

The

Modulator

Newsletter of the Newport County Radio Club, January 2017

NCRC HF Net

The idea of a club High Frequency radio net has been around for some time now, but not engaged until recently. Our VHF nets have been active for many years, but are essentially limited to those with access to the Portsmouth repeater. An HF net has the potential of linking hams from many states.

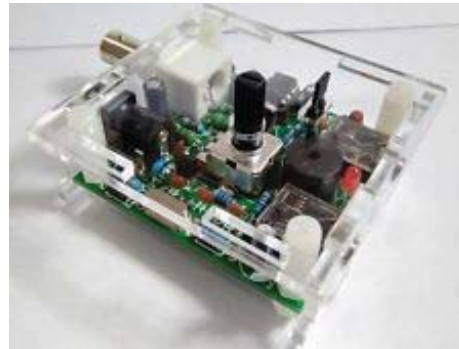
In early December the Chelsea's Breakfast Crew decided to give 80 meters a try. Willy, W1LY, gathered the folks at 3.9 MHz at 1930 on that first Wednesday evening. Suffice it to say that propagation was "peculiar." Although all of us could hear some of us, no one could hear all of us. In this close, we are dependent on Near Vertical Incident Skywave propagation and our horizontal dipoles are not well-suited for that.

These results prompted trying other bands and individuals putting up different antennas. In the mean time, the last two sessions have been solid with former member Larry Beavers, W1GTA, checking in from North Carolina! With Solar Cycle 24 heading into the closet, these up and down results are not surprising.

Why not give this new net a try? We meet at 3.9 MHz in the 80 meter General phone sub band. Operating details are still under development, but most folks are on by 2000.

A New Build Night and QRP

Like most radio clubs, NCRC members include a wide range of interests and experience. How do we craft a club project that will capture the interest of this disparate group? Enter the S-Pixie.



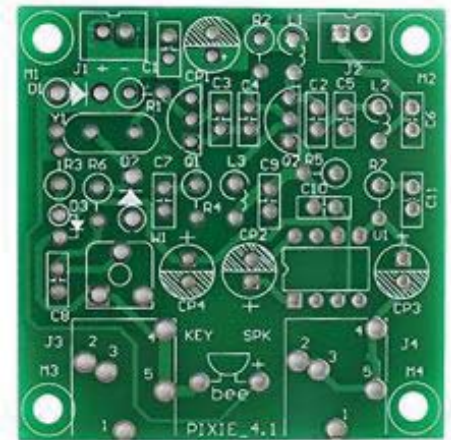
S-Pixie 40 Meter QRP Transceiver

Here is an easy to build kit that results in a complete 40 meter CW transceiver for less than ten dollars! No, this is not going to replace an Elecraft KX3, but this little kit has a lot of potential.

For starters, it's rock-bound—crystal controlled, so it will only operate on a single frequency. The supplied crystal, 7.023 MHz, lies in the Extra Class sub band, but we bought a bunch of 7.4 MHz crystals for the TECH Class sub band, so everyone can play.

And the receiver is big open mouth, so likely to be easily overwhelmed. But here is where things get interesting: the circuit is very simple and easy to get into, so making modifications will be easy and a fun challenge. A few of

us have already been thinking of ways to improve the basic design.



S-Pixie Printed Circuit Board

The PCB is well-made with plated through holes and parts clearly marked, so assembly and soldering will be easy even for beginner builders.

KVH Industries has again graciously offered to host a build night and we will have experienced Elmers to help everyone. That includes a Soldering 101 session for those unfamiliar with the smell of Real Radio.

The tentative date for the build night is the March meeting, with some preliminary activities preceding in February. Stay tuned for more details on this fun project.

See page 3 for a warm up challenge. Note: ignore the tag "Is this right?" left from earlier reverse engineering of the circuit.

Winter Field Day Soon

Paul, N1PSX, reports that he is coming down the home stretch for Winter Field Day, January 28-29. It's too soon to tell whether this year will be a balmy day in the sun or a reprise of Shackleton's march across South Georgia Island. Either way, Paul's team is sure to do us proud as they embark on this radio adventure.

