

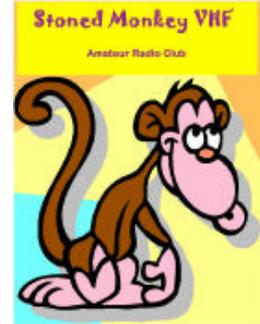
WeLCARS



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Lake County Ham Radio Journal

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www.welcars.org

September 2008

www.stonedmonkey.org

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President: N9IFG - Joe
joeserocki@gmail.com

Vice-President: N9QDS - Keith
n9qds@arrl.net

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Secretary: K9BTW - Dan
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Treasurer: K9PLS - Penny
k9pls@mindspring.com

Newsletter: K9TMS - Tom
k9tms@mindspring.com

Meeting Schedule

WeLCARS Meeting
September 3 - 7PM
Fox Lake Community Center
23 South St., Fox Lake, IL

VE Testing
September 10 - 7PM
Fox Lake Community Center

WeLCARS Meeting
September 17 - 7PM
Place TBA

WeLCARS Meeting
September 24 - 7PM
Fox Lake Community Center
23 South St., Fox Lake, IL

Contesting

ARRL Sept VHF QSO Party
Sept 13 1PM – Sept 14 10PM
50+ MHz Phone, CW, Dig.
www.arrl.org/contests

North American Sprint
Sept 13 7PM-11PM
3.5 - 14 MHz Phone
www.ncjweb.com

Fall VHF Sprints
144 MHz – Sept 22 7PM-11PM
222 MHz – Sept 30 7PM-11PM
www.svhfs.com

State QSO Parties
Tennessee – Sept 7
Arkansas – Sept 13-14
Colorado – Sept 20
South Carolina – Sept 20-21
Texas – Sept 27-28

Hamfests

ORC Ham & Hobby Swapfest
September 6 – Cedarburg, WI
www.ozaukeeradioclub.org

CFMC Radio Expo 2008
Sept. 13-14 – Belvidere, IL
www.chicagofmclub.org

Peoria Superfest
Sept. 20-21 – Peoria, IL
www.peoriasuperfest.com
Note: The club has 2 free tickets available. E-mail chris@n9yh.com if interested.

Other Events

Harmon Hundred PSE
September 7 – Wilmot, WI
www.wheelmen.com/harmon.htm

Amateur Station at Smithsonian QRT after 32 Years

From the ARRL

After more than 30 years on the air from the nation's capital, NN3SI, the Amateur Radio station at the National Museum of American History part of the Smithsonian Institution <<http://www.si.edu/>> -- became silent on Thursday, July 31. Originally located in the Nations of Nations exhibit, the station first went on-the-air in 1976 in celebration of the US Bicentennial. The FCC caught the patriotic spirit, giving the station a temporary call sign – NN3SI – standing for Nation of Nations, Smithsonian Institution. The Commission later made the call sign allocation permanent.

NN3SI has been situated in several different exhibitions in the Museum; it was most recently housed in the former Information Age exhibit. This exhibit chronicled the birth and growth of the electronic information age -- from Samuel Morse's invention of a practical telegraph in the 1830s through the development of the telephone, radio, television and computer. The Museum has been closed since 2006 while undergoing a major renovation and is scheduled to reopen to the public this fall.

According to Hal Wallace, NN3SI Station Manager and Associate Curator for the Museum's electricity collections, there will be no appropriate place to house the station once the Museum reopens this fall after undergoing an extensive renovation.

"NN3SI ceased operating from the National Museum of American History on July 31," Wallace told the ARRL. "As you may know, NMAH has been undergoing a renovation of the building's infrastructure and interior for some time. The renovation forced us to remove the Information Age exhibition -- the station's home since 1990. We placed the station in a temporary location for the duration of the renovation but it cannot remain there when we reopen to the public later this year. The Information Age exhibit will not be reinstalled, and since we have no other appropriate exhibition areas within the Museum, the station had to cease operations at NMAH."

