THE RAMS HORN

RAINBOW AERO MODELERS SOCIETY

AMA Since 1936

The Official Newsletter of the Rainbow Aero Modelers Society
Metro Milwaukee Area Franklin, WI Founded Nov. 6, 1980
AMA–Academy of Model Aeronautics Club #1264, Operating for Public Benefit, Milwaukee County RC Flying Field, S.70 & W. Oakwood Rd.

VOLUME 29 – NUMBER 6 – June, 2008

Next Meeting: Wednesday, June 4, 2008

Wauwatosa Savings Bank, 6560 S. 27th Street

The President's Report by ***Tom Ryan***

My, how the field has improved under Bob Kabella's direction. He was assisted by Dale Champagne, Roger Olsen and a host of other volunteers who have cut and rolled the field and are working to get the field in the best shape it's ever been in. Great!

One other noticeable difference is in the parking lot. We now have two handicap parking spots that should make life a bit easier for those who are phys-ically challenged. Marv Anderson *(our new safety officer)* took care of assigning those two spots and will enforce the No Parking rule in those two areas. A handicap sticker is now required -no exceptions!

Our electronic newsletter seems to be accepted by just about everyone, even those who didn't receive a mailed newsletter are now going to the web site to read the latest news on the club. The cost savings of electronic vs. U.S. Mail should be significant and my thanks goes out to Keith from RC Slots for making this happen, as it's his site that we tapped into and he did the rest. This should also make our editor's job (Russell Knetzger) easier too; it'll mean more infor-mation to more people with less cost... that's a win / win in the dollars and sense column!

I'm looking forward to our club fly in ***(July 12)*** and the chance to show off the field and all the prog-ress we've made together. The middle of July is just about when everyone is up and flying and excited about going to different Fly-Ins. Hopefully, Mother Nature will bless us with a nice day and a good turn out. Our new Rams Hats and Shirts are already being seen as a signal of our club pride as the members wear them announcing their pride in being a Rams Club Member. I particularly like the Red, White and Blue layout, plus the stars and strips on the hat looks very American and sends a message of pride in being an American as well.

When you come out to the field, please check the bulletin board for up-dates and anything new that may be going on and not yet reported in the newsletter. The latest news and information will be posted there as it happens, so check it out and stay current on events and changes.

So as the new season starts, let's all see what we can do to make things safer and more enjoyable for everyone.

Pilot Profile this Issue: Mike Lutzenberger

RAINBOW
AERO MODELERS SOCIETY

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MEETINGS-7PM
First Wednesdays
Wauwatosa Sav.Bk
6560 S. 27 Street

Membership Dues are $15 per year; except $7.50 /year for ages under 18, or disabled.

Dues paid after April 1. add $1.00
Dues paid after May 1, add $2.00
Membership ends June 1 if not paid

Terms of Office and Dues Year
Mar. 1 - Feb. 28

Milw. County RC Flying Site Operated by the RAMS Club is Oakwood Rd. at S. 70 th Street in Franklin

Pilot License to Fly at Milwaukee County Field $40 $15 under age 18

- Visitors at Meetings or the Field Always Welcome -

All Flight Instruction is Without a Fee

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FIXED WING – Reciprocating Engine
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*Retiring March, 2008–Will ***You*** take their place?

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ALL TURBINE POWERED
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HELICOPTER – Reciprocating Engine or Electric
Russ Schneider, SWARM instructor coordinator, 262-642-2790

Courtesy Model Airplane News, March, 1979

Happenings at the Meeting

RAMS Club, May 7, 2008

by Russell Knetzger, Librarian & Editor

Field matters dominated the May meeting. Bob Kabella, 2008 field manager, following Mel Stein's retirement, announced that the new plastic rain cistern tank is operational (see photo). It will supply field water for sprayer operation, tractor cleaning, spot watering of grass seedlings. It replaces the steel cistern that was in Dick Eddy's wooden toilet house, taken down to make way for the new North Shed. Trash baskets will be removed this year except for Fly-Ins, so modelers will need to take home their trash. Emptying the baskets was becoming a challenge. Fire extinguishers will be kept updated.

