QRPp

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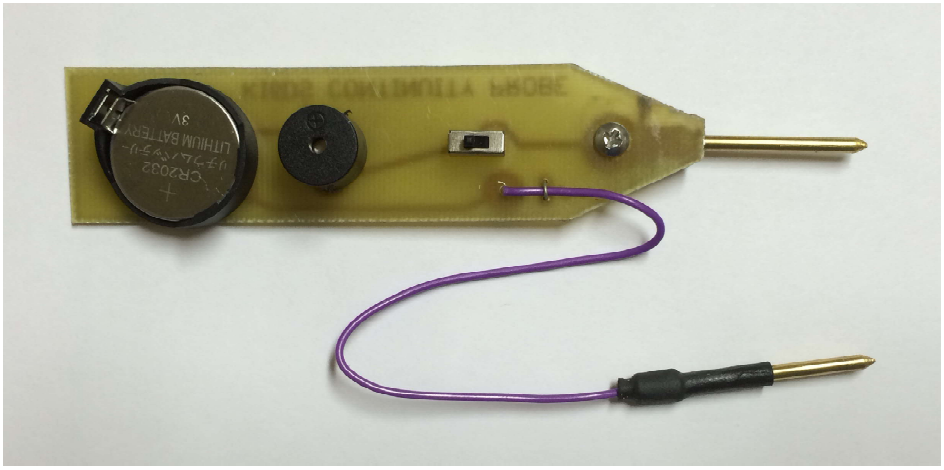

The KI6DS Continuity Probe

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From The Editor, Doug Hendricks

Its been a long time, and as the saying goes, I have traveled many miles. But the time has come to resurrect QRPp. There will be a lot of things that you will find familiar, and some that will be new, and some things have been abandoned due to advances in technology.

First of all what will QRPp be? QRPp will be an entity that is published by me, and only me. I will be responsible for the content, and I will be the publisher. There will be printed copies made but they will only be available at NorCal monthly meetings held the first Tuesday night of the month at Denny's Restaurant, 1140 Hillsdale Ave., San Jose. The meetings start at 6:30 PM with a no host dinner, and usually last about 2 and a half or 3 hours. I have been giving away free kits to the first 20 members who show up and will continue to do so. The purpose of the kits is to encourage attendance, encourage building, and provide a medium where I can give back to the hobby that has been so good to me. Those who cannot attend the meeting can download a copy of the journal on the NorCal QRP Yahoo website. I encourage you to join and share in the fun.

The meetings consist of show and tell of projects brought by the members. The members usually bring the previous month's kit back and also will bring various things that they have built. It is always fun to see what QRPers are up to. Then we have a forum presentation that usually lasts 30 minutes. It can be a technical talk, demonstration, short movie, whatever we can find that appeals to the interests of our members. We have a video projector available, and if you would like to present a forum, please contact me.

The plan now is to not publish paper copies, other than the ones for the attendees of the local meeting, due to the hassle of finding a printer, mailing costs, actual mailing, etc. I have been there and done that. Not going there again. Hopefully you will enjoy QRPp, and as always, if you have an article to submit, I would be more than happy to talk with you about it.

How To Make Your Own PC Boards
by Doug Hendricks, KI6DS

I started to build when I became a ham in 1976. I was so amazed at a ham's being able to build his own gear. The fact that he could make his own pc boards was fascinating. I dreamed of being able to say that I built a project from start to finish, including making the pcb. It looked easy, and probably was at the time, but it sure didn't turn out for me. I tried every method that I could get my hands on, and nothing worked. I bought kits, tried photo resist, pcb track pens, strips of copper, but to no avail. No matter what I did it didn't work. For 30 years I struggled.

Then last fall, I finally succeeded and I owe everything that I know about the process to one man, Chuck Adams, K7QO. Chuck spent hundreds of hours of experimenting and testing so that he could reproduce quality boards every time. When he finished, he had the de facto method of making

pcb's in the home down to a science. Chuck then produced a series of videos that are on youtube, and I strongly suggest that you watch them. We are going to have projects in QRPp that you will want to build, and to build them, you will have to make your own board, because we aren't going in the board supply business. We will give you the schematic, parts list, and board layout. You will have to produce your own board.