Underground Electronics

N9QDS

Electronic Engineering and Service of:

Amateur Radios	Keith Schreiter
Antique Radios	351 Cherry Cove Lane
Audio Equipment	Round Lake Beach, IL 60073
AM FM Stereos	(847)-707-6574
Power Supplies	n9qds@arrrl.net
Towers & Rotators	

FCC to Raise Vanity Call Sign Fees

From the ARRL

On August 11, the FCC announced that the cost of an Amateur Radio vanity call sign will increase 60 cents, from \$11.70 to \$12.30. The FCC is authorized to collect vanity call sign fees to recover the costs associated with that program. The vanity call sign regulatory fee is payable not only when applying for a new vanity call sign, but also upon renewing a vanity call sign for a new 10 year term. And, no, you can't try to save yourself 60 cents by renewing early – you can only renew your license within 90 days of the expiration date.

The vanity call sign fee has fluctuated over the 12 years of the current program -- from a low of \$11.70 to a high of \$50. The FCC said it anticipates some 15,000 Amateur Radio vanity call sign applications during Fiscal Year 2009, collecting \$184,734 in fees from the program.

Lake County Teacher Helps with ARRL Teachers Institute Program

From the ARRL and LC RACES

The ARRL Teachers Institute is a four day, in-service training opportunity for teachers to learn about wireless technology, including the science of radio, space technology, microcontrollers and basic robotics. It focuses on how to integrate these vital technologies into their regular classrooms. For the first time, the number of Teachers Institutes offered was expanded from four to six sessions that included 77 participants from 29 states. To help out with the expanded course load and number of sessions, the ARRL brought two additional instructors brought on board. According to Education and Technology Program Coordinator Mark Spencer, WA8SME, "These new instructors will allow the program to continue to expand in coming years. They also bring new perspectives and talent to the instructional staff." One the new instructors is Nathan McCray, K9CPO, a former sixth grade teacher who starts the 2008 academic year as an assistant principal at West Elementary School in Zion in Lake County, Illinois. McCray is expected to take on lead instruction responsibilities in 2009.

As a teacher, McCray integrated Amateur Radio, electronics and robotics into his science and math curriculum. He plans to start an Amateur Radio club in his new school and is looking forward to developing clubs in his district's junior high and high school.

McCray's knowledge areas include electronics, computer programming, communications, Amateur Radio, computer systems, leadership and teaching; his background includes instruction at the community college level, as well experience as a senior instructor at a US Navy technical school. McCray has been licensed for 24 years and holds an Amateur Extra class license. McCray is an active member in Lake County RACES.

Here in the spacious mid-town offices of the LCHRJ the editorial staff is pleased as punch to see Lake County represented in a program that promises to bring technology and little know-how back into the schools.

New McHenry County VE Team

From the McHenry County Monitoring Group

The McHenry County Monitoring Group has started an ARRL VE team that conducts monthly VE testing on the fourth Saturday of the month at the American Legion, 1101 W. Algonquin Rd., Lake in the Hills. Testing starts at 9AM and ends at Noon. The next session will be Saturday, September 27.

They are looking for more VEs to expand their group. Contact Jeffrey at n9mxtham@gmail.com for more information on joining their team. You can also check out their website at <http://www.mhcmg.com>.

Bernz-O-Matic 3-in-1 Micro Torch

Review

Chris Burke, N9YH



Fig 1. The torch as packaged. While it comes with a nice tip for soldering, fuel is sold separately.

There are times when a soldering iron just won't do; soldering brass rods during the Never Ending Antenna Project meetings, for example. On those occasions Tom K9TMS was helpful and brought out his propane torch. For those that don't remember, Tom's torch has a small

pencil-type torch connected by a hose to a larger propane bottle. When I was preparing the 80-meter Field Day antenna, I found that my 40-watt Radio Shack soldering iron wasn't going to cut it when soldering the wires together around the ceramic insulators and the capacitors. Sure, I could try and use the stove, but hell hath no fury like my wife if she sees solder stuck to anything in the kitchen.