To allow for some volunteer cutting with the Bolens and the DR, a Useage & Maintenance chart is now in the shed housing those pieces. Russell Knetzger reported that surveying he and Ken Huber did verifies city topo maps of our site are accurate to within one-tenth of a foot. Russell is working with the City to make way for Marv Anderson's proposal to dust-proof our driveway with fine steel furnace slag. Until that is done, please keep dust down by driving slowly in dry conditions.

Mike Jankowski, Hales Corners fire chief, is making available to our field, an automatic heart defibrillator. He trained 8 of our members in its use during last fall's CPR course. Keith Kittoe of his new hobby shop at 51st & Ryan Rd. announced our club webpage is operational, already containing all thirty pilot profiles to date, and newsletters since January. The address last issue was incomplete. It should be www.rcsclot.com/rams.

Two of four Rules Proposals published last issue were adopted. Henceforth voting for officers at the February meeting can only be by members belonging before Nov. 1st. Also, RAMS & SWARM safety officers now can ground pilots for up to 24 hours.

The raffle to be held at the July 12, 2008 Fly-In was given a boost by Keith Kittoe, donating an OS.Max .61 engine. Event director Tom Ryan noted a food permit has been obtained by SWARM's cook, Tom Young. Ryan also suggested Items for Sale space in the newsletter, and upgrading the importance of the field bulletin board by keeping it more up to date

Above: 60 Gallon rain cistern tank installed between sheds by Bill Geipel, Brian Lorentzen & Bob Kabella, to the right.

Below: Framework of rain shelter before canvas top applied, being tested on north line nearest frequency board. Installation by Bob Kabella, unit cost, $80.

A Quarter Scale Pit Stand is being drawn and built by Bob Kabella to be tested in the above area. **(Cont.)**

Happenings at the May 7, 2008 Meeting (cont., p.3)

Raffle Winners in May were**:** Robert Maciejewski of a drill bit set all the way up to a 1/2 inch diameter Nick Johnson of a screw holding magnetic tray, Bob Kabella of a donated coffee-table sized aviation book, Bill Flannery of a clamp set, and later of a Stephen Ambrose WWII B-24 bombers history book featuring (future) Sen. George McGovern; Darrell Hossala of an aviation 2008 calendar; Jeff Borowski of a framed Time magazine fold-out on the Wright Flyer, Earl Evans of an Air Age Series book from 1942 on "Science of Pre-Flight Aeronautics."

Post Meeting Directors Session

by Russell Knetzger, Librarian & Editor

Upon adjournment of the main meeting around 8:35PM, the club's officers gathered until 10PM. Discussed were proceeding with one pits stand (see item bottom previous page); calling the traditional September Fly-In a "Picnic" to keep it lower key, not restricted to club families but downplayed for visitors and guests; putting our rake-shed "Walkie-Talkies" in top shape so pilots "going out into the bush" are given direction guidance from the pits, and able to call for assistance if needed; providing a bac-teria hand wash dispenser in the portable toilet; aiding our ailing sister MARKS Club which has super low attendance (6 last night, reported Tom Ryan) by attending and perhaps showing programs we can't show during our Summer-At-the-Field meetings.

Tentatively the club will substitute at-the-field meet-ings in August and September, the 1st Saturdays at Noon (with possible hot dogs and beverages on hand), the rain date to be the following Saturdays as follows: August 2nd/9th, Sept. 6th/13th. Visiting the MARKS can be July 1, August 5, and Sept. 2 first Tuesdays, 7PM). They meet at the Franklin Schools center (where we used to meet) at 8255 W Forest Hill Avenue.

President Tom Ryan led a discussion of elevating the status of Flight Instructors by offering them a sem-inar, showing flight simulator operation, and buddy-box use. During the meeting the club supported offering such an approach.

Models at the Meeting

May, 2008 RAMS Club

Above: Steve Ward (pictured with father Floyd), and his .40 engine sized "Fong-40 3D" ARF, featuring a thick airfoil, super large control surfaces, priced at $80, but on-sale for $60.

"Will you guys kindly take your radio-controlled aerial dogfight somewhere else?"

