

HAMATEUR CHATTER

The Milwaukee Radio Amateurs Club

June 2011, Volume 19, Issue 6

One of the World's Oldest Continuously Active Radio Amateur Clubs—since 1917

Presidents Letter

May was our annual auction. The turnout was a little light both in people and "stuff". None the less, I think everyone had a good time and many people got some real bargains. I want to thank all who donated stuff to the club and of course those who bought that stuff. The club ended up with \$229 from stuff donated to the club. Thanks. I hope some people pocketed some money themselves too.

The June meeting will include a recap of Field Day. You may be reading this before Field Day. If so, you should really get there. As with many recent events we will be working with MAARS. For this Field Day we are also working with the Greenfield Fire Dept (who made all the arrangements for the location). We don't do Field Day so much as a contest as a ham event. Setup some equipment, build some antennas, do some operating, talk to people, see different equipment and antennas in use, maybe explore some new communication modes. Since the station operates under the club call W9RH and has an Extra class trustee, you can operate as if you had Extra privileges (as long as an Extra control operator is present). That is a perfect way for someone new to get HF exposure, in a situation that hopefully works. Of course there will also be some VHF operation including APRS. In the past we have had ATV, telescopes, satellite contacts, movies and more. Come and check things out. No excuses like to far to travel this year. Do some radio!

Also at the June meeting we will go over some of the latest items from the club history archives. That is a never ending project involving digitizing all the past papers and photos of a club

Remember there is no meeting for July and August. Enjoy your summer and be ready for us back meeting in September. Just because there is no indoor meeting during the summer doesn't mean there isn't a club gathering. Saturday August 13 at Greenfield Park (enter off 124 St.) will be the rechristening of the 5.13 picnic as the successor to the "Picnic Ham" of the 90's. While it won't last 3 days and include camping (like the original did), it will be a picnic open to all area hams and their friends and families. Basic meat (flat and tubular) products and liquids will be provided by MAARS and MRAC and all you have to do is bring the extras/add-ons. Last year as just the 513 picnic there were over 60 people there. Can MRAC add to that? Can we do stuff?

Also something for the future. The second annual Interclub Hamfest will take place at the Channel 10 Friends Warehouse Saturday February 18, 2012. We would like to make it bigger and better. Want to help? Speak up (and tell your friends about the date). Flyers and more coming soon.

Don't forget, we need some people to take over the meeting refreshments come fall. No volunteers, no refreshments. We also need some people to put their names on the list to be net controls for our Friday night nets. If we want people to know we have the nets, they must be there at the appointed time. "Just let me know if you need someone" is fine for a last minute thing, but we need people who are willing to take personal responsibility to put their name on a list to be net control at a designated time. Too much to ask? We'll see...



MRAC Officers:

Terms Expiring in 2012

- President – Dave, WB9BWP
- V-President– Vacant
- Secretary – Mike, KC9CMT
- Treasurer – Vacant
- Director – Mark, AB9CD
- Director – Dave, KA9WXN

Terms Expiring in 2013

- Director – Al, KC9IJJ
- Director – Hal, WB9OZN
- Director – Vacant

The Club Phone Number is: (414) 332-MRAC or

(414) 332- 6 7 2 2

Visit our website at:

www.w9rh.org

Mail correspondence to:

M. R. A. C.

P.O. Box 240545

Milwaukee, WI 53223

Board of Director's Meeting Minutes

Meeting called to order at 7:03 PM by President Dave DeFebo, WB9BWP.

Present: Dave, KA9WXN Mark, AB9CD, Dave DeFebo, WB9BWP Michael, KC9CMT, Al, KC9IJJ, Hal, KB9OZN.

Absent: None

Dave, WB9BWP made a motion to accept the minutes of the last meeting as published in the HamChatter, seconded by Michael KC9CMT. Accepted by a vote of 6-0

Treasurer report not read. Club has no treasurer.

PRELIMINARY DISCUSSIONS:

Lifetime Membership Club Certificates were printed out by Dave DeFebo, WB9BWP and were passed around the Board room to get the required signatures to make them official. The Life Member certificates will be handed out at this months meeting (May). The Church administration has asked the club for a copy of their publication, The HamChatter. They will incorporate some of our information in their church bulletin, and acknowledge that the club does in fact use their basement for our club meetings. During the recent church cleanup day club members put in two air-conditioners and fixed a malfunctioning toilet at the church on May 21st. Litter cleanup outside the church was hampered by rainfall.

The Membership & Board meeting minutes were accepted as published in the HamChatter by a voice vote of 6-0. No treasurers' report was read (the club treasurer position is vacant).

Robert's rules of order has been dismissed as not relevant to our type of club by unanimous voice vote of the board 6-0.

It has been decided that the Board of Directors' will not meeting in July, with August being tentative.

Old Business:

A copy of the clubs' general ledger accounts were printed out for the Boards consideration. Our records of financial activity mirror the Clubs' banks statements.

Meeting Site: Mark, AB9CD will ask the Church if they can provide a locker for storage of club meeting gear.

With the coming of April, club dues have risen to \$20. The price will remain the same until the end of December. Anyone joining in September through December will be covered for the 2012 year.

The Board still needs to generate a list of those who have paid to date.

Those that have not paid will be dropped from the Yahoo Group & Email list.

SuperFest resulted in some renewals and a New Member.

No interest at all has been shown in this years election of Directors.

New Business:

SwapFest: Dave, KA9WXN will coordinate this with his employer. He states that he should have a date solidified by April 29th. MRAC wants to have a ARRL sponsored event next year. Flyers are being printed by Mark, AB9CD. We hope to have copies by the June Board of directors meeting.

Field Day: Dave, KA9WXN has taken charge of this activity that will be held jointly with the MAARS group at Konkel Park in Greenfield. Club banners will be put up. The clubs call sign of W9RH will be used as a 2AWI. Field day will be powered mostly by batteries this year. Lighting at the park was discussed along with the fact that Konkel park has bathroom facilities and a shelter if the weather turns bad.

Club Anniversary: MRAC will be Celebrating our 95th anniversary in the year 2012. AES will let us have a special event station during their 2012 SuperFest to mark our 95th anniversary.

Net Committee: John KB9SXX and Poncho KA9OFA, have been running the 2 meter and 10 meter nets that the club offers. A committee is still needed for this important club function.

