

# Flying Pigs QRP Club – BBQ

## Bacon Bits Quarterly

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

### The View from the Slop -- By Rob Matherly, W0JRM FP #-330

Welcome to the June 2007 issue of Bacon Bits Quarterly! In case you missed the March announcement, Brian has handed over the reigns of BBQ to yours truly. I promise to hold up the high standard that he set for the BBQ.

Why did I volunteer for the job? Because I'm a pig, I'm proud of it, and I consider it an honor to edit a newsletter published for a club with over a thousand people like myself.

I once described the Flying Pigs as a year-round Field Day held next to an unattended beer truck. We're a bunch of happy-go-lucky, care-free hams. If Jeff Foxworthy started making fun of Amateur Radio, we'd be a prime source of inspiration. We are the Animal House of ham radio clubs.

That doesn't mean we're a bunch of uneducated slobs, of course. Our leader is in the QRP Hall of Fame. A highly respected (in the loosest sense) ARRL staffer posts to the list often. Even a certain "he-who-shall-not-be-named" at the FCC is a Flying Pig. Members in our club range from seasoned hams with EE degrees to guys content with just knowing how to turn on the radio.

What joins us all together? For all, the desire to have fun. For most, the desire to experiment in unorthodox and strange ways. For a few, the unfortunate habit of accidentally frying loaner radios. Everyone that sent an email to [membership@fpqrp.com](mailto:membership@fpqrp.com), however, made the decision to say "I'm a ham, I'm gonna have fun with it, and I'm not gonna get uptight over using electrical tape where I should have used heat-shrink tubing".

It is with that spirit – the spirit of just having fun and not getting all uptight about things – that I will edit the newsletter. This isn't Scientific American, this is a newsletter named after a salad topping!

So what will you find in the coming issues off Bacon Bits Quarterly? Look for technical articles with a hint of humor, and humor articles with a hint of technology. Look for quarterly product reviews, written by whoever announces "LOOK WHAT I GOT!!" to the list. Dennis, WB0WAO, will be writing a column on his adventures with off-grid hamming in the Ozark Mountains, *Hamming Off the Grid*. Larry, W2LJ, will be writing *Run For The Bacon Roundup*, a column summarizing the past quarter's RFTB results. I will be writing an editorial page, *The View from the Slop*. Most importantly, there will be articles submitted by you, the reader. (As well as articles submitted by people who gave into my incessant badgering...)

Issues will be posted sometime around the beginning of June, September, December, and March. Everyone is welcome to submit articles, with the deadlines being May 1, August 1, November 1, and February 1. Submissions are readily accepted, and are greatly appreciated. Here's some writing guidelines in the form of the "FPQRP Ten Commandments", as brought down from Mt. Ozark by Dennis, WB0WAO, in January of 2005:

- I. Thou shalt not charge any dues.
- II. Thou shalt not have any rules.
- III. Thou shalt have fun.
- IV. Thou shalt fix what thou does not like.
- V. Thou shalt be an Elmer to fellow Pigs.
- VI. Thou shalt not flame another Pig.
- VII. Thy junque box is thy fellow Pigs junque box.
- VIII. Thou may ponder the existence of Mac.
- IX. Thoust may blame Paul.
- X. Thou may weareth Spandex.

Enjoy this month's BBQ! It may be a bit rough, but what do you expect - we're Flying Pigs!

===== ( Flying Pigs QRP Club International ) =====

### Harbor Freight 45W Solar Panel “Kit” -- By Rich Arland, W3OSS

Rob Matherly, W0JRM, saw a posting of mine regarding my recent purchase of a Harbor Freight solar power “kit” and asked me if I would mind doing a short article for “The Pig’s” newsletter. Never one to let an opportunity to pontificate escape, I eagerly pounced on Rob’s suggestion.

Having been an avid QRPer for over 40 years has left its mark on me. For one thing, why would anyone use 100 W or a kilowatt of RF when 5 W will get the job done? I call it “RF Ecology”; using the least amount of RF energy to maintain contact. The F.C.C calls it a rule!!

I extend my “RF Ecology” idea to include natural power sources. Why waste precious non-renewal energy powering your amateur radio equipment when you can easily produce your own power for your radio gear? Over the years I have had various small solar panels but nothing very serious (serious as in something I could utilize to recharge a set of batteries for 100% off-the-grid power for my radio gear).

Two years ago I purchased a small portable PV panel from Harbor Freight that originally was used by auto manufacturers to keep their car batteries topped off during shipment. The output of this tiny unit was around 4-5 W at 13.8VDC. While this minuscule unit is easy to pack along into the bush, it will *NOT* recharge a depleted deep-cycle or standard automobile battery. Its use is confined to keeping a fully charged battery (sealed lead acid or SLA, deep-cycle or standard lead acid RV/automobile battery) topped off and that’s about as far as it goes.

