

W9JOZ

Volume 8, Issue 11

November 2018

Next Meeting is November 15, 2018

Weekly 2 meter Net

We are having the Saturday Night Net
at 8:00 pm on the 145.410 repeater.

Hope you can check in and join us for
some good conversation.

Christmas dinner is December 8th at
Country Kettle in Knox at 5:00 pm.

Thanks
John W3ML



Meetings are at the Henry F. Schricker
Library on the third Thursday of each month,
with the exception of December.

The library is located on west Culver Road,
two blocks west of Highway 35.



Are you on the air?

Richard, K9QA is an official ARRL DXCC
Card Checker. Contact him at
k9qa@arrl.net to have your cards
checked.

DX Century Club

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November Events

Birthdays

21st - KA9FAW, CHESTER

24th - W9AL, TONY

Starke County Amateur Radio Club Weekly 2 Meter Net will be on each Saturday at 8:00 p.m. Central time.

DAY OF WEEK: Saturday 8:00 p.m. Central time

HOST: KN9OX Repeater

FREQUENCY: 145.410 - 600

PL TONE: 131.8

News Items Listed

See all the For Sale Items at

www.w9joz.org/forsale.htm

There are a lot of them there.

I received an email in my personal email, which is excerpted below.

I just wanted to reach out and thank you for your wonderful website, since it's been such a major help to my son and I! He recently been getting into amateur radio and has been absolutely fascinated with them ever since.

He recently been getting into amateur radio and has been absolutely fascinated with them ever since.

To pay it forward, my son thought it would be nice to suggest a helpful resource we came across that they thought would make a good addition to your page. It's <https://alertfind.com/amateur-radio-and-emergency-communications/> and it has some great information and resources on beginner amateur radio and emergency communications.

If you decided to add it to your resources, I'd love to show my son that his suggestion was up and running to help out amateur radio enthusiasts out! It would really help him feel that he contributed positively.
Thank you again and warmest regards,
Cindy & Elliot Powell

(I have placed it on the Club's website at the bottom of the main page.)

Heat Sink Compounds

Don't Use Vaseline

By Steve Mollman –KD9HL

Heat sink compounds vs dielectric compounds. What is the difference? What do you use them for? Which is best? Many questions and confusing answers.

An explanation: A dielectric compound can be a heat sink compound. ("Di" means "Anti", thus a dielectric resists electricity.) A heat sink compound may or may not be a dielectric.

Many electronic components generate high amounts of heat. They are also prone to failure in excessive heat situations. The primary standard for controlling heat of these components is the use of heat sinks. These come in many different sizes, shapes and varieties.



The only way to get efficient heat transfer between two flat surfaces (electronic component and the heatsink) which are bolted together is to use a high thermal conductivity heat transfer compound. Any microscopic air gaps that exist between the surfaces with a heat transfer compound will have very low heat transfer.

Thermal grease (also called CPU grease, heat paste, heat sink compound, heat paste, thermal compound, thermal gel, thermal interface material, or thermal paste) is a thermally conductive, but usually electrically insulating compound, is commonly used as an interface between heat sinks and heat sources.

Galco Industrial Electronics, Inc.ⁱ, a supplier of the compounds, differentiates them as follows: "The first type of heat sink compound is intended to be used on applications where the contact surfaces are thermally conductive as well as electrically

conductive. The other type of compound is to be used on contact surfaces that are thermally conductive, but insulated electrically. The silicone free heat sink compound, such as the Tech Spray 1978-DP, is intended for all electrically isolated base encapsulated modules. Primarily these are used with devices such as bridge rectifiers, IGBT modules, transistor modules, solid state relays and power modules. Electrically conductive material, such as the Burndy Penetrox A-13, and is for non-insulated modules and stud mounted power semiconductors. This can include components such as diodes, SCRs, triacs, and transistors. It is intended for any device that has an electrically conductive connection point that is being mounted to a metal surface with a need for heat dissipation. The Penetrox A13 is non petroleum based with suspended zinc particles and works well with aluminum to aluminum and aluminum to copper applications. This material is easier to clean and can be applied with a finger or brush.”

