



# FEEDBACK



JUNE 2004  
FIELD DAY SPECIAL

VOLUME 49

NUMBER 6

## JUNE MEETING NOTICE

The meeting for the month of June will be on June 4th 2004 at 8:00 PM. The meeting will be held at the Massillon Senior Center in downtown Massillon, Ohio



IT'S HERE!!!! Field Day is just 4 weeks away! Your Officer's have been busy planning another "outstanding" Field Day for this year. We are going to try a few new "twists" such as interfacing the CW computer with the rig to enhance the "memory" of the computer and ease the logging for that station. Here is some of the basic information which may be helpful to all our members.

**SETUP:** Setup begins on Saturday June 26th at 9:00 AM at Petros Park All members are urged to help with the setup which will take at least 5 hours to complete. This is where all the "work" is involved. All transceivers must be set up, all antennas, shelters, display's and even the "GOIA" station (Get On The Air) must be set up AND operational by the starting time.

**OPERATIONS:** Starting time is 2:00 PM which means that both the CW and Phone station must be operational by this time. In the past we were able to start on time and begin to make contacts.

**EVENING MEAL:** All participating members are asked to bring a covered dish for the evening meal. The club will supply the drinks and meat. There is usually plenty to eat so no one ever goes hungry at Field Day!

**TEAR DOWN:** This will begin promptly at 2:00 PM on Sunday June 27th. It takes about 3 - 4 hours to tear down and put everything away and clean up the park.

**— SHORT SKIP —**

Thanks again to Dave, WD8CKK we had a great Dayton trip. The rain QRT'd the flea market and "Hernia Bay" (the baggage compartment on the bus) was not as full. So let us look forward to next year's trip and hope for that "Caddillac Ride" on the return trip. I have faith in Bob, K8MGC and Gene, W8KXR ... (HI)

**73 de WB8CWM**

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## **MARC MINUTES**

### **May 7, 2004**

The Massillon Amateur Radio Club meeting was held at the Massillon Senior Center with 40 members and guests present.

MARC President Jim WA8GXM opened the meeting at 8:00 P.M. The Pledge of Allegiance was given and a round of introductions was made. He then asked to suspend reading the April minutes. They were accepted as stated in the FEED-BACK by Tim WB8HHP and second by Rich KA8ZQH.

MARC Treasurer Anne N8GAF gave the financial report.

MARC Vice President Joe WD8BGW gave a list of upcoming Hamfest dates and VE sessions. Gary WC8W will be conducting a ARRL VE session May 29th, 2004 at the Emergency Opoerations Center (Sherrif's Office) .

Joe WD8BGW then read the obituary of silent key Paul Keller K8EJN who passed away on May 5, 2004. He then read a letter from Gary WC8W on the 6 things needed to make MARC Field Day successful. Gary WC8W has had a glitch in his computer, so he may need your e-mail address update.

### **NO OLD BUSINESS**

### **NEW BUSINESS**

Dan N8DZM wanted to know if anyone was interested in making a ladder line J-pole at Field Day as a project this year.

Guest Mike W8VGE donated 2 newly designed power stripes he has made to MARC. He will be selling them in QST. MARC Librarian Ralph K8HSQ gave his report.

Roger KA8FTS can get old QST magazines if anyone wants them contact him. Also he knows a lady that does call sign hats, let him know if interested.

Jim WA8GXM said the E-COM trailer needs a new dual band antenna, also a new antenna for the Shack. A motion was made by Rich KA8ZQH and second by Gene W8KXR to purchase these items. A vote was taken and passed.

Terry N8ATZ said the GOBA ride will be June 21st. Volunteers will be needed to see them safely thru Stark County.

There was no other business so the meeting ended at 8:40 P.M. with motion made by Tim WB8HHP and second by Don W8DEF and Rich KA8ZQH.

After refreshments Detective Bobby Grizzard of the Massillon Police Department and Special Agent of the FBI gave his program on Internet sex crimes against children.