If you want to have a truly effective photovoltaic system that will allow you to operate continuously “off-the-grid” then you need to do some prior planning and “size” your proposed system to incorporate the gear your currently own *AND* equipment you might add in the future. This sounds like a tall order, but in reality it is not. The easiest thing to do is list all your gear and their individual power requirements, transmit & receive. Plan on a 80-10-10 duty cycle (80% no signal/squelched, 10% transmit at full power and 10% receive/unsquelched). Since the highest current draw will be during



*Shown here is the no-load output voltage (on the small DDM) in an almost clear sky. As you can see, the no-load voltage is around 22VDC. This drops to about 14-15 volts under load*

transmitting periods, use that amperage to figure your current requirements for your transmitting gear and add a fudge factor of about 20% for good measure. Add to this the various receiving equipment like AM/FM broadcast receiver, V/UHF scanner(s), SW receiver, 12V lighting, computer (laptop or desktop) including the CRT and printer, CONELRAD monitor (you “do” have a CONELRAD monitor, right?) Total your current requirements, take it times 13.8VDC and you’ll get the amount of power needed by your station.

Once you have this figure, then you have an idea of what size and type of photovoltaic panels you’ll need to keep your battery bank fully charged for 24/7 off-the-grid power generation. Personally, I would take my calculated power requirements; add 50% to the total which would allow for cloudy/overcast days and future expansion. If you really want to guild the lily, then double your calculated power requirements and pull out your check book!

I proposed this to Mike Bryce, WB8VGE, several years ago and his reply was: “What are you going to do, Arland? Arc weld?”! Based upon that input, maybe doubling the power requirement might be a bit over the top, but it never hurts to be prepared: As long as you have the money, why not?

In a perfect world the price of solar power would be pennies per watt. Unfortunately, our world is ruled by oil consortiums and greedy people who have a strangle hold on alternative energy sources. Over the last 20 plus years I have watched the price of photovoltaic panels in hopes that the price per watt would start a downward trend. No such luck. The price per watt in 2007 is roughly what it was in 1987: \$6/watt. Occasionally I would run across a “special deal” where a PV panel would be priced lower than the average price per watt, but invariably they were either “pulls” from commercial service or manufacturer quality control rejects.

When I saw the ad in a Harbor Freight flyer for a 45 watt solar panel kit (Item #: 90599) for \$199.00 (\$50.00 off the regular price), I became instantly interested. Pulling out the old HP 20S calculator and running the numbers, I found that this particular “kit” undercut the standard \$6/W with a cost of \$4.42/W, a substantial savings! Not only that, this “kit” included three (3) 15W photovoltaic panels, a mounting frame, a “controller” (of sorts) along with a set of 12VDC florescent lamps! In reality this further reduces the price per watt to well under \$4.00! On the surface, not a bad deal all told.



*This is the overview of the Harbor Freight 45 W solar power "kit". Each PV is 15 W, when combined in parallel they provide approximately 3A at 14-15VDC output for battery charging.*

My wife, The Beautiful and Talented Patricia, KB3MCT, and I boogied on up to the Harbor Freight store near Scranton to take a look. Of course, the ONLY kit the store had was the one that was bashed on the ends. Luckily the store associate allowed me to pull the entire kit out of the shipping container and inspect everything before purchasing it. All three panels were intact, the accessories were fine and the steel mounting frame was unbent, so I went ahead and plunked down my plastic and walked out of the store with a real PV system.

Eager to check things out, I unpacked the entire kit and pulled out the DMM to check the output of each PV panel under incandescent lighting. Bad idea! Two of the panels had outputs around 16VDC and the other panel yielded an output of 22VDC. Confused? Yeah, me, too!

I had to wait about 7 days until there was a bright sunny day in northeastern Pennsylvania before I could lug the PV panels out onto the porch and check their outputs under full sunlight. The no-load results: two panels gave me 24.5VDC and the third gave me 25.6VDC. Now we’re getting somewhere!

Since the PV panels are current source devices, I figured that I could connect my old trusty Simpson 260 analog VOM directly across each panel's output and measure the current output. With all three panels connected in parallel I strapped the old Simpson (set for the 10A full scale setting) across the combined output. The meter read 2.8A, which was pretty close to the 3A that I calculated to get the 45W total output. Since it had been a couple of decades since the Simpson 260 had been calibrated, I figured that 2.8A was "close enough for government work".



