

# *Bacon Bits*

Flying Pigs QRP Club International, W8PIG  
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FPQRP [membership](#) is open to all licensed QRP operators who reside within 12,000 nautical miles of Cincinnati, Ohio.

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**NETS:**

DAY	TIME	FREQ
Sat	1400Z	14062
Sun	1300Z	7044
Sun	1400Z	14062
Thurs	0200Z	7044

**CLUB FREQS.**

1,814 kHz	3,564 kHz
7,044 kHz	10,110 kHz
14,062 kHz	18,100 kHz
21,064 kHz	24,910 kHz
28,064 kHz	

ALL FPqrp frequencies are UP 4 kHz  
from the standard qrp frequencies  
except for 20 meters.

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## WELCOME!

Welcome to the first newsletter from the members, and friends of the Flying Pigs QRP Club.

We hope that in the coming months, and years this will be not only a big success, but also a newsletter everyone will look forward to reading.

Plans now are to publish this when we receive enough articles, this is where you come in. To make this a success, we need your input. We are looking for your stories, tips, construction articles, or anything else you can add to make this newsletter work.

To submit your article, please send them to [N8IE@AOL.COM](mailto:N8IE@AOL.COM). I will accept most word publisher formats graphics, etc. Also, if you need help getting pictures converted, items scanned, or have questions in general, just drop me a line.

To get the ball rolling, I've included an article on the G5RV antenna, a featured website on PSK-31, and a few tid-bits to round out this issue.

So I hope you all enjoy this.

Dan, N8IE  
FPqrp #-6

### G5RV Formula - a simple multiband antenna!

By Rick, KC8AON

Most people think that the famous G5RV antenna was designed as a multi-band antenna, but in fact, it was actually designed as a three - half wave in phase antenna for 14 MHz by Louis Varney, G5RV. Mr. Varney's version used open wire (600 ohm) feed line all the way to the transmatch instead of the short section of 450 ohm window line and 70 feet of 75 ohm coax that most of us know today.

Mr. Varney also found out that his antenna would work other bands as well with a fair amount of efficiency with the use of the transmatch. As designed, the G5RV exhibits a low SWR on 14 MHz of around 1.8:1 into a 75 ohm load, but the SWR varies significantly on the other bands, so the transmatch must be used when using it on bands that it was not designed for. To figure the length of the G5RV antenna, as we know it today using the short section of twin lead and coax combo, we simply use 2 simple mathematical formulas. This type of antenna can be designed for any frequency, so the conventional dimensions will be different for different bands.

To figure the "flat top" (dipole) length, we use the formula:  $1428 / F \text{ MHz} = \text{Length in feet}$ , and the formula of the matching is:  $468 / F \text{ MHz} \times \text{velocity of the twin lead} = \text{Length in feet}$ .

So, to figure a conventional G5RV, we divide 1428 by 14 MHz, which equals 102 feet. This is the total length of the flat top section, and since it is fed at the center, this makes each half 51 feet long.

Now for the matching section, we will use 450 ohm window line with a velocity factor of 98% for the equations, so, 468 divided by 14 MHz equals 33.43 feet, multiplied by 98% = 32.76 feet. So we now have a 102-foot dipole fed at the center with a 32.76-foot long section of 450 ohm window line, now just connect 70 feet of 75 ohm coax between the 450 ohm line and tuner, and you are ready to go on the air. To demonstrate the difference in size for different bands, we will now figure one for 15 meters as an example. So, 1428 divided by 21 MHz = 68 feet, this is the flat top, so we divide it by 2 to find the center and this makes each side 34 feet long. For the matching section, we divide 468 by 21 MHz = 22.29 feet multiplied by 98% = 21.84 feet of 450 ohm window line, we now attach 70 feet of 75 ohm coax and have a fair match on 15 meters.

Notice that the 15 meter version is almost the same size as a conventional coax fed dipole which is about 66 feet long, so this 15 meter antenna will work very well from 40 meters on up when using a transmatch. Of course, you can do as Mr. Varney did and run the 450-ohm window line all the way to the balanced output of your tuner eliminating even more loss and giving your efficiency a big boost!

