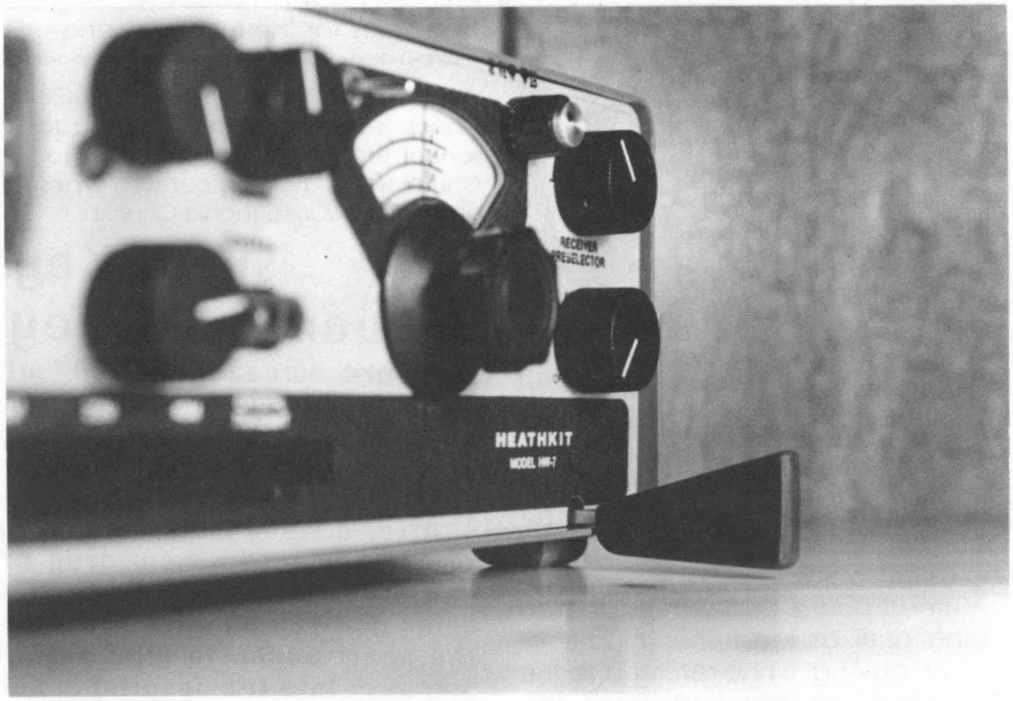
QRP Quarterly

Journal of the QRP Amateur Radio Club, International

October 1988 Volume XXVI Number 4



The Porta-Paddle...a lesson in craftsmanship when it comes to homebrewing. See page 4.

Contest Results:
Hootowl Sprint
Homebrew Sprint
See page 10

Board of Directors Election
Ballot on Page 22
Send In Your Ballot Today!

So how was your summer? Turn to page 15 and see how one QRPer managed to beat the heat.

QRP ARCI NEWS

Editor's Word

You've probably noticed that this issue is considerably "lighter" than usual. Summertime is usually noted for long lazy days when nothing much gets done. This summer, for me, has been the worst I can remember.

By now, everyone within the range of modern American media is aware of the drought. It was particularly bad here. Our area had a terrific storm back in May on Mother's Day. We didn't get anymore rain until the second week in August. Add to that more days than not of daily high temperatures over 100 degrees--it didn't make for a pleasant summer, even though the insect population was hit just as hard as the crops. My own fruit crops of strawberries, grapes, apples and pears were pretty much ruined this year.

The DXpedition to the Virgin Islands was the highlight of the season. However, while I was gone, my husband became ill. His condition continued to worsen and he ended up in the hospital on July 27. A week and a half later, emergency surgery had to be done when it became apparent that he was not responding to treatment, in fact, he was close to death. It has been very stressful here and, unfortunately, The Quarterly had to be put aside and mail has been virtually ignored. My apologies to everyone who has written and had to wait a long time for a reply. This is also the reason for this issue having fewer pages than usual.

My husband returned home and was expected to be recuperating until at least the middle of September. However, on Aug. 31 he returned to the hospital for complications resulting from the surgery. So, as I write this (Sept. 4), I find myself two weeks past my own deadline for having The Quarterly finished and shipped off to the to printer. By the time this issue gets in the mail, things should have returned to some semblance of normalcy (but I'm not holding my breath.) Maybe I'll even have a chance to get back on the radio. I do hope to see a lot of activity in the Fall QRP CW Contest. Hope to see all of you there.

Upcoming Contests

Fall QSO Party	Oct. 8/1200Z to Oct. 9/2400Z (24 hrs. max.)
Holiday Spirits	Dec. 11/2000Z to 2400Z
Winter Fireside	Jan. 15/2000Z to 2400Z
M-QRP-C	Jan. 21/1200Z to Jan. 22/2400Z (36 hrs.)
Classic Sprint	Mar. 12/2000Z to 2400Z

Special Notice to Contributors

Given the chaos that currently reigns here, I'm concerned that some articles may have been misplaced. Well-meaning folks have "helped me out" recently by cleaning/straightening up the house. Now I'm having a hard time finding things.

If you have sent something to me that has not yet appeared in The Quarterly (even if I have acknowledged receiving it), PLEASE drop me a postcard telling me what you have sent. Then I will have an idea of what I'm supposed to have on hand. My apologies for the inconvenience.

Welcome to Chuck Fitzsimmons, KB8AHS in Akron, Ohio. Chuck is new to ham radio and to QRP. He is a high school teacher. A new addition to The Quarterly staff, Chuck will be helping out with typesetting, laser printing and editing duties. Thanks Chuck!

Silent Key
Howard Sweezey W6TZA

Howard Sweezey W6TZA of Carmichael, Calif., died May 24, 1988 of heart failure. His wife, Pauline, writes that Howard had been coping with heart problems for a number of years.

"After a siege last summer, we were lucky to get him into a new drug program which had great potential. He then seemed to be doing quite well until a few months ago when the heart began to give out.. His doctor put him back into the hospital in Redwood City on May 17, and he died one week later of congestive heart failure.

"He always loved amateur radio and the comraderie it brought. We made many friends this way--friends who have given so much of themselves to help out when necessary.

"Beyond this, he was a great promoter of QRP. When we entered the Field Day contests, he always went QRP, slugging it out in the 'mud' to try to pick up those hard-to-get calls. He took his QRP rig with us on all our camping trips, and would find time to set up in the most out-of-the-way places and try to bring in a signal.

"He was a great guy. I miss him terribly and I know his friends will feel the loss of a close associate for a long time, too."

Howard held QRP ARCI #4340. Condolences can be sent to Pauline Sweezey at 4594 Las Lindas Way, Carmichael, Calif. 95608.

The QRP ARCI is a non-profit organization dedicated to increasing world-wide enjoyment of QRP operation and experimentation. QRP, as defined by the club, is 5 watts output CW and 10 watts output PEP.

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THE "PORTA-PADDLE"

by Rick Van Krugel VE7FOU
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A $5 or Less Built-in Keyer and Paddle for the Heath "HW" QRP rigs

After perusing years' worth of modification articles for these classic rigs including repeated references to the "W7ZOI Keyer", two questions concerning the keyer came to mind: 1. What good is a lightweight portable rig if a paddle almost as heavy as the rig is required to operate it? 2. What is the W7ZOI Keyer I keep finding so many references to, but for which I never see the plans?

This keyer circuit may appear obsolete compared to a number of newer developments, but it offers some advantages: It uses no highly specialized parts, the parts it does use are very easy to obtain locally in your home town and the cost is in the range of two or three bucks. It can be made to produce respectable code from about 10 to 35 w.p.m. The paddle is my own design, and the unit pictured here is the latest generation of an idea that went through a few experimental changes to arrive at a compact mechanism which not only functions, but functions nicely enough to be a pleasure to use in spite of its extreme simplicity. The HW-7 pictured, which contains a small nicad pack good for about two hours of QSO time, is now a complete one-piece HF station.

The paddle mechanism is constructed using a 2-1/2" x 1-3/16" piece of 3/16" plexiglass. A slot 1/4" wide x 1-3/4" long is cut down the center of this piece to accommodate the shaft and the side contacts. The center shaft is 3/32" solid square brass stock from a hobby & model shop, and is slightly over 2-3/4" long. A 5/8" section is filed down on two sides to about half the original diameter of the brass to achieve flexibility for the side-to-side motion. This narrowed section should begin 1/32" to 1/16" from the end of the slot in the plastic rather than at the very end. The reason for this detail is that the additional friction of the fully inserted paddle over the full diameter rear portion of the shaft aids in providing a damping effect, averting a tendency in the paddle to be too lively in its action. Sensitive action is thus obtainable without the spring bouncing back sending unwanted dots and dashes.

The shaft itself is the common terminal in the keyer hookup, and the end to be soldered(the rear 1/4") is filed to just under 1/32" thick and drilled with a 1/32" hole to accommodate the wire. By making the brass thin where soldered, the least possible amount of heat is conducted down the glued portion of the shaft; both plexiglass and the cyanoacrylate glue used are vulnerable to overheating.

The side contact pieces are 1/16" round brass about 7/8" long. The inside ends are filed carefully flat and polished with 600 grit wet-or-dry finishing paper, and the outside ends are pounded flat with a hammer(I call this a low-tech project) and drilled with 1/32" holes for making the dot and dash lead connections.

The paddle itself uses 3/32" inside diameter square brass tubing protruding 2-1/8" from the paddle, which is made of a scrap of black phenolic plastic about 1/4" thick. Wood will suffice nicely, has a lovely feel to it and is in fact easier to work with. Hint: rosewood or ebony scraps are often available from violin or guitar builders/repairmen(I know this to be true, as it was my previous job). Both the aforementioned tropical hardwoods will take a beautiful rich polish if you work down to the 600 paper lubricated with a little boiled linseed oil.

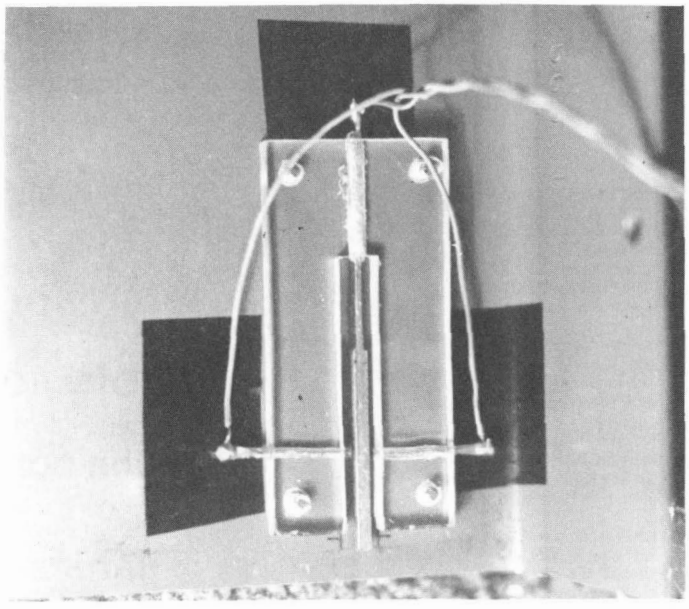

Figure 1

Allow at least a half inch(preferably more) of the brass tubing to be glued into the paddle. The protruding 2-1/8" length from the paddle is a dimension which may vary according to how the mechanism fits into a given rig, a situation in part governed by the degree to which the rig's front panel is recessed back from the front edge of the lower cabinet shell.

With the rig together, trace a fine pencil line marking the location of the front panel on the cabinet shell, and when installing the device set it back at least 1/16" from the line to allow for the front panel's thickness. After the brass and undrilled plastic(or wood and plastic) parts have been fabricated, the plastic has to be drilled with a degree of accuracy best accomplished using a drill press, though I have managed to succeed with a hand drill and some extra care.

The first part to install is the main shaft portion in the plexiglass, an unusual situation in which it is best to put a square peg in a round hole. Drill a hole the diameter of the diagonal dimension of the square brass used; be sure it will be a fairly firm fit, because it won't work correctly otherwise. If you haven't worked with this type of plastic before I advise making some practice cuts and holes in a scrap of it to acquire a feel for the nature of the stuff before working with the final piece. The drill bits have to be sharp to minimize heating up to the point of melting the plastic. Test to see that the keyer's shaft goes straight and true down the center of the slot in the plastic after insertion in its hole, then remove it and set it aside.

Now drill the two holes for the 1/16" diameter side terminals/contacts; as before, the firmer the fit the better. This is also the best time to drill the four screw holes for attaching the mechanism to the cabinet. 1/4" wood screws are about the right length , and they will thread into the plexiglass comfortably and firmly if the holes to start them are drilled very slightly smaller than the outside thread diameter. Do not drill the cabinet yet. Insert the shaft to its final resting place

in the plexiglass, being sure to have it squarely positioned so the paddle will stand up straight when inserted for use. Run as much cyanoacrylate instant glue(e.g. Crazy Glue) into the hole as the space will suck up, and leave it to set up for a few minutes. Note: Use the watery thin instant glue, not the viscous type made for gluing wood; the thin glue instantly runs deep into the joint being glued, whereas the thicker version will not penetrate at all.

Once you are certain the glue is all set up, insert the square tubing of the paddle over the shaft, then insert the side contacts through their holes in the plastic. Position the contacts so there is a slight clearance between their ends and the slip-on square tubing. This clearance will be a matter of taste; I set mine quite close for a rather fine, sensitive action that many operators would find annoyingly touchy—just to let you know if you like it that light, the mechanism will perform surprisingly well in spite of its simplicity.

Working first from the outside, run glue into the joints surrounding the contacts to secure them in place. You can see the glue penetrate the joint with clear plastic, and if it doesn't go all the way from one end of the joint to the other, remove the paddle tubing and run a drop in from the contact end. If glue gets on the flat ends of the contacts let it harden a minute, then clean it off with a sharp knife or a razor blade. It is possible to make adjustments to the contact/shaft clearance later by carefully applying heat from a soldering iron to soften the glue, pushing the contact in or out, and adding a fresh drop of glue.

The tubular shaft in the paddle proper is installed the same way as the square shaft in the mechanism: drill a round hole to fit it firmly, then soak the joint with instant glue. Epoxy(the five minute type is OK) would also do nicely with the two square pieces, especially if they are a little loose in the drilled holes.

All the dimensions I have provided are non-critical, and all that matters is that the finished product fits in an appropriate area, and that the paddle clears the front of the cabinet shell when fully inserted. Note also that the shape of the paddle must be such that it clears the table top comfortably. With the paddle mechanism complete, position it in place on the cabinet shell, and mark and drill the screw holes in the cabinet shell.

The location must permit the device to clear the lowest protruding portions of the underside of the circuit board, and it's a close fit at best. On my HW-8, I found the easiest spot to be the center, which I thought might be obtrusive directly under the main tuning knob, but it never really has posed a problem there. I haven't got a HW-9 yet, but did get a good enough look into one to confirm this item will fit that rig also.

Figure 2

Countersunk flat head wood screws are inserted through the cabinet into the plexiglass and, on the rig shown here, it was necessary to temporarily remove one of the feet for insertion of the screw in that area. It is important that these screws be short enough as to not protrude above the upper side of the plastic, lest you risk shorting the board to cabinet ground.

