

# Mich-A-Con RF

Iron Mountain, Michigan

February 2005

## In this issue:

The Novice Special Rides Again

February Meeting

Buy-Sell-Trade

Upcoming Activities

Club Activity Calendar

2005 Club Dues are Due

Monthly Michigan Section News Summary

Visit the ARRL's web site at:  
<http://www.arrl.org>

## The Novice Special Rides Again

The Novice Special is a two tube, crystal controlled, CW transmitter that is capable of producing approximately 8 Watts output on 80 and 40 meters. The original plans for the transmitter appeared in the October 1968 issue of QST. The article was titled "A Simple Transmitter For The Beginner" and was written by Don Mix, W1TS. Another article titled "A Simple Two-Tube Transmitter" appeared in "How To Become A Radio Amateur", copyright 1970 by The Amateur Radio Relay League. This article is geared toward the beginner and contains a thorough description of the transmitter's electrical and mechanical construction. The transmitter was dubbed the "Novice Special" in the 1970 edition of The Radio Amateur's Handbook.

### **The Old and Inspiration for the New**

I built my first Novice Special in 1980, shortly after earning my Novice license. I had a lot of fun with the rig back then, using it off and on until I became a General and bought a brand new Ten Tec Omni C, 55 foot tower and tri-band beam antenna. My homebrew stuff took a back seat to the new bright shiny equipment and was stored in



a closet. When I took it out of storage in 2004, other than a chipped ceramic crystal socket, it looked the same. It even tuned up on 80 meters and I made a few contacts with it.

The enclosure looked pretty crude and the components were cramped in an old discarded piece of Navy equipment with a mini-rack style of construction. To say the least, it was very hard to work on. The little transmitter had the capability

*(Continued on page 3)*

## Mich-A-Con ARC February 8th Meeting

The meeting was called to order by Vice President Mike Boileau, N9NBN, at 6:30 PM.

### **Secretary Report:**

The minutes of the January 11<sup>th</sup> meeting were read and approved.

### **Treasurer Report:**

The Treasurer's Report was presented by Mike, K8DDB. As of this meeting we have \$451.24 in checking, \$2,085.22 in the savings account, \$1363.60 in the repeater account and \$26.00 petty cash. \$70 received tonight in 2005 dues will be deposited in the checking account.

### **Repeater Report:**

No report – Lee, N8LT, was absent.

### **Old Business:**

Pat, KC8EMF, has custody of the club's tower.

### **New Business:**

Skip, KE9L, reported that four hams passed their license exams on Saturday. Two Extras, one General, and one passed the code exam.

Skip, KE9L, made a motion to contribute \$50 to the church for the meeting room. Steve, KC8RYY, seconded the motion and it was passed

*(Continued on page 8)*

## Buy-Sell-Trade

### Wanted

2 meter mobile, also non working radios for winter project.

Monte, K9DZD  
(906)542-3802

### For Sale

Dentron 160-10 AT antenna tuner. It will handle 600 watts easily. No meters.

Radio Shack 10-meter 25 watt mobile/fixed transceiver HTX-10. Like new condition, works great. \$75.00

Tom Martin, W8JWN  
(906)774-5463

### Wanted

FT-243 and HC-6/U crystals 3500 to 3570 KHz and 7000 to 7150 KHz

Mike, K8DDB  
[mikebray@chartermi.net](mailto:mikebray@chartermi.net)  
(906)563-7020

### For Sale

Globe Matcher SR. Model AT-4 Antenna tuner

Cantenna dummy load

Make an offer, or will trade some or all of the above for a good scanner. Need a good base with lots of coverage! Or????

Please email me with any questions/offers:

Fuzzy LeQuia  
[fdlequia@up.net](mailto:fdlequia@up.net)

### For Sale or Trade

Two 2-meter beams. Will trade or ?

Pat, KC8EMF  
[pservia@norwaymi.com](mailto:pservia@norwaymi.com)  
(906)563-9685

## March Club Activities

Tnn (Tuesday night net) on the 1st, 15th, 22nd and 29th at 6:30 PM on the 2-meter repeater. Dennis, KD8AIT, has been doing the honors of Net Control since September 28th. Please join us on 146.85 at the appointed time.

Club meeting on Tuesday the 8th at 6:30 PM in the Grace United Methodist Church, 721 Norway Street, Norway Michigan. The meeting room is upstairs next to the Sanctuary.

Saturday Morning Breakfast, 9:00 AM on the 19th at the Holiday Kitchen in Iron Mountain. Breakfast's have been changed to the 3rd Saturday of the month to avoid holiday weekends.

