



# THE RAMS HORN

April, 2008

Volume 15, Issue 4

The Official Newsletter of the Rainbow Aero Modeler's 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.

## ***Next Meeting: Wednesday, April 2, 2008***

***Wauwatosa Savings Bank***

***6560 S. 27<sup>th</sup> Street, Oak Creek, 7:00-9:30PM***

### **The Presidents Report**

by Tom Ryan, 2008 President

Well if you missed it, the first Club Meeting under my control was different and I hope fun?

This meeting ran a bit long (*so was the DVD*) and was somewhat unorganized, but from what I heard back, it was fun!

I showed my opening video (*only this once, could have been half as long too, but never again*) and I poked fun at Roger... but it was all in fun and he was a good sport about it. Of course I took a shot at myself too and even managed to squeeze in some magic. My closing joke got a laugh, so all in all I managed to escape without getting beat up! (*This time*)

Of course we did talk about needed real club issues (*Russell our new editor will cover those*) and managed to get some dialog going on what we need to do and change for the up coming flying season.

Divided into six groups, we were able to tackle six problems and come up with real solutions to real issues. Team work produces results and the members proved that at the meeting, plus, many of them walked away knowing more about aviation than

they did coming in. Sharing knowledge and RC experience produces better pilots - it does work!

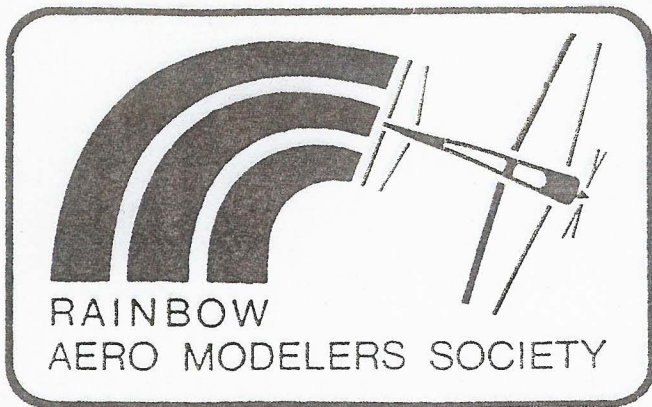
Russell is hard at work on getting the Newsletter on line and working with snail mail too. For those who want the newsletter mailed, nothing will change. Hopefully with the help of Keith and Shawn assisting Russell, we'll have a new and better Rams Newsletter and on line... hopefully soon!

The April meeting will be a twist from the March meeting, I'll have a different agenda, but on the top of my list is sharing ideas and promoting friendship. It was great hearing the laughter and seeing everyone enjoying each others company at the March meeting, hope that never stops!

At the April meeting we'll zero in on what we started at the March meeting and look to jump start our 2008 flying season. I'll try to keep it more organized too! Also look for more added details on our July Fly In.

I hope to see all of you at the next meeting and promise not to run so long. Thanks for the support and positive attitudes expressed by everyone. Remember, a smile is very contagious. Let see if we can spread an epidemic of smiles. *Thanks, Tom*

**Pilot Profile Inside: Marv Bishop**



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**MEETINGS-7PM**

First Wednesdays  
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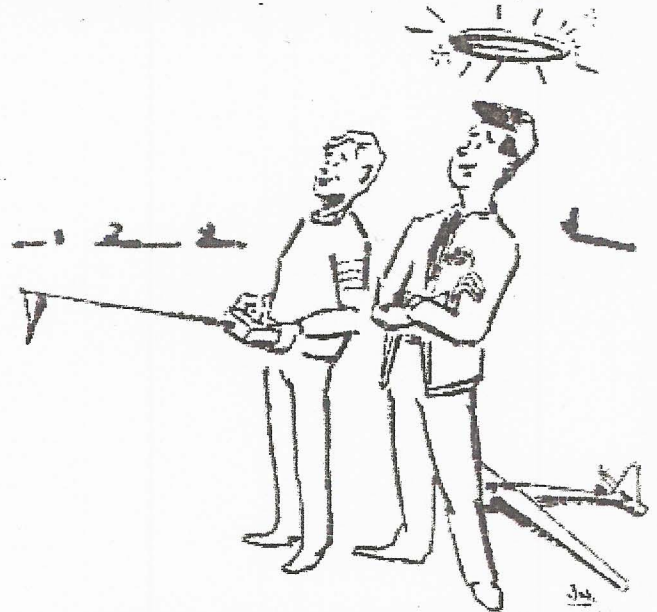
\*Retiring March, 2008- Will You take their place?

