

The SPARC NEWSLETTER

November 2025

A publication of the Southern PA Amateur Radio Club

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Actual Club News

by

Harry N3FMO

\$\$\$:

Dennis, W3DEN will be moving to West Chester at the end of the year. We will need to find a new treasurer. Also the books will need to be audited before the end of 2025. We will need two members who are not currently on the board of directors to do this. Are you the fiscally nosy, judgmental, suspicious type? Or, do you “handle the money” at home? Excellent! You have a special gift! You need to oversee the financial audit. Volunteer.

More \$\$\$:

A few years ago, do you remember that big financial Covid bail-out, where the government just printed up a bunch of checks to stimulate the economy? Well, baby, that

means that eventually, through the magic of the gray art of economics, everything is going up in price.

So... your ham club is no exception. The Board has voted to raise the membership dues to \$30. This is the first increase in more years than I can remember. This, and the upcoming opening of AI “data centers” that will crush our already fragile power grid, means electricity is going to rise. So, it is inevitable that the dues will go up.

Just think. That repeater building is humming right now, chock full of equipment that is sucking power 24/7/365. Tell you what. If you renew before January 1, the dues will remain \$25. After January first the renewal will be \$30. So act now.

ALSO:

In an effort to reduce expenses, we will be installing a solar power system. We already have the panels, charge controller and a solar combiner with circuit breakers. We still need batteries, inverters and some wire and connectors. What we need more than anything is someone to advise us on the installation. Does anyone know anything about this? Come forward and take charge. Your club knows you. Teach us how to do this.

We are also looking for direct donations of cash to fund the solar project. We will set something up on the website to handle donations. Batteries are expensive.

On the fun side of life, we will be holding a Holiday Party on Tuesday December 23 at 6:00 PM. This is the regular meeting night and is only 2 days before Christmas. Please contact David Keener, W3IWU at gdkeener@verizon.net to RSVP. Let him know that you are coming and what you will be bringing for the pot luck dinner.

Meeting:

Remember that when the leaves fall, the meetings change locations. The November 25 meeting will be at the training center at 7:00 PM. The program will be FT8 presented by Ryan, W3RDE. If you don't know, FT8 is the automatic mode that just works stations. You don't have to do anything but watch the computer work. Learn how easy it is to get DXCC.

Whazzat? – Part One

by
W3IHM

Part of the fun of ham radio is learning new stuff. I have been at this my whole life, but

there is always more to learn and discover. Like here's something. What do you think this thing is?

- a.) A muffler from a 1959 Renault Dauphine.
- b.) The "fat part" of a pogo stick.
- c.) A trap.



If you answered "c" you are correct. I have seen these flavors on beams and trap verticals for years, but I never had the chance to dissect one and see how it actually works, although I had my ideas.



Harry was clearing out some of the site, so now's my chance. The cover has a single screw on one end. The other end is supported by insulator thingies. Let's see. This single screw has a purpose. Hummmm... I get it. The outside "can" forms one plate of a

capacitor, with the other plate being all the “junk” inside.



The insulator on the other end keeps the capacitor from shorting out. Inside there is the other half of the LC trap. Let's shred it. Aha. A coil of wire. See? What else would be there?



The insulators keep the can outside from shorting against the other end of the coil. The wire and one end of the element forms the other plate of the capacitor, as well as the inductance needed to form an LC tank.

The insulators keep the outer can “plate” floating above the wire coil. See?



Well, this muffler's screws were a bit corroded and rusty. Sure, they made contact, but I had the thing apart, so why not fix it? Check out these screws. They are melting away. I guess moisture in the traps causes corrosion.

Here's an Elmer tip:

Even if we seal the thing completely, and there is any humidity inside, the temperature on the outside will conduct through the aluminum metal, and inevitably reach the dew point of the humid atmosphere sealed inside. Just like a cold beer on a humid day, water droplets will form on all the metallic stuff inside. So sealing up your traps will not work to keep the moisture out.

I find that if one wants to stop moisture, we can open the thing to the outside, or we need to completely dry out the air inside the trap before sealing it up. I find that putting a desiccant inside somehow will dry out the atmosphere enough to hopefully keep everything below dew-point.

Desiccant? Wazzat? It's something that “sucks” out the air's moisture. How about cat litter? I use a small cloth bag full of cat litter placed somewhere inside, out of the way. Then I seal the thing completely up.

I know this works. I have put up big metallic boxes up my tower, chock full of all sorts of microwave stuff for several years, and found them completely dry inside.

OK, back to this particular trap.