To view the videos, go to youtube.com. Do a search on K7QO and watch his series of videos on "Printed Circuit Board Tutorial". The first one is called printed circuit board tutorial, part 01. When you finish the series, you will be on your way to becoming an expert pcb producer. Believe me, if I can do it, so can you. After I watched the videos, I decided to do everything exactly as Chuck did it. I bought the same equipment, and I followed his methods exactly. Guess what? My first board and every one since then have been perfect.

I even bought a mini drill press from ebay for $68 to drill my boards. Ken LoCasale, WA4MNT, suggested that I buy ebay item number 190586354986 and he was spot on. I have not broken a single bit. The secret is high speed, and an accurate chuck in the drill press.

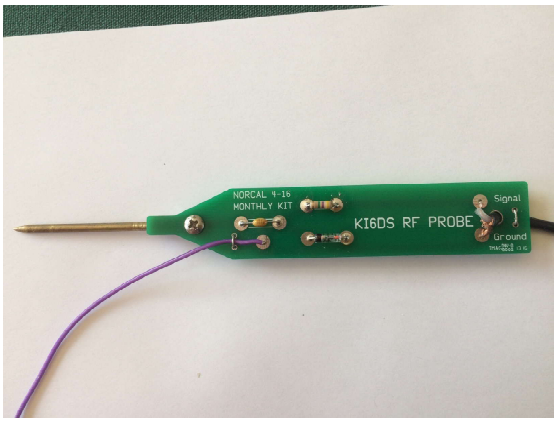
Boards can be made several ways. Most of my boards now are single layer, drilled. I have made a double layered board, and it turned out fine. You have to know the secret. Which is when you print your pcb artwork for the top and bottom layer, you follow the following process. First you trim both pieces of artwork with a border of one quarter of an inch all around the edges. Then, using a window as a light table, you put the artwork face to face and line it up so that it is perfect. Tape three sides with scotch tape to make a pocket. Then, cut and clean a double sided piece of pcb to the size of the artwork. Slip it into the pocket, line it up, then run it through the laminator, being sure to flip the "pocket" over each time so that both sides get the same pressure. Credit for this process goes to Ken LoCasale, who told me how to do it.

Projects for NorCal Meetings
by Doug Hendricks, KI6DS

When I decided to revive the NorCal monthly meetings I thought of a conversation that Jim Cates and I had one time. We were flying to Dayton after 4 or 5 years of NorCal and we were talking about how we started what we thought would be a small group of guys interested in building. It exploded on us. I remember him saying that it would have been a lot easier to keep the group local and small. We talked about having a monthly meeting where we would hand out a free kit, that was simple and easy to build, yet useful. So, I have decided to do just that. Every month I give away kits for the attendees to build. To keep it under control, I limit it to 20 kits, which is affordable both in time and money for me.

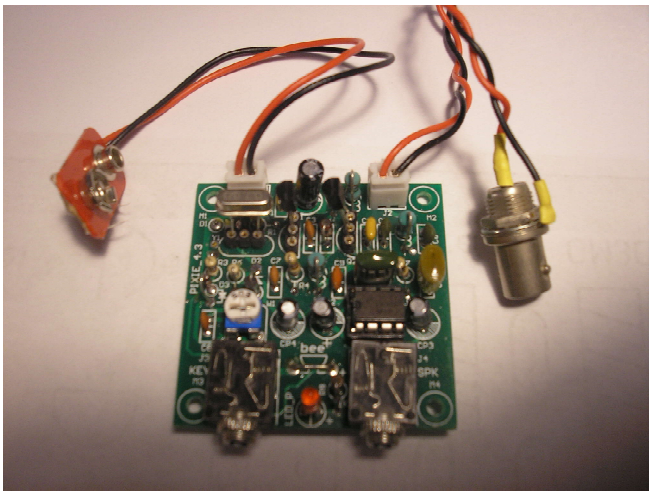
The first kit was the KI6DS RF Probe. I borrowed ideas from Monte Northrup, N5ESE, and Ken LoCasale, WA4MNT. I layed it out using CirCad, and saved it as a gerber file. It is the first board that I have ever had made using Gerber Files. I passed out the kit at the April meeting. I was pleasantly

surprised to see several of them built at the May meeting.



