

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

Monthly Newsletter of the Madison Area Radio Control Society  
Madison, Wisconsin AMA Charter #665

Volume 45 - February 2006 - Issue 2

## *Come Fly With Us*

MARCS meetings are held on the first Thursday of every month at 7:00 P.M. in Room 201B of the Madison Labor Temple, 1602 S. Park St. in Madison. Visitors are always welcome. We think we have a great hobby and we invite you to come and see and consider joining us.

### **Officers:**

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The MARCS web site contains links to War Birds and Electric Flyers Special Interest Group web sites

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Contribution of articles for publication is encouraged.  
**Deadline for publication is the 20<sup>th</sup> of the month.**

## Minutes of MARCS General Membership Meeting, January 6, 2006

*By Patricia McDonald, Secretary*

The meeting was called to order at 7:05 by President Tom Lazar; there were 36 people in attendance.

Tom extended the club's sympathies to the families of Miyoko Lanphear and Steve Pope.

**December Minutes:** Minutes of the December meeting were accepted as printed in the January issue of MARCS Sparks.

**Treasurer's report** for the end of the year was reviewed.

**Visitors and New Members:** None

**Old Business:** Tom Lazar reported that the New Years Day Fun Fly was a good day for flying. Dave Rush noted the time for the Awards Banquet was incorrect in the MARCS SPARKS article. (see article below, ed.)

Tom continued to hand out certificates of achievement and recognition for prior years.

**New Business:** Dave Rush announced that the MAD Flyers are flying at the Monona Grove High School gym. Interested pilots should check Yahoo Groups or email Dave for more information and days and times. (See article below, ed.)

Tom held a pilot's raffle for the New years days fun fly. Tom will contact winners.

**Raffle Winners:** **Joe Imilkowski** won a Plane Stick. **Charlie Schultz** won a MARCS sweatshirt and **Brian Andreas** won a bottle of glue.

**Show and Tell:** **Bill Kinney** showed his RCAF Dehavilland Chipmunk which is a VMAR ARF,

## Philosophy 101

Is it true that when Lady McBeth said "Out, out, damned' Spot," she was scolding her dog?

## MARCS Awards Banquet

--or--

## Confusion, Confusion

In last month's issue of Sparks the Awards Banquet time was stated differently in the bulletin text than on the reservation sign up sheet. At the January meeting Dave

## 2006 MARCS Calendar of Events

<u>Name</u>	<u>Date</u>	<u>Location</u>
Field Work Day and Adopt a Highway Pick Up	April 22 (29 <sup>th</sup> if rain)	Kettle Field
IMAA Big Bird Rally	June 10	Kettle Field
War Birds Over Dane	June 17	Kettle Field
Ken Kindschi Scale Rally	August 20	Kettle Field

said that the earlier of the two times was correct. After rechecking with The Dry Bean Saloon manager, Dave now confirms that the correct times are:

**Libations: 6:30**

**Dinner: 7:00**

**Program: to follow**

One more time! The Awards Banquet is on Tuesday, February 7, at The Dry Bean Saloon. There's still time to make your reservations by mailing the sign-up sheet on page 9 of this bulletin to Dave Rush, or see him at the February meeting. Libations and smart talk start at 6:30, dinner at 7:00 and awards program follows, all for \$20 per person. Chef carved prime rib and cod, twice baked potato, etc., with Mrs. Rush's Famous Carrot Cake for dessert. Bring your wife or sweetie, but it might be wise not to bring both.

### Name the Plane Contest

You guys are smarter than I thought. Several of you have come pretty close to naming the contest plane and identifying what was pioneering about it, but nobody has won the contest yet with a complete answer. So hang in there baby and keep trying. Actually Craig Lovell hit it right between the eyes, but he does that every year and then he disqualifies himself because he has the world's best documentation library and he figures it isn't fair. Send your answers to [jbuss@itis.com](mailto:jbuss@itis.com) or 244-8534. You still have a chance to win.

And Craig, of course you're sworn to secrecy.



### MARCS Has a New Brochure

Ed McDonald has developed a new informational brochure, in color, about the club which will be distributed at hobby shops and at club events. A copy of it appears on pages 7 and 8. Nice job, Ed.

### Indoor Flying Update

According to Dave Rush, indoor flying is now available at Monona Grove High School on Monona Drive every Thursday evening from 8:00 p.m. until 10:00 p.m. **through the end of February**. Cost is \$10.00 per pilot - Spectators free.