History Achieving: Dave, WB9BWP has been updating the clubs' history books for this year. They will continue to be on display at each meeting.

Club Auction: Mark, AB9CD has agreed to coordinate the financial end of the coming auction at our May meeting. Al, KC9IJJ will help Dave, the auctioneer in keeping track of items and who purchased what.

Joint Picnic: This year MRAC and the MAARS group will be holding a joint picnic at the Greenfield park picnic area for the Ham community in Southeastern Wisconsin.

Programs:

June: Field Day report & History of the Club.

July & August: No Meetings.

September: A representative from the ARRL will be giving a presentation.

October through December: Open

Motion to adjourn at 8:45 PM . Motion made by Al, KC9IJJ and seconded by Mark AB9CD. Passed by a voice vote of 6-0.

Room returned to condition as found upon arrival.

Respectfully submitted,
Michael, KC9CMT

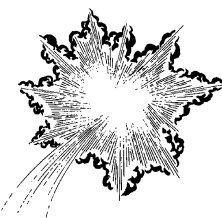
Membership Meeting Minutes

General Membership assembly called to order at 7:13 pm by president Dave DeFebo, WB9BWP.

A sign-in sheet was passed and introductions were made using the club's Microphone. The Mic was then given to Tom who told the club to check the ARRL website to find out when the VEC will be giving tests in the area. Members can also go to the club website; www.W9RH.org. The new General class license question pool will take affect of July 1st of this year. Further, the FCC may require the submission of Email addresses in the future.

Life Membership certificates were presented to the following club members: **Jack Hughes, W9ULA, Jerome Dolezal, W9NSC, Jerry Riedel, K9FI, Ted Stiller, WA9RDI, & Hans Schroeder, AE9G.**

C-Crane from the March meeting left catalogs that are still available to the membership.



Field Day Club Event

The Joint MRAC/MAARS Field Day will be held at Konkel Park in Greenfield, across from Fire station #1 on Layton Avenue and 51st Street.

Club Activities and notifications

Church Work Day

On May 14th three MRAC members attended the Redemption Lutheran Church work day. The weather didn't cooperate as it started to rain at the appointed start time. Some quick thinking by the church manager arranged some inside work. The group helped install two window air conditioners in the house adjacent to the church and helped with fixing up the toilet in one of the basement bathrooms. While the planned work couldn't be done, our willingness to be there and help out was greatly appreciated by the church. Thank Al Maahs and Hal Newton for their effort to make sure MRAC is a welcome guest at the church. Thanks Al and Hal.

MRAC Auction

The club's annual auction netted the club \$229. The following donated all or part of the proceeds from the items they brought to the auction to the club:

Alfred K9LQ
Dave WB9BWP
Joe N9UX
Michael KC9CMT
Pancho KA9OFA

The club thanks these folks for their generous support of the club.

MRAC Board

News from the ARRL Bulletin

New Online Introductory Emergency Communications Class Now Available

Registration is now open for the new online *Introduction to Emergency Communications* course (EC-001). Course information, including a description, pre-requisites and instructions on how to register are available on the ARRL website. Slots are still available for the section which begins Friday, July 29; the registration deadline is Sunday, July 17. ARRL Education Services Manager Debra Johnson, K1DMJ, explained that she is also looking for qualified volunteers to provide support as Mentors for the course, as well as Field Instructors who want to lead classroom sessions to instruct the course material.

The new *Introduction to Emergency Communications* course includes updated content from the previous Basic Emergency Communications Level 1 course, as well as some content previously included in the former Level 2 course. The EmComm training program has been restructured to offer two courses: This enhanced basic course for EmComm volunteers who want to serve as part of an ARES® response team and the management course -- *Public Service and Emergency Communication Management for Radio Amateurs* (EC-016) -- for those who are serving in ARES® leadership and management roles. Read more [here](#).



Next Regular Meeting

The next meeting will be May 26th at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance.

Please do not call the church for information!

Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:30 p.m.** at **28.490 MHz USB**.

Our two meter FM net follows at 9:00 p.m. on our repeater at **145.390 MHz** with a minus offset and a **PL of 127.3 Hz**.

Visit our website at: www.w9rh.org

Or phone (414) 332-MRAC or 332 - 6722

Chatter Deadline

The **DEADLINE** for items to be published in the **Chatter** is the 15th of each month. If you have anything (announcements, stories, articles, photos, projects) for the 'Chatter, please get it to me before then.

You may contact me or Submit articles and materials by e-mail at: Kc9cmt@earthlink.net

or by Post at:

Michael B. Harris

807 Nicholson RD

South Milwaukee, WI 53172-1447

Better Soldering Purpose

We hope this short manual will help explain the basics of Soldering. The emphasis will be on the care and use of equipment.

Overview

Soldering is accomplished by quickly heating the metal parts to be joined, and then applying a flux and a solder to the mating surfaces. The finished solder joint metallurgically bonds the parts - forming an excellent electrical connection between wires and a strong mechanical joint between the metal parts. Heat is supplied with a soldering iron or other means. The flux is a chemical cleaner which prepares the hot surfaces for the molten solder. The solder is a low melting point alloy of non ferrous metals.

Solder and Flux

Solder is a metal or metallic alloy used, when melted, to join metallic surfaces together. The most common alloy is some combination of tin and lead. Certain tin-lead alloys have a lower melting point than the parent metals by themselves. The most common alloys used for electronics work are 60/40 and 63/37. The chart below shows the differences in melting points of some common solder alloys.

Tin/Lead	Melting Point
40/60	460 degrees F (230 degrees C)
50/50	418 degrees F (214 degrees C)
60/40	374 degrees F (190 degrees C)
63/37	364 degrees F (183 degrees C)
95/5	434 degrees F (224 degrees C)

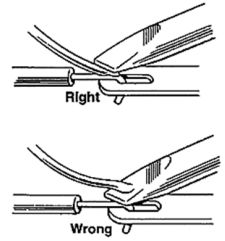
Most soldering jobs can be done with fluxcored solder (solder wire with the flux in a "core") when the surfaces to be joined are already clean or can be cleaned of rust, dirt and grease. Flux can also be applied by other means. Flux only cleans oxides off the surfaces to be soldered. It does not remove dirt, soot, oils, silicone, etc.

