and no reports were received before close of business. Jim Cherry, ED, and many senior staffers were in Toledo so action had to be taken from afar.

The sheriff did not report anything on Saturday, so the FBI was queried as to what action should be taken next. They offered little assistance so Jim decided to evaluate the condition of the mail clerk on Sunday evening to determine his state of health and then reopen the building on Monday morning if he remained okay.

Sunday, he went on the Internet to determine everything he could about suspicious white powder incidents. He discovered that they are fairly common and that post offices screen all packages for anthrax and other dangerous chemicals. Preliminary reports from the sheriff indicated it was not anthrax or any other dangerous chemical, although, they weren't sure what it was.

Jim returned to Muncie a day early to be present for the opening of business on Monday. Meanwhile, he arranged for the Security Chief from Ball Memorial Hospital, who is an instructor for Homeland Security, to come to HQ and help him brief the staff on the probabilities of the situation. After the briefing, he

asked all employees to return to work and offered anyone not wanting to risk entering the building the opportunity to take leave until the situation was finally resolved. Several opted to head home at that time.

Jim then led the rest of the employees in to work, leading by example, not asking others to take the responsibility for making the tough decision. All of this thinking on your feet and reacting to the situation was well done and is commendable.

Why did I write about this? I think leaders at all levels should give thought to serious incidents that they may experience at events or during weekend flying. Develop some simple plans of how to react to a gun-wielding nut that might arrive at the field, or how to contact and direct medical authorities should a medical emergency arise.

Simple instructions such as written directions to the field that might be provided to police, or EMS, or GPS coordinates of the field. A class on first aid at a club meeting, what equipment and supplies would be appropriate in a first aid kit, or perhaps a list of club members who might have a concealed carry permit so everyone would have an idea of who to go to if the first incident listed were to occur, are other examples.

I think the best solutions to any serious incident are to remain calm, apply common sense, and allow the most organized and prepared person to take charge. Even if it as simple as removing an irate pilot from the premises, prior thought and planning can help expedite the correct response. →

## President to President continued from page 1

donations to help her offset expenses. Members of the local RC helicopter community made the effort to ensure that the local media were made aware of all of the positive aspects of model aviation and the value we bring to communities. As a result, in a short follow-up piece FOX News spoke about the positive “groundswell” of reaction from the “national modeling community” and the concerns expressed by modelers. Go to [www.myfoxtampabay.com/dpp/news/local/hillsborough/422-police-interview-model-craft-operators](http://www.myfoxtampabay.com/dpp/news/local/hillsborough/422-police-interview-model-craft-operators) to see this coverage.

The mother of the young woman expressed gratitude for the outpouring of support she has received from concerned aeromodelers.

Sometimes it takes something like this to make everyone realize that the common denominator between all of us is model

aviation. It doesn't matter what type of model we fly, or maybe even whether or not we are all AMA members. While it was a terribly unfortunate incident, it provided us with the opportunity to show that the majority of us are responsible, safety-conscious individuals, and that we are protective of what we do as model aviators. And this is why I wrote this column.

Out of a bad incident came a lot of good. The public has now had the opportunity to see the positive in what we do and that we are a caring, concerned group. The efforts by everyone here will pay some dividend somewhere. It was a good job by all. And because of the actions of everyone involved in reacting to this accident, I think I've maintained my string of writing about the positive things that aeromodeling has to offer.

See you next time... →

## Tips for Clubs continued from page 2

club such as location of the field, time, date and place of our meetings, training night information, AMA information, and a lot of other information requested by people over several years by those that show an interest in our hobby.”

What is the next project of help and support from these guys? Gary and Justin are planning to send all of their employees to a

training night at the field to learn hands on about flying. Most all of their employees are already versatile in RC but only in cars, not airplanes.

Now that is what I call support! Does it work? “As of our last club meeting we had 14 new members. Although there is no way of telling if that increase was due entirely to the display, but you can be sure it does help,” Mike wrote. →

## A Lesson in How to Crash

I recently destroyed a very nice aerobatic 49-inch Yak. Not really a great thing to do, but it happened and I hope by telling my story I can save at least one other pilot from doing the same.

