SPRAT

THE JOURNAL OF THE G-QRP CLUB
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G3RJV (9M8GD) IN BORNEO

G3RJV presents a G QRP Club plaque to J. Chang 9M8FC at the opening of the 1st Asian-Pacific QRP Convention in Kuching, Sarawak. G3RJV and KK7B were guests of the Radio Amateur Club Kuching

THE EPIPHYTE - THE BLT SSB EXCITER - BLT LINEAR AMPLIFIER
PASSIVE PHASE SHIFT NETWORK - RESISTIVE BRIDGE - MALTA 40 MODS
THE CONTESTER RECEIVER - ANTENNAS, ANECOTES, AWARDS
COMMUNICATIONS AND CONTESTS - QRP CALENDAR - CZEBRIS 1995
YEOVIL CONVENTION - NOVICE - SSB - VHF - MEMBER'S NEWS

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Rev. George Dobbs G3RJV

EDITORIAL :

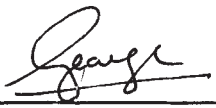
In late November I had the pleasure of attending the **First Asian-Pacific QRP Convention** at Kuching in Sarawak on the Island of Borneo. Rick Campbell, KK7B and I were invited as guests of the Radio Amateur Club Kuching to lecture to the convention.

Sarawak, a delightful and interesting country with a tropical climate, is the eastern part of the state of Malaysia. The convention was very well organised by the Kuching Club and attracted several visitors from other Asian countries. The hospitality was outstanding and I cannot recall feeling more welcomed and at home in any place I have visited. The lectures by KK7B and myself were well received. There is an obvious keenness to promote QRP in the area with a special interest in the building of QRP equipment. Plans have been established to supply the local club with literature and materials to continue the work begun at the convention.

On my way home I stayed for two nights in Kuala Lumpar, where the local club entertained me to dinner and invited me to give an impromptu talk on QRP. Again the level of interest was high and materials have been supplied to the local members.

A full account of the visit, with pictures, will shortly appear in the UK amateur radio press. I wish to thank all the organisers and local radio amateurs for an enjoyable and worthwhile experience, especially 9M8FC, 9M8SC and 9M8ST in Kuching and 9M2RS in Kuala Lumpur.

As we move into 1995, the twentieth year of the G QRP Club, may I wish you all a peaceful and contented New Year.



G3RJV

EDITED BY GEORGE DOBBS G3RJV ARTWORK BY A.W. (MAC) McNEILL G3FCK
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The Following has been condensed from an article published in the September 1994 issue of QRPp The Journal of the Northern California QRP Club

THE EPIPHYTE : A SIMPLE QRP SSB TRANSCEIVER

Derry Spittle VE7QK,1241 Mt. Crown Rd. N.Vancouver, BC, Canada. V7R 1R9

Battery operated portable HF equipment still affords the only practical means of communication from wilderness areas beyond the range of VHF repeaters

THE OBJECTIVE

To construct a simple portable transceiver capable of providing effective voice communication with the nightly British Columbia Public Service Net on 3729 KHz from anywhere within the province. It should be:-

* of simple design and easy to replicate,
* inexpensive to construct from readily available parts,
* small and light enough to backpack,
* able to withstand rough usage,
* capable of operating from AA batteries of 1Ah gel-cells, and
* tuneable over a limited range to permit off-frequency contacts.

THE CIRCUIT

The circuit for the "Epiphyte" has evolved from WA3RNCs "Neophyte", A second NE602 mixer and a SSB filter were first added to create a superhet receiver. To generate SSB the oscillators were reversed a microphone and speech amplifier added together with a narrow bandpass filter to remove the image, and amplifier to provide some useful output and a low pass filter to attenuate harmonics. Some T/R switching is all that was requited to create a transceiver.

The speech amplifier is an LM741 and an electret microphone plugs directly onto the PCB.

Ceramic resonators (available from CIRKIT in the UK) are used in both oscillators and their outputs are switched with a MC14066. Fortunately, 4.19 MHz is a "standard" resonator frequency which allows tuning between 3720 and 3780khz.

