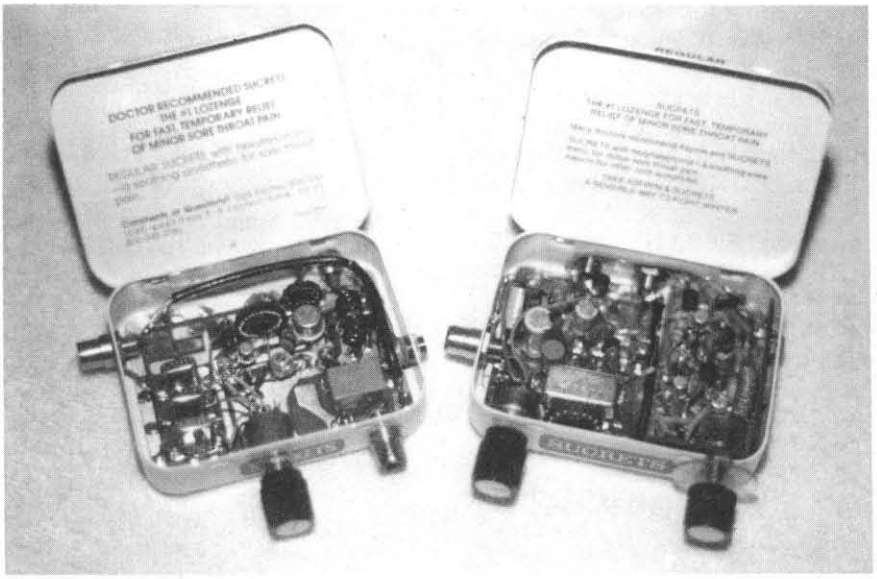
QRP Quarterly

Journal of the QRP Amateur Radio Club, International

October 1989 Volume XXVII Number 4



Get Ready For The Lil' Sucre Transmitter

The transmitter (left) is the perfect traveling companion for the Lil' Sucre receiver. Get you soldering iron out and turn to page 4.

Latest Contest Results begin on page 14

New Editor and staff changes; QRP ARCI officers' positions open; see inside front cover.

★★★★★★★★★★★★★★★★

Congratulations to Dan Walker, WG5G, on completing the first Worked All Zones-QRP. Turn to page 11 and see how you, too, can get this award now from CQ.

★★★★★★★★★★★★★★★★

QRP ARCI NEWS

Editor's Word

I really mean it this time! This is my last issue as editor of The Quarterly. So as not to sound like a broken record I'm very happy to introduce my successor, **Charles "Chaz" Wooten Jr., KD4XX.**

Chaz is 32 years old and holds an Extra Class license and an FCC General Radiotelephone license. He's been a ham since 1977. He is president and a founding member of the Sequachee Valley Amateur Radio Club and does the newsletter for that group half of the time. He is also a member of the Michigan QRP Club.

In addition to QRPing, his ham activities include packet, ten meter operation and repeaters. He helped build two repeaters, one for two meters and one for 440MHz.

Chaz will take over as editor for the January 1990 issue of The Quarterly. His address is 103 W. 7th Street, Jasper, Tennesee 37347; phone number is 615-942-5116.

Gary Devon, KI6DQ, has accepted the position of Technical Editor. Homebrew and other technically oriented articles can be submitted directly to him at P.O. Box 3236, South Pasadena, California 91031. Gary's phone number is 818-441-5523.

Chuck Fitzsimmons, KB8AHS, and I will continue with producing The Quarterly, doing the typesetting, layout and pasteup.

A note to anyone calling me on the telephone, on Nov. 11, 1989 my telephone are code will be changed from 312 to 708.

Paula Franke, WB9TBU

Staff Change

Mike Michael, W3TS, has retired as column editor for the Idea Exchange. Mike has been trying to retire for some time now but I haven't let him until now.

Mike Czuhajewski, WA8MCQ, will take over the column temporarily. Readers can contact him with their ideas and submissions at Box 232, Jessup, Maryland 20794.

Many thanks to Mike Michael for his excellent work over the years.

Elections

Remember to vote for your choices for members of the ARCI Board of Directors. Candidate descriptions and a ballot are on page 22.

Nominations are being accepted for the positions of president and secretary/treasurer. Sent a brief vita to Secretary/Treasurer **Bob Brown, NM7M**, before Dec. 1, 1989.

Correction

Luke Dodds, W5HKA, notes two errors in his article "How Smart is Your Dummy Load" that appear in the July 1989 issue of The Quarterly.

In a letter he received from Drake, the following corrections were noted:

- TV3000LP should be TV3300LP
- The small Drake LP filter is model TV42LP and was not made in Mexico.

Luke says, "My apologies to William Frost, Service Manager, R.L. Drake Co."

New Editor of The Quarterly, Charles "Chaz" Wooten Jr., KD4XX.

QRP ARCI OFFICERS

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Jim Fitton, W1FMR
P.O. Box 2226
Salem, N.H. 03079

Vice-President/WQF Representative
Fred Bonavita, W5QJM
P.O. Box 420321
Houston, Texas 77242-0321

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Anacortes, Wash. 98221

Publicity Officer
Joseph Sullivan, WA1WLU
267 Sutton St.
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10923 Carters Oak Way
Burke, Virginia 22015

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835 Surryse Rd.
Lake Zurich, Ill. 60047

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G. Danny Gingell, K3TKS
3052 Fairland Rd.
Silver Spring, Md. 20904

Awards Manager
Fred Turpin, K6MDJ
Box 9145
Cedarpines Park, CA 92322

Board of Directors
Michael Bryce, WB8VGE
2225 Mayflower, N.W.
Massilon, Ohio 44646

John T. Collins, KN1H
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Cornish, N.H. 03745

Paula Franke, WB9TBU
P.O. Box 873
Beecher, Ill. 60401

Cam Hartford, N6GA
1959 Bridgeport Ave.
Claremont, Calif. 91711

Roger Rose, W5LXS
1410 W. Missouri
Midland, Texas 79701

Doug Stivison, NR1A
45 Norman Rd.
Upper Montclair, N.J. 07043

Terry Young, K4KJP
129 Sotir St.
Ft. Walton Beach, Fla. 32548

(Addressed above)
G. Danny Gingell, K3TKS
Bill Harding, K4AHK
Robert "Red" Reynolds, K5VOL
Fred Turpin, K6MDJ

Idea Exchange
D.A. Michael, W3TS
P.O. Box 593-Church Lane
Halifax, PA 17032-0593

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.

Table of Contents

The Lil' Sucre Transmitter

Donald Kelly, KA5UOS
703 West 8th St.
Edmond, Oklahoma 73034

(Editor's note: Don's Lil' Sucre receiver article appeared in the April 1989 issue of The Quarterly. He's back with the companion transmitter just in time for the winter homebrewing season.)

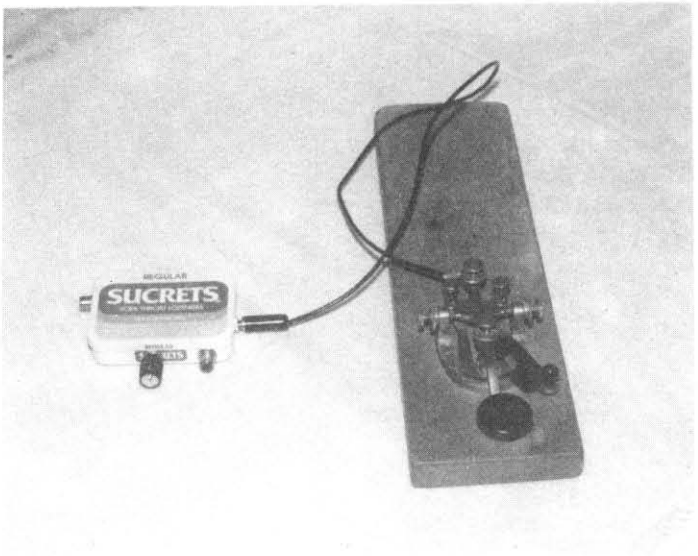
After completing the Lil' Sucre receiver I considered adding a crystal controlled transmitter inside the receiver box. Although I don't particularly care for the limitations of a 40 meter VXO tuned receiver, a crystal controlled transmitter has some obvious merits, the main one being stability under extreme conditions.

The top of the box was bare and there is an open spot for a miniature relay or toggle switch between the low pass filter and the VFO section. I figured that I could mount a PNP keying transistor right on the key jack and use my transmitted signal in lieu of a side tone (as I do now).

I did some experimenting and constructed a 1"x1" slightly modified version of the Universal QRP Transmitter using a plastic 2N2222 driver and a 2N5262 for the power amplifier. By drawing and etching the transmitter circuit on double sided PC board and mounting the components directly on unetched pads, a technique used in construction of the receiver, I managed to limit the height of the transmitter to only 5/16 of an inch or approximately the depth of the box lid. By drilling a hole equal to the diameter of the P.A. and mounting the 2N5262 upside down in the hole, I further reduced the overall height of the transmitter and, at the same time, provided heat sinking for the one watt output.

Although I am a seasoned QRPer, I was surprised at how well the transmitter worked. After making a few contacts, however, it was clear that the transmitter produced too much heat and would adversely affect the receiver stability. Moreover, I was afraid that tampering with the completed receiver might damage its looks or degrade its performance. The following project is what I ultimately decided was a suitable companion for the Lil' Sucre Receiver...the Lil' Sucre Transmitter.

Much like the receiver, the transmitter utilizes quite common circuits and they should be familiar to most builders. The layout and construction of the transmitter was much simpler than the layout and construction of the receiver. While the receiver will most likely remain a one-of-a-kind project, even the inexperienced homebrewer can duplicate this transmitter. The crystals are the only unusual aspect of the project and they deserve a bit of elaboration.



THE LIL' SUCRE TRANSMITTER IS DWARFED BY THE STRAIGHT KEY.

Years ago, I ordered a crystal from International Crystal Company [1] here in Oklahoma City. Due to my inexperience, it turned out to be the wrong type of crystal. What I wanted was either an FT-243 or an HC-6/W type of crystal for a simple one-tube transmitter I was building. What I got was an FM-2 or HC 25/W, a miniature crystal measuring only .401 inch high which is similar in size to the old 2 meter HT crystals or the ones found in older CB radios. Since then I have used the crystal in many QRP projects with consistently pleasing results.

Because of their minute size, I managed to fit five of these tiny crystals, side by side, in the Sucrets box and by bending their leads at a 90° angle I was able to solder the crystals directly to the surface pads of the PC board. That way I avoided the need for bulky sockets and the crystals were solidly mounted. I change crystals by using five simple diode switches, one for each crystal, and by employing five positions of a mini ten position rotary switch to control the bias voltage. Furthermore, the use of the diode switches reduced the need for long reactive leads that could cause instability.

Initially, the limited ability to change the transmit frequency frustrated me as I am a reluctant CQer. However, hotel rooms and campgrounds can be considered "extreme conditions" and crystal stability is welcome in such instances.