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*"Instructing is a satisfying and rewarding experience. It always makes me feel good."*

Courtesy Model Airplane News, March, 1979

**Poetry: R/C in Winter**

It's very hard to go out and fly  
When you know an icicle might bang your eye.  
If the temperature says "three below,"  
You know the trip would be nothing but woe.

So you work at home, you build a plane  
And all the while, about the weather you complain.  
If only one day it'd get a few degrees ahead  
Then your feet wouldn't be, made out of lead.

You'd head for the field, things would go right,  
You'd put in a flight that was out of sight.  
Every pattern'd be perfect, you'd score all tens.  
The day would be great! From beginning to end.

So you look outside. Can you go to the field?  
But, no, again to the weather, you must yield.  
You close the curtain to shut out the day.

Being a flyer in winter, just doesn't pay!  
Courtesy the Bartlesville, Oklahoma R/C Club, 1981

- Visitors at Meetings or the Field Always Welcome -

# Happenings at the Meeting

RAMS Club, March 5, 2008

by Russell Knetzger, Librarian & Editor

New president Tom Ryan followed past precedent by starting right on time, 7:03PM, but from then on the meeting was innovative. Tom, who operates Ryan Studios (videos), introduced himself to the club via a 13 minute self-spooof, superimposing his own head on flashy, younger dance bodies. The video included inserts showing a sailplane ride from the instructor's seat, and a turbine model crash that set off a smoky fire at a field's edge (not ours).

Tom also promoted club-self image by showing a RAMS logo golf shirt and hat. Most innovative of all was breaking the room into six table-groups where pilots discussed difficult situations, but also tackled educational test questions.

The situational tasks included should 4 hours of volunteer work a year be required of each member? How should an obstreporous visitor or pilot be dealt with? Would a monthly club meeting flea market be helpful to modelers disposing of excess inventory – would a percentage donation of sales help the club treasury? How do we re-attract past RAMS members? Attracting new members – could we do more – flyers at hobby shops, website, pass-out business cards?

Responses included handle bad behavior tactfully, but if alcohol or imminent violence obvious, call the Franklin Police, 911, Bringing in pilots to the club can be as simple as asking them. Technical questions ranged from keeping engine size proportional to the model to honor the engine mfg.'s liability, to "wing loading" means model weight per sq.ft. of wing area; exceeding speed limits can mean flutter of rear surfaces.

Vice President Jeff Borowski asked pilots what they want to see for meeting raffle prizes. One big prize? Several medium cost, or many small cost? Cash?

Craig Manka's club financial report showed \$596 in the treasury a previous meeting; raffle expenses \$70; \$70 income from the R/C Assoc., extra postage for newsletters to all field license holders (twice a year); 24 of 56 members renewed so far, net finances \$765. Jim Hatzenbeller's field report showed \$807 starting; 45 of 113 renewed so far, few winter expenses, closing balance \$2000.



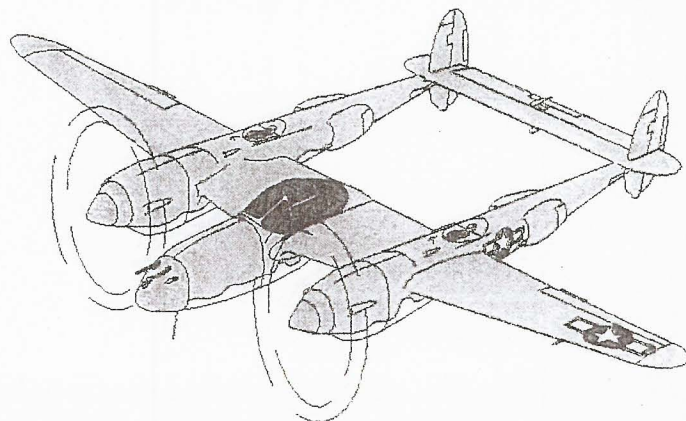
## *The Milwaukee winter of 2007-2008 – Deep Snow*

Original artwork Rockford R/C Club, about 1981

For summer meetings Pres. Ryan asked members to consider meetings at the field for June, July, & Aug.