*My 40 year old Simpson 260 Multi-meter shows just a hair under 3 A when placed directly across the three PV panels in parallel. This equates to about 45 W total output UNDER FULL SUNLIGHT*

OK, so what do we have here? For starters we have three (3) 15W photovoltaic panels that measure 12 ¼ x 36 ½ x 1 inch overall. The individual cells are encapsulated inside an aluminum frame covered by glass or clear plastic (not sure which). Each panel weights about 5 pounds and there is a plastic module on the back with the positive and negative wires coming out via a two conductor cable. Unfortunately, the cable is rather under sized for the task at hand. The individual conductors inside the cable appear to be about #18 or #20 AWG, much, much too small for efficient operation. Each cable is about 10 feet in length and the pos/neg wires are terminated in cable connectors for easy connection to the included controller.

Speaking of the "controller" throw it away, ditch it, drop it over a cliff: whatever. Lose the "controller". It severely loads down the PV panels tremendously. A better choice would be to wander over to Mike Bryce's, WB8VGE, site (<http://www.sunlightenergysystems.com/>) and pick up one of his micro controllers which is about 1/20th the size of the original kit controller, and won't load down the PV panels. If you plan on using this system for camping or portable power applications Mike's micro controller is ideal and will save you space and weight.



*The final product: the 45W PV system is charging a deep cycle battery used in our Scamp camper. Notice that there is no charge controller and the reason for that is, this system won't really overcharge this battery even if left for an extended period.*

I took a partially discharged 12V lead-acid lawn tractor battery I use for portable QRP and EmComm work and charged it using the Harbor Freight PV system. Monitoring the charging current and the voltage just to be sure that I didn't blow anything up, I watched the battery recharge in two afternoons (I get great sunlight from about 2PM to sundown on my front porch) of recharging: All in all, not bad. The battery charge current tapered off from about 2.5A in the beginning to under 1A as the battery neared full charge, just like in the book!

There are a few "warts" on this system. First of all the mild steel frame is flimsy. It lacks the ability to adjust the angle of the panels with relationship to the latitude of the installation. In order to maximize the amount of sunlight striking the PV panels it is standard procedure to set the panels at the latitude of the installation. This frame, while it will break down for easy transportation, is not adjustable and it is not extremely robust. Long term goal at W3OSS is to design and fabricate a new mounting frame that has latitude adjustments out of aluminum stock from Lowe's or Home Depot.

Secondly, there is the issue of the wire size on the panel outputs. The current wire size (#18/#20) is way too small. As with all DC systems, voltage drops are critical to the overall efficiency of the installation. Since I have a 50 foot roll of #10 red/black zip cord, I plan on replacing the wiring from the panels in the near future. Even a short run of small gauge wire will impact the overall efficiency of a small system. Replace the offending wire and be done with it.



Thirdly: the “controller” issue we’ve already discussed. Dump the furnished controller and get a micro controller from SunLight Energy Systems (Mike Bryce, Inc.)

*The mild steel framework is a bit primitive, to say the least. It is not adjustable to the proper sun angle, thus you are not going to be able to maximize the amount of sunlight striking the PV array at various latitudes. This mount needs to be re-engineered and made from aluminum to reduce weight.*

Some system for transporting this system to and from your operating site would be nice. The cardboard/Styrofoam boxes that the panels came in are not suitable for this task. If someone had a talented spouse that sews, it is conceivable that you could design and fabricate a tri-fold portable case from ballistic nylon lined with bubble wrap or open cell foam. Just a thought. Add a carrying handle and/or shoulder strap and you could conceivably lug these panels into the bush with relative ease.

Looking at the big picture, I feel that \$199.00 for this 45W systems is a reasonably good buy. If Harbor Freight would drop the “controller” and the fluorescent lights and adjust the price accordingly this system would be a great buy. While I don’t plan on using this small system on my main station, it will be included in my portable/mobile station for Field Day, to-the-field and EmComm deployments.

My thanks to Rob for allowing me to provide this article for the newsletter. Hope to meet many of you on the air in the near future.

===== ( Flying Pigs QRP Club International ) =====

### **Hams Are Cheap! -- By Dan Romanchik, KB6NU FP #-1171**

I never thought of myself as especially cheap, but a recent experience has me wondering.

Last January, my 40m dipole came down in an ice storm. A very large branch, weighted down with at least a quarter inch of ice, fell on my poor antenna, actually breaking the 14-ga. FlexWeave wire.

I finally got around to fixing it about a week ago. Being lazy as well as cheap, I figured that I could simply use a short piece of new Flex Weave to splice the broken element. My plan was to sand the FlexWeave to get the tarnish off, make a good mechanical connection, and then solder it all together.

It was a good plan, but it didn't work. Sanding did make the copper look brighter, and I was able to make a good mechanical connection, but the darn stuff just wouldn't solder. My guess is that even though sanding took a lot of the oxidation off the wire, it didn't do a good enough job.