W8JI, Charles Rauch, Jr. did a study on heat sink compounds and their efficiency publishing his conclusions on his web site.ⁱⁱ The goal was to determine the best configuration that resulted in the lowest component temperature. (Heat sink compound thinly applied to the heatsink).

W8JI measured data of a few sample greases with 30 watts heat dissipation:

| Type | Sink F | Device F | Delta degrees | Percent (aprox) |
|-----------------------------------|--------|----------|---------------|-----------------|
| Bare lightly scuffed | 62.0 | 63.9 | 1.9 | 3.1% |
| Heat sink compound thick | 55.9 | 57.6 | 1.7 | 3.0% |
| Bare polished | 61.6 | 63.0 | 1.4 | 2.3% |
| Vaseline | 62.5 | 63.1 | 0.6 | 1.0% |
| Dielectric grease | 62.3 | 62.8 | 0.5 | 0.8% |
| Heat sink compound thinly applied | 56.2 | 56.6 | 0.4 | 0.7% |

Best result is at bottom. All greases were tested under "scuffed" conditions by roughing the heatsink with ~300 grit paper.

While researching this subject I ran across a lengthy postⁱⁱⁱ on one of the web forums favored by fans of computer overclocking. These people are constantly fighting excessive high temperatures of their extremely over-stressed CPU's and video boards. The writer had run out of heat sink compound and had substituted aluminum or copper based anti-seize compound^{iv} from the local auto parts store. Using a thin coat of the material he claimed to experience a component temperature drop of up to 10 degrees Celsius as opposed to the heat sink compound he normally used.

One of the techniques that the over-clockers use, when the configuration allows it, is to lap the component to the heat sink using a fine grade of abrasive. Some of the suggestions are Turtle Wax Rubbing Compound or various grades of wet/dry sandpaper working from 500 grit to 1200 grit all on a piece of glass working in a figure eight motion. They claim up to a 4 degree Celsius drop by doing this. Google “What compound to use to lap a CPU to a heat sinks” for more information.

Finally, the consensus seems to be to use a very thin coating of compound for best results. As shown in W8JI's test, a thick coating of a good heatsink compound seems to aid in transferring heat from the component to the heat sink but didn't reduce the component temperature as much as the thin coating.. You are not trying to insulate the heatsink from the component. You are filling microscopic air gaps. You want to apply a transparently thin layer to fill the microscopic air gaps because you want the most metal-to-metal contact. A thick coat can also can be messy when it is squeezed out from the component/heat sink junction. The physical properties of all of these compounds results in substances that are difficult to clean off your hands or components. I use a Q-tip when applying – much better than a finger!

Vaseline? Not recommended. Vaseline is not formulated to conduct heat. So even if it does spread evenly under pressure, its film will quickly break down with heat, then melt and ooze out and eventually it won't pass the component's heat efficiently to the heat sink. Its melting point is only 37 °C (99 °F). Some of the other compounds are claimed to be stable up to 988°C (1800 °F).

When dealing with most electronic components cooler is better!

ⁱ Galco Industrial Electronics, 26010 Pinehurst Drive, Madison Heights, MI 48071

ⁱⁱ <http://www.w8ji.com>

ⁱⁱⁱ <https://forums.extremeoverclocking.com/showthread.php?t=312178>

^{iv} Permatex 81343 Anti-Seize Lubricant is one brand that uses microscopic aluminum. It is available at AutoZone in one ounce tubes. Loctite C5-A is a microscopic copper based Anti-Seize Lubricant that is available from online sources.



What Do You Think?