Oh! look at these screws! Rusty! Bugs had also nested inside these traps, leaving all their nests and webs behind.



The coil is wrapped around a fiberglass dowel that fits snug inside the aluminum tube. The fiberglass is riveted in place. I went ahead and removed the end screws from the coil, and fetched some stainless replacement screws.

You can check these trap coils with a simple ohmmeter. No need to pull the thing apart, or even take it off the beam. The coil should show continuity through the element. This one tested fine, even though the screws and such looked horrible.

I want to rebuild it anyway, and refresh these corroded, rusty screws, but this one still had continuity. So the coil was still making contact somehow. About an ohm on a free



Harbor Freight meter. See?

So how does this form an LC tank? Well, first thing is why would we want an LC in line with our antenna? I mean why is it called a “trap” anyway?

Let’s talk about how it is supposed to work. To start with, we want to use a single dipole on more than one frequency. If we feed in higher multiples of frequencies, we can get matches, but the radiation pattern starts to get messy. Waves cancel, and less radiation occurs. Keep going up in frequency and “traveling waves” start to happen, but that’s a whole other thing.

Remember that the absolute most important thing an antenna can do is radiate RF. The SWR is just about how the transmitter will deliver its power to the antenna, not what the antenna will do with it.

There are “antennas” that have completely flat SWR’s from DC to daylight, but they don’t radiate. They are called dummy loads.

SWR is not the most important thing. Radiation is. I notice that ham advertisers now seem to ignore any pictures or data of radiation patterns and radiation efficiencies, but print lots of nifty SWR plots. That tells us they are trying to convince you that SWR is king. It isn’t. Radiation efficiency and antenna pattern is, not SWR.

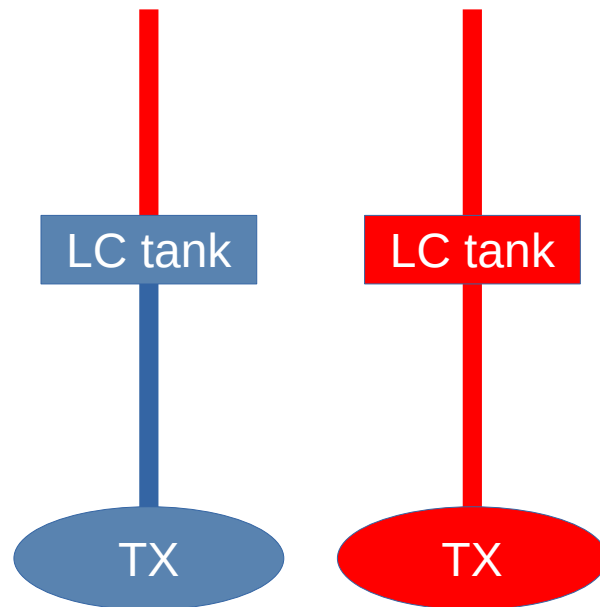
My elmer was more interested in how high, free, and clear the antenna was, and worried about the match only afterwards. SWR is important, in that if your transmitter does not couple its power to the antenna, it won’t matter how good the antenna radiation efficiency is. This matters little, though, if your antenna poorly radiates. OK, back to the traps.

A parallel LC tank circuit looks like an open circuit at resonance. This is because energy is being transferred between a charge field and a magnetic field. It looks like a high impedance, or ideally, an open circuit. So the LC tank thus disconnects everything past that tank.

Think of it as a frequency selective disconnecting switch.

So if you have an element that you want to work on two frequencies, you put a trap at the shorter length, so it will resonate at that frequency, disconnecting the longer bit, leaving only the shorter bit to radiate.

Check out this hokey graphic I drew. I couldn’t find anything better on the web, either, so I did this. There. Deal with it.



When transmitting the blue frequency, it hits the resonance of the LC tank, and “traps” it, so it disconnects the rest of the antenna, and we get a nice clean radiation pattern. When transmitting the red frequency, the tank lets the RF go through, and again, we get a nice clean radiation pattern. Sweetness.

So depending on which frequency we transmit on, the antenna can be made to resonate a nice clean efficient pattern at either frequency.