The G5RV, is not the answer to everyone's antenna problems, but when space limitations dictate a compromise, it sure can save the day! And remember when you have space limitations, there is absolutely no need to be stuck on one band - you simply learn to improvise.  
!73.....KC8AON

### The first battery!

**Alessandro Volta (1745-1827)** On the 20th of March 1800, came one of the greatest breakthroughs in the electricity experiments. A professional disagreement, over the results of an experiment, between Luigi Galvani and Alessandro Volta, two leading scientists, led Volta to prove that when certain metals and chemicals come into contact with each other they can produce an electrical current. He placed together several pairs of silver and zinc discs separated by paper soaked in salt water and an electrical current was produced. Volta had produced the first battery

## Website Spotlight

PSK-31 is Ham radios hottest thing these days. With a growing user base, there is also a growing number of websites devoted to the new mode.

Here is a list of websites that have great information on programs, and getting started in PSK-31.

The official website for PSK-31 is located at <http://www.aintel.bi.edu.es/psk31.html>.

The hottest program now is DigiPan, their URL is <http://members.home.net/hteller/digipan/>

Another program taking off is TrueTTY. This program not only runs PSK-31, but RTTY, and AMTOR-FEC (SITOR-B, NAVTEX) SELFEC. Their URL is <http://www.dxsoft.com/mitrtty.htm>

The next websites deals with hooking up your radio to your computer.

Ernie Mills, WM2U has put together a lot of info on hooking up your rig to your PC, his URL is <http://www.qsl.net/wm2u/interface.html>

Buck Rogers, K4ABT has a great website called "TNC to Transceiver Interface Diagrams" his URL is <http://www.sedan.org/tnc2rad.htm>

So your not a "homebrewer", well the web has you covered! West Mountain radio has an interface called RIGblaster. This interface comes ready to run for your Rig. Their URL is <http://www.westmountainradio.com/RIGblaster.htm>

There are also scores of clubs sponsoring PSK-31 contests, for more information, try searching at these URL's: <http://www.dogpile.com> <http://www.yahoo.com> <http://www.excite.com> <http://www.lycos.com>

With these links, you can be on your way to working this fun, and exciting new mode.

72 and good surfing!  
Dan, N8IE  
FPqr # -6

## A Pork-Free Tuner!

By Dan, N8IE

How does a member of the Flying Pigs QRP club like his BLT? Without the "B" of course.

This tuner is built around the [NORCAL BLT tuner](#) designed by Charlie Lofgren, W6JJZ and is a classic Z match using inductive coupling.

If you have not yet ordered one of these kits, I recommend

that you do. Not only is it a fun kit to build, it's an excellent tuner and soon to be a classic.

I decided to modify it for unbalanced feedlines. You can easily switch this design to work with balanced feedlines, or both.

For a case, I used an old Radio Shack "Antenna Matcher" built for CB's as a case to hold the tuner. This item was popular in the 70's and can now be found for a buck or two at most Ham Fests. (I got this one at the 2000 Dayton Hamvention) Any case will do for this project.

### Let's get started!

The first thing to do is completely gut the "Antenna Matcher" (leave the so-239's in place). Be careful not to bend the metal where the capacitors are mounted. Next mount the 140/80 "Poly" caps in their place.(you will have to enlarge the mounting holes just a bit)

Next drill two holes for the SWR (SW1), and Hi/Low (SW2) switches, then drill one more hole to mount the LED for the SWR bridge. Mount the two "poly" caps, J1, and J2.

Now the fun starts! Cut a piece of #22 enameled wire about 30" long for L1. For a loop in the middle of the wire about 1/2" long. Strip the insulation and tin.(this will be the center tap of L1 to ground) Wind L1 on a T106-2 core starting with the tap in the middle, wrap one side 8 turns, then 8 more turns on the other side of the tap (make sure you wrap this side in the opposite direction). When your finished, space the turns out evenly.

L2, and L3 are wound interspersed, and in the same direction as L1. The wire for L2 is 24" of #24 enameled wire, and L3 is 12" of #24 enameled wire.

L2 is 12 turns, and L3 is 6 turns. Wind them in the same manner as L1, starting at the tap of L1.

Now, mount L1 into the case, and solder the tap to the case.

Lets wire up L1. Please refer to Fig1 for further help.

Start with wiring L1a, and L1b to C2. Next wire L2a, L2b, L3a, and L3b to SW2. Next wire J2 to SW2, then wire J1 to SW1. Next, wire the remaining connections to C1, and C2 except for the connections to the SWR bridge.

Next we build the SWR bridge, my version is a bit simpler than the one used in the BLT, and was drawn up by Diz, W8DIZ. While this one is not as accurate as the one in the BLT, it does work great and is just another example of how to make a simple SWR bridge.

