

News from



The GLORIOUS SOCIETY OF THE WORMHOLE

July 2020

Hello Worms

I trust all is well with all of the Wormhole family. The Glorious Society of The Wormhole face to face meeting for July has been cancelled. Big surprise there. I think the August meeting is unlikely right now. We will again have a meeting on the air at the regular meeting time of 1100 on Saturday morning. Like the regular meetings there are members on the repeater long before the meeting time so jump in there and chew the rag.

The July meeting will return to just our 2M repeater. The member who cannot get into our 2M will make different arrangements to get in for the meeting. If you cannot get into our repeater then try the HEART machine. It has good coverage to the north. I and probably others will be monitoring it to say hi but we will not be running the net there.

I mentioned last month that my wire antenna was in bad shape and that I had ordered the good wire from The Wireman to make a new one. Well it is still on order but the lady assures me that it will probably arrive this week ... or maybe next week at the latest. It is not that hard to go on the website to tell people that something is out of stock. The original email said it was on back order and would be back in stock on June 5. As of Monday evening it is still not here.

If you have not heard the July 4th Midnight Run has been cancelled. Well not exactly cancelled, they are gonna have a virtual run. I guess you think about running and then take a shower. I tried that on my doctor and he said that does not count as exercise!

The next hamfest that I know of that has not been cancelled is the TARCfest on August 22nd. I am not sure it has a chance but we will see.

* SECURING POWERPOLE CONNECTORS *

By Dan Romanchik, KB6NU

In preparation for this year's Field Day, I made a bunch of cables with PowerPole connectors to connect the solar panel, charge controller and batteries that I used. If you're not familiar with PowerPoles, you might want to [check out this YouTube video](#). They're really great connectors, and have become the DC connector of choice for many hams.

When I make up PowerPole cables, I normally don't bother trying to secure the two halves together, especially if you're using some decently heavy gauge wire. They fit together pretty tightly, and don't come apart easily. Even so, I think securing them together is a good idea. You can buy a little roll pin to insert between the red and black housings that is supposed to prevent them from coming apart, but many folks complain that the pin has a tendency to fall out. This not only defeats the purpose, but could also damage your equipment.

Securing them is the right thing to do, though, and I recently came across some great suggestions on how to do this in the daily digest that I receive from the [Elecraft-KX mailing list](#). Here are the best tips from the thread, [Securing Anderson Power Poles](#):

- Rudy K8SWD: You can thermally bond the red and black housings with a soldering iron like you are making little welds on both sides. Permanent (mostly) but it works better than the roll pins. Just clean the tip really good before soldering!
- Dave K0CDA: [Anderson] also make connectors that are thermally bonded together in pairs. They do NOT come apart.
- Don W3FPR: I use a drop of Super Glue on the junction of the plastic pieces. Warning – that glue grabs quickly, so slide the 2 pieces only enough to start the assembly, then apply the drop of glue and quickly finish sliding them together. I

have never had ones prepared like that come apart, and I don't use roll pins. I will say one more thing – use only the genuine APPs. I have seen some knockoffs that do not mate well.

- Greg KC9NRO: Take a hot soldering iron. Wipe the tip with sponge. Run the tip down both side of APP bonding the black and red sides together. Clean soldering iron tip and apply some solder to tip. That's how I roll. Never comes apart
- Mike AI4NS: PVC cement will soften the plastic enough to bond them together. You can also get plastic welding rods, such as [Daindy Plastic Welding Rods](#). Chuck a rod in a Dremel and weld them together. I have made plastic boxes and panels using this method.
- Jack WD4E: Snip the cotton end off a Q-tip, cutting at an angle. Insert into hole made for roll pin, cut off excess, save remainder of Q-tip for next requirement.
- Troy K4JDA: 2.5mm screws work well, stay in, and are easily removable.

I posted these suggestions to [my blog](#) and got a few more great suggestions:

- Tom KB8UUZ: Fat tooth picks also work great. Jam it in, break it off.
- Bruce N0NHP: I use MEK (Methyl Ethyl Ketone) replacement to clean my circuit boards after soldering. A single drop of MEK on the junction between the two halves of the PowerPole shell will fuse them. It can be broken with a sharp tap but not accidentally. It will set and dry in seconds and should be applied after the shell pieces are put together.