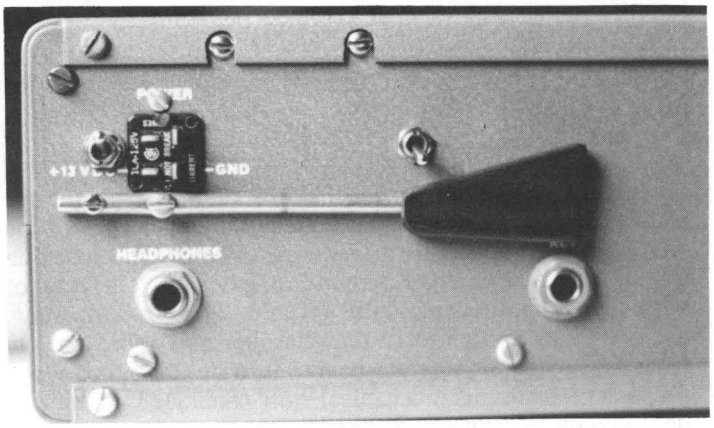

Figure 3

A concern arose as to whether or not the brass might oxidize and become insufficiently conductive to perform as contact points with this keyer, so I made an informal test to set my mind at ease. I made no notes, but did confirm that a number of thousands of ohms of resistance placed across the keyer contacts would still trigger the keyer, so the brass is reliable and effective for this operation. The installed final product is shown in Figure 1 with wires attached. Because the soldered connections are extremely close to the cabinet, electrical tape was placed under them as a precautionary measure. It may be necessary to clip some or all of the component leads shorter on the underside of the rig's circuit board in the area above the keying mechanism. Figure 1 is slightly misleading as to wire placement—the two wires to the side terminals should lie to the sides of the plastic piece when the cabinet is on the rig, as some units may fit close enough to pinch them if they are left as shown.

A chainsaw file was used to make a neat 1/4" hole in the front panel's lower edge(Figure 2). The end of the shaft is flush with the face of the HW-7, and it's corners have been slightly rounded for ease of paddle insertion. As you can imagine from the photo, the modified rig will attract some "wind-up toy" jokes from the big guns who catch you packing it around.

On the subject of guns, I gave this little squirt a "holster" for paddle storage(Figure 3). It consists of a length of brass tubing(thin-walled type) large enough to fit the paddle. It is screwed firmly to the rear panel of the rig, and the paddle wedges itself against the panel. The tube has enough flexibility to permit easy removal and storage of the paddle. I highly recommend a hobby shop product sold under the name "Sizes and Shapes", a great little bargain bag full of a huge assortment of scrap lengths of modelmaker's brass, copper and aluminum tubing and other stock; it has been worth its weight in gold while tinkering at my isolated QTH.

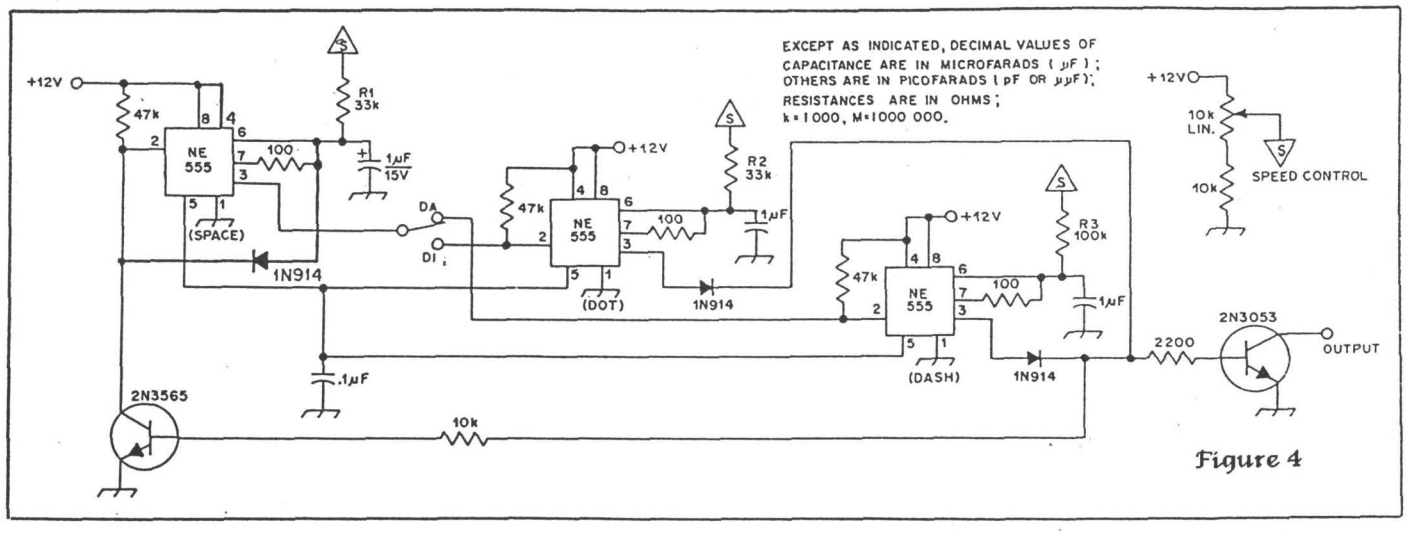

Figure 4

Figure 3 also shows the keyer's on/off switch(above paddle) and the two mounting bolts at the upper edge of the rear panel that support the keyer circuit board. The switch at left turns on panel lights for night life; green 12 volt "grain of wheat" model railroading bulbs give the rig a nostalgic glow, and are small enough to fit between the front panel and the front of the chassis directly behind it, no cutting or drilling necessary. With this mechanical stuff concluded, its time to tie it in with W7ZOI's little classic.

The keyer circuit is shown in Figure 4. In my first attempt I did not have handy access to the 2N3053 for the output, and substituted a lower cost plastic transistor with satisfactory results in my HW-8. At minimum speeds I have found the dashes tend to become disproportionately long. A very good compromise has been to use a 100K trim pot for R3 adjusted so that the code sounds perfect around 15 w.p.m.

Using quite accurate resistors in three of these built to date, the final value arrived at for R3 is different in each one, so no conclusive value can be recommended. In all cases the code sounded heavy on the dashes at 15 w.p.m. with 100K at R3. With it adjusted to sound perfect at 15, reducing to a character speed of around 12 w.p.m. will still produce near perfect code. Anyone who can copy 5 w.p.m. can generally copy code at this higher speed if the spacing is increased. As for higher speeds, the dashes become slightly short toward the keyer's top end, but it is hardly noticeable, and I have received favorable reports on the sound of its sending at its top speed, about 35 w.p.m.

A more sophisticated keyer without this minor timing quirk could certainly be used with this paddle design, but this project has been a very deliberate exercise in economy and simplicity. If anyone knows of a smaller and/or cheaper keyer design, I'd like to hear from you about it. The keying speed control on my HW-7 can be seen next to the crystal socket, directly above the bandswitch buttons.

Figure 5 is an actual size circuit pattern, foil side, and figure 6 is the same layout enlarged to show parts placement. Things are rather close together, and it isn't important to make it this small.

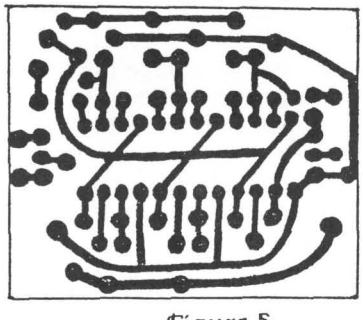

Figure 5

This keyer was my first attempt at fabricating a circuit board, and I wanted to see if a board this compact could be done comfortably by hand using a simple resist pen, and it is easier than was expected. The unit shown is mounted 1-1/2" from the power plug side of the chassis, on the rear panel; the board is supported on 1/4" standoffs sawn from the body of a discarded Bic pen.

The upper edge of the board is even with the top edge of the rear panel, which necessitated filing two cutouts in the upper cabinet shell to clear the heads of the supporting bolts. The keyer location is not critical. Though the 100K trim pot can be used temporarily to ascertain the ideal resistance for R3 and replaced with one of fixed value, I elected to leave it adjustable. The board is mounted with R3's adjustment screw facing downward, accessible through a small hole drilled in the rig's main board. The dot, dash and common paddle wires lead down from the keyer though a conveniently placed hole in the main board, and should be sufficiently long to permit removal of the lower cabinet shell for servicing; their length will of course be determined by where you choose to locate the keyer.

continued on page 19

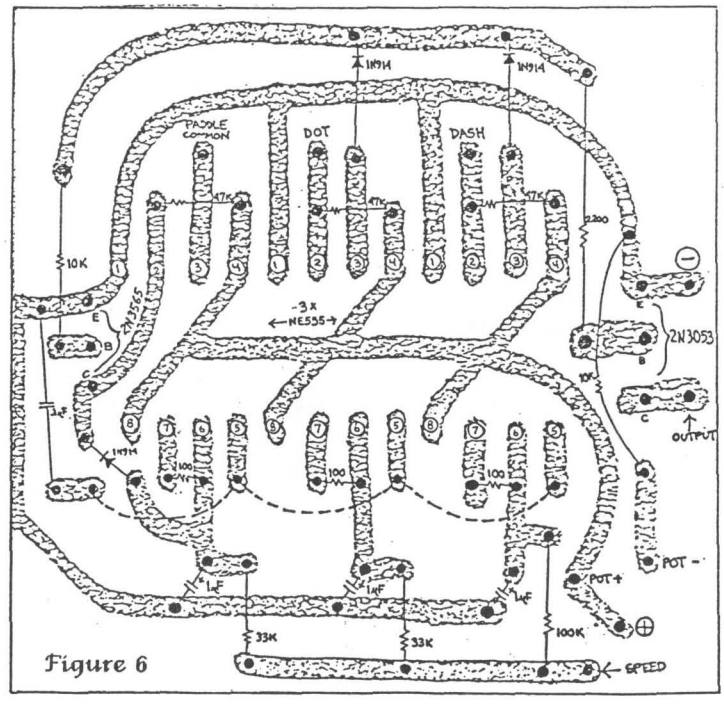

Figure 6

Product Review: Digitrex Mini Transceivers

by Preston Douglas WA2IFZ
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Lawrence, New York 11559

Going to Dayton is like going to the toy store...you have to come home with a new toy or you feel cheated. This time I came back home with a pair of Digitrex Mini transceiver kits. They're monobanders, and since I wanted to work two bands, I bought two.

Digitrex makes the basic 40 meter ten watt model and conversion kits for 30, 20, and 10 meters. Once converted, the rigs are still singlebanders, of course. Fred Freeland, one of the principals at Digitrex, was in a quiet corner at Dayton selling these little CW and (double) sideband transceivers in kit form for about $100.00; we worked out a deal for two, and I walked away with two boxes with about a million parts in each. When I opened the first box it was obvious that in raw parts alone, I'd gotten my money's worth.

The unique thing about these radios is the digital frequency readout. The technology was borrowed from Digitrex' line of very inexpensive digital frequency counters. Yes, the "dial" is actually a counter sampling the VFO. The only disadvantage to this system is that the readout doesn't track quite as fast as the main tuning control. But it settles down moments after the dial stops turning, and you will soon get used to this arrangement. You will also find that the accuracy of the dial is amazing. The digital frequency readout is certainly an unexpected luxury in an inexpensive QRP rig. The Mini is small, 8.3 x 6.1 x 2, and it weighs two pounds.

The receiver is direct conversion, so it has the inherent clarity of sound that goes along with the syncrodyne scheme; but there are two signals heard for every signal on the band, one on each side of zero beat. The lack of single signal reception is the weakest part of all direct conversion receivers. Still, the receiver is well filtered and trapped, so it has no other serious faults.

The kit is engineered beautifully. It required stuffing two circuit boards with more than two hundred components. The toroids are all pre-wound and mounted by the factory (for clods like me). The boards are double-sided, densely populated, and full of places where sloppy soldering won't do. There are no step-by-step instructions; rather, you are told to install all resistors using the parts list and pictorial; simiarly, all the capacitors are installed in one step. Those first two steps account for two hundred parts! The manufacturers claim that these elementary instructions mean that you may claim that finished kit was "home brewed." My reading of the ARCI QRP contest rules confirms that these rigs fit the club definition of homebrewed. (See QRP Quarterly July 1988.) Anyway, there are no sloppy jumper wires and no board-to-board wiring. All controls are pc mounted and the front board is soldered vertically to fingers on the main board; it is neat, clever engineering. It is also not a beginner's kit, and it is no Heathkit. Mistakes are hard to find without good test equipment, and with a project this complex, mistakes will happen.

I made some errors by working too late into one night, and I ruined a few caps. Then I found I was short another two caps. Two calls resulted in prompt delivery of all the parts, and contruction wasn't delayed.

The first kit took me about a week of evenings to finish. The way I build, though, I had problems with the final check out. I sent the first rig back to Digitrex with a letter and a check for the modest bench fee. Meanwhile, I started on kit number two; this one was going to go on 20 meters. The conversions require changing a crystal; a coil here, a cap there, and that's about it.

By this time, I was talking to Fred about the next model of the Mini and the expected "improvements." Perhaps a full superhet and true single sideband will be forthcoming. The current model Mini is a heck of a lot of radio for its size. At the price, it's about the best buy I've seen a long time. Oh, you can buy the Mini for about $200.00 factory assembled, but that's like buying a Porche with an automatic transmission, isn't it? Fred tells me there aren't many Mini's left, and he hopes to sell the improved version soon. If they're anywhere near as good as the current model, they'll be terrific buys. Watch for them.

Operating the Mini is very simple. There are only four controls: AF gain, power output, main tuning, and fine tuning. Main tuning is very fast, but you can find the signals and bring them in with the fine tuning control. The CW (audio) filter is very sharp; you will miss some signals if you tune too fast in CW mode, and I advise hunting in the phone mode. Transmitting in phone or cw, the output can be varied from milliwatts to ten watts, enough for casual mobiling. Good internal line filtering was built in with the mobiler in mind. (I worked a Texan from the Belt Parkway in Brooklyn first time in the car.) Note that at ten watts, the radio draws over three amps.

On the air reports received were universally excellent. I got a kick out of telling one of my local friends that his audio sounded terrible (he needed a new battery in his amplified mike. Switching between my Yaesu 757 and the Mini 40 showed that I could hear anything the Yaesu could. The Mini 20 receiver was less sensitive than the Yaesu, but the Yaesu did cost a thousand dollars. On 40 meters, I found the CW audio filter in the Mini was so sharp I had an easy time finding and copying W1AW code practice with it, despite the resident QRM.

I worked Field Day QRP with both Minis turned down to just under five watts. A pair of eight amp six volt lead-acid batteries showed no sign of fatigue after many hours of operation. However, I did worry about the receiver on 20 meters...it sounded almost dead, and I kept checking my antenna connections. I fiddled with the antenna tuner and even changed coax at one point, all to no avail. But when the contest ended, I powered up the Yaesu, and it was dead on 20 too. I began to suspect there had been a solar flare. Sure enough, Monday night after the contest, the ARRL propagation bulletin confirmed the terrible HF propagation conditions during Field Day.

