



Squelch Tales



Newsletter from the Merrymeeting Amateur Radio Association for August 2015

Pretty Lousy? The PL259 Connector

By W1ZE

The PL259/SO239 (aka UHF) connectors have harsh critics and religious defenders. Questionable measurement techniques complicate matters. Let's clear things up a little.

Once upon a time, just before WWII when the PL259 was born, Frequencies above 30MHz were considered UHF, so it got the name UHF connector. The unfortunate evolution of the UHF definition carried the PL-259 with it causing some to actually believe it works well at UHF. **Not so much.**



The connector does OK below 30 MHz but starts to become finicky above 54 MHz. Most commercial and Ham transceivers on the bands below 222 MHz come with SO-239 female connectors. Coaxial plug assembly with this connector needs to be done with care to keep impedance nominalizes and losses to a minimum. On the current UHF frequencies (300 MHz and up)

it is highly recommended that "N" type connectors be used to keep SWR and losses low.

The US military now uses nearly 100% "N" connectors on all radio frequencies transmission lines from VLF to UHF to help reduce power and signal loss and lower weather related difficulties.



Back in June of this year I read an article on the DX Zone web site that addressed the problems with PL259 family of connectors. I highly recommend you read it and take note of the test results. PL259 connectors are cheaper than "N" type connectors, but when you get above 430 MHz, do not use the PL259 connectors.

Check out the article at:

<http://www.hamradio.me/connectors/pretty-lousy-pl-259-connectors-the-test.html>

73, Bruce, W1ZE



HamShield turns an Arduino into a VHF/UHF transceiver

By Dan Romanchik, KB6NU

The Arduino seems to be making a big splash in ham radio circles these days. The ARRL has recently published a couple of books about the Arduino and Arduino-based amateur radio projects. And, recently, I purchased a NanoKeyer (nanokeyer.wordpress.com), which is a CW keyer powered by an Arduino Nano.

Now, a couple of enterprising young hams have built the HamShield (<https://www.kickstarter.com/projects/749835103/hamshield-for-arduino-vhf-uhf-transceiver>). It's an Arduino shield that turns an Arduino into a VHF/UHF transceiver. With the HamShield, you can transmit and receive on the 2 m, 220 MHz, and 440 MHz bands.

According to Casey, KC7IBT, one of the project leaders, "We have both voice and data working on the shield right now and also have a powerful library to control it."

"We also have it talking to the Chrome browser, so any computer that can run a web browser can operate a packet radio station or voice station. We also have another piece of chrome software called "APRS Messenger", a text messaging app for APRS. One of our prototypes is in a neat little case that clips right to the back of your laptop (shown in the video). I will launch these apps in the Chrome Store once we get closer to completion.

"We have 10 working prototypes currently, but need to raise money to fund the production cost and get the unit prices down to acceptable levels. This means

buying parts in bulk and reducing production costs."

I think this is a very cool project, and I hope that you'll consider supporting the HamShield Kickstarter project. I plan to get one and see what I can do with it.

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When not playing with Arduinos, Dan operates CW on the HF bands and blogs about amateur radio at KB6NU.Com. He is also the author of the "No-Nonsense" amateur radio license study guides. His most recent book is The CW Geek's Guide to Having Fun with Morse Code. The books are available on his website or on Amazon.



Fun with toroid's, Part 4

By J. Bruce Randall, W1ZE

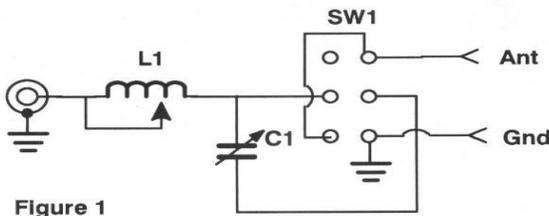


In the July issue of Squelch Tales I showed how to build a simple small 4:1 balun. This month I describe a very small QRP level antenna tuner.