I had just finished putting some very detailed cockpit work in a very nice Cermak 49-inch Yak 54 so I could enter it in to the 2010 Spring Fling Scale contest. I had earlier increased the power to 4S and had to beef up the motor mount with added carbon fiber along the top and sides to hold the now nearly 1,000 watts it could develop, so I was confident it would perform very nicely.

In full-scale aviation, we always say it takes two or three problems to make a crash, as we are trained to recover from one problem at a time. I think this story bears that axiom out. It took three distinct errors on the pilot's part to create an unrecoverable situation.

It started with my desire to fly one afternoon after I had just finished the above modifications and checked the balance and control throws in my shop. Because of all the things needing to be done, it got later and later in the day before I got out to the field. By the time I got settled in and ready for takeoff the sun was very low on the horizon, but the wind had calmed down a lot (error one).

I did my preflight and noticed that I had a little extra throw in the surfaces, but that's okay, I wanted to be sure I could recover from any attitude I got into during the trim flight (error two).

I took off and climbed out to the west, noticing I needed to

adjust the elevator a little for smooth, level flight. While doing this, I let the airplane get a long ways downwind to the east (error three). As I started to turn toward me to come back to the center of the field, I over rotated due to the larger-than-needed throws of the ailerons, and due to the low sun angle I lost orientation of how far I'd banked and in my attempt to recover I must have thought I was inverted and zipped when I should have zagged.

End result was a near full-power dive into the ground instead of pulling up smartly.

So how could I have avoided this unnecessary loss of a very nice and near new airplane?

1. Don't get in a hurry to go do a flight. If it's 3:30 p.m. when you leave for the field in the winter, it will be dark in only 1.5-2 hours.
2. A headwind is a good thing, dead calm requires more roll out and longer takeoffs.
3. Larger surface throws are inherently bad for control. Use small, reasonable throws and check that the surfaces are in line with the wing or tail fixed surface for easier flight control.
4. Keep your situational awareness! Don't let one aspect of flying (ex. trimming) get in the way of overall flight path control. If you get too far away with an "active" model, you'll have more problems keeping it under control. →

## Improving Your Helicopter Flying Skills

By Bob Ackerman

I have watched most of the helicopter pilots around the area over the past few years and I have seen great improvements with their flying skills. And this is great. But I have noticed that many helicopter pilots are rushing to get into forward flight and on to aerobatic flight without working on the basics. With any helicopter, every flight starts in a hover and ends in a hover (hopefully). Everything in between doesn't matter. To improve your flying skill you need to practice hovering.

If you watch most helicopter pilots at the field, they place their helicopter on the ground 20 to 30 feet in front of them, bring the helicopter up to a stable hover, then quickly turn around and head off to fly around. For the most part that is okay. Approach to landing is another story. Many pilots come in too short or too long and end up hovering backwards to in front of the pilot, and then landing. Other

pilots enter a high hover in front of the pilot and then descend backwards to a lower hover for landing.

I propose to all the helicopter pilots out there to spend some time on the hover circles just hovering. There are a couple of skills you need to do while hovering. Some of these are real basic, but they lead to harder elements of hovering.

Start in your normal hover with the nose pointed away from you. Don't watch the tail; you should watch the nose because that is the direction the helicopter normally flies in. Now turn the helicopter so that it is 45° from you and hold that hover. Now turn back to the other 45°. Work your way up to 90° on both sides.

Now here is the hard part. Do you know where you just placed your helicopter on the ground for the first takeoff? Do you know where you stand all the time? Good. From now on you stand at the same spot. From now on you

do not place your helicopter on the ground at the same spot. Spend your practice time by practicing taking off and landing at different spots on the field.

Next, take the two elements mentioned above and practice that 45 and 90° turn at different places around the field. Hard, isn't it? How about changing the altitude? Instead of five feet in the air, try the hovering at three feet, or 10 feet.

