Spurious Emissions

The Newsletter of the South Bay Amateur Radio Society

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SOUTH BAY AMATEUR RADIO SOCIETY
(SOBARS)

K6QM

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SOBARS is an ARRL-affiliated ham radio club with members from San Diego, National City, La Mesa, Chula Vista, Bonita, Imperial Beach, and San Ysidro, California.

OFFICERS

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Call-Sign Trustee:
Jim Beckman, N6RSL
Emergency Coordinator:
Ramon Dueñas, KJ6QQK
Property Trustee:
Louie Vignapiano, KI6SRR

SOBARS meetings are held at the Chula Vista Fire Station 4, 850 Paseo Ranchero, Chula Vista, CA 91910
See the website for dates & times.

Club Repeaters:
146.085 (+) PL: 100.0
448.340 (-) PL: 100.0
Yaesu System Fusion®

CLUB NETS

Club nets are held every Tuesday evening on the following bands:
1830: (PT) 448.340 (-) PL 100.0
223.840 (-) PL 107.2
1900: (PT) 146.085 (+) PL 100.0
1930: (PT) 28.480 USB
7.240 LSB

From The President's Shack

By John Wright, K6CPO

Well, Spring has sprung and it's time for another issue. Life has taken on a bit of a surreal quality since the last issue and I'm hoping this finds everyone well and safe.

As everyone is probably aware of, our March meeting was cancelled because of the "social distancing" restrictions we are currently living under. Because this is an on-going situation, we have been forced to look at other options. The plan now is to have our regularly scheduled meeting on April 27th, but conduct it virtually using the Zoom application.

We will be conducting practice meetings with Zoom after our regularly scheduled nets on April 14th and April 21st. These will take place at 8 PM local time. Information has already gone out via e-mail explaining how to check into these meetings. A list of tips and pointers about how to use Zoom is published in this issue.

Elsewhere in this issue is an article I wrote for a different newsletter about things you can do to alleviate the boredom that is part of the stay-at-home order. Hopefully this will help stave off the "cabin fever" some are experiencing. I would recommend that if you don't regularly check into our Tuesday evening nets, you start doing so, at least for the duration of the crisis. Between e-mail, the nets and this newsletter, we hope to keep the membership informed about what's happening with the club.

With the annual updating of the membership roster, there have been some changes to staff positions within the club. Please welcome John Lally, NB6P to the position of Club Emergency Coordinator. John has agreed to write a series of articles on Emergency Preparedness for the newsletter. His first installment appears elsewhere in this issue. Also, Bob Garvin, N6RLG, will take over duties as SOBARS Property Trustee.

Also in this issue is an article, first published in QST in March of 2005, about how to build a collapsible J-Pole antenna out of copper water pipe. Reprinted by permission of the original author.

For those that are ARRL members, the league has added a new member benefit. A subscription to QST is included with a regular membership. The league also publishes *On The Air*, a magazine aimed at the new ham, QEX, for electronics experimenters and the *National Contest Journal*. Members can opt to receive *On The Air* in lieu of QST with their membership and QEX and NCJ are separate subscriptions for the print editions. Now all four magazines are available to all members in digital form either online or through the app.

That's about all I have for now. Everyone stay safe out there and keep following the guidelines for social distancing, hand washing and the wearing of masks. 73, everyone!

To Plan or Not To Plan?

By John Lally, NB6P, Club Emergency Coordinator

It's 2:45am, the sudden ringing cell phones wakes you from a sound sleep. As you semi-blindly reach for your phone to see who would call at this hour, you are shocked to find the call is a reverse 9-1-1 notification for you to immediately evacuate. As you franticly start to wipe the sleep from your eyes, panic, confusion, and dreed start to well up from deep inside you. These emotions combine to raise the horrifying questions "What do we bring?" and "Where will we go?"

As this scenario exemplifies, disasters can happen at ANY moment, and according to Mr. Murphy, they WILL occur at the LEAST opportune times. Disasters come in three main categories; Natural (earthquakes, tsunamis, wildfires), Technological (industrial accidents, power outages, infrastructure failures), and Human-Caused (terrorism). Given the wild range of potential disasters, the first step to becoming ready to safeguard your family and yourself is to determine which disasters you are trying to prepare for. In order to make this determination, you must weigh the potential (or likelihood) of a certain disaster occurring versus the impact of that disaster. In other words, how likely is it AND how bad could it be? For example, if you live in a high-rise apartment in downtown San Diego, you may view an earthquake or prolonged power outage as the most likely and significant disasters. In contrast, if you live East of Otay Lakes, wildfires and mudslides may top the list. There is no right or wrong determinations, it is completely subjective, in other words, it's up to you.