I went over to the Round Lake Ace Hardware, the store where Penny K9PLS reported she had purchased the torch Tom brought to meetings, and I couldn't find it anywhere. I felt like a larger torch like the kind used to sweat copper pipe might be a tad overkill, but when I found the Bernz-O-Matic 3-in-1 Micro Torch for \$30 I thought it just might be the ticket. The torch comes with a stand and a soldering tip that can also be used as a small heat gun when the actual tip is removed (there's a small ceramic element inside). It's also self-igniting – pull down on a small silver button and pull the trigger and you're cooking with gas. Well, butane, to be more precise. The torch itself doesn't come with butane but the Bernz-O-Matic butane refills are about \$5 and go a long way.

The trigger can be locked down for a constant flame or heat and the flame is adjustable via a dial on the back. The torch fires right up every time on the first pull of the trigger, and I found the included stand to be a real time saver. I could set the torch up on my workbench, turn the flame on, and have both hands free to hold the antenna and the solder over the heat. I had the 80-meter antenna soldered and ready to go in no time.

For less than \$40, including tax and butane, this is definitely a good value and would make a great addition to any ham's toolkit. Bernz-O-Matic also makes a small pencil torch on a hose similar to what Tom uses, but that's \$40 by itself (online price – it's no longer available at the Round Lake Ace); no propane bottle or stand are included, and I've never seen a soldering tip for propane. The propane torch puts out more heat, but I found the heat put out by the small butane torch to be more than adequate.



Fig 2. BERNZ-O-Matic, not Bass-O-Matic!

First Bitten by the Bug, Then Hit by a Bus!

Chris Burke, N9YH



Fig 1. Bubba the Bus in all its Partridge Family glory. Come on, get happy!

One of the hot topics of recent club meetings has been the possibility of getting a bus to use for contests, public service events, and for my kids to ride in during the Fox Lake Christmas parade.

Unfortunately for the Danny Bonaduce in all of us, the bus has proved to be an expensive proposition. Joe N9IFG reports that insurance companies have been less than receptive and the bus' mechanical condition is, well, what you would expect for a 30-year-old bus, making the bus impractical for a club with our financial wherewithal.

The club vehicle idea isn't completely dead, though. Tom K9TMS had mentioned getting a trailer, and Joe and I are hip to that idea, as insurance and maintenance will be much less on a trailer compared to a self-propelled vehicle, and one three decades old at that. The discussion on this will likely continue at future meetings.



Fig 2. The inside of the bus. The psychedelic ceiling is a nice touch. If we do up a trailer like this Joe N9IFG says we can borrow his Pink Floyd albums for when contests get slow.

TechFest III: Revenge of TechFest

Chris Burke, N9YH

Joe Serocki, N9IFG



Fig 1. The 'Fest in action. Rich N9EMS hawks his wares while Joe, Terry, John, and Matt check out what Penninger Radio had to offer.

TechFest III: Revenge of TechFest went off without a hitch on Saturday July 23, despite lower attendance than last year's TechFest I. High gas prices and a hectic summer schedule were likely to blame, and we're planning to cut back to a single TechFest in February for 2009.



Fig 2. DC Ace always brings a great selection of merchandise.

Still, despite lower numbers, the 'Fest had a lot to offer. VE testing, free admission, great food, seminars, and a good selection of merchandise. The theme for this 'Fest was roving and mobile setups. A few hams brought out their rovers, the most famous of them being the War Wagon, but the Unified Command Post that Lake County RACES brought was definitely judged to be the coolest by the attendees.



Fig 3. Lake County RACES brought out the big guns for the rover competition! The Unified Command Post vehicle was a big hit. It didn't have a psychedelic ceiling, though.