I think these are all great suggestions. I think that I'm going to try the cotton swab method. While reading them, another thought occurred to me. I haven't tried this yet, but I'm thinking a little drop of hot glue on the roll-pin hole might work, too.

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Dan Romanchik, KB6NU, is the author of the KB6NU amateur radio blog (KB6NU.Com), the “No Nonsense” amateur radio license study guides (KB6NU.Com/study-guides/), and often appears on the ICQPodcast (icqpodcast.com).

When he's not thinking up new ways to keep his PowerPoles together, he likes to teach ham radio classes and operate CW on the HF bands.

*** MEASURING FOR RFI POSSIBILITIES***

Ralph WD0EJA

The last article mentioned how RF interference could result from our coaxial feedline. However is there a way to tell if we are headed for trouble before we start?

There is way to indicate the possibility as well as keeping the station safe from electrical shock.

Most of the equipment we use have a grounded chassis. Transceiver, matching tuner, swr meter, linear amp and coax switch as some of them. Also a metal desk, lamp, old typewriter or other items you may have on your desk or station bench needs to be measured.

All this equipment and furniture should have no voltage measuring between them. Use an AC volt meter to measure between each item. If you read a few volts between 2 items you should neatly ground them to each other to bring the difference to 0.

You are also measuring to the ground side of your AC outlet. All equipment should be at 0 potential to each other and the ground terminal on your electrical outlet.

If you find a measurement that is 120 volts or higher, then you not only have an RFI possibility, but also to get a healthy shock. This needs to be corrected with caution. The equipment in question should be analyzed why its chassis is above ground at line voltage. Use your AC volt meter for this not a grounding wire. If you find this situation and are not comfortable diagnosing it, get help. I can not afford to loose anymore customers.

Keeping the ground side of your equipment at 0 volts to each other and the outlet you are using will reduce the possibility of RFI and electrical shock.

A second reason for RFI is an overload of RF energy from the antenna. This is not real

common. However some do operate with the antenna in close proximity to the station, themselves or other devices. Under these circumstances it would be best to try and relocate the antenna farther away or reduce the transmit power.

www.isotronantennas.com
June 2020

* KEEPING TIME AT NIST*

By Mark Esser NIST, Contributed by Jack K4WSB by way of the TARC reflector

From the editor: Go to <https://www.nist.gov/blogs/taking-measure/keeping-time-nist> for this the article with pictures. National Institute of Standards and Technology physicist Elizabeth Donley with a compact atomic clock design that could help improve precision in ultraportable clocks. About 1 million cold rubidium atoms are held in a vacuum chamber in the lower left of the photo. On the screen is a close-up of the atom trapping region of the apparatus. Lots of really interesting articles all over this website.

Einstein is reported to have once said that time is what a clock measures. Some say that what we experience as time is really our experience of the phenomenon of entropy, the second law of thermodynamics. Entropy, loosely explained, is the tendency for things to become disorganized. Hot coffee always goes cold. It never reheats itself. Eggs don't unscramble themselves. Your room gets messy and you have to expend energy to clean it, until it gets messy again.

Here at NIST, we don't worry about any of these philosophical notions of time. For us, time is the interval between two events. That could be the rising and setting of the sun, the swing of a pendulum from one side to another, or the back-and-forth vibration of a small piece of quartz. For the most precise measurement of the second, we look at the electromagnetic waves that an atom releases and consider the very short time it takes two successive peaks of the wave to hit a detector. This "frequency" — the number of wave cycles that hit a detector per second — can be used to precisely define very brief time intervals.

James Clerk Maxwell, the father of electromagnetic theory, was the first person to suggest that we might use the frequencies of atomic radiation as a kind of invariant natural pendulum, but he was talking about this in the mid-19th century, long before

we could exert any kind of control over individual atoms. We would have to wait a century for NIST's Harold Lyons to build the world's first atomic clock.

Lyons' atomic clock, which he and his team debuted in 1949, was actually based on the ammonia molecule, but the principle is essentially the same. Inside a chamber, a gas of atoms or molecules fly into a device that emits microwave radiation. The emitter creates microwave radiation with a narrow range of frequencies. When the emitter hits the right frequency, it energizes a maximum number of atoms. The atoms want to lose that energy as quickly as possible, and that loss of energy is manifested as microwaves with a specific frequency. The time it takes a defined number of wavelengths of those microwaves to hit a detector is what we call a second.