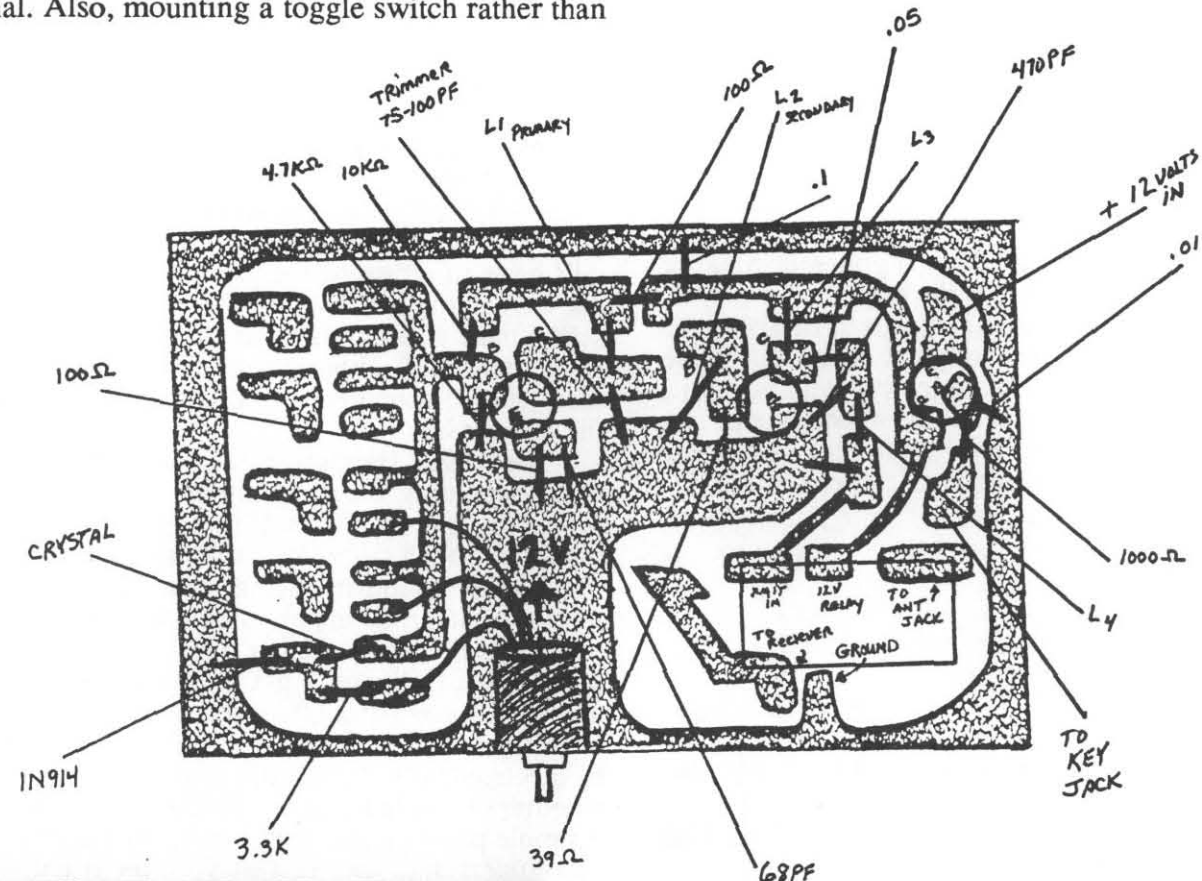
Originally, I had used a 2N5262 as the P.A. This is a low profile type of transistor and its characteristics are similar to those of the 2N5189. It became extremely hot, however, and heat sinking was quite a creative exercise within the limited confines of the box. Consequently, I tried a larger 2N5152 and operated it without much heat sinking. It became hot but not as hot as the 2N5262. I have had a number of pleasant rag chews using the 2N5152 and it has held up admirably despite the limited heat sinking. A 2N3553, 2N5189 or similar device will work equally well.

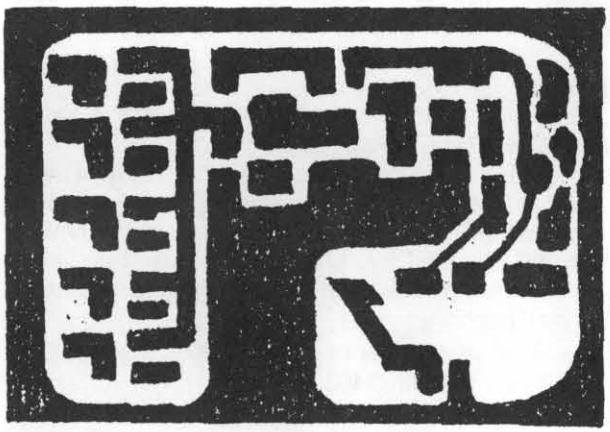
Usually I don't like listening to the receiver between my transmitted signals (QSK) especially when I have a pleasant sounding sidetone. Since there is no sidetone in this receiver, listening to my own transmission is the only way to monitor my signal. Also, mounting a toggle switch rather than a relay to shift the antenna from the receiver to the transmitter would have been easier, yet I decided to use the relay simply because it makes operating less cumbersome and provides a load for the transmitter.

The relay is activated by the same PNP transistor that keys the P.A., the driver and the diode switches. This seems to work okay and no clicks, chirps, buzzes, etc. have been reported thus far.

Construction:

The PC pattern is shown along with a parts placement illustration. I draw my PC patterns on a piece of paper and transfer it by drawing the pattern freehand onto the blank PC board using a Radio Shack etch resist pen. When I make a mistake I



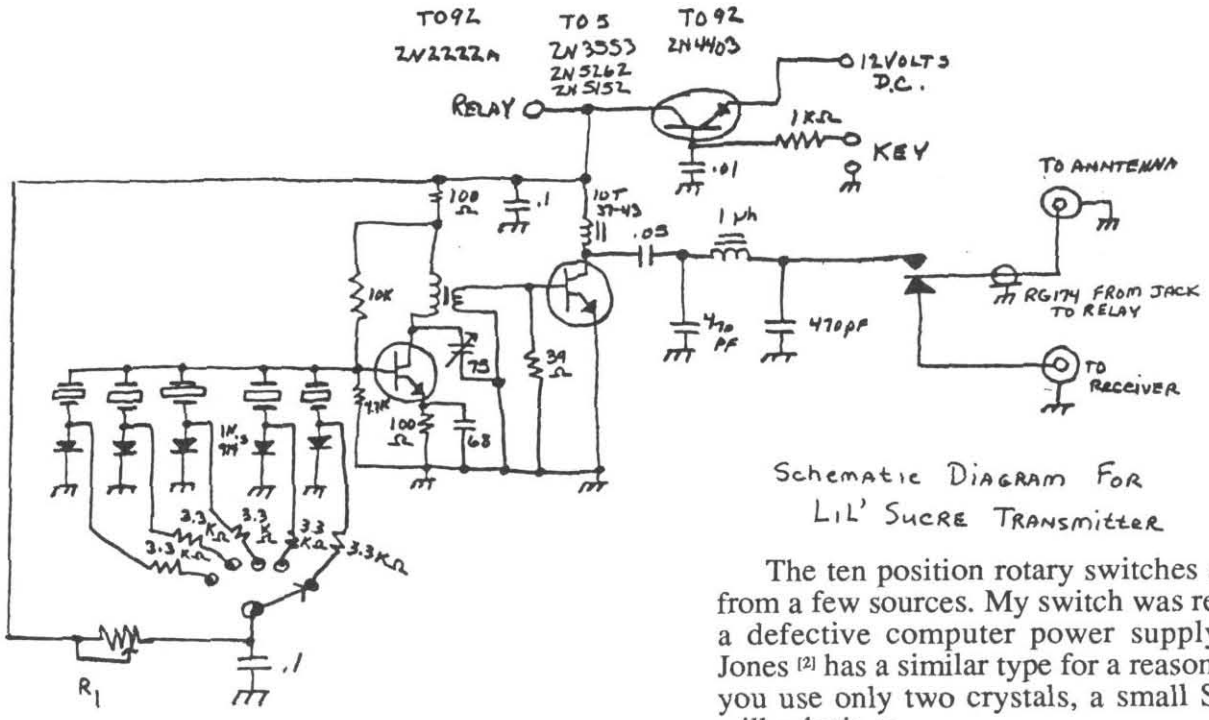


Q1, Q2, Q3 left to right
Q1 2N2222
Q2 2N5152, 5189, 3553
Q3 2N4403

L1 35 turns primary on T50-2
L2 4 turns secondary on same core as L1
L3 #24 on FT 37-43
L4 #22 on T50-2

Resistors are all 1/2 watt.
Caps are disc ceramic or mylar unless stated otherwise.
Small Parts Center, 6818 Meese Drive, Lansing, MI 48911. Stocks res, caps, power transistors, IC's, SBL-1's, toroids and many kits.
10 position switch-Marlin P. Jones, P.O. Box 12685, Lake Park FL 33403

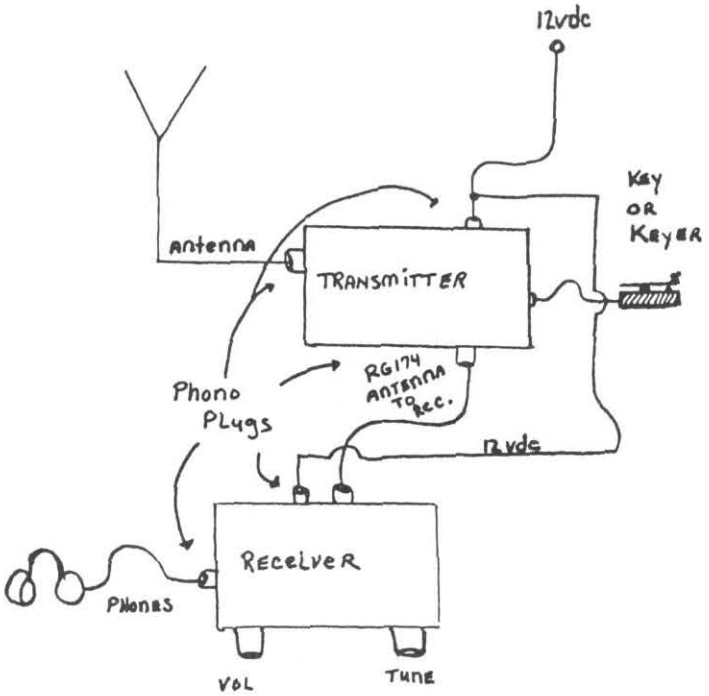
Key jack is miniature Radio Shack jack
Relay-substitute with similar pins.
Use Radio Shack 12V mini relay 275-241
10 position switch-Marlin P. Jones
P.O. Box 12685, Lake Park FL 33403
Part #SW-2896



Schematic Diagram For Lil' Sucre Transmitter

simply erase it with an ordinary pencil eraser. If you have any "art talent" draw it yourself. Making your own PC boards is half the fun.

The parts must be small enough to fit inside the box. A T50-2 is small enough to stand up inside the box but if you used larger crystals you will need to use fewer crystals and lay them over or use a larger enclosure. Leave sufficient room for heatsinking the P.A. and for placement of the antenna, key and power jacks.



TRANSMITTER / RECEIVER LAYOUT

The ten position rotary switches are available from a few sources. My switch was removed from a defective computer power supply. Marlin P. Jones [2] has a similar type for a reasonable price. If you use only two crystals, a small SPDT switch will substitute.

My T/R relay is of unknown origin and if you have a relay with a different pin arrangement you will have to redesign the relay section or simply use a small toggle switch. Alternately, Radio Shack sells a mini 12 volt relay that will match my pin arrangement and, although much smaller, it is an ideal choice considering the limited space within the Sucrets box.

The ARRL Handbook has additional information concerning the diode switches and the basic operation of transmitters. If this type of transmitter is new to you, a complete explanation of its operation can be found in "Solid State Design for the Radio Amateur" or in past issues of The Quarterly.

Hopefully, someone has had a little fun reading about my Lil' Sucre. I get a chuckle using them and if I have stimulated someone's interest in homebrewing, that's just fine with me. It is a thrill to electronically "reach out and touch someone" whether one mile away or 10,000 miles away with a simple piece of gear that I built myself. Many of you understand. The rest of you, try it and hamming will never be quite the same again.

[1] International Crystal Company, P.O. Box 26330, Oklahoma City, OK 73126. 1-800-426-9825 (FAX); 1-405-236-3741 (phone).

