Squelch Tales

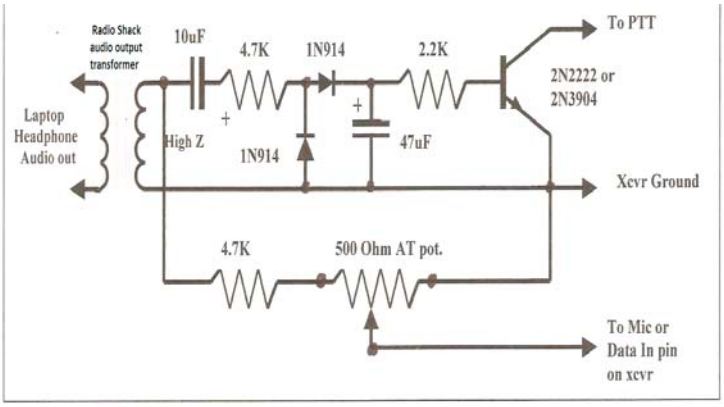
Newsletter from the Merrymeeting Amateur Radio Association for September 2012

Audio activated PTT circuit for homebrew soundcard interface

By Bruce Randall, W1ZE

In last month's issue of Squelch Tales I described an easy Tx/Rx audio interface so you could get your feet wet doing digital modes like AFSK, PSK and other computer based keyboard modes. That simple interface used the transceiver's VOX circuit to provide transmitter keying.

In this column I will show you how to build a simple PTT keying circuit. As before it still uses the AFSK signal from the PC or laptop to key your transceiver but without the need to employ your rigs VOX plus it does not require a USB or serial port on you laptop to make things happen.



The isolation transformer arrangement in last months newsletter can be used and this little keying circuit can go into the same plastic interface box used to house the existing transformer that couples the transmit/data audio from the laptop to the transceiver.

Most of the parts needed to build this keying circuit are available at your local Rat-Shack (Radio Shack) store. The keying transistor is a general purpose NPN transistor such as a 2N2222, 2N3904, etc. The two diodes can be any of the switching types such as 1N914, 1N4140, etc. The microphone audio level pot I used is 500-ohm found in my junk box but a 1000-ohm trim pot could be used (RS# 271-342 or 271-280).

How does it work? Well it is basically a miniature full-wave rectifier. Since audio is at AC potential it gets rectified by the two 1N914 diodes and the small filtered DC voltage is applied to the base of the NPN transistor. Almost all PTT circuits in modern transceivers require that the + key line be grounded to key the rig. The NPN transistor does that when the rectified audio signal voltage is applied to its base and it takes the plus key line potential to ground. The 2N2222 is just a switch. Audio levels required to activate the PTT driver may be a bit hot for the microphone input, so in the Microphome/data line a available resistor is used to lower the audio level. There you have it.

There are excellent plug-n-play soundcard interface units out there with lots of bells and whistles from firms like WestMountain, MFJ, and others. but they all do the same thing this simple interface will do. Let you do digital modes

73, Bruce

Standing Waves & You

By Bruce Randall, W1ZE

Over the years some hams have been obsessed over power loss due to Standing Waver on their antenna systems, transmission line, etc. A high Standing Wave Ratio (SWR) can be a problem with today's solid state final amplifiers. Most transceivers start to groan when the SWR approaches 2.0:1. Many of these transceivers automatically throttle back the power when their SWR exceeds 1.5:1. In the days of yore when transmitters and transceivers had vacuum tubes final amplifiers an SWR of 2:1 was not a problem because the tube by it's nature could handle the small increased temperature in the tube caused by reflected power. But with a transistor or power MOSFET device, heat generation can be a problem.

OK - yes, SWR can cause power output losses but an SWR of less than 2.0:1, the loss is not much. To help you understand what is going on with SWR, the following graph will show you how much power you are really loosing. The chart takes the power level of popular ham transceivers like a 5-watt HT, a 50-watt mobile FM transceiver and that 100-watt HF transceiver in your shack.