Enter at the main doors of the high school - walk straight in and the gym will eventually be on your left. Park in the front lot, not in the circle drive.

**Electric planes 16 oz or less.**

### Memorium

We are saddened to hear of the recent death of our fellow member Steve Pope in a firey traffic accident on I-90. Our sincere sympathy goes out to his family.

### New Combo Numbers for Gate Lock

The combination of the gate lock has been changed. Please refer to the back side of your 2006 membership card for the new number. It is also the number for the lock on the emergency cell phone.

### The Bent Bird

#### Proper Propeller Properties

*By Don Weigt*

Choosing the best propeller for a model can be very confusing. For best performance, a propeller must be matched to both the engine and airplane, and still varies depending on what we consider "best performance"! I don't claim to be an expert, but know some of the basics, which I will try to share here. There are two basic numbers used to describe propellers. The first is the diameter; the size circle the prop sweeps with

each revolution. The second is its pitch; how far it would pull itself forward in each revolution if it didn't slip. A 10x6 propeller has a diameter of 10, and a pitch of 6 inches. Most props have blades of equal lengths, so a 2 or 4 bladed prop's diameter is easy to measure with a ruler. For a prop with an odd number of blades, measure from the center of the bolt hole to any tip, and multiply that length by two. Also, many propellers now have their diameter and pitch labelled in millimeters, not inches. Divide them by 25.4 to convert them to inches. For example a 177 or 178 mm diameter propeller is the same as a 7 inch prop. Of course, real propellers vary in other important ways, with different blade shapes, areas, airfoils, number of blades, finishes, materials, and so on. But, diameter and nominal pitch are the most significant characteristics.

Be warned: the pitches of most propellers vary at different diameters along the length of the blades, and manufacturers don't all measure and mark their propeller pitches the same way, so props of the same diameter and nominal pitch may vary quite a bit. A prop that turns faster than another brand or style the same nominal size may be lower pitched, thinner bladed, or have less blade area. While it may turn faster on the same engine, it might make less thrust, and even stop making thrust at a lower model airspeed. If you are using an engine on a typical sport model for that size engine, the prop recommended by the engine manufacturer should work well.

For a larger, slower flying model, try a larger diameter prop with a lower pitch. Change diameter a little bit at a time, maybe try several pitches at each diameter, and check if the plane flies better.

If you have a clean, smaller, faster than usual model, try a smaller diameter prop with a higher pitch. Again, make the changes in small steps, and check the way the model flies with each change.

Slower flying models do well with large diameter, low pitch propellers. In the '50s, we put 10x3.5 props on .15s and .19s to pull 3 and 4 pound slow rudder only airplanes. We put 10x6 props on control line stunt models powered by .35 stunt engines set rich and running slowly. Today, we put 10x6 props on much higher powered .46s, and let them scream! They make more thrust at higher speeds on these big hot engines, but aren't the best choice for big slow models.

In fact, a nice mild OS .46LA or similar engine will do a fine job of pulling a slower model with a bigger 11x6 prop. The high RPM .46FX, .46AX, or similar engines, work much better on faster models, using smaller propellers such as 10x6.

Aerobatic airplanes, such as the "3D" types, sometimes use props with two pitch numbers, such as 20x14-8. That means the diameter is 20 inches, while the pitch is 14 inches out near the tips and 8 inches near the hub. This gives a more constant blade angle, which means the inner part of the blade won't stall at lower airspeeds, as a constant pitch prop's blades will. The airflow around the plane slows, so the center of the prop disk probably should be at a lower pitch. So, a 20x14-8 may fly as well as a standard 20x14 on sport or faster model. I saw one on a big Spitfire, and it flew fast and fine. This sort of prop should make extra takeoff thrust, too.

The Wright Brothers were the first to realize that a propeller was a wing flying in a circular or spiral course. We can apply what we know about wings to help understand propellers.

First, an airfoil on a wing or propeller makes lift as it moves forward through the air. The higher its angle of attack, the more lift and drag it makes, until it reaches its critical angle of attack and stalls. The stall angle of attack is independent of speed. The lift at a given angle of attack increases with the square of the speed. So, if a propeller turns twice as fast, its blades have twice as much airspeed, and it will produce 4 times as much thrust at the same angle of attack. For any given propeller, there will be a minimum RPM and circular airspeed to produce any given thrust.