[2] The 2N5152, 2N5262 as well as other inexpensive power amplifiers, capacitors, resistors, switches, pots I purchase from World Wide Electronics, 1715 N.W. 16th, Oklahoma City, OK 73106. This shop is a homebrewer's paradise and offers friendly service and flea market prices.

10 position switch-Marlin P. Jones, P.O. Box 12685, Lake Park Florida 33403

The KISS Antenna

By Fred Bonavita, W5QJM
PO Box 420321
Houston, Texas 77242-0321

Several years ago while searching for a design for a portable antenna for use on vacations, emergency operations and the like, I came across something called "A Great 10 Through 40 Meter Portable Antenna" in a compendium on antennas.

My initial elation at the prospect of having found a proven design soon gave way to despair, however. The antenna described the in the article met a few of my criteria but flunked the test in far too many others.

For instance, while the author touted his as "a lightweight 10- through 40-meter inverted vee antenna that can be transported easily in the trunk of a small car," I had in mind something that literally could be transported in a briefcase or, better yet, my hand. His design was based on three. full-length parallel dipoles, while I had in mind a single dipole good for the same bands plus the WARC frequencies. We were agreed on the need for an antenna that could be erected in minutes, however.

Finally, his design called for a coax feeder whereas I prefer lightweight, 300-ohm twinlead. The author also said that while an antenna tuner was not necessary for his design, "using one will give you a perfect match." I prefer a tuner, regardless.

The antenna I settled on is a variation of several designs, including the popular G5RV, the center-fed Zepp, etc. You name it, and I likely stole from it to produce what I call my KISS antenna: Keep It Simple, Stupid. Not only is it simple to build, erect and use, but it's cheap.

The KISS antenna will tune all portions of 40 through 10 meters. Its elements are 33 feet, 6 inches on a leg, and the feedline is 300-ohm twinlead (450-ohm twinlead is better since it doesn't change impedance dramatically when it gets wet the way 300-ohm line does, but 450-ohm line is bulkier. Besides, this is not a permanent installation, remember?) The center and end insulators were cut from scraps of Plexiglas from the junk box. Feedline length arbitrarily was cut at 25 feet, but almost any length will do. If you have a difficult time getting a match on some frequency, prune a foot or so from the feeder and try again.

No. 22 stranded speaker wire from Radio Shack (278-1385), which sells for about $5 per 100-foot spool, makes up the elements. It is two-conductor pair, and all you need do is split the pair to produce 200 feet of insulated antenna wire.

About 20 feet of eighth-inch nylon cord are fastened to both end insulators, and another 30 to 40 feet are attached to the center insulator to haul it into place at the operating site. All told, the KISS antenna cost less than $10 to build but performs like a mega-buck.

How easy is the KISS antenna to erect and operate? Very. With a small weight tied to it (a convenient rock, for instance), one end of the 35-foot center line is tossed over a convenient tree limb or other overhead object, and the insulator is hauled into place. The KISS can be used as an inverted vee, flat top, etc. Element ends are tied off to convenient points. If a limb is unavailable, a push-up pole will work. Versatility is the watchword here.

For a tuner, I use either a now-discontinued Ten-Ten 227 or a homebrewed model designed by QRPer Zach Lau, KH6CP, appearing in recent editions of the ARRL Handbook. Both are lightweight, compact designs.

This antenna and the 300-ohm feedlines are very forgiving when it comes to erecting the KISS in unusual configurations. I used the KISS several years ago while operating ZF2AL from a hotel balcony in the Cayman Islands and again recently while operating as W5QJM/KP2 on St. Croix in the U.S. virgin Islands. It has gone with me on countless weekend trips in between.

The KISS had been in service several years when John Schultz, W4FA/SVØDX, published a piece in the August 1988 issue of CQ on a similar-looking design he dubbed "The MDS Antenna." MDS is a multiband delta sloper, and I recommend his article as solid background reading. John's version had 24-foot legs and gave a good account of itself from 30 through 10 meters. He went a step further by offering the design of an easy-to-build antenna tuner to handle balanced feedline. (Over the years, John has written some outstanding articles on antennas and tuners, and he is one of the best in CQ's stable of writers. He also gave high marks to the Ten-Tec 227 tuner in another piece.)

The bottom line: The KISS antenna has served me well for years, and I don't need a small car to carry it.

The Windom Antenna

By Dave Benson, NN1G
80 East Robbins Avenue
Newington, Connecticut 06111

After moving to a new address, I began looking for an effective and unobtrusive wire antenna. None of the available natural supports lent itself to a dipole or Zepp installation, with the prospect for a loop of feedline over the back yard not an appealing one. The Windom, or off-center-fed resonant wire, fit the bill perfectly.

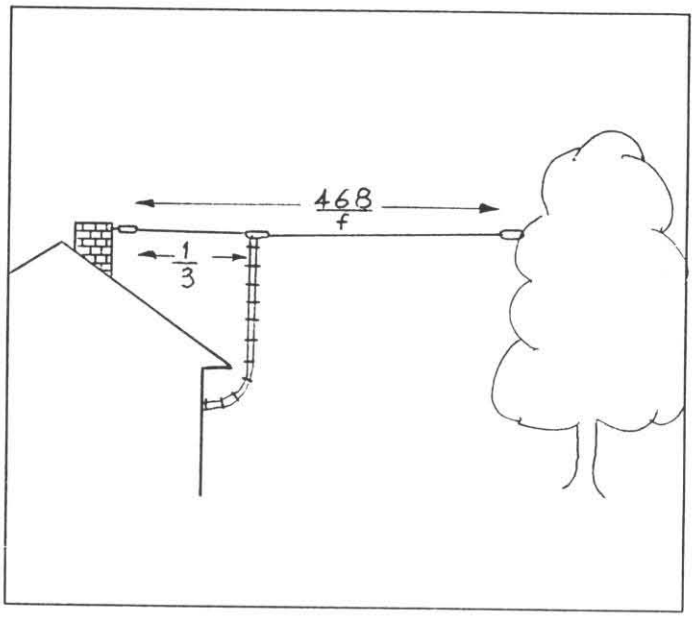
The Windom configuration may not be familiar to many newer amateurs and deserves a word of explanation. The familiar dipole is a half-wavelength long and is fed in its center, resulting in a feedpoint impedance of nominally 75 ohms. Moving the feedpoint to either end of the antenna results in the Zepp, whose impedance is on the order of several thousand ohms. At any intermediate point along this half-wavelength, the feedpoint impedance is still completely resistive and is somewhere between the above values. A half-wave deliberately fed in this fashion is known as a Windom.

A good feedpoint location for 300- to 450-ohm balanced line is a third of the way along the wire, as shown in the sketch, but this location is not critical because of the low-loss nature of balanced lines (open wire or twin-lead). In fact, any feedpoint that is convenient physically may be used without penalty to the antenna performance!

This antenna, like the Zepp, is matched with a tuner with provisions for driving balanced line. For best results with your precious few watts, a link-coupled rather than a ferrite-core balun tuner is a good bet. See "A Balun May be Eating Your Lunch," by John Collins, KN1H, in the April 1987 issue of The QRP Quarterly for a discussion of this topic. The ARRL Radio Amateur's Handbook, among others, provides information on tuners easily constructed from swapfest parts.

Like the Zepp, the Windom is usable on all harmonics of its design frequency. For harmonic operation, the resonance lengths are slightly modified by wire-end effect, but performance is still good. Operation on the WARC bands is also feasible, with the Windom becoming a random wire. Some feedline radiation will occur in this case, complicating the radiation pattern. I was pleased to discover my Windom lads easily and gets out well on 30 meters.

As a result of the renewed interest in multi-band wire antennas, the Windom is enjoying yet another comeback in popularity. Several multi-band Windoms have appeared on the Amateur market lately, and their makers have chosen feedpoint placement to provide reasonable SWR for multi-band operation. These products feature a step-up balun at the feedpoint to permit direct connection to 50-ohm coax.



The Windom is best known to old timers, who are invariably pleased to hear one on the air. Art Erdman, W8VWX, sent me the following comments after our QSO: "General Windom related to me that he did not invent the Windom antenna. He was a law student (OSU) at the time (1920s), and he helped two electrical engineering students by pulling the antenna up and down for them. The two students got their master's degrees for the antenna. Windom got their permission to write about it for QST. He told QST he didn't invent the antenna, and the editor in his infinite wisdom called it the Windom Antenna. Several letters by General Windom failed to budge them! General Windom died last year."

My Windom is cut for 40 meters and does a good job on 40 through 10 meters. It works surprisingly well on 80 meters also. Signal reports on 40 indicate this antenna is superior to a dipole with coax feed. This antenna may be just the ticket for the amateur who needs extra flexibility in placing his antennas.

PROPAGATION AND DX

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

Certainly you've all heard the phrase "hurry up and wait." Usually that brings back memories of time spent in the Armed Forces. But that phrase has meaning to QRP DXers as well—hurrying up when the bands are hot and waiting for some sort of disturbance to dissipate itself.

When it comes to times when "hurry up" applies, nobody is going to take out time to read something like this article. When the DX is coming in, that takes precedence over just about everthing else. But if you're in a "wait" situation, you might just have time to read this and ponder some of the things laid before you.

Before getting to that, however, let me say a few more things about the "hurry up" mode—in QRO circles that has taken a turn for the frenetic. Thus, the DX spotting repeaters that are found in all the large metropolitan areas are soon to be supplemented by packet DX spotting nets or whatever. No longer will the successful DXer be able to boast in mellow tones that he's just worked AC4YN on 14.005 MHz, making his friends envious and himself smug and self-satisfied. Now the "macho thing" will be to report the success via packet, probably on simplex as well as putting the word on a BBS. Thus, the mellow tones will be replaced by keyboard technique.

About 50 years ago ionospheric disturbances were all called "Short Wave Fadeouts."

The question I have, however, is how the various computers involved are going to affect things. For example, my TRS-80 model 4 just about wipes out the 15 meter band when it is turned on; also, the screen jumps a bit when I key the rig at QRP levels. What would happen when some KW jockey tries to hear AC4YN when the computer is on. But maybe some of the newer computers do a better job in meeting the current FCC requirements than my Model 4. I have to think that Radio Shack sneaked it into the country when the FCC was either asleep or not yet empowered to do something about computer-generated QRM. But I digress; let's get back to the "wait" mode.

When it comes to waiting for ionospheric disturbances to come to an end, you have to understand that there have been various levels of understanding on that scene. Thus, if we roll back the clock about 50 years, ionospheric disturbances were all called "Short Wave Fadeouts" or SWF for short. There was no great distinction between the various causes that we now know about and they were, by and large, rather mysterious to those who suffered them. True, it was known that the sunspot cycle had something to do with radio propagation. Thus, if you go back 50 years to the 1939 ARRL Handbook, you'll find one whole paragraph devoted to that subject. Nothing on ionospheric disturbances, mind you, simply that the critical frequencies varied according to the sunspot cycle, going to higher values when the SSN was greater and vice-versa.

It was not until 1937 that a fellow by the name of Dellinger put SWFs together with another type of geophysical disturbance, the sudden change in the geomagnetic field associated with a solar flare. That type of disturbance has a sudden onset and is now termed an SID (sudden ionospheric disturbance) for obvious reasons: it results from a burst of solar X-rays incident on the sunlit hemisphere of the earth, giving rise to an increase in the level of ionization in the D-and E-regions. That explanation is probably "old hat" to you but it would have been mind-boggling news to folks interested in HF communications a half century ago!

Beyond that type of disturbance, there is the other one, again of solar origin, where the bands "drop out" during a geomagnetic disturbance. Nowadays, we can just tune in on WWV at 18 minutes after the hour and see what's going on, solar flux and the latest data on geomagnetic variations. Earlier, it took months to piece together the story of a given situation. Thus, it was necessary to collect magnetograms from various observatories to compare with radio data before understanding what transpired on a given date some weeks or months earlier.