SWR	% Loss	5-watts	50-watts	100-watts
1.0:1	0.00%	5.00	50.00	100.00
1.1:1	0.30%	4.99	49.85	99.70
1.2:1	0.80%	4.96	49.60	99.20
1.3:1	1.70%	4.92	49.15	98.30
1.4:1	2.70%	4.87	48.65	97.30
1.5:1	3.00%	4.85	48.50	97.00
1.6:1	5.00%	4.75	47.50	95.00
1.7:1	6.00%	4.70	47.00	94.00
1.8:1	8.00%	4.60	46.00	92.00
2.0:1	11.00%	4.45	44.50	89.00
2.2:1	14.00%	4.30	43.00	86.00
2.4:1	17.00%	4.15	41.50	83.00
2.6:1	20.00%	4.00	40.00	80.00
3.0:1	25.00%	3.75	37.50	75.00

You can see on the graph that an SWR of 1.5:1 with a 100-watt transceiver results in only a 3-watt power loss. Remember that a 50% power loss results in only a 3db decrease in signal strength. So, when you see an SWR of 1.4:1 on your SWR meter (bridge*), "GET OVER IT"* and call CQ. **73, W1ZE**

MARA members assist in Beach to Beacon

Reported by Steve Kercel, AA4AK & John Goran, K1JJS

On Saturday, August 4, seven MARA members provided comm support for the Beach to Beacon 10K Race Medical Team; K1JJS, N1TTT, N1OIG, KA1WAL, N5AGG, N1OXA (Radio Comm Coordinator), and AA4AK., We were joined by additional ham operators from Cumberland, Androscoggin and York Counties, representing Cumberland, York, Androscoggin and Midcoast CERT/ARES teams

6100 runners participated in the race, including the usual cadre of world-class east Africans, both men and women. (They are fascinating to meet in person. Like no other human beings on Earth, they are built to run.) It was extremely humid. The med tent admitted 78 patients, and medevac'd 1 patient to a hospital. Of those, 26 patients were immersed in ice baths. Several had extreme stroke. One had a core temperature of 107 F (I also heard 110 being bandied about in the Med Tent) and lived! Midcoast CERT/ARES helped the Med Team save lives that day.

K1JJS & N1TTT manned net Control from the pavilion above Ft. Williams. The rest of the team was scattered throughout the fort, out on Shore Rd., and, one operator, N1WFO, was stationed at Pond Cove. Net Control was comprised of one dual band and one mono band radio, two antennas on masts, and associated equipment. Having AC power available was a plus, and, as net control was located in an open, covered pavilion surrounded by trees, we were cool and comfortable!!! Communications were handled on several 2M simplex frequencies, several 440Mhz simplex frequencies, as well as utilization of the 146.73 PAWA repeater (for comm with Pond Cove).

Medical communications were the best ever! We were able to clearly communicate with all the medical teams in the field, managing and coordinating medical needs throughout Ft. Williams and the race course. Once again, amateur radio was praised for our abilities and professionalism by the Medical Director and his staff. **73,Steve & John**

Political candidates to visit MARA meetings

By Steve Kercel, AA4AK

Right at the beginning of the August MARA meeting (from 7-7:15 pm), Ralph Dean, the Republican candidate for Maine Senate seat 10, will be visiting the meeting. This is our opportunity to familiarize him with state-level issues that affect ham radio, such as distracted driver laws and ham radio's relationship with MEMA. Ralph is a retired Navy Captain and a former P3 pilot.

We have also invited Stan Gerzofsky, the incumbent Democratic candidate for Maine Senate seat 10 (and a longtime friend of ham radio), to a MARA meeting sometime before the November election, and Stan and I are still working out a practical time for him to visit.

We are not staging a debate, and do not want both candidates there at once.