The lift a wing or propeller can make also depends on its area and airfoil. More area can produce more lift without stalling. A thicker, more cambered (curved) airfoil can make more lift, but also makes more drag. A stubby wide wing or propeller can make more thrust than a narrow one of the same diameter, but it is less efficient and requires more power for the amount of thrust it makes.

A given wing or propeller is more efficient at lower angles of attack than near its stall. So, to use the engine's power efficiently, a propeller should be lightly loaded. A good way to reduce the loading is to increase the diameter, increasing the blades' area and also average airspeed. That is one reason WWI planes had such big propellers. Their low RPM engines needed large diameters to get reasonable prop blade airspeeds, and enough area at those airspeeds to make the thrust required at efficient angles of attack. Another way is to reduce the pitch and turn the propeller faster, but the propeller RPM has to be suitable for the engine, so we usually can't change it much.

The power needed to turn a propeller goes up much faster than the RPM. According to Motocalc™, the program I use to estimate electric model performance,

stationary on the ground, it takes 21.7 Watts to turn one 12x7 prop at 3,312 RPM, making about 10.5 ounces of thrust with a pitch speed (forward speed where thrust is zero) of 22 MPH. It takes 173 Watts to turn that same prop 6,625 RPM, making 42 ounces of thrust with a pitch speed of 44 MPH! So, it takes 8 times as much power to turn the same prop at twice the RPM with no forward speed, to make 4 times the thrust at twice the pitch speed.

It's interesting to see that an OS 46LA has a recommended 11x6 prop. Meanwhile, the much more powerful OS 46FX and AX have recommended 10x6 props! The reason is simple. They are the same displacement, so can make about the same torque. The 46LA has a small diameter carburetor, and so makes its maximum torque at modest RPMs. The 46FX and AX, have larger diameter carburetors, can make the same torque at higher speeds, and make their higher maximum power at much higher RPMs. The FX and AX need smaller props so the torque needed to turn them at those higher RPMs is the same as the 11x6 requires at its lower RPM.

An 11x6 takes as much torque to turn at 6,870 RPM as a 10x6 takes at 7,900 RPM, about 15% faster. So, turning the 10x6 at 7,900 takes about 115% as much power as an 11x6 at 6,870, since power is torque times RPM. As the 10x6's RPM increases further, the needed torque increases rapidly, and the power required increases faster still.

Both glow engines run faster than those RPMs, and produce more power, but the two props' RPM ratio at equal torque stays the same. The FX and AX are designed to run more than 15% faster than the LA, and at the higher RPMs, a 10x6 can easily absorb the greater power they produce.

So, if you have a slower flying 46 size model, a 46LA or similar engine with an 11x6 prop would be a good choice. It will pull well at low speeds: good for takeoffs and climbing but not for high speeds. You might even try a 12x4 or 12x5.

If you have a faster 46 size model, a 46FX or AX would be better for it, with a smaller 10x6 prop. The smaller diameter 10x6 prop, turning faster, will provide enough thrust do it at the higher speed the faster model demands. It will probably also make enough thrust for good takeoff performance, though not as much as it might with a larger diameter lower pitch prop, such as an 11x5. Such a prop would not be good at high speeds. It would stop making thrust at only a little higher model airspeed than the 11x6 on the 46LA.

For a really fast and low drag model, a 9x7 or even 8x8 prop on the 46FX or AX would give more speed, but with less thrust. The best climb angle would be lower, but since

the model would be faster, it might climb faster. Takeoffs would be more difficult with the reduced thrust, and the model probably would also have a higher stall speed, which would require dragging its wheels faster through the grass to take off.

Control line speed models even use props like 7x10 or 7x12 on these large engines! They run at extremely high RPMs, and can pull models over 150 MPH. They make very low thrust, though, so takeoffs require paved surfaces, and the control line models are allowed up to 10 laps, over 1/3 mile, to accelerate before they are timed. It's unlikely any RC models will do well with such extreme props.

## **Karaya Ein**

**By Jerry Buss**

Following Erich Hartmann's bout with yellow fever and his return to duty, he flew as wing man to three pilots with differing skills and tactics, all differing greatly from Paule Rossmann's. All were wearers of the Knight's Cross or higher medals and so were men worth emulating.