Base Material

The base material in a solder connection consists of the component lead and the plated circuit traces on the [printed circuit board](#). The mass, composition, and cleanliness of the base material all determine the ability of the solder to flow and adhere properly (wet) and provide a reliable connection. If the base material has surface contamination, this action prevents the solder from wetting along the surface of the lead or board material. Component leads are usually protected by a [surface finish](#). The surface finishes can vary from plated tin to a solder - dipped coating. Plating does not provide the same protection that solder coating does because of the porosity of the plated finish.

The Correct Way to Solder Some Reasons for Unwettability

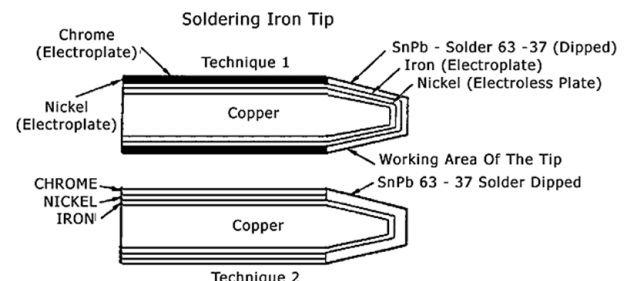
1. The selected temperature is too high. The tin coating is burnt off rapidly and oxidation occurs.
2. Oxidation may occur because of wrong or imperfect cleaning of the tip. E.G.: when other material is used for tip cleaning instead of the original damp Weller sponge.
3. Use of impure solder or solder with flux interruptions in the flux core.
4. Insufficient tinning when working with high temperatures over 665 degrees F (350 degrees C) and after work interruptions of more than one hour.
5. A "dry" tip, i.e. If the tip is allowed to sit without a thin coating of solder oxidation occurs rapidly.
6. Use of fluxed that are highly corrosive and cause rapid oxidation of the tip (e.g. water soluble flux).
7. Use of mild flux that does not remove normal oxides off the tip (e.g. no-clean flux).



The Soldering Iron Tip

The soldering iron tip transfers thermal energy from the heater to the solder connection. In most soldering iron tips, the base metal is copper or some copper alloy because of its excellent thermal conductivity. A tip's conductivity determines how fast thermal energy can be sent from the heater to the connection.

Both geometric shape and size (mass) of the soldering iron tip affect the tip's performance. The tip's characteristics and the heating capability of the heater determines the efficiency of the soldering system. The length and size of the tip determines heat flow capability while the actual shape establishes how well heat is transferred from the tip to the connection. There are various plating processes used in making soldering iron tips. These plating operations increase the life of the tip. The figure below illustrates the two types of plating techniques used for soldering iron tips. One technique uses a nickel plate over the copper. Then an iron electroplate goes over the nickel. The iron and the nickel create a barrier between the copper base material and tin used in the solder alloy. The barrier material prevents the copper and tin from mixing together. Nickel-chrome plating on the rear of the tip prevents solder from adhering to the back portion of the tip (which could cause difficulty in tip removal) and provides a controlled wetted area on the iron tip. Another plating technique is similar but omits the nickel electrolysis plating, leaving the iron to act as the barrier metal.



What is a Weller® Tip - How Does It Work?

A Weller tip is made of a copper core which is electro-plated with iron to extend the life of the tip. The non-working end of the tip is plated with nickel for protection against corrosion

and then chrome plated to prevent the solder from adhering except where desired. The wettable part is tin covered. The task of the tip is to store the heat which is produced by the heating element and to conduct a maximum amount of this heat to the working surface of the tip.

For fast and optimal heat transfer to the solder joint the tip mass should be as large as possible. When choosing a soldering tip always select the largest possible diameter and shortest reach. Use fine-point long reach tips only where access to the work piece is difficult.

How to Care For Your Tip

Because of the electro-plating Weller tips should never be filed or ground. Weller offers a large range of tips and there should be no need for individual shaping by the operator. If there is a need for a specific tip shape which is not in our standard range we can usually provide this on a special order basis.

Although Weller tips have a standard pretinning (solder coating) and are ready for use, we recommend you pre-tin the tip with fresh solder when heating it up the first time. Any oxide covering will then disappear. Tip life is prolonged when mildly activated rosin fluxes are selected rather than water soluble or no-clean chemistries.

When soldering with temperatures over 665 degrees F (350 degrees C) and after long work pauses (more than 1 hour) the tip should be cleaned and tinned often, otherwise the solder on the tip could oxidize causing Unwettability of the tip. To clean the tip use the original synthetic wet sponges from Weller (no rags or cloths).

When doing rework, special care should be taken for good pretinning. Usually there are only small amounts of solder used and the tip has to be cleaned often. The tin coating on the tip could disappear rapidly and the tip may become unwettable. To avoid this the tip should be retinned frequently.

Additional Tip and Tiplet Care Techniques

Listed below are suggestions and preventative maintenance techniques to extend life and wettability of tips and desoldering tiplets.

1. Keep working surfaces tinned, wipe only before using, and retin immediately. Care should be taken when using small diameter solder to assure that there is enough tin coverage on the tip working surface.
2. If using highly activated rosin fluxes or acid type fluxes, tip life will be reduced. Using iron plated tips will increase service life.
3. If tips become unwettable, alternate applying flux and wiping to clean the surface. Smaller diameter solders may not contain enough flux to adequately clean the tips. In this case, larger diameter solder or liquid fluxes may be needed for cleaning. Periodically remove the tip from your tool and clean with a suitable cleaner for the flux being used. The frequency of cleaning will depend on the frequency and type of usage.
4. Filing tips will remove the protective plating and reduce tip life. If heavy cleaning is required, use a Weller WPB1 Polishing Bar available from your distributor.
5. Do not remove excess solder from a heated tip before turning off the iron. The excess solder will prevent oxidation of the wettable surface when the tip is reheated.
6. Anti-seize compounds should be avoided (except when using threaded tips) since they may affect the function of the iron. If seizing occurs, try removing the tip while the

6. tool is heated. If this fails, it may be necessary to return the tool to Weller for service. Removing the tip from the tool on a regular basis will also help in preventing the tip from seizing.
7. We recommend using distilled water when wetting the cleaning sponge. The mineral content in most tap water may contaminate your soldering tips.
8. Storing tips after production use:
 - Clean hot tip thoroughly with damp sponge.
 - Apply coating of solder to tip.
 - Turn unit off to allow tip to cool.
 - Put tip away in proper storage or in iron holder

How to "Renew" Your Tip

Emery cloth may be carefully used to wipe away oxidation when the tip is hot. The tip should then be immediately retinned to prevent further oxidation. In extreme cases of tip oxidation or "tip burnout" they may be cleaned using a soft steel brush along with an active flux. Once again, retinning the tip immediately is important.

