

Mich-A-Con RF

Iron Mountain, Michigan

April 2005

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N8LT's Workbench

SIX SECRETS OF SUCCESSFUL SOLDERING

One of the essential skills of Amateur radio is the ability to solder. It's required to make up or repair cables, install connectors, repair equipment, or construct just about anything. Soldering is not a gluing or pasting operation, it's the creation of metallic bonds. There are a few things (secrets) that are required to make a successful solder joint.

Secret #1

The metals to be jointed must be absolutely clean, no dirt, oil, wax, corrosion, or oxide coatings. The metals should be bright and shinny.

If the soldered joint will be subject to any mechanical stress, form a sound mechanical joint first before soldering. Solder cracks under stress leading ultimately to joint failure. This includes stress caused temperature induced expansion and contraction. A strong mechanical connection is vital in antenna wire splices for example.

Mich-A-Con ARC April 12th Meeting

The meeting was called to order by President Tom Martin, W8JWN, at 6:34 PM.

Secretary Report:

The minutes of the March 8th meeting were read and approved.

Treasurer Report:

The Treasurer's Report was presented by Tom, W8JWN. As of this meeting we have \$195.70 in checking, \$2,087.79 in the savings account, \$1,364.65 in the repeater account and \$26.00 petty cash. Bills paid since last meeting: WE Energies Felch Repeater, \$23.80 and \$20.32; SBC, \$23.07. \$155.00 was transferred from the repeater

Secret #2

The Purpose of the soldering iron is not to melt the solder! Solder is not hot melt glue! The purpose of the soldering iron (or torch, for that matter) is to heat the metals to be soldered, the joint then melts the solder. All metals to be soldered *must* be heated to or above the melting temperature of the solder being used or a bond will not be formed! This is essential and the number one cause of bad solder joints is the failure to do so! Result, a "cold" solder joint, the most common type of bad solder joint. Unfortunately, most bad solder joints work fine in the beginning until the metal has time to oxidize, then, if your lucky, it will quit working. If not, it will become intermittent, possibly affected by temperature variation, vibration, or stress, and be very difficult to track down.

Secret #3

Use the right solder. Solder is an alloy of two or more metals. Since about the time electricity was

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account to checking to pay for our new repeater antenna. We have 28 members, including 9 new members, that have paid their 2005 dues. 15 members on last year's roster have not yet paid.

Repeater Report:

Dennis, KD8AIT, reported that he had noticed the repeater key up and drop out continuously for a short period of time on one occasion (not ker-chunking.)

ARES:

Dennis, KD8AIT, reported that the group now has 6 members and that nets are held every Sun-

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Words from the President

These are my first “Words” since my return from work with the CIA; excuse me the DOE (Department of Education) and my assignment in Belize, C.A. Nope, this was not an assignment but a DXpedition to Placencia, Belize in March. Suffice it to say, basking in the sun and 93 degree temperatures was a pleasant change from the frigid UP.

I have been trying to come up with an analogy to compare my trip and operation to something that you non-contest and VHF guys could relate. Possibly, it would be like operating on 144 MHz with a handheld during tropospheric bending conditions. You say, “KB8XYZ monitoring 85,” and suddenly you are receiving a call from all of the 85 repeaters in an 800-mile radius. Before you know it, you are talking to guys all over the Midwest and Ontario. Literally hundreds of stations from the US and Canada called us, during a 10 meter opening on Sunday afternoon. It was a blast!

Now, I am back to the UP and ready for the summer activities to start. Not only do my golf clubs and fishing tackle come out of the basement, my ham radio interests shift from contesting and DX chasing to Skywarn and Field Day.

As mentioned in the minutes from the last meeting, our club has enrolled with Callingpost.org. So, if your Caller ID displays a strange number

from Georgia, it will most likely be a message from me with important information about Skywarn activation, or other urgent club related activity. This service is automated and it will improve the quality of our “fan out” process. The package that we purchased will call from 9 AM to 9 PM.

I was elated last Tuesday evening to see the interest expressed in our club’s Field Day exercise to be held June 25-26 at Marion Park in Norway. I think that this interest was sparked by the success of last year’s event. We are definitely ahead of schedule with planning and committee duties. (Way to go Terry!) Let’s hope that the weather is a little warmer this June. If not, we will have to use those electric heaters added to the equipment list. Please try to get out to the site and lend a hand at antenna installation, operate the GOTA station, or just visit.