Feldwebl Hans Dammers was a "muscle" fighter, a hard turning dogfighter who simply wore his opponent out and then killed him. The problem with that method was that it was very difficult to cover him in a fur ball with a sky full of Russians. Leutnant Alfred Grislawski, who had told their *Gruppenkomandeur* to kiss his ass, had been responsible for Erich having realized the Shturmovik's vulnerability to an attack against its oil cooler. He would later lose a leg when he stepped on a mine on a Black Sea Beach. Oberleutnant Josef Zwernemann, a wearer of the Knights Cross with Oak Leaves, was a dogfighter who also used his head and his tactics were important in developing Erich as a fighter pilot. He would die with 126 kills when strafed in his parachute by a Mustang over Italy in 1944.

Each of these men added a dimension to Erich's base of knowledge and experience as a fighter pilot and, in analyzing what he had experienced so far, he reached a conclusion. Paule's stealth in approaching combat was extremely effective, but his long range shooting, although very accurate, left a lot to be desired. On the other hand Dammers, Grislawski and Zwernemann believed in getting in close. A combination of the two tactics, stealth and close, seemed wise. Over the coming months, Erich thought about this and continued to observe and analyze what happened in real, live combat.

Fifty kills had been the standard for awarding the Knight's Cross on the Eastern Front, but when 7 *Stafflekapitan* Hauptmann (Captain) Sommer reached that mark, he was denied the decoration. The war was getting serious and more and more pilots were achieving high

scores. As they did, the standard for the medal became an increasingly elusive, moving target. It wasn't a medal that should come cheaply. Surely, Erich thought, he would never reach that goal.

On January 27, 1943, six days before the fall of Stalingrad, Erich Hartmann scored his second kill, a MIG-1. About the same time *Staffelkapitan* Sommer, was transferred to another unit and Walter Krupinski, Count Panski, was moved in to command 7 Staffel. On arrival, he introduced himself and demanded a Gustav to take up. One was provided, he took off and was quickly shot down. As soon as he got back to the field, he demanded another bird, took off and shot down two Russian fighters. The men were suitably impressed. Krupinski was only just into an impressive career that ultimately lead him to become a full general in the post war Bundesluftwaffe. He would end the war as the 16<sup>th</sup> ranked fighter *experte* with 197 kills, the highest scorer with under 200, and at this time had over 60. At war's end, he found himself in JV-44, Adolph Galland's Squadron of Experts, flying the Me-262.

Paule Rossmann approached Erich on behalf of the sergeant pilots and asked him if he would volunteer to fly on Krupinski's wing. It was said that he was a wonderful leader, but a lousy pilot who flew like a lunatic and no one wanted to be his wingman. He had a talent for getting shot down, getting wounded and finding trouble in general. After some coaxing and cajoling, Erich agreed. He went to Krupinski and after a brief interview was accepted. On their first mission together, Erich thought he was flying with a nut case and Krupinski thought his wingman was a baby. He referred to Erich as "Bubi," (Kid), a nickname that stuck, but over several sorties Erich glued himself to his leader and found opportunities to follow up some of Krupinski's attacks with a few shots of his own. Soon they were working as a team as confidence in each other grew. On March 14 Erich scored his fifth kill and was awarded the Iron Cross Second Class, his first medal.

The character of the war was changing, however. The practice of JG-52 moving constantly forward behind the Wehrmacht was no more. Now they were retreating. Because of the likelihood of sudden Russian advances, they had to station themselves farther back from the front to allow time to bug out, if necessary. It broke the hearts of the pilots and mechanics the day they had to burn nine Gustavs because they couldn't be flown out ahead of the advancing Russians due to the field being too muddy to take off. The war was turning into something that was heretofore unknown and in almost every encounter they were outnumbered in multiples by the enemy.

By the end of April, Bubi Hartmann was a veteran of 110 sorties with 8 kills and was made a *rottenführer* - leader of a 2 plane element, with a wingman of his own. Now he had new lessons to learn. He had to consider his own and his wingman's safety while carrying the fight to the enemy, often as the leader of the second rotte in his schwarm, and this took some adjusting. At first, favoring Krupinski's hell for leather tactics when flying with only his wing man, he found that the style simply didn't fit him. He slowly adjusted to Paule Rossmann's stealth tactics, using the sun and clouds to advantage whenever possible, and then worked in the "get in close" approach of some of the other pilots he had flown with. All the while, he was learning how to be responsible for his wingman, just as he was responsible for Erich. Looking back, many years after the war, he said that his greatest pride was not in the number of enemy planes he had shot down, but in the fact that all through the savage fighting he had seen he had never lost a wingman.

With the adoption of stealth and short range shooting, kills began to accumulate. His See - Decide - Attack - Reverse, or Coffee Break technique began to fully develop. On May 17, he scored his 18<sup>th</sup> kill, a LAGG-3, and it was nearly his last.