Welcome to Windows 10 Hell

By Paul S. Ewing - N6PSE



I have three HF radios in my shack. My 1990's Yaesu FT-1000MP gets little use these days but remains one of my favorite all time radios. My venerable Elecraft K3 has travelled the world with me and has been to Iraq, Yemen, South Sudan, Egypt, Turkey, Ethiopia, Myanmar and many other exotic places. This K3 has made somewhere over half a million contacts. While I have never been crazy about the K3's menu and ergonomics, it is a very solid and reliable performer. On CW, there is no better radio in my opinion than the Elecraft K3 (or K3S)

My newest radio is the Flex 6500 with Smart SDRv2.2.8 and the Maestro. I like the Flex 6500 very much. The SmartSDR is dazzling to display on a large LED display. The learning curve for the Flex technology is quite steep. I have often wished that Fred Cady who writes "How to" books on the Elecraft gear would do the same for the Flex gear. My Maestro does not get much use as I prefer the larger display of SmartSDR. I look forward to that time when I can use my Maestro in conjunction with SmartSDR at the same time.

As great as SmartSDR is, it must rely on a Windows PC. As great as the Flex hardware is (and it is really great) the weak link in the system is the Windows PC. Currently, I am in what I call "Windows Hell" as the last three Windows10 updates have seriously modified my sound card configurations and I have spent considerable time and effort trying to restore them. If it were not for my "Flex Elmer" Ria-N2RJ and the Flex user community, I would have dumped my Flex gear. None of this frustration is Flex Radio's fault. It is just that it relies on Windows and Microsoft has made Windows an unreliable product/platform.

I've had minor frustrations with the Maestro. Because I don't use it often, it seems that nearly every time I turn it on, it too needs an update of some sort. I end up using my K3 as I await my Maestro to complete its 15-20 minute update and restart.

I guess what I am trying to say is that I clearly prefer radios that are not dependent on any sort of computer as the computer and Windows is the weak link and source of difficulty.

If I were to buy a new Flex, I would consider the stand-alone models that can operate independently of a computer or Maestro. I would also use a PC that is insulated from the Internet and the rest of the world and run SmartSDR on that. That way, I could turn off updates and have a more robust and reliable PC/SmartSDR experience. I regret using SmartSDR on my main PC that is connected to the Internet and is used in many different ways outside of Radio and Logging.

So as things stand, my PC's sound card settings are seriously hosed and I am spending a lot of time trying to restore them so that I can use and enjoy SmartSDR. In the meantime, I am using and enjoying my trusty K3. Lets hope that Microsoft stops screwing around with Windows 10 so that we can enjoy other activities besides fixing our computers.

What do you think?

Thank you to Paul Ewing-N6PSE for his kind permission to print this item. Paul is a noted DXpeditioner having operated from many rare and semi rare spots, including the South Sandwich Islands, Yemen, Myanmar, Eritrea and the South Georgia Islands. He can be reached at pauln6pse@gmail.com

Editor's Note: This is the last "What Do You Think" article that we will publish. Paul has decided to curtail his writing activities and "I have decided to focus on other more positive aspects of my life. It has been fun and interesting." Thank you Paul for your interesting articles, insight and many contributions to amateur radio and in particular to world of DX.

Well-Known Contester, "Antenna Farmer" Paul Bittner, W0AIH, SK

11/01/2018

The Reverend Paul Bittner, W0AIH, of Fall Creek, Wisconsin, died doing what he loved on October 31, when a tower-climbing mishap claimed his life at his well-known [antenna farm](#). The ARRL Life Member and Maxim Society member was 84. A member of the CQ Contesting Hall of Fame and retired Lutheran pastor, Bittner was a well-known and respected figure within the Amateur Radio community and a prolific contester and DXer. His call sign was nearly always present in most major operating events, and even in a few lesser-known contests, and news of his tragic death and condolences and accolades quickly spread among those who knew him best.

"No one was more generous, loving, and encouraging to others than the Reverend Paul Bittner," said Mike Lonke, W4AAW, in a post to the Potomac Valley Radio Club (PVRC). "He called me last week to chat about what he and Mary were up to, like getting material together for their always long and hilarious Christmas newsletter. He also knocked me out with the latest of his funny experiences in his 'Rent-a-Rev' sideline." Bittner officiated at the June 2 wedding of two well-known midwestern contesters.