Finally, I am also excited about the VA Hospital proposal made by Mike (K8DDB). This will be investigated this summer. I will keep you all informed of our progress.

The annual CCRAA Swap will be held on Saturday, April 30, 2005 (The last Saturday in April), at the VFW Hall in mid-town Chassell. Setup on Friday night, April 29, or at 9 am Saturday. Doors open to the general public at 10:00am. No sales prior to 10am.

May Club Activities

Amateur Radio license exams will be given by our VEC team on Saturday the 7th. See page 9 for details.

ARES Nets are conducted at 8:00 PM Central Time every Sunday evening on our 2-meter repeater (147.85) by Dennis, KD8AIT.

Please join us for the Tuesday Night Net on the 3rd, 17th, 24th and 31st at 6:30 PM on the 2-meter repeater (146.85.) Dennis, KD8AIT, is our Net Control Operator.

Club meeting on Tuesday the 10th 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 21st at the Holiday Kitchen in Iron Mountain, on US-2 across from Econo Foods.

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

VEC Testing at Iron River

The Iron Range Amateur Radio Club VEC makes exams available on a monthly basis on the 3rd Thursday of the month, prior to the start of their Club meeting. Examinations must be arranged before hand. Exam time: 6:30 PM (Central), Place: Iron River Lutheran Church (on US-2 next to McDonalds), Contact: Dan Waters, AA9G, dmwaters@ironriver.tv, (906) 265-4240

Mich-A-Con ARC Activities for May 2005

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

Six Secrets of Successful Soldering

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discovered, the standard for all electrical and radio work has been an alloy of tin and lead. Nothing works better. The proportions affect the ease of use, strength, temperature required, and cost (lead is cheap, tin is expensive). Since lead and tin can be mixed in any proportion, how much tin and how much lead is best? For decades a mixture of 60% tin and 40% lead has been considered the optimum compromise. This is often referred to as 60/40 solder, the alloy ratio marked on solder spools. It is specified by the % tin content first and the % lead content second. Another common alloy for general purpose soldering is 50/50. You will also sometimes find 40/60 on the shelves, don't confuse it with 60/40! Solders with higher lead content are considered "hard" solders and tend to be stronger with a higher melting temperature, those with higher tin content are called "soft" solders and have a lower melting temperature. There are also silver bearing solders for use with surface mounted components and other special applications. Solder is available as bar and wire.

If you research solder and soldering in books of higher learning (like the Radio Handbook) you won't get very far before encountering the word "eutectic". An interesting thing happens when you add tin to lead (or vice versa), the melting temperature of the mixture is lower than the melting point of either pure metal. Somewhere between the two extremes there must be a minimum melting temperature, and there is, it's called the eutectic. For tin/lead solder it occurs at 63% tin, 37% lead. Very close to the ever popular 60/40 solder. You can, in fact, buy 63/37 solder, it's often called eutectic solder. It's used where temperature is very critical such as soldering very tiny solid state components that can be damaged by excessive heat, or where exposure to molten solder may occur for an extended period of time such as in some automated circuit board soldering machines. It costs a bit more and is generally not required for hand soldering. Just how hot does solder have to get to melt? Pure tin melts at 450 °F, pure lead melts at 621°F and Tin/Lead eutectic solder (63/37) melts at 361°F. All other proportions have higher melting temperatures than the eutectic.

Recently a number of lead free solders have been developed, first to remove solder from potable water fixtures and plumbing, and then to remove lead from electronic devices. These solders do not have the application flexibility of lead bearing solders and are specially formulated for their particular applications. Plumbing solders are not formulated with electronic temperature requirements or metal compatibility in mind, may require non compatible fluxes, and should be avoided. Special lead free electronic solders are more expensive, limited in application, and more difficult to use.

Secret #4

Solder the right metals. Most of the metals used for electronic components such as copper, brass, iron, and steel solder easily.

Others, that are often used as a plating to improve solderability or reduce corrosion such as silver, gold, and tin, also solder readily. Not all metals are solderable and some of those that are require special solders, and even then may be difficult to solder such as aluminum. However, copper plated aluminum solders as easily as solid copper.

