

IOWA QRP JOURNAL

NEWSLETTER OF THE IOWA QRP CLUB

Welcome to the spring issue of the Iowa QRP Journal! By now your winter projects should be finished and ready to go on the air. I've finished my Emtech ZM-1 (z match tuner) and also added the AZ Scorpions LED SWR indicator kit. The SWR indicator is basically a bridge circuit with the antenna serving as one of the elements in the bridge. The interesting part about this circuit is that the transmitter never sees an SWR above 2.1 (when the bridge is in circuit). By adjusting the tuner for minimum (or no) illumination of the LED you are adjusting for minimum SWR. This is a very interesting circuit that really works. This kit is no longer produced by the AZ Scorpion QRP Club but more information may be found in the Spring 97 issue of QRPp (article by Dan Tayloe N7VE) or visit the following website
<http://www.extremezone.com/~ki7mn/n7veswr.htm>.

My other current project is the now famous NorCal 20. The NC20 is a monoband 20 meter CW kit produced by the NorCal QRP Club. The rig was designed by Dave Fifield (AD6A) and has quite a few bells and whistles. NorCal only produced a limited number of kits with a matching number to be given away to third world countries with the aid of the G-QRP Club of England. A very noble effort by all those involved and we should all thank them for their efforts for spreading QRP capability across the globe. More good news is that the NC20 is being commercially marketed by a new company called Red Hot Radio. More information can be found at

their website at
<http://www.redhotradio.com/>.

Now that the weather is warmer we can turn our attention to outdoor activities and operating. Now is a great time to check your antennas and erect those new ones. Please remember to observe all safety precautions when working on antennas. It is truly better to be cautious than out of commission.

QRP operating is also ideal for the outdoors and I encourage each of you to give it a try. Take a rig with you on the next family 'tent' vacation. For those of you with a lot of operating in the field, why not jot down your experiences and impressions for others to share in our next issue of this newsletter.

Field Day will be coming soon and we need to get our club call on the air. Whether in a sponsored event or one of our own I hope that we as a club can get together and compete in some of the upcoming events.

Many of you have suggested that the newsletter contain a member profile each issue. It is a wonderful idea and I'm pleased to announce that our first member profile is included in this issue. We chose a very special ham for the honor of being first. Mary Keener (K0YL) has written a great article about her experiences that I hope you enjoy.

In a previous issue we started a theme for this year about 'planting the seeds of QRP'.

Well planting season is now upon us and I again challenge you to do something this year to spread the good word. Introduce a friend to low power operating or bring someone to a club meeting. Write an article for this newsletter (please) or for your local ham club. Help us at the upcoming hamfests. We kick off the hamfest season this year at Des Moines on April 24, 1999 with a display table. Our next hamfest will be in Sioux City with presentations from several club members, display tables, and a building event on June 4, 1999. More details will follow. I hope to see you all at one of the hamfests or meetings!

72, de John NU0V

Member Profile:

Mary Keener KOYL

By Mary Keener KOYL



Being the first to write a personal profile, I'm not quite certain where to start. I must classify myself as an "old timer" having been licensed since June 1962. I was first introduced to ham radio about three or four years earlier by our old floor model AM radio that just happened to have 20 and 40 meter ham bands -- along with foreign broadcast. I

remember asking my older brother, Ron, WA0REE, what all that talking was and he told me that they were ham radio operators. "Interesting," I thought.

I was lucky in a way because going to the Iowa Braille and Sight Saving School at Vinton, there was a ham station. I used to listen to Lloyd, KODDA, now W3IUU, through the broadcast interference on the AM broadcast band. I found just his side of the conversations fascinating. So, upon becoming old enough, I joined the science club and when the opportunity arose, (even with some of the house parents opposition) I started code classes. By the time I had finished seventh grade, I had passed my Novice and was awaiting a license and call when the school year ended. In those days, you took the Novice code test in front of a general class op or higher, sent in the 610 form with the code test results, awaited the FCC sending a copy of the test, returned the test and waited for the license. In June, of 1962, I received WA0DAG.

We didn't have any ham gear and the prospects of getting some were not good. My father thought the hobby a waste of time and money, so I spent the whole summer listening to a receiver that Ron had found tossed out down by the river. That receiver had 75 and 160 meters on it -- a real treat!!! Then in the fall, I got limited access to the ham station. Unfortunately, since the ham station was in the boys' dormitory it was a sin in the lady house parents minds that any girl should be allowed there alone -- even with the station door locked -- Crazy and prehistoric attitudes, but that's what we were dealing with. My mother would come on

bi-weekly Fridays so I could get to the station. We would go back to Vinton early on Sundays so that I could get in more operating time. Otherwise, I was lucky to get two hours per week code time. Lloyd found a blind ham in Nebraska who was willing to work skeds with me so my code speed could improve steadily.

I recall the frustration by the end of my eighth grade school year because it had been a struggle to get over 13 wpm with such limited operating time. A couple times Lloyd came into the station to help me and I remember his comments so well, "I'm not supposed to be here, but I don't care. You need some help and let them complain. This is between us and the FCC." I remember doing the same thing as club station trustee in later years for new boy hams with just about the same comment. But it was a true pleasure then because I finally had the opportunity to put the fear of God in those same house parents by threatening them with action from the FCC -- what a delight! It was amazing how cooperative they suddenly became!

Since the ham shack key was kept in the boys' dormitory, I would have to obtain it from and return it to the boy's house parents -- all men. They were very supportive of my interests and would talk with and encourage me. Of course, this too wasn't appreciated by the lady house parents. So at the end of that year, I told one gentleman that I'd about had it and was ready to forget the hobby. Right then and there he made me promise that I would upgrade my license if not for me for him "Because I've always wanted to get into the hobby and never have. Don't let it go now."

In the late summer of 1963, after the non-renewable Novice had been expired for a couple months, I did upgrade. But the real exciting event came later that year. Ron had worked the entire summer for our brother-in-law just to have money for a decent receiver. He hadn't earned quite enough for the receiver we wanted -- National NC183D -- so the wages were increased the extra \$20 so we could get it. Then, about Thanksgiving of 1963, a ham that deer hunted in our area met up with Ron and found out we were interested in ham radio. He gave us his old CW/AM homebrew transmitter with the comment, "If you kids can make it work, it's yours." It was on the air within 24 hours -- CW -- we had no microphone -- requiring two ops -- I would switch the transmitter and VFO and Ron would grab the receiver RF gain and switch the antenna (no antenna relay). But the excitement of finally having our own gear was indescribable! You would have really enjoyed the operation. Since Ron didn't know Morse code yet, I would say "Get ready, get set, go!" and we would both dive for cables or controls or switches. This happened at the beginning and end of each transmission -- a true two op system! It didn't matter that it was nothing in comparison to a Collins KWM2. It's just more fun to run your own gear.

In those days, there were teenage hams all over the place. We all found one another because of a midwest wide weather net established by a ham in Clear Lake. We were actually affiliated with the Des Moines weather bureau and a lot of mailings provided excellent training. (Appreciate weather watching on 2 meters because it was a real training and

perseverance experience to copy reports through the QRN on nights when severe weather was occurring. I'M amazed to this day how I ever copied reports as net control through that noise and even more so how I relayed emergency messages after the Oelwein tornado in May 1968, through that static!) The teenagers that worked the weather net would hold down the net frequency, 3855, all day during the summer and we would have groups as large as ten or fifteen teenage hams at times. Almost all of us were on am even though sideband was taking over because none of us had the money for SSB. Those were fun times. Unfortunately, by the late 1960's, most of us had gone our separate ways and have not found one another since. I do have one ham from that group who still keeps in touch regularly via 2 meters.