Soldering Iron Temperature Settings

In order to raise the temperature of solder above its melting point, soldering tip temperatures are usually set between 700 degrees F and 800 degrees F. Why such a high temperature when the most commonly used solders have a melting point under 400 degrees F? Using a higher temperature stores heat in the tip which speeds up the melting process. The operator can then complete the solder connection without applying too much pressure on the joint. This practice also allows a proper formation of an intermetallic layer of the parts and solder. This is critical for reliable electrical and mechanical solder joints.

How Precise is the Indicated Tip Temperature?

Very fine long soldering tips have less heat conductivity than large short tips and therefore will run slightly cooler. Electronic control soldering stations have a tip temperature control accuracy of at least plus or minus 10 degrees F (6 degrees C) which is the current Mil Spec. Weller tips for electronic soldering tools are carefully designed to give accurate temperatures measured at the center of the solder wetted area. The specifications of the individual soldering stations are assured only if Weller tips are used. The sensor hole in these tips is very critical to their proper operation. Use of other than Weller tips may cause damage by overheating or tip freezing on the sensor or in the tool barrel.

Tip Temperature Measuring

Weller offers two methods for measuring tip temperature. One is a contact method which may yield low readings but is useful in verifying tip temperature stability and showing that the tip is within the desired range for soldering. The second method employs a welded thermocouple tip. This approach is based on using a standard calibration tip and results in much more accurate tip temperature measurements. Both methods require the use of the WA2000 Soldering Iron Analyzer. Please consult with your [Cooper Tools](#) representative or your local distributor for more information.

The Operator's Effect on The Process

The operator has a definite effect on the manual soldering process. The operator controls the factors during soldering that determine how much of the soldering iron's heat finally goes to the connection.

The Experimenters' Bench Continued:

Besides the soldering iron configuration and the shape of the iron's tip, the operator also affects the flow of heat from the tip to the connection. The operator can vary the iron's position and the time on the connection, and pressure of the tool against the pad and lead of the connection.

When the tip of the iron contacts the solder connection, the tip temperature decreases as thermal energy transfers from the tip to the connection. The ability of the soldering iron to maintain a consistent soldering temperature from connection to connection depends on the iron's overall ability to transfer heat as well as the operator's ability to repeat proper technique.

The Reliable Solder Connection

Two connection elements must properly function for a solder joint to be reliable. The solder within the connection must mechanically bond the component to the PCB. The connection must also provide electrical continuity between the device and board. The proper intermetallic layer assures both.

Mechanical

In surface mount and nonclinch through-hole technology, the solder provides the mechanical strength within the connection. Important factors for mechanical strength include the wetting action of the solder with the component and board materials, physical shape and composition of the connection, and the materials' temperature within the connection during the process. The connection temperature should not be too high, causing embrittlement, or too low, resulting in poor wetting action.

Electrical

If a solder connection is mechanically intact, it is considered to be electrically continuous. Electrical continuity is easily measured and quantified.

Recognizing the Reliable Solder Connection

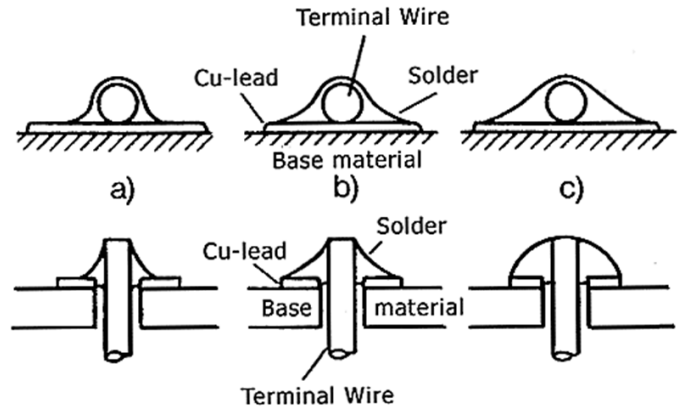
Two easily measured indicators in the soldering process that can determine the reliability of the solder connection are the soldering iron's tip temperature and the solder's wetting characteristics. The tip's temperature during the soldering process is an indicator of the amount of heat being transferred from the tip to the connection. The optimum rate of heat transfer occurs if the soldering iron tip temperature remains constant during the soldering process.

Another indicator for determining reliability is the solder's wetting action with the lead and board materials. As operators transfer heat to the connection, this wetting characteristic can be seen visually. If the molten solder quickly wicks up the sides of the component on contact, the wetting characteristic is considered good. If the operator sees the solder is flowing or spreading quickly through or along the surface of the printed circuit assembly, the wetting is also characterized as good.

Through-hole technology, also spelled "thru-hole", refers to the mounting scheme used for electronic components that involves the use of leads on the components that are inserted into holes (PTH - Plated Through-Hole) drilled in printed circuit boards (PCB) and soldered to pads on the opposite side either by manual assembly by hand placement or by the use of automated insertion mount machines.

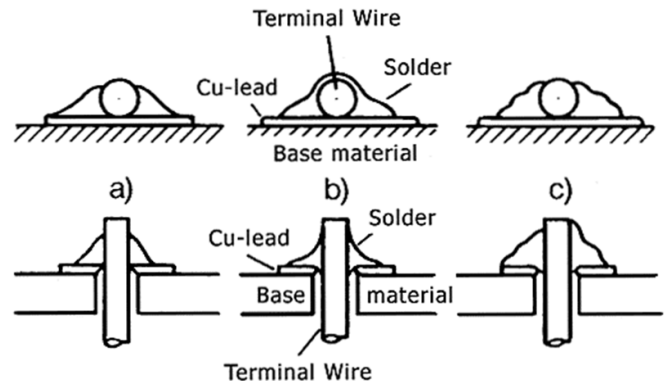
Right Amount of Solder

- Minimum amount of solder
- Optimal
- Excessive solder



Solderability

- Bad solderability of terminal wire
- Bad soldering of PCB
- Bad soldering of terminal wire and PCB



Key Points to Remember

- Always keep the tip coated with a thin layer of solder.
- Use fluxes that are as mild as possible but still provide a strong solder joint.
- Keep temperature as low as possible while maintaining enough temperature to quickly solder a joint (2 to 3 seconds maximum for electronic soldering).
- Use a tip with the shortest reach possible for maximum efficiency.