The PA is a VN10KM operating in Class A.

A DPDT relay provides DC switching voltages to the MC14066 and other circuits. It also grounds the RF input to the receiver on transmit.

To simplify both soldering and etching the PCB is single-sided. Wide traces are used throughout.

Such simplicity in design has not been achieved without some compromises having been made. There are inevitably some spurious responses but these fall below the maximum levels established for QRP operation.

ASSEMBLY

Commence by soldering in the two wire jumpers located beneath the socket of U-4. Next, solder a short length of bare wire to the ground tab on the muRata filter case, fold the tab under and feed the wire through the PCB to the off-centre ground pad before mounting. Install the IC sockets after first removing or cutting off the unused contacts in the socket for K-1. Install the remainder of the components leaving the toroids and screened coils until last.

Regardless of the final packaging, it is recommended that a simple chassis, formed out of a small sheet of aluminium (Figure 1), be used for testing and alignment. While pads are provided for external connections it is still recommended that Molex type connectors be used to facilitate removal. The PCB is drilled to accommodate them.

Install the components on the panels (Figure 1), mount the PCB on the chassis with metal separators and complete the external connections. With the exception of the microphone, negative leads may be omitted. Couple LED-1 at the antenna lead with a twisted pair to a three or four turn link over an FB-43-2401 core. A switch (not shown may be placed in the B+ line.

TESTING & ALIGNMENT

Remove all ICs and jumpers leaving only the relay in place. Connect a 12-14V fused power supply. Include an "idiot diode" in the line if you like to play it safe.

Verify with a VTVM that both oscillators are functioning. adjust the LF oscillator to 452.5KHz. Install U-2, U-3, U-4 and U-5. There should be 100 - 300 mV RF at pins 6 of U-2 and U-3. Connect a resonant antenna such as a half-wave dipole or inverted-vee. Listen for a signal and peak L-10 to align the receiver. Install dummy load. Set the bias on Q-4 and Q-5 to 1.5V before attaching the meter. with the meter attached re-adjust the bias to give a standing current of 30mA in Q-4 and 10 mA in Q-5. Install U1 and the microphone. With modulation, the current in Q-5 should peak to around 100mA..

The preferred method for aligning the RF filter, optimising the foregoing settings, and checking performance is to use a calibrated oscilloscope, frequency counter, two-tone audio oscillator and spectrum analyser. While some of us have become quite adept at generating a 1200Hz tone with our vocal chords, talking t ourselves to evaluate speech quality and making adjustments with nothing more than a receiver S-meter, it is a practice to be frowned upon. Moreover, it soon leads to family members questioning our sanity.

CONCLUSION

The "Epiphyte" has never failed to maintain communication with the Public Serve Net from remote areas of British Columbia. Battery drain averages around 35mA on receive and 170mA on transmit. reports on the audio quality have been complimentary.

Nevertheless, there seems little point in limiting the output to 1W when camping close to a vehicle or when kayaking. Battery weight is much less of a problem. A 7ah gel-cell will comfortably handle a 5W amplifier and provide a week or more of normal operation between charges. A construction for such an amplifier has already been prepared.

ACKNOWLEDGEMENTS

Most of the circuitry has been adapted from designs found in SPRAT, RADCOM, ARRL SOLID STATE DESIGN and QST. Any claim to originality lies solely in the PCB layout. I thank all members of the QRP Club of British Columbia for continual offers of advice and uninhibited signal reports - neither of which has required solicitation when anything was amiss; Doug Hendricks, K16DS for inviting me to publish an article in QRPp, Eric Swartz, WA6HHQ, for re-drafting the circuit diagram and lab-testing the rig; and finally, the VANCOUVER SUN crossword puzzle editor and O.E.D. for EPIPHYTE, a plant growing on another [f, EPI + Gk. *phuton*]

If you have questions or suggestions, please feel free to contact me at the above address or preferably via Internet. My .e-mail address is jds@freenet.vancounver.bc.ca