In May of 2011, the Centers for Disease Control made headlines for its mention of a "Zombie Apocalypse". What was lost in the media hysteria surrounding this reference was the premise that if a family is ready for the "Zombies", they are ready for most disasters. The idea is that a plan for one type of a disaster can be modified to fulfill the requirements of a completely different disaster. As you begin to formulate your disaster plans, it will become apparent that plans for many disasters share the same basic ingredients. The most important part is to HAVE A PLAN.

Whatever determinations you make, the first step in being ready is to develop your plan. A plan need not be complicated, but it does need to be well thought out. Household disaster plans fall into one of two categories, evacuation or shelter-in-place. For the purposes of this article, we will discuss evacuation (shelter-in-place will be discussed in a later article). Your plan should answer many of the questions which may arise in the middle of the night when you receive the evacuation notification or the earth begins to violently shake. Important factors to consider when formulating your plan should include:

- Location of important documents (passports, insurance policies, vehicle titles, birth/marriage certificates, mortgage paperwork, etc).
- Out of area emergency contacts (preferably out of state)
- Family evacuation destination (if not a public shelter) and multiple routes of travel to destination.
- Local meet up location (for family members who are not at home when incident occurs).
- Location of family disaster kits (kit contents to be discussed in detail in next article).
- How will household pets be cared for (most shelters will ONLY allow service animals, support/comfort animals will not be admitted).

As the old military adage says, "the best laid plans seldom survive first contact with the enemy". The same is true of disaster plans; if they are not written down they have no weight. Additionally, plans MUST be practiced in order to be effective and every member of the household needs to know what their part in the plan is, as well as being comfortable with their part. To obtain the best results from a disaster plan, they should be discussed with all members of the household who have active rolls, even children can be made to feel involved when assigned tasks appropriate to their ages. These task maybe to grab their favorite toy or their prepacked disaster bag (see next article). Involving all members of the household, even children, can help to relieve fear and anxiety while building confidence.

When determining potential evacuation routes, several factors should be given serious consideration. These factors include the avoidance of;

- bridges
- over/underpasses
- choke points
- freeways

Give consideration to areas you wish you could avoid during your normal commute; now imagine every household in your surrounding area trying to use those same areas all at once. If at all possible, multiple evacuation routes from your neighborhood should be considered due to congestion, infrastructure failure, or closure due to the disaster you are evacuating from. The testing of potential evacuation routes during normal circumstances can be made into fun family adventures involving picnics, dining out, or other special events for the successful practice run.

Many of us already perform one of the basic requirements of an evacuation plan, we maintain our vehicles. Proper vehicle maintenance is important during normal situations, but it becomes critical during disaster situations! Ensuring the safe condition of vehicle tires (and the spare we never look at), maintaining AT LEAST a half tank of fuel, and periodic preventative maintenance could make the difference between life and death. During the massive power outage which struck Southern California in September 2011, tens of thousands of vehicles across the region ran out of fuel simply attempting to get home that day. You must always assume that the next gas station will be closed and ensure you have fuel to reach your destination. If your household is evacuating from a wildfire and your vehicle breaks down or runs out of fuel, would you want to leave your most prized possessions in the vehicle as you abandon it to escape the flames? All because you didn't see the harm with letting your vehicle fall below a quarter of a tank of fuel or putting off replacing that worn tire or that oil change weekend after weekend, month after month.

Formulating a disaster plan shouldn't be a daunting evolution, if you've read this far into this article, you have taken the most difficult step, you've accepted the realization that a good plan can save the lives of those who matter the most. Every household is unique and no plan prepared by an outsider can hope to fully cover your household completely. As with all matters pertaining to safety and survival, it is critical for YOU the reader to continue to research various aspects of disaster planning and preparation to develop a plan suited for you and your household. The information I've presented here is just a starting point and is based on my opinions and experience; as such they should NOT be taken as the ONLY sources of information available to you. There are large amounts of FREE information available from governmental and recognized non-governmental sources. You shouldn't buy a car, a laptop, or other high value items based solely on one source of information. Is there anything more valuable than your life and the lives of your loved ones? Do your homework, lives WILL depend on it.

