JULY / AUGUST 1993 W1FMR copy

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THE "QRP - NE" NEWSLETTER

IN THIS ISSUE:

AND MORE....

PLEASE WRITE FOR 'YOUR' NEWSLETTER

Our goal is to make it easy for you to submit your ideas. Send your material, hand written or typed. Please indicate whether or not you wish other newsletters and magazines to copy your article. Floppy diskettes, MS-DOS text files accepted gladly, any size any density. Be sure and send your phone number so that I may contact you. If you have a FAX # please let me have that too. My address is: Carl Heidenblad, N1CUU, 40 Martins Ferry Rd., Hooksett, NH 03106. My work phone number is 603-432-7154. My home phone is 603-647-9864.

Technical articles should be sent to John Collins, KN1H, QRP-NE Technical Editor. Please contact John with questions or concerns about articles of a technical nature.

Deadline for the next newsletter will be **SEPT. 30, 1993**

DIRECTORY

Please Contact the following for information:

MEMBERSHIP-
JACK FRAKE, NG1G, PO BOX 1153, BARNARD, VT 05031
802-234-9792

CONTEST MANAGER-
Jim Kearsman, KR1S, 83 main Street, Apartment 13D, Newington, CT 06111-1330
203-666-1541 x 279

TREASURER-
Paul Kranz, W1CFI, 26 Mettacomett Path, Harvard, MA 01451. 508-687-1501 x 2604.
Fax 508-687-7265.

TECHNICAL ARTICLES --
John Collins, KN1H, RR2, Box 427, Cornish, NH, 03745. 603-542-2057.

NETS--
GREG ALGIERI, WA1JXR, 22 Chacehill Rd., Lancaster, MA 01523.
(508) 365-7128.

MEMBERSHIP NEWS--
William Legge, NT1R, 232 Foreside Rd., Cumberland, ME 04110. (207) 829-5248.

NEWSLETTER --
Carl Heidenblad, N1CUU, 40 Martins Ferry Rd. Hooksett, NH 03106. 603-647-9864.

OTHER CLUB MATTERS, ADMINISTRATION, ETC.
Jim Fitton, W1FMR, POB 2226, Salem, NH 03079. 603-898-6188H
508-960-2577 W

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QRP-NE COORDINATORS MESSAGE

7/15/93

Hi gang;

This is the second summer with QRP-NE, and a lot is happening.

I joined Internet, a computer user group that many factories and universities use to communicate. 150 QRPers log onto the system, including KR1S, N6KR, KI6DS, WT1M, AA1AH, and many other club members. There is a lot of information available and almost any question on QRP can be answered by the experts on line.

I regret to announce the passing of Bob Spidel, W6SKQ. Shortly prior to Field Day Bob died of a heart attack. He was a shaker and mover for QRP and a member of QRP-NE. He will be sadly missed. He called many of his friends the weekend before he died and I was one of them. We exchanged good natured bantering about the upcoming Field Day and I told him that QRP-NE would give his Zuni Loopers a run for the money. I am sure the Zuni's miss him sorely.

Doug, KI6DS started the Northern California (NOR-CAL) QRP group recently and put out a terrific newsletter. He and Jim WA6GER, travelled 8 hours to be with the Zuni's for Field Day. I met them at Dayton this year. Doug is doing great stuff, like reprinting ARCI Quarterlies and offering them for sale by the year, and also a cumulative index since 1985 available on disk. Good luck Doug and Jim !

Just a quick review of QRP-NE activities: The January meeting was held at ARRL in Newington CT. The spring meeting at Rochester NH in May, and the summer meeting at the Manchester NH, ARRL convention. The fall meeting will be held at Rochester NH, unless some of us come up with a more interesting location. This spring we nearly had a meeting on Cape Cod, but maybe next year it will happen.

The DARA convention at Dayton was especially excellent this year as the new hotel accommodations allowed everyone who wanted to, to put up an antenna from their own room. The new Scout was on display at the Ten Tec commercial booth and almost every QRP manufacturer, kit supplier, and parts supplier and ex part supplier you could think of was at the QRP hotel hospitality suite, along with over 200 members on Saturday evening. The beer soda and pizza party was wild.... Myron Koyle, the hotel manager for ARCI outdid himself with planning and accommodations again this year.

Some other dignitaries at the hospitality suite were authors, W7EL, W7ZOI, and G4BUE, and G4BPS. I roomed with NG1G and KN1H.