There is nothing more satisfying than operating equipment of your own manufacture, especially when it works well. These Digitrex radios add up to a lot of fun for very little money. Watch for the updated models coming soon. Meantime, I'm taking my Minis to Maine and Canada this summer. Listen for me on 40 and 20 meters.

THE QRP TRANSISTOR STOCK LIST

by Gene Smith, KA5NLY
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I have often been frustrated by having to dig through a tangled junkbox (of mostly unmarked components) to find the transistors needed to build the latest QRP Quarterly project. More often than not I found it easier to just drive over to the local Radio Shack or other parts dealer to pick up needed transistors.

Recently I decided to organize things into one of the little multi-drawer parts cabinets that I picked up at a local discount store. Resistors and capacitors neatly "decaded" into place and most other parts sorted easily, but what was I to do with 100 different transistor types?

My solution was to conduct an "unscientific" survey of my QRP literature to determine which types are the most commonly used. Those types were sorted into a 15-drawer parts cabinet that I had on hand and the others were put into envelopes and stored in a shoebox. With thanks to John Collins, KN1H, for his encouragement and technical advice, I am passing along this information to others in the club.

I scanned through Quarterlies (July/Oct 86 to present), QRP Notebook, and Solid State Design for the Radio Amateur, making tick marks on a list of the transistors used in each construction project. The result was a list of transistors used in the three sources which are summarized in the TOTAL column of Table 1. Since Solid State Design dates from 1977 (old transistor types?) and includes many QRO projects (I didn't sort 'em out), I have included a QRP column in table 1 reflecting only the count from the Quarterly and QRP Notebook. Since it compared fairly well with the TOTAL column, I used the QRP column for my stock list.

Table 1
FREQUENCY OF USE

TYPE	TOTAL	QRP	TYPE	TOTAL	QRP
2N2222/A	61	30	2N5179	10	0
2N3904	47	20	2N4416	8	3
MPF102	30	7	2N3866	7	7
2N3565	26	2	2N3553	5	0
40673	17	4	2N5189	4	0
2N3906	15	5	2N4036	3	3
2N3053	10	3	2N5109	3	3
2N5321	3	0	2N3645	2	2
2N3819	2	2	2N5459	2	2
MRF475	2	2			

Note: About 20 other types appeared only once in the schematics reviewed and are not shown above.

I then consulted various manufacturers' catalogues and the SAMS substitution guide to construct a chart of the transistors that I would assemble for my QRP Homebrewers Kit. This chart is presented as Table 2; it provides the most common GE, ECG, RCA, and Radio Shack equivalents to aid the builder obtain the transistors locally (especially in small towns where the only supplier is often the local TV repair shop).

The various sources do not always agree on replacement types since various alternatives and trade-offs have to be made when selecting substitutes among many similar types. . .if in doubt, check the specs and before using an "equivalent" type. The case style and pin designation may vary but should cause no problem. Pinouts and case styles of the substitute may vary from the original device.

Table 2
QRP TRANSISTOR STOCK LIST

DEVICE	GE PART #	ECG PART #[3]	RCA PART #	RADIO SHACK #[2]
The BIG SIX: (arranged by frequency of use)				
2N2222/A	GE20	123A	SK3444	276-2009/276-1617[2]
2N3904	GE123AP	123AP	SK3854	276-2009
MPF102	GE312	451	SK9164	276-2062
2N3866	GE91	311	SK3195	
2N3906	GE82	159	SK3466	276-2023/276-1604[2]
40673	GE-FET-5[1]	222	SK3065	276-2045
The OTHERS: (arranged in alpha-numeric order)				
2N3053	GE243	128	SK3024	276-2030
2N3565	GE20	123A	SK3444	276-2009/276-1617[2]
2N3645	GE244	129	SK3025	276-2008
2N3819	GE312	312	SK9157	276-2035/276-2062[3]
2N4036	GE244	129	SK3025	276-2025
2N4416	GE312	452	SK9072	
2N5109	GE261	278	SK3218	
2N5459	GE-FET-1[1]	459	SK9149	276-2035/276-2062[4]
MRF475	GE215	235	SK3197	

NOTES:

[1]Dashes are important.

[2]The Radio Shack catalogue numbers marked with a * are packages of 15 transistors (same type as the single unit shown to the left of the "/" mark), currently priced at $ 1.98. Some of the Radio Shack parts, such as 276-2008 & 276-2045 are discontinued but may be available as "old stock" in some stores.

[3]The ECG numbers are commonly used by several sources such as Phillips, Elmira, NTE, Sylvania, etc. and are usually appended to RCA part numbers as well (e.g. ECG-123A, ELM-123A, NTE-123A, SK3444/123A).

[4]Both of these two types are basically the same except that the leads are in different positions (supposedly the source and drain leads are interchangeable anyway. . .do I believe that??).

Hopefully this list will help others to better organize their QRP parts bins. The transistor types listed appear to provide 90% of the QRP hombrewer's needs,and aid in re-stocking from locally available parts sources.

Your comments and suggestions for future items on this list and/or similar aids are welcome. . .how about a tear-out spec. sheet & substitution guide (for, say, the 25 or 50 most commonly used Ham/QRP homebrewer transistors)??

PROPAGATION AND DX

Bob Brown, NM7M
504 Channel View Dr.,
Anacortes, Washington 98221

"SOLAR FLUX CRASHES!" That's the headline story in those circles where solar-terrestrial activity is followed keenly. Thus, the solar flux dropped from an all-time high of 165 on June 9 to about 122 on June 12, a loss of almost 50% of the flux gained since solar minimum back in September '86. While the actual consequences are not comparable, the loss makes the October 19 Stock Market Crash look like a minor event.

But, of course, we're still Bullish on solar flux as we have every reason to expect this "down-turn" to be only a "temporary set-back" and the flux rise again in the near future. But it does show just how "volatile" solar activity can be as the decline was attributed several mature active regions "pulling out of the market" by rotating around the west limb of the sun, all in a short time.

This sudden decline in flux, however, is not the big story of Cycle 22; rather, it's the fact that Cycle 22 has all the makings of being a major event on the solar-terrestrial scene. Indeed, the folks at NOAA-SESC in Boulder are now putting out "press releases" in the weekly report on solar and geomagnetic activity to the effect that this cycle is off to a fast start and its rise shows every indication of meeting or exceeding the strongest cycles on record. To see what I mean, take a look at Figure 1; that shows the growth of the smoothed sunspot numbers and smoothed 10 cm flux since solar minimum, then compared with other strong cycles. You should note that solar flux recordings are fairly recent while sunspot counts go back a bit. Indeed, Cycle 8 had its peak (SSN=147) back in March 1837 and that was well before Maxwell had predicted (1864) electromagnetic waves from theoretical considerations or Herz produced and detected (1887) electromagnetic waves with resonant circuits.

The cycle to look at, however, is Cycle 19, peaking with a SSN of 201 back in Feb-Mar '58; that was the strongest cycle in recorded history and if you look at both parts of Figure 1, you see that the rise in sunspot numbers and solar flux for Cycle 22 have that one beat. Whether it can keep up the pace is another thing; only time will tell.

Having expressed confidence in the recovery of the solar flux and its rise to higher values in the time ahead, the question comes up as to just how high it will rise and when it will peak. The solar flux, of course, is our touchstone from WWV broadcasts; we're interested in the growth of sunspot numbers as well but we get a check on them only infrequently. So just to be complete, let's look at the current predictions coming out of NOAA-SESC; they're shown in Figure 2. There, we have the observed values for the smoothed sunspot number and smoothed flux on 10 cm, both shown in solid black; after that, we have the smoothed observed values to date and then the predicted values on into the future. The limits of uncertainty in the predictions are shown with intermittent hatching; these are 90% confidence limits, meaning that the probabilities are such that there's a 90% chance that the actual value will fall between those limits at a given time.

If we look at the short term, say up to the beginning of December of 1988, the predictions are for the solar flux to reach a value of 170 (+/- 25) and the sunspot number to reach a value of 130 (+/- 40). In the language of the Stock Market, we almost reached those "heights" recently but the solar flux is "a volatile commodity" and fell back to a "support level". But we have to expect such set-backs and keep from going into a panic-mode, selling off the rig at a flea market or putting the beam up for sale on the swap net. To put this in perspective, just look at the peaks and valleys that you've been through already, as shown in Figure 3. In terms of numbers, there are a lots of ups and downs in those plots; however, DXing was pretty miserable until this cycle got underway. Now, I have to say it is just this side of *fabulous* but there's more to come and it will hold up for some years. So take heart and work a New One everytime you get a chance. I'll get back to you in a bit, just as soon as the sooth-sayers in Boulder have some sort of news up-date on the progress of Cycle 22. Again, as the Stock Market analysts would say, "Buy in now; things will be this good or better for the next 5 years. Trust me!"

Classified Ads

Wanted: Millen dual-section variable capacitors, 26100RM and 26140RM. Howard G. Krause, K2UD, 372 Callodine Avenue, Amherst, NY 14226. Phone (716)838-2406.

Heathkit HM-9 SWR/RFmeter, $20, with manual.
Homebrew 10 meter AM/FM 3 watt XCVR with offset, $25.
Veritronics 2 meter amp, 10 in 50 OUT, 12-15 in 60 OUT, $30
Shure Triple 4 mic, $15
Sell or trade all. Lou Berry KF5OW, 1200 Legion Rd. NE, Albuquerque, NM 87102. Phone (505)243-6262.

Wanted: Copies of "QRP/8", precursor of the Milliwatt back in the late '60's. Will pay copying costs, or two-way registered mail fees for loan of originals. Mike Czuhajewski WA8MCQ, 2934B Olive Court, Fort Meade, Maryland 20755.

Wanted: Manual or schematic for Simpson Mirrorscope, Model 476. Photocopies OK. Jack Cleary N2HJS, 420 Cayuga St., Syracuse, New York 13204.

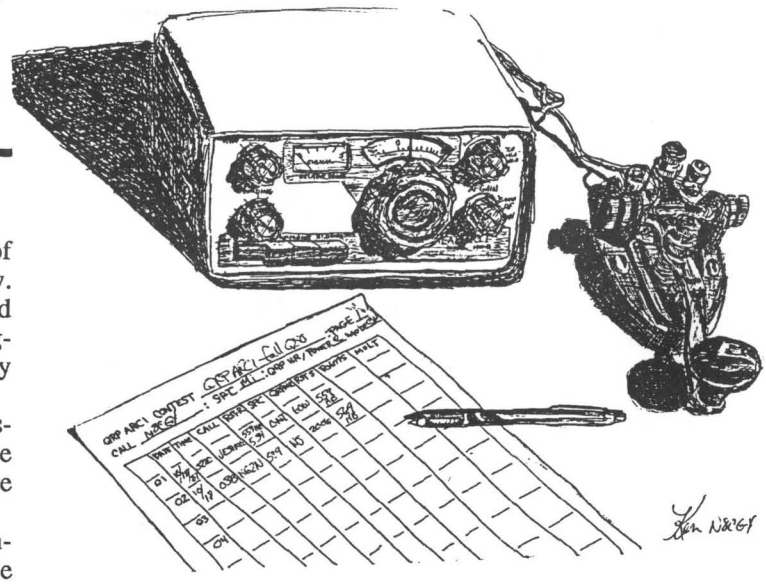
Wanted: QRP publications, photocopies OK. Need: QRP Quarterly, October 1985 and all prior to October 1983; The Milliwatt, need almost all issues; SPRAT, need almost all issues. Also interested in any other QRP newsletters, journals, books, etc. Trying to improve lousy library--will buy, swap or steal! Gene Smith KA5NLY, Pentagon Box 46599, Washington, DC 20050.

Wanted: Manuals for the following: Tektronix 422 scope; EICO 955 capacitor checker; Heath IT-28 R/C checker; Production Devices 120 step freq. generator; Continental Specialties Corp. 4001 pulse generator; B&K 161 and RCA WT-501A transistor checkers; National NC-88 receiver. Copies are OK. Gene Smith KA5NLY, Pentagon Box 46599, Washington, DC 20050.

Wanted: Dow Key "BUG" to use. Finders fee. Am not a collector, it will get used.
For Sale: HG-10, new tube manual, $40.
Heath "Q" meter, $35.
Meissner Model EX Sig Shftr, $50.
Buyers ship. Hollis Button WF6U, 1025 W. Parr Ave., Campbell, CA 95008. Phone (408)378-0436 (no collects).

Contests

Red Reynolds, K5VOL
835 Surryse
Lake Zurich, Illinois 60047



The General Contest Rules (GCR) contain a number of changes that will become effective with the Fall QSO Party. Note that the rules in The Quarterly are the "official" rules and differ slightly with those published in the major amateur magazines. All entires will be adjusted to the official rules as they are received.

Your attention is called to the new power multiplier system and the team competition class as noted in the last issue of The Quarterly. Additional changes effective immediately are described below.

First, the type of equipment identifier of "C" for all commercial gear in the Homebrew contests has been dropped. The "HB" identifier is still in effect for the extra 5 points.

Second, the single-band category is available in all QRP-ARCI contests.

Third, the requirement for a certificate no longer requires at least two entries in any state-province-country. The lower level for a qualifying score has been changed from 25% to 15% of the average of the top ten scores received. The contest manager retains the option to lower this level if necessary.

Fourth, the Holiday Spirits Homebrew sprint has a third class of entry for all-commercial gear only. Previously, this class was used as a check log only.

In the Holiday Spirits sprint, commercial transceivers are allowed in the 'mixed' category, but only as a receiver or a transmitter. For example, is a homebrew transmitter is used, only the receive function of a commercial transceiver may be used for a scoring entry. Remember that the Two-Fer gets double points in this sprint!

Save the week-end of Jan. 21-22 for the M-QRP-C annual CW contest. They include a class for 250 milliwatts and below. Details are in the T5W and will be in the January Quarterly.

A new sprint, the Classic Sprint, jointly sponsored by the M-QRPC and ARCI will be held in March. The basic purpose of this contest is to promote the use of that old tube gear gathering dust in the junk box. Bonus points are available for "stuff" 15 years old or more. Homebrew entries also follow the 15 year rule. Complete details will be published in the January Quarterly.

A tip to increasing your QSO totals in the parties and sprints: a number of fellows are running rock-bound rigs on or near the calling frequencies. Tune around a little after a CQ and you may find one of them replying. This also applies to the SSB sprints, mostly because some guys tune for a different voice pitch. In the Spring and Fall QSO Parties, QSO's can often be found as much as 5 or 6 kHz above or below the calling frequencies.

If anyone has good quality, black and white pictures of homebrew gear used in contests, send them in. Maybe we can publish a page of them for others to see. Include a few details of bands and other data on operation and experiences with it in contests. We would especially like info and pictures of Two-Fer rigs used in the Holiday Spirits sprint while gathering double bonus points.