Also I was informed immediately at the start of my freshman year by Lloyd that now that I was a general I could start checking the Iowa 75 meter net a couple days a week and handle any formal traffic that came our way. He told me that I could figure out what was involved by looking at his traffic in the log. (In those days, the FCC required very detailed and precise log keeping.) There was plenty of military traffic coming across the ham bands in that time period. So, I got involved and acquainted with the Iowa net and traffic handling. I remained active in net operations for many many years afterward -- net control, board of directors member, and secretary-treasurer. Great fun and fellowship with all the Iowa guys that congregate on 3970.

Lloyd also convinced me that CW nets were more fun and precise, so for a few years I also

checked into and called the Iowa Tallcorn net quite often. That was fun. But let me tell you that the special symbols of CW traffic handling and the precision of same is a major learning experience. You really lacquered respect for those accurate high-speed TCC ops that pass traffic across the nation through the national traffic system.

My first experiences with QRP came totally by accident. Most of the time, I had been running around 100 watts and had played with linear kilowatt amplifiers, but the high power wasn't exciting to me at all -- so what everybody could hear you. A friend had an old Heath AT1 that he didn't think was working right. So, I got it to play with. The monster would bite you if you touched the rig and the key at the same time, but working the west coast on 80 CW at 7 a.m. in the morning with six watts did it for me. This was the early 1970's.

About the same time I happened to be with a ham friend who was running the Argonaut 505 mobile on 75 meter phone no less. We were in route to a hamfest. He told me to break into a QSO of acquaintances and they came right back! Wow! Four watts and a lossy antenna and they could hear me. That did it. Right then and there I decided that QRP was where the challenge and fun really existed. I've told many hams since then that a person who can work WAS or DXCC with 5 watts or less can brag a whole lot louder than the guy who works WAS or DXCC in one weekend with a kilowatt!

Over the years, I played with several pieces of Tentec gear and often turned down other gear to as low power as possible. During the last solar cycle when

10 meters was open, I would spend hours on SSB. My antenna was a Hy-Gain TH3JR and I would break pile ups during contests with the Argonaut. Many a ham told me I couldn't be QRP because I was 20 over nine. What fun! 15 and 20 CW were also a real treat even in DX pile ups running QRP. One night, thinking 15 was dead, I called CQ and a station in Argentina came back. The QSO was tough and short, -- my RST 119. But it was done with the Argonaut and a Cushcraft R5 vertical four feet off the ground. No doubt gray line -- neat propagation!

One of my most memorable QSO's was with a ham running the one watt 10 meter AEA handy talkie. He was a foreman at Los Angeles harbor. He told me that the antenna was a four-foot whip and that he ran a counterpoise wire from the case of the ht over the dock into the salt water. He could look up the cliff to his home 200 feet above him. There he had a 100 watt transceiver and a multi-element tri-band beam. And guess what, he could hear and work more from that ht down on the waterfront. My only regret was that I too wasn't QRP at the time!

Right now, I have a Tentec Argonaut II, an Icom 731, (I bet most people don't know what that is -- a QRP 735) and a Kenwood TS 570S. Unfortunately, I've not been able to use them as much as I might like because of other demands on my time. However, as this solar cycle picks up I'll probably find more time for that QRP thrill. I'm currently caring for my ailing mother and getting involved in a lengthy CW QSO or DX chasing isn't a great idea because I never know when I might have to leave for a while. So I do a lot more listening than talking.

Besides, as I've often jokingly told people "Skeds are made to be broken. Also, it's amazing what happens after you become a "old timer". Those antenna jobs that needed done yesterday as a new or young ham suddenly will get done maybe someday! So it goes. It's when the mood strikes that I get on the air at this point -- or time permits.

By the way, most people are probably wondering -- I get asked all the time -- "How did you get that call KOYL?" I was lucky. Having passed the Extra exam in 1970, there was a two year period in the mid 1970's when the FCC allowed Extra class hams to request specific calls. It was a grandfather type thing and depending on how long you held your Extra class you had a certain time when you could apply. They had it set up where the longer licensed extras got first chance. When my time came, I applied for and received this call. Unfortunately, after a couple years, the courts declared that policy illegal and no new special requests could be fulfilled (until the current vanity call sign program.)

See you on the air someday.

72 de Mary KOYL

Non Binary Attachment Policy

By Adam Kanis AK0P

Some of you may have read that a "worm" propagated as an email attachment has been making the rounds, including through several ham related mailing lists. I just wanted to let you know of an example of why the IaQRP-L list server is configured to reject binary attachments.

72, de Adam AK0P

15 Meter Pad and Glue SST
by Mike Fitzgibbon K10AF



Photo 1: Front View of the SST

The SST is a popular little minimalist-type transceiver with a surprising performance level, considering the parts count. Once again, Wayne Burdick, N6KR, did a great design/development job on the little rig. It is no wonder that the Wilderness Radio kit versions for 40, 30, and 20M have been quite a success. The kit has, however, never been offered for the 15M band. Although a conversion of the 20M kit to 15M is easily accomplished, I wanted to incorporate a few "enhanced-performance" modifications (most of which were gleaned from posts to the Internet QRP-L list) into an easily built, ugly-style version for the 15 M band. Some of these enhancements include: three-turn tuning pot, increased tuning range utilizing two varactors, increased RF power out using an MRF-237 final, adjustable transmit-sidetone level, and an integrated single-chip keyer. What follows is a brief but hopefully useful description of this process...a task easily undertaken by anyone with a few ordinary test instruments, some hand tools, a little soldering experience, and the desire to work the world on a watt or two with a completely homebrew rig.

Start by getting a copy of the original construction article (spring '97 issue of "QRPP"--NORCAL's quarterly publication--see parts below) and/or copy of the kit instructions, if possible. You will see that the heterodyne scheme of a 15 M. version simply uses a 25.0 MHz VXO (instead of an 18 MHz VXO as in the 20 M version) mixed with the 3.932 MHz IF (same as 20M version) to get you "there". The rig I built using two varactors tunes from 21.051-068 with a little overlap, and is dead stable. The VXO and IF/BFO/transmit mixer crystals can be ordered from Digi-Key (see parts list) and the filter crystals matched using a simple crystal-checker circuit such as the one on page 25-6 of the '95 Handbook (a copy of the schematic is available from the ARRL). I used this circuit (just a couple of 2N2222s) with an inexpensive handheld frequency counter (Optoelectronics 2810) to measure and match the three crystals for the filter. Out of the twenty IF crystals in the purchased lot, no less than four sets of three crystals were found to lie within 20 hertz of one another...making for some very fine Cohn filters when used with high-Q (read "mica" or "ceramic disc") capacitors. The remaining crystals were close enough to all be used in the BFO and transmit mixer with no problems. I cannot in good conscience guarantee that you will certainly have this good fortune buying closely-matched crystals, but similar results have been obtained a couple of times since with small lots from both Digi-Key and Mouser Electronics. I will venture a guess--- that if the crystals come out of the same box/batch it would appear that many may be quite closely matched at these frequencies (around 4 MHz). You

have to take a little chance here... Throw in with a friend and buy 20 or so and see what you get...I have not been sorry yet, and there are four (40, 30, 20, 15 M) homebrewed SSTs sitting on the shelf...and the filters sound and work fine.