Secret #5

Use the right flux. Soldering flux serves a vital purpose. When metals are heated (such as when we are attempting to solder them) they quickly become oxidized (that is, they react chemically with the oxygen in the air) preventing molten solder from bonding with them. Flux forms a thin protective layer over the hot metal preventing oxidation. Flux can also remove a thin film of already formed oxide. The most common flux used for electrical and electronic work is rosin or resin.

Wire solder is available in solid and cored forms. Cored solder is hollow and contains flux in its hollow core, the flux being automatically applied along with the solder as they are melted. Solid core solder allows selection of different fluxes for different jobs but is not used to solder electronic components. A number of different fluxes are available in both liquid and paste forms. Rosin is available in liquid form and as a paste. Acid core flux is available as a liquid and also gelled in cored solder, usually called acid core solder. The most common acid flux contains hydrochloric (muriatic) acid. You can get muriatic acid at a hardware store in the paint section, its most common use is to neutralize the surface of concrete preparatory to painting. **Never** use acid flux for any electronic work. When used for other work the acid residue must be neutralized and washed off or it will corrode the soldered metals. Another common paste flux contains zinc chloride. Zinc chloride is corrosive like acid even though it may say non corrosive on the container. It may be used for antenna wire connections provided all residue is removed. Use extreme caution when using separate solder fluxes, unless the container specifically says that it can be used for electronic work don't use it even if it says non corrosive. (Even if it is non corrosive is it nonconductive and non hygroscopic?)

Secret #6

Learn to recognize a bad solder joint. Nearly all bad solder joints will not stand up to careful scrutiny; the only exceptions I have found are machine soldered joints in manufactured equipment. While I have, from time to time, found a circuit board solder joint in manufactured equipment that looked a little suspicious (if only for the reason that it looked a little "different" than all the other similar joints), on rare occasions a joint has proven to be defective even though it looked absolutely perfect. Fortunately, hand soldered defective joints are usually easy to spot. In a good solder joint the solder forms a fillet between the metals, has a smooth surface, and wicks up to the metal gradually thinning to nothing as it progresses away from the joint. Wires should be totally enveloped in solder. If

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the solder's surface is rough, cracked, or crumbly looking, heat was probably not applied long enough. If the solder seems to have formed into a ball on the joint the solder did not bond to the metal either because the metal was not clean enough, it never got hot enough, or there was insufficient flux applied. Solder will also form a ball around a joint if too much solder is applied (There is no advantage to applying excessive solder, thicker solder is less able to cope with stress than a thin layer of solder). If wire leads have the appearance of going into a "sink hole" in the solder (i.e., the solder didn't wick up along the wire forming a fillet extending away from the joint but rather formed downward around the wire) the same situation existed. You can get an idea what a good solder joint looks like simply by studying the solder connections in manufactured equipment. If you have access to a Heathkit instruction manual for one of their kits (many are downloadable from the internet, try <http://bama.sbc.edu/>) look in the front of the manual for an excellent explanation with illustrations of how to recognize good and bad solder joints (by far the number one cause of kit failures). Newer manuals cover printed circuit board soldering while older manuals do a better job of covering point to point wiring.

What do you do if you find a bad joint? Resolder it. All it usually takes is reheating and a touch of additional solder (usually to get the benefit of the flux).

A word about technique

Knowing what's required to make a good solder joint isn't always enough. There are some "tricks" that can be used to make soldering easier. For example, how do you know if the components being soldered are hot enough? Fortunately there is an easy way to tell. If they will melt solder they're hot enough, hence, do not melt the solder with the soldering iron, apply the solder to the components being soldered. The biggest mistake beginners make is melting the solder with the soldering iron, dripping it on the joint, and failing to get the metals being soldered hot enough for the solder to bond. The second is pulling the soldering iron away too soon. Don't be in a big rush, wait until the solder has finished flowing before removing the heat. It's true that most electronic components are heat sensitive as are plastic insulations, but, it only takes an extra second or two. Heavy parts which can absorb and dissipate a lot of heat such as PL-259 coax connectors take a bit longer.