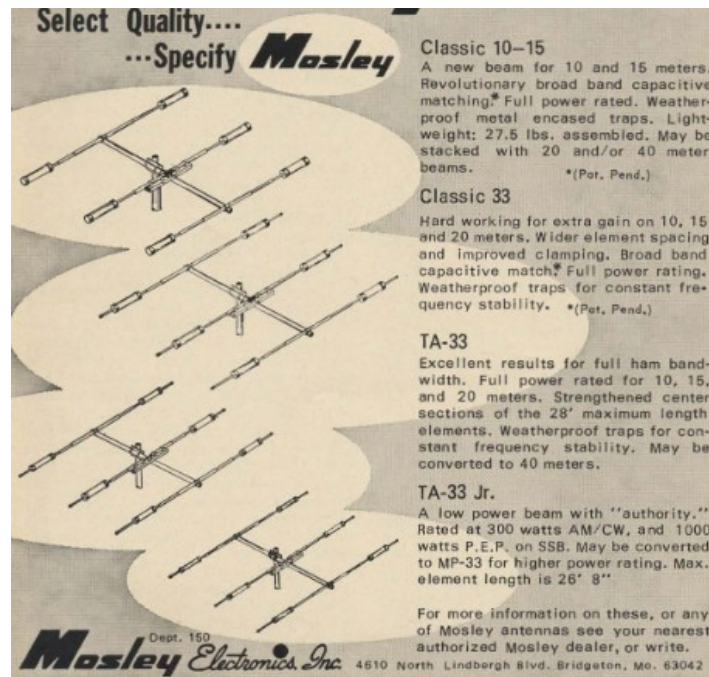
Ok, nice, but how is the can-thingie we took apart, with it’s coil inside, supposed to make a tank circuit? Good question.

-...-

Whew! I just deleted another huge rabbit hole! Never ask a radio guy to talk about resonant circuits. So in brief, consequentially, suffice it to say, and in summary, the coil acts as an inductor (sorta), and the shield acts as the capacitor (sorta), so the whole thing makes a parallel LC tank for our trap. (...I feel like I am cheating you! There is sooo much more going on! It all ties together! It’s really cool!)

And thus, we have our trap resonant circuit, not a Renault Dauphine exhaust muffler.

That's what's inside of those things, next time you see an HF beam or vertical. Maybe now you also can vaguely see how they work.



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For more information on these, or any of Mosley antennas see your nearest authorized Mosley dealer, or write.

In part two, I will tell you how to accurately measure the resonant frequency of traps.

Meeting Night

Like most clubs, there sets in a sort of monthly pattern of meetings, etc. Like, for SPARC, the usual average monthly general membership meeting is held the fourth Tuesday of the month, June the 24th at 7:00 PM, at the Clubhouse. Sometimes these things change, especially in the winter. Why are you looking at this newsletter for such information? Go to K3IR.org and check the calendar tab.

License Test Sessions

Want to upgrade your license? How about get a license? You will need one to be a ham operator. There IS a test. You are required to know something. It's not just a \$\$\$ thing. Demonstrating that you indeed know something is another matter altogether.

So you will need to study some materials. There is plenty of on-line information to help you get your license. Ask us. We are here to serve. Go to k3ir.org and ask for help.

Usually, testing is conducted at the SPARC site on the first Tuesday of every month. The fee

to take the exam is usually \$14.00 payable on the K3IR website or in person, cash or check only. Go to K3IR.org and check the calendar tab to make sure.

If you do not already have one, go to fcc.gov and register for a FRN (Federal Registration Number). You will need this to interact with the FCC.

You can also pre-register to take the technician test, or upgrade, at Hamstudy.org. There is also a link on the K3IR web site to follow. Check the k3ir.org website for the latest in fashionable ham test news.

Upcoming Hamfests

Well, you will find some hamfests down south, where it's still warm, out west in the desert, where it's still warm, and in the upper midwest, where it's freezing, but it's not "that cold". There are none around here, though.

Volunteer – See first section.

SPARC currently has 131 "active" members on the roster. We have a lot to offer to our members. At this time we have a dedicated group of hardworking volunteers who keep the site running. Some say this is typical with most organizations. I don't think SPARC should be "typical" We need more real active members. Jobs range from the highly technical to the mundane but ALL are important. Please look at the list below and see if there is a place for you.

IT Team

Tower climbers and ground help

Operating building maintenance and cleaning

Operating building equipment maintenance and improvement

Porta Potty cleaning (not Pumping!)

Adopt a Highway crew

Elmers and Elm'ettes

Hamfest help, planning, etc.

Meeting programs and talks

Antennas! ...always more, bigger, higher.

Someone to take the trash home and pitch it when it's full.

Someone else to either eat or toss the old stuff in the fridge.

Someone to put the 6 meter beam up on a rotor.