PRINTED CIRCUIT BOARDS FOR THE EPHIPHYTE

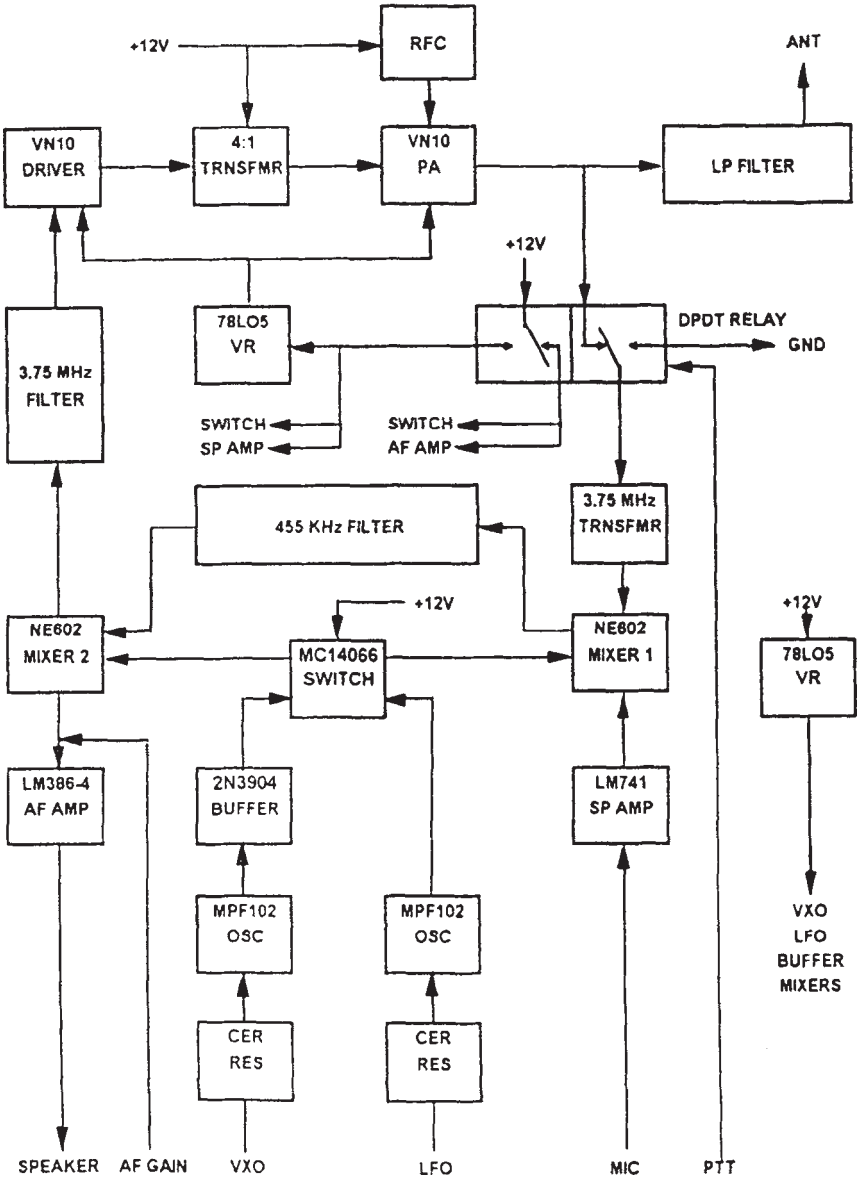
for £5.50 each including postage and packing
are available from:
HANDS ELECTRONICS, TEGRYN, LLANFYRNACH, DYFED. SA35 0BL.