I asked around on a couple of ham radio mailing lists I subscribe to, and got a bunch of suggestions about how to get the wire clean or make the splice:

1. Use a crimp-on splice.
2. Overlap the wire and use two small split bolt (Burndy) connectors.
3. Knot the wire and use a wire nut to ensure an electrical connection.
4. Soak the ends to be soldered in a mild acid, such as muratic acid.
5. Look for a product called Tins Tighter used for soldering brass radiators at a NAPA auto parts store.
6. Soak the ends in a solution of vinegar and salt.
7. Use liquid flux before soldering.

I was leery of using the crimp-on splice. I don't think a simple crimp splice is mechanically strong enough. I like the idea of using the Burndy split-bolt connectors, but I had already started the soldering process, so I bagged that idea. Using muratic acid or liquid flux, which is probably just a mild acid solution, seemed like it would work, but perhaps weaken the wire. We're always being warned against using acid flux after all.

So, I opted for making a solution of vinegar and salt. I had the materials on hand, and while it is an acidic solution, I reasoned that if it's weak enough to be edible, it probably won't weaken the wire too much. I tried this yesterday, and while it seemed to work, it certainly was no panacea. The wire did seem more willing to accept the solder, and my ohmmeter does show a good electrical connection, but I wasn't completely satisfied with the result. Even so, I hauled the antenna back up in the air.

If the proof of the pudding is in the eating, the proof of an antenna is in the operating. That being the case, my repair is a success. The first two stations I called came right back to me, one giving me a 589 report, the other a 599.

I don't know how long the splice is going to last, but when it fails again, I'll have plenty of other things to try.

===== ( Flying Pigs QRP Club International ) =====

### **Hamming It Off the Grid – By Dennis Ponsness, WB0WAO FP #-347**

First off, let me give “props” to Rob, W0JRM, for taking over the helm for the BBQ. I am sure that he will do an excellent job as Editor! Rob asked me to help him out by documenting my trials and tribulations at off-grid amateur radio operation. Hopefully as you read this, Donna and myself are now in Missouri after moving there in May from Michigan. (*Ed. Note – As of publication, Dennis and Donna had left for the compound*)

We made the decision to “homestead” in a very remote and rural area of the Ozarks and live there “off the grid” – which means no landline phone, no commercial electricity, no cable TV, and no Internet access at the homestead. As I compose this, it is late April and we are in the process of doing the actual move down there. Being that this issue comes out the first of June – and April and May will be VERY busy for us, I have to get this into Rob’s hands before we do the actual move. So, bearing that in mind, I decided to focus this submission on the preparation and research that I have been doing and the testing that I have undertaken to allow me to continue operating on the bands.

Our property is on a remote, isolated county road and does not have service from any “public utilities” at all – i.e. commercial electric, telephone, cable, etc. Even if we so desired to have commercial electric ran to the homestead, the costs would be prohibitive. So, I was faced with a choice – either give up ham radio, or develop an integrated system that would allow me to continue to be active on the bands. Since the “power budget” would be extremely limited, the obvious choice was QRP.

Fortunately, I was already involved with QRP operating and was familiar with its benefits and challenges.

### **-- Rigs --**

I already had the two of the best QRP rigs available – an Elecraft K2 and a Yaesu FT-817ND – so I didn't need to acquire a new rig. Both of these rigs operate off of 12VDC and have a reasonable requirement for power. The 817 also has the ability to operate on the 6m, 2m, and 70cm bands as well as a full SW receive capability as well as the FM broadcast band. The 817 is limited to 5w where as the K2 can be used up to about 10w. However, the K2 is restricted to the ham bands only but it does draw less power and is easily “field repairable”.

The Elecraft K2 is “fully loaded” will all of the optional modules with the exception of the internal battery. I felt that this was not needed, as I would be operating off external batteries. I won't go into the specifications of the K2 other than to say it is a superb rig for QRP contesting and DX-ing (which are my main operating pursuits). Needless to say, the K2 will be my primary rig.

The Yaesu FT-817ND is also a fine rig, and it will be used as a backup for HF operating and as a primary for 6m operating as well as listening to SW broadcasts. I considered getting an Elecraft transverter for 6m, but the transverter itself drew 4A (it is a 20w unit) as well as the normal current draw of the K2. This would have given a much shorter operating time than I wanted. I also wanted the capability to listen to the SW bands from time to time, so the 817 fit the bill perfectly. The one major drawback of the 817 is it's lack of an internal antenna tuner, but I acquired an Elecraft T1 external auto-tuner that works great with the 817.

I also have a Small Wonders Lab DSW-20-II as well as a SW-40+ and SW-30+ that I will use from time to time as well. Again, the Elecraft T1 will come in handy for these rigs as well.