Start by twisting four 200ohm/1Watt resistors together, you will need three of these "bundles".

Build the SWR bridge as shown in Fig2. Now wire the SWR bridge to SW1, and wire the LED to the SWR bridge. Double check all connections against the schematic, and the two figures. Put the case together and that's it, your finished!

The one I made works like a champ. I tried it on my half size G5RV and both of my QRP rigs, the Ten Tec 1340, and the DSW-20. Both tuned great and my first QSO was with a fellow QRP'er running an almost identical setup.

You can see pictures of the one I built at my website, <http://members.aol.com/shephed/n8ie.htm>

Good luck with yours, and 72! Dan, N8IE

Fig 1. Tuner wiring diagram.

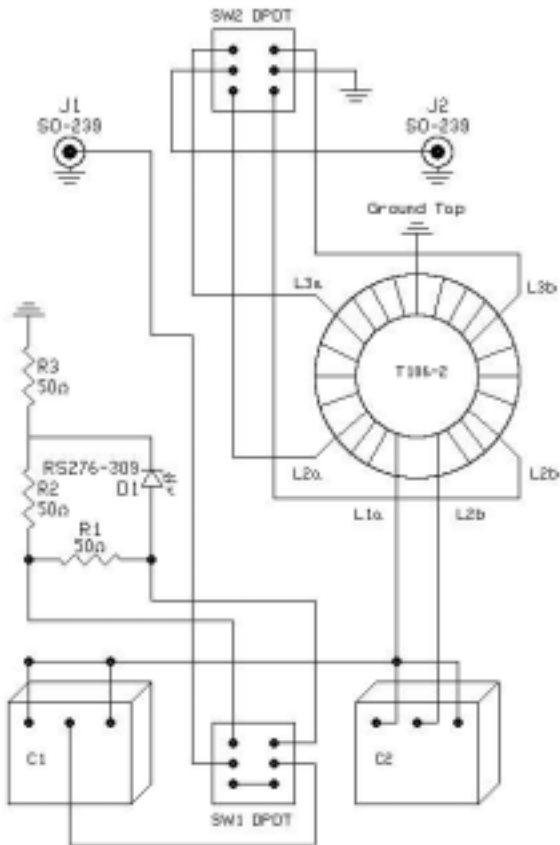


Fig 2.

## SWR Bridge

By Diz, W8DIZ

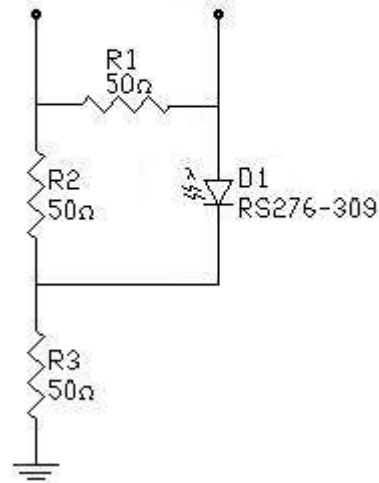
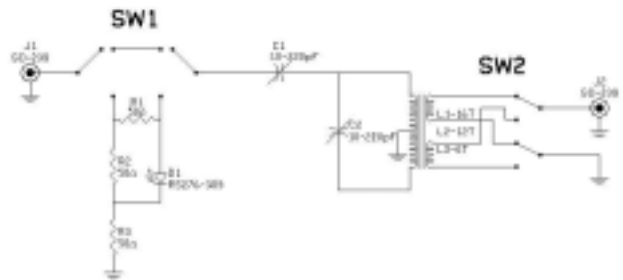


Fig 3. Tuner schematic.



## QRP Musings from the Swamp

Mac Steinmeyer, AF4PS FP# -51

Those of you who know me already know that I'm pretty unconventional (for a luddite retro-grouch). I really don't MIND trying different ways of doing things... like for example, I have a weird view of this hobby. To me it's a nice change of pace from my "real" job, but the real draw is the relationships formed behind the information exchange.

I got into ham radio the "hard" way... as an adult, QRP, CW. My first rig was a kit, the Wilderness NorCal40a, a CW monobander set up for the Novice section of 40, and a homebrewed indoor antenna (the Infamous Attic Dipole). Brian Murrey, KB9BVN (FP #-57), and I both started this way, same rig, same antenna, and both tried valiantly to beat each other to obtain WAS QRP in the Novice/CW part of 40 meters before upgrading to General Class. Brian did it!