**Contests**  
ARRL International DX Contest  
(Phone) **watch for V31TR**  
0000 Mar 5-2400 Mar 6

Spartan Sprint (CW)  
0200-0400 Mar 8

RSGB Commonwealth Contest  
(CW) 1000 Mar 12-1000 Mar 13

Wisconsin QSO Party  
1800 Mar 13-0100 Mar 14

Oklahoma QSO Party  
1400 Mar 12-0200 Mar 13  
And 1400-2000 Mar 13

10-10 Mobile Contest  
0000-2359 Mar 19

North American RTTY Sprint  
0000-0400 Mar 13

Russian DX Contest  
1200 Mar 19-1200 Mar 20

Virginia QSO Party  
1800 Mar 19-0200 Mar 21

CQ WW WPX Contest  
0000 Mar 26-2400 Mar 27

Spring QRP Homebrewer Sprint  
(CW/PSK31)  
0000-0400 Mar 28

Contest dates are UTC  
see the ARRL web site  
March Contests or March QST  
for more information and for a  
complete listing of contests:  
<http://www.arrl.org/contests/>

### **Club Operating Activity**

All club members are invited to use the club callsign to help the club attain WAS and DXCC. If you use the club call, please give information required for the log such as: station worked, date and time (UTC), frequency, RST sent and received, mode and power to Mike, K8DDB. Also give a description of the equipment you were using.  
[mikebray@chartermi.net](mailto:mikebray@chartermi.net)

## Mich-A-Con ARC Activities for March 2005

SUN	MON	TUE	WED	THU	FRI	SAT
		1 Tnn	2	3	4	5
6	7	8 Meeting	9	10	11	12
13	14	15 Tnn	16	17	18	19 Breakfast
20	21	22 Tnn	23	24	25	26
27	28	29 Tnn	30	31		

**License Study Materials Available from the ARRL:**

**Technician Class:**

*Now You're Talking* - 5th edition - Order No. 8810 \$19.95

*ARRL's Tech Q&A* - 3rd edition - Order No. 8829 \$12.95

*ARRL Technician Class Video Course* - 4th ed. DVD Course No. 9116 VHS Course No. 8837 \$149 each + \$12 s&h

**General Class:**

*ARRL General Class License Manual* - 5th ed. Valid beginning July 1, 2004 - Order No. 9205 \$16.95

*ARRL's General Q&A* Valid beginning July 1, 2004 - Order No. 9213 \$12.95

*ARRL General Class Video Course* Order No. 8349 \$149 + \$12 s&h

*Your Introduction to Morse Code* - Pass 5 wpm test Cassettes No. 8322 Audio CD No. 8314 \$14.95 each

*Ham University - Complete Edition* - Learn Morse code with this easy to use software. Includes a written exam quiz generator with all three question pools. CD-ROM for Win95-XP Order No. 8735 \$39.95

Phone: 1-888-277-5289

or

<http://www.arrl.org/catalog/lm/>

<http://www.arrl.org/catalog/8330/>

<http://hamuniversity.com>

## Novice Special Rides Again

(Continued from page 1)

of operating on both 80 and 40 meters, but it was hard-wired for operation on 80 only. I had only one crystal, a 3737 KHz crystal in a FT-243 type holder.

I had purchased a nice used enclosure at the Negaunee Swap 'n Shop a few years ago and I thought I'd use it to repack the transmitter. This time I wanted to build the power supply on a separate chassis to reduce the number of components within the transmitter enclosure and thus make it easier to work on. Using the enclosure as a starting point, I purchased a chassis for the transmitter and another for the power supply from Mouser. I was able to use most of the parts of my original Novice Special, but did have to obtain a new complement of resistors because their values had changed with use.

### Club Members Help

After placing a want ad on the club web site for FT-243 crystals I was very fortunate to receive a set of 6 crystals and some crystal sockets from Le Roy, N8WQG. Tom, W8JWN, walked into a meeting with a handful of crystals, saying "Here, have a ball!" Lee, N8LT, was a great technical resource. Many emails were exchanged between us that contained detailed information on circuit operation and electron tube theory. A resurrected Novice Special was about to become a reality.

### Construction

I designed the front panel layout using Microsoft Publisher. With the software, I was able to move mockups of the various components around until the front panel had a pleasing and functional appearance. Component labels were applied and drilling locations were marked. The front panel layout was then printed on self-adhesive paper and applied to the aluminum front panel. Regular drill bits were used to make holes up to 1/4 inch, a step drill was used for holes between 5/16 and 3/4 inch and a hole saw was used for the meter hole. After deburring the holes, a sheet of self-adhesive laminating plastic was applied over the front panel and trimmed with an X-ACTO knife.

I also used 'Publisher' to lay out the chassis components. Using the schematic, full scale mockups of the individual components were laid out on an outline of the chassis. Terminal boards were used to save space and simplify

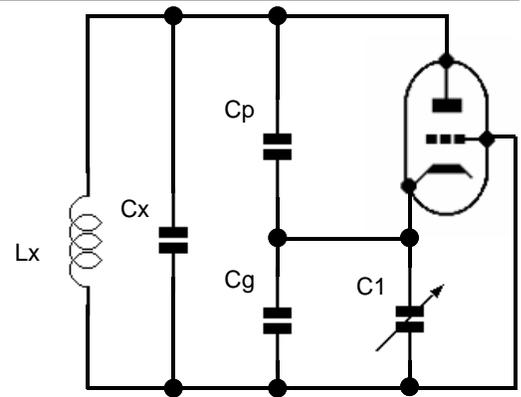


Figure 1 Equivalent oscillator circuit. See text.

construction by allowing portions of the circuit to be prefabricated. When the layout was complete, a chassis drilling template was made and holes drilled using the method described for the front panel. With the major components placed on the chassis, components were soldered in place and a copy of the schematic was "red-lined" as each component or wire was added to the transmitter.