1988 HOOTOWL SPRINT

Top Three

N6DW	CA	129,600
W9PNE	IL	104,310
N8CQA	M	14,224

Call	Score	(Points/SPC)	Power	Bands/Time	Rig	Antenna
California						
*N6DW	129,600	(270/32)	.90 B	3/4	Argosy-2	Yagi/Zepp
N6GA	6,560	(41/8)	.90 S	2/2	HW-9	Yagi/Skel Cone
W6SIY	570	(19/3)	.25	1/2	HB Tx/Delta	Dipole
WF6D	68	(17/2)	5.0	1/1	---	---
Connecticut						
KA5GIS	2,220	(37/6)	.90	1/3	Argo 509	Dipole
Georgia						
AB4GK	812	(29/7)	3.5	2/2	TS-440S	Vertical
Illinois						
*W9PNE	104,310	(183/38)	.85 B	3/4	Argo 515	Yagi/DP/Loop
K5VOL	8,970	(69/13)	.98	1/2	Argo 509	Longwire
WB9TBU	8,512	(76/14)	2.0	2/2	Argosy	Loop
Indiana						
KC9UR	2,940	(42/7)	.90	2/3	IC-740	Vertical
Maryland						
K3TKS	2,940	(42/7)	1.0	1/1	Argo 509	Loop
Massachusetts						
*W1HH	12,420	(69/12)	.90 B	1/4	HB Digitrex	Delta Loop
KA1GDG	176	(22/4)	5.0	1/1	Drake 2C/2NT	G5RV
Michigan						
*N8CQA	14,224	(127/28)	4.0	4/3	Drake 2B/CE 20-A	Longwire
Missouri						
N0IXP	300	(10/2)	1.0 B	1/1	HW-7	Dipole
New Hampshire						
KN1H	10,620	(59/12)	.90 B	3/3	Argo 515	Wire
Washington						
NM7M	4,488	(102/22)	5.0	4/2	Corsair	Yagi/Dipole

Time of Operation rounded to the nearest hour
* = Certificate winner
B = Battery power
S= Solar/natural power
/m = Modified
HB = Homebrew

Hoot-Owl Soap Box...."My first contest. Lots of fun with QRP." (N6DW); "I think we worked the bugs out of the camper...and learned a little about operating portable." (KN1H); "Couldn't hear any QRP'ers on 15 or 20 meters due to the 'other' contest." (KA5GIS); "The QRM was terrible with all the DX/WPX contesters congregating on 'our' frequencies." (W9PNE); "Tried using my HB RCVR, but 7040 was being blocked by an S9 +40dB station." (W6SIY); "Much slower than the Spring and Fall QSO parties." W1HH.

1988 SUMMER HOMEBREW SPRINT

In the Spring QSO Party results, N2HJS was incorrectly listed as N2JHS; apologies, Jack.

The Summer Homebrew Sprint has been a great success, much better than last year's with only two entries! This year's version included 36 logs with 15 QRP'ers using homebrew or modified rigs. A couple of entries were using 2-FER transmitters, apparently a warm-up for the Holiday Spirits sprint in December.

Notice that the single-banders came up with the second and fourth highest scores overall in this sprint. The ONE-BAND-BANDITS are not at a disadvantage in the sprints. Take notice fellas, fire up your single-band homebrew gear and try it out. Be prepared for some competition on 40 meters. Ten of the 13 entries on this band were using homebrew gear.

Top Three

W3TS	6	220,000
W4FRL	20M	60,960
WA3SLN	3	50,784

Single Band

KH6CP/1	40M	35,780
W4FRL	20M	60,960

Call	Score	(Points/SPC)	Power	Bands/Time	Rig	Antenna
Arizona						
WA7P	770	(57/5)	5.0	40M/4	6L6 XTAL/2B	Mobile Whip
California						
W6YVK	6,144	(64/8)	2.5 S	20M/2	Argo 509	Dipole/Yagi
Colorado						
*NX0Q	7,368	(112/16)	5.0 S	20M/2	HW-8/m	Yagi
K1OG	544	(34/4)	5.0	2/1	—	—
Connecticut						
*KH6CP/1	35,780	(147/12)	0.8 S	40M/4	HB TCVR (S)	Dipole
W1KKF	30,740	(180/14)	2.8 S	40M/4	HB W7EL TCVR	Dipole/Yagi
Florida						
*W4FRL	60,960	(381/40)	4.0	20M/4	HW-8	Vertical
Georgia						
WD4DSS	4,136	(41/8)	1.5 B	40M/4	HB XTAL/Omni	Dipole
Kentucky						
K4BQH	17,088	(178/24)	3.8	2/4	TS-930S	Yagi/G5RV
Illinois						
*W9ZSJ	4,840	(110/11)	5.0 S	40M/3	Argo 509	Wire/Vert
K5VOL	1,715	(27/3)	1.0 B	40M/1	HB DC RX/TX	Longwire
Indiana						
WB9NXO	6,920	(64/7)	1.0 B	40M/2	2-Fer TX	—
Maryland						
K3TKS	28,140	(127/11)	1.0 S	40M/3	2-Fer TX/509	Dipole/Loop
Michigan						
K7JBQ	10,080	(112/15)	3.0	2/4	FT757GX	G5RV
Mississippi						
WB5KYK	4,212	(117/18)	5.0	20M/4	TS-440	Yagi
Missouri						
KR0O	6,768	(94/12)	3.5 B	20M/3	TR7A	Vert/Zepp
Nebraska						
N0BQW	3,132	(116/9)	4.5 B	2/2	Argo 509	Loop
New Hampshire						
NN1G	8,502	(109/13)	3.5 B	2/3	HW-9	Dipole
New York						
*N2HGV	3,900	(130/15)	5.0	2/4	TS-940S	Vertical
N2HJS	504	(17/1)	2.0 B	20M/1	HW-7/m (r/x)	Delta Loop
North Carolina						
K4JO	6,864	(143/12)	4.0	2/2	Corsair	NAVASSA Loop
Ohio						
W8MVN	23,888	(141/14)	1.5 B	40M/3	MAVTI-40 (tx) /Drake SSR-1	Delta Loop
Oklahoma						
WI5W	11,462	(87/14)	2.9 B	2/4	HB RX/TX	Dipole/Zepp
Oregon						
KB7BED	5,896	(67/11)	2.0	2/3	IC-735	Vertical
Pennsylvania						
*W3TS	220,00	(350/31)	0.9 S	6/3	HB TCVR (S)	Tee/Vee/Zepp
*WA3SLN	50,784	(184/23)	2.0 B	3/3	HW-8	Zepp/Quad
KW3F	22,650	(151/15)	0.9	40M/4	Argo 509	G5RV
ND3I	8,034	(103/13)	3.0	4/2	HW-8	G5RV/Zepp
W3PNL	2,304	(64/9)	3.5	40M/2	Argo 515	Inv Vee
Vermont						
NG1G	5,600	50/7	2.0 S	2/1	HW-9	Loop
Virginia						
N4SKS	830	(22/1)	0.8 B	40M/1	HB DC TCVR	Rain Gutter
Washington						
*WB7SNH	27,360	(144/16)	1.0 B	20M/2	HW-8	Yagi
NM7M	2,700	(90/15)	5.0	20M/1	Corsair	Yagi
Quebec						
VE2BLX	3,352	(98/8)	5.0	40M/4	HB MAVTI-40	Longwire

Checklogs: K9AY (HB), WA8MCQ
Time of operation rounded to nearest hour
* = Certificate winner
B = Battery power
S = Solar/natural
/m = Modified
HB = Homebrew
(S) = Superhetrodyne

A number of certificates for past contests have not been delivered to winners because of missing data, bad addresses or have been returned by the post office. Current mailing addresses are being requested for the following:

1983: KA1VT, AD2Y, VE3KTZ, N3OS, K4JO, KA4RVA, N5EM, K8IF, W8PCS, KV0K, K0KD, KR0O
1985: WA7TUX
1988: N7FEG

Classified Ad Policy

The Quarterly will accept short "classified ads" from its members who desire to sell equipment and other items of interest. They will be printed on a space available basis. Send information to the editor labeled "QRP Quarterly Classified".

The Joy of QRP: Strategy for Success

by Ade Weiss W0RSP
833 Duke St. #83
Vermillion, S.D. 57069

The last copies of the first edition of The Joy of QRP were shipped in late spring. I hope to print a second edition by Spring of 1989, but that will depend on financing.

At present, the Milliwatt Book's account is tied up in History of QRP in the U.S., 1924-1960; roughly 150 copies have been sold in the nine months since the book was completed. This extremely poor showing, for a book that has been praised by reviewers and readers alike, has slowed down the publication schedule for The Joy by at least a year and has suggested caution in regard to reprinting it at all. For some reason, the numbers don't seem to be working, given the 1,500 active members of the ARP ARCI. The only possible way of getting on with The Joy is either (1) to sell 300 copies of History of QRP by year's end, (2) receive 250 pre-publication orders for The Joy by year's end, or (3) an adequate combination of the two.

Hence, I wish to announce that Milliwatt Books will now accept pre-publication orders for The Joy of QRP in the amount of $10 US ($12 foreign) which will include shipping costs. Given rising costs, the book will be marked at $12.95 after publication. Please include an SASE with your order in the event that a refund is necessary. That will occur if an inadequate number of orders have been received by the cut-off date of two weeks after the mailing of the January 1989 issue of The QRP Quarterly.

History of QRP in the U.S. is currently a bargain at $9.95 ($11.95 foreign) for 199 pages of packed text and over 50 photos and about 20 drawings. Give yourself a treat! Send orders to Milliwatt Books, 833 Duke St. #83, Vermillion, S.D. 57069 U.S.A.

Idea Exchange

by Mike Michael, W3TS
P.O. Box 593 Church Lane
Halifax, Pennsylvania 17032-0593

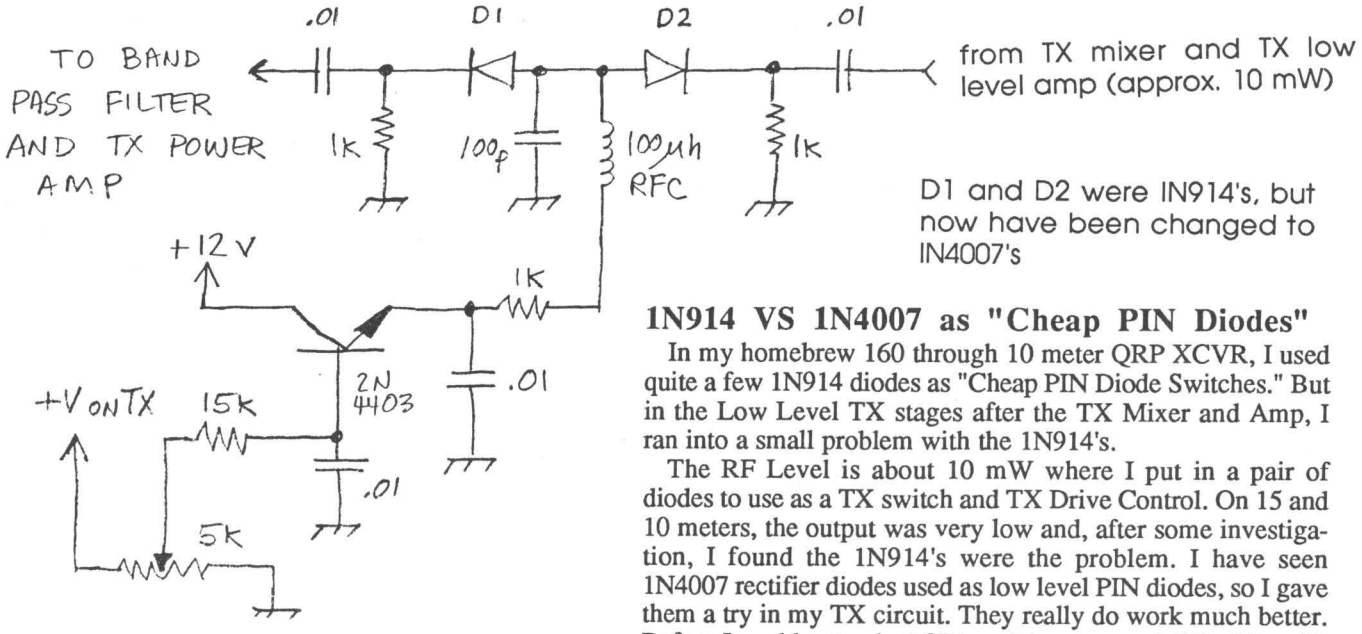


Figure 1
TX Drive Control and Switch

Shaft Enlarger and Extender

While building a small "T-Network" antenna tuner a few weeks ago, I needed a way to make the small 1/8 inch diameter shafts larger so that my knobs, which as for a 1/4 inch shaft, fit.

I was looking through the junk box for some way to increase the shaft size. I came across an old broken whip antenna and the "LED" in my head came on and said "one section should be the correct size to fit inside a 1/4 inch knob."

After pulling the whip sections apart, I found one was a good fit. I cut it into sections with a small pipe cutter and put a section over the cap shaft and filled the inside with five-minute epoxy. Now the knobs are no problem to mount. It also struck me that the whole section could have been used as a shaft "extension" or coupler.

Dummy "D-Cell"

I was working with a four-"D" cell battery holder, but only needed to have 4.5V, or three cells. I discovered that a 35mm film can covered with aluminum foil made a good "dummy D-cell".

Talking about aluminum foil, when I went on vacation to the shore and wanted to make a ground connection for my end-fed wire antenna, I discovered that the cold water pipe was plastic. So I used a 30 foot length of aluminum foil, taped to the inside of the outside wall as a counterpoise. It worked out very well and the cost was low.

1N914 VS 1N4007 as "Cheap PIN Diodes"

In my homebrew 160 through 10 meter QRP XCVR, I used quite a few 1N914 diodes as "Cheap PIN Diode Switches." But in the Low Level TX stages after the TX Mixer and Amp, I ran into a small problem with the 1N914's.

The RF Level is about 10 mW where I put in a pair of diodes to use as a TX switch and TX Drive Control. On 15 and 10 meters, the output was very low and, after some investigation, I found the 1N914's were the problem. I have seen 1N4007 rectifier diodes used as low level PIN diodes, so I gave them a try in my TX circuit. They really do work much better. Before I could get only 1.2W on 15 meters and 400mW on 10 meters using 1N914's. But with 1N4007's, I can now get the full 5W on 15 and 10 meters.

The way I tested for this was to have the 1N914 circuit fully biased on and monitor the output. Then I clipped a .01 cap across the diode switch section and the output jumped up to full 5W. So, I knew the 1N914's had a lot of series resistance at 10 meter.