I upgraded before I made it, but have since accomplished the feat. (Where would we Mid westerners and East Coasters be without Dean Manly, KH6B - (FP #-127)?) But the hobby, for me, is FAR more than managing electrons and sound waves.

I soon happened onto the NorCal QRP Club site then the New Jersey group and ARCI. I've tried to buy/build every NorCal/NJQRP kit since! I then found QRP-L and have been enjoying (for the most part) that for almost four years. I love operating QRP, and building things, but here's the catch: I'm a real newbie/dunce when it comes to electronics and design. I studied to pass the tests, but now I really want to LEARN this stuff. Having the opportunity to meet people who are building the same piece of equipment, ask questions and offer ideas, has been the best part of the hobby to me. Brian and I worked stage by stage through that first kit. Bob Engelman, WB8UOJ (FP #-82) and I recently tackled the Jim Kortge 2n2 Manhattan rig together - all via email. The recent popularity of the Elecraft and the Elecraft email reflector take this kind of support to an even higher level.

The Elmer 101 class offered via QRP-L and the website (<http://www.qsl.net/~kf4trd>), introduced me to the depth of theory I was looking for and got me hung up with Mike Maiorana, KU4QO (notta pig yet) and the West FL QRP Club. Now we meet monthly and experiment to our hearts content! Steve Cohen, NF4X (notta pig yet) explains stuff so even I can understand! I have found this same camaraderie among the Flying Pigs. Diz, W1DIZ (FP #-1) let me use his Multi-Pig with the KaPaddles to catch a fox while he was visiting SWAMPLAND this summer. What a versatile piece of gear!!! But the real kick is watching Diz 'splain the thing! I got the parts kit and now I gotta make one of these!

Let me also plug Ian's Purdie's (FP #-91) website TIP tutorials: (<http://www.electronics-tutorials.com/>). This is very good, EE level stuff.

But once again, Ian's personality compliments the formation with wit and competence. What an interesting guy! It's HE that draws me further into the information!

I find this hobby tremendously rewarding from two perspectives. It's very different and a good break from my "real job" as a pastor, I've learned a ton of stuff in a field that was foreign to my background and training. But I find the real value in the newly formed relationships. My Fox Hunt Team has placed a very close second in the last two fox seasons. In my book, they are some of the very best operators out there! But the point is we have fun! We tease each other's idiosyncrasies, and tolerate each other's weirdness. They are now all Flying Pigs.

The Flying Pigs QRP Club has been a wonderful change of pace from the bickering and strong personalities that erupt from time to time in any group and certainly our hobby (QRP-L for example). Diz, Dan, Rick and Mike are tremendous "knowledge" resources, who happen to enjoy themselves and the hobby. What a great bunch of people! I'm having fun again.

Lately... now that Fox season is over, Aron, N1ODL (FP #-122) up in New Hampshire, and I get on late at night and spot DX for each other over computer Instant Messages, our own little pig DX cluster! We are working the world with our indoor antennas and QRP power. I hope to work every Flying Pig by the end of the year, and will make an effort to check into every net offered. Listen for the erratic fist, bad spelling, weak signal from "nr Tampa, FL" of FP #-51.

72 es OO

-MAC-

AF4PS

Odessa, FL "Home of the Infamous Attic Dipole" and K2  
#643

### Who really invented radio?

Here's a hint: It was not Al Gore.

Many contributed to the development of wireless, on this page (<http://home.luna.nl/~arjan-muil/radio/prehistory.html>) you find the most important inventors and scientists. Mr. Marconi is generally regarded as the inventor of radio. However the Russians claim Mr. Popoff is the inventor. Dutch author J. Corver describes the prehistory of Wireless Telegraphy in 1915 in his book "Het Draadloos ontvangstation" (Station for Wireless Reception)

## A Portable G5RV Antenna System

By Mike, WB8ICN

If I'm lucky, I get to sneak away once or twice during the summer to do some camping and fishing with my father in northern Michigan. Although we travel in style (he has a huge RV), the amount of radio gear is limited as he still has bad memories of things I did (relating to ham radio) while still living at home when I was a kid. In fact, all my ham gear is contained in one small carrying case and a small black antenna bag.