The first step in any soldering operation is a clean brightly tinned soldering iron tip. When a soldering iron tip is applied to a junction to be soldered, there is often only a very small area of contact between the soldering iron tip and the metals to be soldered making it difficult to transfer enough heat quickly. Here's a trick I use all the time. I place the tip of the soldering iron against the joint to be soldered and then touch the end of the solder to the iron tip and joint simultaneously. The iron instantly melts a bit of the solder and the molten solder then

fills any gaps between the soldering iron tip and the joint, greatly increasing the heat transfer. After a second or so the rest of the solder can be applied to the joint away from the soldering iron tip. When soldering small items such as semiconductor pins to circuit board traces all this can happen very fast and that small touch of solder to get the heat transfer going may be all that's needed, the solder immediately flowing over the joint. An experienced solderer can easily run down the pins of an integrated circuit soldering them to a tinned circuit board at the rate of one per second. More massive joints can take much longer and require a larger soldering iron that can deliver much more heat quickly such as a soldering gun or large soldering iron versus the small pencil iron.

Difficult soldering jobs can sometimes be made easier by tinning the components to be soldered first. Tinning is the process of putting a thin coating of tin or solder on a metal prior to making up the joint for soldering. Use the same methods used for soldering but remove any excess solder by shaking it off while molten (be careful) or by wiping it off with a rag. Many unassembled circuit boards such as those in kits often come pre-tinned. The tinning is usually done by dipping the board or by chemical deposition. Most component leads and connecting lugs are pre-tinned unless their silver or gold plated. Pre tinning is very helpful for soldering the braid to the body of PL-259 coax connectors. If the connector is nickel plated rather than silver plated I also recommend filing the plating off around the solder holes to expose the underlying brass before tinning. Nickel is more difficult to solder than brass and seems to require more heat. Tinning the coax braid helps a great deal too, but be careful, the slightest buildup of solder may prevent the braid from fitting inside the connector.

Incidentally, if you have trouble making a connection you may find yourself with too much solder on the connection and wish to remove some. There are several techniques that may be used. You may be able to simply shake it off while its molten (be careful). Between its solid and liquid states solder has a plastic state where is weak and crumbly. You can sometimes scrape the excess off with a pointed tool like a small screwdriver or "soldering aid" as you heat it or as it cools from its liquid state. There are also several desoldering aids available. There are desoldering irons designed to heat a joint and then suck the solder off. Similarly there are rubber bulbs with teflon or metal tips that can suck up solder that is being heated with a soldering iron and "solder pump" devices which have a spring loaded plunger that can quickly suck up molten solder when the trigger is pressed. Another very useful device is "solder wick", a small copper braid which wicks up solder when placed between the joint and a soldering iron. This technique works very well on printed circuit boards and can remove virtually all the solder making removal and replacement of components relatively easy. You can "make" your own solder wick in larger sizes by removing the braid from coax and coating it with a little liquid rosin flux. The braid can be tinned or untinned copper but must be clean and shiny so it will take solder readily or it won't work.

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Six Secrets of Successful Soldering

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How much soldering iron do I need?

Soldering irons come in an array of types and prices from a couple of dollars to well over \$100 for temperature controlled ones. Just about any iron will work as long as it is properly sized. For printed circuit work and most point to point wiring a 25 watt "pencil" soldering iron is quite adequate, it's what I use for the vast majority of my work. Soldering guns work well for point to point wiring, larger jobs such as heavy wires, or light sheet metal requiring more heat, and are fast, warming up in seconds rather than minutes. They also have the extra heat capacity to solder metal parts together, heavy terminals, and chassis ground connections. Guns are also often used to solder the coax braid connection on connectors like the PL-259 coax connector. It is difficult to solder PL-259s with a gun smaller than 150 watts, and 250 watts or more works better. A large electric Iron of 100 watts or more can be used if it has a large heavy tip that can store a lot of heat. (Coax connectors must be heated quickly to soldering temperature so the connection can be completed before too much heat can be absorbed by the cable, melting its insulation and damaging the cable.) Soldering guns should never be used on printed circuit boards, they can quickly damage or ruin a board as well as cause other problems; they're simply too big and clumsy.