Summary

Operator training and experience will, over time, provide the consistency needed for excellent hand soldering results. Part of the training includes a proper understanding of solder characteristics, how a soldering iron works, how to maintain tips, correct techniques, recognizing good solder joints, and potential problems.

U.S. Army Signal Troops and Tet: 1968

Hanoi Changes Strategy

By Major General Thomas Matthew Rienzi

DEPARTMENT OF THE ARMY WASHINGTON, D.C., 1972

By 26 January a requirement was placed on the 1st Signal Brigade to provide communications support for the U.S. Joint Forward Command Post to be located at Phu Bai. A tailored battalion of 608 officers and men had to be drawn from the existing resources of the 1st Signal Brigade. General Van Harlingen decided that the headquarters staff of the 459th Signal Battalion, then stationed at Nha Trang, would deploy to provide the battalion control element, while the remainder of the battalion would be formed from brigade resources drawn from over forty locations in South Vietnam. The first elements of the battalion arrived at Phu Bai on 28 January 1968. By 5 February the major communications services were operational at this new headquarters, while the last elements of the tailored battalion had closed by 6 February. Thus, communications support by the 459th Signal Battalion was hastily organized during the height of the *Tet* offensive. Communications facilities for General Westmoreland's forward command post, including the existing Phu Bai dial telephone exchange, were bunkered in, or riveted, and cables were placed underground. Work continued at a fast pace despite an around-the clock enemy rocket attack on Phu Bai during the first three days of February. Though numerous rounds landed near the sites and the revetments were hit by many shell fragments, the equipment remained undamaged.

In the midst of the battle that raged in Hue, the 459th Signal Battalion was ordered to provide secure teletypewriter message service to the fire support coordinator located with the Vietnamese 1st Infantry Division command post at an old fortress, the Citadel, in Hue. The only means of reaching the Citadel was by U.S. Navy landing craft, which had to traverse the Perfume River in order to reach the canal that circles the fortress. A four-man team led by 1st Lieutenant John E. Hamon was organized to move and operate the equipment. During the trip to the Citadel the landing craft came under heavy mortar attack and two of the enlisted men and the lieutenant were wounded. Lieutenant Hamon, despite his wound, and the one uninjured enlisted man put the equipment in operation and provided the critical communications support for over twenty-four hours until help arrived. The 459th continued to provide support to the joint forward headquarters in Phu Bai until the newly arrived 63d Signal Battalion headquarters, commanded by Lieutenant Colonel Elmer H. Graham, took over the mission of the provisional organization in March of 1968. Additional Free World Military Assistance Forces were deployed into the northern I Corps Tactical Zone during February while heavy fighting was taking place at Hue and Khe Sanh. General Van Harlingen had to further draw down from 1st Signal Brigade's resources to provide the required communications support. A signal support company, organized from his brigade's assets, had been airlifted into the area of heavy fighting in the northern provinces by the end of February. This last drain on brigade resources left little in the way of contingency assets. It was in fact necessary to deactivate twenty-one less essential radio-relay links in order to provide the required resources. A few days later, however, the 596th Signal Support Company, which had just arrived in Vietnam, was assigned to the 459th, and made a significant contribution to the battalion's communications capability.

These "draw-downs" by bits and pieces to provide the resources required in the north had placed a heavy burden on the brigade. As General Van Harlingen explained in his debriefing report: "The 1st Signal Brigade was thrown into the midst of an administrative maelstrom, with personnel and equipment attachments and all the accompanying paper storm."

U.S. Army Signalmen and Tet

The story of the 459th Signal Battalion, as it was provisionally organized and deployed, is unique since the deployment occurred as the

Tet offensive took place. The hastily organized battalion had to respond quickly and install and operate the vital communications needed, even though it was under fire. Being under fire, however, was not new to the men of the 459th; many of them had come from other locations in Vietnam that were also under attack. At this time all the signal troops of the divisions, field forces, and 1st Signal Brigade deployed throughout South Vietnam were simultaneously installing communications in support of the combat forces and defending their positions. They were handling increased communications traffic loads that resulted from the fighting and were repairing and restoring disrupted communications services. It was commonplace that in many places signalmen had to fight and at the same time provide communications support. One element of the 1st Signal Brigade, the communications control center with its communications status-reporting system used to control and manage communications passing through more than 220 locations in Vietnam, found itself in a unique position. The reporting system was capable and did provide battle information in considerable detail concerning enemy activity to the Military Assistance Command and U.S. Army, Vietnam, operations centers.

General Van Harlingen in his after action report described the efforts of the signalmen thus: Troops were ordered to be prepared to install and restore command and control communications while under attack in all cases. I consider it essential that the Signal troop be trained and prepared to work under fire, even when he must deliberately expose himself to do so. . . . Because of the overall quality of the American soldier in Vietnam, and, due in part to stimulation of the enemy's offensive, at no time did the Signal troop fail to come through when required. Equipment was cannibalized, antennas restored, cable repaired, isolated sites defended and new links activated both night and day during periods of intense enemy rocket, mortar and small arms fire.

Thousands of dramatic incidents, both recorded and unrecorded, occurred as the signalmen fought, in one way or another, to keep the communications "in." A few are told here as they happened during Tet 1968.