VE testing went well with three new Technicians and one ham upgrading to General. Some of the new Techs was a student from the spring Merit Badge classes. One of them walked away with a brand new Icom IC-V8Sport that we raffled off as an incentive for the class participants to go on and get their tickets. Kudos to the VEs that "beat the heat" in the little room downstairs to offer testing.

In addition to bringing out the Command Post, Lake County RACES had a great display and a few members on hand to answer questions, their choice of footwear notwithstanding.



Fig 4. Nothing says, "Ready for action," like a reflective vest and flip-flops.

The food was, as always, very well received. Georgette KA9VPG and Mary Fran KC9LGT coordinated the kitchen with ruthless efficiency while Mark KC9KCW and Chris N9YH conspired as well as they could to get in the way.

The "So You Want to Build a Rover" presentation went very well. The inclusion of the state emergency vehicle

and the audience participation led to a renewed interest in roving on the part of the presenters and the rest of the audience as well! The idea sharing and the blatant plagiarism of ideas from the Command Post were fantastic!

Our debriefing included a discussion of changing the format of TechFest and going for a more profit-centric approach, such as CFMC bringing in professional wrestlers, and we decided that the mix of sales, seminars and plain old camaraderie were exactly what our group is looking for. We will probably limit the fests to yearly, in February, and the topic for TechFest IV has already been chosen. We will be discussing homebrewing equipment and accessories, including a discussion of kit-building and scratch-building, from HF through microwave. Nothing is off limits and we are hoping for strong participation on the part of attendees!

So how did we do? Well thanks to Lee "Guido" KC9JQX keeping careful tabs on the money he collected we officially garnered \$79 from donations and \$275 from table or space rentals for a grand total of \$354.

In honor of those discussions involving various forms of wrestling that included both sexes, mud, and/or Jello, we've tentatively chosen a tag line for the next 'Fest.

So with that, we'll say 73 and see you at TechFest IV: Bride of TechFest!



Fig 5. Picture the next ARRL ad campaign: "Ham radio - Non-stop excitement!"

2008 Harmon Hundred Bike Ride Public Service Event

Wendell Smith, N9REP

The 2008 Harmon Hundred Bike Run will be held on Sunday, September 7. The event starts and ends at the Wilmot Union High School in Wilmot, WI. The ride starts at 6:00 AM, and stops by 5:00 PM. We will meet at 7:00 AM at the High School. Even if you can only spare a few hours, your help is needed and appreciated.

Hams supply rider and logistics support, called SAG (Support and Gear), consisting of riding the routes, assisting riders and notifying the event coordinators of any problems.

We plan to use the KA9VZD repeater in Antioch, IL on 145.290 (-) with a 107.2 tone (Tone may be turned off depending on conditions). The KB9I repeater in McHenry is our primary backup 145.410 (-) 107.2, and 147.420 is our simplex backup. The bike club will reimburse for mileage. We will provide ham friendly maps and a reference sheet. *(The maps and reference material are great and the route is well marked. – Ed.)*

Other handy equipment:

- Clipboard
- Water
- Snacks (*Wendell means for him. Bring some for yourself, too. – Ed.*)
- Rain Gear
- Umbrella
- Air Compressor with Schrader and Presta adapters
- Accurate tire gauge
- Basic tool kit
- Bicycle rack
- GPS

If you've never done an event like this we will gladly show you the ropes! This is a great emcomm exercise! And you can't use ham radio as an excuse; Radio Expo at Boone County Fairgrounds and the September VHF/UHF contest are the following weekend, September 13 and 14.

For more information you can visit the event's website at <http://www.wheelmen.com/harmon.htm>.

Please contact me with any questions.

Wendell Smith, N9REP
wsmith@ameritech.net

815-455-1175 home
815-245-9325 cell (best)

Stoned Monkey VHF Plans for the September 2008 VHF Contest

Tom Staley, K9TMS

President, Stoned Monkey VHF ARC



Fig 1. CQ Contest! CQ Contest!