Helicopter pilots get comfortable with their helicopter in a hover at a certain altitude and a certain distance in front of them. The idea here is to move around and try different locations. The above is all good but you would be surprised at the number of helicopter pilots who do not, or have not, practiced any of the above.

Now we take hovering to the next level. Pick several points around the field. Hover the helicopter to that location and

**please see Helicopter ... on page 7**



# Failure Modes

By Jim Hoffman

*Consider designs and procedures that may improve the reliability and longevity of your models ...*

I have seen countless Control Line ships destroyed or damaged needlessly due to mechanical failures that could have been easily avoided. The cause of the failure could have been avoided by an alternative design or procedure. In aerospace world, as a product is conceptualized and designed, the team looks very hard at all possible potential failure modes. The possible failure mode effects are used as a guide as the design progresses and the zillion design evaluations are made. This approach certainly can be used with our models; it has been a part of my modeling program for many years.

I look at every component and consider every possible failure mode I can imagine. From there, I next look at three parameters:

- **Severity of the failure.** Severity can be ranked from high to low. If this failure occurs will it cause personal injury or perhaps an immediate crash? Lesser-severity failures certainly exist, which may result in performance reductions, or cosmetic issues.
- **Likelihood of the occurrence.** This is difficult to evaluate, but after enough years of experience and observation, one does develop a sense of the likelihood. In most industries there are actual records that give one a basis to compare the likelihood of various failures.
- **Detectability.** Many mechanical failures can be prevented by regular inspections of the airframe and equipment. A loose engine mounting screw can be detected by visual examination, torque check, or even a change in the sound of the airplane in the air. Usually the fastener can be tightened before anything really bad occurs.

In order to have reliable and long-lasting models one must address all

failure modes. The magnitude of the time, cost, and weight penalties needed to resolve any failure mode ought to be linked to the three parameters listed. I have seen examples where all failure modes are given a score for severity, likelihood, and detectability. This is overkill for us.

The most elegant solution is to design away as many failure modes as possible.

## Examples of Possible Failure Modes.

Wimpy Bellcrank Mounting System: May be the poster child of a most nasty failure mode. Severity is very high—an in-flight failure will likely destroy the airplane. Likelihood is high due to the continuous flight loads on the bellcrank. Detectability is moderate if you do frequent pull tests.

An elegant solution is the hard point handle, which simply eliminates the cable altogether. The hard point style handle can also fail due to loose fasteners, but this failure mode is common to the cable style handle also.

Hooking up your lines backward. Severity: again very high. Very few airplanes survive this error. Likelihood varies due to the individual, but is never zero. Attention to detail and careful preparation certainly can reduce the likelihood. We can all cite instances where very experienced veterans suffered the loss of an airplane due to this error. Detectability is pretty good if you really check up/down before you fly. This means more than wiggling the handle and observing the elevator wiggles.

A common solution is to have a handle and lines dedicated to each airplane. When I roll up, the cables and handle are never separated and are stored together. When I disconnect the cables for the airplane, I leave one connector on the cables. This makes it very unlikely that the lines will be hooked up backwards next time. I also clear the lines of twists and check that up is up, down is down, and neutral is neutral before each flight. Many others color-code the up and down lines on the handle, cables, and airplane leads out.

Cowl and landing gear mounts. Severity: this is lower than in the previous examples. The airplane will likely survive if the cowl or landing gear falls off. Likelihood again varies due to the individual but is never zero. Detectability is pretty good if you really check the fasteners frequently.

This is important to competition types, because the flight is disqualified if anything falls off the airplane.

Cowl: There are some nice design solutions to consider. Many stunters are built without a cowl. This makes for a little more effort to remove the fuel tank, but is not uncommon. There are some clever designs that restrain the cowl with a single fastener. I choose to use several fasteners to hold the cowl in place in the name of reliability. Should one fastener fail, the cowl will stay put with other fasteners.

Landing gear: Similar to the cowl. Permanently installed landing gear are not likely to fall off, but you give up ease of maintenance and adjustment. Again, a very good solution is to use multiple fasteners.