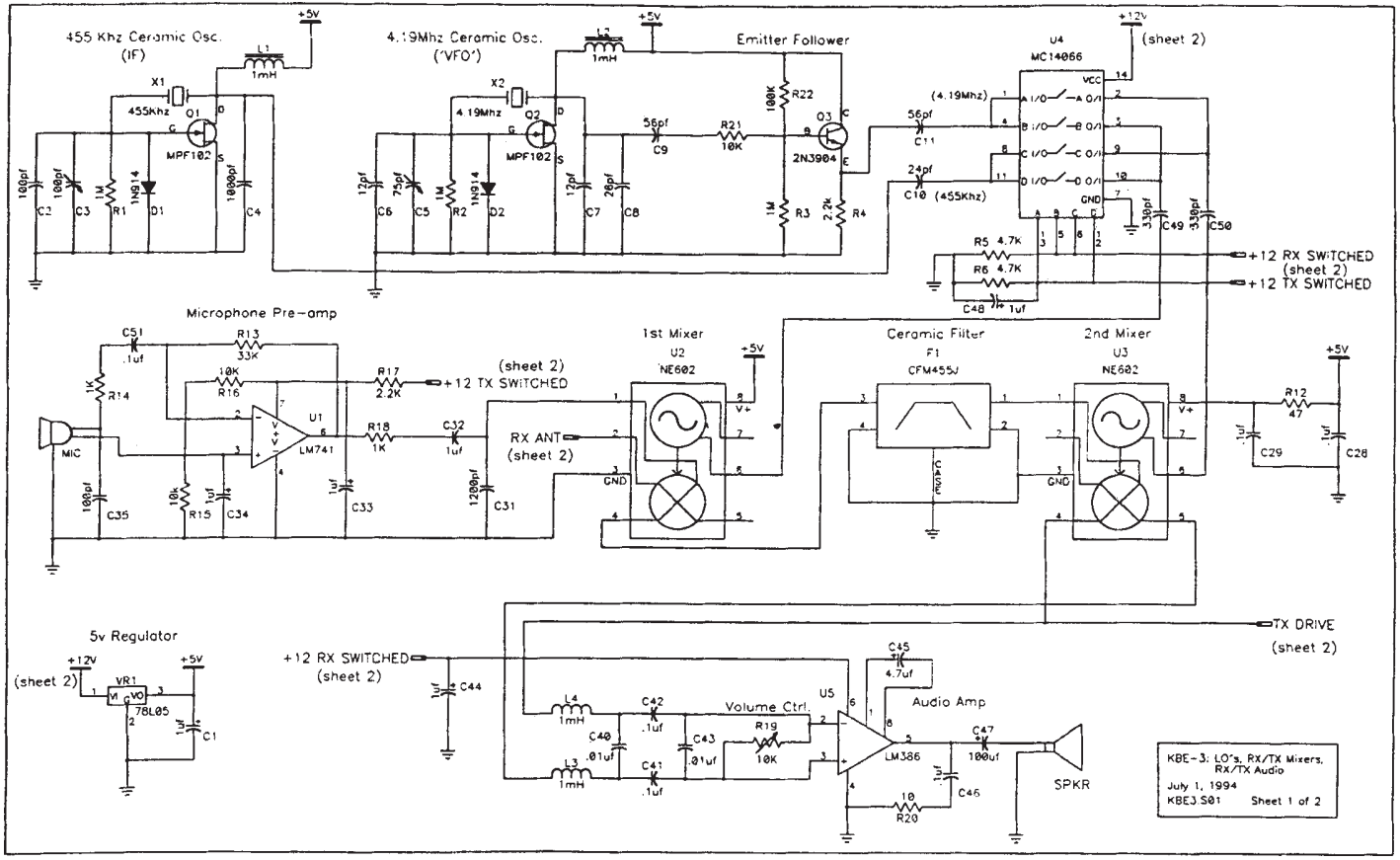
KITS OF PARTS FOR THE EPHIPHYTE
are available from:
JAB ELECTRONIC COMPONENTS, The Industrial Estate, Rear of Queslett Motors, 1180 Aldridge Road, Great Barr, Birmingham, B44 8PB. Telephone 021-366-6928 for a price.