Pencil soldering iron tips are usually replaceable and come in a variety of types and sizes. The most common types are either threaded on one end and screw into the end of the iron or have a cylindrical end that slides into the barrel of the soldering iron and is held in by a knurled nut. The larger end of the slide-in type holds more heat, will heat the work more quickly, and handle somewhat larger jobs for a given wattage than the smaller screw-in type. Soldering iron tips come in several different shapes, the most common being conical and chisel. The conical tips will fit a wider variety of connection sizes but tends to have a smaller contact area for heat transfer. The chisel point has better heat transfer and can be faster but gets clumsy and difficult to use if it's too large for the job at hand. A 1/8" wide chisel tip is a good all around size (larger tips transfer more heat) but it can get a bit tricky if soldering anything closer than the 0.1" pin spacing of integrated circuits. For that the 1/16" tip is much better. I find the chisel tip preferable as long as it isn't too large for the job, but I've gotten by very nicely for many years with only a screw-in conical point. The most common screw-in tips are 1/8" in diameter while the cylindrical end of the slide-in type is about 1/4" in diameter.

Soldering iron tips come in two flavors, bare copper and plated copper. Copper is used because of its excellent heat conduction. To transfer heat a soldering iron tip must be clean, bright, shiny, and tinned with solder. High tip temperatures causes the tinning to tarnish quickly. This is especially a problem with unplated copper tips. When a bare copper tip becomes oxidized try wiping it off with a rag first (use cotton, synthet-

ics melt and burn leaving a black smelly mess), or a paper towel. A wet sponge works well too. If that fails to clean the finish try plunging the tip (just the tip) into water for an instant then tin immediately by applying a small bit of solder to the tip. When the tip can no longer be made to accept solder it must be filed down to a clean surface and tinned immediately.

To clean a plated tip simply wipe it with a rag, paper towel, or wet sponge. Never file a plated tip. Once you file off the thin plating it becomes a bare copper tip with all its attendant problems. I have a plated soldering pencil tip I have been using for nearly 20 years and it's still going.

Another word about solder

Wire solder comes in a variety of sizes. For heavy work 1/8 (0.125) inch diameter is most convenient. That's about all there was in the early vacuum tube days. Then came 0.062" as parts got smaller. With the advent of transistors and their small circuit board connections 0.031" appeared, and with integrated circuits 0.031" became common. Today solder is available as small as 0.015" diameter. There are a wide variety of solder sizes available but prices can vary widely from one diameter to another. Prices generally tend to increase with decreasing diameter. Large diameters tend to make it difficult to apply small amounts of solder which can lead to solder "bridges" (shorts between circuit board traces) when soldering circuit boards. Small diameters can make soldering larger point to point connections difficult because you may have to feed several inches, or even a foot or more, of solder into the connection. The most useful all around size for electronic work is 0.062" diameter with 0.031" being a little more convenient for small printed circuit work. Smaller sizes and odd in between sizes cost considerably more.

Solder is most economical in 1 pound spools unless your going to be a very heavy solder user, then consider a 5 pound spool. The small 1 or 2 ounce dispensers are very expensive on a cost per ounce basis.

Remember

- 1) Metals to be soldered must be clean and bare.
- 2) Metals to be soldered must be heated to the melting temperature of the solder.
- 3) Use the right solder/flux. For electrical/electronic work 60/40 rosin cored solder will handle just about anything except possibly surface mounted components where solder bearing a small amount of silver may be a better choice. (Some surface mount component terminals are silver plated. The silver can be dissolved by the tin in solder leading to a deteriorated connection unless the solder contains a small amount of silver.)

Soldering is not difficult once you get the hang of it and soldering skills can open new horizons for those who haven't yet

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Six Secrets of Successful Soldering

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developed the skill. It can be invaluable during emergencies where a simple broken wire connection can shut down a vital emergency communications station for lack of the ability to effect a simple soldering repair. All you need is a small pencil iron and a few feet of 0.062" 60/40 rosin core solder and your in business to handle 95% or more of your needs.

By the way, I've been making solder connections for over 50 years and I still make bad ones once in a while; most of which I would have caught sooner rather than later if I had carefully inspected the joints after I made them.

Happy soldering. N8LT

Proposed Change to Michigan's Scanner Law

HOUSE BILL No. 4544

March 23, 2005, Introduced by Reps. Elsenheimer, Jones, Newell, Nofs, David Law and Sheltroun and referred to the Committee on Judiciary.

A bill to amend 1931 PA 328, entitled "The Michigan penal code," by amending section 508 (MCL 750.508), as amended by 2002 PA 672.

THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

Sec. 508.