Wheel collars can loosen and allow a wheel to depart in flight. Severity: this is lower than in the other examples. The airplane will likely survive if a wheel falls off. Likelihood again varies due to the individual, but is never zero. Detectability is pretty good if you really check the fasteners frequently.

Again we are looking at a single set screw, which can result in a problem. The use of Loc-Tite is helpful. Many folks grind a flat on the axle to allow the set screw to better register. Another solution is to design the set screw away and retain the wheel with a soldered washer.

I have only scratched the surface of a very complex subject. I continuously look for possible failure modes and ways to simply design them away. I also pay a lot of attention when a failure occurs at the field and try to understand the cause of the failure. I hope that this is useful and makes your airplanes more reliable and longer lasting. →

# Crashless Flying

Fly RC long enough and you will experience a crash. However, some pilots seem to crash often—too often. Let's explore some of the causes of crashes and perhaps minimize crash opportunities.

**Split Second Delay Crashes:** High speed creates high loads on the plane's control surfaces and servos, causing a possible split second delay of control after a stick input. A split second delay is all that is needed when your plane is in some maneuver heading toward that ground at 100 mph (147 feet per second). Point the transmitter antenna at the airplane you can create a cone of science at your receiver, which can cause a control response delay.

**Pilot Orientation Crashes:** Another cause of crashes is a non-mechanical one: pilot orientation. If you are low and fast and lose orientation, expect a crash. Have your airplane flying level or in an up attitude while flying close to the ground.

**Distraction Crashes:** Another non-mechanical cause: distraction. If you allow yourself to be distracted, even for just a couple of seconds, you're likely to crash. If you were stung by a bee, step on what you think could be a snake, or have another critter eating your pant leg, put your plane in a series of tight loops with full up elevator, then take care of your business and your airplane will still be there when you can tend to it again, not two miles down the range. This may be overly simplistic, but you get the general idea. All pilots get distracted sooner or later. Think out in advance what you will do so your fingers will react when you do get distracted.

**Aerobatic Crashes:** Among the many maneuvers pilots enjoy, snap rolls are at the top of the list. Just be prepared for that fatal snap of a control surface during this maneuver. Pilots usually enter a snap full bore with full deflection on all control surfaces. This can load your airplane up to as much as 30 Gs, plus air drag loads. Inspect your airplane carefully after doing this violent maneuver.

**Elevator Crashes:** Let's spend some time with the elevator. This is the most important crash prevention control on your airplane. First, the elevator itself must be built from good material. Too hard and brittle is not good; too soft is not good either. In today's world, the high-quality ARFs take care of this. Use your best servo in the elevator. I don't like the standard servos on any function except the throttle.

Buy some good servos for your primary control surfaces. Next, use only strong, stiff rod linkages from servo to the control

horn. Fiberglass rod systems are great for long runs. Strong, stiff wire works well for short runs. It's very important to keep the bends in the wire to a minimum. Lots of pilots use them, but I don't like the flexible Nyrod-type systems. Any movement of flex here could allow surface flutter, and also cause a split-second delay crash. The plastic clevises and control horns supplied in many kits leave a lot to be desired. Get these items from Du-Bro or Hangar 9.

Dirt and grit will weaken the plastic clevis pin very quickly, and generally they are too soft and flexible. Consider using metal or the super strong carbon fiber clevises and control horns. Metal-to-metal contact is taboo, but most metal systems have an insulator to prevent any metal-to-metal contact. Always install a rubber or nylon safety "keeper" on this and on all your clevises.

Crashes are extremely frustrating and expensive. With a better understanding of what causes crashes, we can more easily prevent them.

### Servo Damage Crashes:

Servos can be unknowingly damaged by a hard landing or by bumping a control surface while

loading the airplane into a car. What happens is the servo's gears get cracked but it continues to operate until subjected to flying loads, then the gears break. After a hard landing or a bump, and from time to time, check your servos by applying slight hand pressure to the control surfaces while operating the servo. If it takes hand pressure, it will usually stand up to flying loads.