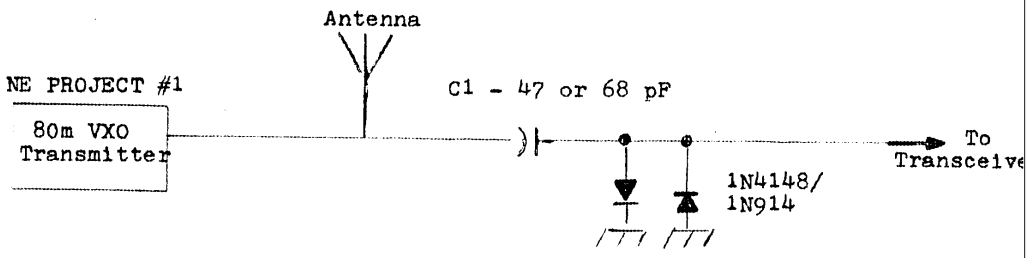
Field day was again tremendous fun, and we improved our score greatly over last year. Thanks to Mark, NX1K for excellent planning and preparation. You have to try operation from this location to believe it. Absolutely outstanding ! If we only had a few more ops, we would trounce the competition.

The colorburst sprint was held every Thursday evening in June, using the club HB transmitter kit on 3.579 Mhz. I hated to see the month end, it was so much fun. I wanted to extend it another month but KR1S said that too much of a good thing is not good. It was however, like taking a trip back to the excitement of the old Novice days using crystal controlled rigs and limited bandwidth. You have to experience 10 polite friends, operating almost on the same frequency, and not interfering with each other. We are going to repeat the Sprint this coming September, so be ready !

The ARRL convention in July promises to be another great QRP-NE event. Randy, AA2U will be talking on contesting on Saturday. I saw his presentation at Dayton and it is outstanding. With his determination and planning, it is easy to see how he could work 8 band DXCC and over 300 countries, QRP, using mostly wire antennas.

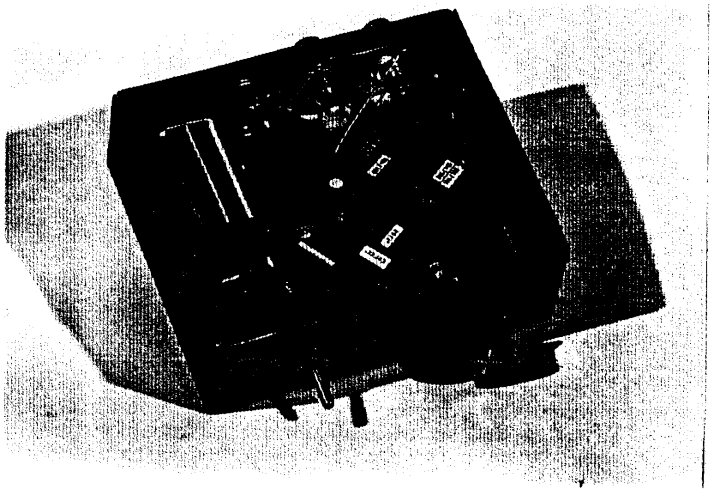
Rick Littlefield, K1BQT will be talking on Sunday, on Home Brew. Rick is the extremely successful author and designer of MFJ QRP equipment and will have a few surprises in

"'LOOK MA -- NO HANDS!" EASY TRANSMIT/ RECEIVE SWITCHING FOR THE COLORBURST SPECIAL



A PHOTO OF THE KIRSTA KEYER FEATURED LAST MONTH, COURTESY OF FRED, W5QJM -

(PHOTO BY DON RANDALL, WB5ROU)



store for us. His innovative designs led the way for widespread use of superhet circuits in Home Brew QRP radios around the world.

The NN1G superhet transceiver that first appeared in the pages of our own "72", is being offered as a 2 board kit from Danny Sevig, in MT. for about $50. That has to be an incredible bargain.

Have a great summer, and I hope to see you at Manchester....

72 Jim, W1FMR

Back Issue Reprints of QRP Quarterly Available

I have available reprints of the Journal of the Amateur Radio Club International the QRP Quarterly, from 1985 through 1992. They are bound in 1 year editions,and have a heavy card stock cover. The cost of each year is $10, and you will need to add $3 per order postage, i.e. if your order is for 2 years, send $23.00, if 5 years are ordered, send $53.00. There is also a special priceof $73.00 for the full set of 8 years, postpaid. Please do not ask me to break up year sets for 1 issue, as I have to do a print run of 7000 copies to get a price that allows me to sell at these prices. These journals are full of great QRP info. Send your orders to: Doug Hendricks, KI6DS, 862 Frank Ave., Dos Palos, CA 93620

THEY'RE BACK!
THURSDAY EVENING QRP-NE SPRINTS!
EVERY THURSDAY EVENING IN SEPTEMBER, 9-10 EST, COLORBURST FREQUENCY, +/- QRM
SEND LOGS TO KR1S!

BOB SPIDELL, W6SKQ, SILENT KEY

QRP-NE and "72" join the QRP community in noting the passing of long time QRP enthusiast and pioneer Bob Spidell. Our condolences to his family and many friends.