From the Milwaukee Journal's "Green Sheet" 8-20-80

The Combat Corner

by Andy Runte, DVM (Dr. of Vet. Medicine)
(aka"Dr. Kamakaze" RCCA #876, AMA 273119)

The 2008 combat season is in full swing! Fellow RAMS member Bill Geipel and I have already competed in our first contest of the year, using wings I designed and cut from foam. (See RAMS HORN March, 2008 issue). The event was April 20 in Dovre, Wis., just north of Chippewa Falls.

We both had a great day, with Bill scoring a "5-cut round" in the last heat, helping him finish in ***First Place***, while I finished in 4th. In the photo Bill is 3rd from the right wearing a yellow helmut, and I am 2nd from the right, white helmut holding a red wing. A 5-cut round means Bill successfully got 5 cuts on other pilot's streamers in the 5-minute round.

So far in the NPS- National Points Standings, Bill sits in 9th place, averaging 321 points, while I am in 11th place, averaging 230 points a round. We ended the 2007 season on the NPS with Bill in 18th with a 315 average, and I in 22nd place, averaging 285. Another RAMS active in combat, Bryan Lorentzen, was in 50th averaging 251. That's not bad for only competing in 5 rounds!

The way scoring works is you get 25 points for launching on time, another 25 points for flying the whole 5 minutes that constitutes a round, then 100 points for each cut you make on another pilot's streamer, and 4 points for every foot of your own streamer that is left at the end of a round. A full streamer starts out at 30 feet, so if no one cuts part of yours off the whole round, you get 120 points.

Our next meet is coming up Sunday, June 8th in Beaver Dam. Last year two members came to watch. It's a scenic drive to their field, so if you want to get a taste of what RC combat compe-tition is all about, stop by. Directions to the field plus other details can be found on this website but where its says, "June 10th," this from last year:

http://www.hattrickrc.com/meetflyer.html

The design plans for the "***Spad Gnat***" combat plane hat was in the RAMS HORN a few months ago Feb., 2007 issue picture of Earl Evans holding one n his Pilot Profile article, and Nov. 2007 for actual lans), is legal for competition in SSC (Slow Survivable Combat). The Gnat is more geared to-ards a sport combat aircraft rather than com-petition, given its shorter wing span. The planes found in the photo range from an ***Avenger, Flat Bat, and*** modified ***Battle Axe,*** to a ***Phencepost.*** Any of these planes can be purchased as a kit or scratch-built.

'Til next time, "watch your 6!" Dr. Kamakaze

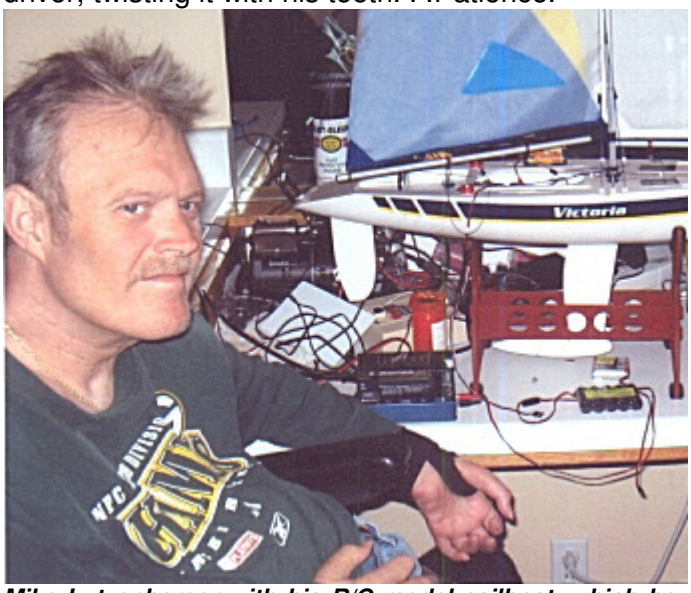
Pilot Profile: Mike Lutzenberger

by Russell Knetzger

Michael Lutzenberger in his 52 years has lived two distinct lives. For the first 33 years it was a conventional but active life centered in western West Allis. There his father, Ralph, a machinist at Kearny & Trecker's 108th Street plant (now Quadgraphics), and mother Shirley, in the 1950s built one of the first new homes at S.105th & Dakota, in what was mostly vacant territory. In 1974 Mike graduated from West Allis Nathan Hale High School, located still farther out, on S. 114th and Lincoln Avenue.

