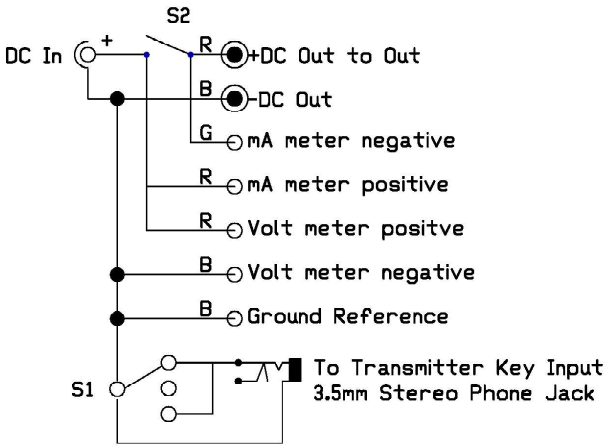



5 way Binding Post

Tip Jack

2.1mm Coaxial Power

R = Red

B = Black

G = Green

S1 = Current Measurement
Open Measure
Closed Operate
(See Operation)

S2 = TX Key Switch
Up = TX keyed
Center = Tx unkeyed
Down = Tx Keyed (momentary)

**Kabob Schematic - WB6TNL**

binding posts (Red = positive, Black = negative)

3.) Connect DMM set to measure DCV to Red and Black tip jacks.

4.) Connect DMM, set to measure DCmA , to Red and Green tip jacks.

5.) Connect umbilical cable to key jack on transmitter (if that is what you are testing).

6.) Apply D.C. power (power supply “ON”).

7.) Monitor D.C. voltage with DMM. Set power supply to desired V+.

To key transmitter, place switch labeled “Key” to the ‘up’ position to continuously key transmitter or down to momentarily key TX.

To measure current, with DMM connected as above, place switch labeled “Current” to the down position. If you do not wish to measure current, place this switch into the ‘up’ position so that voltage flows through the KABOB and out to the DUT.

Note that there is a second, Black tip jack. This is connected to DCV Minus and is a ground reference point for a third DMM should you want to “poke around” in a circuit while testing. One less clip lead to be concerned with.

**Embellishments**

You can add anything you want to. One item might be a bright LED to indicate when the transmitter is keyed. Another might be a time-out-timer to

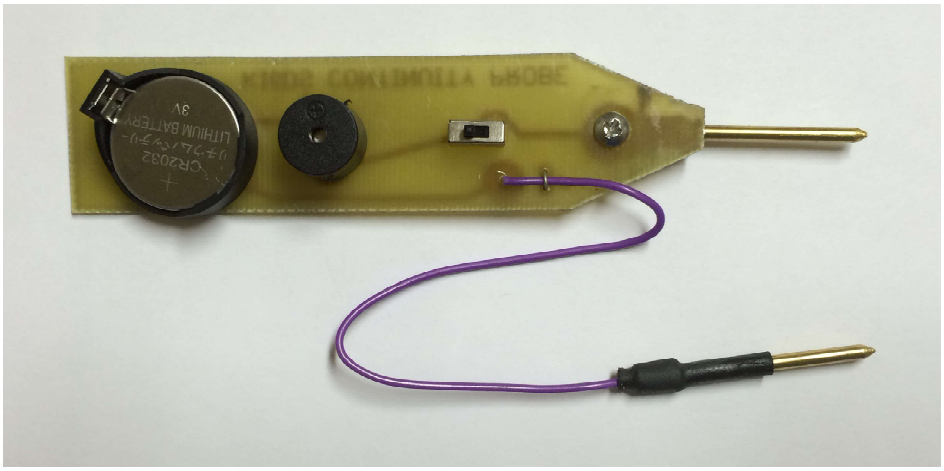
disable the transmitter should you leave the bench with the transmitter keyed (don't ask how I know this). Another option might be a built-in DMM module to monitor the power supply voltage. Use your imagination and tell us what you come up with!