The construction method utilized consisted of 3/16" pads punched from single-sided PC board using an inexpensive sheet-metal punch available from a discount mail-order house (see parts list below). The punch comes with dies for holes/pads from 1/8" to 7/16" or so. The 3/16" size seemed to be about right for my purposes here and most other circuits as well. Ordinary household super-glue is used to secure the pads to the copper side of the circuit board in what some refer to as the "Manhattan" style of ugly-construction (I prefer to call it "grain-elevator" myself...). A little care must be used to avoid contamination of the copper surface with substances that will lessen the hold of the glue...a swipe of your favorite solvent/cleaner on the board where the pad goes will do. Methanol is my favorite (hardware-paintstripper/solvent). I used the liquid super glue and not the gel type, which seems to take longer to set up. One small dot of glue will suffice. You have approximately three to five seconds before it sets after the pad is placed... so marking the spot on the board with a pencil AFTER you have trimmed and fitted the part leads and BEFORE the glue is laid ("dotted") is advice strongly recommended. The pads can be removed after the glue is set with a fairly sharp lateral blow, but the glue residue will not leave a pretty or level spot...a little layout planning is also highly recommended.

Once the pad is placed, a pencil eraser seems to make a very good "tool" to push and hold the pad to the copper for the few seconds it takes to set up, after which soldering can immediately take place. This construction method allows one to make quite compact and stable layouts since "grounds" are available everywhere. Try this method by first building the crystal checker on a small 2 x 2 inch or so piece of board to get the "feel" for it...it works great and further mods are simple and easy.



Photo 2: Construction Technique

I used inexpensive low-profile machined-pin IC sockets throughout, including the keyer board. The pins are a bit longer than those of a leaf-type socket, and can be easily bent 90 degrees or so outward away from the socket (bent about ONCE, although the pins will rotate before the IC is inserted). These sockets, unlike some leaf types, do not soak up any solder, and their cost is minimal at around 20-30 cents in small quantities (see parts list). I use this type of socket exclusively in my projects now...they are also sturdier as a general rule. After bending the pins outward at 90 degrees or so away from the socket center the socket can be mounted by simply soldering the bent-out pins to the pads at three or four corners. Unused pins can be removed with wire snips or a cut-off wheel mounted on a Dremel tool. Grounded pins

are now just long enough to reach the board if left unbent. Also, the use of small gauge, tinned buss wire (20-24 gage) is a painless way to make many of those needed connections. Additionally, connections may be made by running wire underneath the IC sockets if necessary since there is a little bit of room there too.

Most of the parts used here were from the usual sources, with a healthy dose of surplus parts from Dan's Small Parts. I used quite a few parts from Dan's which were on sale and collected as just general QRP-type parts over a period of several months while watching his website for bargains. Consequently, the cost of the rig was held fairly low in my particular case. The 15 M-specific and modification parts are listed below, and the remainder can be found by part number and supplier in the kit instructions, if you happen to have a copy.

The layout of parts is not particularly sensitive, although a few general guidelines are worthy of consideration. The receiver section should be located near the front panel to minimize lead length from U1 to R1 (the RF attenuator) if you so choose to locate R1 on the front panel. Likewise with the VXO circuit, mount it at the front of the board to keep the leads to the varactor switch as short as possible--millimeters DO count here. The varactors are mounted on the top and bottom of a DPDT mini-toggle switch so that the "up" position is the higher range and vice-versa. This means that the MVAM108 will be mounted on the topside of the switch. Keep all of the VXO parts leads short also.

The general layout uses as few jumpers as possible, the

necessary wires including the control and input/output leads and a few runs of RG-174 from the VXO to the transmit mixer, the receiver mixer, and antenna jack. The ICs are powered by jumpers which run from the 78L08 regulator which might be located near the edge of the board to provide easy access due to the number of runs necessary. The 386 audio amp can be powered directly off the DC input and through a 100 ohm resistor for a little more gain on audio peaks (hardly noticeable though). The keyer board was mounted to the back panel and the peizo transducer for the keyer was mounted on the inside of the bottom of the enclosure near the front, under the board which was placed on quarter-inch standoffs. The circuit can be built one IC at a time, while laying out the larger parts on the board for fitting before the pads are glued. Start with the regulator parts and then go on to the VXO. You can monitor the signal on your station's main transceiver to get it going.

Modifications to the original circuit were made to increase the transmitter output. These include the MRF-237 final, adding a 2.2uH choke between the final's base and ground, changing R10 from 180 to 120 ohms and, of course, increasing the DC input. I have seen over six watts output on my 'brewed 20 M version when I had a slight (!) power supply accident--a shorted voltage-adjustment pot in the power supply resulted in 25 volts going to the rig. The 237 final got VERY hot but it took the lickin' and kept on tickin'-although I don't recommend you try this much voltage unless you are very adventuresome, have a large heatsink, and some spare parts... With these mods the rig puts out 2.5 watts at 13.8 V.

and about 2.25 watts on a good gelcell into a reasonable load.

Also included in the mod list is the addition of two J305 FETs in the audio line which allow adjustment of the transmit sidetone (actually transmit monitoring). I found the level of the sidetone to be a little on the hearty side for my liking when it was necessary for the gain to be turned up at or near max. You can, of course, turn down the volume every time you transmit, or you can make this easy modification and use a 5 megohm trimmer to set the level to your fancy...it goes as follows: Place the FETs in the audio chain directly after the mixer (U2). They are in parallel, with one FET in each of the lines from pins four and five with the source leads toward U2 and drain leads on to C12 and C13. Tie their gates together and run a 2.2 megohm resistor from one (either) of the source leads to the now joined gates. This will hold the FETs open and conducting the audio signal thru the FETs as long as the rig is not keyed. Also place a .1uF cap from the gates to ground. Run a 5 meg trimmer across the source to drain leads of one of the J305s (again, either one) to "leak" a little of the signal around and past one of the FETs when they are grounded (and shut off) by the activated keyline. Then put a 1N914 diode and 1000 ohm resistor in series running to the keyline with the non-banded end of the diode connected to the joined drains and the resistor running on to the keyline. Adjust the level via the trimmer to your liking. This mod came directly from a post by Wayne B. and works FB, although it does slow down the QSK by a smidgen. You probably won't notice it much unless you're running over 35 WPM QSK.

One other substitution to the original circuit was made to allow precise adjustment of the BFO and transmit mixer. Two 60 pF trimmers were used at C10 and C24 instead of the fixed-value type. This will let you to adjust the BFO and transmit-offset "right on the nose". These can be the same value/type trimmers as C1 and C28.

One other thing worthy of mention---If you do use a multi-turn pot for tuning, you will find the lack of an RIT circuit perhaps a bit less noticeable since it is now considerably easier to return to the same spot on the dial before transmitting. This is due to the fact that the band is now more "spread-out" and the exact position of the tuning knob now a bit less critical, making it much easier to "eyeball" it back to where it was before. You can also use a pencil, marker, etc. to make a line at this spot to return to, especially if you use a natural aluminum enclosure, from which any marks are easily removed with an eraser, solvent, etc.