Links to help design a household disaster plan:

www.ready.gov
www.fema.gov
www.redcross.org
www.militaryonesource.mil
www.readysandiego.org
www.usa.gov

**The information contained in this article is the opinion of the author based on their experience and education. As such it should not be substituted for proper research by the reader.*

John served 26 years as a Naval Aircrewman in the U.S. Navy, retiring as a Chief Petty Officer in 2015. While serving on active duty, John served as Command Security Manager, Command Operational Security Manager, Command Emergency Planning Coordinator, and Anti-Terrorism/Force Protection Officer. Following retirement from active duty John pursued a Master's of Science Degree in Homeland Security and Emergency Management, graduating with distinction in 2018. He was awarded national certifications in Homeland Security (2012), Disaster Preparedness (2013), and Threat Analysis (2015) from American Board of Certification in Homeland Security. Building on his national certifications, he achieved additional specialist certifications in Homeland Security/Anti-Terrorism and Emergency Management awarded by California Office of Emergency Services. He also has been awarded specialist certifications in Critical Infrastructure Protection and Infrastructure Disaster Management by the National Emergency Response and Rescue Training Center. John is currently instructing Disaster Preparedness, Terrorism Awareness, and Crisis Communication for the City of San Diego Community Emergency Response Team as well as providing presentations to various community groups on these same topics.

I'm Bored. What do I do Now?

By John Wright, K6CPO

Coping with Forced Isolation

By now, everyone is probably getting a little stir crazy, especially if they've been cooped up in their "cave retreats," for a while. SOBARS members are probably wondering what they can do to stay occupied.

Well, there are all kinds of things that one can do to stave off the boredom of staying at home. I've listed a bunch of items with a brief explanation of each. Some are related to amateur radio and others are not.

Study toward upgrading your license.

Not everyone in the club holds a license at the higher levels. Upgrading makes you a more valuable member of the club because of the increased knowledge and skills that go along with an upgrade. Now would be the perfect time to do some studying.

Yes, I'm aware license testing is shut down for the duration, but at least one VEC is conducting online examinations, albeit with a sizeable backlog, and a couple of others are looking into doing the same. And, in any event, you'll be ready when in-person testing resumes.

And SOBARS offers a benefit to upgrading. If a member upgrades their license to a higher lever they are eligible for a one-time free one year membership. This benefit can only be used once and the person must have been a SOBARS member for at least one year to take advantage of it.

Take an ICS course

SOBARS is a recognized volunteer organization with the Chula Vista Fire Department. A goal of ours is to get as many members trained in the Incident Command System as possible. To this end, members are encouraged to take the four basic Incident Command System/National Incident Management System (ICS/NIMS) courses, IS-100, 200, 700 and 800. These courses and others are offered online at the FEMA Emergency Management Institute. https://training.fema.gov/is/

Binge watch a TV show

With the increase in the number of streaming channels on TV; Amazon Prime, NETFLIX, Hulu, Disney+, Apple TV, etc., there are a plethora of entertainment choices available. You're not stuck watching endless episodes of "Days of Our Lives" or "The Price Is Right" on commercial television.

The streaming services offer such treats as full seasons of shows that are no longer on broadcast television, original movies, specials and series made just for them. An good example is the Star Wars spinoff show "The Mandalorian" that I recently watched on Disney +.

Plant a garden

Television not your thing? Planting a garden is a good way to pass the time. Not only does it give you something to do, but it can be a source of fresh vegetables, always a better alternative than store-bought produce.

Build a go kit

A "Go-Kit" or "Go-Box" as they are sometimes called, is always a good thing to have on hand. Being able to readily transport everything you might need to support one of our events or to take with you if you have to evacuate your home.

If you feel a Go-Kit is beyond your skill set, then a simpler "Go-Bag" might be in order, This could be as simple as a bag containing your HT, microphone, addition batteries and other items needed for an event.

Along with the Go-Kit idea is just making sure your radio gear is ready to go on short notice. Batteries charged? Frequencies programmed?

Check into a new net

We are blessed in that San Diego has a vibrant and active ham radio community. With the number of clubs we have, it means there are nets almost every single night of the week. Find a new net and check in as a guest. Who knows? You might like the net and become a regular member. There is a list of all the nets in the San Diego Section listed on the section web page. http://sdg-arrl.org/

Take a walk

Yeah, this is still permitted, as long as you maintain "social distancing" and wear the mandated face covering. If you have a dog, it's a good way to get them out and give them some exercise.

Make masks

The N95 masks and standard surgical masks are in short supply and should be reserved for the medical personnel on the front lines of the crisis. If you happen to be competent with a sewing machine, there are any number of patterns out there for making cloth face masks for those that don't have them, but need something to wear while outdoors.

And keep in mind the good side of being confined: You can wear your pyjamas all day long...

A Backpacker's Delight—The Folding J-Pole

A new twist on the old J-pole.

Michael Heiler, KAØZLG

As the Emergency Coordinator (EC) for Clay County, Minnesota, I wanted to make up a jump kit that I could just grab and head out the door with. I needed a good VHF/UHF antenna that would give me some gain and portability and my inclination was to use a J-pole, but these antennas are somewhat long and cumbersome.[1] I had made one out of 450 Ω ladder line and I also made one from 300 Ω twinlead, but I now needed a version for outdoor use that was physically strong and durable, yet easily transportable.

