



MARCS Sparks

JUNE 2010

VOLUME 49 ISSUE 6

Monthly newsletter of the
MADISON AREA RADIO CONTROL SOCIETY
Madison, Wisconsin AMA Charter #665



COME FLY WITH US...

The MARCS' meetings are held on the first Thursday of each month at:
MADISON LABOR TEMPLE
1602 South Park St. Madison, WI.
7:00pm room #201B

Visitors are always welcome. We think we have a great Hobby and we invite you to come and see, and consider joining us.

Club Officers:

President: Brad Witt.....bwitt@chorus.net
Vice Pres: Danny Sutter..... stodan@merr.com
Secretary: Don Weigt..... d_weigt@sbcglobal.net
Treasurer: Dick Sutton..... jdsutt@mhtc.net

Membership information	<i>(more details on page-9)</i>
Dick Sutton	phone: (608) 437-6795
Flight instruction coordinator:	
Ozzie Johnson	phone: (608) 274-0474
Web master:	
Jeff Alexander	webmaster@marcswi.org
Club photographer:	
Otto Oie	ooie3@charter.net
Club safety officer:	
Bill Kinney	hukilau@centurytel.net

Club website: ----- **www.marcswi.org**
Info."About us", our "Flying sites", "Newsletters" (present and archives), a calendar of events, "Pictures & Videos."
Contains links to: "War Birds" "Electric Flyers" & other special interest groups. Membership application forms for the **MARCS** club and the **AMA**.

Minutes of the:

MARCS General Membership Meeting
May 6, 2010
Submitted by: **Don Weigt, Secretary**

The meeting was called to order at 7:05 P.M. by President **Brad Witt**. There were 32 people present.

Secretary's Report: The minutes of the April meeting were approved as published in **SPARKS**.

Treasurer's Report: A printout of Treasurer **Dick Sutton's** report was available. Current membership is 79.

No visitors or new members were introduced. Two new members joined, but couldn't stay for the meeting.

OLD BUSINESS:

Schultz Sport and Hobby: **Charlie** is still sick. He's resting a lot, eating very little, has lost weight. The shop is closed for now.

Rod Lippert: **Dave Rush** reported **Rod's** memorial service was very nice. Said we didn't know what an amazing guy **Rod** was. For example: at one time, when Wisconsin people requested exemptions from the draft, **Rod** was the person who evaluated their situations and made the decisions.

Field/Shelter/Runway:

Someone broke into the storage sheds. The police were called. Both locks were off, their hasps broken. They removed the newly donated chipper, but didn't take anything else. They did some damage to the doors. **Wayne Lanphear** secured the sheds and replaced the locks. The new ones have hardened hasps. **Ed Buechner** repaired and reinforced the doors. **Brad** painted the doors and that side of



Minutes continued from page-1

the older shed. The rest of both sheds need painting. It was too windy and cold to paint on the field work day. Someone at the landfill office noticed the chipper sitting out in the woods, 200 yards away. It has been retrieved.

John Granberg told **Brad** the large, wheeled trimmer isn't working. **Ed Buechner** will repair it.

We still don't have the City contract for the field. **Brad** called to learn the holdup. Was told they were waiting for the specially worded insurance document. **Brad** took the document to the City, but still hasn't received the contract. **Brad** still has the check.

The emergency phone isn't working; its battery is dead. **Wayne** will replace the battery.

Dave Rush asked if we are going to roll the field this spring. **Gil Hoffman** isn't working for the implement dealer anymore, so he can't borrow one this year. We're looking for a roller to borrow. **Jeff Brimmer** may be able to set up a demo with one at the field for his employer, Brooks Tractor. It would be brought out Friday and taken back Monday. We could use it for the weekend. Some arrangement must be made so it's insured when off site. **Jeff** said a 29 inch double drum machine that weighs about 4,000 pounds would be easy to transport but take a long time to do our field. Something bigger would be better, but harder to get to and from the field. Also, there are about three drain lines under the field, running north to the creek. They are just plastic, with only about four inches of soil above them, and we must be careful not to collapse them. Last year, it took about a day to roll the field with about a 36 inch roller, so we could do the entire field in two days with a 29 inch one.

We still are looking for people who want the wood from last year's cutting. Several prospects came to investigate it, but didn't take any. If you know someone who wants some wood, please help make it happen!

NEW BUSINESS:

Brad received a donation of tools, a kit, two radios, a roll of Monokote, and the parts to build a Dura-plane. Thank you!