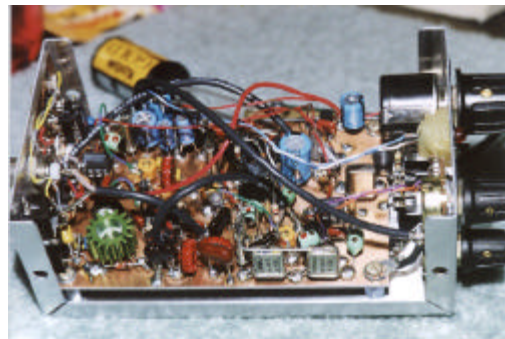


Photo 3: The Completed Project

As for board and enclosure size, the first SST built here (40 M) was considered a prototype (ain't they all?) and was assembled on a single-sided board 3 x 4 inches placed in a 5

x 4 x 3 Bud mini-box (-3005A, from Mouser). In this size of enclosure a pack of 8-10 AA batteries could easily be added. Subsequent models were built on 4 x 2.5 inch boards and mounted in 5.25 x 3 x 2.13 inch mini-boxes (-3006A) with considerably less room to spare. Although the pad-and-glue construction method generally allows for very easy building and modification, this smaller board size made it occasionally necessary to remove a part or two just to get to the desired pad if it is necessary to go back and change something once the majority of parts had been mounted in a particular area. The iron used was an ordinary Weller WP30 with an ST1 tip. The board material came from the scrap bin at Surplus Sales of Nebraska. No copper ever came lose from the pads, even after repeated heating with this iron. It is certainly a simple, sturdy construction method, easily subject to individual "customizing" if desired. Parts can be mounted both horizontally and vertically, as connections between ICs, and stacked... you can just go nuts! Additionally, a pair of 5-6 inch forceps (also known as "hemostats" in the medical world) are invaluable in building with this method. If you lock the part in the forceps by a lead it can now be handled much more readily and held in the tightest of spots for soldering. Radio Shack sells these for around \$6-7, although the two pair I have purchased over the years from them don't seem to be of very high quality and I don't recommend those in particular. Electronic supply houses usually have these in the handtool section.

The keyer board can also be constructed using this same technique, employing your

favorite flavor of keyer chip. In all versions built here it mounted easily on one side of the rear panel if all the in/out connectors are sized small enough and located on the other half of the rear panel. I used a BNC connector and 1/8 inch jacks, with a power jack similar to the type found on many of the popular QRP kits. These are available from Mouser in several styles with matching cords/plugs.

PARTS:

Copies of "QRPP" are available from Jim Cates, 3241 Eastwood Rd., Sacramento, CA 95821. Cost is \$15 (postpaid) per yearly volume (only way it comes) and includes four issues in the volume-- spring, summer, fall, winter. Make payment out to Jim Cates. The SST construction article is in the spring 1997 issue. There is a wealth of QRP info in each issue and it is WELL WORTH the bucks.

Hand punch for pads--- Stock no. 37405-3NJH -- \$16.99 phone orders: (800) 423-2567

<http://www.harborfreight.com>

Crystals-15 M. VXO: 25.0 MHz, Digi-Key (see below) stock no. CTX093-ND

IF: 3.932 MHz, Digi-Key, stock no. X013-ND

L2, L3-11 turns of #26 on T37-6 (yellow core)
 C34, C36-150 pF silver mica
 C35-270 pF silver mica
 L1-18 turns of #26 T37-6
 C27-30 pF ceramic NPO
 RFC3--27 turns #26 on T37-2 (red core) -- this may have to be varied, depending on the circuit and the tuning range desired-- start with 28-30 turns

MRF-237*-about \$9, available from RF Parts, 435 S. Pacific St., San Marcos, CA 92096 phone orders: (800) 737-2787
 E-mail: rfp@rfparts.com
 *note on MRF-237: the collector and emitter leads are reversed on this device, compared to the normal pin-out of the standard TO-5 package -install it backwards and IT WILL FRY! Use healthy heatsink.

three-turn potentiometer:
 Spectrol 533, 10K, stock no. 970-1830, \$12 from Allied Electronics, below

low-profile machined-pin IC sockets (8 pin): stock no. 151-308SGT, from Mouser, see below

Electronic Suppliers:

Digi-Key: (800) 344-4539,
<http://www.digikey.com>

Mouser Electronics: (800) 346-6873,
<http://www.sales@mouser.com>

Dan's Small Parts and Kits: Box 3634, Missoula, MT 59806-3636,
 phone/fax: (406) 258-2782

<http://www.fix.net/~jparker/dans.html>

Allied Electronics orders (800) 433-5700
<http://www.allied.avnet.com>

TICK keyer kits/ICs: Embedded Research, PO Box 92492, Rochester, NY 14692

<http://www.frontiernet.net/~embr es>

72, de Mike KI0AF

Argonaut 509 PTO FIX
 By Jack Kovar KOVAR

(Editor's note: The following is an updated post from IAQRP-L)

I have had four TEN-TEC rigs over the years. All of them have been Rock solid PTO/VFO's after I did the following:

First I removed the bottom cover and made sure all the chassis and PTO screws were causing clean bonds and snug. The added capacitance caused by poor grounds shift the frequency in the PTO at times.

Tune in a CW carrier and squeeze upward on the bottom of the case.

Eliminating all frequency shifting with a PTO by grounding is unrealistic and secondary compared to the following improvements:

The second, and more important is what I call back lash. Anyone that has been fishing with a open face reel knows what back lash is. As the grease gets old and pasty it develops a slight elastic push back in the bearings. Think of the grease acting like rubber. The following method of Flushing and greasing of the shaft and bearings that enter into the PTO will amaze you with the improvement. You may have seen a few postings described as GREASING THE PIG! I started those postings. The method I used is to mix a 50:50 ratio of Alcohol and WD-40 drip it down into the shaft with a Qtip. I have my 3 year old work the VFO for about 30 seconds. Then I tip the radio to cause the remains to drip back out. Repeat this process for about 20 minutes. Let it sit dripping for about 20 minutes to dry it out good.

Step two:

I use Phil Wood bicycle water resistant bearing grease and

force it into the shaft and bearings with a tooth pick and thin piece of paper. Wow! What a difference. Silky smooth and solid.

72, de Jack KOVAR

Building Contest Announcement

The Iowa QRP Club will be sponsoring its 2nd annual building contest. More detailed rules will follow but here is the scoop. There will be three classes: homebrew, kit, and combination (of both kit and homebrewing). Your submission must be completed sometime during calendar 1999. The judging is tentatively set for January 2000 (your entry must function and therefore will be Y2K compliant hi). Prizes have not yet been determined. Paul Sipes has again volunteered to judge the contest (thanks Paul!).

Start planning your projects now.

A Simple Wire Multiband Vertical Antenna

By John Burnley NU0V

Several years ago (1990), I was faced with a very tough decision. The XYL and I had been house shopping and were very adamant about living in the Johnston school district. The Johnston area was growing rapidly and not many existing homes were hitting the market. The only way to get into the district (remember this was before open enrollment) was to buy a lot and have a house built. As you can imagine, with any new subdivision comes the dreaded word covenants.

The dilemma I faced was not as bad as many amateurs have dealt with. I could have an antenna as long as it was attached to the house (and passed the scrutiny of the XYL). I tried an attic loop (can you say TVI) and almost gave up any hope of operating until the kids went to college (and we moved again). Then I discovered a new way of operating.....QRP! My old elmer from Kentucky had bought a 30 meter rig from MFJ and was after me to get one so we could have a schedule. I finally bit the bullet and bought the rig (MFJ-9030). Now the hard part was at hand, erecting a 30 meter antenna. I first placed a dipole under the eaves of my two story QTH. It worked but not as well as I wanted. The problem was that it was only about 28 feet off the ground.