Building the Antenna

I like the copper J-pole, so I started a design using that antenna as a model. The idea of a folding version of the copper antenna appealed to me. I went to the local lumberyard and hardware store (a home building supply will work, as well) and picked up what I needed to make the portable antenna project a reality. The necessary parts for this project can be found in Table 1, and Figure 1 can be used as a basic assembly guide for building the antenna.

[1]Notes appear on page 00.

Table 1
Materials List: Folding Copper J-Pole Antenna

1 each, 10 feet of 1/2 inch copper pipe
3 each, 1/2 inch copper end caps
1 each, 1/2 inch right angle (elbow)
1 each, 1/2 inch T angle
2 each, 1/2 inch copper pipe clamps (wall clamps)
2 each, 1/2 inch copper pipe couplings
4 each, 6-32 bolts × 3/4 inch, depending on Plexiglas thickness
4 each, external star washers, #6 and #8
10 flat washers, #6 and #8
2 each, 3/16 inch eyebolts
4 each, 10-24 brass nuts
1 each, 2 3/4 × 2 3/4 inch Plexiglas, 1/8 to 1/4 inch thick
3 ring terminals for #14-16 wire for #6-#8 bolts
5 feet of 5/16 inch OD bungee cord.

The antenna components are shown in Figure 2. You will first need to cut five 19 1/4 inch sections and one 2 3/4 inch section from a 10 foot length of copper pipe. Soldering the pipe joints is the next step. Be aware that, when soldering to copper pipe, you will need to clean the area of the pipe sufficiently by sanding. 3M scouring pads also work well for this operation. Soldering paste/flux will have to be applied to the joint ends to ensure a good joint. Solder a coupling to one end of two of the longer pieces of copper pipe. Next, attach two brass nuts to each of the eyebolts and tighten them against each other. Place the eyebolt assemblies inside two of the end caps and solder them in place using a propane torch. Fill the end caps with solder to cover the brass nuts. Figure 3 shows the eyebolt assembly, anchoring the bungee cord. Make sure you use brass nuts because the solder will not adhere well to steel.

When all the pieces are cut, lay them out, unassembled, as if they were joined. That technique ensures that you don't make any mistakes when assembling everything. You can then start to assemble the antenna and solder the rest of the copper J-pole—two 19 1/4 inch pieces, one elbow (the elbow must be attached to the 1/4 wave length side), a 2 3/4 inch piece for spacing, the T section and one other 1/4 wave section. Refer to Figure 1 for guidance—that drawing shows you how the antenna components fit together.

Radiator and Mast Assembly

After basic soldering, what you have will look much like a squared off U. After all the soldering is completed, you will need to tie a large enough knot in one end of the bungee cord so it won't pull through an eyebolt. Run the bungee cord through an eyebolt, through the other pieces of copper pipe, and place the eyebolt cap in the copper pipe, tapping the copper cap into place. Make sure that the couplings are facing down, so that when it rains the antenna doesn't fill with water.

A view of the bungee cord running through two of the elements can be seen in Figure 4. On the lower support section (below the actual J-pole radiator), you will want to add the last 19 1/4 inch length so you have plenty of room for mounting the antenna to a mast. Run the bungee cord through this section also, and pull it tight…so that it holds all the sections together. With the bungee cord tight, run it through the other eyebolt and tie a knot in it, stuff it back into the pipe, place the cap on the pipe, and tap it into place. *Do not* solder the caps when putting them on the copper pipe because the eyebolts will come loose. These should only be force fitted to the pipe ends.

Feed Point

For the feed point support, use a piece of Plexiglas, cut to 2 3/4 × 2 3/4 inches and