By-laws changes for possible vote at the April, 2008 meeting include (1) Jim Hatzenbeller's proposal that new members joining after November 1<sup>st</sup> can't vote at the February elections; (2) Pres. Ryan's proposal that the editor be appointed, not elected; (3) safety officer to get power to suspend a pilot for 24 hours, possibly first concurring with the affected club president(s); (4) instructor category pilots-recertify?

Raffle winners were Nick Johnson of a used OS.48 four cycle engine w/muffler; Russ Retzack and Bryan Lorentzen of quart sized additive oil for model airplane fuels; Mike Swendrowski (prize not noted), Shawn Rehm of an Exacto knife set; Phil Flasch of a Lanier Shrike ARF. Don Finney offered to host at the field workshops on giant scale and computer radios. In spite of the activity variety in the meeting, it ended at the usual 9PM. The room is ours until 10PM, but no is ever there past 9:30PM.



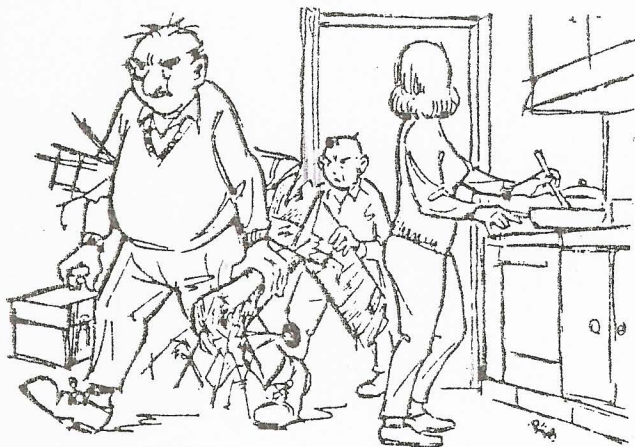
# Notes from Denny's Desk

By Dennis Vollrath, Editor, "The Flightline", Feb. 2008  
 Racine R/C Club, Inc., Racine, Wisconsin

## Dual Battery Input Spektrum Receivers

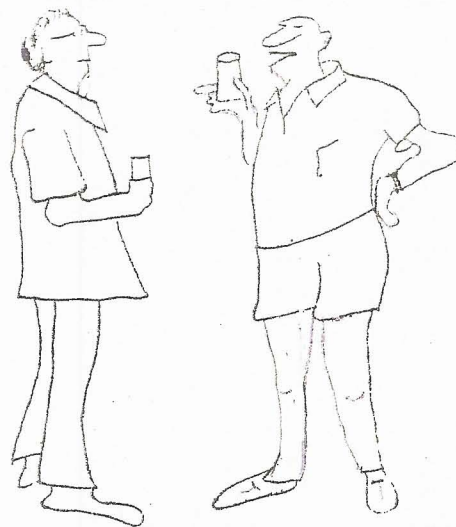
More than a few club members are flying expensive models involving quarter scale machines and so on. I just looked over what Spektrum RC has come up with for these models. They have released their new receiver, identified as model AR 9100. This is a Microwave receiver that operates 9 channels. The interesting part is, it has built into the receiver DUAL battery inputs, using number 16 battery wire, rather than the much smaller #22 or #24 wire commonly found on the general model receivers.

This receiver has three "slave receivers" included in the price tag. These slave receivers all plug into the main receiver for very robust signal reception. The design uses an on-off switch that, if it should fail, fails in the ON mode. It's apparently an electronic on-off switch. This receiver is directly compatible with all JR and Spektrum Microwave 2.4 Gigahertz transmitters. This thing is not cheap. The receiver alone is some \$220.00. But for the very expensive models, it just might be worth it.