Now we have come to know that the bands will suffer, starting at the highest frequencies. We even have a jargon to describe what happened—"the MUF dropped during the storm"—a way of saying that the electron density in the F-layer was lowered during the magnetic storm. Not only would the

electron density fall in such circumstances but the height of the F-layer would also be lowered. We'd see that as a shorter slip and the disappearance of DX, particularly at the "top bands," 28 and 21 MHZ. By current standards that's "no big deal! So what else is new?"

But it took a heap of work to really connect geomagnetic disturbances of long duration and SWFs with solar flares. After all, we now know that there is a time lag between big solar flares and the onset of the magnetic storms they produce. Now we know that ionized material, called solar plasma, leaves the sun and goes outward. If it encounters th earth's magnetic field, we can experience both magnetic and ionospheric storminess. But the connection was not always obvious as the time delay ranges from 24 to 48 hours, beyond the attention span of most of us and, moreover, it took some patient observing to find that flares from the center portion or toward the western limb of the sun were the most likely culprits in giving us troubles on our radio paths. But now, with the aid of radio observatories that record the solar noise outbursts that go with flares, and the ground-based optical observatories, the folks at NOAA can tell you when and where a flare took place on the sun and even give you some probabilities as to whether a magnetic and/or ionospheric storm will follow. So you see things have improved.

There is another sinister player in this drama: the solar cosmic ray event. True, it was known back in the 1920's that the earth was bombarded by a weak but penetrating form of radiation, termed cosmic rays. They were known to be charged particles since their intensity varied with geomagnetic latitude, more reaching us in the polar regions than at equatorial latitudes. But this radiation was thought to come from out galaxy, having a long time-scale on its intensity variations. So can you imagine the surprise when it was found that this penetrating radiation would actually *decrease* when there was something as insignificant on the cosmic scene as a terrestrial magnetic storm? Zounds! Maybe that radiation was not all that penetrating after all, even having some puny particles in it that could be deflected from the earth by some means or other.

But that wasn't the real or ultimate villain in the mystery of SWFs since magnetic storms were easily monitored on the surface of the earth and related to some SWFs. The real mystery of SWFs was with those events where polar communication paths were involved. Their disruption could be gradual in onset and of long duration, maybe even up to a week and not readily tied to the usual sort of data from terrestrial sources. Finally, even that one came to be understood too, the result of the sun producing cosmic rays during solar flare processes, just like the other stars in out universe must do to inject cosmic rays into their galaxies.

Thus, the real solar flare effect, now termed Polar Cap Absorption (PCA) in ionospheric circles, was established back in 1942. It was found that a flare on the sun produced an increase in cosmic ray intensity at the surface of the earth! In fact, two of these events were found in on e week back in '42; however, the next event of that type did not occur until four years later. This unusual type of event was not found by an astronomer or a physicist, rather, it took a statistician, Scott Forbush, to find it, pouring through the many records of cosmic ray intensity from an observatory in Godhavn, Greenland.

Now we know those events to have been "hum-dingers," cases where the sun produced high-intensity, high energy bursts of solar protons; some of them entered the geomagnetic field and bombarded the polar ionosphere, affecting HF signals by penetrating down into the D-region. However, for every "hum-dinger" there is probably ten little events that never have enough energy to penetrate the entire atmosphere to the earth's surface. But they can still reach the high latitude D-region and create their special form of havoc on polar communication paths.

Obviously, they are more numerous in times of high solar activity or sunspot numbers—like now! As a result, you're probably reading this article while the bands are in some sort of disarray that is solar in origin, waiting for the storms to rage their last or a PCA event to wane and let you get back to your DXing.

I know you're probably chomping at the bit to get back on the bands and chase that last one you need for DXCC/QRP. But take a moment with me and think back to the time when PCAs were finally unmasked, albeit slowly. That was back in February-March of '42, probably the lowest point of our fortunes in WWII. If you feel frustrated now, waiting for the "known" to disappear and bring you back to "business as usual" in your pursuit of DX, can you imagine how it was for the hardy souls who were manning the communication circuits back in those dark days of WWII to have their radio links broken by some mysterious, perhaps sinister, force? There's a tale or two to tell from those times and I am trying to explore them; maybe I'll have something to share with you in the future. In the meantime, when you have to "wait," remember you have it easy now; we pretty well understand what is going on and can bounce back with zip and gusto. But there were other days, other times when things were not all that certain.

Members' News

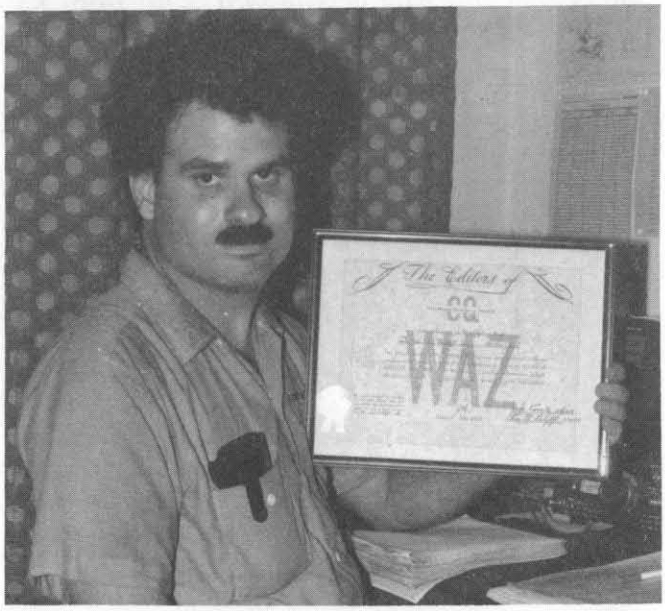
Fred Bonavita W5QJM
P.O. Box 420321
Houston, Texas 77242-0321

QRP WORKED ALL ZONES IS A GO!

CQ magazine, which owns the rights to the Worked All Zones Award, is now issuing special QRP endorsements, officials of the publication have told The QRP Quarterly.

Leo Haijsman, W4KA, who manages the WAZ Award for CQ, says requests for QRP endorsement for the certificate—which some club members say is the most difficult to earn—will be approved with the usual proof. "When I approve any QRP operation, I make a special request to the New York office to indicate on the certificate that the applicant is QRP," Leo says from his Cape Coral, Fla., home.

Unfortunately, however, he says his records do not show who got the first WAZ/QRP certificate: "My records are kept only for a two-year period and are not filed in such a way as to pull out the QRP applications and awards."



DAN WALKER, WG5G

One of the first to land all 40 zones was **Dan Walker, WG5G**, of San Antonio, Texas, who is shown here with his favorite piece of wallpaper. Dan, who began chasing DX in December 1985 as a low-power enthusiast, capped his effort with Vietnam and India, zones 26 and 22, respectively. It was an all-CW effort.

Dan says that after looking for a 3W8 station for a long while, he worked one on 20 meters early one morning and caught him again that afternoon on 10 meters. The VU2 station also was worked on 20 and included a five-minute chat about the merits of QRP. The VU2's QSL card showed up three weeks later.

The station at WG5G during the effort was a TS-130V and outboard VFO with a HyGain TH2 antenna at 35 feet. The beam has been replaced with a two-element Gem quad at 38 feet, says Dan, whose DXCC count is 260 worked (236 on CW) and 240 confirmed.

For those interested in pursuing the WAZ/QRP Award, Leo advises CQ issues it only when all 40 zones have been worked and confirmed. Rules for the award are being revised at this writing, so keep an eye on the pages of CQ for the latest information or drop a line to **Richard Ross, K2MGA**, Publisher, CQ, 76 North Broadway, Hicksville, New York 11801, for details.

MEANWHILE, BACK AT THE RANCH...

Gene Worf, N5IZW, tested his new 40-meter delta loop out one Sunday afternoon by checking into the club's Transcontinental Net (14.060 MHz, 2300Z, W5LXS as NCS). The antenna gave such a good account of itself that after the net closed, Gene looked around and landed VK2CWS. Gene lives in Cedar Crest, N.Mex., just across the mountains from Albuquerque, and he was running 5 watts from a Yaesu FT-1O1F at the time.

WARC AND QRP: While he was at the QRP activities at the ARRL convention in Dallas/Fort Worth last June, **George Dobbs, G3RJV**, secretary of the G-QRP Club, suggested time has come for another look at the QRP frequencies on the 30-, 17- and 12-meter WARC bands.

The previously agreed-upon 30-meter frequency of 10.106 MHz too often is taken up in Europe by commercial stations, with which Amateurs share the band. George suggests a better QRP frequency would be 10.110 MHz.

At the same time, G-QRP and other clubs in Europe are looking for recommendations about QRP frequencies for the 17- and 12s, too. Unlike the CW-only 10.1 MHz band for U.S. Amateurs, the 18 MHz and 24 MHz bands have sideband segments, so some proposals for QRP voice frequencies will be needed, too.

In addition to recommending the frequencies and commenting on the proposed change on 30 meters, members are urged to share their low-power experiences, especially on the 17- and 12-meter bands. All recommendations received by me will be forwarded to the club's board of directors for action.

FROM ANCHORAGE, ALASKA, comes word that **Jim Larsen, AL7FS**, is on the air looking for other QRPers and milliwatters. "After 24 years and two months as a ham, I finally 'discovered' QRP," Jim writes. "If I didn't know better, I'd say you guys kept it a secret."

Jim says one of his greatest thrills came when he worked VE7SL, Steve, in Vancouver, B.C., who was running only 5 mW out. A sample from Jim's crowded logbook shows an enviable array of stations all worked on CW and with 5 watts or less out.

VHFers: **Peter Halpin, PE1MHO**, has applied for a 1,000-miles per watt certificate after his ocean-spanning QSO on 50 MHz with LU9AEA. "Jorge was very patient in fishing me out because at the second 'over,' all hell broke loose and the Dragons almost flattened me," he writes. "But he just kept on until we had exchanged the relevant information."

Peter, who is at locator J032, worked Jorge (GF05) running 2.755 watts out from a homebrew transverter with a VN66AF final into a six-element yagi. Sideband was used both ways, with a 4x1 report for Peter and 5x8 for Jorge.

The reference to "dragons" applies to the "Dragonslayers QRP Group," whose members include PE1LIF, PA3AQD and PAODMM plus Peter. They came up with the name to qualify as a group entry in a 144 MHz contest. They belong also to the Benelux QRP Club, whose membership has passed the 500 mark, Peter says.

"I need North America!" cries Peter, who is working on his 50 MHz DXCC. Any takers out there?

WHERE FROM NEXT, LOU? Our far-flung correspondent **Lou Berry, KF7TQ** (ex-KF50W), has written this quarter from the caboose of a steam-powered train, "The Heber Creeper," operating near Heber, Utah.

Lou, who moved to Murray, Utah, from Albuquerque, operated QRP from the train station with a dipole strung up and from the caboose with the help of a mobile antenna on the back platform. Last time we heard from him, Lou had just finished a flight in a hot-air balloon from which he worked several stations.

He advises also he is having considerable success operating his Yaesu FT-747GX transceiver, which can be cranked down to about 50 mW out. He's even powered up the rig (it weighs 8 pounds) from a canoe.

In what may be an all-time understatement, Lou admits to having operated "from some off-the-wall places." As I asked at the outset. "Where from next, Lou?"

THANKS FOR TRYING: Since I returned from my mid-August vacation in St. Croix, U.S. Virgin Islands, I've heard from several members who said they did not hear from me while I was on the air there.