My next attempt was putting up a 1/4 wave wire vertical for 30 meters. The feedpoint was 18 inches off the ground and attached to my deck (a very liberal interpretation of the house attachment covenant clause). The radiator was more of an inverted L with about 6 feet running horizontally under the lower eaves of the house. There were three multiconductor radials (each 1/4 wave) running in separate directions under the deck (yes, I do have a very large deck). Each multiconductor radial had eight wires. I have never determined if the eight conductors in each wire act as a separate radial, or if the overall effect is one radial. The results were horrible. QSO's were few and the reports were never above 3/3/9. I could call CQ for hours and never get a response.

I started to put the dipole back up until the XYL said no! She didn't like the ugly coax running down the side of the

house. Immediately I started planning the midnight antenna party complete with paint for the coax until I decided to give the vertical another chance. Ade Weiss (IAQRP #26) had an interesting comment on the QRP-L about feeding a vertical with a balanced line. He was responding to another post and his suggestion was to use balanced line because of lower losses and the capability for a multiband antenna. At this point I had nothing to lose.

I first extended the radiator section so the total length was 36' 8". I ran this section over the gutter and up to the peak of the roof. The new radiator length is about 3/8 wave on 30 meters, 1/4 wave on 40 meters, and 1/8 wave on 80 meters. I left the multiconductor radials but added 42' 3" of chicken wire mesh around the bottom of the deck. The chicken wire (I rationalized to the XYL) was to keep our newly acquired puppy (yet another story) from getting under the deck (and digging). The antenna is fed with twin lead (low loss) from Radio Shack. Using an MFJ 971 tuner, I was able to achieve a 1.1:1 SWR on all three bands. I haven't tried 20, 15, and 10 yet but feel very confident they will not be a problem.

Now the acid test of operating 30 meters QRP. I tuned around and found K5GQ/m calling CQ. Bingo! He responds to my call with a 3/4/9. Not a great report, but he did come right back. We finish the QSO and I almost fall out of my chair. N3ZPB is calling me and gives me a 5/5/9 report from Lewistown, PA. Now this is starting to be fun. So I needed a new challenge and found it with XE2XW/1 finishing a QSO. Bingo! QRP 4 watts into Cuernavaca,

Mexico with a 5/5/9 report!
This QRP stuff is really great!

Since then the antenna has been a real performer. I've logged the following DX with 4 watts on 30 meters: XE, WP4, CO6, VP5, V31, HR6, VE5, UA2/mm off coast of TU2, 6Y5, HC5, KP2, HP, I2, FS, LZ, and an F3. These are not exotic DX stations, but were an absolute thrill running low power! I've also made contacts on 40 meters with excellent reports.

Currently I'm landscaping around the deck, so the vertical is being changed. The chicken mesh is gone (the puppy is not so little any more). I plan on running more radials under the landscaping rock and possibly adding a counterpoise along the base of the deck.

72, de John NU0V



Larry WB0RMT shows us his QRP portable operation from Canada!

February IAQRP Meeting Minutes

By Jerry Huldeen WB0T

We had a nice meeting in Sioux City, with 16 persons attending. Lots of nice conversations and projects shown. All were excellent projects, but the hit

seemed to be the Elecraft K2 that Steve W0SZ built.

It is a very sophisticated rig, with all bands, microprocessor control, three separate filters, computer control possibilities, etc. You gotta see it to believe it!! I think Steve said it was one of only 100 built at the present time. If you have questions, contact Steve.

Another highlight was the appearance of Ade W0RSP! He brought along a version of the SLV vertical, and it was a really cool outfit. Tuning for various bands/frequencies is a dream, and takes only a few minutes according to Ade. It is capable for 80 - 10 meters, and doesn't take very long to set up or tear down. This might be a solution for those of us who can't have a permanent antenna, or even need a clandestine one. You would be hard put to notice this one on a dark night. Just take a casting plug in your pocket, and if anyone asks questions, tell them you are working on your fishing technic. (Well, fishing for DX, etc.)

Much pleasant conversation and socializing took place. Here are the attendees:

John NU0V
 Mike KI0AF
 Paul KB0JIT
 Gary WY0V
 Dick W0DAM
 Ade W0RSP
 John KOAAR
 Keith KB0HJN
 Dick NOTJW
 Mike NF0N
 Philip (Mike's grandson)
 Larry KC0EDV
 Jim KC0XU
 Marty KI0KO
 Howard N0WWX
 Steve W0SV
 Jerry WB0T

It looks like we will have a room for the whole Hamboree, June 4 & 5, at the Marina Inn, So Sioux City, NE. We are planning a building party Friday evening, and a luncheon meeting Saturday noon.

72, de Jerry WB0T

Group Buy For Sioux City Hamfest Building Event

The Sioux City Hamfest is approaching and the Iowa QRP Club will be participating in full force. There will be more details later (dates, times, etc.). Friday June 4, 1999 the IAQRP Club will sponsor a building get together. The NJ QRP Club has graciously offered us a group purchase on their Fireball 40 transmitter kit. Details are on their website at:

<http://www.njqrp.org/>

We are given a price of \$9.00 but we need to commit to 15 units (actually 13 since Jerry WB0T and NU0V are already on the list). The units will be shipped to Jerry in Sioux City. For those of you not going to the hamfest but wanting a kit we'll work something out to get it to you. If there is enough interest we might be able to arrange two shippings. There are add-on's and accessories to this kit (plus other kits the NJ group has put together). Browse the NJ website to get more details.

Our thanks to George Heron of the NJ QRP Club for working with the club to get this together. If you are interested let John (NU0V) know as soon as possible. John must receive your payment on or before May 8th. If you want add-ons/accessories

they will be shipped with the kits to Sioux City. The building event will be a blast! We hope to see you all in Sioux City.

Iowa QRP Club March Meeting

The Iowa QRP Club held it's March meeting Saturday March 27, 1999 in Iowa City at the Country Kitchen. Our thanks to Adam (AK0P) who handled the arrangements!

In attendance were:

Elmer KG0DL (and XYL Ruth)
John N0LT
Jack K0VAR
Lee WT0D
Adam AK0P
Jeff KI0JP
Jeff W0ODS
Jerry KD0CA
John NU0V

Items brought for show and tell were:

SWL 30
NorCal 49er
ARK-40
38 Special
MFJ 9017
Knightsmite
Pixie II
Emtech ZM-1 with AZ Scorpion SWR LED bridge
Ten Tec 10 meter converter
Packset Kachina MP25 (25w SSB, but is modified for 5w CW, 2-15 MHz)

Thanks to all who attended! It was a fun meeting with a lot of good QRP fellowship!

72, de John NU0V

QRP... Getting Started
by Jim Larsen AL7FS

(Editors note: The following article was originally published in the Anchorage Amateur Radio Club (AARC) newsletter. It is also available on the author's website and has been reprinted with the author's permission. It is an excellent example of planting the seeds of QRP with your local club.)

QRP essentially means you reduce power. As a definition, further defined by the Amateur Radio Club International (ARCI), QRP is operating your station at less than 5 watts output on CW or 10 watts peak power on SSB. (ARCI is the International QRP organization)

I have been involved with QRP since about 1970. From the beginning it has always been fun to work another station while running 5 watts or 2 watts or 50 milliwatts. More than fun... it is exciting!