Final Indoor Flying Session of the season, Sunday, May 23?: **Dave Rush** said if there is enough interest, he can get the Janesville Craig Fieldhouse opened from 10:00 A.M. to 1:30 P.M. for a free indoor flying session. The usual 6.5 ounce weight limit will apply, for those who have planes to fly. **Dave** will have some planes available for people who have never tried flying indoors. Email him if you are interested! **Todd Giesfeldt** related how he got to fly his Vapor a lot at the last one, and that it really helped him fly it well.

Equipment for Sale: **Brad** was contacted by a non-member in a nearby town, who had a list of 14 radios, nine helicopters, and a lathe to sell. Could they be listed in SPARKS, and what was the advertising rate? **Brad** will suggest they first take the stuff to the Lodi meet.

Introductory activities: **Jeff Brimmer** asked about bringing friends and their younger kids to the field for demo flights with a proficient club member. Some people have new planes, but don't know how to fly, and aren't members. If we can have them make a few flights with an instructor, maybe we can get them hooked and some will become members. **Brad** reiterated the club rules that people can be guests of club members once or twice a year. The club member is responsible for the safe operation of the visitors or their equipment. The usual limitations apply, such as no flying when the running track is in use for cross country, and be careful.

Warbirds Over Dane, Sunday, June 13: **John Granberg** reminded everyone that this event is just over five weeks away. Next month he will bring sign up sheets for jobs helping with the event. This will be the first club flying event of the season. Bring your warbirds, or come out to help and watch.

Brochures: **Brad** announced he has a supply of club literature printed by **Ed McDonald**. **Ed's** contribution was applauded by those present.

NEARBY EVENTS:

SUNDAY, MAY 16, LODI SWAP MEET AND FUN FLY: THE SWAP PORTION WILL BEGIN AT 9:00 A.M., THE FLYING WILL BEGIN ABOUT 11:00 A.M.

Minutes continued from page-2

RAFFLE WINNERS:

Bob Stowell: Gallon of 10% nitro glow fuel

Ed McDonald: Set of "Ball Drivers"

Tom Tiedt: Colt 40 SLT Plane

Tony Kremm: WWII Book

Jim Louden: (Roll) UltraCote (white)

Wendell Hottmann: (Roll) Monokote (Transparent blue)

Ray Walsh: 1/4 inch drive US and metric sockets

SHOW AND TELL:

Brad Witt had a Great Planes balancer, free to anyone who wanted it.

Todd Giesfeldt showed a Shoo Fly he built from plans in the winter of 1968/1969. In 2008, he lost it the weeds across the creek, northeast of the field.

He found it 3 1/2 months later, when the foliage dried up in the fall. The wing was full of

water. He removed the top covering, dried it out, and recovered it. Originally powered with an Enya .09, recently with a modern OS .10, it flies great now with an OS .15 and Hitec radio, using three channels for rudder, elevator, and throttle control. The 36 inch span plane weighs three pounds. Todd also showed the Controlaire galloping ghost radio that he used to control it when the plane was new, and explained how it worked. The motorized actuator was moving constantly, and the control surfaces moved all the time. It wasn't very reliable, but did control rudder, elevator, and throttle with one electric motor.

Danny Sutter showed a Peck Polymers Prairie Dog model powered by a PJS Outrunner. The 49 inch span model weighs 32 ounces with a 4000 mAh 2S LiPo. This is about 8 ounces less than the specifications, largely because it was designed for Ni-Cad batteries. Danny got the kit from Dave Rush, who was selling it



for Don Gaines. Some parts were missing, which Danny had to design to be about the right size and then fabricate. The model uses three channels for rudder, elevator, and throttle control.

Roger Zimmerman showed a House of Balsa P-51 he built from a kit that came from Hal Humphrey's estate, and was a September, 2009 MARCS raffle prize. The kit is no longer made.



The model is powered by a Magnum .36, uses a Futaba 2.4 GHz radio, and weighs about 3.5 pounds. The wing leading edge seems sharp, with a flat bottomed airfoil and no twist (washout). Roger hopes it doesn't have problems with snap rolls when it is slowed to land. Finish is Rustoleum gray paint, with invasion stripes on the bottom of the wing for better visibility. Roger tried Rustoleum silver paint, but found it's not fuel proof. Gray is. Roger built the model with fixed gear for simplicity. The model uses four channels for rudder, elevator, aileron, and throttle control.

Bill Kinney showed a ME-108 German WWII trainer. The 63 inch span model weighs seven pounds. Power is a JBA .56.

Bill waited 11 months to get the model from Hobby People! The model is covered in dark green, and is an ARF. The model uses four channels for rudder, elevator, aileron, and throttle control.



PROGRAM: There was no program tonight.

Next meeting: Will be on Thursday, June 3 @ 7pm

The meeting adjourned at 8:10 P.M.