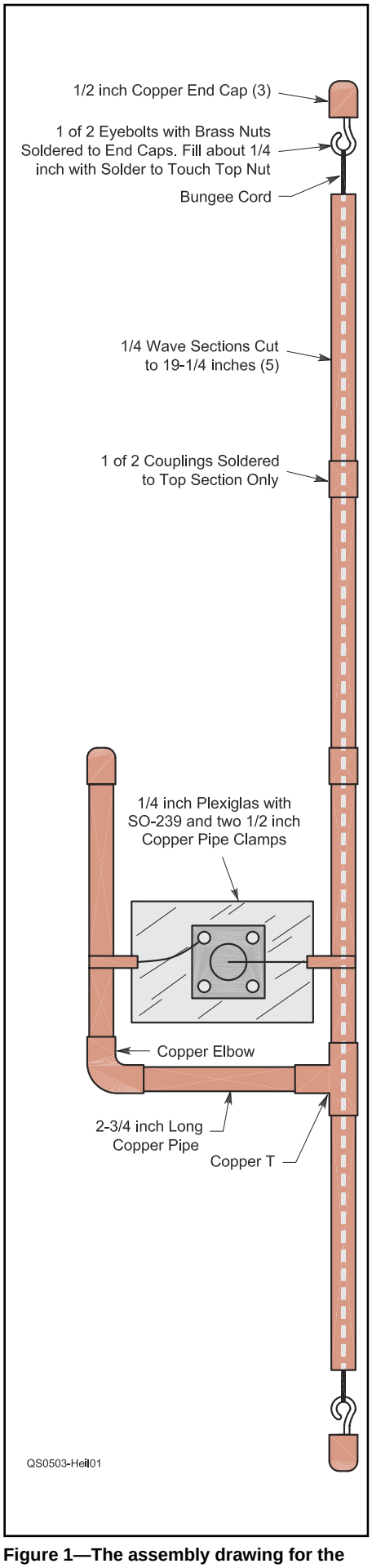


Figure 1—The assembly drawing for the

drill a 1/2 inch hole in the center to mount the SO-239 coaxial socket. Refer to Figure 5, which shows the feed point assembly. Before you add the washers and nuts, you may want to clean them off with sandpaper to remove any oxidation. You'll need to place the SO-239 connector on the Plexiglas and mark it for the mounting bolts. Drill the mounting holes, and mount the SO-239 socket, using 6-32 bolts, washers and nuts.

Add the copper pipe clamps to the J-pole radiator (clean the copper pipe and the pipe clamps with sandpaper on the outside and inside, as well as the radiator and stub match), as shown in Figures 1 and 2. You will have to bend them around the pipe so that you can attach them to the Plexiglas. Mark the location of the holes and drill them out. Replace the pipe clamps and attach them with 6-32 bolts, star lock washers, flat washers and nuts. Cut two short pieces of wire (no. 16 or 14)—I used no. 16 stranded wire. Attach ring terminals on one end of one wire and on both ends of the other wire. Make these wires long enough so that they can go from the center terminal of the SO-239 to a clamp (I used the clamp on the 3/4 wavelength section). Also connect one of the mounting bolts on the SO-239 socket to the other bolt on the second clamp (the matching stub). Keep the wires as short as possible. An

Figure 2—The antenna components—ready for construction.

Figure 3—A completed eyebolt assembly. These serve as an anchor point for the bungee cord.

alternate method of attachment would be to solder the wire to the pipe clamps. Figure 6 shows the antenna in the process of being folded.

Tuning

Once the antenna is assembled, you can tune for minimum SWR. Start with both pipe clamps about 3 inches up from the bottom of the radiator and the matching stub and work your way down. You will want to tighten the clamps reasonably well so you get a reliable RF analyzer reading when testing. I was able to get the SWR to 1:1 at 146.6 MHz using an MFJ-269 antenna analyzer. At 446.90 MHz the SWR was 1.1:1. Once the SWR is where you want it, tighten the clamp bolts. You should be able to duplicate these results without too much trouble.

After the antenna is away from surrounding objects, recheck the SWR to see if it has changed. If it has, you will have to adjust again, as surrounding objects and your own proximity to the antenna will affect the SWR. I found it best to loosely tighten the pipe clamps so they are loose enough to move downward by a slight tapping on the Plexiglas support with a screwdriver. After you make the SWR adjustments, tighten the clamps and recheck the SWR again. You'll want to seal the exposed parts of the SO-239 connector rear with liquid electrical tape to keep out any moisture.[2] When folded, the antenna measures less than 21 inches long. The completed antenna, ready for packing, can be seen in Figure 7.

The cost of the parts for the folding J-pole is less than $15. All of the parts were obtained from a local lumberyard and hardware store. I used stainless bolts, nuts and washers because they were readily available. Stainless hardware was about $6 a pound so I grabbed a small handful of each hardware variety for future J-pole projects. You'll enjoy the portability and ease of assembly of this transportable antenna that's ideal for Field Day, casual operating or emergency use.