Whatever one might feel about politics, ham radio is affected by government actions at all levels, and our continued survival depends on our maintaining a cordial relationship with elected officials.

Maine D-Star Information Update

Last Changes: 2012-08-14

By Donnie Dauphin, WD1F

Here is a collection of information I have about the Status of D-Star in Maine. I'm looking for more information and was hoping if we sent this around to area hams we may get some updates. I would love to know more about the two D-Star repeaters listed at repeaterbook.com. See below for more.

I have found very little information on D-Star in Maine. Here you will find some of my notes on what I have found.** If you have information on or have D-Star equipment in Maine please e-mail me!

ddauphin@ddrov.com

****145.670 D-Star Calling Frequency** (I think) there are a few hams that monitor this frequency occasionally. I was very surprised when calling KB1YME Devin here I heard KA1JWM Dave reply. If we find there enough people to make it worth it we should perhaps start a D-Star simplex net. I will provide a list at the bottom of this page of people and locations that I know have D-Star equipment.

****KS1R 447.575 D-Star - OFFLINE**

This was an experimental repeater created by Bill (K1MNW). Bill used two Aerotron radios and modified them so they could pass square waves. I full Icom D-Star repeater / gateway is being considered in the near future.

*** **KA1JWM** Updated 2012-08-14 from - I have a Node setup on 443.0500Mhz**.** It is linked to REF001. It's output is 10 Watts and the current antenna is a Discone antenna up about 20 feet. I use a UHF Duplexer (but needs work) and this winter, I intend to build a D-Star repeater for 443.0500 and place it on the network as well as replace the antenna with something that has some gain. For now, it's a simplex node.

***Here is an update on the KA1JWM repeater here in Biddeford --- The repeater is now a selectable dual mode. The modes are **FM and D-STAR**. Frequency is **147.1500Mhz**. + 600 kHz and tone of 79.7 for FM Conventional

Communications. To activate the D-Star mode, control is accomplished by using FM with DCS code of 023 and touch toning D*. Then simply select your D-Star mode using the your call QCQCQC and rptr1 KA1JWM C. To return the repeater back to Conventional Communications, return to FM with DCS 023 and touch tone CC. Please note: At this time the repeater is not on the network. It is only local machine. All I ask is, If you use the D-Star mode, please return it back to Conventional Communication when complete due to the amount of FM users.

A search of www.repeaterbook.com shows the following two d-star repeaters in Maine:
I will try to find more information about the status of these repeaters soon and update this page. So far e-mails have been unanswered. Perhaps I tried the wrong addresses. ***73, WD1F***

News from Washington

Provided by Pete Norris, K1HZU

On August 20, in response to a Spring 2012 Congressional directive -- the FCC released its findings on the Uses and Capabilities of Amateur Radio Service Communications in Emergencies and Disaster Relief: Report to Congress Pursuant to Section 6414 of the Middle Class Tax Relief and Job Creation Act of 2012.

This report contains the FCC's "review of the importance of emergency Amateur Radio service communications relating to disasters, severe weather and other threats to lives and property in the United States; and recommendations for enhancements in the voluntary deployment of Amateur Radio operators in disaster and emergency communications and disaster relief efforts; and recommendations for improved integration of Amateur Radio operators in the planning and furtherance of initiatives of the federal government." It also required "that the study identify impediments to enhanced Amateur Radio Service communications and provide recommendations regarding the removal of such impediments."

"There are many positive things included in the FCC report to Congress," said ARRL Regulatory Information Manager Dan Henderson, N1ND. "We are pleased that the Commission highlighted the existing Amateur Radio infrastructure to provide disaster and time-critical communications. They also recognized the flexibility of the Amateur Service in working with federal, state, local and tribal emergency service agencies to supplement existing communications. The affirmation of the value that Amateur Radio brings to the communities across the country is underscored by the suggestion that 'DHS work with state, local, and tribal authorities so they may develop disaster area access or credentialing policies for trained amateur operators, including a means for documenting their qualifications...'"