I use a 33-foot telescoping fiberglass (FFT) pole I picked up at Hamvention and a G5RV antenna for 40 through 10 meters for the antenna system. This arrangement requires a tuner of some sort as the antenna is not cut to resonance for any ham frequency. But trust me, the G5RV is a great antenna and can be rolled up in a very small bundle.

I erect it in an Inverted Vee configuration, and it has served me very well over the years. The first time I tried this antenna was while I was stationed in San Vito, Italy and it was only up 25 feet...but I could work the world. Having an I7 call helped, but I still get the same performance to this day. In fact, it is the antenna I use for the FP Nets and all my CW ops here in Michigan at the home QTH. Here at home, I have it in a horizontal configuration which seems to provide a bit more signal than when it is in the inverted vee arrangement.

The two legs of the antenna are 25 feet 6 inches long, with a 15 foot 3.5 inch matching stub. The two legs are made of solid strand, small gauge wire...very similar to hookup wire. The matching stub is made of TV 300-Ohm twin-lead...the cheap stuff!!! My coax is RG-59/U and this attaches to the matching stub. Its best to get the matching stub to hang vertical and then come away from the pole (FFT) either by running the coax along the ground or at an angle if you coax is too short to make it to the rig.

By the way, I also have a G5RV for 80 through 10 meters, with the lengths being exactly twice that of the 40 through 10 meter version.



This is the antenna from the point of where my coax attaches to the matching stub, showing the matching stub (which is shown here in a curly fashion) and the two legs of the antenna at the top of the photo. The black pole is the FFT I use which is only a couple of pounds and takes about five minutes to put up.

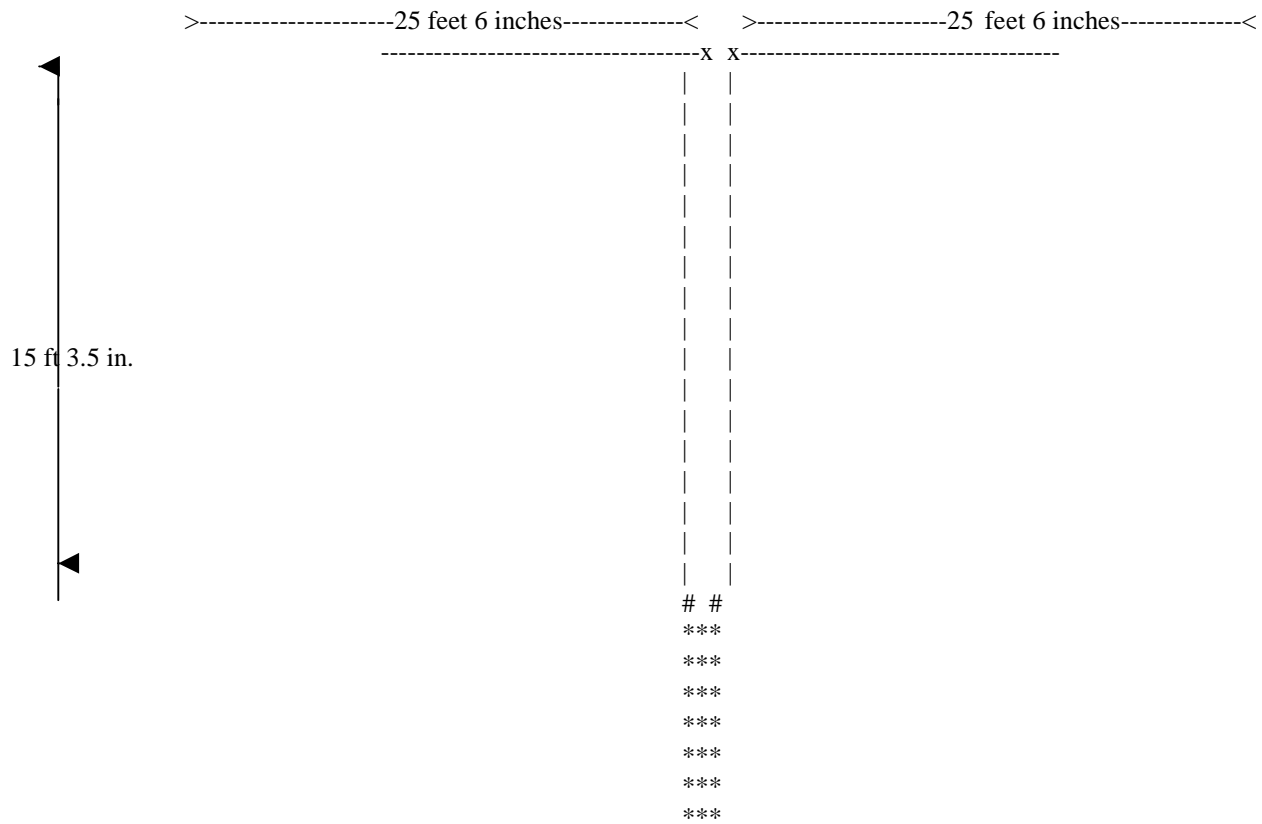
I used a small piece of plastic block to make a strain relief for the point of where my coax attached to the matching stub and a similar block where the matching stub attaches to the two legs of the antenna. At home, I just pull the two legs up between two trees and pull tight...the center is unsupported, but it looks like a perfect "Tee" shape...thus the need for the strain relief's. I guess I should make a second 40 through 10 version so I don't have to keep taking it down and putting it up.