### **-- 12-Volt/3.8-Volt Power System --**

I now had to develop a method of powering these rigs and the obvious choice was to use Sealed Lead Acid (SLA) batteries. I decided to go with 12 Ah SLA batteries, as these would provide several hours of operating time before the batteries need to be recharged. Also, they are not that heavy, not too expensive and are of a reasonable size.

I will have a portable generator that will be used in the construction at the homestead, so I will have the ability to recharge the batteries when I need to. I purchased 6 of the 12 Ah SLA batteries and two chargers so I could recharge two of the batteries at the same time. During a test run during the 2007 ARRL November Sweepstakes, I ran down two of the SLA batteries and found out that it would take between 5 and 6 hours to totally recharge a battery. This was acceptable, as the generator I will be getting will run about 7 ½ hours at 50% load on a tank of gas.

With the six batteries, this will allow me to have two batteries at the operating position (only one will be hooked up at one time), with four “spares” ready to go. I anticipate running the generator once per week on average unless I have operated a lot more than would be usual – such as during a contest. When the two batteries at the operating position have been depleted, I will replace them with two more batteries and then recharge the depleted ones during “generator day”! All of the batteries will be cycled through so as not to have any batteries sit “unused” for any length of time

I also had a couple of “Rig-Runner” panels (an 8 position and a 4 position) that utilize Power Pole connectors. I made up some cables that had the standard ¼ inch flat terminal sockets on one end and a pair of Power Pole connectors at the other end for each of the batteries. I then made up a medium length “extension cord” with Power Poles at both ends. I used the 8-position panel for the 12VDC as it had an over-voltage/under-voltage display circuit in it.

If the voltage went over 13.8VDC, the red LED would illuminate, and if the voltage went below 11.4VDC the yellow LED would illuminate (and if the voltage was between these values, the green LED would be illuminated). So when the yellow LED came on, it is time to change out the battery for a fresh one. I put Power Poles on all 12VDC items – rigs, keyers, etc. – and they will be plugged into the 8-position panel which will be mounted so I can easily see the LED’s on it. I also have a quantity of replacement fuses as well – just in case.

While this took care of the rigs and other accessories, one other requirement that I needed was some type of lighting at the operating position. As we all know, some of the best operating is after dark, and I didn’t really want to be hamming by candlelight! Standard incandescent lighting was immediately ruled out as being too wasteful – so that left LED lighting.

The past few years have seen a rapid increase in the field of white LED’s – they have become more efficient, brighter and cheaper. And since most of the white LED’s operate a 3.8VDC, you can use 3 NiMH cells to power them without having to deal with dropping resistors or the like.

I modified the 4-position panel by replacing the red/black Power Pole shells with blue/brown Power Pole shells. I also purchased several 3-cell AA battery holders with snap connectors (like as found on 9v batteries), snap connectors with pigtailed and some blue/brown Power Pole shells. I then attached the Power Poles to the snap connectors. Now I had 2 separate DC systems – a 12VDC system for the rigs/accessories and a 3.8VDC system for the lighting at the operating position.

The next task was to develop some devices to utilize the 3.8VDC system. I developed two separate systems that have worked great during my testing.

One of these was a “light bar” that consists of eleven LED’s mounted on a piece of aluminum angle bar. This bar is screwed to the front edge of the shelf directly above the operating position and gives excellent lighting on the entire operating desk. The only drawback is that it is a “power hog” and will drain a 3-pack of batteries down in just a few hours. Each LED draws around 30mA, so an array of 11 draws around 330mA. The NiMH batteries that I use are 2500mA rated, so under optimal conditions I would get around 3 – 4 hours of good illumination before the batteries are discharged to the point that the LED’s are becoming dim.

The other system is a modified hi-intensity desk lamp that originally used 110VAC to drive a halogen bulb that fortunately had a dual pin base. I used an array of three LED’s in parallel and rewired the base – leaving the transformer in for stability – putting an pigtail with Power Poles on it. The lamp provides a good, focused light source that lasts over several nights of operating.

To charge the NiMH batteries, I purchased a couple of the 15-minute “fast chargers”. I have another lamp of this type left to convert, so there will be two of these available for use. I have a decent supply of these batteries and they can be charged at the same time I am charging the SLA batteries. I plan on having several packs ready to go.

Overall, I feel that I have developed a usable and efficient system to provide the power I need to be active on ham radio from the homestead. Eventually, I will employ solar panels to charge all of the SLA and NiMH batteries.

### **-- Logging/QSLing --**

Most of us use some form of computer logging and the vast majority of contesters use computers as well. I will have a laptop at the homestead, but I will not be using it for logging! If I were to use the laptop for contest logging, I would have to run the generator continuously during the contest – something that I did not want to do. So I will go back to the traditional “paper log” for both normal operating and contesting.

