

APRIL

2008



MONTHLY NEWSLETTER of the  
**MADISON AREA RADIO CONTROL SOCIETY**  
MADISON, WISCONSIN      AMA CHARTER # 665

# MARCS SPARKS

VOLUME 47

ISSUE 4

## COME FLY WITH US...

MARCS meetings are held on the first Thursday of each month at:  
**MADISON LABOR TEMPLE**  
602-South Park St., Madison  
**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.**

### Officers...2008:

President: **Brad Witt**.....bwitt@chorus.net  
Vice Pres: **BILL Kinney**.....hukilau@centurytel.net  
Secretary: **Don Weigt**.....d\_weigt@sbcglobal.net  
Treasure: **Dick Sutton**.....jdsutt@charter.net

### Membership Information:

**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 Disch**      rcdisch\_marcclub@hotmail.com

Club Website:      [www.marcswi.org](http://www.marcswi.org)

(Contains links to:) About us, Flying sites, Newsletters, Calendar of events, Pictures and Videos, War Birds, Electric Flyers, other Special Interest groups, and Membership information for: **MARCS** club and **AMA**.

### Newsletter Editor :

**John Steen**      steensr@yahoo.com

Minutes of the:

## MARCS General Membership meeting

*March, 6, 2008*

Submitted by **Don Weigt**, Secretary

**Annual Awards:** All the awards have been returned for preparation and presentation to this year's recipients. Members should be thinking about who to nominate for the awards. See voting slip on page-9.

## SWAP MEET REPORT

MARCS' annual Swap Meet was held March 6, 2008, at the Madison Labor Temple at 7 P.M. President **Brad Witt** asked any who wanted a business meeting to come to the front of the room. Nobody did. The swap meet commenced.

Turnout was pretty good. About 75 people attended. There was the usual wide assortment of stuff, from bits and pieces to electric planes, complete gas powered aerobats, plastic kits, ARFs, kits, partially assembled kits of various types and ages, and plans. We could have used more stuff. We had all three sections of the room, but only half the tables we needed to display everything that was offered.

People had fun browsing and chatting. There was lots of looking and bargaining. A bunch of stuff was sold, but by no means everything. Many people left with new found treasures. It was a fun evening, with a lot of socializing, more so than the typical meeting. That seemed more important to many than the actual buying and selling. Everybody drifted away by 8:30, when the lights were turned out and the doors were locked.

If you didn't attend, you missed a fun time! Plan to attend next year, whether you have anything to buy or sell, or not. It's always fun to see what old kits and

engines show up, if only to be reminded about how the hobby has changed. Plus, it's a chance to find out what types of models different members like, and what your friends have been up to all winter. You might just find something you didn't know you couldn't do without!

**Don Weigt**

The invention of one thing often depends on the invention of something else or the development of a new technology to be successful. For example, Hiram Maxim's machine gun would not have been possible without the new smokeless powder that created enough barrel and chamber pressure to operate the mechanism. The Wright flyer would have been a glider, but for Charley Taylor's engine. So too, the development of these remarkable airplanes hung on the development of adequate power plants.

All three of these aircraft were quite unremarkable in their beginnings. Germany had no suitable engine for the first version of the Bf-109 and thus it was powered, underpowered actually, by a Rolls Royce Gos-



hawk, as were the Hurri and the Spit. None were able to approach 300 mph. Fortunately for the Messerschmitt, the Daimler-Benz 601B engine arrived to save it, and of course the Rolls Royce Merlin saved the day, albeit a little later, for the British fighters. Both engines were supercharged and capable of producing good power at high altitudes, but there was a serious shortcoming in the early Merlins. Where the Daimler was fuel injected from the outset, the Merlin began life with a float type carburetor. This meant that in an abrupt nose-over, it cut out briefly due to fuel starvation as negative Gs pulled the float up to close off the flow of fuel to the intake manifold and that could be fatal in combat. For that reason, early Spitfire pilots rolled into a dive, like the start of a split ess, but this required vital time too and could be equally disastrous in a fight. The carb was also less fuel efficient and provided a little less power than the injector system that was later modified into the Merlin's design.

Another early weakness of both the Hurri and the Spit was that they came equipped with two bladed wooden props, despite the fact that the constant speed propeller was a British invention. When pilots demanded that their planes be refitted with constant speed Rotol props their aircraft suddenly became capable of far greater top speeds, far better acceleration and about 7,000 feet more service ceiling. The Spitfire suddenly was the full equal of the Bf 109, both of which could make about 335 mph in level flight with the Hurricane lagging behind at just over 300 (the



## BOARD of DIRECTORS meetings

These meetings are held on the same evening as the MARCS General Membership meeting, (first Thursday of the month) after its adjournment.