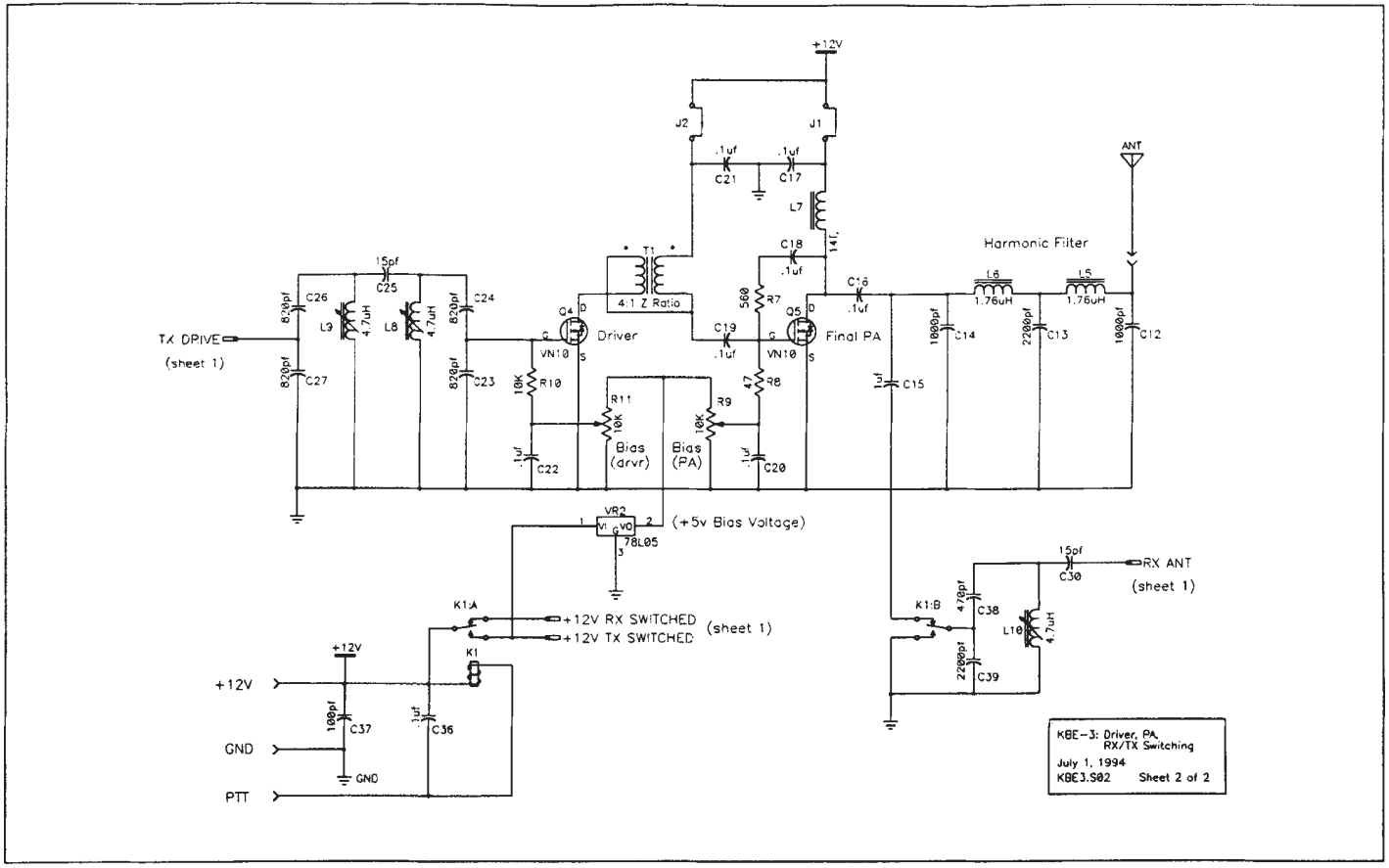
COMING IN THE NEXT ISSUE OF SPRAT

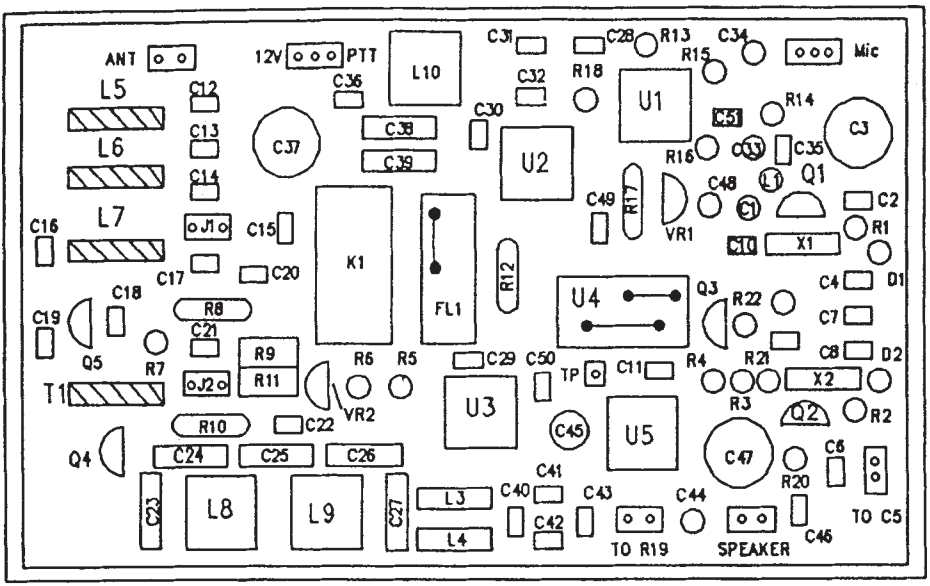
A FIVE WATT AMPLIFIER AND AND EXTERNAL VFO FOR THE EPHIPYTE

"EPIPHYTE" BLOCK DIAGRAM

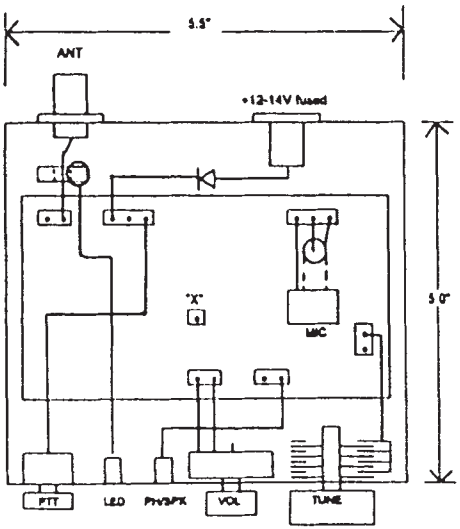



455 Khz Ceramic Osc.
(IF)
4.19Mhz Ceramic Osc.
('VFO')
Emitter Follower
MC14066
(sheet 2)
Microphone Pre-amp
1st Mixer
Ceramic Filter
2nd Mixer
5v Regulator
Volume Ctrl.
Audio Amp
LM386
SPKR
+12 RX SWITCHED
(sheet 2)
+12 TX SWITCHED
(sheet 2)
RX ANT
(sheet 2)
TX DRIVE
(sheet 2)
KBE-3: LO's, RX/TX Mixers, Rx/TX Audio
July 1, 1994
KBE3.S01 Sheet 1 of 2


+12V
J2
J1
.1uf
C21
.1uf
C17
L7
14T
ANT
Harmonic Filter
T1
4:1 Z Ratio
C18
.1uf
15pf
C25
820pf
C26
L9
4.7uH
L8
4.7uH
820pf
C24
C16
.1uf
L6
1.76uH
L5
1.76uH
TX DRIVE
(sheet 1)
820pf
C27
820pf
C23
Q4
VN10
Driver
560
R7
Q5
VN10
Final PA
C19
.1uf
1000pf
C14
2200pf
C13
1000pf
C12
10K
R10
R11
10K
R9
10K
47
R8
1uf
C15
.1uf
C22
Bias
(drvr)
Bias
(PA)
.1uf
C20
VR2
78L05
(+5v Bias Voltage)
15pf
C30
RX ANT
(sheet 1)
K1:A
+12V RX SWITCHED
+12V TX SWITCHED
(sheet 1)
K1:B
470pf
C38
L10
4.7uH
2200pf
C39
K1
+12V
+12V
100pf
C37
.1uf
C36
GND
GND
PTT
KBE-3: Driver, PA,
RX/TX Switching
July 1, 1994
KBE3.S02 Sheet 2 of 2