"Look, Ma - No Hands! -- Easy Transmit/Receive Switching for the Color Burst Special"

Dave Benson, NN1G

QRP New England's Project #1, the 80 Meter VXO transmitter kit, is intended to be used with a commercial transceiver pressed into service as a companion receiver. The circuit shown below shows an easy way to provide T-R switching without manual switching. The capacitor C1 connects the receiver to the antenna and the two diodes limit the signal into the receiver front end to about 1.4 V peak to peak during key down. While this is a big signal by receiver standards, it won't harm anything. This circuit does introduce some insertion loss, but this isn't a problem given the normally noisy conditions on 80 Meters. If background noise increases when you connect the antenna, you're ahead of the game.

Modern transceivers provide effective Automatic Gain Control (AGC) on the receiver audio, ensuring that your eardrums remain intact when you press the transmitter key. I haven't even found the need to adjust the AF gain during transmit intervals. I used this scheme during our (May '93) color burst activity to give me trouble free QSK operation.

NN1G

THANKS TO RANDY RAND, AA2U FOR PRESENTING TWICE FOR QRP-NE AT THE ARRL CONVENTION IN MANCHESTER NH. RANDY SPOKE ON SATURDAY ON QRP CONTESTING, THEN DID DOUBLE DUTY FOR US ON SUNDAY AS RICK LITTLEFIELD WAS ILL. RANDY SPOKE ON MILLIWATTING ON SUNDAY. BOTH TALKS WERE FANTASTIC. THANK YOU FOR COMING AND SHARING WITH US RANDY!

RANDY, AA2U (right of photo) SPEAKING WITH JOHN, N1HFE (center of photo) AND ANOTHER QRP CONTEST ENTHUSIAST AT ARRL - MANCHESTER!

WB1BRE, ARRL NE Division Director Asks for Input

Bill Burden, WB1BRE, sent a questionaire regarding Automatic and Semi-Automatic HF Digital Concerns. He asked for input prior to July 13th. I did not include the questionaire as this issue is running late, and he would not receive replies prior to July 13th. However, I am sure that Bill would appreciate comments concerning ARRL proposals to permit Semi Automatic HF Digital forwarding of messages, particularly from QRP CW operators. Please send your comments to him on this or other matters of concern:

Bill Burden, WB1BRE
RR1 Box 157
Strafford, VT 05072

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MEMBERS' NEWS
by Bill Legge, NT1R

Welcome to your members' news column. It is quite short this issue because you didn't do anything newsworthy this quarter or you did something , but did not let me know about it. This can be corrected in the next issue by sending information to me by fax, 207-761-4746, phone 800-777-3803 or by mail to, 232 Foreside Road, Cumberland Foreside, Me. 04110. This column has to do with your radio projects,ham activities, and autobiographical data, plus anything else of general interest.

I am looking forward to a two week vacation in Canada starting July 26 th. Hopefully, my new QRP Plus will arrive before I leave. This new rig is being manufactured by Index Laboratories 19913 48 th Street, Longbranch, WA. 98351 (206-884-3855) and covers 10 thru 160 CW and SSB. They have packaged it, including a SCAF filter, in a case half the size of Argo 515.

Is anyone building a spider, a spirit, a new keyer, or SWR meter? Has someone come up with a new antenna design for portable use? Have you thought of a way to interest others in QRP and ham radio? Others would like to know of you radio travels and experiences.

Don't forget, this is your column.

P.S. Has anyone worked Millie What recently?

72, Bill

REMEMBER QRP-NE SSB NET, MONDAY EVENING, 9:00 PM LOCAL AT 3855 Khz +\- QRM.

CLUB SHIRTS, HATS, PINS, RUBBER STAMPS, COFFEE MUGS, ETC.

Club membership has increased enough to now contemplate polishing up the club logo artwork and seeking prices on an assortment of club items. Before we do, however, we need to know if there is enough interest so that we may offer these things at reasonable prices.

If you would be interested in purchasing any of the above items, I would greatly appreciate hearing from you. Send me a QSL expressing your interest. If you have ideas, please include those. If the interest is strong enough, we will try to have an order form published in the next issue of "72".

Also, if there is a club member out there willing to manage this program, please let Jim Fitton, W1FMR or myself know. I'm willing to provide the necessary artwork, plus assist with establishing the program, but we would need a permanent manager for this program to ensure it's success.

I look forward to hearing from you --

Jack Frake, NG1G, Membership Manager.
POB 1153, Barnard, VT 05031

THANKS

WA3SRE donated 2N3904 transistors to the club, so that we may use them in a future club project. THANK YOU!

TECH HELP NEEDED

I'm interested in learning how to design P.L.L.'s and D.S.P. filters (especially Hilbert transformers) with the objective of improving the reception of QRP signals. I'd like to hear from anyone with knowledge of these subjects. All correspondence will be acknowledged. Please write: Chris Kirk, NV1E, 40 Westwood road, Shrewsbury, MA 01545.