Lyons' clock, while revolutionary, wasn't any better at keeping time than doing so by astronomical observations. The first clock that used cesium and was accurate enough to be used as a time standard was built by NIST's counterpart in the U.K., the National Physical Laboratory, in 1955. NIST's first cesium clock accurate enough to be used as a time standard, NBS-2, was built a few years later in 1958 and went into service as the U.S. official time standard on January 1, 1960. It had an uncertainty of one second in every 3,000 years, meaning that it kept time to within 1/3,000 of a second per year, pretty good compared to an average quartz watch, which might gain or lose a second every month.

The atomic second based on the cesium clock was defined in the International System of Units as the duration of 9,192,631,770 cycles of radiation in 1967. It remains so defined to this day.

While the definition has stayed the same, atomic clocks sure haven't. Atomic clocks have been continually improved, becoming more and more stable and accurate until the hot clock design reached its peak with the NIST-7, which would neither gain nor lose one second in 6 million years.

Why do we say "hot" clock? That's because until the 1990s, the temperature of the cesium inside these clocks was a little more than room temperature. At those temperatures, cesium atoms move at around 130 meters per second, pretty fast. So fast, in fact, that it was hard to get a read on them. The clocks simply didn't have much time to maximize their fluorescence and get a more accurate and stable signal. What we needed to do was give our detectors more time to get the best signal by slowing down the atoms. But how do you slow down an atom? With laser cooling, of course.

But how can lasers cause something to cool down? Aren't lasers hot? The answer is: It depends. The science of slowing down atoms with lasers was pioneered by Bill Phillips and his colleagues, a feat for which they shared the 1997 Nobel Prize in Physics. Very basically what they did was use a specially tuned array of lasers to bombard the atoms with photons from all angles. These photons are like pingpong balls compared to the bowling-ball-like atoms, but if you have enough of them, they can arrest the motion of the cesium atoms, slowing them from about 130 meters per second to a few centimeters per second, giving the clock plenty of time to get a good read on their signal and vastly improving the accuracy and precision of the clock.

The first clock to use this new technology, NIST-F1, called a fountain clock, was put into service in 1999 and originally offered a threefold improvement over its predecessor, keeping time to within 1/20,000,000 of a second per year. NIST continued to enhance the design of NIST-F1 and subsequent fountain clocks until the accuracies approached one second every 100,000,000 years.

In the JILA/NIST strontium atomic clock, a few thousand atoms of strontium are held in an "optical lattice," a 30-by-30 micrometer column of about 400 pancake-shaped regions formed by intense laser light.

Not ones to rest on our laurels, NIST and its partner institutions, including JILA, are also working on a series of experimental clocks that operate at optical frequencies with trillions of clock "ticks" per second. One of these clocks, the strontium atomic clock, is accurate to within 1/15,000,000,000 of a second per year. This is so accurate that it would not have gained or lost a second if the clock had started running at the dawn of the universe.

But why do we need such accurate clocks? One thing that wouldn't exist without such accurate time is the Global Positioning System, or GPS. Each satellite in the GPS network has atomic clocks aboard that beam signals to users below about their position and the time they sent the signal. By measuring the amount of time it takes for the signal to get to you from four different satellites, the receiver in your car or in your phone can figure out where you are to within a few meters or less.

Such accurate time is also used to timestamp financial transactions so that we know exactly when trades are happening, which can mean the difference between making a fortune and going broke. Accurate time is also necessary for synchronizing communications signals so that, for instance, your call isn't lost as you travel between cellphone towers. And as new, even more accurate clocks are invented, it's assured

that we will find uses for them. In the meantime, you'll have to settle for knowing where you are anywhere on Earth at any given time while talking on your cellphone on your way to an appointment. Even if you arrive a few millionths of a second late, we won't give you a hard time about it.

From the Editor: I understand Ray KD4HUW will be making a motion to get one of these for the repeater to keep the time better ;-)

GOVERNOR DESANTIS PROCLAIMS AMATEUR RADIO WEEK IN FLORIDA

WCF SECTION PRESS RELEASE #20-39 - 6/25/20:

On Monday June 22, 2020, Florida Governor Ron Desantis signed a proclamation declaring the week of June 22-28, 2020 to be Amateur Radio Week in the State of Florida. Governor Desantis recognized in his proclamation that amateur radio provides communications to emergency managers during and after disasters, amateur radio provides services to emergency response organizations, and that amateur radio operators provide service as SKYWARN spotters for the National Weather Service. Governor Desantis also recognized the longevity of amateur radio and that it provides "...a bridge between people, societies, and countries by creating friendships and sharing ideas..." The declaration recognized ARRL Field Day that will take place on Saturday June 27, 2020 and Sunday June 28, 2020.