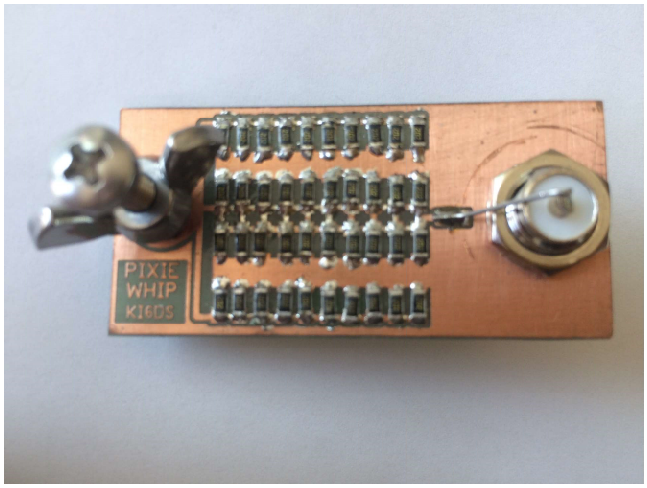
KI6DS RF Probe Kit handed out at the April NorCal Meeting

The May kit was the Pixie. You can get a Pixie transceiver kit from China for $3.22 delivered. It includes all the parts, including a crystal, and a pc board. I decided that this would be a good kit for us, as it was cheap, and we could build something that we could use later. When the kits arrived, I replaced all the capacitors in the kit, as they are very poor quality and some of them do not meet specs. I also added a 7.030 crystal, as the one on 7.023 is in the extra portion of the band. I did want the guys to use the kit. Darrel Swenson, K0AWB, who is a NorCal board member, sent me the crystals to help the cause.

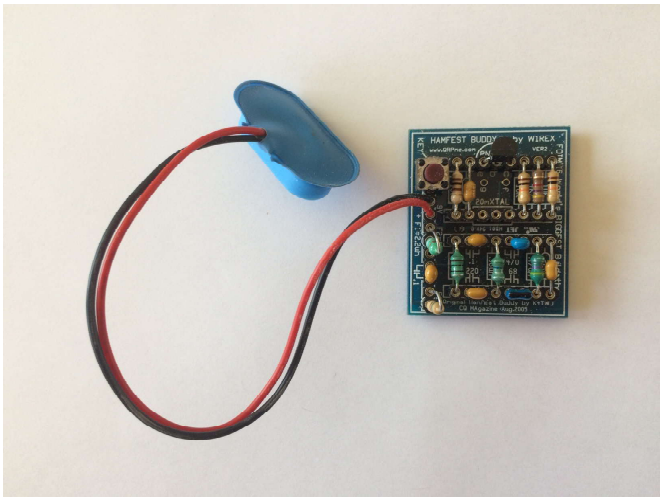


The Chinese Pixie, the KI6DS kit for the May NorCal meeting.

The June kit was the Pixie Whip. It is a 50 ohm Dummy Load with provisions for attaching a wire “whip”, so the Dummy Load will radiate a signal in a room. This kit was our first venture into the land of surface mount construction. I was gone on a trip to France and Germany, and Steve Smith, WB6TNL very capably hosted the June meeting and handed out the kit



The KI6DS Pixie Whip, the June meeting kit.



WBBNS Transmitter, July meeting kit

The kit for the July meeting was one that was featured at Four Days in May. Rex Harper, W1REX decided to have the Worlds Biggest Buildathon, and he used a unique way of building kits to do it. He used an old design by Dave Ingram, K4TWJ, to produce a transmitter kit that would put out 60mW, meets FCC requirements, and is built with NO tools. He soldered sip sockets on the boards, prebent and trimmed all of the component leads and succeeded! I loved the idea and contacted Rex to see if he would give us a deal for our monthly kit series, and he very graciously did.

By the way, 246 out of the 248 kits built at Dayton worked. 7 out of 7 worked at our meeting. That is a true testimony to Rex Harper. Rex, thank you for providing so much fun for hams.

If you would like to build kits like these, it is easy. Come to the NorCal meetings. Steve Smith and I have a plethora of kits in the queue. We won't run out for a long time.