On May 25, with the great Kursk tank battle in full swing to the north, Erich and the entire 7 Staffel took off and headed into the sunrise. In no time at all, they encountered about 40 IL-2s escorted by as many or more LAGG-5s and YAK-9s. While the fighters would be less difficult to deal with than the tank-like IL-2's, it was the IL-2s that were intent on hunting German armor and ground troops and it was against them that the attack had to be concentrated. Roaring in behind and below an Ilyushin, in the rear facing gunner's blind spot, he opened fire at point blank range. At the same instant there was an explosion under his Messerschmidt and the engine door blew off. Perhaps it was ground fire, but he couldn't be sure. In any case, his prop was windmilling down and it was clear that he was going in. There was nothing to do but turn west, toward friendly lines, shut off the fuel and cut the ignition. He lit quite softly in a sunflower field, all things considered, and was preparing to get out when he saw a German truck approaching. What good fortune.

When the truck drove up, however, Russian soldiers got out and Bubi Hartmann was a boy in a jam. Remaining in the plane, he thought fast. Grabbing his stomach, he began to moan and groan. When the soldiers tried to help him out of the cockpit, he writhed in apparent agony and moaned piteously. The soldiers were finally able to extract

him from the plane, load him into the truck and deliver him to a field hospital where he deceived a doctor into also believing he had internal injuries.

Soon Erich was loaded back into the truck, still acting the part of a seriously injured man. Ordinarily, a prisoner would surely be guarded by at least a couple of men, but in his apparently injured condition he was probably not regarded as much of a threat and had only one inattentive guard riding in the back of the truck with him. A couple of kilometers from the field hospital, a swarm of Stukas flew over, sirens howling, at very low altitude, and the driver panicked, steering off the road and into an unharvested field of last year's sunflowers. Seeing his chance, Erich jumped his guard, dealt him a stunning blow to the head, jumped off the truck and ran for his life into the sunflowers. The Russians fired a few belated shots at the waving stalks, but apparently didn't pursue. On his second night in enemy territory, he made it back to German lines, but nearly fell victim to a nervous sentry who fired at him, but hit only his trouser leg.



Ofw. Heinz "Bimmel" Mertens and Erich Hartmann



Left, Oblt. Josef "Jupp" Zwernemann, Erich's mentor. Right, Dinner for Erich on the Russian Front.

Early on after Eric's arrival at the front, Ober Feldwebl Heinz Mertens had been assigned as his crew chief and a rapport had developed between them. Mertens, whose favorite cuss word was *gebimmel*, which Erich converted into a nickname, *Bimmel*, took serious pride in assuring that Erich's plane was always ready to fight and Erich had great confidence in him. An unlikely friendship between officer and enlisted man in a German armed service soon grew out of their association and while Erich was missing behind enemy lines, Bimmel had drawn a rifle, ammunition and rations and went out in search of his pilot in the Russian rear. When he finally returned to the field, dog tired, dirty and almost in tears at the loss of his pilot, he was elated to find Erich waiting for him. It was a kind of loyalty that the two men would demonstrate toward each other for the rest of the war and beyond.

### The Aeromart

Y **103" Vickers Wellington** - 6 years old. Crashed once 3 years ago and repaired. Weight 15 pounds, Coverite with Perfect Paint in B MK 3 color scheme. Robart retract valve. Tailwheel and main gear are Spring Air HD 101. Magnum 52 four cycle motors. Servos are Hitec and Futaba. 1300 mah battery new in 2005. Full time on board glow heat. Removable outer wing panels. Add your receiver and fly. Dependable flyer for years. Flies very well on one engine. Could use some TLC, nose and tail turrets are beat up and I'll include new ones so the buyer can set them up as desired. **\$550 OBO**

Y Ready to fly **G Shark Mk II**, Quadra 42 CD with Bennet muffler and Tru Turn spinner. Dual 1300 mah nicad with dual heavy duty switches, 4 Hitec 605 BB servos - elevator 2 (120 oz. In.), ailerons 2 RCD apollo 15, plus Hitec standard on throttle. About a year old. Never crashed **\$550 OBO**

### Chris Spierings

[Spierings@msn.com](mailto:Spierings@msn.com) or 835-8394

Free to good home. Large field box. Three drawers, lots of room for fuel, tools, towels, Windex, electric starter, up to lawn tractor size battery, power panel, etc. Out of my basement and into yours.