For a PDF copy of the proclamation you may view it at

http://arrlwcf.org/download/wcfpresser/Florida_Amateur-Radio-Week_2020.pdf.

END OF PRESS RELEASE



CLUB MEETING

There will not be a club meeting on July 4th due to the virus. We will meet again on the 2M repeater at the regular meeting time. We normally meet on the first Saturday every month at 11:00 Saturday morning at the Minnreg Building located at 6340 126th Ave N, Largo. Members are welcome to come in the rear area through the fence gate on the southeast corner of the property. Talk-in is on the Wormhole repeater system. For those coming to the meeting who cannot hit our repeater we will be monitoring the Honeywell club repeater on 443.050 +141.3. We will keep an eye peeled for you. We will take advantage of the cooking facilities with an after-the-meeting Social and Wormdog picnic.

CLUB NETS

Check in on the club net Thursdays at 1930 and 2000 (or at the end of the 2M net). 2M at 146.850 – with a tone of 146.2. Our 6M net runs after our regular 2M net on 53.150 – 1MHz offset 146.2 tone.

LOCAL NETS

MONDAY

1730 147.030 + Receiver sites and tone info <http://www.qsl.net/wd4scd/> St Pete Yacht Club ARC

1830 147.060+ no tone Petersburg	St Pete ARC daily net	St
1900 144.210 USB Clearwater	CARS, vertical polarization	
1900 147.135 +146.2 Zephyrhills	Zephyrhills ARC	
2000 147.165+ 136.5 Brandon	Brandon ARS	from
2000 50.135 County	Pinellas ARK	Pinellas
2030 NI4CE system	EAGLE Net, NTS traffic net,	NI4CE system
2030 145.450 County	Pinellas ARK	Pinellas
TUESDAY		
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1900 50.200 USB ARS	6M net	Brandon
1900 28.450 Clearwater	WCF section net	
1900 NI4CE system system	WCF Section VHF ARES	NI4CE
1930 145.170 & 442.4 both pl 156.7	Pinellas ACS net	Clearwater
1930 444.900 +141.3	Sheriff's Tactical ARC	Tampa
2000 NI4CE system	WCF Skywarn net	NI4CE system
2000 147.105+ 146.2 Tampa	Tampa ARC net	from
2000 28.365 USB	simplex	Brandon ARS

2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 28.465 USB	10/10 net	from Orlando
1900 146.490 simplex simplex Net	3 RD Tuesday monthly, Hillsborough Co ARES	

WEDNESDAY

1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1930 52.020 simplex Petersburg	Suncoast 6'ers	from St
1930 NI4CE system system	WCF Section Digital Info Ne	NI4CE
2000 147.105 146.2 Tampa	Greater Tampa CERT net	from
2000 146.97- 146.2 Clearwater	Clearwater ARS	from
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 NI4CE system affiliated	Tampa Bay Traders Net	non-

THURSDAY

1800 146.52 simplex Tampa	Hillsborough ARES/RACES	North
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1900 444.750 +146.2 Tampa	Fusion net	from
1915 224.660- no tone Petersburg	St Pete ARC	from St

1930 146.6385 -127.3 Lakeland	Lakeland ARC	from
1930 444.225 + 146.2 Tampa	Hillsborough ARES/RACES	from
1930 146.850- 146.2 Petersburg	Wormhole	from St
2000 53.150 -1MHz 146.2 Petersburg	Wormhole	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
FRIDAY		
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
SATURDAY		
0730 3.940 (7.281 Alt.)+/- QRM WCF	WCF Section HF Net	from
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
SUNDAY		
0800 3.933	Florida Traders Net	non-affiliated
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1930 NI4CE system system	WCF Section Net	NI4CE

2000 147.550 simplex County	550 Simplex Net	Pinellas
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 144.210 USB orientation	Clearwater ARS	vertical

FOR SALE / WANTED

Anyone having something for sale or who might be looking for an item let me know. I will not print phone numbers or email addresses unless specifically told to since this newsletter might end up on the web. The exception is when I get the information off the web. If you are a member of the Wormhole then you have all the information you need on a club roster and if you are not a member .. why not? OK, if you are not a member you can contact me at the email address at the end of this newsletter, I will give you the information to contact the person involved.