Fall Antenna Ideas

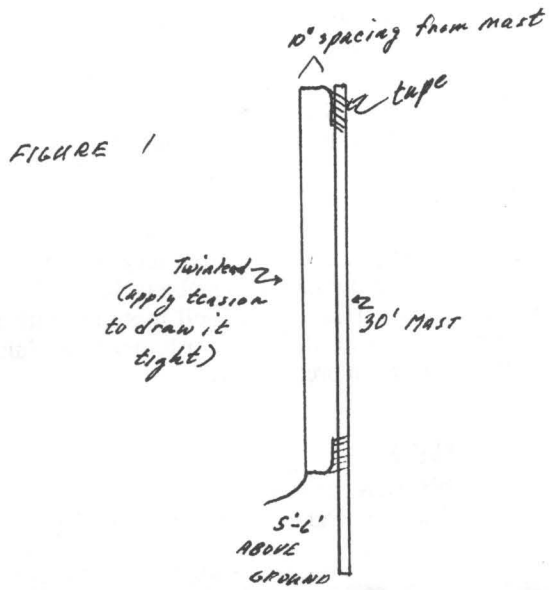
Paul Schaffenberger KB8N/7J6CAM, writes with some good antenna ideas. Now is the time to get things fixed up before winter gets here. Paul writes:

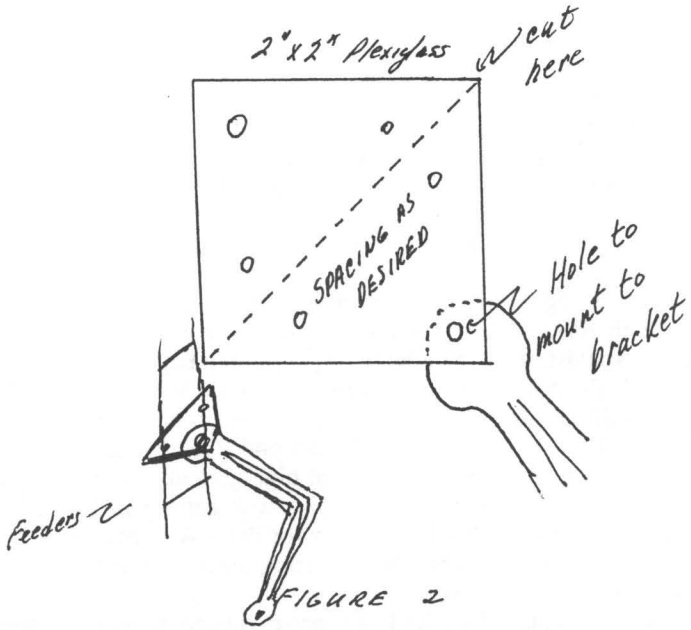
Using Shelf Brackets for Feedline Spacers

"I've always noticed improved performance from my antenna systems if I can move my balanced feedline away from the tower or supporting structure. I notice better loading and bandwidth if I can get my feedline at least 6-12 inches away from my tower.

"QRP'ers being the type of hams that always try to do more with less, I looked for an inexpensive way to keep the feedline spaced away from the tower. At first, I tried using some one-inch angle iron attached to the tower with U-bolts. It worked fine and was plenty strong, but was also quite expensive. One day while in a hardware store, I noticed they were selling metal shelf brackets for 99¢ each. They were 12 inches tall and extended out 10 inches.

"When I brought a few of them home, I had intended to devise some type of mounting system to attach them to my telescoping mast. Since they were lightweight, I thought I'd use them on a temporary basis by simply taping them to my mast with a healthy amount of electrical tape. Surprisingly, that is plenty sufficient, as they stayed up for two years before I had to pack up and come to Japan.





"I arrived in Japan with a minimal amount of antenna accessories, but I soon found a Japanese hardware store with the shelf brackets. I found their cheapest brackets for about 60 yen each (about 40¢.) I use these to keep my 300 ohm twinlead spaced away from my 30' mast. I use only two, one near the top of the mast and one near the bottom, and I draw the feedline taut between the two and have very little problem with feedline sway, even in very strong winds (see fig. 1.)

"There are two excellent ways to attach the feedline to the brackets. If you are using twinlead, you can simply ream the bracket screw hole so that it's large enough to feed the twinlead through. To ensure the twinlead doesn't rub against the metal, I use my hot glue gun to make a grommet of sorts to hold the feedline in place. While using open feeders, you can cur a four-inch square piece of plexiglass diagonally and make an excellent spacer that will keep your feeders spaced properly while also keeping them away from your tower (see fig. 2.)

"The shelf brackets are lightweight and extremely strong. If they are not sealed with krylon, they may rust after a couple of years, but at the price they sell for, you can afford to replace them."

Paul continues:

Building Open Wire Feeders Using a Hot Glue Gun

"Don't ever overlook those basket case transmitters that sometimes can be found at swap meets. Most contain an excellent PI-network that can be used as an antenna tuner with almost no modification. You simply have to remove the parts and mount them in a smaller box! In some cases, you may want to provide some additional taps on the tank coil, but that may be all you have to do.

"Some examples of bargains I got were a Multi-Elmac AF-54 for $5; a partially burned up Viking II (with all RF components intact) for $20; a Knight T-150 for $10. Virtually any E.F. Johnson transmitter is a bargain because of the high quality RF components it contains. A $30 Adventurer in almost any condition is worth that much for its switches, coils and, particularly, the capacitors it contains. After you've gutted the transmitter for parts, you still have a nice case that you can keep or sell for a few dollars.

"In the interest of preserving the history of some of these great rigs, you should never disassemble one of these relics unless it's a real basket case. If you happen to get a bargain on a Ranger or a nice Globe Scout, you may really enjoy putting it back on the air. As a matter of fact, many of these old timers will "power down" very nicely as QRP rigs. In some cases, you can use the driver output into the PI-network, or just adjust the amplifier bias for reduced output."

Finally, Paul is...

Having Some Fun with an Old VFO

"The old Heath VF-1 VFO's and certainly scores of others can be used as a vintage QRP transmitter by themselves. Most of these had fundamental frequency ranges on 160 and 40 meters. You can take the output directly off of them into a wattmeter/SWR bridge and into an antenna tuner. Most have provisions for keying, but some may have a slight chirp.

"I used a Heath VF-1 at the one watt level for many years and had extremely enjoyable results with it on both bands."

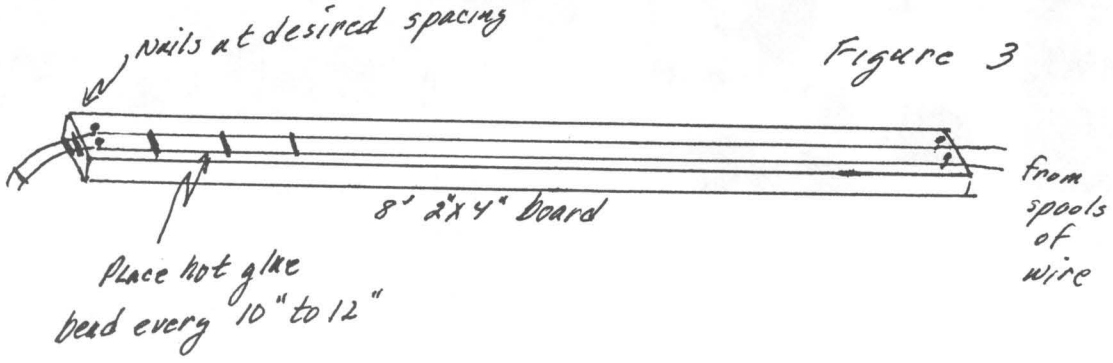


Figure 3

HW-7 Tip

Mike Czuhajewski WA8MCQ writes with some experiences with his HW-7:

"I never thought too much about some low level background noise on my (newly acquired and modified) HW-7 until I happened to try a different power supply and noticed the noise went away. I had always assumed that it was the normal background noise of the rig.

"I has been using a Heath IP-18 variable supply, but one day tried a Heath HWA-7-1, the supply designed for the rig. Although less sophisticated than the IP-18, it worked better.

"Checking the output of both supplies on a scope, I found perhaps a millivolt or so of white noise riding on the output of the IP-18. I was using the KN1H front end (October 1987 QRP Quarterly) feeding into an external high gain audio amp with its own power supply, so the noise was getting in by way of the FET in the KN1H circuit and/or the HW7 oscillator/buffer. I later tried another supply using a three-terminal regulator and it too was quiet.

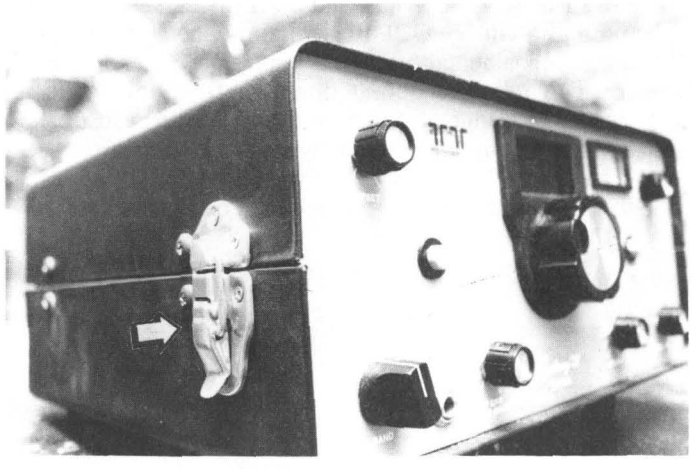
"I temporarily replaced the IP-18's zener-regulated reference voltage with a battery and the noise went away. I replaced the diode, with no effect. Next, I bypassed it with 0.1mf, but that only caused a slight reduction in the high frequency component of the noise. Additional bypassing at the power supply output had no effect.

"Since I have other supplies which work better on the HW-7, I'll use one instead of pursuing a fix for the IP-18. The moral of the story is not to automatically be satisfied with the noise floor on a DC receiver when using an AC supply.

"Some additional notes from my installation of the KN1H front end: first, don't use a ceramic capacitor to tune the secondary of the transformer! I did and the formula is "piezoelectric effect + high gain audio amplifier = microphonics." Replacing it with a different type of the same value cleared it right up. I also found the audio transformer in the circuit ahead of the high gain amplifier makes the HW-7 extremely sensitive to magnetic fields and I have to keep all power transformers at least two or three feet away to eliminate hum pick-up.

"Other than that, his circuit really does work miracles. There were a couple of other new front ends for the HW-7 in QST back in the 1970's and VE7FOU tried one of them with unfavorable results. He mentioned his problems to KN1H, who then built the same circuit and had the same difficulties, but I can vouch for the one in The Quarterly.

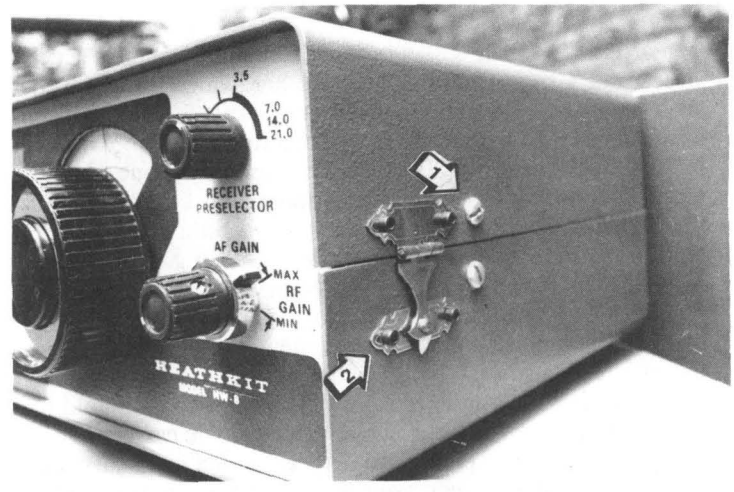
K7YHA had an interesting comment in his June column in WorldRadio about people who like to use HW-7/8's on Field Day, and something about them enjoying root canals. He didn't go far enough: those who use an unmodified HW-7, at any time, should be put out of their misery. I like the comment N2HJS made to me in a letter about the HW-7, 'What bothered me was that Heath could sell this unit with power supply and get away with it. Their Customer Complaint Department must have been pretty busy.'"



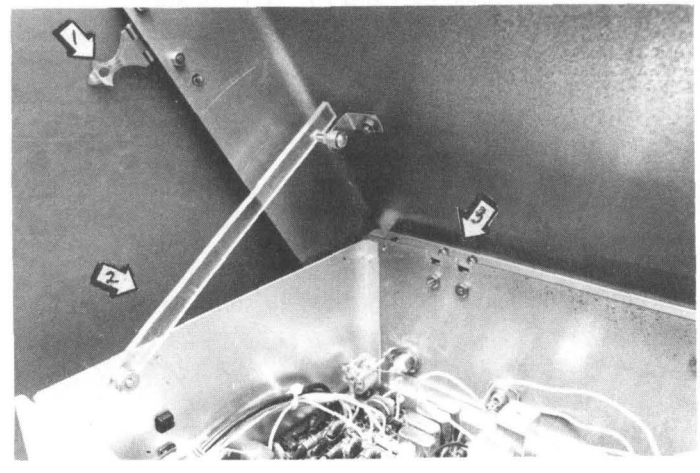
Latch

Flip Top HW-8

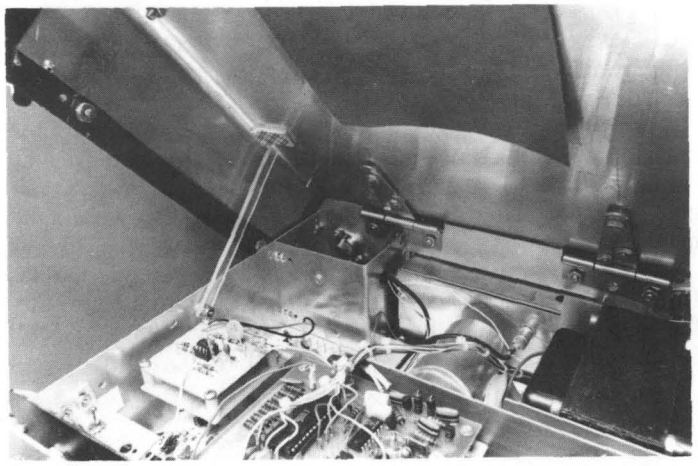
Luke Dodds W5HKA says: Like to mess with your radio? Hate sheet metal screws? Put the radio cover on hinges!



(1) Cut off old screw and glue in place.
(2) Brass screws would be neater.



1) Left Side Latch
2) Plastic Support
3) Hinge



Completed Interior View

Argonaut 515 Tip

Dick McIntyre K4BNI writes with a fix for 20 meter instability.

"In looking through my Argonaut 515 instruction book, I was reminded of a problem I had with the rig in 1984.

"The problem was erratic operation on 20 meter SSB. I phoned Ten-Tec and they told me the problem did occur on earlier serial numbers of the rig (my serial number is #0081.) They sent me (free) two 2-ohm resistors for insertion in the emitter lead of the final MRF476 transistors. Problem cured."

Thanks to all who sent in their ideas. I'm sorry I don't get to answer everyone and thank them personally. I hope they understand that, as a homeowner and family man, I don't have as much time as I could use. But their contributions are very welcome. Anyone with small idea "bits" please send them to me for the Idea Exchange, but your big "bits" please send to the editor for inclusion as feature articles.

Being interested in QRP and portable operation, I am also interested in any suitcase or spy-type radios. I have a very small collection of units and I am always on the look out for additions to my collection. So, if any of the readers have info, schematics, manuals, sets for sale or loan, I would like to hear from them.

Go Fly A Kite

By Don Shipman, W3RDF
403 11th Ave. N.
North Myrtle Beach, SC 29582

For years I have dreamed of hanging a skywire from a kite or from a weather balloon while sitting on a remote mountaintop and working all kinds of rare and exotic DX. Although my dream has yet to be fulfilled, I am starting to enjoy the thrill of making contacts with a dangling skywire. While not on a mountaintop, and not snagging the rare ones, I am having a ball from a beach near my home as I work up and down eastern U.S.A. with a flea powered rig and a kite supported antenna.