**General Membership meeting: 7:00 / 9:00 pm**

**Board of Directors meeting: 9:00 / 10:00pm**

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

**AGENDA: April 3, 2008**

**AMA ↔ Park Flyers ↔ MARCS**

**Election Committee (revamp?)**

**Underground wiring at Kettle Field**

**Member or Guest issues ?**

## THE BATTLE OF BRITAIN

Story by Len Deighton Summarized by Jerry Buss

### Chapter-2 (Flying Machines and Armament)

Four men were responsible for the great transition from the wood and fabric crates of the first war to cantilevered, all metal, modern, enclosed cockpit monoplane fighters with retractable landing gear. In the USSR, there was Aleksandr Polikarpov, who designed the I-16, called *Ratta*, or Rat, by German pilots, while the other three designed the fighters that faced each other over Britain, the Hurricane, the Spitfire and the Bf-109. The Bf 109 E-4 variant flew in The Battle and was code named Emil in keeping with the German phonetic code. These men were, respectively, Sidney Camm, Hurricane, Reginald Mitchell, Spitfire and Willi Messerschmitt, Bf 109.

Battle of Britain website credits all three with a 20 to 30 mph greater capability). Actually, the Hurricane wasn't given Rotols until the ship was proved far too vulnerable in actual combat in France.

The Hurri started out as a cross between the old fabric covered wood stringer and spar machines and the modern all metal planes. Early versions used wood and fabric in its construction, rein-



forced by metal tubing. As time passed the wood and fabric were gradually replaced with metal. All three planes were good performers, despite having extremely cramped cockpits. The Spitfire, with its bubble canopy had great vision qualities, as compared to the prison-like hood on the Messerschmitt which pushed down on the head of a tall pilot. Armor plate behind the Emil pilot's head somewhat obscured rear vision and the hood itself created a considerable problem with obscured vision. Adolph Galland finally convinced Willi Messerschmitt to modify the hood to provide more room. The new design was named for him and it at least improved the visibility problem. The original version of the Hurricane involved heavy labor to fly, but when the fabric covering of the ailerons was replaced with metal, it suddenly flew like an angel. The Spit had stiff ailerons and, at top speed, the pilot often had to brace his elbows on the side of the cockpit to move the control. It would have benefited greatly from a hydraulic or electric aileron system.

The Hurries and Spits were armed quite differently from the Emil. Traditionally, British fighters had been armed with the Lewis machine gun. It was a drum fed weapon which had a vexing tendency to jam, requiring the pilot to try to clear the stoppage, or failing that, to run for his life. As used in the latter part of the first war, it was fired through the propeller's arc and its already not too rapid rate of fire when not jammed was significantly slowed by the interrupter gear to prevent shooting the prop off. That was one thing when the antagonists flew at 90 to 130 miles per hour. It would be quite different with speeds of over 300 mph with proportionately less time on target and fewer bullets in the fire stream. Thus the guns on the Hurri and Spit were planted well outboard, in the wings, outside the prop's arc, where, should a jam occur, there was no way to clear it. For this reason the American 1918 Colt Browning machine gun was adopted. It fired a

good deal faster than the Lewis and jammed approximately once in 15,000 shots.

It was unfortunate, however, that British arms had not produced a cartridge suitable for modern aerial combat and thus the Brownings had to be chambered for the standard British Army .303 rifle ammo. Compounding the light caliber deficiency was that the British still used nitro glycerin, or cordite, propellant, rather than the far more powerful nitro cellulose then coming into use by almost every other army in the world. It was a combination of the light caliber and the relatively weak propellant that permitted a DO-17 to escape six Spitfires from 74 Squadron which pumped 7,000 rounds into it.

Four Colt Brownings were mounted in each wing of most marks of both the Hurri and the Spit. A few Spits mounted only three per wing. They were initially registered to converge at 600 yards, but experience soon taught that this should be modified to 250 yards. Like all wing mounted guns, they were buried to a depth in the cord of the wing where the breaches lay on the center of gravity, so that the considerable weight of the ammunition for the 8 guns didn't change the CG as the ammo was expended. It was largely the outboard gun placement that accounted for the trademark elliptical shape of the Spitfire's wings.