Congratulations goes to Anne N8GAF for winning the 50-50 for \$11.00.

**Minutes by Linda K8MOO**  
**Secretary MARC**

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### **PROGRAM FOR JUNE MEETING**

#### **Thanks to Joe, WD8BGW**

Rick Alatorre is the newly appointed Stark County Emergency Management Agency director and coordinator of the 9-1-1 Call Center.

He comes to the EMA after serving for 4 years as the Central Stark County Chapter's Disaster & armed Forces Services Director. He is a national level instructor for the American Red Cross and has helped create a number of documents for the Red Cross's disaster education programs.

While he is new to the county government system, he is a veteran of disaster management. Rick has lived in 4 different Midwestern states working not only in the broadcast-

ing field, but also with the American Red Cross and as a fire fighter/first responder

Rick has countless single family disasters under his belt, but has experience with larger disasters, as well. He has responded to over a dozen national level disasters including the 1992 Mississippi River flood, the local response & military support for Sept. 11th, the Dominican Republic aviation accident which struck New York City, Nov. , 2001, & working with national and international media when an American was found with Al-Qaeda prisoners in Afghanistan.

Rick was also in charge of the local response to the July, 2003, floods in the Canton area. Rick's only hobby is to read books and watch movies about disasters. Thankfully his wife and dog enjoy watching those movies, too.

## ... Another Dayton Hamvention In The Books ...

As I write this months column I have just returned from the Dayton Hamvention with a few thoughts for those of you that didn't make this years gathering.

Again this year weather proved to be the Murphy that has plagued Dayton for the past several years now and another reason I continue to make Dayton a two day event. Friday was near perfect Dayton weather, slightly warm and overcast. A perfect day to scavenge the flea market. I wasn't really looking for anything special but always eager for that special gizmo or gadget that awaits me in some little cardboard box hidden behind other useless junk. Alas that something special didn't show itself this year but the hunt has usually been the most fun anyway.

One big Ata-Boy to the Dayton hierarchy this year for the major improvement they made to the bus transportation from the Salem Mall. What good does it do to force everyone to park at the Mall if you don't have sufficient bus transportation to get them to the hamfest? Last year they had about six small van size busses to shuttle people from the Mall to the Arena. The lines stretched so long it looked like the Great Wall of China. Lots of angry people that weekend.

What a difference a year makes. I arrived at the Mall about 7:30 AM Friday morning to find about twelve full size Dayton RTA busses patiently waiting for riders. No long crowds of people waiting in line just quick shuttles to the hamfest. Nice job Dayton Hamvention!. Other aspects of Dayton were about the same, long lines for the bathrooms at times that could still use some air fresheners, long lines for food and no place to sit down when you get it. Typical Dayton Hamvention.

Nice crowds inside checking out the major equipment vendors. If general attendance was down this year, you couldn't tell it be me. Overall my satisfaction index for Friday was a solid 9.

Now lets talk about Saturday. What happened? Dismal rain showers virtually shut down the flea market, even those vendors with those EZ-Up tents so popular these days. Nothing kills a good flea market like an all day rain shower. That left only one place for everyone to go - inside. This makes it pretty tough to see very much especially for a short guy like me!.

I was able to pickup a few things I had on my list from the inside parts suppliers and one or two "toy's" to tinker with. A few magazines, some usual Dayton Freebees and it was time to head for home.

All in all I had another great time again this year. I saw several club members during the weekend and of course paid my respects to the great ARRL Gods in attendance.

What now, start planning for next years Dayton of course and in case you're wondering they did announce next years Hamvention will be back at the venerable old Hara Arena.

## ... Some Public Service News ...

Mark your calendars now for several public service events including the Great Ohio Bicycle Adventure (GOBA) coming on Monday, June 21st. Sunday, August 1st is the Pro Football Community Kickoff Parade and Saturday, August 7th is the Hoover Company Grand Parade.