We are planning on holding the Stoned Monkey VHF Contest festivities at the Pioneer Tree Farm. So where the heck is the Pioneer Tree Farm? Well for those of you well versed in Longitude and Latitude the coordinates at 42.39242 North Latitude by 88.27640 West Longitude. For the rest of us, go north on IL Route 31 from McHenry. Turn right on Pioneer Road and go to past the large silver silos on the right to the first bend in the road, the farm is at the bend in the road. We will have a sign out marking the event.

The contest starts at 1800Z (1300 CDT) 13 September 2008, the contest ends at 0300Z 15 September 2008 (2200 CDT).

For full rules and other legal crap please consult the ARRL website:
<http://www.arrl.org/contests/rules/2008/sepvhf.html>

As for the Monkey effort; we will have the following setup:

On 6 Meters we will be using an IC756 with 100 watts out into a pair of home brew 5 element beams at 44 and 30 foot. Details of how to build your own version of these antennas will be forth coming in a future edition of the Journal.

On 2 Meters we will be using an IC756 as the IF radio that will be feeding an Elecraft transverter that will feed 25 watts of 2 Meter energy into a TE Systems 400 watt amplifier. That 400 watts of 2 Meter RF will find its way into an antenna that goes by the name "Big Bertha" - a Cushcraft 19 element boomer. This will be atop N9REP's 20 foot self supporting "Hula Tower." This station has really come a long way in the last 2 contests. Using a transverter over a regular all-mode 2 meter rig allows us several advantages. First we get all the joys of using the IC756 "Fish Finder," next the front end of the transverter is much more sensitive and cleaner on receive than the standard two meter all-mode radio. And last and most important the 400 watt amplifier doesn't get overdriven anymore. For FM we will be using an FT857 into a 17 foot dual band antenna.

At 222 Mhz the setup starts getting a bit more complex. We will be using an IC7000 as the IF radio driving a Down East Microwave transverter. In addition to the above advantages listed for the 2 meter transverter, a transverter is about the only way to get on 222 Mhz SSB and CW. The transverter will be feeding a 120 watt amplifier that will be sending its 120 watts of 222 RF to a pair of 15 element Cushcraft 222 boomers. These will be up at roughly 30 and 24 feet. For FM we will be using an Alinco 222 FM radio into a Ringo Ranger up as high as we can get it.

For 432 we will be using an IC7000 that will be driving a 110 watt amplifier. The 110 watts will then feed at least 2 19-element 432 Cushcraft Boomers. It kicked butt in June, hopefully it does a good job again.

The bottom 4 bands will all be with radios equipped with voice keyers. Yes, even the Monkeys have stooped to allowing electronics to do the voice over!

Our UHF station will consist of a single FT817 driving either a Down East 903 Mhz transverter or a 1296 Transverter. Both will feed Looper antennas. The antennas will be mounted on top of a 20 to 30 foot Hula Tower if I can get the construction done in time! Thanks to N9IFG for supplying the tower.

We will also have a couple of really cool radios. First is a 10Ghz station that will use an old IC290 driving a Down East transverter sending 3 watts of 10Ghz energy into an 18" dish; we don't stand in front of it. The other station will be several Laser Light transceivers. These are voice type transceivers that are sold in kit form from Ramsey Electronics. And yes we do normally wait for dark as it is just cooler to do the contacts in darkness. The fidelity of laser QSO's is really something to hear. Of course one of our laser systems will need to go into the yards for a refit of her main laser cannon before the

contest.

Our contest logging will again be done with the Monkeys own software logger which has been in a continuous state of upgrades. This logging system will utilize a single database and at least 4 computers to log all the contacts we make. All the computers will be networked and have the capability of sending messages between the stations. For the first time we hope to have the power for the computers using a UPS, so that the inevitable running out of gas does not result in 15 minutes of cussing and paper logging. The computers will all be powered via a new low noise digital inverter, see the review in these pages.