*"Used the wrong glue again."*

Courtesy Mid Tennessee RC Society, 1979



*"Take it from an old modeler. . . you'll save time and money if you just buy a kit and smash it right there in the store and eliminate all the middle steps"*

Courtesy the Birmingham Alabama R/C News, 1979

Keith Kittoe  
 President

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## Models at the Meeting

March, 2008 RAMS Club



Bryan Lorentzen (r) inspects the latest wing foam cores hot-wire cut by Andy Runte, DVM (left), for the two of them plus fellow combat pilots Bill Geipel, shown center, and Bob Maciejewski just off camera left. The foursome is experimenting to find wings with improved flying characteristics.

Marv Anderson, below, shows his Great Planes ARF of the Gee Bee R-1, 68 inch span, 10 lbs., OPS 4S 1.20 cu.in. engine (3 hsp). Finger? Bob Maciejewski.



Ken Ceranski, of Muskego, shows his Hobby Lobby "Skimmer" sailplane, a first love when Ken was entering model aviation. Instead of launching it by surgical cord as in those first years, this one has an electric motor, with fold-back plastic prop for dead-stick landings. Wing loading? Only 12 oz. per .sq. ft.



Steve Ward, the RAMS' foamy expert, shows his latest, an electric powered Lockheed P-38 Lightning of 47 in. wing span. His electric motors are B2208-12s, 1800 kw. The landing gear are for show. He prefers to remove them, hand launch, & belly land.

# Pilot Profile: Marv Bishop

by Russell Knetzger

"Join the Navy and see the World" certainly applies to Marvin Bishop. Immediately upon graduation from high school in Chilton, Wisconsin, in 1955, he signed up with the US Navy. Chilton is between Lake Winnebago and Manitowoc. Ten years later he settled in Milwaukee, but in that ten year Navy career, he had exceptional experiences.

Pertinent to our club, Marv was able to serve in the aircraft element of the Navy. With the Korean Conflict ended, the Navy offered training choices. Following "basic" at Great Lakes Naval Training near Waukegan, IL, Marv schooled next at Norman, OK, then at Lakehurst, NJ in pilot services – parachute rigging, oxygen supply, and survival gear. To satisfy a Navy rule for riggers, Marv jumped his own chute, leading him to do sports jumping. Marv was deployed to aircraft carrier service on the USS Midway, based at Alameda Air Station near San Francisco. Marv's Squadron flew FJ4B fighters. Being at sea for 9 months included stops in Hawaii, the Phillipines, Hong Kong, and then porting several times in Okinawa, Japan.



Insignia, 1960  
**Operation Deep Freeze**  
US Naval Air Facility  
McMurdo Sound  
Antarctica



Marv also was based at Kingsville, TX and Quonset Point, RI, putting him on all three major coastlines of the US. Nevertheless, his two most exciting posts were "land" based, China Lake, California, and MacMurdo Sound, Antarctica. The land at China Lake, near Death Valley and halfway between Bakersfield and Las Vegas, is pure desert. China Lake is a crossroads, not a body of water.

The China Lake assignment was to a base doing hush-hush work, particularly in developing air to air missiles for the Navy. The "Sidewinder" heat seeking missile was developed in 1956 at China Lake, and to this day remains an effective weapon. During Marv's stay there it employed 1,000 military and 10,000 civilian personnel. Most of the 10,000 were scientists on a calibre of those who worked on the "Manhattan Project," developing the atomic bomb during WWII. Work on the missiles involved shooting them near drone aircraft radio controlled from the ground. That was Marv's first taste of R/C.

MacMurdo Sound is on the Ross Ice Shelf, reachable from Invercargill and Christchurch, New Zealand and not accessible by air once the ice breaks



*Marv Bishop with his Floyd Katz designed and built trainer, this one on floats, .15 cu.in. engine.*

up in the Antarctic "summer". The Antarctica assignment was 1959-1962 under the "IGY-International Geophysical Year." Among the inventions during that time were the open-weave waffle pattern underwear that increases survivability in extreme cold.

Marv made trips between New Zealand and MacMurdo on ski-equipped DC-3s and even a SuperConnie on skis. Marv was part of a parachute rescue team at MacMurdo, which resulted in him being the first man in Naval history to qualify as a parachutist in the Antarctic.