We will be looking for volunteers to assist with all of these events, contact me for the GOBA Ride and the Community Kickoff Parade and Dave Beltz - WD8AYE for the Hoover Grand Parade. Within a few weeks I hope to have complete details posted on the Stark County ARES Website.

**That's it for this month; see you at the club meeting!**  
**Terry - N8ATZ**

Caught at the Hamvention, Gene W8KXR trying out a "new" HT???



## Tectopics 17

### Winter Projects Unfinished

Or,

### A Tuner Wanna-Be Goes Commercial

Ok, ok I know...I missed the last couple of reports from the Board Room (Missy Marilyn's galley) over here at the Big KXR . . . Since giving you the skinny on basic tools for doing stuff around your stations, I got 2.365 parsecs beyond busy using some of my own tools to finish up a few winter projects and a bit of travel.

Since the last report from the CEO's office and Missy Marilyn (of sticky bun fame), I have been in Iowa visiting son Greg and his family, and in up state New York with Missy Marilyn's Mom. All is well in those quarters but of course, such time out doesn't help progress at the W8KXR Super Station. Yet I can report good news. Such trips are providing reading and study time in the motels and during lulls in domestic duties. Much reading and design stuff gets done in the late hours mixed with those ever enjoyable day dreams in those places where they never turn the light off.

Now, if you haven't finished your winter projects, and are sitting around wondering where the time went, you could have turned off the tube, stopped numbing your brain, and fired up the soldering iron, installed some caps, drilled some holes, aligned some gear, or whatever it is you should have been doing on your projects. Too late now...the summer rush is on and antenna projects are calling, or whatever other improvements to your station are needed.

But, what of winter projects here at the Big KXR? Mr. CEO...did u waste your time with 'the tube' and a beer or two? Or, did u put ur efforts on the line and really do what u claimed? Well, yes, we have made some progress on a variety of programs, but didn't entirely eliminate a few sample 807's.

The 200V/600L/Thunderbolt is nearly completed with bias, T/R, PTT and metering of control circuits mostly laid in and ready for final connections to the control and patch panels. Also completed SWR system for the 200V and did an enormous amount of cleaning out of old nasty stuff that accumulated over the years. Trust me, if I tossed it...it was really bad stuff along with enough RITTY stuff to start a museum.

Beyond those efforts, I made a few Fests and when on a serious 'search and rescue' mission to the Dover Hamfest, a very neat, but poorly executed 'antenna tuner' was snatched from the jaws of junk. Got it for a very modest fist full of loot and it proved to be an interesting find for those dedicated to the world of real radios . . . you know the story. The chief engineer back at the Big KXR "Rehabilitation Works" was ecstatic (that means

excited and I just learned that word, so thought I would try it out). The Wanna Be tuner was a homebrew job, but with special merits and some real problems.

So here's the story. At first inspection, there on the Fest table, it looked like a plug and play scenario, but once the Chief Engineer at The Lab lifted the lid, the story was quite different. There in the thick of the search and rescue at the Fest, the unit appeared as a very substantial steel box that had a super paint job, and some great components inside. It seemed like it was to have been a "T" network with excellent commercial grade input and output capacitors, and a roller inductor driven with a high quality, very rugged, crank and turns counter.

A closer look revealed the following, and is the basis for the eventual 'rebuild' of this potentially excellent piece of equipment. The case in which it was built is a steel box, apparently intended for outside duty. The lid lifts up and has a weather strip installed that seals the box. Also noted, the box alone weighs about 25 pounds..and additional poundage due to real components installed. . . at near forty pounds, this is one rugged puppy.

The original builder must have been familiar with auto body painting techniques, because some of the openings in the original box were welded up with good fitting steel plates, joints sanded and sealed with body putty. A superb paint job followed, that left a glass smooth finish. Very nice and a great place to start a thorough rebuild.

By the way, the unit as found, could not have worked. It was mechanically and electrically a mess..but all the parts were there, the cabinet being the best part. So to start, the whole thing was taken apart and the capacitors inspected. The surprise was that the largest cap, intended as the input cap is a 'differential capacitor.' Say what? Never heard of a differential capacitor, or even a dual differential capacitor?