I'm lucky to live only a few hundred yards from a beautiful South Carolina beach. I go often to lay on the beach or to swim and to operate a little station which I call my "Beach Rig". The beach isn't too crowded so I don't get a bunch of puzzled looks when I strap on a J-47 key and start pounding out CW.

Since the focus of this article is on the kite antenna, I will just mention the other components of the beach station and then move on.

The receiver is a SONY ICF-2002, a direct entry general coverage portable receiver. It operates from either its internal "AA" batteries or from an auxiliary battery pack containing four "C" size batteries. It is a good little receiver that covers all of the HF ham bands.

The transmitter is a two transistor unit which was described by Doug DeMaw in his article on page 22 of the January, 1985 issue of QST. One transistor is used as a key switch and the other functions as a VXO. Unable to find the specified transistors, I substituted common Radio Shack transistors and got good performance. With a 12 volt supply the rig puts out a quarter watt on 30 meters. Increasing the voltage results in greater output but, 1/4 watt appears to work just

Don prepares to send the kite up with the 30 meter antenna attached. The beach station sits on top of a cooler which doubles as a carrying case to transport equipment. The pipe in the sand provides a good ground as well as an anchor for the antenna.

fine with signal reports ranging from RST 559 to 579 and for the most part, "solid copy" QSO's. I use a total of three crystals and operate from 10,110 kHz to 10,125 kHz. Power is supplied from a 12 volt 3 Ah Gell Cell.

The antenna is cut from #20 stranded copper hookup wire (Radio Shack #278-1293). It's length is 110' 1" (3/4 wavelength on 30 meters). Matching the antenna to the transmitter's 50-ohm output was the greatest challenge. With the goal of keeping things simple and light, I ruled out using an antenna tuner because it was an extra piece of equipment which would require some adjustments.

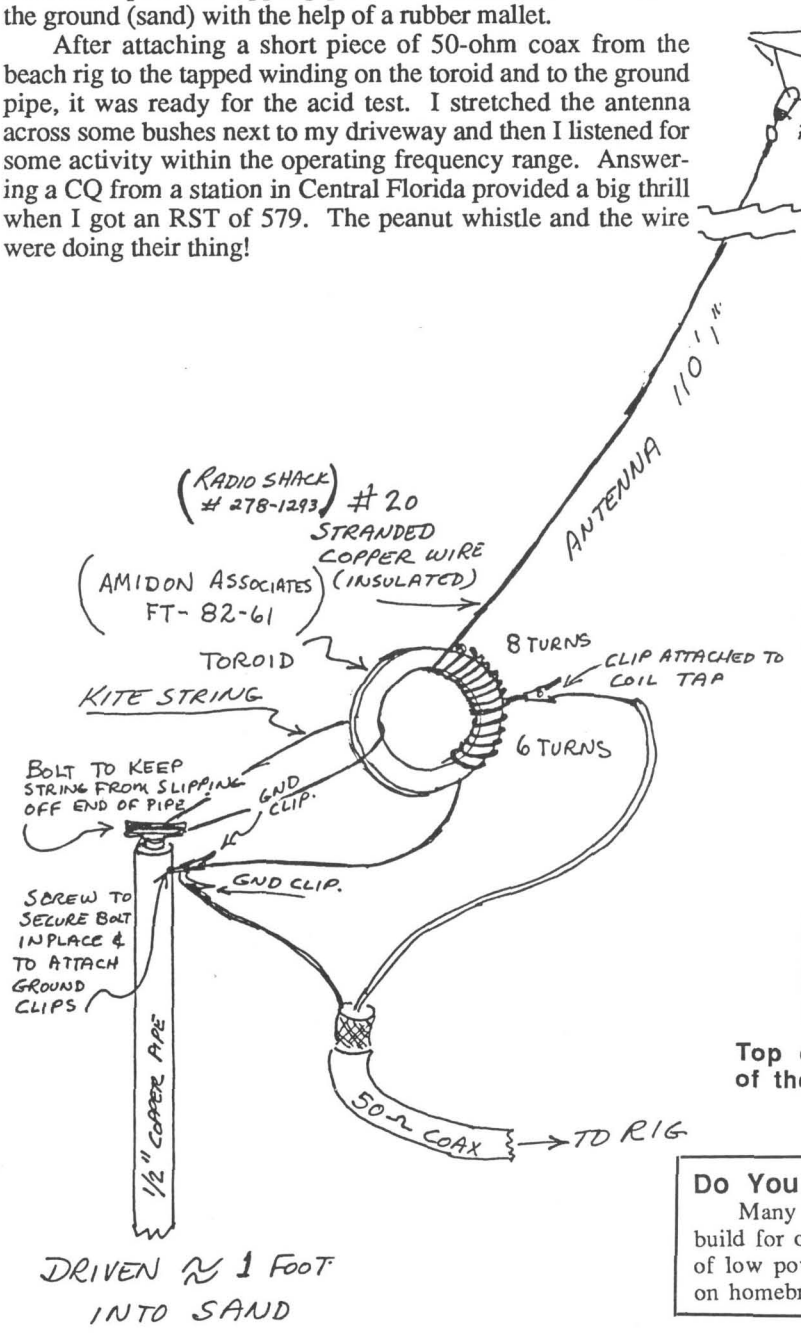
Experimenting with various toroids, I found that winding 14 turns of #20 wire on an Amidon Associates FT-82-61 toroid (tapped 8 turns from the antenna end) provided a good 50-ohm match on 10,100 kHz. It is important to note that good grounding is a critical part of this antenna system. I used a four foot piece of copper pipe which I sank about a foot into the ground (sand) with the help of a rubber mallet.

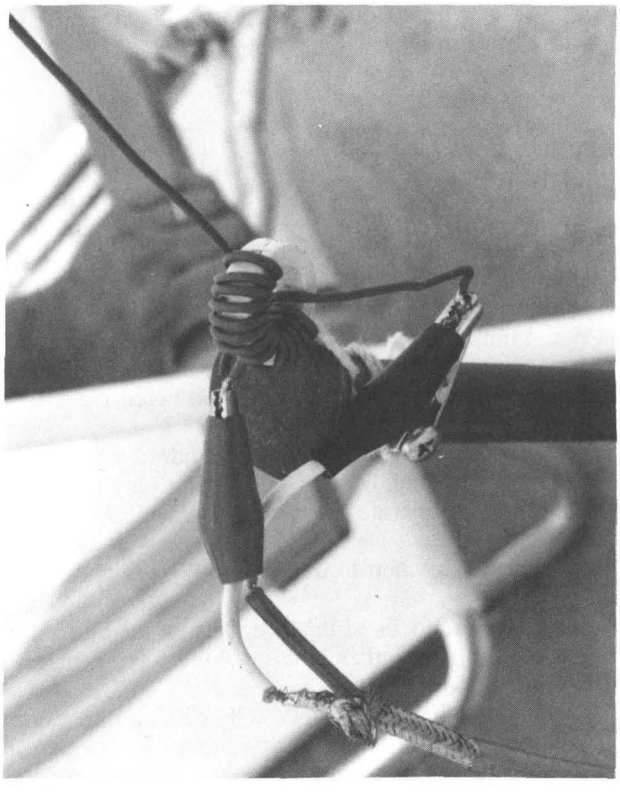
After attaching a short piece of 50-ohm coax from the beach rig to the tapped winding on the toroid and to the ground pipe, it was ready for the acid test. I stretched the antenna across some bushes next to my driveway and then I listened for some activity within the operating frequency range. Answering a CQ from a station in Central Florida provided a big thrill when I got an RST of 579. The peanut whistle and the wire were doing their thing!

I took the antenna to the beach and attached it to a nine foot (hang glider style) kite. The wire was attached to the kite with a fishing swivel which helps to prevent tangling and twisting. A six to ten mile per hour wind is ideal for keeping the antenna at a 70 to 80 degree slope. After a final check with my antenna bridge I was convinced that the feed point had maintained its 50-ohm integrity.

A couple of days later in a prearranged schedule with my friend Doc, W8AVB in Toledo, Ohio, I made my first contact from the beach. Doc said that my signal from the beach was better than the signal from my home where I usually use a 30 meter dipole.

Since my initial contact, I have had several fine QSO's from the beach. I now find myself paying more attention to the wind than I did in the past. It's a whole bunch of fun! Keep your ears open for W3RDF/QRP/BEACH.





Top of the ground post showing the attachment of the coax to the toroid.

Do You Homebrew?

Many of us are interested in rigs and accessories that we can build for ourselves or use a projects for newcomers to the world of low power. The Quarterly wants both long and short articles on homebrew construction, design and technique.

NET ACTIVITY REPORT

by Danny Gingell
3052 Fairland Rd.
Silver Spring, Maryland 20904

Month	TCN	NEN	SEN	GLN	GSN	WSN	Total
January	90	65	47	53	34	74	363
February	79	97	45	60	17	60	358
March	83	92	86	96	43	48	448
April	69	87	57	59	16	48	336
May	76	87	54	64	14	42	337
June	*	60	44	62	*	26	192
July	*	86	36	25	*	58	205
August	*	50	30	*	*	*	80
Totals	397	624	399	419	124	356	2319

* Reports not received

Yearly Comparisons

Year	East	West	Total	Trend
1984	540	1368	1908	000
1985	473	1124	1597	-311
1986	728	1071	1799	+202
1987	1061	1623	2684	+885
1988	1442*	877*	2319*	+753*

*1988 figures are year-to-date 7 month totals. For comparison, total for first 7 months in 1987 was 1566.

1987 average QNI per net was 8.8874 (302 sessions, 2684 QNI)
average QNI per month, all nets = 224

1988 average QNI per net is 13.9698 (166 sessions, 2319 QNI)
average QNI per month, all nets =331

Comparing 1988 with 1987, we can see that we have an increase of 5 QNI per net for an estimated 64% increase in net activity this year. With the average number of net sessions of 300 for six nets, we can expect the 1988 net QNI total to be in the neighborhood of 4200 QNI. WOW! Even the bookkeeper is impressed. I had no idea we were doing so well.

The average number of check-ins per station is 8.312. We seem to have less members participating overall than last year with 279 active on the nets compared to 312 last year. Those who are checking in on the nets seem to be doing it more often.

All I can say is, thanks to each of you for hanging in there through the QRM/QRN.

QRP DX TU ES CU ON NETS de **K3TKS**

New QNI-100 Certificates

WA1JXR	Greg Algieri	MA
NJ1T	Doug Crittendon	MA
KD2JC	Joe Vrabel	NJ
K5VOL	Red Reynolds	IL
W5XE	Ray Colbert	TX

QNI-100 Seals

W5TTE	QNI-200	(200)
KH6CP/1	QNI-200	(262)
W5LXS	QNI-300	(300)
W6JHQ	QNI-300	(320)
W6RCP	QNI-600	(623)

QRP ARCI Net Awards as of August 1988

Callsign	Award
W1CFI	NEN-40
W1FMR	GLN-80
KA3K	SEN-40
WA3SRE	GLN-80
NF5Y	TCN-20
KH6CP/1	NEN-40
N6GA	WSN-40
KK7C	WSN-40
N7FEG	WSN-40
NO7V	WSN-40
N8CQA	GLN-80
WA8MCQ/3	NEN-40
K9IFO	GSN-40
WB9TBU	SEN-40
W4FOA	NEN-40
WQ4C	TCN-20

Net Report as of Aug. 22, 1988

Call	Total
W1CFI	8
N1CUU	5
KA1CZF	7
K1EXE	6
N1FAH	2
W1FD	3
W1FMR	52
NG1G	7
NN1G	8
KA1GDG	9
W1HH	3
WA1JXR	59
K1MPM	5
W1SZJ	2
NJ1T	19
VE2ABO	13
WB2CZB	9
W2FB	11
W2GUM	3
WD2H	32
K2HPV	2
XE2IOF	28
KD2JC	51
W2JEK	4
K2JT	42
W2KJ	5
VE2KN	6
KD2OQ	9
W2PFS	37
K2PGB	7
WB2PSK	9
K2QJ	5
AA2U	4
WB2WGX	6
K2YEW	4
W2YHF	2
K3AS	6
N3DQN	5
KW3F	6
W3GBG	2
W3GUQ	2
WA3GYW	6
N3IK	24
KA3K	28
VE3KKO	2
VE3OOL	2
KA3PVD	6
K3RC/8	6
WA3SLN	4
WA3SRE	61
WA3TGY	2
K3TKS	66
W3TS	57
NB3V	3
K4AHK	9
NU4B	3
K4BHQ	2
WQ4C	44
N4EL	2
W4FOA	20
WB4GOR	6
WA4HXS	9
KI4IO	19
K4KJP	7
KA4LKH	52
N4SKS	44
K5BOT	4
WB5CTS	2
W5HKA	8
K5HPJ	6
K5KKO	3
W5LXS	33
KA5NLY	6
K5PSH	5
W5QJM	10
WB5QQF	10
W5SOR	2
K5TF	7
W5TF	3
W5TTE	51
K5VOL	23
W5WO	2
W5XE	41
NF5Y	9
WA6ARA	7
VE6BLY	3
KH6CP/1	108
WF6D	12
NW6F	12
WA6FLN	4
NY6G	19
N6GA	7
W6HRV	3
WI6I/1	5
W6JHQ	33
K6MDJ	2
WJ6Q	10
W6RCP	34
W6SIY	25
W6SKQ	3
KI6SN	25
KA6SOC	9
NU6U	5
AC6Y	2
WL7BDK	5
WB7BIV	14
KK7C	13
VE7EII	2
N7FEG	3
VE7FOU	7
N7IS	17
AK7M/1	10
NJ7M	25
NM7M	39
WA7P	5
KA7QNZ	4
NV7R	2
NO7V	17
KA7WUR	2
KV7X	5
KB8ABE	5
NN8B	21
N8CQA	28
N8CSX	9
K8DD	20
K8DSL	8
W8DYF	4
KD8FR	28
NW8G	11
WD8JCR	35
K8JRO	4
K8KIR	11
NM8L	9
WA8MCQ/3	23
W8MGF	16
KE8MM	4
KE8P	2
WD8PRW	4
AC8W	3
NC8X	2
WF8X	2
WB8ZWW	2
N9BDL	3
N9CVZ	2
WD9DLN	2
KA9HNR/1	2
K9IFO	27
WD9IWP	15
NA9M	3
K9PNG	14
WB9TBU	82
NF9X	3
NM9X	2
W9ZSJ	2
KD9ZT	14
N9ZZ	2
WA0APG	2
N0BQW	2
NG0C	3
N0DA	3
KA0EGJ	4
NN0F	7
NG0G	2
K0LWY	4
W0RSP	12
WB0T	3
KR0U	10

Members' News

Fred Bonavita W5QJM
P.O. Box 420321
Houston, Texas 77242-0321

G-QRP Club member **Peter Barville, G3XJS**, has tossed out a challenge worthy of pursuit. According to a recent issue of SPRAT, the Brits' club newsletter, Peter qualified for WAC/QRP in 3 hours, 35 minutes by working AX4XA, JG2FDF, PY0FC, UB4INW, EA9GS and KA1MKJ on 15 and 20 meters, and he wonders whether anyone else has a faster time.