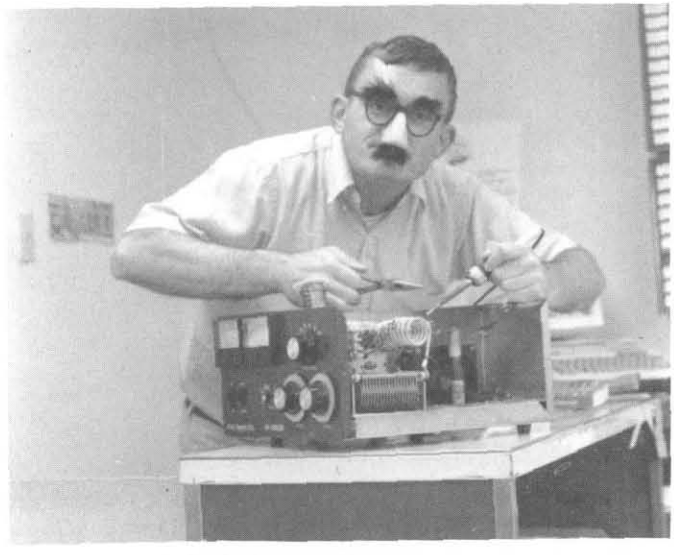
As luck would have it, my plans got changed for me, and while I was on the air, working back into the continental United States beyond the East Coast proved almost impossible.

The chief problem was location: Our room faced the southeast instead of the northwest, giving me a clear shot into Europe and South America and virtually nowhere else. Trees for hanging my antenna were not where they should have been, which compounded the problems. And I could not take a rig for 10.1 MHz; it was too big to get into the carrying case.

All was not lost, however, and I managed some very fine QRP QSOs, including one with **David, CT4RL/P**, who was vacationing with his family near the Atlantic Coast. His QRP signals on 15 meters were booming into the VI, as were those of **Bill, GW4PHB**.

It was an interesting experience, and I thank those who tried to work me. For those who succeeded and who need a QSL card from KP2, use the address above, please.

THAT'S IT FOR THIS QUARTER. Shower down some reports on activities, please. Don't forget to vote in the election for the new board.

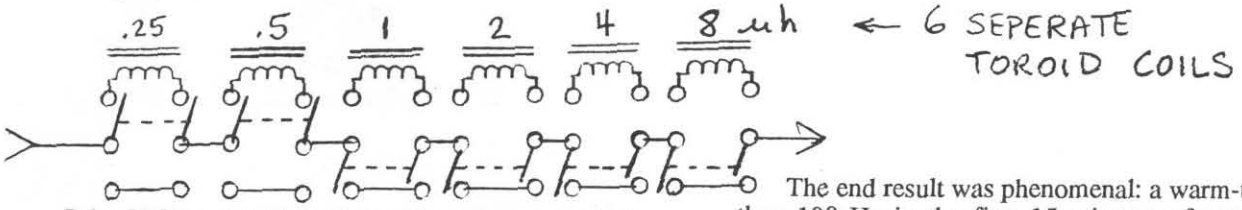


CAUGHT IN THE ACT: When a QRPer works in the repair department of a ham radio store, he has to work on anything, including an amplifier. To escape detection, blackmail and ridicule, this one used a clever disguise to conceal his identity (hint: it's the pliers and soldering iron). Despite that, he bears a strong resemblance to Mike Czuhajewski, WA8MCQ, of Jessup, Maryland.

Idea Exchange

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

HIGH Q COIL SET UP FOR LOW LOSS QRP ANTENNA TUNERS.



John KN1H and I have been discussing ways to keep antenna tuner coil Q high and still be able to get a large adjustment range. As you know when you tap down on a coil it lowers the Q. Slug tuning doesn't lower the Q much but the range that is available is not very great. DJ1ZB in SPRAT used a rotary switch and separate coils to get a larger range of adjustment. His set up is OK except that it limits the inductance range. Setting at the workbench one day thinking about this problem, I noticed my Step Attenuator. Then the old LED in my head came on and said why not use 6 or so slide switches with a separate inductor hooked across them. That way there would be no taps and if you size the coils properly you can have quite a range of adjustment. I wound toroids for .25, .50, 1, 2, 4, and 8 µH and put them in place across the slide switches. Now with this set up I can go from .25 up to 15.75 µH in .25 µH steps and keep a high Q.

I built an LCC Tee Network using my step inductor coil and have been very pleased with the results. On one simple check for the tuner loss my instruments could not measure any noticeable loss. John has used the same idea for an L network and also reported that he could not measure the loss through the tuner. the only drawbacks seem to be the number of holes that have to be punched to mount all of the switches and the number of toroids that have to be wound.

HEATH HW-9 VFO DRIFT CURE

Larry East W1HUE writes with a hint on how he cured his HW-9 drift:

I finally cured the warm-up drift of my HW-9! After considerable experimenting, I discovered that the frequency versus temperature characteristic of the VFO is heavily (but not entirely) controlled by C184. This is a 33 pF, N750 disc ceramic cap.

Since the output frequency of my rig decreased with temperature, this meant the VFO frequency *increased* with temperature which in turn indicated the VFO was being *over* compensated by C184. The logical cure for the problem would be to replace C184 with a cap having a smaller temperature coefficient but, since I have no source of supply of such caps, I had to improvise. Luckily, I do have a source of high quality temperature stable ceramic caps (NPO type with a temperature coefficient of less than 30 ppm/degree).

The "final solution" to the drift problem was as follows: A 150 pF NPO cap was added in series with C184. C182 (originally 50 pF, type N150) was replaced with a 56 pF NPO cap. The replacement of C182 was done to keep the parallel capacitance of C182, C184 and C186 essentially unchanged so the output frequency could still be made to track with the VFO dial scale.

The end result was phenomenal: a warm-up drift of less than 100 Hz in the first 15 minutes of operation from a "cold start," and a long term drift of less than 50 Hz per hour!

The "cure" may not be the same for all HW-9's since normal parts tolerances can cause different drift characteristics from rig to rig. However, C184 is probably a good place to start.

HW-9 Frequency Stability

Mike Czuhajewski, WA8MCQ sends along this HW-9 VFO tip:

Denton Bramwell, K7OWJ, gave me a tip about HW-9 frequency stability that may be helpful in some cases. He said that at one time, unknown to Heath, the manufacturer of the VFO coil suddenly started coating the winding with epoxy. This can contribute to frequency drift since stress is placed on the wire by the curing epoxy.

One of the standard tips for improving stability is to relieve stress on the wire in VFO coils by boiling them or baking the entire assembly briefly in an oven at low heat.

Denton's method for relieving the stress, which is much more practical for a completed unit, is to get the coil good and hot with a hair blow dryer, let it cool, and repeat two or three times. This might help reduce the drift in those units which had the epoxied coils and may help other HW-9's. (He reports the manufacturer later stopped using epoxy.)

SPECIAL OFFER

WA8MCQ also writes with an offer. He has found a good one-time deal on some parts while on vacation and wants to pass them on to the QRP community.

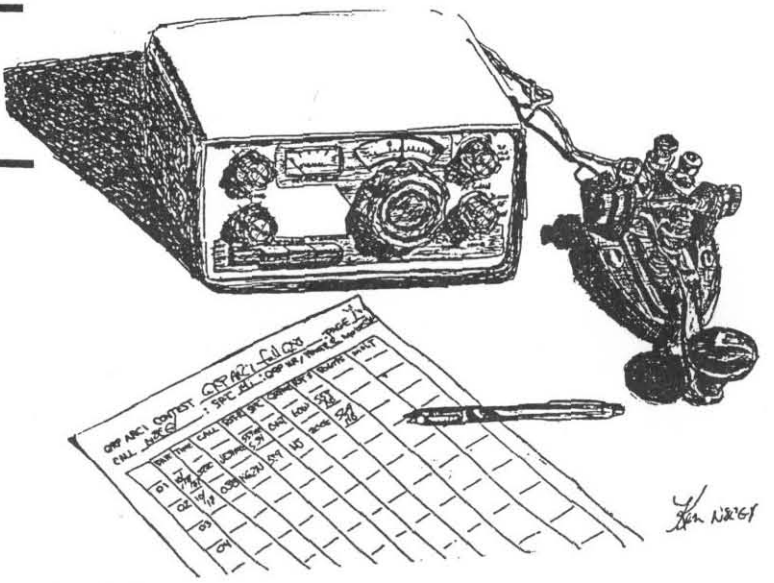
He has a limited number of crystals for 3563.795 kHz, small metal holder with wire leads, between HC-18 and HC-6 in size. (Probably low level drive; not recommended for use in a single transistor transmitter such as the Oner or Cubic Incher.) Price is 50¢ each, limit one per person, and enclose a 25¢ stamp for postage.

Also available, quantity even more limited, are strips of components from taped reels, containing tiny monolithic capacitors (axial leads) in the following values: 330pF, 0.1µF and 0.33µF, total of about 70 capacitors. Price is $1 each, plus 25¢ stamp, limit one strip per person. Write to Mike at Box 232, Jessup, Maryland 20794.

Thanks to all who contribute! Please keep the ideas coming. Being interested in QRP and portable operation, I am also interested in any suitcase or spy-type radios, and military HF manpack sets. I have a small collection of units and I am always on the look out for additions. So, if any of the readers have info, schematics, manuals, sets for sale or loan, I would like to hear from them.

Contests

Red Reynolds, K5VOL
835 Surryse
Lake Zurich, Illinois 60047



Upcoming Contests

(CW unless otherwise noted)

Oct. 21, 1200Z to Oct. 22, 2400Z
Fall QRP Contest

Dec. 10. 2000-2400Z
Holiday Spirits Homebrew Sprint

Jan. 14, 2000-2400Z
Winter Fireside SSB Sprint

Hoot Owl Sprint Results:

------TOP THREE --------			-----SINGLE BAND ---------		
1	KN1H	48,300	40 M	W1KKF	17,474
2	N4OHB	39,638	20 M	WB7SNH	15,975
3	WD2H	22,140			

****

CALL	SPC	SCORE/POINTS/SPC	POWER	BANDS /TIME	RIG	ANTENNA
KN1H	NH	48,300/ 115/ 21	.90 S	3 / 2	Argosy	Longwire
N4OHB	AL	39,638/ 151/ 25	5.0 B	2 / 4	IC-735	Dp/Quad
WD2H	NY	22,140/ 82/ 18	.90 B	3 / 2	Corsair-2	Loop/Yagi
W1KKF	CT	17,474/ 81/ 11	3.0 S	40M/ 2	HB W7EL/m	G5RV
WB7SNH	WA	15,975/ 71/ 15	1.0 B	20M/ 3	HW-8	Yagi
KB1MJ	MA	12,098/ 78/ 13	4.0	2 / 2	HB VXO/RX(S)	Dipole
WD8OYG	MD	11,872/ 106/ 16	5.0	40M/ 4	TS-820	Dipole
NG1G	VT	11,608/ 57/ 8	3.0 S	40M/ 3	Digitrex	Loop
NF9X	IL	11,385/ 69/ 11	.80 B	2 / 4	TS-130V	Vertical
NN1G	CT	10,946/ 71/ 12	5.0 B	2 / 2	HB VXO 40M/ TS-130/HW-9	Windom
VE2BLX	QUE	9,536/ 48/ 6	5.0 B	40M/ 2	HB MAVTI-40/m	Longwire
W2PFS	NY	6,600/ 66/ 10	1.0	2 / 2	TR-7	Loop
W2YQA	NY	6,600/ 44/ 10	.90 B	2 / 4	HW-8	Longwire
WN2V	VA	6,188/ 68/ 13	3.0	2 / 4	Argo 515	Vertical
VE7SL	BC	4,050/ 45/ 9	1.0	2 / 2	TS-440S	Slope/Yag
NM7N	WA	2,646/ 42/ 9	5.0	20M/ 1	Argosy-2	Yagi
VE2ABO	QUE	1,554/ 37/ 6	3.0	40M/ 1	HW-9	Loop
KA1GDG	MA	880/ 22/ 4	1.0	40M/ 2	Century22/2C	G5RV/Gp
WN0F	MO	714/ 17/ 4	1.7	20M/ 4	HW-8	Dipole
WA6ARA	CA	560/ 20/ 4	3.0	20M/ 1	Argo 509	Zepp
K5VOL	IL	476/ 17/ 4	2.0	40M/ 1	Argo 509	Longwire
WN2Q	NY	189/ 9/ 3	3.0	20M/ 1	HW-9	Vert/Loop
W6SIY	CA	20/ 2/ 1	.25	40M/ 1	HB Tuna Tin-2/ CX-BC RX(s)	Dipole