At the April 1999 Anchorage Amateur Radio Club (AARC) Club meeting I will be presenting a comprehensive program titled "Why QRP?". The program, along with copious handouts and examples to touch and feel, will give you a very complete overview of QRP operating and equipment.

Simple QRP

One simple aspect of QRP operating that is often overlooked is that it can often be done with your existing QRO (high power) radio. In my case, I largely operate with my 100 watt Kenwood TS450S. One nice thing about Kenwood radios is they are capable of reducing power (going QRP) right from the front panel. My power can be reduced down to zero or up to 100 watts. I most often run from three to five watts.

Some radios will not tune down to less than five watts and often bottom out at 7-10 watts. You can still get a feel for QRP by running at these levels so don't pass up the opportunity because you can only get down to 10 or 15 watts. Later you can learn how to enter into the ALC circuit and apply voltages to allow even lower settings.

QRP for the CW operator is an especially friendly place to go to improve Morse code. Many of the QRP operators prefer more modest speeds and are very willing to slow down to whatever is needed. As you improve, there are also high-speed operators who will move up in speed with you. I often operate from 15-18 wpm and feel no pressure to move up to high speed.

QRP Works

An example of what can be done was recently described by WE6W in his email to the QRP-L mail reflector, a major hangout for the QRP crowd. (More than 2500 QRP operators are subscribed and regularly communicate on this mail reflector.)

Subject: Pixie2:Nor-Cal to Acworth, GA at 400mW!
Date: Thu, 31 Dec 1998 03:43:39 EST
From: we6w@juno.com (Ed Loranger)
To: "Low Power Amateur Radio Discussion"

Oh my Goodness!! Was tiddling around playing with bias levels on the Pixie2 oscillator and heard KE4GBE calling CQ dead on 7040. As I listen to my soldering iron cycle between temps I thought, don't hear many '4' calls, so I called him!

Kaboom! WE6W? de KE4GBE ur 339 etc....

First code out the door was: WOW 400 mW, pwr 400mW QTH Santa Rosa, Name Ed, RST 579 KB4GBE de WE6W/QRPp KN.

Then he came back with a monologue and 'WI6W'. Oh heck, QSB is gonna lose him for me..... But he adds Call? WI6W??? call agn pse. BK And he got it right on the next exchange.

So I tell him it is a full transceiver, basic unit has 2 transistors..... He either fainted straight away, measured himself on the floor, or the QSB ended the excitement.

Folks, this wasn't over saltwater, we are talking 400 milliwatts for this one and over land!

Maybe we need a warning on these rigs: "Frequent use causes increased excitability." Non-users subject to fainting spells :)

Disclaimer: My pixie is homebrew, I'm not pushing kits here. Just sharing late-night joy of radio! Just about knocked me out of my chair to catch Georgia on 400 mW on 40 meters.

Yowsa!

72, Ed WE6W QRP-Z#106 (72 is the QRP version of 73.)
Enjoying Ham Radio every day!
Santa Rosa, CA.

How to Know QRP

So how do you know if you are QRP? I feel QRP is largely an attitude and a sincere effort to get under five watts. If you have no wattmeter then guess by turning your power control to near the minimum power output setting. A Yaesu FT-990 seems to bottom out at 7-10 watts at the zero setting. A Kenwood rig will

turn down to zero so tweak the control up just a little from zero. If you have a wattmeter you can get close. Many power meters are not very accurate at the five watt level but you can get "close enough" and feel justified you are working to the intent of QRP.

Oak Hill Research QRP Wattmeter

One very nice method of knowing your power output is to build a wattmeter designed for QRP operation. Oak Hills Research (OHR) provides a wonderful QRP wattmeter kit. It has 10 watt, one watt, and 100 mw scales and is designed to be accurate to 5 percent of full scale. I have built this wattmeter and use it in almost all of my QRP operating to assure I am under five watts. I used it to assure I was 900 mw when I worked W5JAY in Arkansas QRPp 2-way (QRPp = less than one watt) last month.

The Oak Hills Research WM-2 was designed specifically for the QRP operator. The unit operates from 300 KHz to 54 MHz. It will measure forward and reflected power at QRP levels down to 5mW. You can select from three full scale power ranges of 10W, 1W or 100mW with an accuracy of 5% of full scale. A rear panel switch allows you to select the internal 9V battery or external power jack for the operating voltage. The WM-2 now uses a very high quality American-made 3" meter movement with a large easy to read scale. The meter circuit current drain is typically 1mA, making it great for portable use. The wattmeter can be left in-line permanently with very little loss. The kit is supplied with high quality Amphenol SO-239 connectors. The WM-2 is easy to build and align. The alignment consists of setting three voltages with your digital voltmeter. A source of

RF is not required for alignment. The completed wattmeter measures (HWD) 4 1/2" x 3 1/2" x 4" and weighs 16 oz. The kit is complete with cabinet, high quality silkscreened and masked PCB, all components and instructions (less 9V battery).

OHR can be contacted at 20879 Madison Street - Big Rapids - MI - 49307; Phone: (616) 796-0920 - 24 hr. Fax: (616) 796-6633 Send mail to OHR: grp@ohr.com (Editor's note: OHR has been recently acquired by Milestone Technologies. They may be contacted at: Oak Hills Research 2460 S. Moline Way - Aurora - CO - 80014 Phone: (303) 752-3382 - 24 hr. Fax: (303) 745-6792 Orders: (800) 238-8205 <http://www.morsex.com/ohr/>)

EMTECH Tuner and LED SWR Indicator

One other QRP accessory that enhances operation is an effective QRP antenna tuner. One such unit that can be used both at home and in the field is the EMTECH ZM-2 Z-Match Antenna Tuner. Good for up to 15 watts, this kit also incorporates a unique LED SWR Indicator designed by N7VE. This LED SWR system can also be built as a stand-alone unit from parts around the workbench or from Radio Shack (Frigid North). (<http://www.extremezone.com/~ki7mn/n7veswr.htm>)

**** Visual SWR Indicator **** Tunes wire antennas such as -- Random, Long, Short ****** Tunes balance fed antennas such as, Loops, Deltas, Dipoles, Verticals, V's. ****** Tunes (from field reports) gutters, window frames, swing sets, and -- bed springs? ****** Tunes out coax fed antenna mismatches to make the radio happy. ****** Does all the above at 80-10 meters, and usually much

faster than other ATUs. ** 15 WATTS MAX! This is an evening project for many, maybe two evenings for others. It is very easy construction, via pictorial drawings. All parts are furnished, including a stick-on panel layout as shown. The big knobs are provided for vernier tuning because the ZM-2 tunes so sharp. One large toroid to wind using a unique method that is fast and extremely easy. One small toroid to wind. Wire is furnished. Kit is complete, no other parts to try to find. Size is 5-1/16" x 2-5/8" x 1-5/8".

EMTECH can be contacted at:
EMTECH; 1127 Poindexter Ave W;
Bremerton, WA 98312 Send mail to
KC7MAS: emtech@steadynet.com

QRP Wrap Up

In this first of several QRP articles I have discussed very basic concepts of QRP and QRP techniques that you can try with your current rig. As you move further into QRP you may wish to build your own monoband or multiband QRP rig, many of which are available as kits. Future articles will address more details of QRP and QRP kits. The program in April will fill in even more information.