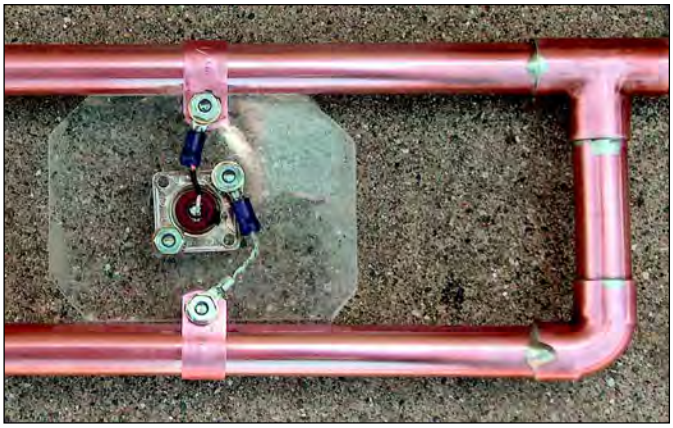


Figure 5—The antenna feed point assembly. The feed point can be slid up and down on the radiator and the matching section to adjust the SWR. The SO-239 socket rear needs to be weatherproofed.

Figure 6—The J-pole in the process of being "folded."

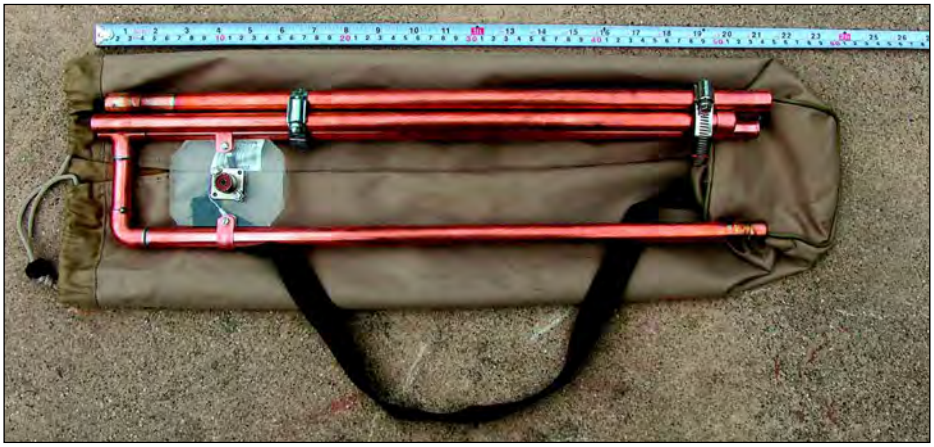


Figure 7—The completed folding J-pole, ready for packing.

Notes

[1]The 2 meter J-pole is a third harmonic antenna on 70 cm (432 MHz). As such, it will have a higher radiation angle component on 70 cm than on 2 meters, so 70 cm repeater access will not be optimum for stations far from the repeater.—*Ed.*

[2]A cautionary note—the UHF series of connectors (the PL-259 and SO-239, among others) is not waterproof. Make sure you adequately insulate both the plug and socket assemblies of these connectors, especially at VHF and UHF. Scotch 33 electrical tape, liberally stretched over the connector and cable, works well for the PL-259 plug and epoxy or liquid electrical tape (as pointed out here) works well for the SO-239 socket rear.—*Ed.*

Photos by the author.

Michael Heiler, KAØZLG, has been a ham since 1987. He is an ARRL member and is the Emergency Coordinator (EC) for Clay County, Minnesota. Mike has an electronics degree from Northwest Technical College in Moorehead, Minnesota, is a Volunteer Examiner and teaches Amateur Radio classes several times a year. Mike works on fire alarm systems for SimplexGrinnell in Fargo, North Dakota. He can be reached at **ka0zlg@arrl.net**.

Zoom 1Ø1

By John Wright, K6CPO and Fred Curtis, KI6GRO

How to navigate the Zoom app

As mentioned elsewhere in this issue, SOBARS is holding meetings using the Zoom online conferencing application. This will continue for the foreseeable future. Following are some tips and techniques to better help members navigate the Zoom software.

The normal procedure for a Zoom meeting is as follows:

The meeting host will send out an e-mail prior to the meeting giving the date and time of the meeting and a link to the meeting. A few minutes before the meeting, click on the link and when the app prompts you to join the meeting, do so. You will be placed in a "waiting room" and the host will admit you to the meeting at their discretion. The use of the waiting room ensures no unauthorized individuals are admitted to the meeting.

Once the meeting has begun, you will see a screen with all the participants in their own window. It's somewhat like the old *Hollywood Squares* TV game show. At the bottom of the screen are a set of controls. Normally they are invisible and you must roll over the screen to see them. It is possible to keep them visible in the settings menu.

On the lower left is a microphone that indicates whether your audio is muted or not. This microphone also appears in the lower left of your individual window. Clicking on either mic mutes or un-mutes your audio. You can also use the space bar on your keyboard like a PTT button to unmute your audio. There is an up-arrow next to the microphone that lists other audio functions.