The transmitter was tested using the procedure outlined on page 5 and it passed the smoke test!

### How The Transmitter Works

The following description of the transmitter was, for the most part, taken from chapter 4 of "How To Become A Radio Amateur." The schematic diagram was taken from the same source and a few modifications were made to it, which will be explained later.

Refer to the schematic of the transmitter on page 6. The crystal-controlled oscillator, V1 generates a small amount of r.f. power which is used to drive the amplifier, V2. The amplified power is then fed to the antenna through an impedance-matching network commonly referred to as a *pi network*. The voltages necessary for operating the oscillator and amplifier tubes are furnished by a separate power-supply circuit. Both oscillator and amplifier are keyed simultaneously by opening and closing the connection between the cathodes of the tubes and the negative side of the high-voltage supply (chassis ground), thus interrupting the plate current flow of the oscillator and the plate and screen current flow of the amplifier. This system is called cathode keying.

The crystal-oscillator circuit is known as the *Pierce* circuit. The frequency of the signal generated by the oscillator is determined by the

(Continued on page 4)

## Novice Special Rides Again

(Continued from page 3)

quartz crystal. An equivalent oscillator circuit is shown in Figure 1. The crystal is equivalent to a resonant circuit,  $L_x C_x$  tuned permanently to one fixed frequency. Therefore, a separate crystal is required for each frequency on which it is desired to transmit. Feedback to induce oscillation is obtained by virtue of the capacitive voltage divider  $C_p C_g$  across the tuned circuit.  $C_p$  is the capacitance that exists internally between the tube plate and cathode.  $C_g$  is the similar capacitance that exists between the grid and cathode. These capacitances are not adjustable, of course, and it would be only by fortunate circumstance that these fixed values would provide optimum feedback. Therefore,  $C_1$  is added externally to increase the capacitance between the grid and cathode. (A tube of different construction and characteristics might require that  $C_1$  be placed from plate to ground to increase the capacitance between plate and cathode. In this instance, however, experience has shown that optimum feedback requires more capacitance from grid to cathode.)  $C_1$  is a variable capacitor to permit adjustment of feedback.

Returning to the Novice Special schematic,  $C_2$  is used because an r.f. connection between the tube plate and the crystal is required, but a d.c. connection is not necessary. The oscillator would function just as well with  $C_1$  omitted, and the plate connected directly to the crystal, but this would place the crystal socket and holder directly in contact with the high voltage supply. This might constitute an unnecessary hazard to the operator, and might cause damage to the tube if the crystal holder were faulty.

The high-voltage supply is connected to the plate of the oscillator tube through  $R_2$  and RFC1. If the supply were connected directly to the plate of the tube, the connection would short circuit the r.f. output of the oscillator. R.f. choke RFC1 has a high impedance for r.f., and therefore may be connected across the oscillator without ill effect. The choke has negligible d.c. resistance, so its insertion in series with the d.c. supply causes no significant loss in plate voltage.

Although the output voltage from the power supply is appropriate for the amplifier tube, it is higher than necessary for satisfactory operation of the oscillator. For best frequency stability, and also because excessive oscillator plate voltage may cause the crystal temperature to rise sufficiently to fracture the quartz, it is desirable to use the minimum oscillator plate voltage that will give the r.f. power needed to drive the amplifier. Therefore, the voltage is reduced by inserting resistor  $R_2$  between the supply and the oscillator plate.

$R_1$  is the oscillator grid leak that provides a means of biasing the grid of the oscillator tube.  $C_3$  and  $C_4$  are r.f. bypass capacitors that serve as a low-impedance path for r.f. current that would otherwise have to flow through the keying leads and power-supply wiring, introducing loss in r.f. power, and possibly undesired coupling to other parts of the circuit.

$C_5$  is a *coupling* capacitor. It serves as a means of avoiding overloading of the oscillator by the input circuit of the amplifier. The smaller the capacitance is made, the less the amplifier will load the oscillator. However, if the capacitance is made too small, the amplifier will not receive sufficient driving voltage.

$R_3$  is the amplifier-biasing grid leak.  $R_5$  is a series resistor to reduce the screen voltage and limit the screen current so the screen dissipation will not be exceeded. RFC2 is used in the amplifier circuit for the same purpose that RFC1 is used in the oscillator.  $C_6$ ,  $C_7$  and  $C_8$  are r.f. bypass capacitors.  $C_9$  is a voltage-blocking capacitor to remove the d.c. plate voltage from the components of the pi network, while allowing r.f. current to pass.