JUNE RAFFLE PRIZES

Hobbico
AVISTAR 40 Aircraft
Built...never flown

4-Channel 72MHz Radio
w/New Batteries
(Believed never used)

SPEKTRUM
5-Channel 2.4 GHz Transmitter
(New in Box)

WINNER'S CHOISE
If enough tickets are sold, there will be two drawings

FAIL-SAFE

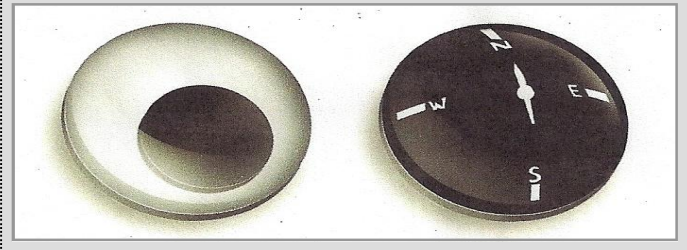


Worried about those quick connectors slipping?
Here's a sure-fire way to prevent that and add only a small amount of weight. Just add a small wheel collar on each side of the connector and tighten the set screw down. For even more security on larger planes, file a small flat notch on the wire where the set-screw seats.

So... you want MORE DETAIL ?

Cockpit instrument panel glass lenses:

These "wiggle eyes" are available at craft stores in assorted sizes. Simply type in "aircraft instruments" and let your web-browser find what you want, print-out and size-out the gauge or gauges you so desire. Then remove the eye-ball and insert your new custom gauge. Finally, just glue it in the proper position on your instrument panel... Cool!? Yes!



BETTER PERFORMANCE WITH LESS NOISE

MUFFLERS:

The mufflers provided with today's engines are quite for the rpm range in which they are designed to run. Mufflers that come with internal baffles should keep the baffles in. Removing them does nothing to boost power; it increases noise, and makes the engine idle poorly because of lack of back-pressure.

Pitts-style mufflers shouldn't have more exit area than the stock muffler does, and if it does, one of the ports may have to be partially or completely blocked. Again, this will improve the idle.

ENGINE SPEED:

A large contributor of noise made by airplanes is an over-revving of the engine. Most modelers try to make their engines run as fast as possible, trying to obtain the rpm at which the manufacturer claims the largest brake-horsepower (BHP) number. What they don't realize is the peak efficiency for the engine occurs at peak torque, which is usually about 65%-75% of the peak BHP rpm.

Example-1: A manufacture of a .46 engine claims 1.5 BHP at 16,000 rpm. After break-in you find that you can turn a 10 X 5 propeller at 15,500... very

Less Noise, continued from page 4

close to the peak BHP, but the airplane's performance is mediocre, it is loud, and consumes way too much fuel.

Now you find the engine's peak torque is about 70% of the of the peak BHP rpm (.70 X 16,000 rpm = 11,200 rpm). You switch to an 11 X 7 propeller and find that the rpm is 11,500. You are much closer to the peak torque now, and the airplane flies better and is quieter because the frequency of the engine firing has reduced dramatically. The fuel also lasts longer, and the engine will last longer as well since it is not working as hard. A slower engine also helps in achieving the next goal...

PROPELLER SPEED:

The tip speed of the propeller is critical in quieting the airplane. The point where things get noisy is 560 -feet per second or about 380 mph; going more than 400 mph is a big **NO-NO**. Even in an airplane that is built for speed, you should be able to choose a quieter propeller.

Example-2: Same setup as the last example, the 10 X 5 propeller is at 15,500 rpm and the 11 X 7 propeller is at 11,500 rpm. The formula for the tip speed in miles per hour is: (Diameter in inches) (3.1416)(rpm)/1056. The number 1056 is a constant that converts inches per minutes to miles per hour.

$$10 \times 5 \text{ @ } 15,500 \text{ rpm has a tip speed of } 461 \text{ mph}$$

$$(10)(3.416)(15500)/1056 = 461$$

We want our tip speed no faster than 400 mph and it should be less than 380 mph if you want to keep your flying site.

$$11 \times 7 \text{ @ } 11,500 \text{ rpm has a tip speed of } 376 \text{ mph.}$$

$$(11)(3.1416)(11,500)/ 1056 = 376$$

The tip speed is now down to a moderate level. But how do these propellers compare in performance? You can calculate air speed by using the propeller pitch and the rpm of the propeller. The pitch of a propeller is the second number in the propeller designation. This is the distance in inches that the propeller will travel through the air in one revolution.