### Jerry Buss

[jbuss@itis.com](mailto:jbuss@itis.com) or 244-8534



### OTHER ACTIVITIES

As you get more involved in the hobby, you find you enjoy some parts more than others. Some people like to build. Some even make their own plans from which to build. Some like to fly and purchase RTF (Ready To Fly) models. Some like scale, some just like anything that flies. Some like big, some little. Some like military planes. Regardless of interest, there is something for everyone.



## LOCATIONS

**Kettle Field:** A power flying site located near the landfill on Route 12. That is just East of the I-90/12&18 interchange on the southeast edge of Madison. Enter through the landfill gate and continue until you see the field.

**Long Island Sod Farm:** A glider site located near the Mar- shall exit off Interstate 94.

**Polo Field:** A glider site on the west side of Madison.

**Meetings:** Held on the first Thursday of each month at 7:00 p.m. in Room 201B of the Madison Labor Temple, 1602 S. Park Street, Madison, Wisconsin. Guests are welcome.



**Madison Area  
Radio Control  
Society  
(MARCS)  
P. O. Box 8864  
Madison, WI 53704  
[www.marcs.wi.org](http://www.marcs.wi.org)**



## MARCS

The Madison Area Radio Control Society promotes aviation and education in the Madison area.

The Madison Area Radio Control Society affiliates with The Academy of Model Aeronautics and thus accepts and adheres to the purpose, standards, policies and procedures established by the Academy of Model Aeronautics.



## EVENTS

**Awards Dinner**—Dinner for members and guests. Recognition is made of those members who have performed outstanding service to the club, hobby and community.

**Scale Rally**—A sanctioned event for scale models of all real aircraft.

**War Birds**—A sanctioned event for scale models of military aircraft.

**January Fun Fly**—A good-time event on the first day of the year. The shelter is enclosed and heated. Members enjoy hot drinks and chili.

**Electric Fly-In**—An event for models powered with electric motors.

**Gliders**—Several contests are held each year for gliders.

**Family and Flood Fly**—Members bring their family and planes equipped with floats for good fellowship and flying off water.

**Boy Scouts Quilting**—The club invites a Boy Scout troop for a day of fun and a chance to test their ability to fly model airplanes.

**A Big Bird Event**—An event for "big bird" scale models. Planes have at least 61 inch wing span (60 inches if a bi-plane) or be at least quarter scale.

**Sport Flying**—Every day the weather permits, members are at the flying field flying, testing, learning and having a good time just hanging out.

## BEGINNERS

Very few people can learn to fly radio control models without help. MARCS has a program for new fliers. One member is responsible for matching instructors with students. The student learns to fly on his own plane, but with the use of a "buddy box". The instructor checks the plane out and takes off. When he is at a safe altitude, he presses a switch on the transmitter that gives control to the student. If the student gets into trouble, the instructor releases the switch and has control again. The instructor continues with the student until the student can land. At that point students can progress at their own rate.

**FOR MEMBERSHIP INFORMATION**  
Call Ed McDonald at 608 277 8774





## MARCS 2005 Annual Awards Banquet

**When:** Tuesday, February 7, 2006  
Happy Hour: 6:30  
Dinner: 7:00, followed by Awards Program

**Where:** Dry Bean Saloon  
Verona Road

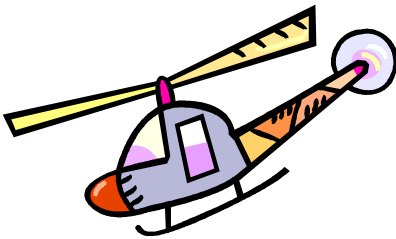
**Menu:** Chef carved prime rib  
Baked cod  
Twice baked potato  
Green bean almandine  
Tossed Salad  
Coffee, tea or soda  
Mrs. Rush's Famous Carrot Cake

**Reservation:** Name \_\_\_\_\_

No. of Persons \_\_\_\_\_ @ \$20 ea. =\$\_\_\_\_\_, enc.

**Send check payable to MARCS to:** Dave Rush  
5113 Ridge Rd.  
McFarland, WI 53558

M.A.R.C.S.  
1918 Gulseth St.  
Madison, WI 53704



for RC planes, trains and automobiles

Your headquarters

# Schultz

**Sport & Hobby**

**315 S. Thompson Rd.**

**Sun Prairie, WI**

**(608) 837-3498**

**Mon.-Fri., 8:00 to 5:00**