W1CFI'S 80 METER TRANSCEIVER USING SURFACE MOUNT COMPONENTS

INTRODUCTION

When John Collins, Dave Benson and I finished the QRP-NE 80 meter color burst transmitter kit design I began thinking of what might make a good follow-on project. The first thing that came to mind was a companion DC receiver to work with this 80 meter transmitter kit.

However, after thinking about it for a while, I realized that it would not be simple to just add a receiver since T/R switching, receiver offset and a sidetone monitor would be required. This would especially be true if I wanted to make use of the existing VXO in the transmitter to run the receiver since receiver offset would need somehow to be accounted for. If a new receiver were to be designed, I wanted it to use a better mixer than the popular NE602 so that its problems with intermodulation distortion we were hearing about could be avoided. One such mixer is the Plessey SL6440 since it requires low local oscillator drive power and has a 30 dBm third order intercept point. Another desire was to try QSK and RIT. I had never had a QRP transceiver that had QSK and RIT and it looked like a simple thing to try. Also, I wanted to use as few tuned circuits as possible so that the transceiver could be easily put on other bands and maybe even employ band switching.

What I wound up with is a direct conversion transceiver with the following performance characteristics:

RECEIVER
Noise Figure: 15 dB
Dynamic Range: 100 dB
Gain: 74 dB
Bandwidth: 300 Hz at 3 dB points
Tuning Range: 3.5 MHz to 3.6 MHz

TRANSMITTER
Power Output: 3 watts
Keying Characteristics: 5 to 10 mS rise and fall time
Full QSK
RIT: +1.5 KHz, -1 KHz
Sidetone: 800 Hz sinewave

MOSFET TRANSMITTER

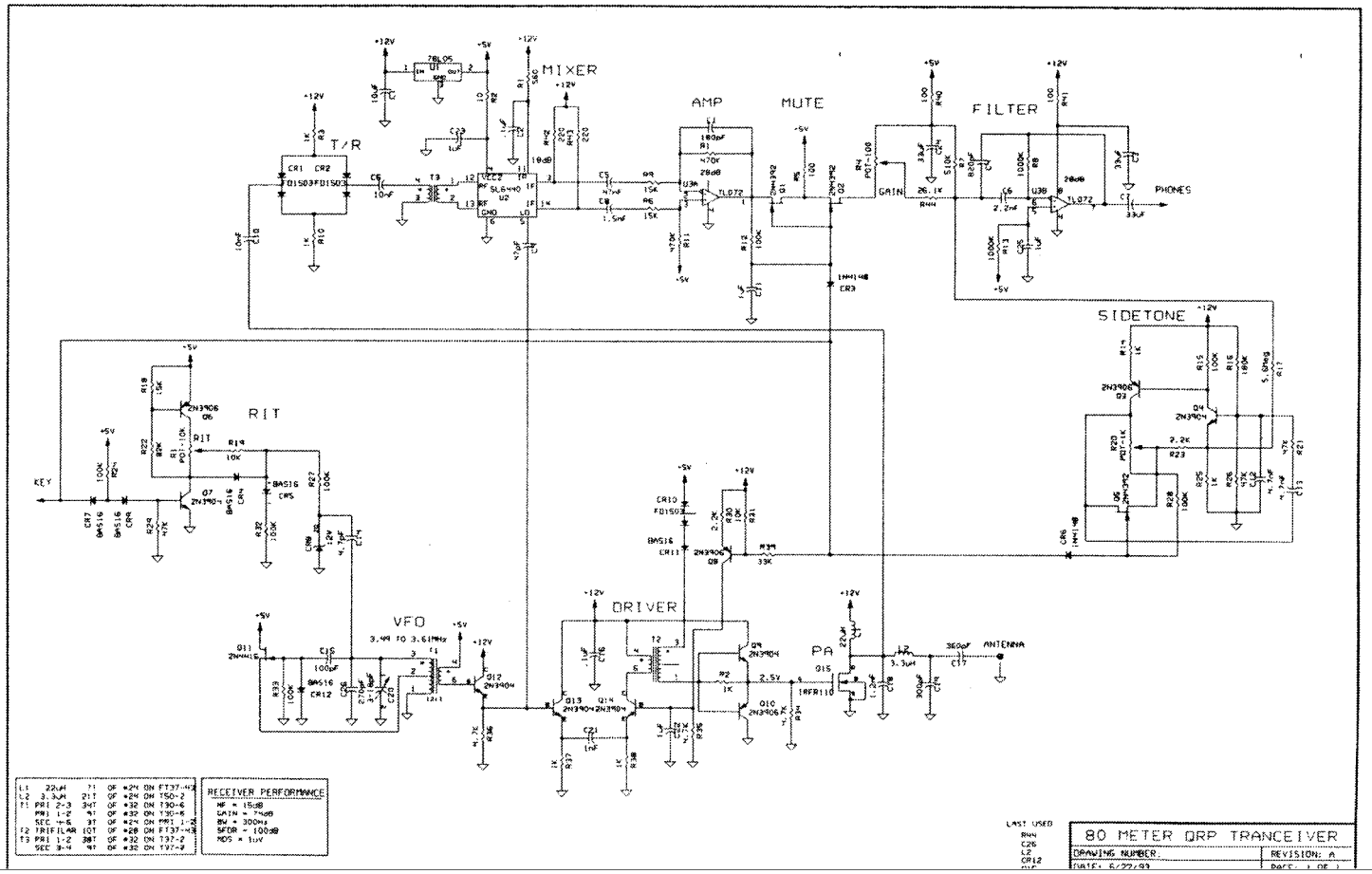
The transmitter uses an IRFR110 or IRFR210 MOSFET as the power amplifier. This part is about the same as the IR510 used in the 80 meter transmitter kit except it is in a surface mount package and it has a lower drain current, a higher ON resistance and lower junction capacitances. The output matching network is simpler and consequently has a higher output harmonic content than that used in the original 80 meter transmitter kit. The driver circuit is a complementary npn/pnp pair and is connected to an untuned transformer. This transformer, T2, provides a voltage gain of about 2 in addition to the Q13/Q14 amplifier. The gain of the amplifier can be adjusted by varying the value of C21. The gate of the MOSFET is very capacitive and requires a fair amount of drive voltage and current due to the multiplication of the drain to gate capacitance by the voltage gain of the MOSFET.