Snort's Shorts Monthly Column
August: The QRP KABOB
by Steve Smith, WB6TNL

The QRP KABOB

Hello, I am Steve "Snort Rosin" Smith WB6TNL. I live in Oxnard, CA and have been a Norcal QRP Club member since the 1990s. This is the first of what hopefully will be a regular monthly column. Each month I'll present a little project or idea from me or other Norcal QRP Club member contributors.

This month's project is something I've named the "Snort Rosin QRP KABOB" (Keyer And Break-Out Box) OK, it's not an electronic Morse code keyer; it's a simple piece of test gear for your bench.

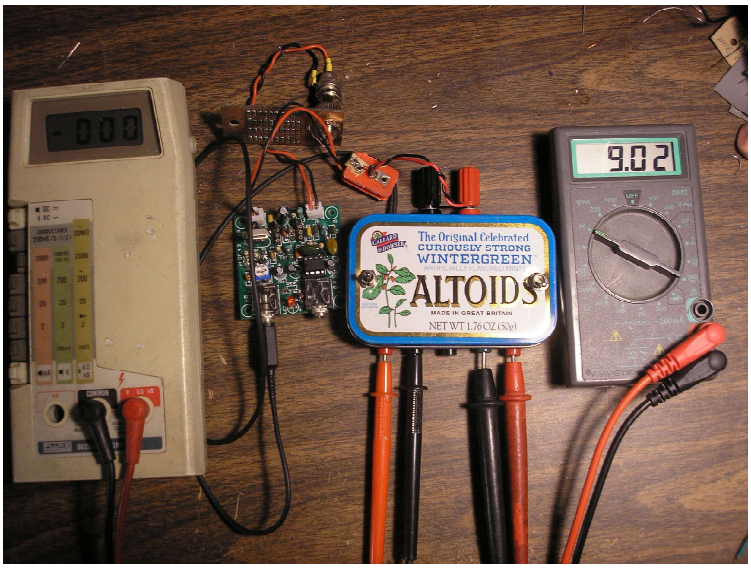
What gave me the idea for this gadget is that, when testing

transmitters on the bench, I'm constantly ending up with piles of clip leads to key the transmitter or simply grounding the key line and turning the power on and off to key the rig along with other leads to measure voltage and current, etc.; not very sophisticated.

So, recently I was raking through a pile of toggle switches and came across a center-off DPDT switch; one of the other two positions is MOMENTARY (On-Off-Momentary). Of course, an SPDT center-off with momentary switch would work just as well but the DPDT is what I had on hand. I wired it for Normally Open, soldered on a couple of 3.5mm plugs and clip leads and voila; a handy transmitter keying device. But it was still a pile of parts and pesky leads to clutter up the bench so I decided to house it in one of the curiously ubiquitous mint tins.

Then I thought, "Well, this is nifty but some simple modifications can make it into something even more useful". So I decided to add a D.C.breakout facility; D.C. from the bench supply goes in (and out) and is also distributed to some tip jacks that accept test probes from my DMMs. No mo' clip leads!

Plus I added current measuring functionality by placing two of the tip jacks in



The Kabob in use

series with the D.C. supply along with a switch to bypass those when not measuring current.

Parts List:

1 ea. Empty mint tin (or other housing), approx., .75"H, 3.75"W, 2.25"D.
5 ea. Tip jack to accept 0.077" dia. probe tip.

2 ea. 5-way binding posts, miniature, one Red and one Black
1 ea. 3.5mm “stereo” phone connector
1 ea. Coaxial power connector, 2.1 or 2.5mm, male, chassis-mount.
1 ea. SPDT or DPDT, On-Off-Momentary switch.
1 ea. SPST or SPDT toggle switch.
1 hank of PVC insulated, stranded hookup wire. Red and Black colors make it easier to keep track of wiring.
1 ea. 3-conductor cable, approx. 18" with 3.5mm 3-conductor phone plug on each end.

Construction:

Mount all electro-mechanical components into housing. Following the diagram, wire components using point-to-point connections using PVC insulated, stranded hookup wire. Using your DVM in Ohms or Continuity mode, check wiring for proper connections.

Operation:

1.) Plug DC power supply into coaxial power connector on KABOB.
2.) Connect power cable from DUT (Device Under Test) to