****
Time of operation rounded to nearest hour
B = Battery power
S = Solar / natural
/m = Modified
HB = Homebrew
(S) = Superhet

Comments:
Many members commented on the generally lousy band conditions. QST reported time as UCT rather than local causing all sorts of problems. One member who used the QUARTERLY reported time (correct) heard a QRP'er calling CQ TEST at 4PM local, "for a HOOT OWL!".
****

General Contest Rules
QRP ARCI Contests/Sprints

DATE/TIME- MM/DD/YY-HHHHZ THROUGH MM/DD/YY-HHHHZ

EXCHANGE - MEMBER - RST, STATE/PROVIDENCE/COUNTRY, ARCI NUMBER
NON-MEMBER - RST, STATE/PROVIDENCE/COUNTRY, POWER OUT

** HOMEBREW SPRINTS, RST SUFFIXED W/ 'HB' INDICATING HOMEBREW EQUIPMENT USED BY THE ENTRANT. 'HB' SHOULD BE USED ON ALL BANDS IF HOMEBREW GEAR IS USED ON ANY BAND. USE 'C' IF ALL GEAR USED IS UNMODIFIED COMMERCIAL.

POINTS - MEMBER - 5 POINTS
NON-MEM, DIFFERENT CONTINENT - 4 POINTS
NON-MEM- 2 POINTS
** HOMEBREW SPRINTS, IF STATION WORKED IS USING HOMEBREW, ADD 5 POINTS (IE, NON-MEM USING HB: 2 + 5 = 7 POINTS).

MULT - SPC (STATE-PROVINCE-COUNTRY) TOTAL ALL BANDS
THE SAME STATION MAY BE WORKED ON MORE THAN ONE BAND FOR POINTS AND S-P-C CREDIT.

BONUS POINTS (HOMEBREW EQUIPMENT USED EACH BAND WORKED)
+ 2000 FOR EACH BAND HB TX USED
+ 3000 FOR EACH BAND HB RX USED
+ 5000 FOR EACH BAND HB TCVR USED
(MAXIMUM OF 5000 / BAND ON WHICH QSO MADE)

*** NOTE - SPRING AND FALL QSO PARTIES ONLY:
TEAM COMPETITION -
TEAM COMPETITION OF TEAMS CONSISTING OF 2 TO 5 MEMBERS WILL BE A SEPARATE CATEGORY APART FROM INDIVIDUAL ENTRIES. TEAM MEMBERS WILL BE LISTED AS INDIVIDUALS AND THE TEAM SCORE WILL BE THE TOTAL OF THE MEMBER"S SCORES. TEAM ENTRY WILL BE ALL-BAND ONLY. THE TEAM CAPTAIN MUST SEND A LIST OF ITS MEMBERS TO THE CONTEST MANAGER POSTMARKED AT LEAST ONE DAY PRIOR TO THE QSO PARTY. CERTIFICATE AWARDED TO THE HIGHEST SCORING TEAM.

*** NOTE - HOLIDAY SPIRITS HOMEBREW CONTEST ONLY:
THREE CLASSES OF ENTRY FOR A SCORE ARE AVAILABLE.
1. ALL HOMEBREW - ALL GEAR (RECEIVER & TRANSMITTER, OR TRANCEIVER) MUST BE HOMEBREW ON EACH BAND WORKED.
2. MIXED HOMEBREW/COMMERCIAL - A HOMEBREW RECEIVER OR TRANSMITTER MUST BE USED ON EACH BAND WORKED.
3. COMMERCIAL - ALL UNMODIFIED COMMERCIAL GEAR ONLY USED.

ENTRIES NOT INDICATING THE TYPE OF GEAR USED WILL BE CONSIDERED AS CHECK LOGS.

POWER SUPPLY MULTIPLIER (BONUS MULTIPLIER)
X 1.0 - COMMERCIAL POWER
X 1.5 - BATTERY
X 2.0 - SOLAR/NATURAL, OR BATTERY CHARGED ONLY BY SOLAR OR NATURAL POWER.

POWER MULTIPLIER
X 10 - 0-1 WATT OUT CW (0-2 WATTS PEP SSB)
X 7 - 1-5 WATTS OUT CW (2-10 WATTS PEP SSB)
X 0 - OVER 5 WATTS (10 WATTS PEP) IS A CHECK LOG

SUGGESTED FREQUENCIES

	------CW--------	--PHONE--
160M -	1810 KHZ	
80M -	3560, 3710 KHZ	3985 KHZ
40M -	7040, 7110 KHZ	7285 KHZ
20M -	14060 KHZ	14285 KHZ
15M -	21060, 21110 KHZ	21385 KHZ
10M -	28060, 28110 KHZ	28385, 28885 KHZ
6M -	50060 KHZ	50885 KHZ

CALLING - 'CQ QRP, CQ QRP, CQ QRP DE K5VOL, K5VOL, QRP TEST K'.

SCORE = POINTS * SPC * POWER MULT * POWER SPLY MULT + BONUS.

ENTRY MAY BE AN ALL-BAND ENTRY, OR A SINGLE BAND ENTRY, COMPETE AGAINST OWN CLASS OF ENTRY. CERTIFICATES TO THE TOP 10 SCORES OVER-ALL FOR THE QSO PARTIES, AND THE TOP 3 SCORES FOR SPRINTS. CERTIFICATES TO THE TOP SCORE IN EACH BAND FOR SINGLE-BAND COMPETITORS. CERTIFICATES WILL BE ISSUED TO THE TOP SCORE IN EACH S-P-C AND CLASS IN WHICH THE SCORE IS AT LEAST 15% OF THE AVERAGE OF THE TOP 10 FOR THE QSO PARTIES, AND 15% OF THE AVERAGE OF THE TOP THREE IN THE SPRINTS. THE CONTEST MANAGER RESERVES THE RIGHT TO RECOGNIZE SPECIAL SIGNIFICANT ENTRIES WITH A CERTIFICATE AWARD.

ENTRY INCLUDES A COPY OF THE LOGS AND A SEPARATE SUMMARY SHEET. INCLUDE DUPLICATE CHECK SHEETS WITH ENTRIES OF 100 QSO'S OR MORE. INDICATE THE TOTAL TIME-ON-AIR, INCLUDING TIME SPENT LISTENING. ALL ENTRIES MUST INCLUDE A COMPLETE NAME, CALL AND ADDRESS. ALL ENTRIES MUST BE RECEIVED WITHIN 30 DAYS FOLLOWING THE CONTEST. LATE ENTRIES WILL BE COUNTED AS CHECK LOGS. MEMBERS INDICATE THEIR MEMBERSHIP NUMBER ON ALL LOGS. MEMBERS AND NON-MEMBERS INDICATE THEIR INPUT OR OUTPUT POWER FOR EACH ENTRY. THE HIGHEST OUTPUT POWER LEVEL USED WILL DETERMINE THE POWER MULTIPLIER. OUTPUT POWER IS CONSIDERED AS 1/2 OF THE INPUT POWER. IN THE SPRING AND FALL QSO PARTIES, A MAXIMUM OF 24 HOURS MAY BE OPERATED WITHIN THE 36 HOUR TIME PERIOD.

****

HOMEBREW BONUS POINTS - HOMEBREW DEFINITION.

IN THE HOMEBREW SPRINTS AND THE SPRING AND FALL QSO PARTIES, BONUS POINTS ARE ALLOWED FOR HOMEBREW EQUIPMENT. HOMEBREW FOR BONUS POINTS INCLUDES TRANSMITTERS, RECEIVERS AND TRANCEIVERS ONLY.

FOR THE PURPOSES OF QUALIFING FOR BONUS POINT STATUS, THE EQUIPMENT MUST MEET ONE OF THE FOLLOWING CRITERIA TO BE CONSIDERED 'HOMEBREW'.

1. COMPLETELY HOME CONSTRUCTED GEAR, ORIGINAL DESIGN OR A COPY OF ANOTHERS DESIGN AND NOT A KIT.

2. 'KITS' WHICH DO NOT INCLUDE, OR HAVE AVAILABLE, A STEP-BY-STEP CONSTRUCTION MANUAL (IE. NOT A HEATHKIT).

3. KITS (SUCH AS HEATHKIT) OR COMMERCIAL GEAR THAT CONTAINS A MAJOR MODIFICATION TO IMPROVE OR ALTER SIGNIFICANTLY ITS PERFORMANCE. EXAMPLES INCLUDE REDESIGNED FRONT-ENDS, ALTERATION OF ONE BAND FOR ANOTHER BAND, OR COMPLETE REPACKAGING AND MODIFICATION INVOLVING A CHANGE IN USE SUCH AS HOME-BASED TO PORTABILITY. COMPLETELY HOME-BUILT TRANSVERTERS USED WITH COMMERCIAL GEAR ALSO QUALIFIES AS HOMEBREW.

COSMETIC CHANGES SUCH AS ADDING DIAL LIGHTS, COMMERCIAL FILTERS AND LARGER CONTROL KNOBS DO NOT QUALIFY. A PURE VANILLA VERSION OF A HEATHKIT-TYPE KIT DOES NOT QUALIFY.

THE FINAL DECISION AS TO HOMEBREW QUALIFICATION RESTS WITH THE CONTEST MANAGER.

INCLUDE A DESCRIPTION OF HOMEBREW EQUIPMENT, COMMERCIAL EQUIPMENT AND ANTENNAS USED WITH EACH ENTRY. HOMEBREW BONUS POINTS MAY NOT BE CLAIMED IF A DESCRIPTION IS NOT INCLUDED WITH THE ENTRY.

A SUMMARY SHEET AND SAMPLE LOG SHEETS ARE AVAILABLE FROM THE CONTEST MANAGER FOR AN SASE WITH 1 UNIT OF POSTAGE.

INCLUDE AN SASE WITH 1 UNIT OF POSTAGE IN THE ENTRY FOR A COPY OF THE CONTEST RESULTS. RESULTS WILL BE PUBLISHED IN THE NEXT AVAILABLE ISSUE OF THE QRP ARCI QUARTERLY.

SEND ENTRIES TO:

RED REYNOLDS, K5VOL
QRP ARCI CONTEST MANAGER
835 SURRYSE ROAD
LAKE ZURICH, IL. 60047
U. S. A.

Results Classic QRP Sprint-1989

This new sprint (co-sponsored by the QRP-ARCI and MI-QRP clubs) was held March 12, 1989, 2000-2400Z. The event went off well, despite solar flares and QRM from other contests. The results are listed below. Certificate winners be patient, those have yet to be printed.

We need to refine the rules for next year, more on that later. No over 5 watt (Class C) logs were received. Thanks for your participation; see you next year?