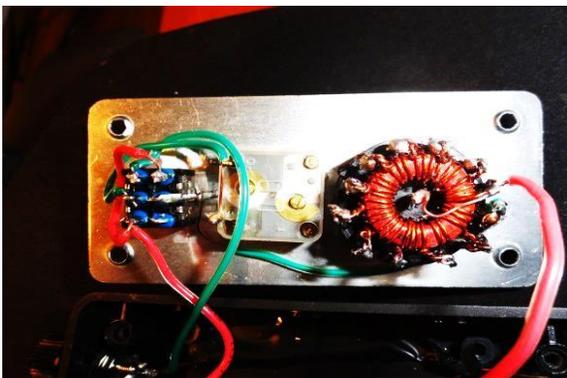
This little antenna tuner is designed for QRP level use (under 20 watts) and will work well with either an end-fed half-wavelength wire or a quarter-wavelength

wire (or lengths in between) for an antenna. It is a simple "L" network. With the antenna attached to the capacitor side it provides a good match for a high-impedance load, such as a half-wavelength wire. A series L-C circuit can be used to match a low-impedance load, as presented by a quarter-wave wire. I build this simple tuner which could be optimized for either situation with the flick of a switch. Most importantly for me, I wanted to make use of available parts from local and online suppliers. I housed it in a small 4x2x1 inch plastic project box I purchased at Willy's Electronics Supply in San Diego.

Starting with the typical "L" configuration, I added a DPDT slide switch, as shown in Figure 1 below.



With the slide switch in the down position, the configuration is a basic L circuit. This configuration works well with wires which are multiples of a half-wavelength.



With the slide switch in the up position, the inductor and capacitor are now in series. This configuration works well with a quarter-wavelength long wire.

The values of the parts are not particularly critical, but here's what I used:

L - 40 turns of #22AWG enameled copper on a T106-2 (red) toroid. Tapped in 12 places with a Single Pole 12 position rotary switch to select the taps.

C - 365 miniature Broadcast band variable capacitor. The shaft *must* be insulated from the chassis.

SW - DPDT slide or small toggle switch

I used a BNC coax jack for the input connection and two binding post for the antenna output and ground connections.

Antenna tuners (or transmatches) are great projects for the budding home brewer. They're fairly easy to build from scratch, usually very forgiving with respect to component values, and very useful to have around the shack. This little toroid core tuner performed well for me on 40 through 10 meters with my 80-foot random end fed wire antenna at my southern California winter QTH .

Note: I have enjoyed shearing my "Fun With Toroids" articles for the past several issues of this newsletter. The feedback I received was very positive from our newsletter readers around Maine and across the country. I hope to continue providing "How To" articles for Squelch Tales readers. If you would like to contribute a "how to" article or any other ham related article that you would like to share with our readers, send it to me, it would be greatly appreciated.

73, Bruce Randall, W1ZE



NEWS FLASH!

Brunswick, ME: On July 3rd the MARA's own DR Steve Kerchel, AA4AK made his first "ever" RTTY QSO and landed Special Event Station K2L in South Carolina. He reported that his broken CW sending hand was in a cast' so as to not sound as he was QLF (Sending with Left Foot) he decided to give RTTY a try, and he met with success. Welcome Steve to the second original digital mode. 😊



73

By Glen Zook, K9STH,

Many amateurs already know that "73" is from what is known as the "Phillips Code", a series of numeric messages conceived for the purpose of cutting down transmission time on the old land telegraph systems when sending text that is basically the same.

In the April 1935 issue of QST on page 60 there is a short article on the origin of 73. This article was a summation of another article that appeared in the "December Bulletin from the Navy Department Office of the Chief of Naval Operations". That would be December of 1934.

The quotation from the Navy is as follows: "It appears from a research of telegraph histories that in 1859 the telegraph people held a convention, and one of its features was a discussion as to the saving of 'line time'. A committee was appointed to devise a code to reduce standard expressions to symbols or figures. This committee worked out a figure code, from figure 1 to 92. Most of these figure symbols became obsolescent, but a few remain to this date, such as 4, which means "Where shall I go ahead?". Figure 9 means 'wire', the wire chief being on the wire and that everyone should close their keys. Symbol 13 means 'I don't understand'; 22 is 'love

and a kiss'; 30 means 'good night' or 'the end'. The symbol most often used now is 73, which means 'my compliments' and 92 is for the word 'deliver.' The other figures in between the forgoing have fallen into almost complete disuse."