To operate efficiently, the impedance across the amplifier output must be of the order of a few thousand ohms. The antenna system to be suggested for use with the transmitter constitutes a low-impedance circuit (50 ohms or less.) The circuitry of the pi network transforms this low impedance to the higher value required for efficient operation of the amplifier tube. The network is a selective circuit and thus serves the additional purpose of reducing harmonics (signals at multiples of the crystal frequency that are always generated in a transmitter) that might cause interference to other radio services.

The principal components of the pi network are  $C_{10}$ ,  $L_1$ , and  $C_{12}$ .  $C_{10}$  is the *tuning capacitor*, the principal element in adjusting the output circuit to resonance.  $C_{12}$  is the *loading capacitor*. This is the principal element in adjusting the coupling to the antenna (adjusting the impedance transformation.)

RFC3 is used primarily as a safety device to short circuit the amplifier d.c. voltage to ground should  $C_9$  break down, thus avoiding the possibility of high voltage appearing on the antenna where it would be dangerous to anyone coming in contact with the antenna. Since the choke represents a high impedance, it can be placed across the low impedance of the antenna without affecting the operation so far as r.f. is concerned.  $C_{11}$  is a fixed capacitor added in parallel with  $C_{12}$  to provide the necessary loading capacitance for 80-meter operation.

The pi network output circuit is arranged to give the operator a choice of either 80-meter operation or 40-meter operation. The circuit as shown on page 6 is for 80-meter operation. If 40-meter operation is desired, the 80-meter crystal is replaced by a 40-meter crystal, and the arrowhead going to  $C_{11}$  is transferred to the tap on the coil. This one operation removes  $C_{11}$  from the circuit and shorts out part of  $L_1$  to reduce its inductance.

The voltage across  $R_4$  is used to actuate the meter  $M_1$ , and the circuit is so arranged that the deflection of the meter will indicate the value of the combined amplifier plate and screen currents. Thus if 50 mA flows through  $R_4$ , the voltage drop

(Continued on page 5)

## DANGER! HIGH VOLTAGE!

In the equipment described here, the voltage between certain points may run as high as 500 volts. Since individuals sometimes are killed by coming in contact with ordinary 115-volt home lighting circuits, the operator must forever be aware of the potential danger attached to careless handling of amateur radio equipment—particularly transmitters and their power-supplies.

Make it your first rule to form the habit never to touch anything behind the front panel of a receiver, transmitter or power-supply without first turning off all power. Thousands of amateurs, young and old, work daily with equipment carrying voltages as high as 2000 or 3000 with complete safety. But the operator should never forget for a moment that harmless-appearing gear can and has been lethal in isolated instances when the operator becomes careless.

**NEVER TOUCH ANYTHING BEHIND THE FRONT PANEL UNTIL YOU ARE CERTAIN THAT ALL POWER HAS BEEN TURNED OFF!**

## Novice Special Rides Again

*(Continued from page 4)*

across R4 will be  $100 \times 0.050 = 5$  volts, according to Ohm's law. This 5 volts will cause a current to flow through R9 and the meter. Since the value of R9 is 10,000 ohms, the current through the meter is  $5/10,000 = 0.0005$  ampere, or 0.5 mA, the current flowing through R4 is 50 mA. Similarly, when the meter reads 0.1 mA, the current flowing through R4 is 10 mA. When the meter reads full scale (1 mA), the current through R4 is 100 mA. In other words, the cathode current (which is the sum of the amplifier plate, grid and screen currents, since all of these currents flow in the cathode circuit), is always 100 times the current indicated by the meter.

### Transmitter Circuit Modifications

I decided to "Sailor Proof" my Novice Special by installing SW1, a dpdt switch which not only switches the antenna to the transmitter while transmitting and to the receiver while in the receive mode, but also prevents keying the transmitter while in "receive."

To allow the use of HC-6/U type crystals I added a second crystal socket in parallel with the FT-243 socket.

I added an RCA jack to the front panel to allow for the future use of a VFO instead of a crystal for frequency control. Modification to the V1 circuitry will be necessary, however, before a VFO can be used.

To prevent clicks, and to shape the cw note, a 0.47-uF capacitor, C13, and a 100-ohm resistor, R10, are series-connected from oscillator cathode to ground.