Mike gravitated to sales work, especially enjoying high fidelity music equipment sales for Schaak Electronics, (8 track, then cassettes), and the very earliest computers, Commodore 64s evolving to IBM PCs. Especially gratifying to Mike was his love of winter downhill skiing. Each year he would do a winter vacation to ski the famous runs of the Rocky Mountain slopes– Vail, Breckinridge, Jackson Hole, Aspen, Snow Bird. He got to ski them all.

Back in Milwaukee, winters he taught skiing at Crystal Ridge on S. 76th & Rawson. On Dec. 18, 1989 while waiting for a student, he suffered a fall which broke his spine in the upper back, paralyzing him from the chest down. His second life began. The past 19 years Mike has had to adjust to a life of Patience. Living alone in a specially equipped home on S. 4th & Morgan, Mike waits for visiting aides to lift him from bed in the morning, and to put him back to bed at night. His hands are unfeeling. To use a screwdriver on a model boat or plane, he uses arm pressure to squeeze his hands onto the driver, twisting it with his teeth. . .Patience.



Mike Lutzenberger with his R/C model sailboat, which he sails in the Jackson Park Lagoon, traveling via his van, modified ($65,000) to wheel chair access and arm controls.

Michael Lutzenberger with his all foam, 71" span R/C sailplane Multiplex Easy Glider, 24 oz., brushless electric, which he soloed on during 2007 at our field.

Mike has never been in his own basement, so model work is done in parts of a spare bedroom, and of the living room. That may change. He has negotiated with his insurance company to install an elevator to the basement, and make an expansion of the first floor. He will need to move offsite for a few months while the work is done. More patience.

This remodeling may somewhat speed his productivity. He has a 1/4 scale Taylorcraft built by Don Finney (160 Magnum glow engine) awaiting final touches. There also is ready for spray paint trim work another all foamy from Multiplex, their twin engine "Twin Star," 56 inch span, weighing 51 oz. Mike will stay with electric power for that model.

Mike can do spray painting in his garage, reachable by a long tarp-covered outdoor ramp, right from his kitchen door. The garage stores his radio controlled lawn mover, which fascinates friends, watching him cut his own lawn while sitting in his wheel chair. He values these elements of self-reliance, including remote light switches, flooding his home with his beloved music, and sitting at his computer, another window to the world, from which he orders models.

RAMS Horn, June, 2008, Russell Knetzger, Editor
Rainbow Aero Modelers Society, Franklin, Wisconsin

Electric Flight News - VI

By Dennis Vollrath, Editor, "The Flightline" -Feb. 2008
Racine R/C Club, Inc., Racine, Wisconsin – Reprinted in the RAMS HORN, Russell Knetzger, Editor, Franklin, WI

More on High Powered Electrics

First we must just define what high powered electric models are. We can use a number of definitions as to what would be a high powered electric. For someone used to flying back yard fliers, a high power unit might be something that has a wing span of 30 inches. Someone who flies a 30 inch model might think a .60 size electric model would be high powered.

I'll just arbitrarily suggest that anything over an electric model normally powered by a .40 cu.in sized glow engine is in the area of high powered. This represents an electric power system that runs on a motor rated at 400 watts or higher. Something is rather important here. It's common to find a .40 sized glow engine that the factory indicates will put out over one horsepower. What that involves is this .40 sized engine turning 15,000 RPM on a tooth pick sized prop. Unless you are racing, this15,000 RPM is not useable on any decent model.

That is one reason the four stroke glow engines are pretty popular. First, they are more economical on fuel. Sec-ond, they can swing bigger props. These bigger props just seem to work better on our typical models.

As for the high power electric motors, they do work best with very large propellers. Many of our club members may be aware that larger brushless motors are identified as either In-Runners, or Out-Runners. The Out-Runners are most useful for our models, since the In-Runners turn at very high RPM's, requiring an (expensive) gear box.