(1) A person SHALL NOT COMMIT OR ATTEMPT TO COMMIT A CRIME WHILE IN POSSESSION OF a radio receiving set that RECEIVES signals sent on frequencies assigned by the federal communications commission of the United States of America for PUBLIC SAFETY purposes.

(2) A PERSON WHO VIOLATES SUBSECTION (1) is guilty of a misdemeanor punishable by imprisonment for not more than 1 year or a fine of not more than \$1,000.00, or both.

(3) This section does not apply to the use of radar detectors.

(4) A TERM OF IMPRISONMENT IMPOSED FOR VIOLATING SUBSECTION (1) MAY BE IMPOSED TO RUN CONSECUTIVELY TO ANY OTHER SENTENCE IMPOSED FOR ANOTHER VIOLATION ARISING FROM THE SAME TRANSACTION.

Net Operations

Howdy everyone. Well, Mike asked me to do a column so here I am. First off, for those who don't know who I am yet, my name is Dennis Beurjey. I have been a ham operator since September of last year.

I attended a couple meetings and found that the club was looking for a net control operator to run the Tuesday Night Net and being very eager to talk on the radio, I volunteered. At first I thought what the heck am I getting myself into? When Tuesday night finally arrived I was a nervous wreck! Finally, at 6:30 PM, I nervously talked into the radio, opening up the repeater. To my surprise, we had 7check-ins. After the net, I felt a lot better and not so nervous.

Weeks went by and my curiosity about nets had me reading information on the internet. Then, at one of the Tuesday Night Nets, Bill, KB9URW, told me about an ARES/RACES net on Monday's at 7:30 PM on the 146.880 repeater located in McAlister. Normally, I bowl on Mondays so I didn't get a chance to listen to it until November. Once I listened in, I grew very curious as to what ARES/RACES was. Again, I turned to the internet and also called our club "Elmer", Mike K8DDB. Mike explained to me what it was. I wondered, why don't we have an ARES group in Dickinson County? I then talked to Bill, KB9URW, and he put me in contact with Bill Becks, WA8WG, who then gave me the email address of Robert Reid, W8UXG, who is the Michigan District 8 Emergency Coordinator. Robert told me that all I needed was a few people interested in starting an ARES group. I found a few people and he appointed me Emergency Coordinator. I plan on having an ARES net on Sunday nights at 8:00 PM. Well, that is my background.

Tuesday Night Net check-ins for the month of March:

- March 1 – Bill, KB9URW
- March 15 – David, KB9JOG; Vince, KA8FFM; Randy, KB9ZES; Bill, KB9URW and Bob, WA8FXQ
- March 22 – Randy, KB9ZES; Mike, N9NBN and Dale, KC8STM
- March 29 – Randy, KB9ZES; Bob, WA8FXQ and Bill, KB9URW

Amateur Radio Emergency Service News:

So far, we have a total of 5 members that have joined ARES. If anyone would like to join our Dickinson County ARES group, drop me a line at KD8AIT@arrl.net Please visit the ARES group website, www.kd8ait.org

73 - Dennis, KD8AIT

Storm Spotter Training

To become a storm spotter and to stay current with the latest science, techniques and procedures, new spotters as well as veteran spotters should attend a spotter training session. The training is presented by National Weather Service personnel based in Marquette, Michigan. NWS training classes typically last about 2 hours. Advance reservations are not required, and there is no charge for the training.

Iron Mountain:

April 20 - 6:00 PM, Dickinson County Courthouse Complex, Correctional Center Conference Room

Stephenson:

May 9 - 6:30 PM, County Annex Building

Donald H. Mix, W1TS

A QSO with Harold Borchers, KB0ROB, and his return QSL shed some light on the notoriety of Don Mix, W1TS, the designer of the Novice Special.

When Commander Donald B. MacMillan set sail on the 80 foot wooden schooner *Bowdoin* for North Greenland in the summer of 1923 on his eighth Arctic expedition, he was leading the first such expedition to be equipped with radio. Prior to 1923 every Arctic exploring party was lost to the world from the time it plunged into the icy silence of the Polar Regions until it again made physical contact with civilization.