Good grief, say it isn't so Ham Boy! But, just in case you have not bumped into one of these beauties, a differential capacitor is one that has two sets of static plates along the same axis. But, the nifty thing is that the rotor has two sets of plates too..but, in the case of a differential capacitor, one set of rotor plates is 180 degrees rotated with respect to the other on the drive shaft. That means as one section of the capacitor receives its set of plates to increase capacitance, the other set is decreasing capacitance by having the rotating plates leave the static section..

Of course, seasoned Hams (no pun intended, coulda' been smoked I guess) know that E.F. Johnson, read Viking series of Matchboxes, use dual differential capacitors in their very much sought after antenna tuners. Those tuners remain the premier antenna matching systems of all time, and retain their top of the line efficiency ratings in spite of the current over priced run of stuff that masquerade as antenna tuners. The dual differential capacitor provided smooth tuning, while retaining the high Q



lacking in most modern tuners. EFFJ used tapped coils and depended on the differential caps for tuning.

But so what? I wasn't lucky enough to find a dual differential cap, but the one in the rebuild was a single..not too bad for a Fest find. Well, the cap was in pretty good shape, except for a cracked ceramic piece in the stator line. This is not usually a big problem and is easily repaired with Super Glue.

Clean the capacitor with degreaser and then an ammonia type cleaner. Once the ceramic is clean, and it is easy to clean with a bit of scrubbing with an old tooth brush, use the 'thin' or low viscosity Super Glue type stuff and bleed a little into the open crack. Then push the crack together and keep pressure on it for a short time. The repair is very strong and maybe stronger than the ceramic.

Once the cap was repaired, it was set aside. The output cap was smaller in capacitance, but still of high voltage rating, in the 5kv to 10 kv range commercial grade class. It was in real trouble, with inspection showing that a couple of rotor plates had been removed, the wipers not touching the rotor, and the remaining plates were not centered between the stator plates.

Yippee yippee ho ho . . . what was going on here? Whoever tried to make some 'improvements' to this poor cap, went non-linear and essentially destroyed it. It is probably why, as purchased in the Fest, it could not have worked, and probably never did . . . just another failed homebrew project and probably why it ended up on the tables waiting for the Big KXR Rehab Lab to find it and return it to life as a respectable tuner.

Now, these big commercial grade caps are rugged. That's why they are still around for us real Hams to rescue and put back into service. They are easy to work on and after a few trips to the hardware store for copper washers to rebuild and adjust shaft spacing to gain centering adjustment for the rotor, the cap was reassembled. It worked perfectly, and with a bit of tension adjustment, it turned like silk..very nice with estimated capacitance of about 200 ufd. So much for the output cap. Now for the roller inductor.

The roller was in good shape, but dirty and more importantly it was too small. Of course! Everything at the Mega Station is too small, even if I build it. Remember..if you can pick it up, it's too small and is regarded as a YWU or "Yuppie Weenie Unit". That's the station philosophy. But..you already know that story.

In the case of roller inductors, the station Lab's inventory has an ample supply of these wondrous units just waiting for installation in the right piece of gear. Sometime ago, search and rescue missions found a huge roller that is wound on a ceramic form and measures nearly a foot long and is nearly three inches in diameter.

Actually it was rebuilt from a once popular, and now sought after military unit called a TN-339, uniquely referred to as a 'Tuning

Unit.' Go figure. The TN-339 came in various colors, black crackle, Navy gray, Army green, and in various textured surfaces. It was the mating antenna impedance matching unit designed for the BC610, which if your not up to speed on your Ham Heritage, was the most well known 'do-all' military transmitter, designed by Hallicrafters and used in W.W.II and into Korea.