Ammunition used by the fighters consisted of four types: armor piercing, tracer, incendiary and DeWild. The DeWild was developed by a Belgian of that name and the patent was purchased by the British. While it had no tracer properties, on contact

## M.A.R.C.S.

### membership dues...\*

Regular membership.....	\$50.00
Junior membership.....	\$20.00
Family membership.....	\$15.00
Associate membership.....	\$15.00

**You must have proof of AMA membership in order to receive your MARCS membership card.**

Treasure: *Dick Sutton*

\* If you wish to receive the club "Newsletter" by regular first class mail, rather than on the internet, please add \$5.00 to your annual fee.

**NOTICE...**

Any of the tools or equipment... at **Kettle Field**, that doesn't work right or you notice is broken and is in need of repair,

**PLEASE...** Notify: **Ed Buechner**  
(608) 222-0774 or [ebuechner@charter.net](mailto:ebuechner@charter.net)  
So it can be taken care of **before** it is needed and wastes somebody's 'work' time. (Thank you)

it produced a bright yellow flash which served as a much liked aiming device for pilots. Typically, one gun in each wing was loaded with tracer, one with armor piercing, one with incendiary and one with DeWild.

There was an initial problem of bullets detonating in the hot breach of the guns at the end of a long burst and modifications had to be made to hold the breach open briefly to allow cooling when a burst stopped, before a new live round was loaded. By late 1939 an RAF requirement that each gun be capable of a 300 round burst was met.

There was also a problem of failure to fire caused by freezing of condensation on the ammo at high altitude and this had to be overcome by directing engine heat to the magazines. Because of the wing placement of the weaponry and the fact that the landing gears were wing mounted, the wings of both fighters were relatively strong.

The wings of the Bf-109 were weak, on the other hand. They were so weak that the landing gear had to be mounted on the fuselage and this made their track so narrow as to make ground handling an adventure. This was a particular problem at forward airfields, which were generally unimproved hay fields or cow pastures and the rough ground created terrific instability. Even pilots with long experience were not infrequently killed in ground handling accidents. About 36,000 One-Oh-Nines of all marks were built and it is estimated that five percent of them were destroyed in such accidents.

Initially, a 20mm cannon was installed on the One-Oh-Nine's DB 601 B engine and fired through the propeller hub. The engine's mass absorbed the shock of the gun's recoil and it was an effective system. Two 7.92mm machine guns (also regular army rifle caliber) were buried in the fuselage, ahead of the cockpit and fired through the prop's arc using an interrupter gear. Adolph Galland scoffed at them as

useless because of their light caliber. When news came of the British putting 8 machine guns in their wings, Messerschmitt reconsidered the armament question for the Emil. He removed the engine cannon and put one in each wing. The hole in the hub of the prop was retained, however, to provide cooling to the electric generator and it served again on later marks as a cannon station.

Wing placement of the cannons forced design changes in the wing of the Emil that included putting big bulges in each wing to accommodate the ammo drums. The cannon used was the excellent Swiss Oerlikon antiaircraft weapon, but much modified at the expense of quality. Because of the wing's weakness, its rate of fire had to be slowed considerably and the propellant charge had to be reduced, cutting its muzzle velocity to only about 1,800 feet per second. Because air to air fighting was at relatively short range, these were regarded as acceptable trade offs, but it fired a thin walled explosive round that much too often detonated on contact. This made it a far less effective weapon than anticipated, because when it exploded before penetration it did little more than scratch the paint or make a dent in an opponent's metal skin. Armor piercing ammo, on the other hand, would have been devastating, if it had been used, as compared the British light caliber guns.

The weak wing problem was never solved and all marks of the Bf-109 subsequent to the Emil carried no wing armament, except that some examples of the Gustav came from the factory with a cannon bolted under each wing to deal with B-17s and B-24s. These degraded performance so badly that pilots insisted on their removal.



Boeing B-17 FLYING FORTRESS



Consolidated B-24 LIBERATOR

Where bombers were concerned, RAF's Bomber Command played only a minor part in The Battle, unlike the Luftwaffe's bombers. The German bombers were characterized by the fact that none were of the heavy, long range variety. All were designed with a short, fierce, tactical air war in mind, in which they would provide close support for ground forces. Suggestions made in 1934 that a long range heavy bomber was needed were met with derision by Erhardt Milch, with Göring's support, and thus

the "Ural Bomber" that would later be so badly needed to attack Russian factories far away in the Ural Mountains, or to bomb New York, was never produced. It was one of the early issues on which Udet and Milch locked horns.