After Navy service, Marv moved to Milwaukee, working for 17-1/2 years for Bostrom Mfg. Co. on S. 2<sup>nd</sup> & Oregon. Marv's sewing skills on parachute rigging made him a good supervisor for the cushion work Bostrom did on its bus/truck seats. After Bostrom moved down south, Marv worked 10 years at Custom Craft doing interior customized vans.

Marv's son-in-law, Scott, got him into model aircraft just 3 summers ago. Marv was looking for a hobby involving shopwork, and aviation. Marv chose an electric powered Goldberg model, though the low power was hard to fly with any wind. His instructor, Floyd Katz, advanced him to .15 & .25 engine sized trainers that Floyd had designed and built. Marv soloed on them. Marv lives with wife Debby on S. New York Ave. in Bay View, having ten grandchildren living here, in California, Michigan, Indiana and even in Tasmania.

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

# Electric Flight News - IV

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

## Issues of flying electric models (The larger type)

As mentioned briefly in the last article, electric models are great fun, and work very well up to about the .60 size model, or about 65 inch wing span, 840 square inches, and about 8.4 pounds.

By now, just about every one in our club has seen my 150% Electro-streak fly. Its got, (by coincidence) 65 inch wing span, 840 square inches, and 8.4 pounds. This model is powered by an Astroflight geared 40 brushless motor, with gear box. The prop is a 14x7, batteries are 22 GP 3300 NiHyd cells from Radio Shack.

Let's upgrade this a little to a proposed 200% Electro-streak. This will result in a model with an 88 inch wingspan. (Simple multiple of 840 times 200 divided by 150). The wing area goes up by the 200 divided by 150 or 1.33, then SQUARING (1.33 X 1.33) to 1.77, multiply the 850 by 1.77, or about 1500 Square Inches.

What's far worse, the weight will go up by something like the cube of the wingspan, so doubling the wing span results in the weight going up by 2 times 2 times 2, or something like 8 times. It's going to weigh 20-30 Lbs.

The original Electro-streak had a 44 inch wing span, weighed in at some 40 ounces, and flew with an Astroflight brushed 05 motor that was good for about 1/4 horsepower. Jumping this up to the 150% Electro-streak. resulted in requiring an increase in horsepower to about one horsepower. And going to the 200% Electro-streak will require 2 to 4 horsepower to fly it right.

As it turns out, Astroflight, Hacker, and others do make very powerful motors that will turn big props. The Astroflight Monster 120 will turn a 16x10 prop at 10,100 RPM, pulling 90 Amps out of a 36 volt battery. The motor is rated to 12 Lipo's. But, just what does it require for batteries? Well, 36 volts is 10 Lipo cells, and at 90 amperes, you'd have to parallel about 4 cells for a Lipo 10S4P pack.

What does a Lipo battery pack that will run the Astroflight 120 cost? Somewhere around \$1500. And 100 flights would be a good life on these Lipos.

I'd go the A123 Dewalt 36 volt battery pack myself. You can buy enough batteries for the Monster 120 for about \$500 off of Ebay. That will give you 50 A123 cells. But you've got to build the battery pack yourself. Let me know if any are interested in the A123's. I've built up a 6S2P pack with these cells. You would not want an accidental short on a 1234P A123 pack. It would vaporize the end off a heavy duty screwdriver.

It gets worse. What are you going to field charge it with? You will get one or two flights out of a 120 Amp Hour deep cycle battery. That will require a whole box of chargers connected between the deep cycle battery and the model batteries. The main issue with larger electrics is cost and charging capabilities.

Personal opinion: for the largest reasonable electrics is a motor that would be comparable to a 4 stroke .70 glow engine, something I have for a project next year. (Gee, think a twin set up with a pair of Hacker A50s that will turn a 16x10 prop at 6200 RPM that together will put out 17 pounds of thrust? Maybe some time.)

(Next time: Article V: The effect of changing propeller sizes on the rpm, and on the horsepower output, of the same size electric motor.)

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## About Our Radio Systems - VII

by Dennis Vollrath, Editor, "The Flightline, Oct. 2007"  
Racine R/C Club, Inc., Racine, Wisconsin - Reprinted in  
The RAMS HORN, Bill Stilley, Editor, Franklin, WI

### Buying a New Radio, Protecting from Vibration

Now, for those who would like to purchase a new radio for the next flying season, what should we buy?