Buck Switzer, N8CQA

Class A: Ø-1 watt CW; Ø-2 watts SSB

QTH	Call	Score/Points/SPC	Bonus	Classic Rig	Bands/Time	Mode
CA	KB6LEI*	18,680/505/36	500	Swan 350C	10M/4	SSB
PA	KA3K*	8,415/255/33	--	--	4/4	CW
PA	W3TS	7,340/285/24	500	HB TX/R4C	2/4	CW
NJ	WB2CZB*	5,655/195/29	--	--	5/4	CW
NY	K2LGJ*	4,420/170/26	--	--	4/3	CW
IL	WD9IWP*	4,110/170/23	300	R4C RX	3/4	CW
WY	NC7O*	3,565/155/23	--	--	3/4	CW
MN	WØNGB*	2,625/125/21	--	--	3/3	CW
MD	K3TKS*	2,340/130/18	--	--	4/2	CW
CT	NT1E*	2,090/190/11	--	--	40M/4	CW
NJ	W2JEK	1,460/80/12	500	ARGO 505	3/2	CW
MN	WØNKY*	1,020/85/12	--	--	15M/3	CW
MD	WA8MCQ	770/45/6	500	HB TX & RX	40M/3	CW

*certificate winners

Top Three		Single Band		
KA3K	8,415	10M	KB6LEI	18,680
W3TS	7,340	40M	NT1E	2,090
WB2CZB	5,655	15M	WØNKY	1,020

Class B: 1-5 watts CW; 2-10 watts SSB

QTH	Call	Score/Points/SPC	Bonus	Classic Rig	Bands/Time	Mode
PA	W3ARK*	20,250/405/50	--	--	5/4	CW
MA	KZ1L*	19,380/380/51	--	--	5/4	CW
C.R.	TI2QRP*	12,230/345/34	500	TR4C	10M/4	SSB
NY	WB2QAP*	11,590/305/38	--	--	4/4	CW
CT	KH6CP/1*	10,915/295/37	--	--	5/4	CW/SSB
GA	KB4GID*	7,590/230/33	--	--	4/4	CW
OH	KD8JN*	6,075/225/27	--	--	2/4	SSB
CO	AIØW*	4,945/215/23	--	--	2/3	CW
PA	WA3SRE	4,500/180/25	--	--	5/4	CW/SSB
OH	NC8X	4,370/190/23	--	--	3/4	CW
IL	K5VOL*	2,285/105/17	500	HW-101	3/2	CW
BC	VE7EQA*	2,205/105/21	--	--	2/4	CW
NY	N2ARP*	2,125/125/13	500	2B TX4B	40M/3	CW
PQ	VE2BLX*	2,060/130/12	500	MAVTI-40	40M/4	CW
NH	W1FMR*	1,930/110/13	500	PM-3	2/4	CW
NH	NO1E	1,870/110/17	--	--	2/2	CW
MT	N7ICC*	1,260/90/14	--	--	3/4	CW
CO	NWØO*	1,215/65/11	500	Ranger/75S	15M/2	CW
CO	KIØG*	995/55/9	500	PM-3A	20M/3	CW
OH	W8KYD*	770/45/6	500	PM-3	40M/2	CW

Top Three		Single Band		
W3ARK	20,250	10M	TI2QRP	12,230
KZ1L	19,380	40M	N2ARP	2,125
WB2QAP	11,590	15M	NWØO	1,215

QRP ARCI CONTEST SUMMARY SHEET

QRP ARCI CONTEST_____; MODE_____

CALL_____; S-P-C_____; QRP NR / POWER_____; ENTRY: MULTI-BAND_____

: SINGLE-BAND_____

	BAND	POINTS	S-P-C
	160		
	80		
	40		
	20		
	15		
	10		
	6		
	TOTALS		

1. Enter all data above and indicate entry class and band.
2. Enter all points and S-P-C by band.
3. Add total points and S-P-C.
4. Multiply points, S-P-C, power multiplier and bonus multiplier (power source) and add bonus points for final score.
5. Send entries to:

RED REYNOLDS, K5VOL
QRP ARCI CONTEST MANAGER
835 SURRYSE ROAD
LAKE ZURICH, IL. 60047
U. S. A.

SCORING:

TOTAL POINTS		TOTAL S-P-C		POWER MULT		BONUS MULT		BONUS POINTS		FINAL SCORE
_____	X	_____	X	___	X	___	+	_____	=	

TOTAL OPERATING TIME_____; DUPLICATE SHEETS INCLUDED_____

TRANSMITTER/XCVR:_____; OUTPUT:_____

RECEIVER:_____; POWER SOURCE:_____

ANTENNA(S):_____

COMMENTS:_____

_____

NAME:_____; CALL:_____

ADDRESS:_____

CITY:_____; STATE:_____; ZIP:_____

QRP ARCI CONTEST_____; PAGE_____

CALL_____; S-P-C_____; QRP NR / POWER_____; BAND_____; MODE_____

	DATE	TIME	CALL	RST R	SPC	QRP NR	RST S	POINTS	MULT
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
11									
12									
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15									
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17									
18									
19									
20									
21									
22									
23									
24									
25									

10 Meter Beacons

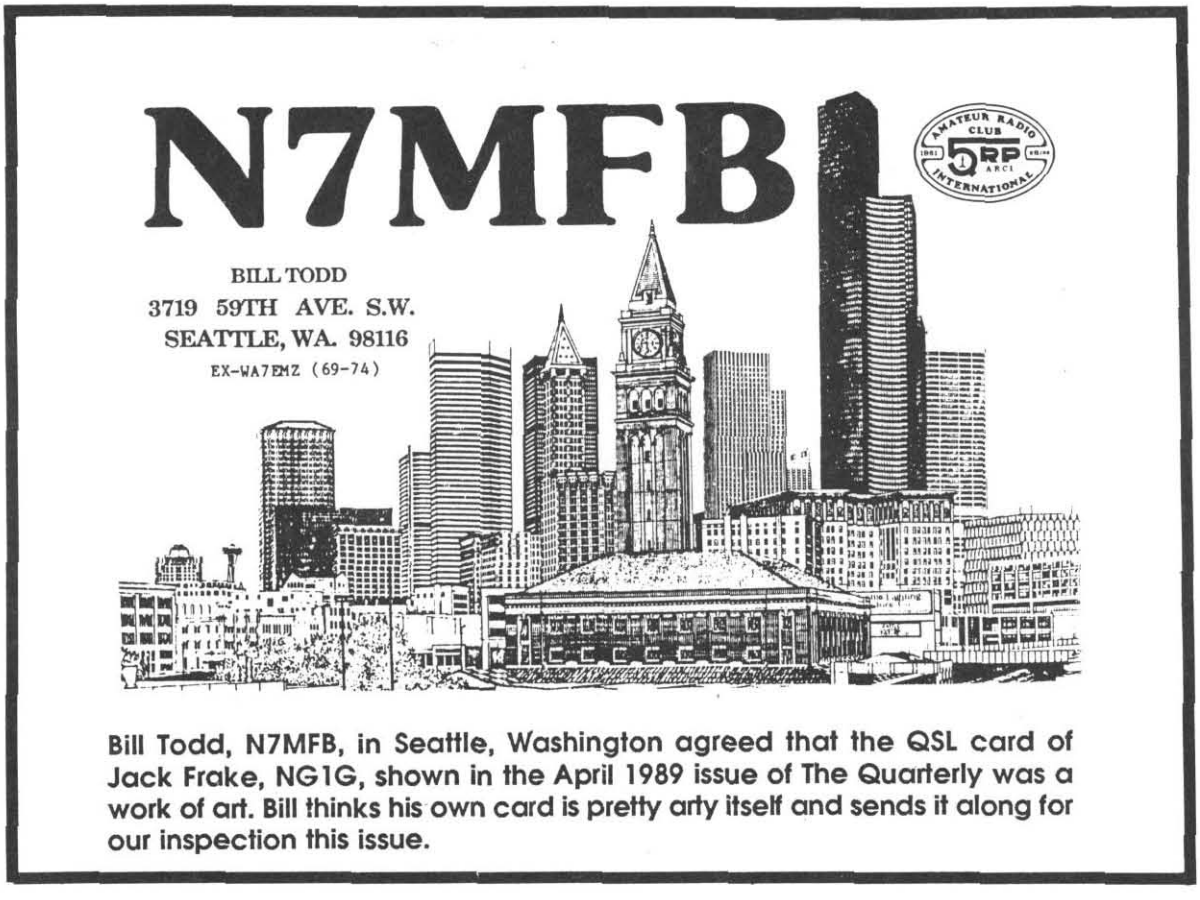
by Joe Gumino K2OLG
303 Old Stage Rd.,
Spotswood, NJ 08884

updated 7/19/89

FREQ.	CALL	OP	LOCATION	NOTES
28.175	VE3TEN	C	Ottawa, Canada	10W GP
28.191	VE6YF		Edmonton, Alberta	10W
29.195	IY4M	R	Bologna, Italy	20W 5/8 GP
28.200	GB3SX	C	Crowborough, England	8W Dipole
28.200	KF4MS	C	St. Petersburg, FL	75W GP
28.201	LU8ED		Argentina	5W
28.2025	ZS5VHF		Natal, RSA	5W GP
28.204	DLØIGI	C	W. Germany	100W Vert Dipole
28.206	KJ4X		Pickens, SC	2W, Vertical
28.2075	W8FKL	C	Venice, FL	10W Vertical
28.208	WA1IOB	C	Marlboro, MA	75W Vertical
28.209	NX2O		Staten Island, NY	
28.210	3B8MS	C	Mauritius	GP
28.210	K4KMZ	I	Elizabethtown, KY	20W Vertical
28.210	KC4DPC	C	Fayettesville, NC	4W, Dipole
28.212	EA6RCM		Palma de Mallorca	4W, 5 EL NNE
28.2125	ZD9GI	C	Gough Is.	GP
28.215	GB3RAL	C	Slough, Berkshire	20W, GP
28.2175	W8UR		Mackinaw Isaind, MI	.5W, GP
28.2175	WB9VMY	C	Calumet, OK	2W, Dipole
28.2195	LU4XS		Cape Horn	2W, Dipole
28.220	5B4CY	C	Cyprus	26W, GP
28.221	PY2GOB		San Paulo, Brazil	15W, Vertical
28.222	W9UXO	C	Chicago, IL	10W, GP
28.2225	HG2BHA	C	Tapolca, Hungary	10W, GP
28.2275	EA6AU	C	Mallorca, Balearic Is.	10W, 5/8 GP
28.230	ZL2MHF	C	Mt. Climie, NZ	50W, Vert Dipole
28.231	N4LMZ	C	Mobile, AL	2W, 5/8 GP
28.232	W7JPI/AZ	C	Sonoita, AZ	5W, 3EL YAGI-NE
28.233	KD4EX	C	Jupiter, FL	7W, GP
28.235	VP9BA	C	Hamilton, Bermuda	10W, GP
28.2375	LA5TEN	C	Oslo, Norway	10W, 5/8 GP
28.2405	5Z4ERR	C	Kiambu, Kenya	
28.245	A92C		Bahrain	NW/SE Dipole
28.2455	ZS1CTB	C	Capetown, RSA	20W, 1/4 Vert
28.247	EA3JA		Barcelona, Spain	
28.2475	EA2HB	I	Spain	6W, GP
28.248	K1BZ	C	Belfast, ME	5W, Vert Dipole
28.250	KØHTF	C	Des Moines, IA	2W, GP
28.250	Z21ANB	C	Bulawayo, Zimbabwe	15W, GP
28.2505	4N3ZHK	C	Mt. Kum, Yugoslavia	1W, Vertical
28.252	WJ7X	C	Seattle, WA	5W, Ringo
28.252	WB4JHS	I	Florrissant, MO	7W, Vertical
28.2525	OH2TEN		Finland	
28.255	LU1UG		Gral Pico, Argentina	5W, GP
28.2575	DKØTEN	C	Arbeitsgen, W. Germany	40W, GP
28.260	VK5WI	C	Adelaide, SA, Australia	10W, GP
28.262	VK2RSY	C	Sydney, NSW, Australia	25W, GP
28.264	VK6RWA	C	Perth, WA, Australia	
28.266	VK6RTW	C	Albany, WA, Australia	
28.266	KB4UPI	C	Birmingham, AL	20W, 1/4 Vertical
28.2685	W9KFO	I	Eaton, IL	750mW, Vertical
28.270	ZS6PW	C	Pretoria, RSA	10W, 3EL Yagi
28.270	VK4RTL	C	Townsville, QLD, Australia	
28.2725	9L1FTN	I	Freetown, Sierra Leone	10W, Vert Dipole
28.275	AL7GQ	C	Jackson, MS	500mW/1W Loop
28.2755	N6RDX	I	Stockton, CA	20W, 3 EL YAGI
28.2775	DFØAAB	C	Kiel, W. Germany	10W, GP
28.280	LU8EB		Argentina	5W
28.282	VE1MUF	C	Fredrickton, NB	500mW, Dipole
28.282	VE2HOT	C	Beaconsfield, Quebec	5W, Vert. Dipole