For general logging, I purchased a couple packs of ARRL log sheets that are punched for a loose-leaf notebook. This will be what I log my day-to-day QSO's with. Originally I gave thought to transferring the QSO data to the laptop during “generator day”, but decided that there was no reason to double my work! For tracking my DXCC I will be using “The ARRL DXCC List” booklet, and for any other awards that I will be working on I will use some type of paper tracking scheme.

I also downloaded contest entry forms/log sheets and made copies of them. I have found that with my operating “style” during a contest, paper logging works just as well as computer logging. Yes, there are drawbacks such as automatically detecting dupes, but during the 2007 ARRL November Sweepstakes I used paper logging and duping and while it does require extra work it did work out very well. Sometimes it is hard to imagine a time when there were no computers or Internet connections in the shack, but millions of operators enjoyed ham radio then with all its “limitations”.

QSLing will also be done “manually” with the cards tracked in the logbook. I can remember “back in the day” when you could actually purchase callbooks, but today they are on CD-ROM or available online. I plan on utilizing the bureau system a great deal for the run of the mill DX QSO's but in case I want to send a card direct (or to a domestic station), I can either purchase an up-to-date callbook CD or just go to the county library and look them up online. Overall, the old ways will work out very well for me.

### **-- Antennas --**

One thing that I have plenty of down there is room and trees. I will be able to put up a decent array of antennas for all bands. I won't have a tower – the base would require hand mixing LOTS of bags of cement as well as having to have the generator running to use the rotor. So, I will be using various configurations of wire and vertical antennas.

I will take my DX-88 vertical with me down there, so that will work FB for DX on the lower bands. For the upper bands (20m and up) I plan on using standard dipoles, loops and wire beams on 15m and 10m to “hot spots”. Of course I will put up some NVIS antennas for close in work. I will start out with the basics first, the NVIS antenna and the DX-88. Then I will expand the antenna farm as time goes by. I will use standard coax as well as home-brew open wire line for a couple of antennas. Another good thing is that I will have plenty of time to experiment with different types of antennas and decide which one(s) work the best for me at that QTH. And I will have room to FINALLY get on 160m!

For 6m, I will probably be restricted to a vertical as having a rotating beam is pretty much out of the question. Also, the topography of the area would require a huge tower to get over the ridges around the building site.

## -- Operating Position --

One thing about building yourself is that you can install “custom” features to make it easier for one to operate. Right now, I envision a 4-foot operating desk with an attached hutch to hold the rigs, accessories and other items. I will make this desk as well as the hutch so as to optimize what space I have available as well as for maximum operating efficiency. I also plan on building into the cabin an “entry point” for the coax and open wire lines directly in the exterior wall so I do not have to run feed line through windows, etc.. Also, under the operating position, there will be a connection for the ground system that goes to a ground rod that will be installed directly under the operating position.

## -- In Conclusion --

Both Donna and I are looking forward to out new life on the homestead and hopefully I will be able to be QRV a lot more in the future. There has been a lot of work done on the homestead and lots more to do in the future. Next time, I will be able to give some first-hand reports on what I have done and accomplished down there as well as some “pig-tures”.

===== ( Flying Pigs QRP Club International ) =====

## **Building the SW-40+ -- By Dan Lautenschleger, AB9ME FP#-1570**

At a hamfest last year, I was rummaging through the large Far Circuits display looking for a QRP radio that I could lug around while biking or traveling. I picked up the board and instructions for the "40-40" radio initially designed by the New England QRP club. Dave Benson, NN1G (now K1SWL) authored a 1994 QST article illustrating the design, theory, and construction of this little dynamo.

I didn't realize until I went to order parts for the 40-40 that there's an updated version of this radio called the SW+ Series available through Dave Benson's Small Wonder Labs . I decided to order the 40M version kit and have an updated radio rather than procure all the components to make the Far Circuits version.

The kit arrived and was packaged well. Instructions were included but as I found out later, not the latest version. Running through the checklist indicated I had all the appropriate parts required. The board looked great and I was anxious to breathe some solder smoke.