Strangely enough, MacMillan was at first reluctant to put radio equipment on the *Bowdoin* for fear it might make his men homesick, and did so only after considerable urging from his life-long friend, Cmdr. E. F. McDonald, Jr., president of infant Zenith Radio Corporation. McDonald told him that men became bored with each other because they ran out of new things to talk about after hearing each other's autobiography and opinions a few dozen times. He said that news from home would provide new subjects and interest, that the ability of the *Bowdoin* to send out messages would be a God-send to friends and relatives of expedition members, and might even be an important safety factor.

McDonald knew the capability of short wave radio because on Zenith's staff were many amateurs who built radio sets at the factory by day and sat up half the night talking with other hams hundreds and thousands of miles away. He was convinced that even with the small power available, MacMillan would be able to get messages through to the United States.

Zenith Radio Corporation donated a complete amateur radio station for the expedition and Hiram Percy Maxim, the founder of the ARRL, hand-picked young Donald H. Mix, 1TS, to be the expedition's radio operator.

The Novice Special's Quest For WAS and friendly conversations along the way



As I write this, it's been a month and a half since the Novice Special's¹ inaugural QSO and after 122 QSOs, 39 states have been chalked up toward the ARRL's Worked All States award. At first, just about every QSO brought a new state for the log, but at this point, new ones are few and far between. What makes the quest more difficult is the lack of enough crystals to be able to engage in a QSO when a "new one" is heard on the band. Even though the rate of progress has slowed, there is a lot of enjoyment to be had by "taking pot luck" after sending a CQ.

I have been keeping a little database for my QSOs and if the QSO is long enough for the other operator to offer up his age and number of years as a ham, I include that information in my database. The oldest operator so far is 90 and the youngest is 41, with an average age of 64. The number of years in ham radio ranged from 70 to 1 year with an average of 37 years. Because I do a lot of my operating during the normal work day and tend to work mostly retirees, the results are not representative of the current ham population, but interesting nonetheless.

Maybe it's the imperfect CW note of my little transmitter that draws out the homebrewers on the band. I seem to work more of them with this rig than I do with my others. The CW note ranges from a very slight chirp to an objectionable one, depending on the crystal in use. I try not to use the "chirpy crystals" unless there is a new state to be had on that specific frequency, then I try to keep the QSO short.

There are a lot of memorable QSOs among those 122 contacts. Ellis, K8ZKP, of Defiance Ohio answered my CQ with his homebrew QRP transmitter running at 1 watt and Collins 75S1 receiver to a half square antenna. He had just com-

pleted the transmitter a few weeks before and I was his first contact with it! He hadn't operated CW in about ten years and said "Sure enjoy being back on CW." He thought he was rusty with his sending, but he had a good fist and his little rig sounded perfect. Ellis is 57 years old and a ham for 44 years.

Jim, W8TU, of Plymouth Michigan is 60 years old and retired from Ford Motors. He answered my CQ with a homebrew QRP rig at 5 watts to a G5RV antenna at 35 feet. He uses a 50 watt solar panel and deep cycle marine battery to power his shack. He has an Icom IC706MKIIG that he runs at QRP levels or 100 watts from the same power source.

Tom, AC5JH, of Blanchard Oklahoma tail-ended a QSO I had with KB8F. He was running 5 watts with his breadboard 6A6 push/pull exciter built from plans in the 1936 Jones Handbook to an inverted vee antenna. He was listening to the QSO I was having with Don and fired up his breadboard rig so we could have a "tube to tube" QSO.

I had a nice QSO with a fellow Yooper, Mark, KC8YDU, of Hancock Michigan. He had only been a ham one year and had his General ticket for about 10 months. He was using an Icom IC706MKIIG at 100 watts to a G5RV Jr antenna at 25 feet. For keying, he was using a Vibroplex straight key and was very proficient at it!

One of my crystals was just right for working J88DR in St. Vincent during the ARRL DX Contest. Hopefully I'll get a QSL card via G3TBK for that QSO.

In the future, I plan to build a VFO to make it easier to capture those elusive QSOs that are not close to one of my crystal frequencies, but until then I'll "take pot luck" and the memorable QSOs that it brings. A new state would just be frosting on the cake.

K8DDB

¹ The Novice Special is a two tube, crystal controlled, CW transmitter for the 80 and 40 meter bands that is capable of a power output of 8 watts. More information can be found in the February issue of Mich-A-Con RF or on the "Tips 'n Tales" page of the club website: <http://www.qsl.net/ka1ddb/>

Mich-A-Con ARC April 12th Meeting

(Continued from page 1)

day at 8 PM on the "85" repeater. He has created a Dickinson County ARES web site at <http://www.kd8ait.org>. Anyone desiring to become a member should call Dennis.