### Testing The Transmitter

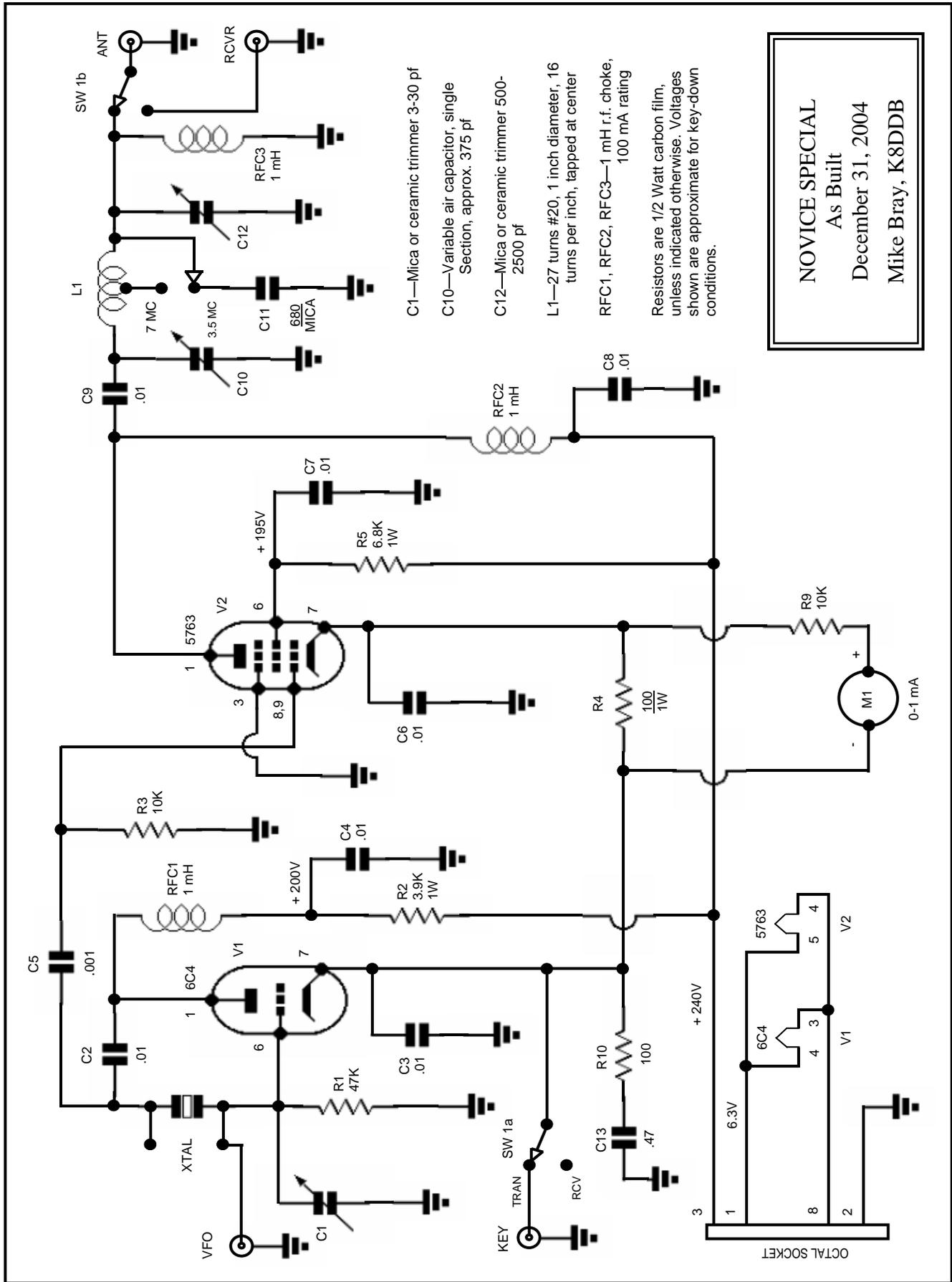
To test the transmitter, plug the tubes into their sockets, and a key into the key jack. Plug a crystal into the appropriate crystal holder—an 80-meter crystal for 80-meter operation, or a 40-meter crystal for 40-meter operation. Select the desired band

with the band selector switch. Connect a wattmeter and dummy load rated at 10 Watts, minimum, to the antenna connector on the back of the transmitter. (The transmitter should never be operated without some sort of load connected to the output—either a dummy load or an antenna.)

Turn the knob of C12 (LOAD) to its maximum-capacitance position. Maximum capacitance will be indicated by an increase in friction as the capacitor approaches maximum. In turning to minimum capacitance, the friction will become less and, at minimum capacitance the adjusting shaft will become quite loose. Set C10 (TUNE) also to maximum capacitance, plates fully meshed (0 on the control dial.)

Connect the power cable between the power-supply and the transmitter and turn the switch on the power-supply to its ON position. Wait approximately 30 seconds for the tube heaters to warm up. Place the TRANSMIT-RECEIVE switch in the transmit position, then press the key. The meter should show a deflection to about half scale. While watching the meter, turn C10 (TUNE) very slowly counter-clockwise. At some point in the adjustment of C10, there should be a dip in the meter deflection. This is the *resonance* point. The wattmeter will indicate that a small amount of power is being produced. Open the key, and decrease the capacitance of C12 (LOAD) a bit (not more than one turn.) Close the key, and readjust TUNE for the dip point again. (This should require only a small adjustment.) You may notice now that while the dip in the meter still occurs, the dip is not as pronounced as it was on the first trial. Continue this procedure, reducing the capacitance of the LOAD capacitor and returning to resonance with the TUNE capacitor until the wattmeter reads the desired power (8 to 10 Watts is the maximum the transmitter will produce.) Depending on the transmitter output power, the meter should be reading between 50 and 75 mA (0.5 to 0.75 on the meter scale.) Repeat this *tuning* procedure several times until you are thoroughly familiar with it.