QRP ARCI member **John Stanford, NN0F**, of Ames, Iowa, qualified for the award in 4 hours, 35 minutes by landing OH5BA/CT3, XE2EBE, F6BEE, HD8D, JH7WKQ and ZL2SQ in a contest (see his letter in the July issue of The Quarterly). John and Peter logged their respective QRP/WACs during contests.

Meanwhile, John and Peter may have an opportunity to discuss their feats and QRP DXing in person. John, who has a 108-country count, left Ames in mid-August (he teaches physics at the University of Iowa) for a year's study at the Department of Atmospheric Physics at Oxford. But he is taking no radio gear with him, he says.

Chris Page, G4BUE, who edits the members' news column in SPRAT and who is a member of the QRP ARCI board of directors, wants to hear from others who have fast-track WAC/QRP records, and so do I.

Anyone do it in less time? And should there be a category for the fastest WAC/QRP in a non-contest situation? What about DXCC? Let's have some comments about this, and a sampling of reader response will be published in the next issue of The Quarterly.

Jim McChristy, W6IUA, of Long Beach, Calif., made a big dent in WAC/QRP on 20 meters around midnight one day last summer. In less than an hour, he logged JA7BE, UR2QD and SM4BDX while running three watts out from his HW-9 into a Hustler vertical with 12 radials on the roof.

"You never know what surprises are in store for a QRPer," he says.

A Little CW to Go with the Ham-on-Rye at Lunch Division: **Ed Popp, K5BOT**, and **Bob Logan, NZ2A**, have been prowling the bands during the lunch hour from the parking lot of the electronics firm in Austin, Texas where they are employed.

Ed, former QRP ARCI president, is running an HW-8 on 15 meters into a homebrew helically wound mobile antenna (see the 1975 ARRL Handbook). His first parking lot QSO was with **Fred Turpin, K6MDJ**, of Cedarpines Park, Calif., the club's awards chairman. While conditions were less than ideal (Ed characterized them as "squirrely"), they managed a quick chat.

To lower the QRM possibilities, Bob operates his Argonaut 509 into an 8-foot mobile whip via a tuner on 20 meters. Bob started the process by showing Ed his mobile installation and letting him rip off a few contacts. Ed quickly jumped in with his own mobile station.

This might give a whole new meaning to the term "nooner".

After a couple of years piloting the CW Operators QRP Club of Australia, **Len O'Donnell, VK5ZF**, has stepped down as president and editor of the group's fine quarterly newsletter, Lo-Key. No word yet on a successor.

Len did a monumental job keeping things together after the demise of the old VK QRP Club a few years ago. His efforts are reflected in the enthusiasm of the club and the quality of the newsletter, which has run some very interesting technical articles.

Mike Czuhajewski, WA8MCQ, of Jessup, Md., hit the ground running when he got active in QRP again in November 1987. His first nine months includes logging 44 states and 27 countries, with most contacts coming "from a few hours in a few contests." And he's qualified for seven of the club's thousand-miles-per-watt awards in the process.

"Just goes to show you don't lose the QRP touch even after 15 years' inactivity," he says.

Mike, who was an early director of the club in the days when QRP was considered anything less than 100 watts' output, recalls he initiated the WAS/QRPp award "for doing it with true QRP." The "p" has fallen by the wayside with the adoption of new truly low power levels to designate QRP, he says.

Mike also lets us in on the secret of the club's nets manager, **Danny Gingell, K3TKS**, who is unsurpassed for checking into nets over the years. On a recent visit to Danny's home in nearby Silver Springs, Md., Mike got a look at the antenna farm growing there.

"He claims that he lost track of how many antennas he has up," Mike says of Danny, "but I counted at least seven pieces of coax going into the house. I've never seen so many wire antennas in one place!"

A little annual maintenance and screw-tightening can head off possible trouble later, says **Lou Berry, KF5OW**, of Albuquerque, N.M. After more than a year of successful use of his Butternut HF6V vertical antenna, Lou says he found it necessary to go back and tighten all the screws.

The winds for which that corner of the world is noted had loosened some of the vertical's hardware, and Lou said he had to go back up and tighten screws on the vertical, on the loading coils and on the coupling capacitors. It's a good idea to do that chore annually, regardless of the make of the antenna, Lou advises.

Meanwhile, an informal QRP group is making the Saturday morning coffee circuit, and all low-power buffs are welcome. Pioneer participants are **Ed deBuvitz, W5TTE; John Halliday, W6PIZ**; and **Lou, KF5OW**.

In one two-hour session recently, Ed recounted his exploits on 30 meters QRP, while John showed off a compact solar collector which resembles a notebook when folded but can keep a charge on a battery.

While taking time off from concocting what he unashamedly calls "my world famous spaghetti sauce," Ed reports a "dream opening" on 15 meters recently that gave his new, homebrew two-element beam a real workout. Starting at 1500Z, he worked SP4EAK doe a new one and "from there it really went wild," Ed reports. When the smoke cleared, Ed had logged seven new countries on 15, including UZ1, HB0, YU2, HA7, OH0, F6, PA3 and LA9. A quick check on 10 meters netted T77C.

One last item from the live-wire bunch around Albuquerque, proving a little collusion never hurts. When Ed heard that Lou was on his way to Arkansas for a visit, Ed saw a way to grab that state and wrap up his two-way WAS/QRP award. "I persuaded Lou to take along his FT-7 and 60 feet of antenna wire, and we made contact on the first try," Ed says. "He then packed it up and came home. That night, I got my QSL delivered personally." How's that for service?

From Jackson, Miss., **Geno McGahey, AL7GQ**, should be on the air by now with a homebrewed one-watt transmitter on 30 meters. Look for his peanut whistle around 10.110 MHz.

Look also for the Magnolia QRP Net on 3736 kHz at 0100Z Fridays (that's Thursday evenings for most of us.) NCS is **Jim Waltress, N5JPX**, of Brandon, Miss., with Geno as backup.

Bob Spidell, W6SKQ, of Lancaster, Calif., may have found a way to insure a prompt QSL from a rare one. Finding himself at home and with a few hours to burn, Bob checked around 20 meters, listening for some DX between 1530 and 1600Z, when he heard and bagged his first mainland China station, BY1QH in Beijing (Peiking).

Bob's wife is from Taiwan and writes and speaks Mandarin, so they composed a short letter to the operator of BY1QH and tucked it in with the W6SKQ QSL card. "I asked him about his ham radio operation and queries him as to his response to QRP operation," says Bob. He's anxiously awaiting a reply.

And that's it for this quarter. Your editor will have been transferred back to Houston by the time this appears in print. My new address is P.O. Box 420321, Houston, Texas 77242-0321, so drop a line and let me know what you've been up to.

Meanwhile, I will be seeing how many devious ways I can find to skirt the prohibition on outdoor antennas in the neighborhood into which I have moved and will report on my progress. During the time my wife and I were house-hunting, she was looking at interior colors and the like, while I was prowling the outside, seeing how many trees Mother Nature had planted a half-wavelength apart on 80 meters.

Awards

by Fred Turpin K6MDJ
Box 9145
Cedarpines Park, Calif. 92322

Call	Date	Basic	Notes	Power	Endorsement
KM/W					
KA1CKZ	4-9-88	1037	To W7WHO, 2504 M/W	2.5	Cw 28MHz
KB5CJB	4-15-88	1038	To KA1KWE, 1534 M/wW	.5	CW 7MHz
N8GJR	4-16-88	1040	To NM7M, 2014 M/W, 2xQRP	.9	CW 7MHZ
WB2WIK	5-28-88	1041	To WA8MCQ, 3240 M/W	.050	CW 7MHz
WA8MCQ	5-29-88	1042	To KV0I, 4349 M/W	.9	CW 14MHz
NF5Y	5-29-88	1043	To WA8MCQ, 1482 M/W, 2xQRP	.9	CW 14MHz
WA8MCQ	5-29-88	1044	To WG5G, 1557 M/W, 2xQRP	.9	CW 21MHz
WA8MCQ	5-29-88	1045	To WD5GLO, 1167 M/W, 2xQRP	1	CW 21MHz
WA8MCQ	5-29-88	1046	To W7EOF, 2319 M/W	1	CW 28MHz
N0ISL	6-12-88	1049	To WL7BQM, 2747 M/W, 2xQRP	1	SSB 28MHz
N0ISL	6-12-88	1050	To WL7BPY, 2474 M/W, 2xQRP	1	SSB 28MHz
DXCC					
NU4B	4-15-88	84c		4	CW Mix
WAC					
W5QJM	4-10-88	466c		5	CW Mix
KD2JC	5-28-88	467c		5	CW Mix
WAS					
N5DUQ	4-10-88	267c	WAS 10,20,30,40,50	3	SSB 7MHz
W5TB	4-16-88	268c	WAS 10,20,30,40,50	2	CW Mix
N8GJR	4-16-88	269c	WAS 10,20, 2xQRP	.9	CW Mix
QRP-25					
VE2ABO	4-15-88	995	QRP-25		
N8GJR	4-16-88	996	QRP-25		
NW8G	4-16-88	997	QRP-25		
WB3BDH	6-11-88	998	QRP-25		
KD8JC	5-30-88	530	QRP-50		
NW8G	6-11-88	531	QRP-50		
KD8JC	5-30-88	317	QRP-100		
W5HKA	6-12-88	318	QRP-100		

Need Some Wallpaper?

Several QRP operating awards are available to members of the QRP ARCI, including WAC, WAS, DXCC, KM/W (thousand miles per watt) QRP-25 (for working 25 QRP ARCI members with endorsements for 50, 100 and increments of 100), and a variety of net awards.

For more information on awards criteria or to apply for an award, contact Awards Chairman Fred Turpin K6MDJ.

I apologize to the following members for the delay in issuance of their QNI-25 certificates and seals as well as the QNI-100 club certificates and seals. I hope to have these in the mail by the time you read this. Thanks for your patience: K3TKS, W1FMR, NM7M, K4AHK, W5LXS, WB7BIV, K2JT, WB9TBU, WB0T, WJ6Q, N4EL.

The Porta-Paddle

continued from page 6...

The keyer's others connections are made as convenience and common sense dictate. The unit shown features an on/off switch to conserve power, though I doubt it consumes enough to warrant concern. I also added a momentary push-button switch on the rear panel to key the rig for tune-up purposes in the field. The keyer output connections are wired directly to the existing key jack. A suggestion was made to build this keyer to operate like a bug, with manually produced dashes, thus eliminating the dash timer; the result would be a very small(and even cheaper) circuit, a possible advantage if working on truly pocket-size rigs.

The keyer has received less discussion here than the paddle design, because it is presented in greater detail elsewhere. Chapter 7 of Solid State Design for the Radio Amateur elaborates on the workings of the circuit which is apparently an improvement upon one originally presented in QST for November, 1971. The paddle is a craft project rather than an electronic project, since craftsmanship is the area of expertise from which I have the most to offer.

As previously stated, I had experienced a degree of frustration in trying to track down this circuit which several other articles assumed I should have on file. Being confident I am not alone in this experience as a newcomer to homebrewing, I felt I would be remiss if the old keyer circuit wasn't covered to complete the project for my fellow neophyte homebrewers. I will reply to any questions or other suggestions concerning this project. Happy portable hamming!

✉✉ Letters To The Editor ✉✉

Harry Blomquist

Harry Blomquist K6JSS and the Legacy of the QRP-ARCI, I regret to note that the heartfelt sentiments eloquently expressed by Fred Turpin K6MDJ, in regard to K6JSS's role in QRP are not unanimously shared by the membership of our club, and I reluctantly express my views here lest K6JSS becomes immortalized as the "Grand Old Man of QRP".

Harry Blomquist did indeed found the precursor of our QRP-ARCI back in 1961 with the express purpose of minimizing the QRM on the bands that was caused by the widespread unnecessary use of high power. It was an old problem and solution reaching back into the 1920's, although his equation of QRP with 100 watts was a radically new concept which, in fact, undercut the efforts of three decades of genuine QRP'ers and impeded the growth of genuine QRP in this country for nearly two decades.

Although I did not know K6JSS personally, I cannot doubt that as an individual he deserved the respect and admiration that comes through in K6MDJ's eulogy. However, as a club member since 1968, I belive I am correct i saying that, in his roles of President and Life Member of the Board of Directors, K6JSS never condoned or encouraged genuine QRP publicly, although he may have done so in BOD or private correspondence to which I have not had access. The attitude of his QRP-ARCI toward genuine QRP came through in his very first QRP-ARCI newsletter, where his reference to Carl McCullough W4VNE, as a "flea-power" operator drew the critical distinction between what he considered QRP and what W4VNE was doing. W4VNE represented the "flea power" genuine QRP tradition which stretched back into the very first days of the vacuum tube era.

K6JSS did not found his club to provide a haven for that type of radio amateur; it was for moderately-high power operators. His attitude toward genuine QRP persisted in the 100-watt club until 1979, much to the chagrin of 5-watt types who joined it expecting to find fellow-spirits. They were disappointed.

Nor do I know of any evidence that K6JSS supported the 5-watt QRP'ers in the pitched battles of 1979-80 which transformed his 100-watt club into our 5-watt club. He may have embodied the essence of the QRP spirit, but it was a quite different notion of QRP than most of us share.

In the spirit of fairness and justice to the memory of K6JSS, I welcome any evidence which corrects me on the points noted in the previous paragraphs. Lacking such evidence, I can find nor justification for a specific reference to K6JSS in my History of QRP in the U.S., 1924-60 but, since history should be defined by facts rather than perceptions, such a reference can easily be inserted in the next edition if facts are forthcoming. Until they do, I must continue to speak out in defense of the QRP cause as I have done for may years.

Because of my position as editor of The Milliwatt: National Journal of QRPp and QRP editor of CQ Magazine during the 1970's, I was in a unique position for monitoring the relationship between the 100-watt QRP-ARCI and the grassroots genuine QRP operators in this country. And my observation of the negative effect of the 100-watt club on the growth of QRP in this country led me to speak out publicly on many occasions during the 1970's in an attempt to motivate it to recognize and accept genuine 5 watt QRP, but to no avail. To remain silent at this point would betray my basic commitment to QRP and QRP'ers. It is a commitment that earned me the unique distinction of being brought before the 100-watt club's board of directors to be ejected from the club and stripped of my lifetime QRP membership number.

And so, I must reluctantly confess that I think the photo of K6JSS on the cover of The QRP Quarterly provided an inappropriate degree of prominence to an individual who founded a 100-watt QRP club which was replaced by our genuine QRP club. Furthermore, I consider offensive the appearance of "K6JSS" on the unofficial new club logos, letterheads and QSL's, and believe that it is divisive at best in regard to club unity. But that is a matter for the club to decide about. Expressing these opinions may lead to another attempt to strip me of my QRP number, but I'll take that chance again.