My Hacker A50-16S out-runner motor directly drives a 16/10 Prop at about 6200 RPM. This represents about 7 1/2 pounds of thrust at a full power level of about 810 watts. Note that 746 watts equals one horsepower, so this motor puts out about 1.1 horsepower. That's comparable to about a .70 size four-stroke glow engine. (I don't know if any 70 sized four-stroke engine can turn a 16/10 prop properly.)

As for the brands of motors out there, we've got a large number of them, such as the E-flites, and the Hackers. The E-flites have just one winding available for a given size motor, whereas the Hackers have several different windings for the same size motor frame. The Hackers are also substantially more efficient in their use of their bat-tery power.

As for batteries and the cost involved with them, the Feb-ruary, 2004 issue of R/C Report has a very interesting column in the Electric Field by Tony Coberly. Page 132 has a chartt that shows the relative cost of a LiPoly battery cell versus the brand name of that cell.

Coberly rates the battery cell by dollars per Ampere Hour capacity. Its interesting that most of the cell manufac-turers cost about $11.00 per Amp Hour, so a cell with 4 Amp Hours (4000 Milliamp Hours) will cost you about $44.00. Now, a high power motor will require about six of these cells with about 5 Amp Hour capacity, so this high power motor will require a battery pack that will cost about $260.

That's getting expensive, and represents the top of the line for high powered electrics. It just gets expensive. And, the recharge time for these cells is one hour minimum. T'hat's why I've gone with the A123 cells. They are not as good as Lipo's but can be recharged in 15-20 minutes. You've got to build your own packs or really pay a bundle for ready-mades. Plus, they don't catch fire.

I've completed a Hanger 9 Showtime 50 with electric power. Next issue I'll discuss how decisions were made on the electric power setup on this model.

About Our Radio Systems-X (A)

By Dennis Vollrath, Editor, "The Flightline - Dec. 2007"
Racine R/C Club, Inc., Racine, Wisconsin - Reprinted in The RAMS HORN, Russell Knetzger, Ed., Franklin, WI

Vibration - How to keep it out of your radio

One of the real problems with our hobby is inevitable, the heartbreaking crashes that cam occur with our flying models. Once our club members have some experience flying these planes, pilot error becomes less and less of an issue. What is a real concern is when the model suddenly fails to respond to the pilot's command.

Several of these crashes at our field have involved the larger, and more expensive models. When these are lost, they can involve possible safety issues before the crash, along with potential total loss of all airborne equipment.

For what it's worth, I've been flying electric models for 25 years, and outside of one or two issues where the electrical noise from the electric motors interfered with the receiver, I've never had a total loss of control with these electric jobs. Don't know, maybe I'm just lucky, but one big difference exists between the electric models and the glow/gasoline powered models - ***vibration.***

As indicated in a previous article in this radio series, I wrote an article in the defunct RCM magazine on vibration, and how to keep it out of our radios. This article required the entire airborne radio system to be installed inside a plywood box, with Nyrods connecting all servos to their respective model surfaces.The plywood box could then be isolated from the fuselage with a few small soft foam blocks. The effectiveness of this setup was easily verified by removing the wing, and running the engine. Just place your fingers on the fuselage near the radio system, and compare vibration levels at the fuselage to that of the receiver. If done right, the vibration levels at the radio/battery/servo box will be near zero.

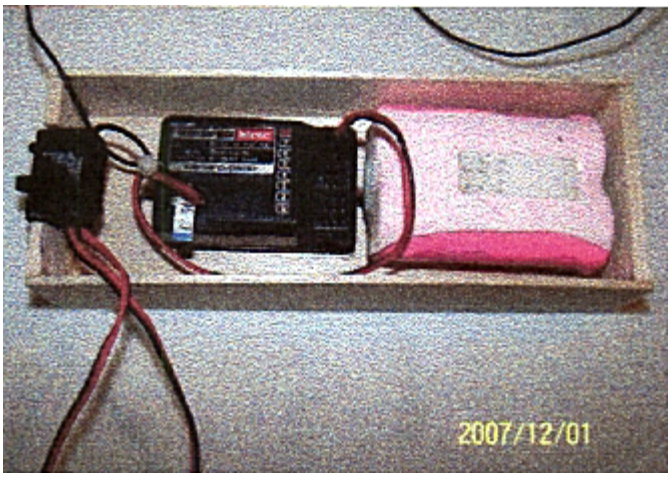
Yes, this type of setup does have drawbacks, such as added weight, extra size of the radio box and whether it will fit inside the fuselage. And, obviously, no one in their right mind will connect a servo of a 50cc gasoline powered model to the rudder/elevator with a nyrod.