The transmitter is keyed by switching the base bias of Q14 on and off with Q8. C22 and R35 determine the rate at which the base bias voltage, collector current, and consequently the gain of Q14 build and decay during keying. This action provides the gentle rise and fall in the keyed output of the transmitter which in turn eliminates annoying key clicks.

The gate bias for the MOSFET is provided by CR10 and CR11 from the 5 volt supply and should bias the MOSFET gate at 2.5 volts, just below conduction.

The VFO design was taken from "The Optomized QRP Transceiver" and is a Hartley type with the output being extracted from the tuned circuit via transformer T1. It tunes the lower 100KHz of the 80 meter CW band.

W1CFI'S 80 METER QRP TRANSCEIVER



One of the Radio Shack vernier drives was used as a tuning vernier and the VFO design permitted this drive to read the output frequency directly on its dial since it is marked in 0 to 100 increments. No chirp was found by operating the VFO on the same frequency as the RF output but it is still something to be concerned about. The addition of a frequency doubler to the VFO will eliminate any concern for chirp problems and can be constructed by doubling the secondary turns of T1 and providing a centertap. An additional transistor can then be connected to Q12 so that the emitters and collectors of the two transistors are connected in parallel. The base of the new transistor can be connected to the new tap on the secondary of T1 and the centertap connected to the five volt supply. This will provide voltage pulses at twice the VFO frequency to the base of Q13 so that the VFO can then be operated of half of the output frequency. Although I haven't built this, I did simulate it on SPICE and it looks like it would work fine as a frequency doubler. In fact, a switch could be added in series with the base of the new transistor which would allow operation on two harmonically related bands such as 80 and 40 meters.

The RIT circuit provides a constant VFO offset on transmit by biasing the tuning diode, CR8, at about 2.5 volts. During transmit Q6 and Q7 are biased off so that the RIT potentiometer can not change the voltage on CR8 and consequently affect the VFO frequency. When the transmitter is not keyed, Q6 and Q7 turn on and provide bias to the RIT potentiometer so that the bias on CR8 can be varied from about zero volts to about five volts. This has the effect of moving the receive frequency above and below the transmit frequency by about one KHz. C14 can be made a variable capacitor which would then allow the RIT range to be varied.

Since Dave Benson was interested in a good sounding sinusoidal sidetone I thought I'd give it a try here. Consequently the sidetone generator is a Wein Bridge Oscillator with Q3 and Q4 acting as amplifiers and R20 adjusting the operating point for best sinusoidal output waveform. It does use quite a few parts but if one really wants a nice sounding sidetone instead of the usual square wave or triangle wave sidetone, this is a good alternative.

RECEIVER

The receiver taps its input signal off the MOSFET drain which must be biased off during receive in order to reduce drain current noise into the receiver input. The bridge T/R switch, CR1/CR2, allows for good isolation between the transmitter and receiver without using any tuned circuits. T3 makes some attempt at matching the input impedance of the SL6440 mixer to the drain impedance matching network of the MOSFET.