*(Continued on page 8)*



C1—Mica or ceramic trimmer 3-30 pf

C10—Variable air capacitor, single Section, approx. 375 pf

C12—Mica or ceramic trimmer 500-2500 pf

L1—27 turns #20, 1 inch diameter, 16 turns per inch, tapped at center

RFC1, RFC2, RFC3—1 mH r.f. choke, 100 mA rating

Resistors are 1/2 Watt carbon film, unless indicated otherwise. Voltages shown are approximate for key-down conditions.

NOVICE SPECIAL  
As Built  
December 31, 2004  
Mike Bray, K8DDB

**2005 CLUB DUES ARE DUE IN JANUARY**

Club dues for 2005 are now due. If you are a current member, please consider renewing your membership for another year. If you are not a member, please consider joining the club.

The cost of operating our repeater and packet system have risen over the years, while dues have remained the same. For the last few years, we've had to dip into our savings account to pay the bills. A larger membership would help us make ends meet. If you enjoy the use of the repeater or packet system, please consider supporting them with your monetary contribution.

Please take the time now to complete the Membership Application/Renewal form on page 9 of the newsletter. Make your check payable to Mich-A-Con ARC and send it to Mike, K8DDB.

**N8LT's WORKBENCH**

This series, written by our resident expert on the technical side of things, focuses on technical topics that you, the reader, want him to write about. Lee wants your input.

This is your chance to get those gnawing questions answered so that you can become more self-reliant when repairs are needed to your electronic gear.

What subjects would you like to see covered?

**Please send your input to me and I will collate the responses and give them to Lee.**

Send your input to:  
mikebray@chartermi.net  
(906) 563-7020

Mike Bray, K8DDB  
W3821 Waucedah Road  
Vulcan, MI 49892-8483

# Monthly Michigan Section News Summary

February 15, 2005—

The Michigan Net, QMN, will celebrate its 70th anniversary this autumn. Founded in late 1935 by members of the Detroit Amateur Radio Association, QMN is the nation's oldest spot frequency traffic net, and is responsible for a number of innovations in public service communications.

Before QMN, message traffic was handled through individual schedules between stations. Radio Amateurs who were not part of the ARRL Trunk Line system would typically maintain a schedule with stations to the North, South, East and West. When traffic was destined for a location in a particular direction, it was transferred on schedule to the station closest to the addressee. The non-systematic nature of these methods often resulted in delays to message delivery.

A Committee of the Detroit Amateur Radio Association, with an eye toward improving public service communications, took advantage of a number of improvements in radio technology in the 1930s, such as stable crystal controlled transmitters and calibrated receivers, to implement a single-frequency traffic net. This new method permitted stations throughout a State or Region to meet on a specific frequency, at specific times each day to exchange traffic, resulting in more reliable traffic flow and consistent message originations and delivery. This concept of the spot-frequency traffic net would become "QMN" and has served as the predominant model for all traffic nets to this day.

At a QMN meeting in Detroit in 1939, a Committee developed the well-known "QN-Signals" which were eventually adopted by the ARRL for all CW traffic net use. QN-Signals are widely distributed in ARRL publications and handbooks, and continue to be used throughout North America. QMN also pioneered in the field of disaster response, deploying QMN emergency response teams in an era before the Amateur Radio Emergency Corps (predecessor to today's ARES and RACES) was a commonplace fixture.

In recent years, QMN had formally constructed and maintained a VHF packet radio network, which covered a large portion of Lower Michigan. For a time, QMN also operated HF PAC-TOR gateways for use as a public service communications tool.

Today, QMN continues to serve as Michigan's

Section CW Traffic Net. In addition to handling NTS message traffic, QMN operates a statewide rain gauge network in support of the National Weather Service, having implemented innovative methods for automated message delivery and interface with NOAA computer networks.

QMN members take great pride in the efficiency and reliability of their CW traffic net. In recognition of its long-time role in public service communications, QMN wishes to announce the creation of a new operating award in honor of its 70th year: The QMN Emergency Preparedness Award. The award is open to any licensed radio amateur who meets the following requirements: He/She must deploy a portable High Frequency station, operating on emergency power, and check-in to the QMN CW Nets a minimum of five times in a calendar year. Each time the portable station is deployed, a message must be originated to the QMN General Manager (WB8SIW) indicating that the station is deployed in the field and from where the portable station is operating. This message must be properly transmitted in standard NTS message format.

Upon completion of the necessary requirements, the participant will receive a handsome certificate suitable for framing, which attests to his level of emergency preparedness and operating skill.