Please read the following and determine for yourself if it would useful for the models that you fly.

What options do we have? It's a given that we can't change how the servo's are mounted. They absolutely have to be solidly mounted with very stiff linkages to the elevator/rudder/ailerons to prevent soft control of these surfaces, or even worse, flutter of the surfaces. At any rate, most of the larger models have dual servos on the elevator and ailerons. Failure of one servo hopefully will allow enough control by the other servo to get it safely back on the ground in one piece. Even still, servo failures are rather unusual in modern radios, even with larger models.

This leaves the receiver, battery, and on-off switch. With the receiver near zero mass, trying to protect it against vibration will be pretty much ineffective, even with foam rubber mounting of the device. Try building a plywood box out of lite ply, maybe a 1/4 inch bottom, and 3/16" sides. Size this box to allow room for the receiver, battery, (or batteries in dual battery installations) and the on-off switch. The receiver/battery mounts can be hook and loop, or Velcro.

Mounting this inside a model with foam will allow a considerable reduction in vibration levels to these compo-nents. The box should be mounted with soft foam, such that it is free to move perhaps 1/4 or 1/2 inch or so. Placing the on-off switch on the box gives it vibration protection as well. Try this for a vibration free connection of the switch to outside the fuselage**:** Drill a small hole through the plastic tab of the switch slide. Then insert two lengths of fish line type cord through the small hole, one pulled through the right fuselage side, and the other the left. Just pull one for on, and the other for off. Using this setup should hopefully make this portion of the on board system at least as reliable as my electric models



Note the illustrative photo above. Normally of lite plywood, the photo model is balsa to show the concept. It could even have a lid. All the wiring between the switch, receiver and battery can be placed inside of the box. All that would exit the box would be the servo leads. One way to mount this thing would be to construct another larger box with clearance on all sides. Then insert small pieces of foam between the large box and smaller box. The larger box would be solidly mounted to the model. It's worth thinking about.

About Our Radio Systems-X (B)

By Dennis Vollrath, Editor, "The Flightline - Dec.2007"
Racine R/C Club, Inc., Racine, Wisconsin – Reprinted in The RAMS HORN, Russell Knetzger, Ed., Franklin, WI

How it Works: Radio Receivers

Last issue we suggested that the receivers work with resonance. This is very true, and the photo of the two pieces of aluminum separated by a piece of paper, and connected to a coil of wire, showed earlier in this series is exactly what is used in the first part of the modern day receiver. However, we've all observed a piece of wire that is about 30 inches long coming out of our receivers. The question is, just how is this piece of aerial wire connected to the aluminum/coil contraption?

Well, in real life, the aluminum/coil thing is shrunk down by several magnitudes in size so it will fit inside the receiver. The capacitor will be of a type that is quite small, very accurate in its value, and very stable in its value over temperature ranges, and so on. The coil will also be quite small, and will have more turns in its winding. It will also be wound inside a ferrite core that allows shielding, and adjust-ments for tuning. F.Y.I., a ferrite core is a special type of powdered iron transformer thing that completely encloses the wire coil This ferrite core usually has a moveable ferrite iron core that is used to tune the whole capacitor/core thing. Depending on the manufacturer of the radio, you will likely find that this core has been factory adjusted, and sealed with wax to prevent vibration from affecting its tuning.

Now, we must connect the receiver antenna to this ferrite transformer device. This is normally done by taking the coil winding, and tapping it in the middle. The receiver antenna is then connected to this "tap in the middle" of the winding. So far, this whole capacitor, ferrite core and winding is tuned to the 72 Mhz frequency of the receiver.