The salvaged roller inductor from some long gone TN-339 is about to live again, and is now mounted in the newly emerging Impedance Matching Device emerging from the Rehab Lab. It required some ingenious innovation by the guys in the lab. Getting the drive shafts to mate up on axis with the turns counter dial, custom made spacers to adjust the height of the ceramic stand off's..and new mounting plates for the entire coil mechanism were some of the challenges. With the aide of the Lab's new engine lathe, a drill press, and some patience the project is ready for final wiring.

By the way, the engineering lab's metal lathe now has more projects lined up for it than hours to complete them. Again, it points to the absolute need for appropriate tools. If you have no tools, you immediately eliminate yourself from even the most rudimentary projects. Based on the Tectopics 16, you should be making steady progress in advancing the capability of your own shop. If you are serious about building, repair, salvage, and experimentation, tooling up is an on going process. In the case of the lathe, it maybe a bit of a challenge for most, but in the end, it has already produced custom parts that are out of the question without it.

Regarding final wiring of the 'tuner,' it will be tried in an Ultimate Transmatch configuration at first..which will utilize the differential capacitor. Because this is a large rugged unit, using commercial and military grade components, it will be easy to experiment with various configurations. It did, by the way, include a husky looking balun that was mounted on a piece of wall board..yuck..not good..and totally tacky too..but when remounted it will be fun to experiment with, even though it is a very lossy component that turns your valuable RF into heat. It's hard to communicate with heat, but helps to warm your hands on cold winter nights.

By the way, most of the modern crop of tuners, use some form of roller inductor, usually in an L type configuration. These have the advantage of matching wide ranges of impedance inputs from the antenna to 50 ohms. The down side is that they are lossy..and in spite of the cute little lights and meters, they soak up power you hope might be going to your antenna, even if the meters say 1:1 SWR. Much of the power is lost in the tuner, in particular, in the roller inductor as ohmic loss.

So, to make the best of a marginal situation, when tuning that expensive little box, once you get a match, go back and retune until you have minimized the amount of inductance and maximized the capacitance settings. Try it, you'll like it, even though use of a balun for balanced lines, is also not a good thing..but those revelations have been discussed in earlier editions of Tectopics.

Oh, and a few final points. This unit was found with a very excellent set of matched E.F. Johnson style skirted tuning knobs with panel mounted dial markers. These are the same style used on the more recent vintage Nye Viking tuners. Also the turns counter dial did not have a crank on it as found on the Fest table. Not to worry. The use of the larger and heavier roller inductor makes the use of a whimpy knob with crank handle impractical. Again, The Lab inventory solved the problem with a matching knob of large diameter making the whole unit appear as commercial; the ultimate goal of any amateur engineer . . . right?

Finally, feet for the heavy cabinet have been ordered from Fair Radio over in Lima, and as soon as the feet show up, final work on wiring and output insulators will take only a few hours. And by the way, for a touch of commercial grade appearance, the Chief Engineer specifically ordered military grade shock feet, sometimes referred to as anti vibration feet. They look very cool, are very inexpensive, and put that final touch of professionalism on the project.

And has it been worth the effort? Well, I haven't turned it over to the Testing Department for final check out of neat stuff yet, but this unit is pure commercial grade, with a great near prototype appearance and no reason to believe that performance won't be good, based on standard circuitry.

Plus, take a look at the cost . . . you may have a similar beauty in your station . . . check the cost and/or look at the catalogs. What is the cost of a high quality tuner that is rated for continuous service at full legal limits, or even one rated for lower power ranges? Please read the fine print for service duty. Then look at the price. Holly high prices Ham Boy!!

For less than the price of two tanks of gasoline, and a lot of building and engineering fun, this tuner is top quality and will handle continuous duty with anything an amateur can put through it, except when using the balun. That is a limiting factor in any of the currently available tuners available to amateurs in spite of their high cost.

Yes, it was lots of fun, presented some challenges to engineer around, and will be very satisfying when those feet are mounted and the low pass filter is mounted on the back panel. The lesson: keep a sharp eye at the Fests . . . let your imagination run, and don't be too timid about picking up a piece of gear, either commercial, or homebrew that needs that little extra help to get it going and becoming a proud addition to your station. Use some judgement, pick projects and parts you can handle, but stretch a bit..push yourself and reach for a new level of expertise in the true spirit of our fabulous hobby.