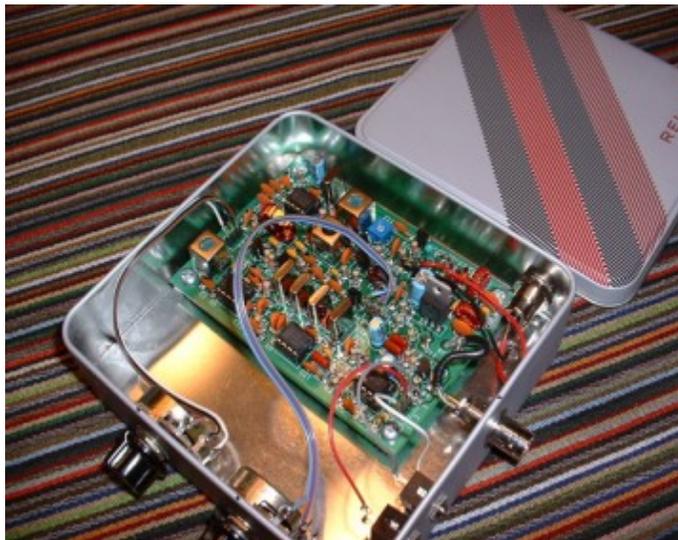
This was not my first radio kit. I've built a DC-40 (for me) and an ATS-3A (for a friend). The instructions were fairly easy to follow though there were some incorrect pictorial diagrams. I looked for the latest instructions on the Small Wonder Labs site and found there was still at least one error or two present. Not a big deal as I could figure out what needed to be done once I looked at the board and saw where a particular part went.



*My New Toy in Tin*

I did manage to screw up a few times: I soldered a diode where a resistor was supposed to be and broke the glass diode de-soldering it. Also managed to solder the PA (Q6) where Junction 3 is. Wrecked this de-soldering as well! Dave sent me the replacement parts for a very reasonable fee which I appreciated very much.

Before putting in an enclosure I hooked up the RF gain pot, tuning pot, headphone jack, and key jack. This was followed by a BNC antenna connector and coaxial power connector. Applied 12 VDC and NOTHING. Checked all the solder joints and they all looked fine. Probing with a VOM showed almost all the DC voltage readings were 13-14 VDC even on the ICs. What the hell? Uh oh...Mr. Solder Guy has the supply voltage polarities reversed ;-) Good grief... *(ed. Note – Next time this happens, let us know and we'll induct you into FP-Z...)*



*The Guts w/Room for Freq-Mite!*

Once I reversed the supply leads, all DC voltages measured in the proper ranges! I attached a dummy load and clip lead antenna and found my lowest signal on my IC-718 around 7031 kHz. I peaked the transformers to the left of the PA and voila, 2.5 Watts of nice sounding carrier tone. Yeah, man! I noticed the PA transistor was getting warm and backed the power down to 2W by adjusting a small variable resistor mounted to the board. I soldered a 22pf capacitor into the C7 slot to drop the frequency range down.

Receiver alignment was a piece of cake: Peak one transformer. Done. I initially did not hear many signals then realized the RF gain was at minimum. Turning this up a bit brought all sorts of CW to life! I was really surprised by the selectivity of this simple rig and having RF gain control really helps when a large signal comes in. Audio is plenty loud through my iPod earbuds.



*Back of Rig Where DC is Fed*

I had a fairly loud tone that was at the lower end of my frequency range driving me nuts. An e-mail inquiry to Dave and a check of the tone frequency showed it was occurring at 7000 kHz. Not cool...my frequency was too low and I could have ended up transmitting out of band. I removed C7 and simply squeezed the turns on L1 closer to bring my range down below 7031 kHz. My range is now 7023 kHz - about 7061 kHz. Perfecto.

I purchased a wallet last year that came in a tin and the brand name written on the cover is, "Relic". This is what I enclosed my SW40+ in. I have room for a Freq-Mite that just showed up and maybe even a NorCal Keyer ;-) For now I'll use my Altoids-based NorCal Keyer outboard as the Freq-Mite has first dibs on the available real estate.

A special thanks to WB6KWT and KD4PBJ for sending header pin and wire samples via my QRP-L reflector inquiry. You guys are terrific examples of how we hams help other hams! Thank you again, gents. I have already given out some of the header pins to a fellow ham in Madison, WI.

I'm hoping my code speed will now head north as I really enjoy this radio and if I want to use it, I better get with the program and "get 'er done". Would I buy another SW+ radio? Very much indeed! I'm pretty sure a 20M version is on the horizon.

Would I like to see something different with this rig? I think the Radio Shack 100k tuning pot sucks. I hear that many builders of this radio replace it with a "ten turn pot" whatever that is. Guess I better Google that. RIT would be nice, but I don't want to make this rig to chic, amigos. I want it to hold up to the stresses of travel and allow me to get some Qs when I wanna take a break from biking, throw some wire in a tree, and hook up my Palm Mini Paddle . I'm not sure if the updates from the 1994 article encompass the recommendations from the original ARRL QRP Power book. I sure would like a copy of the article from QRP Power if anyone cares to share it.

I thoroughly enjoyed my building experience of the SW40+. Now I need to use the darn thing ;-)

===== ( Flying Pigs QRP Club International ) =====

### **Run For the Bacon Roundup – By Larry Makoski, W2LJ FP#-612**

RFTB for 2007 is doing well! For the first four months of 2007, we are averaging about 31 participants using the Autolog feature each month. That's a bit down from 2006; but is to be expected due to the fact the Sun hasn't been having any acne problems so far this year. When ol' Sol runs out of Retin-A and starts making with the spots, I'm sure we'll see an increase in activity! But please give it a whirl and participate, anyway. Many is the times when HF contests seem to generate their own propagation! And RFTB has been garnering a honored spot amongst the monthly QRP Sprints. We've been getting comments that rank our little competition right up there with the ARS Spartan Sprints in the popularity ranks.