That's it. Hope to see you at one of our meetings. And if you come up with an idea that you would like to see in Snort's Shorts, let me know. Have fun and Snort Rosin…….Steve Smith WB6TNL

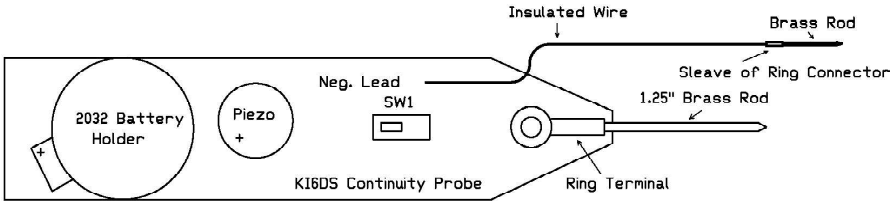
**The August KI6DS Kit, KI6DS Continuity Probe**
**by Doug Hendricks, KI6DS**

I use a Harbor Freight VOM meter. The best thing about this meter is the price. If you watch the Harbor Freight ads you can get a coupon to get a free meter. I wondered about the accuracy, but don't any more, as several of my friends have told me that they have measured Harbor Freight meters and found them to be within 1-2% of their Fluke meters. That's close enough for the work I am doing, and I don't have to worry about dropping or stepping on my HFM, which I have done.

There is one problem with the HFM, there is no audible continuity tester. love that feature and use it all the time. I don't have to look at the meter when using the audible continuity tester, I just listen!! So, I decided to design one. Ken LoCasale,



**KI6DS Continuity Tester**



WA4MNT, came up with a very handy design for the QRP Guys Digital RF Probe, and I borrowed parts of it for this design. Thank you Ken.

The circuit is very simple and there are only 4 parts on the board. A battery holder, piezo speaker, spdt slide switch, and the brass probe itself. I layed it out using Cirkad, and produced artwork to make my own board. See fig. 2. I am printing the layout full scale and flipped, so all that you have to do is print it on shiny paper to make your own board. In fact, I suggest this as a first board as it is very easy to do.

The parts placement is in Figure 1. After you etch the board, you can use a pair of tin snips to cut out the board. Trim as close to the outline as you can. Then, take some sand paper or a file and clean up the edges. It only takes a couple of minutes. Don't get too agressive.

**Parts List**

1 - KI6DS Continuity Probe PCB
1 - SPDT Slide Switch (Ebay)
1 - 3.3V Piezo (Ebay)
1 - 2032 Size Battery Holder (EBay)
2 - #14 x #4 Ring Terminals
2 - 3/32" x 1.25" Brass Rods
1 - 2032 Battery
1 - 6" #22 Insulated Stranded Hookup Wire
1 - Shrink tubing

**Construction**

Step 1 - Inventory your parts. If you are missing something, let me know, I have extras.
Step 2 - Sharpen one end of each of the brass rods. I do it by chucking it into an electric drill, placing it on some sand paper, and turn on the drill as I hold it at a 45 degree angle.
Step 3 - Solder one of the Ring terminals on to one of the brass rods. Set it aside.
Step 4 - Cut the ring off the other Ring Terminal and solder the sleave on the other brass rod, put the rod in about 1/8" and solder. Then take insulated wire, prepare the end for soldering, and solder it into the sleave of the rod. Let it cool, then put the shrink tubing on and heat shrink it.
Step 5 - Solder in Switch 1
Step 6 - Solder in the Piezo, paying close attention to the polarity.
Step 7 - Solder in the Battery Holder, again paying attention the polarity. Orientate it the same way as the drawing.
Step 8 - Using the #4 hardware, attach the main probe tip to the board. Put the Ring Terminal on the same side of the board as the traces. Insert the #4 screw from the other side. Put the lock washer on, then the nut, and tighten. Line up the probe tip so that it is parallel to the sides of the board as shown in Fig. 1. Now solder the sleave of the terminal to the board.
Step 9 - Insert the wire of the ground probe into the board. Solder the wire. Now bend the wire flush with the top of the board, and cut off one of the resistor leads on the

resistor provided. Use the resistor lead to make a strain relief and solder the other side. Step 10 - Insert the battery into the battery holder. Make sure the polarity is right. Positive goes up. Turn the switch to the on position. Touch the main probe tip to the ground tip and you should hear a beep. If you do, congratulate yourself. If you don't, check your battery and piezo orientation.