EPHIPHYTE CHASSIS WIRING



EPHIPHYTE PARTS LAYOUT

"X" = connector for extrenal VFO and/or digital display
1.5" panels front and back
Twist wires to LED
Feed wires to PTT & LED under PCB

EPHIPHYTE PARTS LIST

CAPACITORS

C1	1mF	tantalum
C2	100pF	disc cer
C3	100pF	trimmer (10mm) (a)
C4	1000pF	disc cer
C5	(see CHASSIS & FIXTURES)	
C6,7	12pF	disc cer (NPO)
C8	26pF	disc cer (NPO)
C9	56pF	disc cer (NPO)
C10	24pF	disc cer (NPO)
C11	56pF	disc cer (NPO)
C12	1000pF	disc cer
C13	2200pF	disc cer
C14	1000pF	disc cer
C15 to 22	0.1mF	mon cer
C23, 24	820pF	polystyrene (axial) (b)
C25	15pF	disc cer (NPO)
C26, 27	820pF	polystyrene (axial) (b)
C28, 29	0.1mF	mon cer
C30	15pF	disc cer (NPO)
C31	1200pF	disc cer
C32	1mF	mon cer (c)
C33, 34	1mF	tantalum
C35	100pF	disc cer
C36	0.1mF	mon cer
C37	100mF	electrolytic
C38	470pF	polystyrene (axial) (b)
C39	2200pF	polystyrene (axial) (b)
C40	0.01mF	mon cer
C41, 42	0.1mF	mon cer
C43	0.01mF	mon cer
C44	1mF	tantalum
C45	4.7mF	electrolytic
C46	0.1mF	mon cer
C47	100mF	electrolytic
C48	1mF	tantalum
C49, 50	330pF	disc cer
C51	0.1mF	mon cer

Unless otherwise specified all capacitors are radial with 0.2" lead spacing. Monolithic caps may be used in place of the disc ceramics but are generally only available in packages. All 35V or better.

(a) A 60pF 10mm trimmer may be substituted here. The Philips 10mm trimmer caps have a different pin spacing but the PCB can be re-drilled to accomodate them.

(b) Available from Digi-Key.

(c) Non-polarized.

RESISTORS

R1, 2, 3	1M	
R4	2.2K	
R5, 6	4.7K	
R7	560	
R8	47	
R9	10K	vertical multi-turn trimmer (a)
R10	10K	
R11	10K	vertical multi-turn trimmer (a)
R12	47	
R13	33K	
R14	1K	
R15, 16	10K	
R17	2.2K	
R18	1K	
R19	(see CHASSIS & FIXTURES)	
R20	10	
R21	10K	
R22	100K	

All fixed resistors 1/4W

(a) Should be "in-line" pinout and "slim" profile in order to fit PCB

INDUCTORS

L1, 2, 3, 4	1000uH	miniature molded chokes
L5, 6	21 turns	Amidon T-37-2
L7	15 turns	Amidon FB-43-2401 (a)
L8, 8, 10	4.7uH	Toko 154ANS-T1005Z (b)
T1	7 bifilar turns	Amidon FB-43-2401 (a)

(a) These are described as "ferrite beads" but are in fact toroids

(b) These coils may be ordered from CIRKIT in UK along with the filter. DIGI-KEY lists them but the price is significantly higher.

CERAMICS

F1	455KHz	MuRata SSB filter (CFM455J1) (a)
X1	455KHz	ceramic resonator (a)
X2	4.19MHz	ceramic resonator (b)

(a) These filters seem to be available only from CIRKIT in UK. The 455KHz resonator and coils may be ordered from them at the same time. CIRCKIT catalogue prices include VAT (15%) which is not applicable to overseas orders. This helps offset the mailing cost.