This is my personal opinion, take it for what its worth.

We have the following considerations:

1. The original 72 Mhz radios
2. The Spektrum 2.4 Ghz radios
3. The Futaba 2.4 Ghz radios

What are the features of these units? Well, the original 72 Mhz radios have been around for decades, and have worked very well on virtually every type of model airplane flown. They do have the potential to be "Shot down," but under proper frequency control procedures, this is not really a big issue. They do have very reasonable prices as compared to the 2.4 Ghz Microwave radios. The bottom line - if you are using 72 Mhz radios, if they have been working fine, there is no need to upgrade to the microwave units.

However, if you want to go to the newer systems, these microwave radios have a lot going for them, including not being shot down by another modeler. You can turn on without concern if anyone else is on your frequency. They are pretty much immune to electronic noise like ignition engines, and so on.

We have the Spectrum radios built by JR that selects two unused frequencies in the 2.4 Ghz microwave frequency bands. We have the Futaba 2.4 Ghz radios that use the "Frequency Hopping" process in the 2.4 Ghz frequency bands. Which is better?

Well, Spektrum indicates that they tried the "frequency hopping" process during their early designing process, decided that this type radio had a few disadvantages. They indicate that the system they are using is more complex than the frequency hopping process. The Spektrum radios use a dual receiver system for the models that require range of more than a few thousand feet. These receivers can handle anything from the one pound models up to

the full blown jets that move around at speeds of near 200 mph. Spektrum has single receivers for the "Foamies" that weigh less than one pound with a stated range of several thousand feet.

Spektrum has the "Model Match" system where it is not possible to program in the wrong model into your transmitter and take off with the wrong airplane. For those who regularly show up with several different models, this is an important issue. I've not found this feature in the Futaba Radios.

Spektrum now has 9 channel radios for those requiring more channels for the larger models,

Futaba uses the "frequency hopping" process. Futaba indicates this is patterned after their years of using the frequency hopping process in industrial controls. Some of the Internet sites have indicated that if a number of Futaba transmitters are on at the same time, that "Collision" between transmitters will occur. This has the capability of slowing down the rate of transmitted servo commands. I'm not certain this is true, due to the previously mentioned ability of microwave radios to transmit a phenomenal amount of information over a short period of time.

So, even if the Futaba radio system should get "Hit" 50% of the time by other Futaba radios during frequency hopping (I'm NOT saying this is the case!) the remaining 50% of good signal is still far more than is required to control your model.

So, which is better? For those that have used the JR radios for years with success, the Spektrum microwave radio is better. For those who have used the Futaba radios for years with success, the Futaba microwave radio is better. For those with Hi-Tech radios, (Flip a coin!).

Next article we deal with protecting your on-board radio system from vibration. The article after that, we start on receivers, single conversion, double conversion and what they are, and how they work.



## About Our Radio Systems - VIII

by Dennis Vollrath, Editor, "The Flightline, Oct.2007"  
Racine R/C Club, Inc., Racine, Wisconsin - Reprinted in  
The RAMS HORN, Bill Stille, Editor, Franklin, WI

### Protecting Against On-Board Vibration

Back in the 1960's the now defunct RCM magazine ran an article where one modeler checked vibration levels in a typical .60 powered model. The vibration levels found could exceed 35 G's! NASA gets very nervous about vibration levels that exceed 8-10 G's.

But, one big side effect of the modern radio receivers. is they are far lighter than receivers of 10 years or so ago. So what? It involves how we mount these things in our models.

I wrote an article in the 1960's in the RCM magazine about vibration, and how to keep it out of our on-board radio systems. Back in those days, radio receivers used individual components such as resistors, capacitors, transformers, etc. Repeated vibration could, and did, lead to fatigue of the component lead wires, resulting in them breaking off. And the model usually crashed. Yeah, I lost several models due to this phenomenon.

My article suggested putting the whole entire radio system, including receiver, battery, switch, and servos, into an isolated box, and connecting this box and its internal servos to the model surfaces with nyrods. The box was supported inside the model with soft foam. It worked, and worked very well.