In closing, let me say: let us respect K6JSS for the time and energy he put into the 100-watt QRO-ARCI, but let us not be confused about what he did. The credit for the tradition of genuine "flea-power" QRP belongs to the many hams who preceded K6JSS and publicly condoned and encouraged it through the years; fellows like Kruse, Hatry, Warner, Col. Foster, Windom, McCormick, Goodman, Reinartz, Handy, Battey, Drumeller, Curtis, Sutter, Newkirk, and many others. And the credit for making the club a genuine organization belongs to Thom Davis K8IF and others who struggled alongside him. It is to them that I owe infinite gratitude for the enduring enrichment of my radio experience.

Ade Weiss W0RSP
Vermillion, SD

(Editor's Note: While I've been a QRP'er since 1976 when I was licensed as WN8BXB. I've been a member of the QRP ARCI only since 1986, so the arguments raised by Ade have no personal relevance to me, having not been involved in, nor even aware of at the time, the disputes he describes. History ***should*** *be defined by facts rather than perception. The reality of history, however, is that history is compiled of the historian's perceptions of the facts. Open any history book and the reader can see that is the case.*

When I received word of Harry Blomquist's death, I contacted several members of the board, club officers and members to get a feel for what notice should be made of his passing. I did this, not so others could tell me how to edit The Quarterly, but to try to get a handle on the significance of an event to which I had no personal experience on which to rely.

The "facts", such as I was able to compile and on which my editorial judgement relied, are as follows: Harry Blomquist founded the QRP-ARCI in 1961. The club, at that time, defined QRP as under 100 watts. In the late 1970's, the organization underwent what was an apparently painful redirection of purpose and redefined QRP as under 5 watts. The name of the club was retained. At some

*point after this, the board of directors (**after** the club embraced the 5 watt definition) honored K6JSS with a life position the board of directors, recognizing his status as founder.*

*There is a thing in life called "progress" that constantly causes other things to change. Organizations, governments, and philosophies undergo an evolution so that current structures may bear no resemblance to their roots. That does not mean the roots should be excised. Remembering how the club started and evolved may be painful for some, but it doesn't change the facts, as they are perceived. Inaccuracies **should** be pointed out as such, lest they inadvertently become "facts." On the other hand, certain points of history should not be ignored just because they are painful. Things happen that we may not like; that doesn't make them any less true.)*

Yaesu FT-707

I recently joined QRP ARCI after reading many articles about QRP and I have been operating CW from a Yaesu FT-707. I would like to know is anyone has any information on modifying the FT-707 to run QRP on SSB.

I think The Quarterly is a great source of information and exchange of ideas. To all involved, keep up the good work.

Frank Milos NO1E

(Editor's Note: Frank also asked if an index of articles in past issues of The Quarterly has been done. An index did appear, for the first time, in the January 1988 issue, covering issues back to 1980. We plan to compile yearly updates to appear each January. Newer members who may want a copy of the index can send an SASE to the editor for a copy.)

Milliwatt QRP Transmitter

Many thanks for publishing my article "Milliwatt QRP Transmitter Using Digital IC's" in the July edition of The QUarterly.

A careful reader, C.F. Rockey W9SCH, has discovered an error in the table for the low pass filter components. The actual L and C values are correct, however, the number of turns shown for L1 is based on the use of Q2 ferrite toroid material such as Allen Bradley F625-9-Q2, not for powdered iron T-37-2 as I indicated. The permeability of Q2 is 40 and for the -2 powdered iron it is only 10. Therefore, inductors wound to my directions on -2 will have inadequate inductance for proper use in the filter.

The table below provides the number of turns needed when using T37-2.

Band	80	40	30	20	15
L1 Turns	21	16	13	12	9

Sorry for the error and I hope it has not inconvenienced those who may have tried the circuit.

Paul Levesque KB1MJ

Taiwain DXpedition

Pending approval from the Taiwanese government, QRP ARCI member Denton Bramwell, K7OWJ will be operating from Taiwan on Oct. 13-17. Denton is director for Heath Instruments and will be acompanied by Wayne Wilson, WB8TSO, Heath product line manager.

Using the call BV2A or their home calls /BV2, Denton and Wayne will be looking for QRP only between the hours 1300-1800Z. Look for them on 21.060 on the half hour.

They'll be taking along Heath's new transceiver and an SB-1000 amp.

QSL via Heath Company, Benton Harbor, Michigan 49022.

BOARD OF DIRECTORS ELECTION

The July 1988 issue of The Quarterly requested nominations for the election of members to the Board of Directors to replace the four members whose terms expire on Dec. 31, 1988. Ballots must be received by the Secretary no later than Nov. 15, 1988. Nominations closed on Aug. 15 and there are six nominees for those positions. Their biographical data follows, taking the nominees in alphabetical order.

Lou Berry KF5OW has been licensed for 35 years and served as a radio operator in the U.S. Navy for 25 years. While in the Navy, Lou also served as Electronics Mate 1st Class and as Chief Petty Officer. Lou enjoys restoring outdated transmitters and receivers as well as building QRP gear and setting up antennas. He operates CW, SSB and RTTY at QRP levels and has been active in the QRP Awards program, earning a number of KW/M awards as well as WAS/QRP and WAC/QRP on SSB. As a Board Member, Lou would like to see the club establish more sprints in the fall and winter months as well as a contest for milliwatters only.

Mike Bryce WB8VGE was first licensed in 1975 and holds an Extra Class license. He has been an active QRPer for well over a decade, developing both solar and wind systems to use with his station. In addition to his work with power systems, Mike has been an active builder of home-brew gear and has published articles in The Quarterly. Most recently, Mike edited the second editing of the HW-8 Handbook and is now planning another edition, this time including mods for the HW-9. Mike has completed one term on the Board of Directors and is seeking re-election at this time.

Cam Hartford N6GA has been licensed since 1961 and a QRP ARCI member since 1972. On the personal side, Cam is the production manager of a manufacturing firm. Cam's interest in QRPing extends over a range of club activities: net operations, QRP ARCI CW contests as well as the ARRL Field Day event, homebrewing, and writing technical articles on the modification and improvement of commercial equipment such as the HW-9. In his years as a member of the QRP ARCI, Cam has been impressed with how the club, its activities and membership have grown: an expanded and improved Quarterly, greater participation in nets and contests as well as club-sponsored building projects. These all exact a toll in time and energy on the officers of the club and his interest in serving on the Board is to provide them with his resources of time and expertise to assist with the growing demands of the club.

Roger Rose W5LXS has been licensed since 1961 and hold an Extra Class license. Roger has been employed by Southwestern Bell Telephone Co. for the past 22 years and works with microwave radio and other toll related equipment. He has been a member of QRP ARCI since 1978, with primary interests in the contest and net programs. He has served as NCS of the Transcontinental Net since November 1983 and the Gulf States Net since January 1987. A natural power advocate, he has utilized stored solar power continuously since 1982. He was named fill the unexpired term of Bob Brown NM7M on the Board of Directors and hopes to further serve the club by promoting fellowship and fair representation of the needs of our members.

Luke Sheridan NB3V was first licensed in 1961 as KN3PSR and immediately joined QRP ARCI as a charter member (QRP #11). Luke now holds an Extra Class license and is a certified volunteer examiner, participating in the ARL/VEC program. He is a member of the ARRL, QCWA and the Michigan QRP Club. He is currently employed by the Postal Service and has been active as a pilot in private aviation. Luke's interests in QRP extend from operating to contests and net activities. In applying for a position on the Board of Directors, he would like to help the club pursue an aggressive membership campaign, hoping to see the club increase its size by more than two-fold. Part of that growth, he feels, could come from interesting Novices in QRP. In addition, he would hope to foster wider acceptance of QRP operating practices within the amateur radio community in general.

Doug Stivison NR1A (formerly WA1KWJ) has been licensed since 1964 and formerly was the editor of 73 Magazine, Ham Radio Magazine and has written extensively on computer programming. On the professional side, he is a member of the ARRL, IEEE, and ACM; in addition, he is a member of Society of Wireless Pioneers, the Veteran Wireless Operators Association, the Antique Wireless Association and the Morse Telegraph Club. He is also a member of the Michigan QRP Club, the G-QRP Club and the Australian CW Operators QRP Club. Doug has a background in fundraising and organizing volunteers and he would like to use those skills on behalf of QRP ARCI. As a board member, he would like to spread the word about QRP to a wider audience, thereby building our organization, and to expand the sales of our kits, thus meeting the needs for those who want to participate in homebrewing of QRP equipment but lack local resources.

Return ballots **no later than Nov. 15, 1988** to Secretary Bob Brown NM7M, 504 Channel View Dr., Anacortes, Washington 98221.

Vote for no more than four candidates:

- ☐ Lou Berry KF5OW
- ☐ Mike Bryce WB8VGE
- ☐ Cam Hartford N6GA
- ☐ Roger Rose W5LXS
- ☐ Luke Sheridan NB3V
- ☐ Doug Stivision NR1A

The Milliwatt DXCC QRP Trophy

by Ade Weiss W0RSP
833 Duke St. #83
Vermillion, S.D. 57069

Instituted in 1971 by The Milliwatt: National Journal of QRPp to provide an incentive to QRP'ers to attempt DX work with five watts output and thereby demonstrate QRP's capabilities, the DXCC QRP Trophy has been awarded to more than 70 QRP'ers during nearly two solar cycles.

The primary objective of the award has been nobly accomplished by these elite DX'ers who have amassed a data-base of many thousands of DX contacts, each verified with a QSL, and have proven to the world that five watts buttressed with operating skill is enough to reach anywhere on the globe.

When the program was founded, neither the 100-watt QRP-ARC-I nor any other organization offered such an award, but now the 5-watt QRP ARCI, as well as the Michigan QRP Club and the G-QRPC offer five-watt DXCC awards. Hence, it is with a sense of proud accomplishment shared with those who have earned their DXCC Trophy and their place on the historic list, that I now announce the termination of the DXCC QRP Trophy award. In order to permit those who have been working working toward the trophy an opportunity to complete the 100 countries, the cut-off date for working the first 80 countries will be 2359 UTC, Feb. 28, 1989. The remaining 20 countries must be worked by 2359 UTC, Dec. 31, 1989. That is also the cut-off date for those working toward the DXCC 200 QRP plaque, which is awarded for 200 countries with five watts.

Much work yet remains to be done in the milliwatt range. The new solar cycle, according to recent predictions, promises excellent conditions for milliwatt DX work. I encourage QRP'ers to take advantage of the coming opportunity by immediately beginning work toward the Milliwatt DXCC Trophy (under one watt r.f. output.) This award will be continued at least through 2000 A.D., barring some catastrophe. Contacts must be initiated and completed with under one watt without assistance from a Net Control Station or List Manager (i.e. in this situation, the DX station must copy your call and exchange directly from you and not via a relay, so alert the NCS and LM that they must not identify your call in the process.)

Applications consist of (1) a log of the 100 contacts arranged in alphabetical order by prefix and including date, time, band, RST's, r.f. output power; (2) a QSL for each QSO; (3) an affidavit verifying that all contacts were made with the prescribed power limit and by direct exchange with the DX stations; and (4) very brief description of the method used to measure r.f. output power (i.e. Bird wattmeter). All 100 contacts must be made from within a single country, but not necessarily from a single location (i.e. from anywhere in the U.S., U.K., etc.)

Milliwatt DX'ing is a real challenge, but about a dozen QRP'ers have already shown that it can be done. GM3OXX just qualified, using simple wire antennas, for the DXCC 200 Milliwatt Trophy for 201 countries. So fellas, hone your operating skills and increase your knowledge of propagation, peak those antennas and, above all, become a saint in the virtue of patience, and you can eventually display the magnificent Milliwatt DXCC Trophy (one recipient noted, "this isn't a trophy, it's a public monument!") with unparalleled pride as a member of the most elite operating group in amateur radio!

Subscription Renewal

Subscription renewal is $10 ($12 for DX) for four issues. The renewal date appears on the mailing label following the QRP membership number, i.e. 4174-3/88 means that member number 4174's subscription will expire with the third (July) issue in 1988. Renewals and new member appplications must be received by the first of the month prior to the next publication to receive that issue, otherwise service will not begin until the publication of the following issue.

New Member/ Renewl Data Sheet

Call_____ Age_____
Recommended by:_____
License Class_____
Other Calls Held_____
Bands Most Used_____
Please circle your interests and elaborate if desired on a separate sheet. Thanks!
Ragchewing, DXing, Contests, Traffic, Awards, Homebrew, Experimenting, CW, SSB, RTTY, ATV, Packet, VHF/UHF, Satellite, Other

Do you plan to participate in club activities? Y/N
Would you like to be a club officer/director? Y/N
Do you have access to duplicating equipment? Y/N
Are you interested in our awards program? Y/N
Have you applied for any of the club awards? Y/N
Are you in favor of QRP calling frequencies? Y/N
Are you in favor of member QSO parties? Y/N
Would you help write for the Quarterly? Y/N
What subjects?
What QRP awards/achievements have you won?
Why do you run low power?

[ ] Renewal (U.S. $10, DX $12) [ ] New Address
[ ] New Member (U.S. $12, DX $14) [ ]New Call

Name_____Address_____

City_____State/Country_____Postal Code_____

Amount Enclosed_____QRP ARCI #_____Callsign_____
Please make your check or money order payable to:
QRP Amateur Radio Club, International
Please Do Not Send Cash

Mail to: Bill Harding, K4AHK
10923 Carters Oak Way
Burke, Virginia 22015 USA

QRP #_____Inc Rec_____Apl Rec_____
List File_____MCert_____Rep Cpy_____

Winter Net Schedule

TCN*	14060	W5LXS	Sunday	2200 Z
SEN**	7030	K3TKS	#Wednesday	0100 Z
GSN	3560	W5LXS	#Thursday	0200 Z
GLN	3560	K2JT	#Thursday	0200 Z
NEN	7040	W1FMR	Saturday	1300 Z
WSN-40	7040	NM7M/ W6RCP	Saturday	1700 Z

Spring/Summer Net Schedule

(changes with Daylight Savings Time)

TCN*	14060	W5LXS	Sunday	2300 Z
SEN**	7030	K3TKS	#Wednesday	0001 Z
GSN	3560	W5LXS	#Thursday	0100 Z
GLN	3560	K2JT	#Thursday	0100 Z
NEN	7040	WA1JXR	Saturday	1200 Z
WSN-40	7040	NM7M/ W6RCP	Saturday	1600 Z

* On weekends of major contests, TCN will meet one hour later.
** If conditions on 7030kHz are poor, QSY to 3535 at 0130 Z (0030 Z Spring/Summer).
# Evening of the day before for W/VE

Other QRP Nets

MQRP	3535	K8JRO	#Wednesday	0200 Z (0100 S/S)
WSNSSB	7285	NJ7M	Wednesday	2000 Z (1900 S/S)
VEQRP	14060	VE6BLY	Sunday	1900 Z (1800 S/S)

First Sunday QSO Party

(every first Sunday)

UTC	CW	SSB	Novice
1400-1600	14.060	14.285	
1600-1700	21.060	21.385	21.110
1700-1800	28.060	28.885	28.110
1800-1900	7.040	7.285	7.110
1900-2000	14.060	14.285	
2000-2100	21.060	21.385	21.110
2100-2200	28.060	28.885	28.110
2200-2300	7.040	7.285	7.110
2300-0000	14.060	14.285	
0000-0100	7.040	7.285	7.110
0100-0300	3.560	3.985	3.710

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