We would like to welcome all that would like to visit or spend some time behind the microphone. We also encourage everyone that can't come out to dust off those IC706s, FT100s, and such and get on the Magic bands above 30 Mhz and have some fun. HF contesting tends to be a hectic pace operation; you will find that for the most part the VHF contesting is much more laid back. IF Six opens it will become just as hectic as HF though, so you get the best of both. The September contests are known for tropo openings on 2 meters and 222 as well as auroral propagation. Our spies inform us that the War Wagon II or is it on its 3rd refit, will be on the road for the contest. Consequently there is a move afoot in Northern Illinois to pull children in off the streets!

For those of you that would like to come out at help or observe our setup we will be starting setup Friday afternoon the 12th of September. Tear down Monday the 15th of September.

Remember several things here. First the K.I.S.S. principal - Keep It Simple Stupid, this means no over thinking things. In an effort to keep Lazy Eagle entertained; to quote Mr. Scott - The more you over think the plumbing, the easier it is to stop up the drain! (*Aye, Cap'n! - Ed.*) Along with this principle goes the other thing I learned at sea - If it ain't broke, don't fix it!

See you on the bands.

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McCulloch 1500 Watt Digital Inverter Generator Review

Tom Staley, K9TMS
WeLCARS Contest Coordinator



Fig 1. The new toy home from the store.

As some of you know I recently acquired a new generator. As Tim the Tool Man says "You can never have enough power!" One of the large annoying things that seems to happen to the Stoned Monkeys each time we contest is the inevitable power shut down on Sunday afternoon due to an empty gas tank. This normally shouldn't be much of an issue except where the 4 to 5 networked computers are concerned. Rebooting has always been a hassle and watching operators try to dig out 4 pads of paper and pens is not a pretty sight. In the past we had tried to solve this issue by using a UPS for the computers. Much to our surprise the generators we use for the radios are not on speaking terms with the UPS systems you typical cheap ham has in his inventory. Most of this due to the stability of the voltage/frequency of the conventional generators we have access to.

Along with this was a secondary use for Public Service Events. Many times we setup for these on short notice in close proximity to the antennas and generators. A noisy generator can and is a pain in these situations.

Some years ago K9IJ came out to one of our contest efforts with a nice little 1000 watt Honda digital inverter. The two features that really impressed me 1) QUIET – you could stand over the thing and carry on a normal conversation. 2) Works well with a UPS. The thing I didn't like \$850 price tag.

The McCulloch 1500 Watt Digital Inverter seems to fill my need for all of these issues. It is not quite as quiet as the Honda or Yamaha types but darn close. It actually has more power and only cost \$550 at Menards. Did you say Menards Mongo? I was surprised too as none of the other handy man stores carry digital inverters as standard on-the-shelf items!

We gave the generator its shakedown cruise at the Grant

Township 5K Walk/Run last month. The results had everyone drooling. Nice and quiet and supplied more than enough power to run the station. We even tried the Smart Throttle which did a nice job! Good Joe KC9LFP and I were able to carry on a conversation with the generator running about 15 feet from us.

Ok so what does this thing do different? If you have a conventional generator, put a digital meter on it and monitor the voltage while you vary the load. You will find that the voltage will go up and down very nicely! No load you will see too high a voltage, under higher loads a lower voltage. With the digital inverter you see a brief sag in voltage - IF you have smart throttle engaged and you are drawing a higher load, otherwise the meter stays right at 120 VAC! And it does it a lot quieter. The McCulloch 1500 puts out 1500 Watts continuous 1850 watts surge. With smart throttle on the engine is very quiet, with it off running full tilt is gets a bit noisier but still not as bad as the conventional generators. The company propaganda indicates 4 hours running at the full 1500 watt capacity. Internet rumors have quotes of 6 hours on a tank. Weight wise it is not as light as you would think at 70 lbs. empty! There is also a 12 volt output at 8 amps. I have yet to meter this output so I am not sure on the stability of that output.