On 1 February, during the height of the heavy fighting in Hue, close to the Demilitarized Zone in the north, the Senior U.S. Military Officer in the besieged city considered withdrawing the signal troops of the 1st Signal Brigade's 37th Signal Battalion from the Hue [tropospheric scatter](#) site to avoid their being overrun. But General Van Harlingen knew the site was critical because it provided the main communications with the beleaguered U.S. Forces at Khe Sanh. He directed Lieutenant Colonel Jerry Davis, Jr., the 37th Battalion commander, to order the men to remain at the site so that the vital link with Khe Sanh could be kept operational, and at the same time he requested immediate assistance from the U.S. Marine forces fighting near the Hue signal site. For the next thirty-six hours the small installation was surrounded. The signalmen beat off repeated assaults by an estimated Viet Cong battalion attacking with small arms, automatic weapons, and rockets. Helicopters trying to reach the surrounded signalmen were turned back by machine gun fire; it was impossible to evacuate the wounded. One soldier with a shattered arm was desperately in need of medical help. His fellow signalmen treated the wound while they received instructions by telephone from Phu Bai. Two companies of Marines, trying to reach the site from the U.S. Advisor's compound three blocks away, finally gained the signal site after thirty-six hours of fighting.

While heavy fighting was going on at the Hue [tropospheric scatter](#) site, U.S. troops near the Laotian border at Khe Sanh were under constant mortar and rocket attack. A direct hit on a bunker by a rocket killed a lieutenant and an enlisted man of the team operating the Khe Sanh mobile tropospheric scatter terminal. Three of the remaining four team members were wounded by the rocket, and two of them subsequently died from their wounds. The remaining signalman, Specialist William Hankinson, with the assistance of two U.S. Marines, kept the system on the air for forty hours until replacements arrived.

At Dalat, in the mountains of south central Vietnam, signalmen of the 362d Signal Company and Company E, 43d Signal Battalion, both attached to the 1st Signal Brigade's 73d Signal Battalion, were in

continuous action from 1 through 6 February 1968. During the afternoon of 1 February members of the 218th Military Police Detachment were pinned down in their small compound by fire from an estimated two platoons of Viet Cong. Major William R. Crawford, the commander of 362d Signal Company, upon learning of the plight of the military policemen, immediately organized and led a 20-man rescue team. The small force of signalmen engaged the enemy with individual weapon and grenade fire, evacuated wounded military policemen, and laid down a base of fire that enabled the uninjured soldiers to withdraw. At the same time, inside Dalat, Captain Donald J. Choy, the operations officer of the 362d, led a heavily armed convoy to the Villa Alliance Missionary Association compound, which was surrounded by Viet Cong. The signalmen fought their way to the compound and successfully evacuated the thirty-four occupants. All told, the signal troops of the 362d Signal Company and Company E, 43d Signal Battalion, rescued and provided shelter for more than sixty noncombatants.

Incredibly, there were no serious communications failures during the first weeks of the offensive. The fixed communications site at Hue, which was operating on commercial power, went off the air late in the evening of 31 January 1968 when the power station was overrun and the backup power generators located at the site had become inoperative. Communications at the site were restored by the afternoon of 2 February after replacement generators had arrived with a convoy that had gotten through, despite two ambushes on the way. During a mortar attack on the Phu Lam signal site close to Saigon on 8 February, a vital 50-ton air conditioner serving the large tape message relay was knocked out. For several hours the station could process only "Flash" and "Immediate" precedence traffic. After intense efforts the air conditioner was repaired and became operational the following day.

A considerable number of communications failures did occur when multipair communications cables that had been installed-

though they were often under enemy fire while working from exposed positions. In fact, on a number of occasions enemy snipers had to be knocked out so that the signalmen could work on the cables. One cable repairman, Specialist David J. Kubik of the 36th Signal Battalion, was suspended forty feet above ground repairing a large cable at Lai Khe when a mortar attack started. Disregarding his own safety he continued his repairs.

By 5 February most of the cables had been restored, but in the areas where heavy fighting continued, such as Saigon, numerous cables were still out. Essential communications traffic continued to flow, nonetheless, rerouted through extemporized circuits.

During the period of the heaviest attacks, 31 January through 18 February 1968, only three mobile multichannel systems operated by the 1st Signal Brigade went out because of combat damage, and then only for a brief time. Whereas the cables that had been constructed above ground were damaged considerably, those which had been buried suffered little. General Van Harlingen, commenting on the effects on communications during the first weeks of the Tet offensive, declared: "Miraculously, although Signal troops sustained several hundred casualties, there were no disastrous interruptions of communication at any time during the first few weeks of the offensive."

Later, however, the enemy was able to disrupt communications and inflict heavy casualties at a signal site in southern Vietnam. During the night of 13-14 May 1968 the 25th Infantry Division signal site atop Nui Ba Den, a lone mountain about forty miles west of Saigon near Tay Ninh, came under a mortar, rocket, and coordinated ground attack. Some fifteen signalmen of the 1st Signal Brigade were also at the site, operating corps area radio relay systems. The enemy penetrated the perimeter and severely damaged the equipment and facilities. Twenty-three U.S. soldiers were killed, three were wounded, and one was missing as a result of the enemy assault. Shortly before I arrived in Vietnam in September 1968 to serve as General Van Harlingen's deputy brigade commander, the Nui BA Den site was again attacked, early in the morning of 18 August. Even though there were some casualties, damage was light, and the enemy was successfully repulsed.

Reorganization of Corps Area Communications

Throughout the enemy's 1968 Tet and summer offensives the area support battalions of the 1st Signal Brigade continued to supplement the organic communications of the field forces, divisions, and separate brigades. But even before the Tet offensive, it had become evident to General Van Harlingen that excessive duplication existed between the long-lines area system supporting the U.S. and Free World Military Assistance Forces and the numerous networks which had previously been installed to support the U.S. advisers. Economy and efficiency dictated their consolidation into single systems, one within each of the four corps tactical zones. This consolidation would not only promote economy in the use of equipment and manpower resources but would also increase the capabilities of the field force commander by providing communication links between U.S. and South Vietnamese units. It would provide each field force commander with a single network for control over his own troops and for execution of his mission as the Senior Advisor within his corps tactical zone.