Moving to the right, there is a video camera symbol. Clicking on the camera "mutes" your video. The camera up-arrow has other functions, including accessing the virtual background. The virtual background allows you to put up a picture of your choice behind your image. This obscures your background and makes things a little more interesting.

Moving to the right you'll see the following controls:

1. **Participants**. Clicking on this will open a list of meeting participants. This list can be placed anywhere convenient on your desktop. It is advisable to keep this open during the meeting to see who is present.

2. **Chat:** Clicking here opens a chat window. This allows the sending of messages to any or all participants in the meeting without interrupting whoever might be speaking at the time. Again, it is advisable to keep this open during the meeting.

3. **Share Screen:** This button allows you to share your screen with the rest of the meeting participants. Do not use this button unless permission is granted by the host.

4. **Record:** It is possible to record the meeting if desired.

5. **Reactions:** Clicking here will show two icons, a clapping hand and a thumbs up. Clicking on either icon will put that icon on your window temporarily.

6. **Leave Meeting:** This is self-explanatory.

7. Download the app to your device. Ensure you have the latest version on all devices you intend to use; computer, phone or tablet.. An update on one device, does not automatically update other devices.

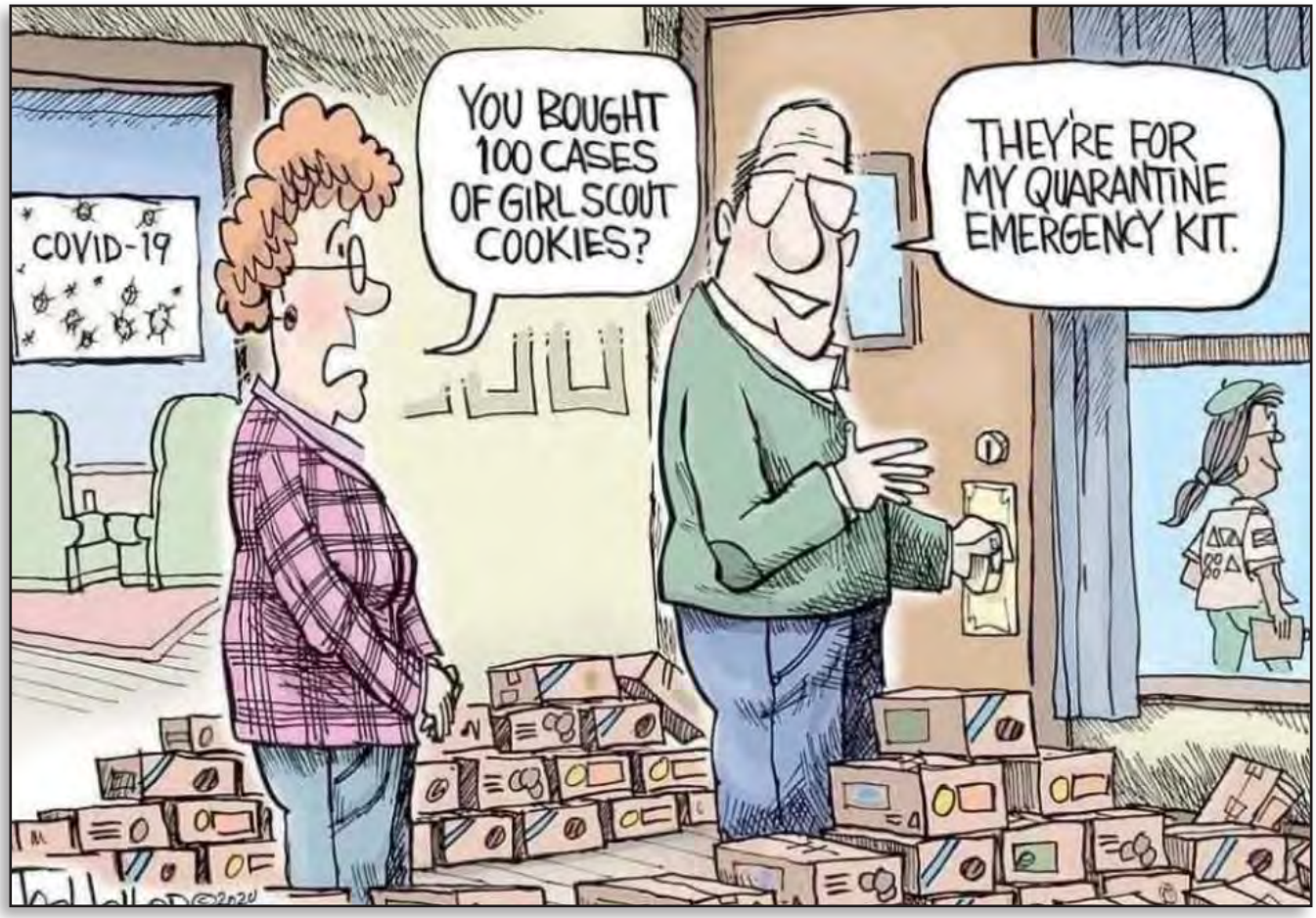
8. Check your audio and video *prior* to starting a session, including virtual backgrounds.