Fig 2. A close up of the outputs. The generator has 120 VAC as well as 12 VDC. The 120 VAC output is stable, but we haven't metered the 12 VDC side.

What didn't I like about it? 1) Made in China – don't lick the plastic, 2) Took a lot of pulling to prime the fuel – no fuel primer bulb and 3) Pain filling the oil, however they do supply a cute little filler vessel to aid you with this.

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Explorers Invade the Worldwide Headquarters!

*Joe Serocki, N9IFG
President, WeLCARS*

No, not the crew of the Nina, Pinta, or Santa Maria, (or *Scotty and the crew of the Enterprise – Ed.*) but the Fox Lake Explorer Post. I am working out the details, but we will be sharing the basement with Explorer Post 300, the Village Police Explorers. They are remodeling the area, pulling power, a projector, seating, bathrooms and a shower, we have to move our stuff to a new storeroom (not sure where yet) but we will have access to the room and can share our stuff.

Lt. Gliniewicz and I are working out the details with the Village. So far it looks like our current room will be made into a shower room and they are planning to rebuild the downstairs bathrooms. They will provide us with another lockable room to store our stuff, possibly bigger than our current room. We will have access to the building and the basement without having to go to the Village Hall to get a key, and only WeLCARS and the Explorers will have access to the basement.

All in all a bit inconvenient, but we don't own the place to we will need to make this work out.

More info will be provided as it comes in.

Motorola Micor Conversion Project

*Joe Serocki, N9IFG
President, WeLCARS*

Thanks to Brian, WB9MCW, we have some equipment coming; all VHF low stuff: Motorola Micors. We have 10 or so base stations, 40-50 mobiles, and a repeater with duplexers. Converting these to 6 meters will be a fantastic winter project. Converting some to 10 meters might also be possible. Just imagine the 440 repeater Keith is setting me up with linked to a 6m repeater... Strange idea, it might be fun though.

I was thinking our co-hosts might be able to use some if we can get them licensed as well, as these are nice 40 watt mobiles and bases.

We need to make a pilgrimage after Halloween down to St. Louis. Storage becomes an issue as we fix and deploy them, and I am sure we can use them for some of the Scout camps that want to get some equipment in there, as long as we can find a way to guarantee hams use them.

Motorola Spotters Guide, Vol. 1

*Chris Burke, N9YH
Photos Courtesy repeater-builder.com*



Fig 1. A Motorola Micor transceiver. This would typically be mounted in the trunk with a control head under the dash or in the center console. Mitreks and Syntors are very similar in appearance and size.

Motorola makes some of the most durable commercial radio equipment there is. I have a VHF Syntor that is quite literally 25 years old and in great shape. Current Motorola models like the XTS5000 mobile are great radios, but way expensive for the typical ham. The good news is with many police and fire departments switching to these newer radios older radios are becoming available. The downside? Programming requires Motorola's software, which is sold with a draconian license and is difficult for hams to obtain. Plan on finding a dealer or radio repair shop with the software to get your radio programmed.

Micor and Mitrek: These are crystal controlled units from the late 70s and early 80s

Syntor, Syntor X, Syntor X9000: These synthesized radios are the successors to the Micors and Mitreks and were the standard Motorola workhorse for many years. Like the Mitrek and Micor, the Syntor family featured a large transceiver in the trunk with a control head inside the vehicle. The Syntor and Syntor X radios are actually completely different designs, despite sharing nearly the same name.

Maxtrac, GM300,

Radius Series: These units were in wide use in the 90s. Unlike the earlier radios, these units do not have a separate control head. These radios are somewhat larger than a typical amateur transceiver. These radios make good IRLP node radios and you can also pair two of these radios together to make a repeater.



GTX Series: Similar in size to the GM300, these radios can be equipped with an alphanumeric display. The GTX900 is the easiest radio to convert to the 900 MHz amateur band – reprogramming is all that's required.