FOR SALE, ICOM IC-756 Pro, HF and 6M, 100 watts, hand mic, power cord and manual, Local only. \$350

Yaesu FT-2DR dual band analog/digital HT with box and manual. \$200
firm See George W1AAG 727-391-7928

FOR SALE, Comet GP-1 2M/440 MHz base antenna, \$50, Ralph W4TNY,
w4tny@tampabay.rr.com, 727-409-0468

FOR SALE, LMR-400 UltraFlex, 50ft, factory installed heat shrunked PL-259
connectors, Ralph W4TNY, w4tny@tampabay.rr.com, 727-409-0468

HAMFESTS

- August 22** **TARCFest** TARC Clubhouse, 22nd St at the river, \$5 entry including tailgate, a few inside tables reserved in advance, talkin on 147.105 +146.2, more info at <http://hamclub.org/>
- November 14** Pinellas Park, **SPARCFest**, admission FREE, tailgate free, Freedom Lake Park, 9990 46th St N, Southeast corner of US 19 and 49th Street, Talk-in on 147.060+ no tone. VE testing at 0900. For more information go to <https://www.sparc-club.org/sparcfest/>
- December 11 & 12** **Plant City, the 2020 Tampa Bay Hamfest is the Florida State Convention and West Central Florida Section Convention, Friday and Saturday, at the Expo Building in the Strawberry Festival grounds, advanced admission \$9, at the door \$10, for information contact Bill Williams AG4QX, chairman@fgcarc.org or go to <http://www.tampabayhamfest.org> or you can just ask me, Jim or Dee at a meeting ;-)**



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| Mid January | Adventure Run, Honeymoon Island |
| Last full weekend January | Winter Field Day, |
| https://www.winterfieldday.com/ | |
| Late January | Gasparilla celebration |
| Late February | West Central Florida Tech Conference |
| http://arrlwcf.org/wcf-special-events/wcftechconference/ | |
| Late February | MS 150 Citrus Tour bike ride |
| http://www.citrustour.org/register.php | |
| March/April | MS Walks |
| March/April | Mass Casualty Exercises |
| Late April | Southeastern VHF Society Conference, |
| http://www.svhfs.org | |
| Late April | Florida QSO Party |

Mid May	March For Babies (was March of Dimes) https://www.marchforbabies.org/Registration/Events
Mid-May	Annual Armed Forces Crossband Test
Mid-May	Florida Hurricane Exercise
May, Memorial Day Weekend	Wormfest
First weekend in June	Museum Ships on the Air
Fourth weekend in June	Field Day http://www.arrl.org/contests/announcements/fd/
July 3/4	Midnight Run in Largo http://www.kiwanismidnightrun.com/
August	International Lighthouse/Lightship Week https://illw.net/
October, 3 rd weekend	JOTA, Scout Jamboree-on-the-AIR (around 14.280MHz)
Early December	ALS bike ride in Walsingham Park
December, Second weekend	Tampa Bay Hamfest http://www.fgcarc.org/

YOUR WORMHOLE OFFICERS

Bill AG4QX is President and editor of this newsletter, Treasurer is Jim KD4MZL, Paul KA4IOX is the Secretary, Dee N4GD is the Repeater Trustee and Mike K4ZPE is both our club Vice President and webmaster.

YOUR WORMHOLE REPEATERS

53.150 -1Mz PL 146.2
442.625 +5Mz PL 146.2
146.850 - 600Kz PL 146.2

The Wormhole 2M and 440 repeaters are both now dual mode Yaesu DR-1X. FM analog as always and now Yaesu Fusion, a C4FM/FM digital mode.

The Wormhole website is at: <http://www.TheWormholeSociety.org>.

West Central Florida Section website: <http://www.arrlwcf.org/>.

The ARRL website is at: <http://www.arrl.org/>

This newsletter is written for The Glorious Society of the Wormhole, an ARRL affiliated amateur radio club located around the Seminole section of Pinellas County Florida. Anyone wishing to be added or removed from The Glorious Society of the Wormhole mailings please write to me at the address below and thy will be done.

73,

Bill Williams

AG4QX

ag4qx AT arrl DOT net