This is looking at it from the side. The FFT is attached to the awning on the RV. One leg of the antenna is tied off to my van and the other leg was tied off to the grill.

The tuner used was an old MFJ-901B and a newer MFJ-949D. I have tried several tuners and they work OK. Now, my KAT2 ATU for my K2 does all the L/C combinations and it works like a charm. I have used several different lengths of coax from the matching stub to the rig...and have not noticed much difference other than slightly different tuner settings...bottom line is just about any length will work. Presently, I think my coax length is about 55 feet long.

**CONTINUED ON PAGE 7**



Legend:

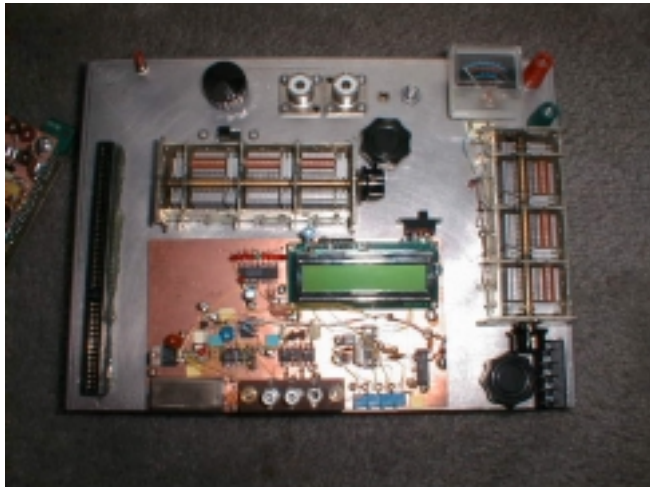
- Antenna Leg
- x x Connection point of leg to matching stub
- | | Matching Stub (Radio Shack TV 300-Ohm Twin Lead)
- # # Connection of coax to matching stub
- \*\*\* Coax (I used RG-59/U)



Yours truly, hamming it up on 40 meters using this Antenna system in northern Michigan on Fletchers Backwaters

### **In the Next Issue:**

W8DIZ will discuss the miniPIG-10 and it's offspring, the multiPIG. This will include a comprehensive discussion of "how they work", with full schematics and parts lists. Depending upon the feedback, we may look into kiting these as FP club projects. Stay tuned!



### **About the Flying Pigs QRP Club.**

#### **OUR MISSION:**

- 1: Have Fun.
- 2: No rules.
- 3: Have a group of Friendly Hams who enjoy Amateur Radio, and sharing their skills with their fellow Hams.

#### **CLUB EMAIL POLICY:**

These are not rules, just common sense. Club email is not moderated, as we are not a stuffy group. You can send off topic messages about most subjects, but please keep it clean and in good taste. We do like good-natured ribbing and joking with each other, but we will not tolerate flaming other members or spamming the group. We will remove offenders who abuse our open policy.

#### **CLUB WEB PAGE:**

The club web page is our forum for sharing projects, and information about us. You are encouraged to submit your ideas and projects to be added to the web page.

#### **PROBLEM REPORTING:**

If you are having problems with email, the web page, or a fellow club member, please report this to either Diz, W8DIZ at [w8diz@cinci.rr.com](mailto:w8diz@cinci.rr.com) Rick, WB6JBM at [ripowell@mpna.com](mailto:ripowell@mpna.com) or Dan, N8IE at [shepherd@aol.com](mailto:shepherd@aol.com) We welcome all to join the Flying Pigs QRP Club, and we hope you have fun!