Old Business:

Mike, N9NBN, will get the club tower from Pat, KC8EMF. Bob, KC8TWG, will fabricate a "drive-on base" for the tower (base plate supplied by N9NBN). Tom, W8JWN, will pick up the beam antenna from Bill, WB9SYG, in June.

A letter and \$50 check was sent to Grace United Methodist Church for the use of their facilities for club meetings.

Because they are knowledgeable of the current system, Tom, W8JWN, asked that Skip, KE9L; Lee, N8LT; and Bob, WA8FXQ, coordinate the relocation of the packet system from Felch to Pine Mountain and provide a report at our next meeting.

New Business:

Club members are asked to consider the merits of linking our 146.85 repeater with the 146.88 repeater in McAlister for the purpose of providing mutual support in times of emergency, such as severe weather or activation of ARES groups. The repeaters would only be linked when necessary. Please provide comments to Mike, K8DDB. Bill Becks, WA8WG, explained that the link would require a UHF radio at each location and would be activated/deactivated at either location by the transmission of a tone. A directional antenna would need to be installed at about the 50 foot level on the Pine Mountain WE Energies tower. All equipment necessary for the link and its installation would be provided by Bill Becks at no cost to our club.

Callingpost.org provides a service that can be used to make calls to groups of personnel by making a single call. Everyone on the calling list gets the same (up to 45 second) message. A 200 call plan costs \$14.95 per year. A motion was made by Bob, KC8TWG, to purchase the call plan and was seconded by Burt, WB8EBS and approved by those in attendance. Tom, W8JWN, will purchase the plan for the club.

Field Day takes place on June 25 and 26. We will use the facilities at Marion Park in Norway again this year. All club members are encouraged to participate. Funds were approved for the

required increased liability insurance for the event (approximately \$50.)

A proposal was made by Mike, K8DDB, to ask the VA Hospital in Iron Mountain to provide space for a club station which could be used by Vets and hospital staff as well as club members. Tom, W8JWN, will contact the hospital.

Bill Peterson, KB9URW, will provide Highway Watch training on April 23rd at 10 AM (until noon) at the Spies Public Library, 940 1st Street in Menominee, MI. Anyone interested in attending should notify Bill at (715) 324-5540 or via the 146.85 repeater.

Storm Spotter training will take place on April 20th at 6 PM at the Dickinson County Courthouse Complex in the Correctional Center Conference Room. There will also be a session in Stephenson, MI on May 9th at 6:30 PM in the County Annex Building. Dennis, KD8AIT, plans to hold a Skywarn Net on the "85" repeater twice a month prior to the Tuesday Night Net.

Tom, W8JWN, will arrange for a presentation of the Jersey DXpedition by Pete Treml, K8PT, at our September meeting. Tom will make a presentation on his Belize DXpedition later in the Fall.

Adjournment:

The meeting was adjourned at 7:45 PM

A Field Day planning meeting followed the business meeting.

Submitted by: Mike Bray

Attendees:

Mike Bray, K8DDB (Secretary)
Paul Hintz, WB8SZI and Carol
Mike Boileau, N9NBN (Vice President)
Bob Uren, KC8TWG
Dennis Beurjey, KD8AIT
Tom Martin, W8JWN (President)
Burt Armbrust, WB8EBS
Bill Becks, WA8WG (guest)
Bill Peterson, KB9URW (guest)
Skip Caswell, KE9L
Terry Moriarity, KB9ZER
Dave Thomas, KB9JOG (guest)

For Sale

Heathkit HW-16 transceiver with power supply - \$50.00

Paul, WB8SZI (906)563-8044

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

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. 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

Permission is hereby granted for the reproduction of material found in Mich-A-Con RF unless otherwise noted, provided that proper credit is given to the author and Mich-A-Con ARC.

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

If you haven't received a receipt for 2005, you haven't paid your dues. Please check your records. 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 May is on TUESDAY the 10th at 6:30 PM in the Grace United Methodist Church, 721 Norway Street, Norway, Michigan. (upstairs in the room next to the sanctuary.)