Bittner was licensed in 1949 and held the same call sign ever since. He and his wife, Mary, WB0PXM, moved in 2000 to "The Farm," a 120-acre spread in west-central Wisconsin. The first of the more than 50

towers began sprouting there before their arrival in 1982. As a ham, he enjoyed multi-multi contesting and DXing. His favorite band was 160 meters, and his favorite contest was the CQ World Wide DX CW Contest. Bittner's son-in-law — Paul Husby, W0UC — operated VHF contests from The Farm and was a multi-multi regular as well.

“His station stands as a great monument to a selfless man of great grace and remarkable achievements,” Lonke said. “Paul once told me that AIH stands for ‘already in heaven.’”

Contester and former ARRL staffer Dave Patton, NN1N, described Bittner as “such a good man and truly great ham.” W1AW Station Manager Joe Carcia, NJ1Q, noted that Bittner had volunteered to operate as W1AW/9 as a headquarters station in the 2019 IARU HF Championship to celebrate his decades in ham radio.

NCJ Editor Scott Wright, K0MD, said that Bittner helped to build stations for many midwestern hams. “He was a mentor to hundreds of hams, and his enthusiasm for contesting was infectious,” Wright said. Bittner had said he wanted to be buried with a bible, a telegraph key, and a climbing belt.

“Thank you for giving so much of yourself to me and the rest of the ham community,” said contester Scott Neader. “We will never forget you.”

<http://www.arrl.org/news/well-known-contester-antenna-farmer-paul-bittner-w0aih-sk>

FCC Fines Amateur Radio Licensee \$25,000 for Operating Unlicensed FM Station

11/01/2018

In an FCC Enforcement Bureau case going back to early 2015, a Paterson, New Jersey, Amateur Radio licensee has been penalized in the amount of \$25,000 for allegedly continuing to operate an unlicensed FM radio station. The FCC issued a [*Forfeiture Order*](#) on October 30 to Winston A. Tulloch, KC2ALN, a General class licensee. The fine followed an April 2018 *Notice of Apparent Liability for Forfeiture (NAL)* issued to Tulloch for alleged “willful and repeated violation” of Section 301 of the Communications Act of 1934, as amended, by operating an unlicensed FM radio station on 90.9 MHz in Paterson. Tulloch did not respond to the *NAL*, the FCC indicated.

“Commission action in this area is essential because unlicensed radio stations do not broadcast Emergency Alert Service messages and therefore create a public safety hazard for their listener,” the FCC said in the *Forfeiture Order*. “Moreover, unlicensed radio stations create a danger of interference to licensed communications and undermine the Commission’s authority over broadcast radio operations.”

Following up on February 2015 complaints regarding pirate radio operations in Paterson, FCC agents spotted a signal on 90.9 MHz that “appeared to be an unauthorized radio station.” Agents determined the signal was emanating from a multi-family dwelling and noticed an FM antenna on the structure. The measured field strength exceeded the limits allowed for Part 15 unlicensed devices.

Through a solicitation broadcast on the station for advertisers and a vehicle parked outside the building, the FCC agents were able to determine that the telephone number in the announcement belonged to Tulloch, and the car was registered in his name. FCC agents made several visits to Paterson in late 2015 and early 2016.

In October of 2016, agents returned to Paterson and determined that the signal source had relocated to another nearby multi-family structure. A *Notice of Unlicensed Operation (NOUO)* was posted on the door of the building and the following month, the FCC mailed an *NOUO* to Tulloch.

Subsequent visits revealed that the station was still in operation, and, at some point, had moved back to its prior location. Additional *NOUOs* were issued. Finally, on September 15, 2017, two agents returned to Paterson and determined that the station no longer was on the air.

In the *Forfeiture Order*, the FCC incorporated by reference the details of the investigation spelled out in the earlier *NAL*.

The Tulloch case is among dozens that the FCC Enforcement Bureau has initiated in the past couple of years in efforts to shut down pirate broadcasters across the US, the vast majority of which are *not* FCC amateur licensees.

<http://www.arrl.org/news/fcc-fines-amateur-radio-licensee-25-000-for-operating-unlicensed-fm-station>

If you have something for the newsletter, please send it to me before the 20th of the month.

See you at a meeting.

73

John, W3ML