The winners so far this year have been K4BAI, W5TA and WA8THK taking 1st, 2nd and 3rd place respectively in January. In February, the honors went to K4TWJ, C6AKQ (N4BP) and K1EV. March's winners were K4BAI, K1EV and K7TQ. In April the top three spots went to N4BP, NØOR and W9NX.

The RFTB "Honor Roll" of participants who have appeared in all four 2007 contests so far this year include K3OQ, K5GQ, K6BBQ, K8BTD, KA2KGP, N1VWD, VE3HUR, W2LJ, W9NX, and WA3OFF. RFTBers who make an appearance in at least 10 of the 12 Sprints will receive a special certificate of merit at the end of the year.

Our top three point earners for the year will earn special Piggie mementos, just as in 2006. The top scorer earns the prestigious "Top Hog of the Year" award; and as an added bonus is allowed first pickings from the slop trough!

It's fascinating to watch the results each and every month. Some of the best known and most highly respected QRP ops in the business are fellow Flying Pigs. But whether or not you're a major contender; or just a fledgling piglet getting your hooves wet in QRP contesting for the very first time, come on and join us for two hours of fun and Piggie fellowship!

All kidding aside, remember that the Run For The Bacon is ALWAYS held on the third Sunday evening of the month. Announcements will always appear on the major QRP and CW e-mail reflectors. See you in the sty next month!

**-- RFTB Results --**

January	2007	K4BAI 1116	W5TA 992	WA8THK 585
February	2007	K4TWJ 2058	C6AKQ 1909	K1EV 1460
March	2007	K4BAI 3016	K1EV 2400	K7TQ 1743
April	2007	N4BP 4095	NØOR 2001	W9NX 1980

**-- Hams Who Have Participated in All RFTB Events This Year --**

K3OQ, Jeff Embry FP#-696  
 K5GQ, Mark Tyler FP#-1003  
 K6BBQ, Rem Donnelley FP#-490  
 K8BTD, Myron Gilcher FP#-1472  
 KA2KGP, Thomas Perry FP#-1203  
 N1VWD, Bradford McKirryher FP#-1383  
 VE3HUR, Donald Stalkowski FP#-688  
 W2LJ, Larry Makoski FP#-612  
 W9NX, Dwight Mandrell FP#-1109  
 WA3OFF, David Mertz FP#-1444

*(ed. Note – Wiigii guys, keep it up!)*

===== ( *Flying Pigs QRP Club International* ) =====

**STANDARD END-OF-NEWSLETTER STUFF:**

The Flying Pigs Bacon Bits Quarterly is published on a quarterly basis. (Gee, really?) Issues are posted to the web sometime in the first full weeks of December, March, June, and September, with article submission deadlines on the first of the prior month. (February 1, May 1, August 1, and November 1.)

Any and all articles are welcome for submission. FP Membership is *not* required, although it's free so you may want to consider it. Please keep articles tasteful, relevant, funny, and free of the standard “touchy” subjects such as religion, politics, etc. Suggested topics are homebrewing, portable operation, shack construction, hamfest news and reviews, and things of interest to the FP group (check the reflector for ideas.)

Estimated circulation is unknown, though it has been rumored that we pigs tend to get around.

The newsletter editor is Rob, w0jrm. Please submit all articles to [jimrob@gmail.com](mailto:jimrob@gmail.com). The preferred submission format is an unformatted plain-text file attached to an e-mail.

Articles submitted for publication in the BBQ will not necessarily be published in the following issue of BBQ. Articles may be “reserved” for future publication due to length, the amount of editing required, or reasons purely at the discretion of the BBQ editor (*ed. Note - bwa-ha-ha... feel the wrath of my editorial powers.*)

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===== ( Flying Pigs QRP Club International ) =====

### 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. The word eBay is allowed.

### 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.

<http://www.fpqr.com>

### OUR MONTHLY CONTEST – RUN FOR THE BACON SPRINT:

This event is held on the 3<sup>rd</sup> Sunday Night (EST) of the month. For full details on how to participate, see the website address of: <http://www.fpqr.com/fpqrprun.html>

### PROBLEM REPORTING:

If you are having problems with email, the web pages, 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)

Dan, N8IE at [n8ie@who.rr.com](mailto:n8ie@who.rr.com)

**We welcome all to join the Flying Pigs QRP Club, and we hope you have fun!**