One of the chief telegraphers of the Navy Department of Communications, a J. L. Bishop, quoted from memory the signals that were in effect in 1905:

- 1 Wait a minute
 - 4 Where shall I start in message?
 - 5 Have you anything for me?
 - 9 Attention or clear the wire
 - 13 I do not understand
 - 22 Love and kisses
 - 25 Busy on another circuit
 - 30 Finished, the end-used mainly by press telegraphers
- 73 My compliments, or Best Regards**
- 92 Deliver

Now days, 22 has become 88 (love and kisses). I don't know when this came about. 30 is still used in the newspaper and magazine business to indicate the end of a feature, story, or column. And, of course, 73 is still used by amateur radio operators to mean "best regards".

Making any of these numbers plural (73s, 88s, etc.) is incorrect since they are already plural. 73s would mean best regardses and 88s would mean love and kisseeses. Those make no sense.

Anyway, the subject of where 73 came from comes up periodically and this article reinforces the "Phillips Code" origin.

Jim, N2EY, adds:
Some other related stuff:

Phillips Code "19" and "31" refer to train orders. They were so well known that the terms "19 order" and "31 order" were still in RR use in the 1970s, long after the telegraph was gone.

The abbreviation "es" for "and" derives from the Morse character "&". The prosign "SK" with the letters run together derives from the Morse "30".

The numeric code is a small part of the abbreviations outlined in the Phillips Code (developed by telegrapher Walter P. Phillips). Here are the numbers as referenced:

WIRESIGNALS

WIRE Preference over everything except 95

- 1 Wait a moment
- 2 Important Business
- 3 What time is it?
- 4 Where shall I go ahead?
- 5 Have you business for me?
- 6 I am ready
- 7 Are you ready?
- 8 Close your key; circuit is busy
- 9 Close your key for priorit business (Wire chief, dispatcher, etc)
- 10 Keep this circuit closed
- 12 Do you understand?
- 13 I understand
- 14 What is the weather?
- 15 For you and other to copy
- 17 Lightning here
- 18 What is the trouble?
- 19 Form 19 train order
- 21 Stop for a meal
- 22 Wire test
- 23 All copy
- 24 Repeat this back
- 25 Busy on another wire
- 26 Put on ground wire
- 27 Priority, very important
- 28 Do you get my writing?
- 29 Private, deliver in sealed envelope
- 30 No more (end)

- 31 Form 31 train order
- 32 I understand that I am to ...
- 33 Car report (Also, answer is paid for)
- 34 Message for all officers
- 35 You may use my signal to answer this
- 37 Diversion (Also, inform all interested)
- 39 Important, with priority on thru wire (Also, sleep-car report)
- 44 Answer promptly by wire
- 73 Best regards**
- 88 Love and kisses
- 91 Superintendent's signal
- 92 Deliver promptly
- 93 Vice President and General Manager's signals
- 95 President's signal
- 134 Who is at the key?



W1DYJ

is one lucky son-na-ma-gun!

The national QCWA June prize winner was the MARA's own Larry Banks, W1DYJ. His correct entry was randomly chosen out of the hundreds submitted.

His prize was a Baofeng UV-5R-V2+ 2M/70cm HT with a programming cable.

The HT is easy to program with the free CHIRP software from chirp.danplanet.com.

If you own of the Chinese transceivers and have not used CHIRP before it definitely is worth getting familiar with, especially if you have or use more than 1 brand/model of HT and want to move your repeater lists and public service channels between them.