The Dornier DO 17, the Flying Pencil, appeared in 1934 with the intended purpose of mail carriage. Unfortunately, it arrived at exactly the time when air lines were changing their definition of success from tons of mail carried to passenger miles flown and its slender fuselage configuration was completely unsuited to passenger service. It was virtually junked until the 1937 Paris Air Show when one example was resurrected with two DB 600 engines and was able to outrun all of the fighters in the show; the DB 601 B and the Merlin were not yet in production. The DO 17 thus received new life as a *Schnell, fast, bomber*, despite the fact that it carried a disappointingly light bomb load of only 1,100 pounds.



The Heinkel HE 111 was the workhorse of the Luftwaffe, both as a bomber and as a glider tug. Although it was a good deal slower than the Dornier, it carried twice the bomb load internally and twice that if it also carried bombs externally. It was a tough bird to bring down. The H Model carried 600 pounds of armor plate and with self sealing fuel tanks it often survived where lesser machines would have crashed and burned. Designed for the DB 601 B engine, it had to yield to Willi Messerschmitt's need for all of those that could be produced to power the Bf 109 and Bf 110 and had to settle instead for the much less powerful Jumo 211 engine.



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The Junkers Ju 87, Stuka, was well balanced and easy to fly, but slow - it cruised at only 118 mph - and was easy prey to enemy fighters. For psychological effect, it carried sirens which screamed when it pitched over into a dive bombing run. It carried a pair of fixed 7.92mm guns firing forward and a rear gunner manned a flexible gun to protect its rear. It could carry a single 1,100 pound bomb or one 550 pounder and four 100 pounders. A window in the floor, between the pilot's feet, gave the pilot a view of his target before pitching over into his dive. Lines were inscribed on the canopy to allow the pilot to measure his angle of dive against the horizon. An

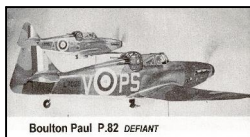


automatic trim change and bomb release system was coupled to the dive brakes. This was activated by the pilot just before pitch over. The desired bomb drop altitude was set into an altimeter and bomb release was automatic on reaching the designated height. Then the system pulled the nose of the plane up and retracted the drive bakes while the pilot blacked out. The dive brakes were extremely efficient, allowing for a slow, stable dive, even when absolutely vertical, and this created a great degree of accuracy in bombing. Limiting its effectiveness was its vulnerability to both fighters and ground fire, as well as the fact that its operational radius was under 200 miles. As it was, it was a very effective weapon against coastal convoys and the several airfields that were located near the channel coast. It received much publicity from the campaign in Poland for the terror it created with its wailing sirens and accurate bombing, but news of heavy losses inflicted on it by small arms ground fire was suppressed.

The Junkers Ju 88 was indisputably the all around best propeller driven plane in the Luftwaffe inventory in the entire war. It had only one peer, the British Mosquito. It performed well as a fast bomber, a photo recon machine, a strafing plane and it was no soft target if engaged in an air to air fight, provided it wasn't bomb-laden. Milch and Udet found reason to fight over the Ju 88. Milch opposed it, motivated by ambition, a dislike of Hugo Junkers and his hatred for Udet. He imposed a requirement that the plane have a dive bombing capability, for which it was never designed. Design changes were made to accommodate this requirement, but pilots were warned carefully about not exceeding certain stress levels. Post war records of combat units show that its crews had a better survival rate than those of any other combat type in the Luftwaffe.



Each side had lesser fighters. On the British side there was the Boulton Paul Defiant. It mounted four guns in a rear facing turret, but none facing forward. Thus, one had to pass a foe, or induce him to get on one's tail, in order to fire on it. Unfortunately, it was too slow to pass anything but gas with a top speed of about 235 mph. It was a horrendous fail-



ure and was quickly withdrawn from service after only one combat encounter.

The Bristol Blenheim first flew as a single, privately developed, example of a light, twin engine passenger plane in 1935. For its time, it was considered very fast. Its developer donated it to the RAF, which turned it into a long range fighter and produced a



Bristol Blenheims MK-IV

few hundred examples, but by the time the war came along it was too slow and too unwieldy to be of much value in combat against even a Bf 110. Useless in daytime operations, it was turned into a night fighter which did some damage to London raiders, but it was still too slow to be really effective. It was heavily armed with several fixed and flexible .303 Browning machine guns, a Lewis gun and a 20mm cannon. Coastal Command found it useful for recon and as a long range strike fighter against submarines and light shipping, where there was little chance of encountering a Bf 109. It was armed well enough to hit hard, as long as it didn't have to fight for its life against a real fighter. Thirty examples of it were experimentally equipped as night fighters with Britain's first airborne radar sets. While it had some success when so equipped, it was too slow to be as effective as need called for. It remained in service until 1943, but over the last two years or more had been gradually undergoing replacement by the Bristol Beaufort, a far more effective, but still wanting, machine.