These days, we've got surface mounted components that reduce the effects of this vibration stuff. BUT, with the receivers that weigh in at fractions of an ounce, stuffing them inside foam for isolation is not as effective as putting a two ounce receiver inside the same exact foam for isolation.

Also note that other required items for the radio include the Nicad batteries, battery wiring, servo wiring, switch harness, the fist goes on. Each and every one of these items are susceptible to vibration. Taking a typical receiver, Velcro mounting it to the fuselage, and plugging in the various cables to the receiver, is asking for problems.

What can happen? If the receiver is mounted directly to the fuselage, it is subjected to severe

vibration. As, indicated, most surface mounted design receivers are resistant to this type vibration. However, the various plugs that plug into the receiver are not. Severe vibration can lead to servo leads "unplugging" themselves from the receiver, and could even result in fracturing the servo wires internally inside the servo wire insulation.

For those who build up battery or servo leads, be absolutely certain to use wire designed for this purpose. Radio Shack wire is OUT! The reason is, the model industry uses copper wire with very fine individual strands, and a lot of them. For those who have taken 3/4 inch diameter copper tubing from the hardware store and bent it back and forth several times, you quickly find out it work hardens. (Smaller tubing can be bent more.)

The same can occur in our model wires, but the very small diameter strands in the "Good wire" reduce the damage potential that can be caused by vibration.

What you do NOT want is any plug or connection where one item is subjected to vibration, the other is not. Case in point, mount the receiver to the fuselage with Velcro, and just plug in the servo wires. The receiver will vibrate with the fuselage, the servo wires will flop around with each and every stroke of the engine. Maybe only a few thousandths of an inch or so, but over hours of flying time, these little vibrations can creep up on you.

The receiver on-off switch is another hot issue. These switches are usually mounted directly to the fuselage and are subjected to a lot of vibration. Not much can be done about this. Some vendors are selling electronic switches, where the on off switch operates high power transistors that power the receiver and servos. These high power transistors (Field Effect Transistors) will have a lower voltage drop than the switch contacts they replace. Its easy to find a FET that will handle 50 Amps, they use them in virtually every Electronic Speed Control for electric models made.

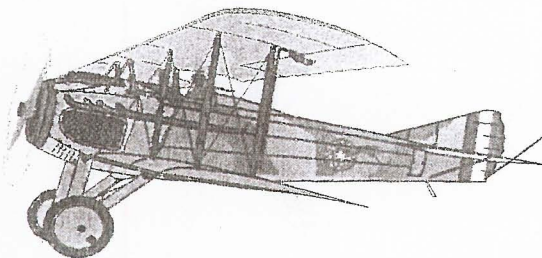
FYI, you can now go out and buy a diode rated for about 1000 Volts DC and 10,000 Amperes. That 10,000 Amps is not a misprint. That's some 13,000 horsepower.

Next time; The Radio System Receiver

# THE RAMS HORN

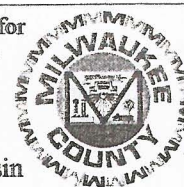
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Milwaukee Association of Radio Control Clubs, AMA Chap. #7

Operating for  
Public Benefit the  
Milwaukee County  
R/C Model Airplane Field  
S. 70<sup>th</sup> & W. Oakwood Rd.  
Franklin, Wisconsin



## Upcoming Events

***Wednesday, April 2, 2008 RAMS Club Meeting 7PM***  
Wauwatosa Savings Bank, 6560 S. 27<sup>th</sup> Street

### MEETING PROGRAM

**Held Over from March-Aviation Week Video: “Flight Deck”**

*US Navy Aircraft Carrier Deck Operations*  
*Q & A by Marv Bishop, Served on the Carrier “USS Midway”*  
*(See Marv’s Pilot Profile This Issue)*

### OTHER APRIL MEETING ITEMS

Show & Tell, Raffle Prizes, Some By-Laws Proposals

### LOOKING AHEAD TO MAY

Power Point Slides: *25<sup>th</sup> 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 the RAMS’ attendee Bill Geipel, Computer projection by Tom Nettesheim