**Using the Continuity Probe**

I find that I use it all the time to check solder joints on toroids. I put one end of the probe on the first component down stream from the toroid, and the other on ground, if the toroid is grounded, or on the next component downstream if it is not grounded. Say Capacitor A goes to Toroid A then Capacitor B connects to the other lead of the toroid. I would put the probe tip on the lead of Capacitor A nearest the torroid, and the ground tip to the lead of the Capacitor B nearest the torroid. If I hear a beep, I know the solder joint is good. If not, I fix it. Another use is checking for shorts when you install connectors. Test probe goes to center conductor, ground probe goes to shield. If you hear a beep, you have a short. I am sure that you will find other uses for the Continuity Probe. One of the things I thought of was to paint the component side bright red before I build the next probe, that way I can find it on my bench. Build your probe and bring it to the next meeting. 72, Doug, KI6D

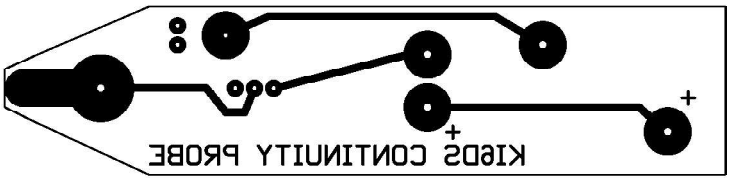


Figure 2 Full Scale PCB Artwork

**RF Generators, Part 1**
**by Chuck Adams, K7QO**

I was given a goal to write an article to fit in 3 pages of the first issue of the QRPp journal. Thus, the reason for part 1 in the title. I got started on this article and discovered that there was some interesting topics that could be covered and should be covered and would not fit into such a small space. So here goes. I hope you enjoy the topic as much as I am enjoying the time to write it and do the experiments in the lab.

RF generation is what we, as radio amateurs, try to do in many ways and for many reasons. This article will cover RF generation on the work bench for the purpose of testing and measurements of this of interest to us.

The things that we are interested in for RF generators are:

- RF power distribution over one frequency or a range of frequencies
- RF spectral purity for single frequency generation signals
- Uniform power distribution for a white noise source
- Drift
- Calibrated power levels for standards like a S9 signal generator

and other areas of study that I may get to in later issues.

## NOISE GENERATOR SIGNAL SOURCE

A noise generator does exactly what its name implies. It generates random noise and does so over the widest frequency range we can get. From DC to daylight, which implies from the lowest RF frequency we can generate to all frequencies up into the UHF and VHF bands. Such a noise source has many uses, especially in testing and aligning receivers and even showing various filter characteristics.

Here is a schematic of a noise source that I did over 20 years ago based on an old circuit from the RSGB handbooks. It has an additional amplifier stage usually not found in other noise generators. This is for generating a higher output.

The noise source is the zener diode. This is one of the reasons that I avoid using zener diodes in receivers and in oscillator circuits to avoid introducting noise into circuits where it is not wanted.