Multiplying the pitch by the rpm and dividing by

1056 will give the calculated speed of the model.

$$5 \times 15,000/1056 = 73 \text{ mph}$$

$$7 \times 11,500/1056 = 76 \text{ mph}$$

So your airplane will actually be traveling slightly faster with the 11 X 7 than with the 10 X 5, while turning 4,000 rpm slower. This reduces engine noise, propeller noise, fuel consumption, wear and tear on the engine, etc., without compromising performance.

VIBRATION:

How does the vibration of your model relate to the sound it makes in the air? Well, sound is vibration. Imagine your beautiful model... a nice wooden structure covered in drum-tight plastic covering. Think of it as a percussion instrument. The piston is traveling up and down like a drumstick pounding away at your model. And your model echoes every stroke it makes. The same thing happens with an out-of-balance propeller. It's everywhere! Your mission; get rid of all vibration.

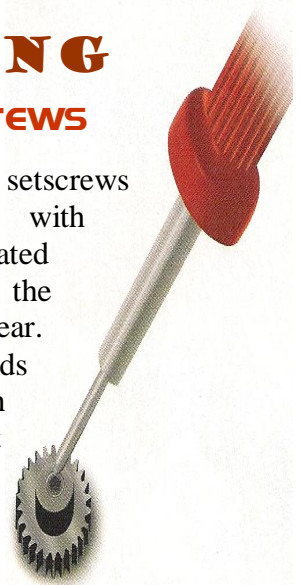
START AT THE PROPELLER:

It moves 300 mph+ at the tip... balance it! It will remove noise because all that vibration won't exist in your airframe. Your neighbors will thank you and your receiver crystal, your servo pots, fuel tank, and NiCds will thank you as well. You will be rewarded with much greater reliability and a longer airframe life span. Also consider a high-quality spinner. They are better balanced and look nicer.

by, Brian Dorff

**REMOVING
Stubborn setscrews**

This works especially well with setscrews that were originally secured with "thread-Lock." Put a pre-heated soldering gun tip on top of the setscrew or on the collar or gear. Leave it there for 10 to 20 seconds and then use a good hex-wrench to remove the screw. The heat Breaks the adhesive's seal and allows you to remove the set screw easily.



CRASHLESS FLYING

Even if you are an expert pilot of RC airplanes... if you fly them long enough, you will most likely experience a crash. However, some pilots seem to crash often... too often. Let's explore some of the causes 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 and you can create a cone of silence at your receiver, which can create 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 loose 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 roll full bore with full deflection on all the control surfaces. This can load your airplane up to as much as 30-G's, 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 the servo to the control horn. Fiberglass rod systems are great for long runs. Strong, stiff wire works well for the 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 Nyrod-type systems. Any movement or flex here could allow surface flutter, and also cause a *split-second delay* crash. The plastic clevises and control horns supplied in many kits leaves a lot to be desired. Get these items from Du-Bro or Hanger-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 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 or out-of a vehicle. 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 the flying loads.

Take-off Stalls:

The airplane will most likely want to turn to the left during its *take-off*. One method to prevent this type of crash is a higher-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

"Crashless" continued from page 6

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 of 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.

Inspection beforehand:

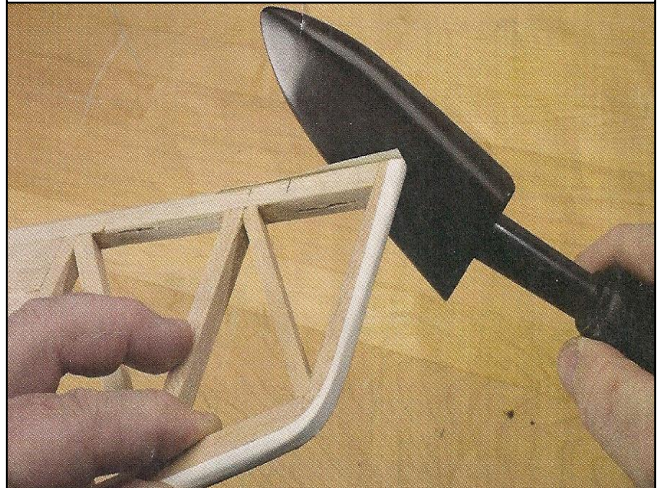
Routinely check and tighten motor and engine mounting screws. Carefully inspect and test all flying surfaces. Pull on them to make sure all the hinges are secure.

NOTAM, Lewis Jordan

BUILDER'S Work Bench

Covering your airframe with the best of your ability

The best way to cover flat control surfaces without wrinkles along the rounded edges, is to cover the outer edges with a long strip of the material first.