If you are in a hurry for more please check the following Internet URL (addresses) or have a friend look them up for you.

QRP-L ...
<http://qrp.cc.nd.edu/QRP-L/>
QRP-L Message Archives ...
<http://listserv.lehigh.edu/lists/Archives/qrp-1/>
EMTECH
<http://emtech.steadynet.com/>
Small Wonder Labs...
<http://smallwonderlabs.com>

Wilderness Radio...
<http://www.fix.net/jparker/wild.html>
New Jersey QRP ...
<http://www.njqrp.org/>
KI7MN ...
<http://www.extremezone.com/~ki7mn/>
ARCI ... <http://www.qrparci.org/>

72, de Jim AL7FS

A Simple Power Supply Break Out Box

By John Burnley NU0V

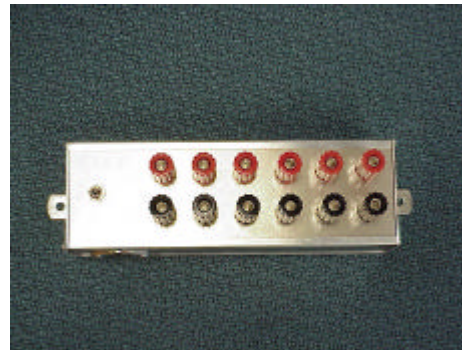


Photo 1: The Completed Box

While scanning the Tech America sales flyer in January I noticed an item that looked interesting. I'm always looking for good project enclosures and found some on sale. Sescom, Inc. manufactures various project boxes but these were a bit different from others. These boxes were not made from bent aluminum (to form sides, faces, etc.) but were flat panels that fit inside an extruded rail (see photo 2). Side panels are screwed into the four rails to secure the box. This makes drilling a breeze on a drill press.



Photo 2: Unassembled LAB-9

Whenever working with bent aluminum panels you usually must use a punch or hand drill. The drill press (in my opinion) is much superior when dealing with multiple holes oriented on a straight line.

Several years ago Allen Bond WB4GNT sold ago power supplies through QRP-L. Although rated at 800 milliamps several QRP-Lers learned the power supplies were underrated. One gentlemen boasted about running two amps continuous without a problem.

The only draw back about the supply is that the plug (on the output) was a din plug. Now most people just cut off the old plug and replace it with a plug of choice. But I've always hated plug replacements (my round about way of justifying this project) so I decided to build a breakout box for these power supplies.

This project sat on the back burner for over a year because I didn't have the 'right' enclosure at the time (the problem was that I didn't know what the right enclosure was hi). After finding these boxes I immediately knew they would be perfect.

I used the LAB-9 project box (there are several to choose from with varying dimensions). It measures 2 '' wide by 6'' deep by 1.5'' high. Radio Shack insulated binding posts 274-662A were used (6 pairs). An on/off switch was also included since the power supplies did not have one.

Construction

Using a drill press, 6 pairs of holes were drilled 1/2 inch from the face panel edge at a distance of 3/4 inch between the holes. The size and spacing of the holes may vary depending on the binding posts you choose to use. You may also choose a wider spacing between the posts and use less pairs. A hole for the SPST switch was centered in the remaining portion of the face plate.

On the bottom plate holes were drilled for the din female plug. In order to mount the breakout box I used some L shaped brackets (also available from Tech America).

After mounting the binding posts I soldered an 18 gauge solid copper wire between like polarity posts. The positive line also was attached to the switch.

A simple project but a very useful addition to my shack!

Parts:

LAB-9 box manufactured by Sescom, Inc. Available from Tech America catalog # 91-3965. Binding posts. Available from Radio Shack 274-662A

Angle brackets available from Tech America catalog # 91-2970

SPST switch available from Tech America catalog # 900-6973

Female plug to match your power supply

Tech America may be contacted at (800) 442-7221. Sescom, Inc. may be contacted at (800) 634-3457 www.sescom.com

72, de John NU0V

Operating Events

By Mark Milburn KQ0I

Here are some QRP operating events that will be coming up. Turn your power down and join in...they are fun events and the people you meet will be some of the best hams on the air.

Ten-Ten International Net Spring

CW QSO Party
0000Z May 1 to 2400Z May 2
CW Only, Ten Meters Only

Single op, club or QRP
Categories.

Send call, name, State/Country and 10-10 number if member.

Score 1 point per QSO with nonmembers, 2 points per QSO with US members, 3 points per QSO with DX members.

Final score is total QSO points.

Send logs by May 17 to Gateway Chapter, c/o Con Ward, WORTV, 4514 Ferrer Dr, St. Louis, MO 63129-3741.

Adventure Radio Society Spartan Sprint

May 3, 1999
June 7, 1999
July 5, 1999
August 2, 1999
September 6, 1999
October 4, 1999
November 1, 1999
December 6, 1999

The Spartan Sprint will be held as usual on this first Monday of the month). We will be operating on three bands--80, 40, and 20. Don't worry if your station is a bit obese. We commend the winners in two categories--points (the Tubby Division), and points per pound (the Skinny Division).

If you are a newcomer to the Sprints, take a look at the introductory material at the end of this post.

1. Start at 9:00 PM EST, 8:00 CST, 7:00 MST and 6:00 PST. Finish at 11:00 PM EST, 10:00 CST, 9:00 MST and 8:00 PST.

2. The frequencies will be 3560 kHz+-, 7040 kHz+- and 14060 kHz+- (you may operate one, two or three bands--your choice.)

3. Exchange RST, SPC (state, province or country) and power output.

4. If you choose to call CQ, use the format "CQ SP," or "CQ SP TEST."

5. You can take credit for working the same station on a second band.

After the contest, we invite you to use our autolog, which is part of the ARS Sojourner. Just go to www.natworld.com/ars and follow the link for "Direct access to autologs". Or you can speed things up by going directly to the Spartan Sprint autolog page at www.natworld.com/ars/ss_log.html

If you don't have access to the web, send Russ Carpenter, AA7QU, an e-mail with your total QSOs and the total weight of your station (i.e. the combined weight of all transmitters, receivers, keys, keyers and

batteries used during the Sprint). You may also include your comments from the soapbox. Russ' email address is russ@natworld.com.

Results are published for each Spartan Sprint on the Thursday following the Sprint. This may be the world's quickest contest reporting! Please send your log as soon as possible, but in no event later than Wednesday afternoon.

The Spartan Sprint is based on a simple but stimulating concept. We are encouraging all of you to cobble together the kind of station you'd use in a portable environment--lightweight transceiver, keyer, key, and battery. Then put that turkey on the air, and participate in a two hour sprint.

All operators are invited to play, whether or not they are members of Adventure Radio Society. Even if you don't have lightweight equipment, your participation will be rewarding, both for you and the other participants. We'll report the score in two different formats--absolute scores, and points per pound of station weight. So you can get your kicks from running up a magnificent score, or achieving an remarkable ratio of points per pound.

If you're thinking about becoming a member of Adventure Radio Society, just send Richard Fisher (our membership chairman) an e-mail expressing your interest. Richard's e-mail address is nu6SN@aol.com. Membership is free, and the organization has a great group of men and women who combine their love of ham radio with their affection for the outdoors. You don't need to be a

macho person; ARS welcomes people of all ages and levels of ability.

Russ Carpenter, AA7QU, Contest Manager

russ@natworld.com

Fists CW Club Spring Sprint

1700Z-2100Z May 8

CW Only.

Work stations once per band...80,40,20,15 and 10 meters.