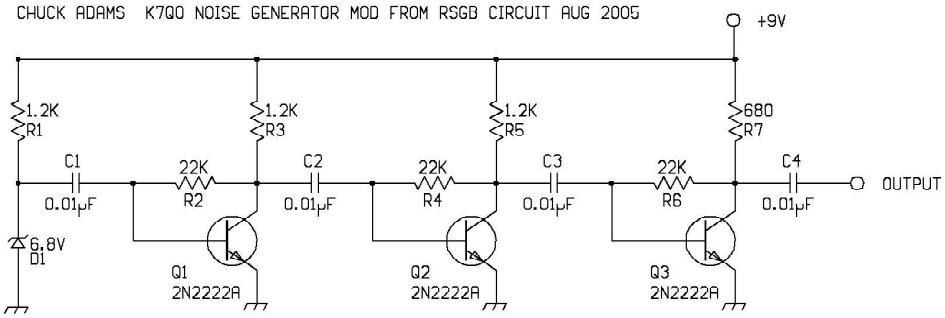



**Figure 1. K7QO noise generator**

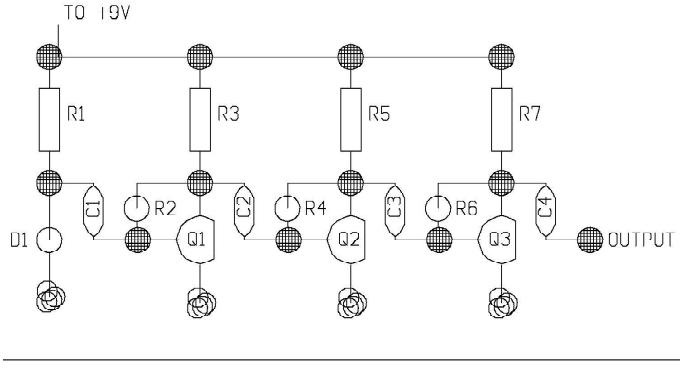
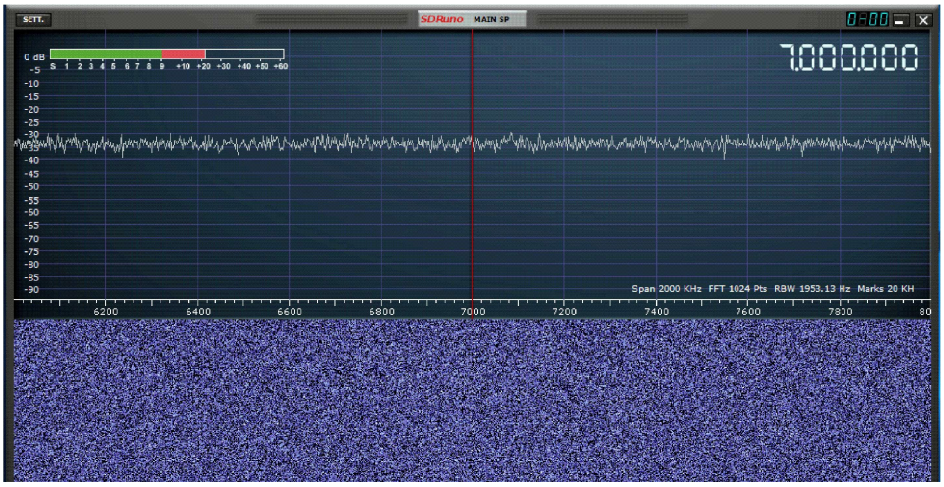


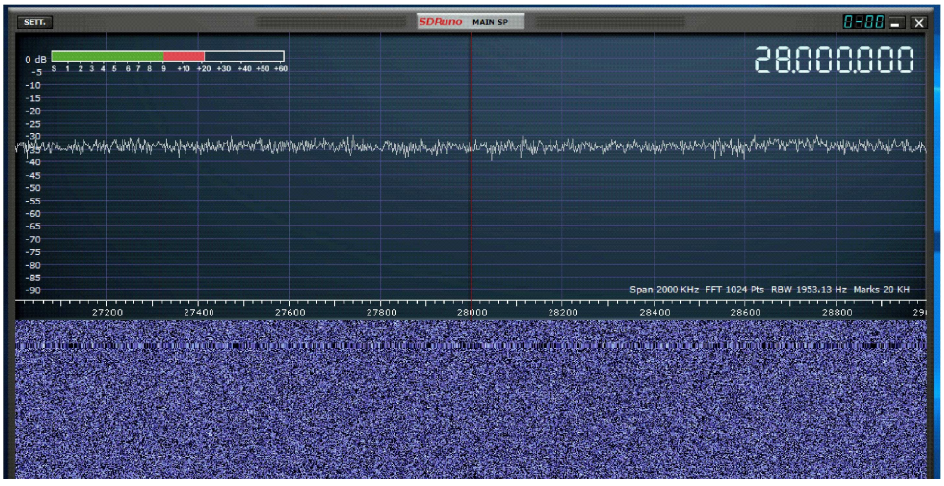

**Figure 2. Manhattan layout for the K7QO noise generator.**

To demonstrate its power spectrum I will show two screen captures of an SDR receiver using a $149 SDRplay receiver that I just recently bought from HRO here in the Phoenix area.

Note the flat spectrum shown in the 2MHz bandwidth of the display. The first at the 40m band range and then at the 10m band. I have the receiver set in the CW mode and with the 750Hz bandwidth filter in play. I'll do some more with this later. I have also calibrated the S-meter to show an S9 signal level with a 50uV signal on the input. The 50uV, and that is RMS voltage, is an S-9 signal level for historical reasons.