For more information on the QMN Emergency Preparedness Award, please visit the QMN Web Page at: <http://www.qsl.net/w8ihx/> or the NREN web page at: <http://www.aa8vs.net/nren/> One may also contact the QMN General Manager at: wb8siw@wmwisp.net or via telephone at: 269-673-8845. QMN meets on 3663 kHz at 7:30 and 10:00 PM Eastern Time.

SARs For January: KB8ZYY 264, K8AG 169, K8LJG 126, VE3EUI 120, WD8USA 110, WB8RCR 100, WB8YPG 55, K8AMR 41, K8UPE 32, W8RNQ 31, KC8TLJ 28, K8ZJU 24, KK5KZ 17, WI8K 17, WB8TKL 16, K8KHZ 15, K8YB 15, N8UN 15, KC8RTW 13, KC8UKM 12, WA8EFK 12, KC8MLD 6, KC8PMX 4.

SARs are the combination of originations, receipts, and delivery of radiograms handled by your station during the month. Please forward them to me for inclusion in the Section News column. The deadline is the 8th of each month. 73, Dale WA8EFK

*(Edited to fit available space)*

## March 8th Meeting

(Continued from page 1)  
unanimously.

Mike, N9NBN, recently purchased a weather radio and he plans to interface it with his 220 MHz repeater (223.82 MHz) so that it will automatically provide NWS weather warnings.

Mike, K8DDB, reported that as of this meeting 24 of our 43 members have paid their 2005 dues. In February of last year, we had 27 members on the club roster.

### Adjournment:

The meeting was adjourned at 7:00 PM

Submitted by: Mike Bray

### Attendees:

Mike Bray, K8DDB (Secretary)  
Mike Boileau, N9NBN (Vice President)  
Skip Caswell, KE9L  
Dennis Beurjey, KD8AIT  
Randy Zandt, KB9ZES (guest)  
Steve Johnson, KC8RYY  
Burton Armbrust, WB8EBS

## Novice Special Rides Again

(Continued from page 5)

CAUTION—A second dip in meter reading may be obtained if C10 is turned near minimum capacitance. This adjustment must be avoided, since the transmitter will be tuned to twice the crystal frequency.

Key the transmitter and monitor the cw note on the station receiver. Adjust C1 experimentally for the best sounding note—one with minimum chirpiness. This completes the tune-up.

When operating into an antenna whose impedance is anywhere between 30 and 70 ohms the foregoing tuning procedure should produce the same results as when the dummy load was connected to the antenna connector. If the transmitter will not load up, check the antenna to make sure it is cut for the correct operating frequency, or use an “antenna tuner” so the transmitter will “see” the proper impedance.

### **The Novice Special Rides The Air-Waves Again!**

I’ve never had so much fun with a rig as I’ve had with this one. I find myself wandering back

into my shack again and again to make “just one more QSO.” What is it that makes this little tube rig so special? Build one and find out for yourself!

K8DDB

(If you plan to build the transmitter and would like a copy of the complete article that appeared in the book “How to Become a Radio Amateur”, contact me at—[mikebray@chartermi.net](mailto:mikebray@chartermi.net))

### **Parts Sources**

Use GOOGLE to search the internet for best prices. Also try your local ham Swap ‘n Shop for good deals.

The following sources have been used by me in the past:

Ocean State Electronics:

<http://www.oselectronics.com/index.htm>

Power transformer  
Electrolytic capacitor  
Air variable capacitor  
Silver mica capacitor  
Disc ceramic capacitor—1 KV  
1/2 and 1 Watt carbon film resistors  
Vernier dial  
Wire, coax, multi-conductor cable

Mouser: <http://www.mouser.com/>

Hammond Aluminum chassis

Dan’s Small Parts:

<http://www.danssmallpartsandkits.net/>

Mica trimmer capacitor 500-2500 pF  
with 1/8 inch shaft

Triode Electronics Online:

<http://store.yahoo.com/triodeel/index.html>

Octal plugs & strain relief covers  
Octal sockets  
Tube sockets

AF4K Crystals:

<http://www.af4k.com/crystals.htm>

FT-243 crystals \*  
Crystal sockets

\* Ask for crystals with original internals. He also sells small hermetically-sealed crystals soldered inside of a FT-243 enclosure, which are not good for use with this type of oscillator circuit.

Vacuumtubes.net: <http://www.vacuumtubes.net/>

6C4  
5763

### **Club Apparel:**

Our club apparel is supplied by:

Shirt Tails  
408 S Stephenson Ave.  
Iron Mountain, MI 49801

Phone: (906)774-3370  
or  
[finleyd@up.net](mailto:finleyd@up.net)

Prices:

Jacket with liner \$45  
(Tall add \$5, 2X or 3X add \$5,  
to add your name or call sign  
on the front is \$5)

T-Shirt - \$10  
(2X or 3X add \$1)  
Sweatshirt - \$16  
(2X or 3X add \$2)

If you wish to have the club logo printed on an item of clothing that you have purchased elsewhere, there is charge of \$6.