Our hobby was founded by guys who liked to play . . . had insatiable needs to experiment, and were committed to the struggle to find ways to do things with limited materials and resources at hand. If you are a real Ham, let the good times roll.

Get over to the bench and build, improve, or repair something that adds to the sophistication of your mega-station.

Now let's see what is next on the project list..better finish up the 200V combos..still quite a few hours needed to get the switching wired and tested..and then there's a mobile antenna for the Big Guzzler (My truck; and by the way..please drive little plastic cars that antennas don't stick to, so there is plenty of fuel for my truck . . .), the beams, the three wire dipole, the new vertical for 20 meters..and the inverted L for 160 meters, not mention the Gates BC-1T . . . Dam..I just hate it when I know winter is just around the corner!

**From the Engineers over in the 'Capacitor Rebuild Lab,'**

**De W8KXR**

**TAKE A  
LOOK  
AT THIS...**

**FOR SALE**

**ICOM IC-T7H BRAND NEW, WON AT HAMFEST. \$ 100.00 CALL SKIP, WB8OWM AT 330-454-9434.**

## IN MEMORIAM

### PAUL D. KELLER K8EJN

Paul D. Keller, age 72, of Massillon died Wednesday May 5, 2004 at the Hospitality House in Perry Township where he had resided for several years.

Paul was a Lifetime Member of the Massillon Amateur Radio Club and regularly attended our monthly club meetings where he would entertain attendees by playing the piano prior to meeting time. Throughout the years, Paul was also one of our best CW operators each year at Field Day, comprising one third of our station team. Paul was an avid DXer, having worked and confirmed many different countries.

Paul was born Aug 18, 1931 in Massillon to the late Paul and Cora B (Hess) Keller. He graduated from Washington High School in 1948 and attended Heidelberg College for two years. He was also a member of Grace United Church of Christ. He traveled extensively with his family to Canada, the Western United States and Hawaii. The last few years due to ill health Paul was unable to join our Field Day exercises and was greatly missed. A lifetime club member, Paul helped to form the foundations of our club during his long years as an active member.

Our condolences goes to his Family.



### DR. JAMES S. MUIRHEAD-GOULD

Dr. James Muirhead-Gould 69 , husband of Sandra Muirhead-Gould (Formerly KC8WTP, now K8FUN) passed away on Sunday May 9, 2004. He was born in Berlin, Germany on March 5, 1935. He grew up in Surrey, England and later moved to Montreal, Canada. He received his BS degree at McGill University and his Ph.D. at the University of Ottawa. He taught chemistry and physics at Walsh University fro 29 years. He will be remembered as a gentle man with a gentle spirit who cherished his wife and children and loved nature. He is survived by his wife Sandra, his son, John Steuart of Columbus, his daughter Sara Elizabeth of Columbus, brother & sister-in-law, Andrew and Barbara Muirhead-Gould of Toronto, nephews, nieces and various other family members.

A mass of Christian burial was held on Friday, May 14th at St. Michael's Catholic Church. Donations may be made in his memory to the Walsh University Scholarship fund, 2020 East Maple St., North Canton, Ohio 44720.

Our sincere condolences goes to Sandra and her family.



## Dayton, 2004 Picture Page

Pictures, Thanks to Jason KC8LIN



Question, How do you stuff an oversize antenna into a pick up truck? Ask Scott W8JT how it's done!



The "Bus" Crew a group shot.



Bob K8MGC, Gene W8KXR and Don W8DEA "rush" into the Dayton Hamvention flea market get the "goodies" from the bus parking lot.



Perry W8AU, gets his "hands on" a new Ten-Tec Orion at the 'fest. While he ponders the 64 million dollar question, "should I; or not"?



# June 2004

## Monthly Planner

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday																																																									
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Please contact KA8ZQH to add,delete or change Calendar