28.284	VP8ADE	C	Adelaide Island	8W, V Beam NR Antarctica to G-Land
28.286	KA1YE		NR Rochester, NY	2W, Vert. Dipole
28.287	W8OMV		NR Ashville, NC	5W, GP
28.287	H44SI	C	Solomon Is.	15W
28.288	W2NZH	I	Moorestown, NJ	3W, GP
28.288	W6IRT		California	5W, GP Code Practice
28.290	VS6TEN	C	Hong Kong	10W, Vertical
28.292	ZD8HF		Ascension Island	
28.2925	LU2FFV		San Jorge, Argentina	5W, GP
28.295	WC8E I		Cincinnati, OH	10W, Ringo
28.296	W3VD	C	Laurel, MD	1.5W, Vert. Dipole
28.297	WA4DJS I		Ft. Lauderdale, FL	10W, 250 ft longwire
28.300	PY2AMI	C	San Paulo, Brazil	10W, Vert. Dipole
28.301	ZS1LA	C	Stillbay, RSA	20W, 3EL Yagi NW
28.3025	PT1AAC		Fortaleza, Brazil	5W, GP
28.306	PT8AA		Rio Branco, Brazil	5W, GP
28.315	ZS6DN	C	Irene, South Africa	100W, Vertical
28.992	DFØANN		Motitzberg, W. Germ.	20mW, 1EL Delta Log

C= Continuous Duty I=Intermittent Duty R=Robot



Bill Todd, N7MFB, in Seattle, Washington agreed that the QSL card of Jack Frake, NG1G, shown in the April 1989 issue of The Quarterly was a work of art. Bill thinks his own card is pretty arty itself and sends it along for our inspection this issue.

Classified Ads

For Sale: HW-8, works well. Send inquiries to Tim Coucke, KE4KE, P.O. Box 473, Anchor Point, AK 99556.

For sale: Century 22, $225 + shipping. Argonaut, $125 + shipping. VE3IPS, Box 722, Station A, Downsview, Ontario M3M 3A9 Canada. 416-496-6917.

NET NEWS

conducted by Danny Gingell K3TKS
3052 Fairland Road,
Silver Spring, MD 20904

QRP ARCI Net Awards
June 1989

Callsign	Award	Callsign	Award
N1CCU	NEN-40	WA3SRE	TCN-20
K1EXE	NEN-40	KA3PVD	NEN-40
NG1G	NEN-40	WB4GOR	NEN-40
NN1G	NEN-40	KA4LKH	TCN-20
WA1JXR	TCN-20	KA4LKH	SEN-40
NJ1T	GLN-80	KA4LKH	NEN-40
VE2ABO	GLN-80	W5HKA	GSN-80
WD2H	SEN-40	K5VOL	NEN-40
WD2H	GLN-80	W5XE	GSN-80
WD2H	NEN-40	NF5Y	SEN-40
KD2JC	GLN-80	W6SKQ	WSN-40
W2PFS	NEN-40	N8CQA	SEN-40
WB2QAP	SEN-40	KD8FR	NEN-40
WN2V	GLN-80	K8JRO	SEN-40
WA3GYW	NEN-40	K9IFO	GLN-80
WA3SRE	SEN-40	K9IFO	GSN-80

New QNI-100 Certificates

WD2H	Brian Prior	NY
W2PFS	Harold Prior	NY
KI4IO	Gerald Wolczanski	VA
N8CQA	Buck Switzer	MI

QNI-100 Seals

WA1JXR	QNI-200 (208)
KV7X	QNI-200 (201)
WN2V	QNI-300 (319)
W3TS	QNI-300 (320)
K4AHK	QNI-300 (338)
KH6CP/1	QNI-400 (432)
W1FMR	QNI-500 (517)
K3TKS	QNI-900 (900)

Classified Ads

Contest goodies for the QRPer: QRP wattmeter HM-9 still in box unassembled $30; HFT-9A antenna tuner $30 (exc. condx.); MFJ 901B ant. tuner $30 (exc. condx.); active audio filter HD1418 (exc. condx.) $50; HD1424 receiver preamp $35 (exc. condx.) I also have some very good 1/2 inch hardline at a very good price. Larry Jones WB5KYK, Rt. 12 Box 139C, Laurel, Miss. 39440. Phone 601-426-2403.

Wanted: Argonaut 509 or 515 in good working condition. Christine Dupraz KB2IFA/AG, P.O. Box 59, Matawan, N.J. 07747. Phone 201-495-2315.

The QRP Candy Store

Operated for QRP ARCI by Bob Spidell, W6SKQ 45020 N. Camolin Ave., Lancaster, CA. 93534

The QRP Candy Store is a clearing house for all member or ARCI sponsored, QRP related products. Promote QRP in your area; send your ideas, suggestions and a sase to Bob Spidell, W6SKQ for store flyer.
LOGO: T-Shirts, Ball Caps, Hat Pins, Stickers, Stationary & more.

Propagation Toolkit

by Bob Brown NM7M
Now Available on MSDOS disk
Manual and disk $11 ppd in U.S.
$6.50 each if sold separately
available at The QRP Candy Store
c/o Bob Spidell W6SKQ
45020 N. Camolin Ave.
Lancaster, California 93534

Please make check payable to Bob Spidell.

Board of Directors Election

The April and July 1989 issues of The Quarterly requested nominations for the election of members to the Board of Directors to replace the four members whose terms expire on December 31, 1989. nominations closed on August 15 and there are just four nominees for those positions. Their biographical data follows, taking the nominees in alphabetical order.

Lou Berry, KF7TQ

Lou, formerly KF5OW, has been licensed for over 35 years and served as a radio operator i the U.S. Navy for 25 years. He operates CW, SSB and RTTY at QRP power levels and has been active in the QRP ARCI Awards program, earning both WAS/SSB and WAS/CW as well as a number of K/M Per Watt Awards. In running for a position on the Board, Lou would like to build on the QRP tradition and see it grow even more in future years.

Mike Czuhajewski, WA8MCQ

Mike has been a member of QRP ARCI since 1967 and obtained his Extra Class license in 1968. He has two associate degrees in electronics and 18 years experience in communications while serving in the U.S. Air Force. In addition, he is a member of MENSA and the Michigan QRP Club. Mike was very active in QRP in the 60's and served on the board during the 100-watt days of the club. His main interests are centered on experimenting and homebrewing QRP gear. As a member of the board he would like to see the club maintain a balance between those activities as well as the operating/fun aspects of QRPing, thus having the club continue to meet the needs of both the newcomer and the seasoned QRPer.

Danny Gingell, K3TKS

Danny is our current Nets Manager and is running for re-election to the Board of Directors. Danny has been a member of QRP ARCI since 1979 and in that time he has been involved in all of the various activities as NCS on both the SEN and NEN as well as being an active participant in TCN. He works as a systems technician for AT&T and is active in applying computer methods to the database of the QRP ARCI Net System.

Les Shattuck, WN2V

Les, formerly WB2IPX, is a candidate again, having served most recently as president of QRP ARCI and vice-president before that time. Les has been licensed for over 26 years and has earned a number of QRP ARCI awards including DXCC/QRP, as well as participating regularly in the QRP ARCI net program. Currently, Les is employed as a quality control engineer.

VOTE! VOTE! VOTE! VOTE! VOTE! VOTE! VOTE! VOTE! VOTE!

Clip and mail before December 1, 1989 to:

Bob Brown, NM7M
Secretary/Treasurer QRP ARCI
504 Channel View Dr.
Anacortes, Washington 98221

Board of Director candidates for three-year terms:

	For	Against
Lou Berry, KF7TQ	☐	☐
Mike Czuhajewski, WA8MCQ	☐	☐
Danny Gingell, K3TKS	☐	☐
Les Shattuck, WN2V	☐	☐

VOTE! VOTE! VOTE! VOTE! VOTE! VOTE! VOTE! VOTE! VOTE!

QRP ARCI
Fall/Winter Net Schedule

Net	QRG	NCS	Day	UTC
TCN*	14060	W5LXS	Sunday	2300
		ANCS-NM7M		
SEB**	7030	K3TKS	+Wednesday	0001
		ANCS-KH6CP/1		
GSN	3560	W5LXS	+Thursday	0200
		ANCS-W5XE		
GLN	3560	KH6CP/1	+Thursday	0200
NEN	7040	WA1JXR	Saturday	1300
		ANCS-W1FMR/K3TKS		
WSN	7040	W6RCP	Saturday	1600
ANCS-W6JHQ/W6SIY/NJ7M/KV7X/NM7M				

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

Other QRP Nets

MI-QRP	3535	K8JRO	+Wednesday	0100
VE-QRP	14060	VE6BLY	Sunday	1900
NWQRP	7110	N7MFB	+Tuesday	0400

+ Evening of the day before for W/VE

Please remember to tell your friends about the QRP Nets. They might decide to join us after seeing how friendly we can be.

Upcoming Contests

(CW unless otherwise noted)

000

Oct. 21, 1200Z to Oct. 22, 2400Z
Fall QRP Contest

000

Dec. 10. 2000-2400Z
Holiday Spirits Homebrew Sprint

000

Jan. 14, 2000-2400Z
Winter Fireside SSB Sprint

000

March 11, 2000-2400Z
Classic Sprint (CW & SSB)

000

April 14, 1200Z to April 15, 2400Z
Spring QRP Contest

000

May 27, 2000-2400 local time
Hootowl Sprint

000

July 15, 2000-2400Z
Summer Homebrew Sprint

000

Aug. 12, 2000-2400
Summer Daze Sprint (SSB)

New Member / Renewal Data Sheet

Full Name _____ Call_____ QRP Number_____

Address _____

City _____ State or Country_____Postal Code _____

[ ] New Address?
[ ] New Call?
Amount enclosed $_____
**** Please do not send cash! ****

[ ] New Member (U.S. $12.00, DX $14.00)
[ ] Renewal (U.S. $10.00, DX $12.00)
Please make your check or money order payable to: **QRP ARCI.**
Note: Renewals must be received 30 days before publication.

New Member Applications Only:
License Class_____ Age_____
Year 1st Licensed_____
Other Calls Held_____
Rig_____ Ant_____
Bands Most Used_____
Please circle your chief interests:
Ragchewing, DXing, Contests, Traffic, Awards, Homebrew, VHF/UHF, Packet, CW, SSB, RTTY, ATV, Satellite, Other.

	Yes	No	Maybe
Would you like to be an officer/director of club?	[ ]	[ ]	[ ]
Would you help write for the QRP Quarterly?	[ ]	[ ]	[ ]

What subjects_____
What QRP awards/achievements have you won?_____
_____
Why do you run low power? _____

Mail to: **Mike Kilgore, KG5F**
2046 Ash Hill Rd.
Carrollton, TX 75007

QRP Quarterly
P.O. Box 776
Alpine, Texas 79831