Note that the antenna is also part of the tuned circuit. **Changing the length of the antenna is the same as shortening the antenna on your trans-mitter!**

I've seen several cases where the receiver was installed inside the model with the antenna nicely coiled up just as it was shipped from the factory. One was a very nice fully detailed four motor electric scale model that flew for about 500 feet before it went in. The modeler was a very well known person that has authored more than a few articles in the AMA magazine, (just to show it can happen to anyone.) A simple range check would have prevented this crash.

Now, just what kind of signal levels are involved with this setup? Well this signal level can vary by many orders of magnitude, depending on how close or far away the transmitter is. When the transmitter is very close, say a few feet away, this signal level will be on the order of a volt or so as measured on the antenna. And, if the transmitter is about 1/2mile or more away, this same signal will drop down to one or two microvolts. Microvolts? A microvolt is one millionth of a volt !

This is a resonant circuit, and one of the properties of a resonant circuit is that due to the energy slopping back and forth between the capacitor and the coil, the voltage can actually increase above the level found at the antenna.

Think about the swing set, and nudging the 500 pound block of cement back and for with a push of your finger. A good tuned circuit can actually increase the voltage of the very low level signals by 50 or 100 times. However, this is still very low when the model is far away, so we need to boost the signal

We do this by attaching a transistor (or FET, Field Effect Transistor) to this capacitor/coil thing to boost its voltage. This whole combination of the capacitor, ferrite core/coil is referred to as the Radio Frequency or RF circuit of the receiver. Now, by itself, this RF circuit will not be enough to make this thing work. The major problem is it will receive TV channel 4, paging frequencies, all the RC channels, including the 72 Airplane frequencies and the 75 Mhz ground frequencies.

We can add several more of these "RF circuits" to narrow the bandwidth of the setup, but this just won't do the job, no matter how may RF amplifiers we add. What's to do?

Next issue, we start on the "superhetrodyne" radio, and just what single and double conversion is.

"But, Marcia, when those guys said, 'Look at that FOX - - - is she a 36 or a 40?,' they weren't talking about YOU!"

Courtesy the "Aero Shaft," Flint, Michigan

"From this modest beginning, this simple piece of balsa, I plan to build a magnificent scale model of a Beechcraft Baron!"

Courtesy the "Glow Plug," Middle Tennessee R/C Society
Phil McDowell, Editor

Upcoming Events

***Wednesday*, June 4, 2008 RAMS Club Meeting 7PM**

Wauwatosa Savings Bank, 6560 S. 27th Street

- - - THIS COMING WEEKEND ! - - -
Annual Tamarack/Bud Weber PatternContest for aerobatics fans
Sat. May 31 & Sun. June 1, 2008
Flying Electrons, Inc., Kohler Lane, Menomonee Falls, WI
(Take Silver Spring Dr. to Pilgrim Rd., north 1/4 mile To Kohler Ln., west to water tower, North over railroad)

Sunday June 8th Pre-Father's Day U-Control Contest, Wagner Park, Green Rd., Pewaukee
Saturday June 21 - Big-Bird Fly-In, Fond du Lac Aermodelers
(Take USH 41 freeway to City limits, south on Hickory Rd 2.5 Miles)
Saturday June 21 - Electric Fly-In, Menomonee Falls (see Electrons directions above)
Saturday June 28 - Skyranch Flyers, West Bend, WI (Take USH 41 to CTH D, east 3 miles)

(LOOKING AHEAD TO JULY – RAMS JOINT WITH MARKS CLUB)
RAMS Power Point Slides: *25th Anniversary Joe Nall Giant Scale Fly-In*
May 16-19, 2007 -Triple Tree Aerodrome, Woodruff, South Carolina
Largest Event of its Kind, 550 Entries
Narration by RAMS' attendee Bill Geipel, Computer projection by RAMS' Tom Nettesheim
TUESDAY, JULY 1, 2008 AT MARKS CLUB, 7PM, 82ND & FOREST HILL AV.