Club patches are available from:

Tom Martin, W8JWN  
812 West B Street  
Iron Mountain, MI 49801

They are 3 inches in diameter and sell for \$3.00 each. If ordering by mail, please include a SASE along with your payment.



Mich-A-Con Amateur Radio Club  
Membership Application/Renewal Form

Please remit dues to:  
Mike Bray, K8DDB  
W3821 Waucedah Road  
Vulcan, MI 49892-8483

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_  
Call Sign: \_\_\_\_\_  
Email Address: \_\_\_\_\_  
Phone: \_\_\_\_\_

ARRL Member? Yes \_\_\_\_\_ No \_\_\_\_\_

Annual dues for Full Membership - Single \$20 \_\_\_\_\_ \* Family \$30 \_\_\_\_\_ \* Repeater-Only - \$10 \_\_\_\_\_\*\*

If family membership, please list additional names and call signs:

\_\_\_\_\_  
\_\_\_\_\_

\* The dues for NEW members are prorated - you only pay for the remainder of the year! Please remit \$1.67 per month for a Single membership or \$2.50 per month for a Family membership.

\*\*If you are an occasional or seasonal user of the repeater, please consider our Repeater-Only-Membership.

### Exam Schedule

City: Iron Mountain  
Location: Dickinson County Library  
Room: Conference Room  
Time: 9:30 AM Central Time  
Contact: Mark Lewis, N8UKD  
Telephone: (906) 774-6598

Exam Date: May 7, 2005  
Exam Date: Aug 6, 2005  
Exam Date: Nov 5, 2005  
Exam Date: Feb 4, 2006

Examinees should bring 2 pencils, a pen for the official paperwork, the originals AND copies of any previous credit that you have earned (Certificates of Successful Completion or current license), 1 photo id (usually a driver's license) and 1 other id. (usually a birth certificate or SS card), a calculator if needed (make sure your memories are cleaned out), and the test fee (2005 fee is \$14).

Mich-A-Con RF is published by the Mich-A-Con Amateur Radio Club of Iron Mountain.

Items for Mich-A-Con RF should be in the editor's hands by club meeting day (2nd Tuesday of the month) to be included in that month's edition.

Our newsletter needs contributions from the membership to help keep the information presented each month new, interesting and fun to read. Please consider writing an article related to Amateur Radio to share with your fellow members. Send the article in plain text and attach any photos, etc., don't worry about format, that's the editor's job.

Send to:  
mikebray@chartermi.net  
(906) 563-7020

### Repeaters

The club maintains two repeaters, which are located on Pine Mountain in Iron Mountain, with tower and facilities provided by the Wisconsin Electric Power Co.

Identifier: WA8FXQ/R IMT

Output	Offset	PL Tone
146.850 MHz	minus	—
444.850 MHz	plus	100

Both repeaters have an auto patch with a toll restriction. The auto patch on the 2-meter repeater can be used with permission. The 440 auto patch is for club use only.

A club net is held on the 2-meter repeater every Tuesday at 6:30 PM except the 2nd Tuesday of the month, which is club meeting night.

# Mich-A-Con RF

Mich-A-Con ARC  
c/o Michael F. Bray  
W3821 Waucedah Road  
Vulcan, MI 49892-8483

Mich-A-Con RF

## Club Meetings

The Mich-A-Con Amateur Radio Club meets on the second Tuesday of the month at 6:30 PM in the Grace United Methodist Church (upstairs in the room next to the sanctuary), 721 Norway Street in Norway, Michigan. Visitors and prospective members are always welcome!

The URL for the Mich-A-Con ARC web site is:

<http://www.qsl.net/ka1ddb/>

Previous editions of Mich-A-Con RF can be accessed by a link on the news page.

The ARRL DX Bulletin on the Upcoming Activities page is updated each Thursday and the contests section is updated on a monthly basis.

## CLUB OFFICERS

### **President:**

Tom Martin, W8JWN  
(906) 774-5463  
tmartin@chartermi.net

### **Vice President:**

Mike Boileau, N9NBN  
(715) 251-3137  
n9nbn@netnet.net

### **Secretary:**

Mike Bray, K8DDB  
(906) 563-7020  
mikebray@chartermi.net

### **Treasurer (Pro Tem):**

Tom Martin, W8JWN  
Mike Bray, K8DDB  
(Shared responsibility)

## Reminders

**Did you forget to renew your 2005 club dues? Please renew now if you haven't, your club depends on your support. Please take the time now to complete the Membership Application/Renewal form on page 9 of the newsletter. Make your check payable to Mich-A-Con ARC and send it to:**

**Mike Bray, K8DDB  
W3821 Waucedah Road  
Vulcan, MI 49892-8483**

The monthly meeting for March is on TUESDAY the 8th at 6:30 PM in the Grace United Methodist Church, 721 Norway Street, Norway, Michigan. (upstairs in the room next to the sanctuary.)