Since the noise figure of the complete receiver depends mainly upon the noise figure and gain of the first stage, the SL6440 with gain provided a much lower overall noise figure than could be obtained with the SBL-1. This is true even though the noise figure of the SL6440 is 11 dB and that of the SBL-1 is about 8 dB. If the gain of the mixer stage can be made large enough the noise figure of the second stage can become insignificant. However, if the gain of the mixer is small or is a loss, then the second stage is very important in determining the overall receiver noise figure.

U3A is a differential amplifier and filter which provides about 28 dB of gain to the mixer output. It provides only a modest amount of filtering. The receiver is muted by Q1 and Q2 during transmit. These transistors turn off during this time so that the large overload transmit signal is attenuated by R4 and R5. It is necessary to bias these transistors so that the dc voltage on their sources and drains are equal and no bias shifts occur when the transistors are switched on or off. Bias shifting here causes loud clicks in the headphones when the transmitter is keyed.

U3B is an active bandpass filter and provides about 28 dB of gain.

CONSTRUCTION

The Transceiver is built on a 2 X 3 inch surface mount prototype board and mounted in a home made 4 X 4 inch box with the tuning capacitor along side. No printed circuit board exists for the transceiver since the availability of surface mount components is very limited at this time. However, surface mount construction allows some very small transceivers to be built while providing minimal parasitic capacitance and inductance along with good grounding. It is also easy to work on since no solder needs to be removed from pc board holes before a component can be removed.

PERFORMANCE

I am very pleased with the transceiver's performance. It has an incredible hi-fi sounding CW tone in my stereo headphones and makes my commercial transceiver sound pretty bad. The RIT simplifies tuning when compared to my MAVTI-40 homebrew transceiver which lacks it. The real operating pleasure was provided by the QSK which is so quiet that it is impossible to tell when the transmitter is keyed except for the loss of antenna noise.

Next I plan to add the VFO frequency doubler and build a transceiver that would operate on both 80 meters and 40 meters. After that I hope to give 30 meters a try.

Paul Kranz, W1CFI
26 Mettacomett Path
Harvard, MA 01451

PLEASE SEND BLACK AND WHITE PICTURES OF YOUR PROJECTS TO N1CUU TO ADD INTEREST TO THE NEXT ISSUES OF "72"

Product Review
Lectrokit SP1 Spider
by Jim Cates, WA6GER

The January '93 issue of 73 has a cover-feature construction article by Mike Agsten, WA8TXT. It is a QRP transceiver, crystal control on BOTH transmit and receive. it is called the "Spider". It can be set up for 80, 40, or 30 meters.

I read the article, mainly because I read everything related to QRP. But my interest was not aroused, remembering all the frustration of my crystal-controlled novice days.Here the matter remained, until Forest, N6ZBZ put one of these Spiders on 40, and asked me to listen for him, portable in Phoenix.

He was Q5 copy, even though his antenna was a dipole only ten feet off the ground. Good, solid, QSO.This grabbed my attention like a..... well, spider bite. Monkey see; monkey do. So naturally I had to have one. On 40, of course, my favorite band. I dug out the issue of 73; checked the old junk box; got out some catalogs to price a couple of needed parts. Gazooks! These minimum order restrictions! Forget it!

I'm not one for kits; too many irritating experiences. But hark! A footnote, Lectrokit has the board and all surface mounted parts for ... for only twenty nine dollars? Hey, for twenty nine bucks, I'm starting to like kits.This one arrived quickly, like return mail? So, let's snip open this padded envelope and find out what is inside.

To begin with, the instructions are so complete as to make assembly 99% foolproof. Definitely a beginner's project. (Blushingly I confess I am the reason why the kit is not 100% fool proof as I managed to install Q6 upside down on the board; not easy with the overlay - clearly marked - right in front of me.)

The instructions and the parts are in separate plastic envelopes. And when I say instructions, I mean with CAPITAL LETTERS. Like sixteen pages; everything from how to read resistor and capacitor values to a drilling

template. Pictorial diagrams, schematic; it's all there. Simply too much to permit a detailed description; so, let the table of contents suggest the extent:

1. Fundamentals of component installation
2. PC Board Assembly
3. Band Selection
4. Top panel assembly and wiring
5. Tune-up and operation
6. In case of difficulty
7. Schematic diagram
8. Mechanical drawings
9. Pictorial wiring diagram
10. PC parts overlay

In addition to all the above, step by step, check-off assembly instructions, making this the most failure-proof kit since Heath.
Is the kit complete? You bet it is. How about solder included, and even an abrasive pad to scour the circuit board to remove the fingerprints you put on it whileturning and eyeballing. All parts are there, and they are supplied in bags, permitting bite sized assembly chunks, letting you follow a logical-sequence assembly.

Ok, so now it is all assembled. How easy is it to tune up? Apple pie. Peak one transformer for RF out, one for maximum received signal strength (loudness). That's it. How well does this rig work? Is it practical? Yes, oh yes,yes, yes. In a month of casual operating, around 0800-0900 Pacific time, on my two crystal frequencies, 7120 & 7125, I have worked and confirmed seven states, and I snag a qso almost every day. At night there are the usual foreign broadcast problems, same as you hear from your megabuck rig. But I've worked east to the Great Lakes, on an average night.