Kudos. nice going Larry



Things for Sale to go to a good hams QTH

By Ray Sirois - N1RY

I have accepted a new position down on Long Island NY... and we are most likely going to be selling our home in Harrison ME. So I am selling the following items:

- Rohn 25 Tower erected in Harrison ME for sale along with Tail Twister Rotor, Rohn anti-twist mounting hardware, Tennadyne T10 LPDA beam antenna, Bozak 2M antenna, Cushcraft 2m/440 yagi antenna, hard line feed, Kevlar non-conducting guys at top, traditional galvanized guys at bottom. Package \$1500 Must be taken down by the buyer's team.
- AL80A HF Amplifier, \$500. Must pick up in Harrison ME
- Cushcraft A3S Beam for sale \$100. Must pick up on Harrison ME

Contact me, **Ray Sirois - N1RY** ray@sirois.com



AA4AK TO HOLD SEMINAR AT BOXBORO

The MARA's own Dr. Steve Kercel, AA4AK has been tasked to present a seminar titled "**How Ham Radio Helped Me Deal with Autism**" at the ARRL Convention in Boxboro, MA on August 22nd at 10:00am. If you are planning on attending the convention, why not attend his informative seminar.

A matrix list of events can be seen on the Boxboro website at:

http://www.boxboro.org/ForumSchedule_rev071315.pdf

For additional information about the Boxboro Convention go to: <http://www.boxboro.org/>



NEWS FROM NEWINGTON

ARRL Los Angeles Section Promoting Membership in *Infragard*

In Los Angeles, according to the [ARES page, ARRL Los Angeles Section](#) website, "ARES members are invited to join [InfraGard](#), a public-private partnership managed by the FBI with the purpose of



InfraGard
Partnership for Protection

sharing information concerning protection of our nation's critical infrastructure. Communication is one of those critical elements, and ARES is recognized as playing an important role.

"Applicants for InfraGard membership undergo an FBI background investigation and, once cleared, will receive a membership document, regular e-mailed security briefings, access to the secure InfraGard Internet site and invitations to a variety of training sessions. The passing of the background check may prove useful in a variety of other ARES partner-agency engagements where absence of a background check might otherwise delay or preclude our involvement.

"InfraGard membership is not mandatory, but Los Angeles ARES leadership encourages all members to consider submitting applications."

From its website, "InfraGard is a partnership between the [FBI](#) and the private sector. It is an association of persons who

represent businesses, academic institutions, state and local law enforcement agencies, and other participants dedicated to sharing information and intelligence to prevent hostile acts against the U.S." - [ARRL Los Angeles Section ARES](#)



KS1R Field Day 2015 Results Submitted

On July fifteenth, Don Wakeman, KA1WAL advised that he submitted the KS1R 1F category Field Day results and claimed score to the League. The KS1R team claimed 1150 bonus points and 1300 QSO points for a total score of 2450.

Compared to last years 2F category score of 3754, where we took first place in Maine, First Place in New England and sixth in the nation, this year's KS1R team did a very good job considering only one transceiver was being used with no free GOTA or VHF/UHF station at the Red Cross facility in Topsham.

Last year the top 1F National winner was K9UW who came in with 4468 points and the top New England score of 930 was obtained by N1NRA in Vermont.

We will know in a few more months how well the team did in the 1F category but we suspect that KS1R did very well in Maine and maybe New England too.



Don't take that old PC to the town dump before you do this:

Do you want to make a cheap and easy switching 13.6VDC power supply that will deliver 15 amps or more to run your dual-bander or even your 100-watt HF rig? Here is a solution:

Before you haul the big old PC over to the town dump (I forgot, recycling center), open it up and salvage a few things. First remove the soundcard. Why, because it has a 600:600 ohm or two isolation transformers on it that can be used to build a nifty PC to rig sound card interface. Next, disconnect and remove the switching power supply. This can be turned into a nice 13.6 volt DC power supply.

To convert it to a nice Shack/workbench power supply, check out the instruction in the following sites:

- <http://www.dxzone.com/6-easy-projects-convert-a-pc-power-supply-to-ham-radio-use/>
- https://www.youtube.com/watch?v=r6IcC_NeFtY
- <http://www.ifwtech.co.uk/g3sek/sm-ps/smps.htm>