Exchange name, S/P/C, and Fists number if members or power output if nonmember.

5 points for QSO with Fists member, 2 points for QSO with nonmember, and 10 points per QSO with Fists Novice or Tech Plus members.

Final score equals QSO points times State or Province (once for each) or DX country (once for each time worked) QRP and QRO categories. Send paper logs only within 30 days to Alan Tanner, 3787 Trebein Rd., Fairborn, OH 45342.

THE TEXAS QSO PARTY

Sponsored by the Texas DX Society. 1400Z May 22 to 0500z May 23, 1999 and 1400Z May 23, 1999 to 2000Z May 23, 1999. Exchange RST and State (Province, Country, or Maritime region). Texas stations use RST and County. Stations may be worked once per band/mode. Texas mobiles may be worked once per band/mode from each county. Categories for Novice/Tech, single and multi op, multi single and multi multi, Texas mobile single, multiop, QRP

single and multi xmtr, and a Club Aggregate category.
 Score Two points per phone QSO and three points per CW and other digital mode QSO.
 Multipliers: non -Texas stations use number of Texas counties worked - a total of Texas stations use number of Texas counties, states, Canadian Provinces, and DX countries (less USA, Canada, Hawaii and Alaska).

Add bonus points to your final score: Non - Texas stations add one hundred points for EVERY ten Texas mobiles worked per band/mode. Texas stations add one hundred points for EVERY ten Texas mobiles worked per band/mode. Texas mobiles add five thousand points per every five counties covered with at least five contacts per county and add one hundred points for EVERY ten Texas mobiles worked per band/mode. Suggested frequencies: CW - 30 khz up. Phone - 25 khz up in General class segments. VHF - 50.200 144.200 Send logs (and dupe sheets if over 200 QSOs) by June 30, 1999 to TDXS, POB 540291, Houston, TX 77254 or Email to W5HNS@aol.com. For a complete set of rules see TDXS website
<http://n5uh.tech.uh.edu:80/~tdxs/> or Email and/or SASE to W5HNS. TQP is supported by NA and TR contest software. 1/99

ARCI QRP Hoot Owl Sprint, CW

2000 to 2400 local time May 30.
 Categories Single Band, All Band, High Band (20, 15 and 10), Low Band (160,80, and 40)
 Work stations once per band.
 Exchange Signal report, S/P/C, and QRP ARCI number if member, power output if nonmember.
 Suggested frequencies 1.830, 3.560, 7.040, 7.110, 14.060, 21.060, 21.110, 28 .060, 50.060.

Count 5 points per QSO with ARCI members, 2 points for nonmembers in same continent, and 4 points for nonmbmers in different continent. Multiply QSO points by S/P/C worked PER BAND and by power multiplier: more than 5 watts, x1; 1 to 5 watts, x7; less than 1 watts, x10; less than 250 milliwatts, x15.
 Awards. Mail entries by June 23 to QRP ARCI Contest Manager, Joe Gervais, PO Box 322, Peoria, AZ 85380-0322. E-mail vole@primenet.com

Memorial Day CW Sprint

2300Z May 31 to 0-300Z June 1.
 CW only, 160, 80, 40, 20, 15, 10 and 6 meters.

Classes: 1. less than 250 milliwatts; 2. 250 mw to 1 watt; 3. 1 watt to 5 watts; 4. over 5 watts.

Exchange RST, S/P/C, and MI QRP number if member, power output if not

Score 5 points for QSOs with MI-QRP members, 2 points for QSOs with nonmembers W/VE, or 4 points per QSO with non-members outside W/VE. Multiply QSO points by S/P/C PER BAND, and times 1.25 if you are using a homebrew receiver or transmitter.
 Awards.
 Send logs to L. T. Switzer, N8CQA, 654 Georgia Ave, Marysville, MI 48040-1243.
 E-mail to n8cqa@tir.com

1999 Flight of the Bumblebees

Sponsored by the Adventure Radio Society to be held on the last Sunday of July (July 25, 1999).

This is a four hour event during the last Sunday of July, running from 10:00 PDT/11:00 MDT/12:00

CDT/1:00 EDT to 2:00 PDT/3:00 MDT/4:00 CDT/5:00 EDT. Thus, the hours of operation accommodate all four time zones. No matter where you live, there is time to for the Bumblebees to travel to their sites, set up their stations, operate the contest, and travel back to their cars.

Both home-based and portable operations are encouraged. Participants who want to operate in the Bumblebee category apply to Adventure Radio Society for Bumblebee status. ARS assigns each Bumblebee a Bee number. Bumblebees agree to walk, bike or boat to their sites. The distance traveled to the site is at the Bumblebee's discretion. Bumblebees add "/BB" to their calls.

Group operation is welcome in the Flight of the Bumblebees. You may operate under a single call and report a single score, or under multiple calls. And report multiple scores. In any event, you are limited to operating a single transmitter at a time.

Maximum power is five watts. We operate CW on 40, 20, 15 and 10 meters, on the standard QRP frequencies. We want this to be a national contest, so we encourage long-range contacts by giving double points for 20, 15 and 10 meters. 40 meter contacts will receive one point. The same station can be worked on different bands for additional QSO points and multipliers.

If you are a Bumblebee, your exchange is RST, state/province/country, and Your Bumblebee number. If you are homebased, your exchange is RST, state/province/country, and your power.

Contacts with Bumblebees generate a 3X multiplier. So your score equals QSO points times (number of Bumblebees times three). Here is an example. If you make 20 contacts on 40 meters and 30 contacts on the higher bands, and make a total of 25 Bumblebee contacts, your score is $(20+60) \times (25 \times 3)$, or 6,000.

Separate but equal commendations are awarded to the high scores for the homebased and Bumblebee participants. Starting this year, we will also commend Bumblebees in the following new categories:

- Most interesting equipment,
- Most outrageous venture, and
- Most beautiful site.

Participants are strongly encouraged to use our automated contest reporting system, which is found in the ARS Sojourner. Participants may submit paper logs, with a two week deadline. Results are posted during the third week of August in The ARS Sojourner, the QRP-L Internet Group, and by direct email to ARS members.

If you choose to use a paper log, please include at least the following:

- Your full name and callsign;
- Your status (Bumblebee, or homebased).
- Date of the event;
- Total number of completed QSOs with Bumblebees, and
- Total number of completed QSOs with all other stations.

You may also want to add soapbox information, such as the equipment used, your operating location, interesting contacts, successes and challenges.

You are encouraged to submit stories and photographs of your

Bumblebee adventure for publication in The ARS Sojourner. See Advice for Contributors, http://www.natworld.com/ars/pages/pageone_material/advice.html.

Russ Carpenter, AA7QU, is the Contest Manager. Mail paper logs to him at 47227 Goodpasture Road, Vida, OR 97488. You can reach Russ in the following ways:

- By mail, at the foregoing address
- By phone, at (541) 896-026
- By fax, at (541) 896-031
- By email, at russ@natworld.com

Enjoy....

72, de Mark KQ0I

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The Iowa QRP Club was formed to promote amateur radio low power operations, to hone operating skills, improve building skills, and introduce the hobby to perspective new amateurs.

Membership is limited to current Iowans, former Iowans, those with strong Iowa ties, border states (border counties), and in some cases by invitation. To join, email a request to:

IowaQRPClub@juno.com

or surface mail to:

John Burnley NU0V
8204 Sutton Drive
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