**7MHz spectral display of the output from the noise generator.**




**28MHz spectral display of the output from the noise generator.**

I have screenshots showing the same spectral display for the 2MHz bandwidth up to 90MHz for this noise generator. That is more than sufficient for most radio amateur needs and it will work at higher frequencies, but with a reduced power spectral output level.

If you are using an analog transceiver, such as the One Watter from KitsAndParts.com or other receiver or transceiver, then you can use a computer with readily available freeware for audio analysis to display the response of the receiver to a wide range of frequencies. In the next article I will show you some output responses of some legacy transceivers that you are most likely to own.

Your homework assignments due before the next issue.

(1) Dig out any noise generators you own and make sure they are working properly. MAKE SURE that you do not transmit into one of these test instruments while connected to the output connector of the rig. Many have been destroyed due to some one not thinking during the time period of having a noise generator connected. I remove straight keys, paddles and keyers from rigs while doing tests on receivers. Just to be safe.

(2) Get out any and all S9 signal generators you currently own. NorCal had a kit with four crystals for four bands at one time. Go to the home web page and look up the retired kits and look at the construction and operation manual.

That's it for now. Thank you for your time and interest and hopefully this series of articles will generate enough interest to get to the workbench and try the tests and measurements each month. 73, Chuck K7QO

**Writing for QRPp**

Would you like to become famous? Articles are needed for future editions of QRPp. There is no pay, but you do get a printed copy of QRPp with your article in it. If you would like to do an article, please contact me at ki6ds1@gmail.com and I will send you all the information that you need. It is really easy to do. Text is preferred in a word file, using 10 point arial font, with page size of 5.5 x 8.5" and a margin of .31" left, right and top, and a .75" margin on the bottom. I prefer articles that are construction projects. Artwork for pcb's should be included, full size and ready to use. Pictures and diagrams are always a plus. The material will be copyrighted, but you will retain all rights to publication by any means. Only you may give permission for someone to reprint your article. In other words, you retain all rights to your intellectual property. I look forward to hearing from you. Doug, KI6DS

# Pacificon 2016

**San Ramon Marriott**
**2600 Bishop Drive**
**San Ramon, CA94583**
**Friday Through Sunday, Oct. 14-16, 2016**

**NorCal Activities**

**QRPacificon Open House, Friday 7:00 - 10:00PM**

This will be our annual meet and greet, vendor night, qrp swap meet, and a new special event this year, The Great Chinese Kit Show. We want our members to bring any and all Chinese Kits that they have built in the past year. And we would like a one page summary of the pro's and con's of the kit. Tell us how it works, and if it is a radio, how did it perform on the air?

**QRPacificon Open House, Saturday 7:00 - 10:00PM**

Vendor night and swap meet, plus the Great QRPacificon Chinese Transceiver QSO Party. You will be using one of the transceivers from China that are available for $3-$11 on Ebay. Suggested radios are the Forty-niner, Frog and Pixie. You may modify the radio to have a crystal socket so that you can change frequencies. The radios have 7.023 MHz. included in the kit, and we have 7.030 and 7.040 crystals available. The antenna will be the "Special Edition 2016 Pacificon Dummy Load". We will provide free kits to all, and the tools to build it with. To get your kit, go to the kit building booth from 1-5 PM on Friday, and 9 AM to 4 PM on Saturday. It is an easy kit to build, and when you finish you will have a nice piece of test equipment. The dummy load is the only permitted antenna, and you may attach a radiator wire, but no longer than 12". No counter poise allowed. The contest will start at 7:30 or so, you must provide your radio and everything needed to get it on the air. Oh, by the way, straight key only. No keyers allowed.

We will also have a contest to judge the best rig in a case. 3 prizes. And prizes for first, second, and third in the qso party.

**QRPacificon Dummy Load Kit, Friday and Saturday**

The kit will be available free, at the kit building booth from 1-5 PM on Friday, and 9AM to 4PM on Saturday. Tools will be available to build the kit at the booth.

**QRP Keynote Speaker 1:00 Saturday**

We have obtained the services of one of the most famous QRPers in the world. He is a QRP Hall of Famer, and everyone knows him. A great speaker that you won't want to miss.