Is one watt enough? Believe me, 559 to 599 reports are common. Do you need a cw filter? After all, the receiver bandpass is admittedly a tad broad. Hey, this is a simple rig. Naw, the best filter is the one between your ears. Learn to use it!

I now have three Lectrokit Spiders. And they have put fun back into hamming. I love the challenge, one watt, crystal control, forty meter QRM and QRN. If 40 isn't your cup of tea, put yours on 80 or 30. You'll love it!

Lectrokit, 401 W. Bogard Rd., Sandusky, OH 44870

SP1-BBM: Bare PC board with manual -$12 postpaid.
SP1-PC: PC board, manual, all PC board parts....$29
SP1-Kit: Complete kit, including case.....$39
SP1-AT: Assembled Spider, 80, 40, or 30.....$59
AF-1: Audio bandpass filter kit.....$6
Shipping (Except SP1-BBM).....$4
Ohio residents add 6% tax

MAY DAZE SPRINT PARTICIPANTS

NG1G; W3HVQ; WA1GUV; W3TS; W2JEK; WN2V; WA1JXR; WT1M; KN1H; KR1S; W1CFI; NO1E; VE2DRB; N8ET; W1FMR

JOIN IN THE FUN DURING SEPTEMBER ON 3.579 Mhz. (NOVICE BAND AROUND 3.6864 Mhz.) EVERY THRSDAY EVENING, 9-10 PM EST! Send your logs (no matter how big or small) to KR1S following the Sprints!

"HOSS TRADERS" AT ROCHESTER OCTOBER 15TH & 16TH, 1993 ---- BRING HOMEBREW PROJECTS TO SHOW FELLOW QRP'ERS!

-FOR SALE-

Larry, KI2L has the following items for sale:

Astron RS-35M power supply -- $90.00
Icom IC 228 H 45 Watt 2mtr. FM mobile. Excellent condition. $300.00

Please contact Larry at PO Box 845
Leominster, MA 01453
(508)-840-1598

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QRP BASICS,
by Jim Fitton, W1FMR

What is QRP? It is Amateur radio operation at 5 watts or less output power on CW; 10 watts PEP (or less) on SSB.

When do I use QRP? QRP is great for QRP contests, awards, net activities and any other time you would like to improve your skills and be challenged.

Where do I operate QRP? Anywhere and everywhere you would ordinarily operate. The most successful mode is CW, but many are successful at SSB, FM, AMTOR, Packet, and Satellite work.

There are specific frequencies where QRP'ers hang out. A few of the more common CW frequencies are 3.560; 7.030 & 7.040; 14.060; 21.060; and 28.060 Mhz.

Portable operation is especially suited for QRP. Many small rigs and kits are available for camping, hiking, cottage and motel operating.

There is nothing like the thrill of making your own equipment. Imagine being able to say "Rig here runs 2 watts, station is all home brew and solar powered." The average person with above average determination can accomplish this goal!

What do I do with QRP? Randy Rand, AA2U, has worked over 300 countries, won many QRP contests, and holds 5 band DXCC - QRP! Fred, K6MDT from California, has checked into the Saturday morning New England QRP Net, many times, on 40 meters. Bob, W1HH has worked DX contest s using 25 Milliwatts! Mike, W3TS has won European QRP contests, from the USA!

And this is not even the best part of QRP! The best part is the people. Whether it's QRP Field Day, a club meeting, operating W1AW/QRP, or meeting at Dayton with the QRP gang, the people are terrific. I recommend joining at least 2 QRP clubs - The QRP Amateur Radio Club International (QRP ARCI) and your local group (QRP-NE). QRP clubs can help you get the maximum enjoyment from your hobby.

KA7QJY SMALL PARTS HAS NEW LOCATION AND NEW KIT'S (INCLUDING NN1G'S 20M. SUPERHET)

Danny Stevig, KA7QJY has moved. His new address is listed below. Also, please take note of the fact that he is offering a kit version of NN1G's 20 meter superhet transceiver for $49.95. He offers other kits, including the Neophyte receiver and the Two-fer transmitter. Danny has been known to QRP'ers as an excellent parts resource. You may want to write him and request his latest list of kits and parts.

Danny Stevig, KA7QJY
Dan's Small Parts & Kits
1935 S. 3rd. W. #1
Missoula, MT 59801
Phone/FAX 1-406-543-2872

The N6KR 4-Band QRP Transceiver.