General Westmoreland approved the concept in November 1967 and the consolidation was begun at once. Because the III Corps Tactical Zone appeared to be the one most cluttered with duplicated links, General Van Harlingen began consolidation in that area. Within the first month, his efforts netted a savings of twelve radio relay links with all their associated equipment and operating personnel. These assets immediately proved valuable in providing badly needed communications to support the 25th Infantry Division in War Zone C, northwest of Saigon, during Operation YELLOWSTONE in early 1968. The consolidation, which streamlined the communications systems in the corps tactical zones saving a considerable number of men and much equipment, was finished in December 1968. The single system concept for support of operations in each of the corps tactical zones became the doctrine for area signal support in Vietnam. One of the more significant features of this doctrine was that the combat



CABLE TEAM AT WORK DURING TET OFFENSIVE

overhead on poles were cut or shredded by shrapnel and small arms fire. After the enemy's initial attacks, major cable failures were reported in Saigon, Bien Hoa, Soc Trang, Lai Khe, Cu Chi, Can Tho, and Ban Me Thuot. In some of these instances mobile radio systems were installed so that critical circuits could be restored. Signal cable repair teams worked around the clock to repair the damaged cables, even

commanders could, in an emergency, obtain immediate communications support from the local representatives of the supporting area battalions of the 1st Signal Brigade without validation from Headquarters, U.S. Army, Vietnam. On many occasions the resulting close relationship between the brigade's area battalion commander and the division or field force for which he was providing signal support meant the difference between "go" or "no go" on short-notice combat operations.

Brigade Organization in 1968 for Area Communications

minimal resources and, as their mission expanded, more resources had to be provided.

One of the more significant organizational changes made by the 1st Signal Brigade during this time was the activation of still another signal group, which was to operate in the I Corps Tactical Zone. As of mid-1968, the U.S. Army's XXIV Corps, commanded by Lieutenant General Richard G. Stilwell and based in Phu Bai, with responsibility for the I Corps Tactical Zone, had operational control of three U.S. divisions: the Army's 1st Cavalry and 101st Airborne Divisions and the U.S. 3d Marine Division. This corps also had close liaison responsibilities with the Vietnamese 1st Infantry Division, headquartered in the old imperial city of Hue. In July 1968 the 1st Brigade of the 5th Mechanized Infantry Division arrived in Vietnam and was also assigned to the XXIV Corps tactical area. It was soon obvious that the 1st Signal Brigade's 63d Signal Battalion was overburdened by having to provide communications support to all U.S. Forces in the two northern provinces of Vietnam as well as the organic communications for the XXIV Corps.

By September 1968 it was plain that an additional signal group headquarters would be required to provide command and control of the signal elements in the I Corps Tactical Zone. The span of control within the 21st Signal Group had become too great; the group had six battalions assigned and was deployed over two-thirds of South Vietnam with a strength of about 7,000 men. Consequently, a new signal group headquarters, known as the I Corps Tactical Zone Provisional Signal Group, was formed on 8 September 1968. The staff for this new signal group was formed, as in other cases, by tightening the belt and drawing from other 1st Signal Brigade units. The I Corps Tactical Zone Provisional Signal Group, commanded by Colonel Mitchel Golden-thal, became operational in December 1968, with its headquarters in Phu Bai. The group had responsibility for all area communications support in the I Corps Tactical Zone and assumed command of the 37th and 63d Signal Battalions. On 1 July 1969 this group was redesignated the 12th Signal Group, commanded by Colonel Albert B. Crawford. By then the 1st Signal Brigade, with its extensive communications responsibilities throughout Southeast Asia, comprised six signal groups and twenty-three battalions.

In December 1968 there were scattered throughout the Republic of Vietnam approximately 220 installations for which the Corps Area System provided communications. To meet the requirements of these large corps area communications facilities, ten signal battalions of the 1st Signal Brigade were deployed throughout the country. (Map 6) These battalions operated approximately 250 area communications links, carrying over four thousand voice channels, and an additional fifty interconnections, with approximately 800 voice channels, as part of the Defense Communications System in Vietnam. Besides multichannel radio, the area battalions operated and maintained 69 local telephone switchboards, 64 message centers, and 8 minor message relay centers to support all users within the four zones.



MARINES
THE FEW. THE PROUD.



Wisconsin Heat Awareness Day, June 9, 2011

(MADISON) – Heat can kill. That’s why Wisconsin Emergency Management and the National Weather Service are reminding people of the dangers associated with extreme heat and to promote safety measures.

Heat is the number one weather-related killer in the United States. In 2010, excessive heat claimed 138 lives across the country.

In 1995 two major killer heat waves affected most of Wisconsin resulting in 154 heat-related deaths and over 300 heat-related illnesses. Summer heat waves have been the biggest weather-related killers in Wisconsin for the past 50 years, far exceeding tornadoes and severe storms.

To help keep cool this summer, here are some tips to keep safe in hot weather:

1. Never leave children, disabled persons, or pets in a parked car – even briefly. Temperatures in a car can become life threatening within minutes. On an 80-degree day, the temperature inside a car even with the windows cracked slightly can reach 100 degrees in less than 10 minutes!

2. Keep your living space cool. Cover windows to keep the sun from shining in. If you don’t have an air conditioner open windows to let air circulate. When it’s hotter than 95 degrees use fans to blow hot air out of the window rather than to blow hot air on your body. Basements or ground floors are often cooler than upper floors.

3. Slow down and limit physical activity. Plan outings or exertion for the early morning or after dark when temperatures are cooler.

4. Drink plenty of water and eat lightly. Don’t wait for thirst, but instead drink plenty of water throughout the day. Avoid alcohol or caffeine and stay away from hot, heavy meals.

5. Wear lightweight, loose-fitting, light-colored clothing. Add a hat or umbrella to keep your head cool...and don’t forget sunscreen!

6. Don’t stop taking medication unless your doctor says you should. Take extra care to stay cool and ask your doctor or pharmacist for any special heat advice.

7. Infants should drink breast milk or formula to get the right balance of water, salts and energy. You may supplement your infant’s fluids with an additional 4 to 8 ounces of water per day, but don’t dilute formula beyond what the instructions say (unless instructed by your doctor).

8. Taking a cool shower or bath will cool you down. A shower or bath will actually work faster than an air conditioner. Applying cold wet rags to the neck, head and limbs also cools down the body quickly.