Trivia:

Last month's question was:

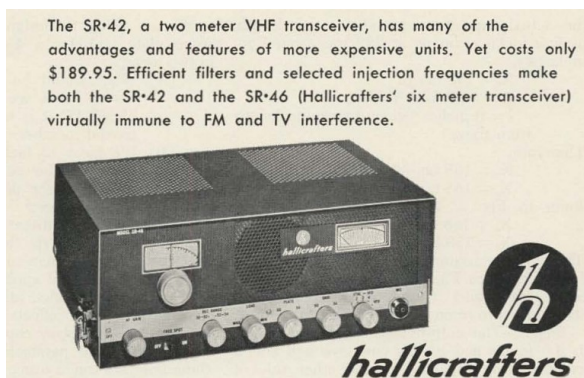
“What voice mode dominated the 2 meter band before the 1970's, including repeaters, auto-patch, remote bases and relays?”

Answer:

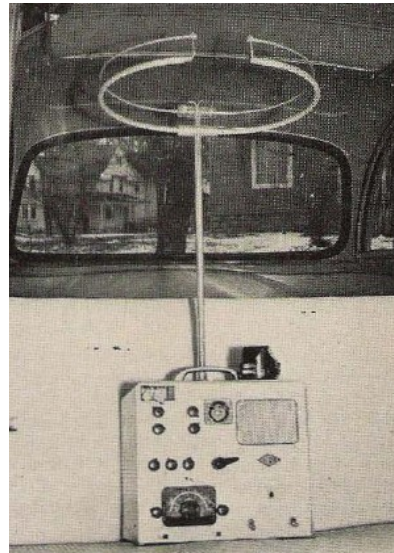
AM! Yes, up to the early 1970's, there was tons of 2 meter AM on the air, including repeaters, remote bases, and all sorts of stuff. See these 2 meter AM rigs? There was a bunch. And they ran horizontal polarization, including mobile antennas, too. See those goofy looking loop antenna thingies?



Being eccentric and sentimental, I still have 6 and 2 meter AM rigs in my shack, although no one around here uses 2 meter AM anymore. (Anyone up for 146.94 MHz AM?)



When the band is open, I have worked many on 50.4 MHz AM, though.



Two meter FM didn't really come about until the FCC re-regulated the commercial 2-way stuff and split the channels in the late 1960's.

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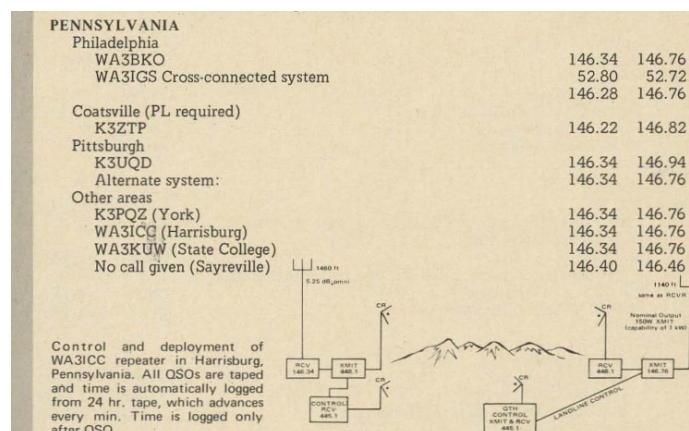
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2 — METERS — 6

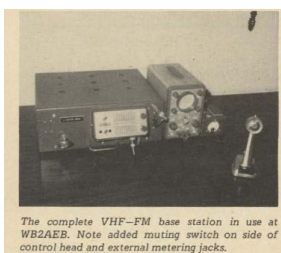
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The FCC told the commercial guys that now they had to have radios with 15 kHz narrow RX and TX bandwidths, obsoleting all the current commercial equipment that was 30 kHz wide. This obsolete gear dumped onto the ham market, sparking the invasion of FM and channelized operation. By 1970 there were about 9 FM repeaters in Pennsylvania. Look at this.



This is when I started to get interested in ham radio. It was a fascinating time to be in the hobby.

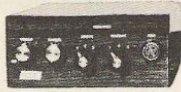


I could get an old commercial tube type FM commercial radio for \$15, and spend like \$10 for a set of RX and TX crystals. Then, I went around asking who knew how to get my 1955 Motorola T44 on 2 meter FM. Eventually, it required me to learn how receivers and transmitters work, how crystal multipliers did that “frequency multiply” thing, how to “down band” tank circuits, and how to “narrowband” IF amplifiers.

It got me. I was hooked. By the time I was in college, I was converting rigs, adding synthesizers, making cavities, building and maintaining repeaters, controllers, auto-patch, and linking them together on UHF. I even had a repeater at my folks house on 145.45, when the “new” 145 MHz sub-band opened up to FM from AM. I had both. Romey says that’s sexy.



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