On the German side there was the Bf-110, a heavily armed twin engine, two seat, fighter with forward and rear firing guns. It was fast, but awkward, and highly susceptible to the attentions of single engine fighters. Late in the Battle, it only went forth with a fighter escort of its own. It was quite effective as a strafier because of its forward firing guns that included two 20mm cannons, provided it didn't run afoul of a Hurricane or a Spitfire while alone. It soldiered on to the end of the war and finally found its nitsch against bomber formations using *Schlag Musik*, Slant Music, 30mm cannons mounted to fire at about 45 degrees upward and forward into bomber formations.



Messerschmitt BF-110

*To be continued*

**You'll know that your landing gear is up and locked when it takes full power to taxi your model back to the flight-line**

## **ELECTRIC BUZZZZZZZZ.....**

# **BRODHEAD**

FREE Indoor flying continues at Brodhead Wednesday nights 8:00 PM until 10:30 All are welcome. Because of our very safe 6oz limit we do not require **AMA** membership.

**March::** Every Wednesday

**April::** Every Wednesday (will likely be able to start at 7:00 PM)

**May::** Only 5/14/08

## **RAFFLE PRIZES**

### **APRIL 3rd GENERAL MEETING**

**E-flight S.E.5a Slow flyer 250**

**Magnum XL.25A Engine**

**Two types of "Glue"**

**Hanger-9 "Wing Rack"**

(Donated by Charlie)

**Choice of 3 T-shirts**

(Number of raffle prizes subject to ticket receipts)

The **MARCS** club wishes to thank:

**John Mackenzie** and **Dick Brandt**

For running the raffle in **January** and **February**

*Further help will be needed to handle the raffle in the upcoming months. Volunteers are needed.*

## **FIELD WORK DAY**

**APRIL-19 Saturday 9:00am**

**CLEAN-UP ~ SPRUCE-UP**

**Come on out & join this event of making our "Kettle Field" the pride of the land, bring your gloves and lend a hand !**

**Rain Date: Saturday APRIL-26**

## 2008-MARCS EVENT SCHEDULE

EVENT NAME	DATE	LOCATION
FIELD WORK DAY	April-19	Kettle Field
MARCS BANQUET	May-14	McFarland
SCREAMIN' EAGLES Giant Scale Fly-in	June-14	Kettle Field
ELECTRIC FUN FLY	July-12	Kettle Field
BOY SCOUT FUN FLY	July-26	Kettle Field
FLOAT FLY	August-2	Marshall Pond
Ken Kindschi SCALE RALLY	August-24	Kettle Field
WAR BIRDS over DANE	<i>Event looks doubtful for 2008</i>	Kettle Field
THERMAL GLIDER EVENT		Paul's Tree & Turf Nursery
1.5 METER SUMMER FLING		Paul's Tree & Turf Nursery

*DATES, ADDITIONS, and DELETIONS will be updated as they become available.*

## MARCS ANNUAL BANQUET

**Date:** Wednesday, MAY-14<sup>th</sup>

**Time:** Cocktails @5:30 ~ Dinner @ 6:00

### Buffet Meal

Ribs, Chicken, and Popcorn Shrimp

Potatoes, Casseroles, Salad Bar, and cookies

Coffee, Milk, and or Soda

**Cost:** \$13.00 per person (tax & tip included)

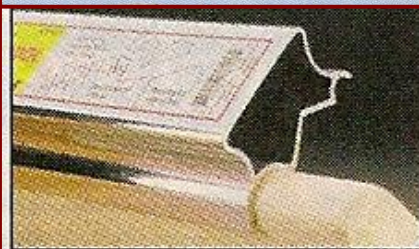
**Place:** **MAPLE TREE RESTAURANT** McFarland

*(Cut out and mail 'Reservation form' on page-9)*

## BUILDERS DELIGHT TOOL

I am not big on endorsing companies and their products, but in this case I would like to share my experience with this great innovation by refining its use somewhat. When I am building a kit and it comes time to sand the leading edges of the wing to a smooth half-moon shape or any other shape desired, I use a Great Planes Easy Touch contour Multi-sander (GPMR6190). The trick to getting perfect curves is to clamp the tool upside down to your work-bench, rather than hold it in hand, and run the surface you're working with back and forth in the chosen groove of the bar. You have much better control and accomplish accurate results without the part flexing as it does when using the tool by hand.