If you're got your hiking boots on and you'd like to build the ultimate battery-powered HF CW transceiver kit, drop me a note. Expected availability (limited quantites and date subject to change): July 1, 1993. Expected pricing (subject to change): $270 for basic transceiver with 40- and 20-meter bands; add $60 each for 30 and 15 meters; internal keyer and battery kits additional. No orders accepted yet--please wait for ordering information by mail. If you have questions or comments, please call or write:

Wayne Burdick, N6KR
74 Elm Street
San Carlos, CA 94070
(415) 592-2700.

FIELD DAY REPORT, 1993

Here are the totals for the QRP-NE 1993 Field Day.

Band	CW	Phone
80	101	0
40	131	0
20	211	7
17	002	24
15	214	5
10		12
Packet	104	
2m	001	83
440		7
Total		
	764	**138**

902 Total QSO's

8330 QSO points
+960 Various Bonuses

9290 Likely score.

We operated class 3A, Battery, from Western Mass Section. HF Rigs and antennas were:

80	TS-440	160 Meter Zepp
40	HW-9*	40 Meter dipole
20	Argo 509	Corner-fed delta loop
17	17 meter hand held	Hustler mobile
15	IC-735	A3 tri-bander
10	TS-440	160 Meter Zepp

* Dave, NN1G brought his 40m version of the 20m rig that appeared in the QRP Quarterly for part of the weekend. Andy, KZ1L brought 2 versions of the Idiom Press CMOS Super Keyer for the crew to enjoy.

We had 11 participants, Frandy N1FJ, Barb NK1I, Art KY1K, Jim W1FMR(we used his call), Andy KZ1L, Carl N1CUU, Greg WA1JXR, Derek (son of JXR), Dave NN1G, Tim KB1ARZ (Novice, son of Dave) and Mark NX1K. For the second straight year, we set up at the Princeton, MA Light Department's windmill farm on the West side of Mt. Wachusett. This site, with its 8 windmills, produces about 7% of the electrical power for the town of Princeton and is about 450 meters above sea level. The site provides a clear shot to the South and West and our experience shows we get good reflections off the mountain behind us.

It was hot and windy on Saturday, with the windmills turning until about midnight. For the rest of the weekend, the air was still with the exception of very heavy rain for about an hour early Sunday morning. We had a great time. Mark, NX1K did a great job of organizing our effort this year and last. We hope more of the "gang" will join us in 1994.

QRP-NE WELCOMES NEW MEMBERS

N1JZO	ROBERT CHARTIER	NE-165	WARE, MA
KA1EEC	ERIC JOHANSSON	NE-166	BILLERICA, MA
N7WIM	KEVIN PURCELL	NE-167	SEATTLE, WA
N8CQA	BUCK SWITZER	NE-168	MARYSVILLE, MI
WB9EEL	JOHN WOODS	NE-169	
N8ET	WILLIAM KELSEY	NE-170	FINDLAY, OHIO
AL7GQ	GENE MCGAHEY	NE-171	DENVER, CO
KE2YK	GARY UTZ	NE-172	MORICHES, NY
N1IPT	JOHN FERGUSON	NE-173	BUZZARDS BAY, MA
KB2LRI	DAVID LONG	NE-174	WAPPINGER FALLS, NY
W4AT	CHARLES HENNESSEY	NE-175	ORLANDO, FLA
N1KSN	ANDREW PALM	NE-176	MONROE, CT
KB2JE	WALTER WINDISH	NE-177	WAYNE, NJ
AA6MV	LARRY SELMAN	NE-178	SANTA CRUZ, CA
KD4GLC	RUSTY SMITH	NE-179	LOUISVILLE, KY
WT1M	BRUCE WALKER	NE-180	FRAMINGHAM, MA
WA3SRE	JOHN SALONY	NE-181	YORK, PA
K1GDS	DOUG HENDRICKS	NE-182	DOS PALOS, CA
KM1N	BILL LONGWORTH	NE-183	SALEM, NH
WA1TRY	RICHARD AUBIN	NE-184	S. MERIDEN, CT
WB1ASL	RICH FORCE	NE-185	LANCASTER, NH
N1JXS	ALAN MOLIN	NE-186	STOUGHTON, MA
K1YPP	DENNIS BLANCHARD	NE-187	HAMPSTEAD, NH
N1NSS	MARK CIRAVOLO	NE-188	WATERTOWN, MA

FIRST SUNDAYS QRP OPERATING EVENT!

If you would like to meet up with other QRP'er in a friendly qso, try operating First Sundays of every month on some of the following frequencies. Don't hesitate to call CQ QRP --- you may be the operator who starts things rolling!

BAND	CW	SSB	NOVICE
160	1810	1910	
80	3560	3985	3710
40	7040	7285	7110
30	10106		
20	14060	14285	
17	18080	18130	
15	21060	21385	21110
10	28060	28385	28110

NOTE: THE LIST OF FREQUENCIES ARE BASED ON THE BEST INFORMATION AVAILABLE !