People at higher risk of a heat-related illness include:

- ☐ Older adults
- ☐ Infants and young children
- ☐ People with chronic heart or lung problems

- ☐ People with disabilities
- ☐ Overweight persons
- ☐ Those who work outdoors or in hot settings
- ☐ Users of some medications, especially those taken for mental disorders,
- movement disorder, allergies, depression, and heart or circulatory problems
- ☐ People who are isolated that don’t know when or how to cool off – or when to call for help

SYMPTOMS OF HEAT-RELATED

ILLNESS AND WHAT TO DO

- ☐ *Heat Cramps* - cramps or muscle spasms in the abdomen, arms or legs. **Solution:** Stop activity. Cool down, drink clear juice or sports drink.
- ☐ *Heat Exhaustion* - heavy sweating, paleness, muscle cramps, weakness, dizziness, headache, nausea, fainting. **Solution:** Cool down, seek medical attention.
- ☐ *Heat Stroke* - extremely high body temperature, red, hot, dry skin, rapid pulse, throbbing headache, dizziness, nausea, confusion, unconsciousness. **Solution:** Call 911 and cool the victim with shower or hose until help arrives.

National Weather Service Heat Wave Program in Wisconsin

- 1. Outlook Statement** – Issued 2 to 7 days in advance of when Heat Advisory or Excessive Heat Warning conditions are anticipated. Issued as a Hazardous Weather Outlook (HWO). Broadcasted on NOAA Weather Radio All Hazards, and posted on NWS web sites (www.weather.gov).
- 2. Heat Advisory** – Issued 6 to 24 hours in advance of any 24-hour period in which daytime heat index (HI) values of 100 degrees or more and/or when air temperatures are expected to be 95 degrees or higher. If four consecutive days of these conditions are expected, then the Excessive Heat Warning will be issued.
- 3. Excessive Heat Watch** – Issued generally 12 to 48 hours in advance of any 24-hour period in which daytime heat index (HI) values are expected to be 105 degrees or higher and nighttime HI values will be 75 degrees or higher.
- 4. Excessive Heat Warning** – Issued 6 to 24 hours in advance of any occurrence of a 48-hour period in which daytime heat index (HI) values are expected to be 105 degrees or higher and nighttime HI values will be 75 degrees or higher.

For additional information about heat awareness, contact your local public health department, county emergency management director the National Weather Service.

VE Testing

Saturday, July 30th, 2011 - AES - 9:30 AM-11:15 AM

Saturday, September 24th, 2011 - AES - 9:30 AM-11:15 AM

Saturday, October 29th, 2011 - AES - 9:30 AM-11:15 AM

Saturday, November 26th, 2011 - AES - 9:30 AM-11:15 AM

ALL testing takes place at: Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Area Swapfests:

July 9th, 2011 | [SMARC Swapfest '11](#) , Oak Creek, WI
Sponsor: South Milwaukee ARC
Website: <http://www.qsl.net/WA9TXE>

July 10, 2011 | [Fox River Radio League Hamfest](#)
Aurora, IL. Sponsor: Fox River Radio League
Website: <http://frri.org>

July 17, 2011 | [KARSFEST 2011](#) Peotone, IL
Sponsor: Kankakee Area Radio Society
Website: <http://www.w9az.com>

Working Committees

Field Day

- Dave, KA9WXN

FM Simplex Contest

- Joe – N9UX
- Jeff – K9VS
- Brian— K9LCQ

Ticket drum and drawing

- Tom – N9UFJ
- Jackie – No Call

Newsletter Editor

- Michael-KC9CMT

Webmaster

- Joe Schwartz—N9UX

Refreshments

- Vacant

Membership Information

The Hamateur Chatter is the newsletter of MRAC (Milwaukee Radio Amateurs' Club), a not for profit organization for the advancement of amateur radio and the maintenance of fraternalism and a high standard of conduct. MRAC Membership dues are \$17.00 per year and run on a calendar year starting January 1st. MRAC general membership meetings are normally held at 7:00PM the last Thursday of the month except for November when Thanksgiving falls on the last Thursday when the meeting moves forward 1 week to the 3rd Thursday and December, when the Christmas dinner takes the place of a regular meeting. Club Contact Information Our website address <http://www.w9rh.org>

Telephone (414) 332-MRAC (6722)

Address correspondence to:

MRAC, Box 240545, Milwaukee, WI 53223

Email may be sent to

w9rh@arrrl.net

Our YAHOO newsgroup:

<http://groups.yahoo.com/group/MRAC-W9RH/>



CLUB NETS:

- Our Six Meter SSB net is Thursday at 8:00PM on 50.160 MHz USB
- Our Ten Meter SSB net is Friday at 8:00PM on 28.490 MHz \pm 5 KHz USB.
- Our Two Meter FM net follows the Ten meter net at 9:00PM on our repeater at 145.390MHz - offset (PL 127.3)

Milwaukee Area Nets

Mon. 8:00 PM 3.994 Tech Net

Mon. 8:00 PM 146.865- ARES Walworth ARRL News Line

Mon. 8:00 PM 146.445 Emergency Net

Mon. 8:00 PM 146.865- ARES Net Walworth

Mon. 8:45 PM 147.165- ARRL Audio News

Mon. 9:15 PM 444.125+ Waukesha ARES Net

Mon. 9:00 PM 147.165- Milwaukee County ARES Net

Tue. 9:00 AM 50.160 6 . Mtr 2nd Shifter's Net

Tue. 7:00 PM 145.130 MAARS Trivia Net

Tue. 8:00 PM 7.035 A.F.A.R. (CW)

Wed. 8:00 PM 145.130 MAARS Amateur Radio Newsline

Wed. 9:00 PM 145.130 MAARS IRLP SwapNet d FM-38 Repeaters (IRLP 9624)

Thur. 8:00 PM 50.160, 6 Mtr SSB Net

Thur. 9:00 PM 146.910 Computer Net

Fri. 8:30 PM 28.490 MRAC W9RH 10 Mtr Net SSB

Fri. 9:00 PM 145.390 W9RH 2 Mtr. FM Net

Sat. 9:00 PM 146.910 Saturday Night Fun Net

Sun 8:30 AM 3.985 QCWA (Chapter. 55) SSB Net

Sun 9:00 AM 145.565 X-Country Simplex Group

Sun 8:00 PM 146.91 Information Net

Sun 8:00 PM 28.365 10/10 International Net (SSB)

Sun 9:00 PM 146.91 Swap Net

2 meter repeaters are offset by 600KHz - - 70 centimeter repeaters are offset by 5 MHz

SSB frequencies below 20 meters are LSB and for 20 Mtr and above are USB.