*John/Editor*



Easy-Touch Multi-Sander

## Program:

*for the April 3<sup>rd</sup> meeting*

**Film:** Flying the Russian Sukhoi Su-26 (single seat) & Su-28 (dual-seat) trainer.



## SECRETS BEHIND BUILDING & IMPROVING ARF MODELS

by Jim Soque

- Here are some tried and true ideas of how to make your **ARF** airplane a better built airship. More familiarity with your model will only improve your piloting skills and increase your confidence as a flier.
- + 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, & lock nuts.
- + Use a ball-link for the carburetor pushrod link on the engine.
- + Change the fuel-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 a hose to vent the fiberglass dust away from you.
- Editors note: Best if this is not done in a 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 sand paper; enlarge gradually.
- + Attach a flexible pushrod material to pull fuel hoses forward through the firewall.
- + Cut the vertical 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.

**Editors 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 degree 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 (electric) to widen the pre cut 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.
- 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 part that needs reinforcing. Fiber glass cloth is a good choice but any woven cloth will do.**
- + 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 servo 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.

**AMA INSIDER newsletter**

**NOTICE:** *Directory correction....*  
Roger Klingbeil's e-mail address should be:  
[irogerk@netscape.net](mailto:irogerk@netscape.net)  
**Please make note of and change it in your copy of the 2008 member Roster.**

## TIP of the MONTH HANDY~LUBE

Carry a tube of **Blistex** or similar **Vaseline** type lip balm in your flight-box so you'll have it to lube wheel axels and other moving parts. It won't leak or drip and it's re-sealable

# THE...BUILDER'S WORK-BENCH

## HAVING CONFIDENCE IN YOUR HINGES

After you cut the slot for the hinge with anything except a saw blade, you have a slit made in the balsa. Now is the time for a thin metal fingernail file to neatly clean out that slot so the hinge slides into the wood without making it bulge up. Wick in the CA glue and install the hinge. No, you're not quite done yet. Round-up some round toothpicks for a pinning procedure, and drill that size hole down through the balsa and hinge in a couple of places, cut the toothpick to the approximate length and press it into the hole. Wick in a drop of CA on each side. When dry, sand or trim the toothpick-dowel ends flush. You now have a hinge job that you'll never have to worry about.

*Editor's note: Because a fingernail file is also a tool to clean under the nails, the very tip doesn't have the diagonal cutting surface on it. It needs to be taken to the grinder and that tip be ground back until all of surface has the diagonal cutting surface on it. Making special tools can be fun.*

## RELIEVING STRESS IN THE WORKSHOP

Having to deal with *frustration* while trying to get those self-adhesive vinyl graphics or worse yet...letters and numbers exactly where you want them doesn't really have to happen. Besides, whether or not we admit it, our work gets sloppy when that happens. Here's a simple way how to get nice straight-line digits and wrinkle free graphics. Grab that glass cleaner and spray the area you're about to work on. Then peel the back-paper off the graphics or letters/numbers and apply. They will slide around like those old water decals used to, giving you plenty of time to get everything positioned just right. When you have them *just right*... work out any wrinkles or air bubbles and wipe down with a soft tissue to remove any excess glass-cleaner. Once dry, they are stuck forever and they are in your mind, *perfect*.

### SCHULTZ SPORT & HOBBY

315-South Thompson Road, Sun Prairie (608) 837-3498  
All your hobby needs under one roof

**NOTICE:** nominations for this years awards *Please present to: Brad Witt [bwitt@chorus.net](mailto:bwitt@chorus.net)*

- SMOKING HOLE** award (*best crash on the field with lots of witnesses*)... \_\_\_\_\_
- SUBMARINE COMMANDER** award (*best crash in the drainage creek*).... \_\_\_\_\_
- TREE CHOPPER** award (*best crash in a tree*)..... \_\_\_\_\_
- SCOOTER** award (*nice guy or gal*)..... \_\_\_\_\_

## MARCS BANQUET RESERVATION FORM

Name: \_\_\_\_\_ Number of people: \_\_\_\_\_ X \$13.00 = \$ \_\_\_\_\_

Please complete and mail before May 1st, 2008 Checks to be made out to: **MARCS**  
to...**DAVE RUSH, 5113-Ridge Road, McFarland, WI. 53558**