9. Mute your audio when entering the room, if not already muted by the host.

10. Mute your video if you are getting up or moving around during the meeting.

11. Attend at least one practice session before joining an important meeting.

This should cover all the basic functions of the Zoom application. If anyone has any questions, they can contact either John Wright, K6CPO or Fred Curtis, KI6GRO.



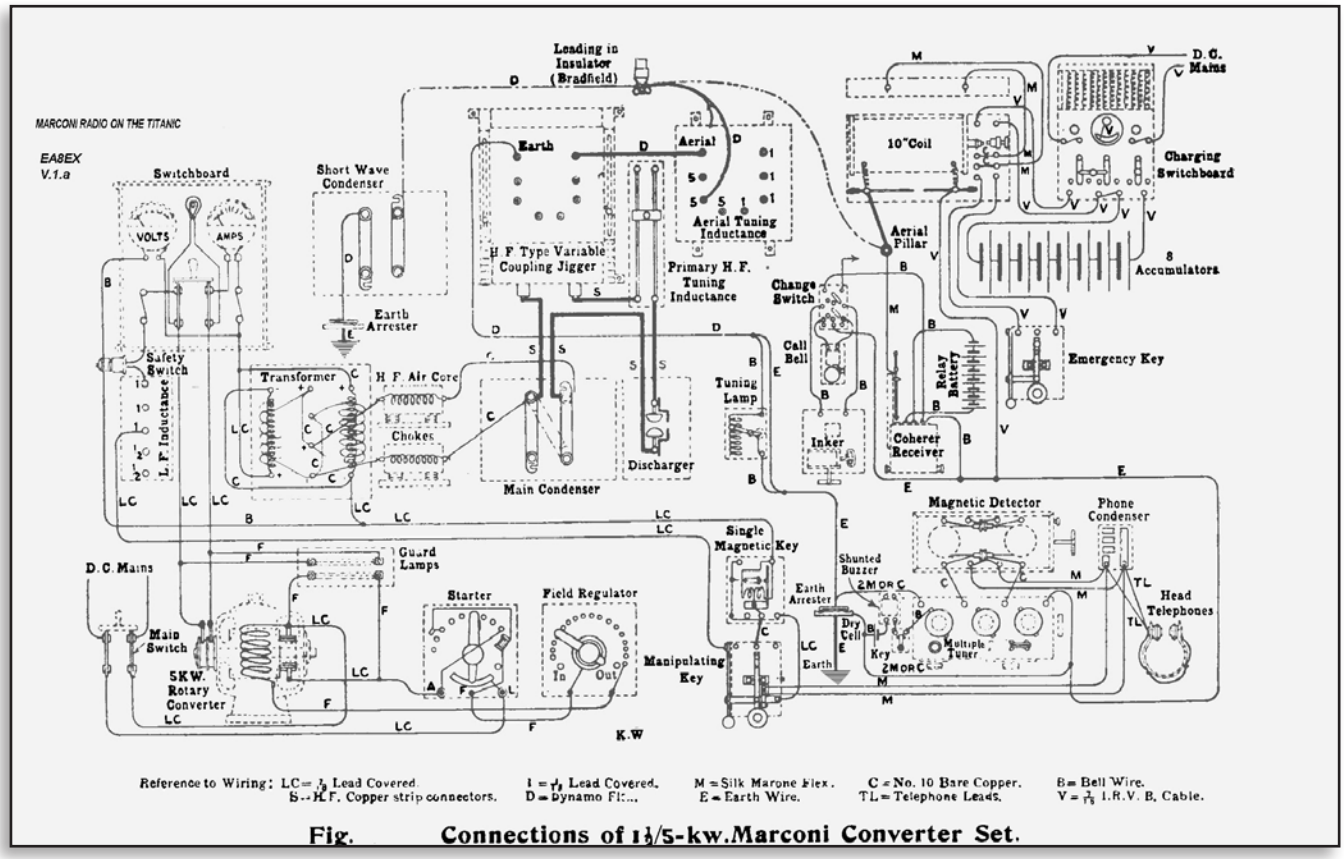


Fig. Connections of 1½/5-kw. Marconi Converter Set.

Schematic diagram of the spark gap transmitter aboard RMS Titanic when she sank 108 years ago this month in 1912.