Then apply the covering to the main surfaces overlapping that strip. It may seem like a lot of extra work, but the results are beautiful and you can not see the seems at all.

by, Gerry Yarrish

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GETTING A GRIP



Holding on to those little screws long enough to get them started can be quite frustrating. Here's a way to relieve some of that. Place a piece of fuel tubing on and near the end of the screwdriver to push over the head of the screw to hold it in place as you reach into a tight area to get it started.

When the job is done, just slide the tubing up on the shaft of the driver a bit to be ready for the next time it's needed.

2010 Club Events

Event:	Date:	Location:
<i>War Birds over Kettle Field</i>	June 13	Kettle Field
Ken Kindschi <i>Scale Rally</i>	July 18	Kettle Field
<i>Boy Scout Aviation Day</i>	August 21	Kettle Field
2010~ <i>Float-Fly</i>	July 10	Lake Waubesa
2010~ <i>Electric Fun-Fly</i>	August 7-8	Kettle Field

SAVE YOUR PLANE...

How to: RECOVER from a "STALL" AND FLY ANOTHER DAY

The stall, or more accurately the inadvertent stall, has probably caused more RC airplanes to crash than any other cause. The safety of your airplane depends on your knowledge of its slow-speed handling and stall characteristics. To minimize the number of crashes due to stalls, the pilot must understand the principles of what makes a plane fly and how to make practical use of that information.

First, we must understand how the wing supports the plane in flight. As the plane moves through the air, the amount of lift is determined by the particular airfoil and its angle of attack (AOA). The AOA is the angle formed by the wing's chord line and the oncoming airstream. The other primary factor in the amount of lift is the speed of the airfoil through the air. A stall will occur when the AOA exceeds the wing's critical angle of attack. At this angle, the lift suddenly decreases and the drag increases, resulting in the plane losing altitude very rapidly. The

pilot has control over the AOA with the elevator. For example, if the pilot inputs up-elevator the tail drops and the nose rises, which increases the wing's AOA. An important point to note is that the plane can be moving in any direction, including straight down, and a stall will occur if the AOA is exceeded.

The only way to recover from a stall is by decreasing the angle of attack below the critical angle by pushing forward on the elevator. By learning your plane's slow speed and stall behavior, you should be able to avoid getting into an unintentional stall situation in the first place. Take your plane up high; reduce the throttle while increasing the elevator deflection to maintain your altitude. As it slows, note how the plane reacts to your control inputs, and when it does stall, note if a wingtip drops or if it stall straight ahead. Recover from the stall by lowering the nose to gain flying speed. Adding power will speed the recovery and minimize altitude loss. Practice this until you can recover with the wings level. All models will stall differently, so you'll want to learn the basic characteristics of all the models in your fleet. This will increase all of your flying skills tremendously and will prevent you from becoming a victim of this common crash.

BY THE... MODEL AIRPLANE NEWS CREW

BOARD of DIRECTORS Meetings

These meetings are held on the same evening as the monthly General Membership meeting, shortly after its adjournment.

General Membership meeting: 7:00~9:00pm

Board of Directors meeting: 9:00~10:00pm

Both meetings are held in room: 201-B. Club members are welcome to stay and observe the meeting. A Club member may have the floor by being recognized by the Chairperson. Input and/or opinions must be brief and to the point, as the overall meeting time is limited.

Agenda: June 3, 2010

- FIELD MAINTENANCE
- POSSIBLE FIELD ROLLING
- EVENT PREPARATIONS
- ISSUES FROM THE MEMBERSHIP
- TREES - CHIPPING

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M.A.R.C.S.

Madison Area Radio Control Society

Annual Membership Dues

Regular membership.....	\$60.00
Junior membership.....	\$25.00
Park Pilot membership.....	\$25.00
Family membership.....	\$20.00
Associate membership.....	\$20.00

All applicants for a **MARCS** membership must show proof of their **AMA** membership at that time.

To receive the club's monthly "**NEWSLETTER**" by regular first-class mail, rather than off the Internet, please add \$10.00 to your annual fee.

Treasurer: *Dick Sutton*

TIP of the MONTH

AVOIDING PUNCTURES

Where bolting a wing assembly to a fuselage requires the use of a screwdriver, wing punctures from a slip off the head is always a threat. Here's a simple way to avoid that possibility. Acquire "wing-nuts" that are the proper thread size for those bolts and thread them (upside-down) all the way to the head of the bolt. Put a couple drops of CA glue or epoxy where the wing-nut contacts the head of the bolt and let it cure-out.

Now, this chore will not require a tool of any kind, other than your thumb and finger tips, and will eliminate that enviable puncture.



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HOBBY SHOPS
by Buying locally