**Take-off Stalls:** The airplane will very likely turn to the left during take-off. One method to prevent this type of crash is a high-speed takeoff run and a shallow climb after liftoff until maximum climbing speed is reached. Use rudder to maintain direction with very careful use of ailerons to stay level. If the engine quits on takeoff, don't try to turn back to the runway. Keep the airplane heading into the wind and make your landing.

**Landing Turn Stalls:** A very common pilot error occurs while setting up a landing approach and performing too steep a turn from downwind to final. Airplanes stall at a much higher speed in a bank, and a steep bank into the wind will quickly slow the airplane and cause it to stall. Keeping turns shallow on your approach will help prevent this type of stall, and using rudder to turn will also help keep the turns shallow and reduce the additional drag of the ailerons. This becomes especially critical if landing dead stick.

Routinely check and tighten motor and engine mounting screws. Carefully inspect and test all flying surfaces. Pull on them to make sure the hinges are secure. →



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## Helicopter continued from page 4

stop over the mark. This could be a clump of grass or an imaginary spot on the ground. Slowly bring the helicopter straight down and land on that spot, then back up into a hover. Move to another point. You will be surprised how really hard that is at first.

Next make it more difficult. As the helicopter move from point to point, the helicopter must fly in a hover motion only. You must keep the helicopter pointed in the direction of flight. After stopping at a selected spot, turn the helicopter to face the new direction of flight and then fly at hovering flight to the next stopping spot. Yes, I know, it can be difficult.

If you think about it, you should be able to come up with dozens of drills to practice your hovering. Flying side to side for most beginners is the first thing they learn. Turning the helicopter and flying in a forward direction is more difficult. Flying backwards, except when pointed away from you (the nose that is), can be very difficult. But the more you practice the better you get. And the more different types of practice you do, the better you become.

Another area I would like to discuss is flying pattern. Many helicopter pilots start from a hover and head off almost straight up to have some fun. Helicopter pilots should concentrate on a hover taxi out onto the runway, just like our fixed-wing

friends do, turn to face down the runway, and fly out in a pattern.

When done flying around and after doing whatever you want to do while in forward flight, you should practice arriving in the pattern. Fly downwind just like the airplanes, turn onto the runway, and in a controlled approach descend and slow down so that the helicopter flies into a hover right in front of you. Once you have a nice hover in the middle of the runway, turn the helicopter to the side of the runway, hover fly to the sideline, turn to face the runway, and land.

The general point of this entire article is to practice what you don't do, and practice what you normally do but in a little different fashion. Helicopters are all about the hover, and the helicopter can hover anywhere on the field. The problem is most pilots have not practiced hovering all over the field.

Attitude recognition gained from all that hovering practice will to become second nature. Knowing how to correct the attitude of the helicopter from any attitude will help the pilot to progress with aerobatics many times faster than relying on sheer luck, which is what most people do rushing into forward flight. The hard work up front will pay off later learning aerobatics because every angle of the helicopter will be familiar and therefore more easy to correct, carry-out, or bail from to avoid a danger. →

## Tips & Tricks

### Gluing on Canopies

Before gluing on your airplane's canopy, put a small hole in some obscure place to allow air circulation under the canopy. This will keep your canopy from popping off in the summer when the air inside expands or from collapsing in the winter when the air shrinks.

### Soldering Wires

Unless you have nerves of steel, it's difficult to hold two wires still while you solder them together, even if one is clamped to your workbench. An easy solution to this problem is to glue two wooden clothespins to a wooden base, about an inch apart. Now, slip the wires to be soldered into the clamping part of the clothespins, and they will be held together without jiggling. You can put the clothespins side by side rather than nose to nose. This keeps them from interfering with longer wires. You will probably have to sand the gripping part to create a larger grip area.

—both from the Beachmasters RC Club newsletter, Ocean Park, Washington

## AMA Vision

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

This vision is accomplished through:

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

## AMA Mission

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

### ABOUT THE *AMA INSIDER*:

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

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

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