While the FCC did hold Amateur Radio in a positive light in its discussion of emergency Amateur Radio Service communications, the FCC report was not as favorable in the portion of the study that addressed impediments to enhanced Amateur Radio Service communications. In the comments provided to the FCC as they prepared the study, the ARRL -- as well as numerous individuals -- cited the proliferation of specific land-use restrictions, such as deed restrictions and homeowner's association's covenants, that prohibit the erection of even modest Amateur Radio antennas.

The ARRL cited that such restrictions now apply to tens of millions of homes and condominiums. In communities across every state, these restrictions make finding suitable living arrangements that would also allow amateurs to participate effectively in providing support communications nearly impossible to find. The FCC disagreed with that assessment stating "...our review of the record does not indicate that amateur operators are unable to find homes that are not subject to such restrictions. Therefore, at this time, we do not see a compelling reason for the Commission to revisit its previous determinations that preemption should not be expanded to CCRs."

When considering any current rules that serve as impediments to enhanced Amateur Radio

Service communications, the report did agree with the ARRL's position, stating that "Commission rules that may be an impediment to enhanced Amateur Service emergency communications can, as the ARRL notes, be considered through the Commission's rulemaking process. Consequently, we do not believe that congressional action is necessary to address any of these issues."

In the report the FCC recommended that "DHS consult with the public safety, emergency management and Amateur Radio emergency communications associations and groups to identify training opportunities that will support better utilization of Amateur Radio operators for emergency communications, and to solicit views on how Amateur Radio capabilities could be further incorporated into response plans or initiatives. We also recommend that OEC include these recommendations in the NECP." (cont. next page)

Henderson noted that it is significant "that the FCC recommends efforts be continued by DHS to facilitate the training and utilization of Amateur Radio across the emergency and disaster response spectrum -- from the public sector through to the various groups and organizations which provide support communications via the Amateur Service, including ARES, RACES, MARS or locally organized support groups. When served agencies and amateur groups plan and train cooperatively, it only enhances our abilities to serve our communities and the public."

With the delivery of the FCC's report to Congress, the ARRL will determine its next step in its efforts to find relief for amateurs who live under unduly restrictive private land regulations. “Our review of the FCC report shows that there is a lot to be done if amateurs living in deed-restricted properties are to receive even the limited relief they enjoy under the Commission's PRB-1 ruling or the limited relief given to deed-restricted properties given by the FCC's OTARD ruling," Henderson said. "This means continuing ARRL's efforts on Capitol Hill and continuing to seek a Congressional directive to the Commission to extend those limited preemption’s to include prohibition of effective Amateur Radio antennas and support structure that are imposed by private land use restrictions. The FCC report to Congress is not the final action in this fight. It merely lays the groundwork for the next steps to be taken by the ARRL," he concluded.

Read the complete FCC report on the web at, **http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0820/DA-12-1342A1.pdf**.

Upcoming Hamfests

2012 Windsor Hamfest

September 8, 2012 8am to Noon
Location: Windsor Fairgrounds
Route 32 - Ridge Road
Windsor, ME 04363
Sponsor: Augusta Amateur Radio Assoc.
Type: ARRL Hamfest
Talk-In: 146.88 Mhz, 100 Hz
Public Contact: Bill Crowley , K1NIT
150 Maple Street Farmingdale, ME 04344
Phone: 207-623-9075
Email: k1nit@arrl.net

2011 Alexander Hamfest

,Saturday, September 17
Location: Alexander Elementary School, Route 9, Alexander
Website:
http://www.stcroixvalleyamateurradioclub.org
Sponsor: St. Croix Valley Amateur Radio Club

Near-Fest XII

Friday October 12th and Saturday October 13th 2012
0900 Friday through 1500 Saturday
Deerfield Fairgrounds - Deerfield NH
http://near-fest.com/