WFD is a relatively new entry into the radio sport universe, and interest among clubs and individuals is ramping up. Together with several rule changes, especially changes to the scoring of CW contacts, our frost biters will have stiff competition to repeat their spectacular second place score of the past.



Paul has most of this ops lined up, but there are still some long watches to be stood. If you are a good phone or CW op, give Paul a call to see if you can provide some relief.

But helping out is not limited to experienced operators; loggers have only to enter contact data into the logs. Supporting the operators in this way allows them to concentrate on pulling out those weak contacts and moving the rate along. Can you help?

Morse Code

Ah yes, the code... Does the thought put a smile on your face or something else? After all the encouraging talk, that first step, learning the Morse alphabet, requires a commitment that can be discouraging. Here are some thoughts that are intended to be up beat.

I first learned the code to qualify for Radio Merit Badge as a Boy Scout. I learned to say dits and dahs in response to a printed letter. Years later as a Navy destroyer quartermaster, I had to back up the Signalmen by sending and receiving flashing light. Finally years after that, I decided to earn a Novice ham ticket and learned the code by sound. Based on this experience, I am certain that none of these modes is related to another! Each was a separate learning experience that, if anything, was hampered by my prior exposure.

Recommendation 1

Do not study a page of code, learn from some sound source.

Once I decided to learn code sound, I bought code practice tapes from the ARRL web site. At the time, this was the only practical way to hear code while driving to work and it served the purpose of getting me over the initial alphabet hump. Later, I bought a code practice program that ran on my computer, *Morse Tutor*. I made the commitment to listen for ten minute sessions at least once a day, sometimes twice. My copy speed and accuracy began to improve and the sessions became

fun.

Recommendation 2

Determine a comfortable daily practice schedule and follow it consistently.

It was about this time that I realized that unlike the twelve-year-old who breezed through 20 words per minute at that Novice exam, I was not wired for fast code, that the then General requirement of 13 words per minutes was likely to be my top end.

Recommendation 3

You don't work for Western Union. Code is for fun at whatever speed you enjoy. Good code is better than fast code.

The Pixie Project should be a good time and valuable experience for everyone and as a CW-only transceiver, serves as an incentive to get into Morse. There has even been talk of a slow-speed CW net to get folks on the air.

Morse Tutor, originally written for Windows 98, is no longer available. There are many code teaching programs, but I recommend *Just Learn Morse Code* by Sigurd Stenersen, LB3KB. This is a free download (Contributions appreciated) and runs on any version of Windows and on Linux with the WINE emulator.

This is an excellent training program that follows mainstream code teaching practices. It is stable and the timing is accurate.

www.justlearnmorsecode.com

Schematics Are Not Greek

On seeing a schematic diagram for the first time, most folks glaze over, but that's just initial shock. The fact is that if you think of a schematic as a puzzle and tackle it as such, it turns out to be very straight forward.

The heart of any transmitter is the oscillator that produces the radio frequency wave to be transmitted. There are many classic designs, and the S-Pixie uses one of them, the Colpitts Oscillator.

At right is the Colpitts Oscillator, below is the S-Pixie. Print this page or magnify on screen and draw a line around the components *within the S-Pixie schematic*

that comprise the Colpitts Oscillator.

Start by finding the crystal, Y1. Note that there are two symbols for ground, the "fork" in the oscillator schematic and the triangle of lines in the S-Pixie schematic. When you're done, you'll discover that the oscillator is a very large part of the transceiver. Clearly the few remaining parts make up a very simple design.

Near the bottom of the S-Pixie schematic is U1, a single dual in-line package (DIP) that is a complete audio amplifier. Things can't get much simpler than a single DIP to do the audio amplifying.

Want to go further? Look up a basic description of Direct Conversion receivers and see how that oscillator does two jobs. We'll explain this at one of the sessions in any case.