(b) 4.19MHz resonators are available from RS Components in UK (the G-QRP Club has been most helpful in acquiring them for me and, I believe, presently has a small supply on hand). They are quite inexpensive. This is a "stndard" frequency and should be available in NA. Digi-Key carries surface-mounting 4.19KHz resonators only.

CHASSIS MOUNTINGS & EVERYTHING TO GET YOU ON THE AIR

C5 100pF air-spaced variable. Use a reduction drive (or reduce the value to c. 35pF with fixed capacitor(s) in parallel) for bandspread.
R19 10K (log) pot and knob.
BNC connectors (or RCA phono plug & socket).
Polarized (coax) power plug & socket.
Fused lead.
2.5"D 8ohm speaker and/or phones.
LED (antenna current) + Amidon FB-43-2401.
LED (power on) + 500 ohm res.
Chassis (aluminum sheet c. 5.5" x 7.5").
Stranded hook-up wire.
Enameled wire for toroids.
80M dipole & feeder.
12V power supply or battery.

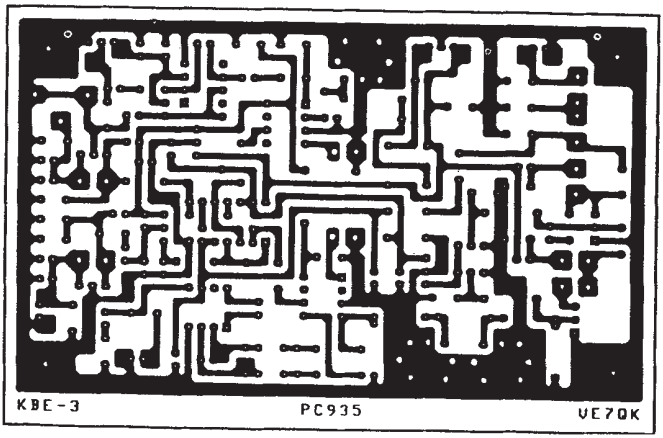
SEMIDUCTORS

D1, 2, 3	1N914	
Q1, 2	MPF102	
Q3	2N3904	
Q4, 5	VN10KM	
U1	LM741	
U2, 3	NE602	
U4	MC14066	
U5	LM386-4	(16V)
VR1, 2	78L05	

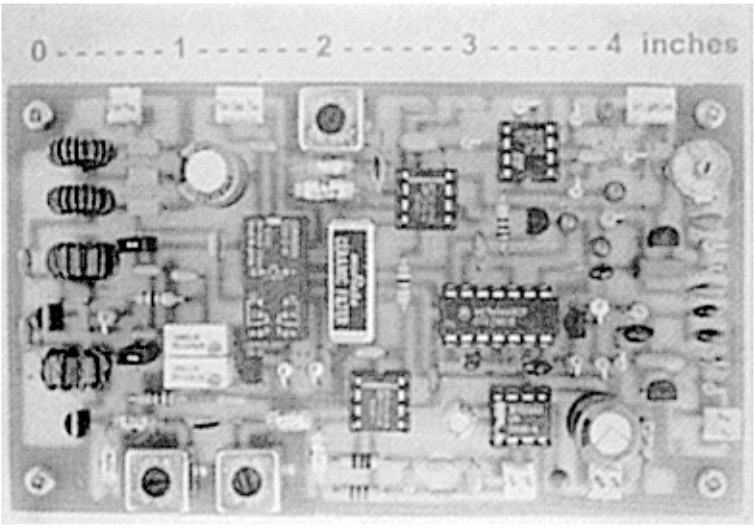
MISCELLANEOUS

K1 DPDT relay 12V. (Clare LX200D00 or equivalent)
MIC Electret microphone (RS270-092. This has 3 leads)
J1, 2 Shorting jumpers & breakaway header (0.1" spacing)
1-4 Molex 0.1" polarized 2-circuit terminal housing, mating header & crimp terminals(a)
1,2 Molex 0.1" polarized 3-circuit terminal housing, mating header & crimp terminals(a)
1-4 0.25" 4-40 brass hex spacers & machine screws

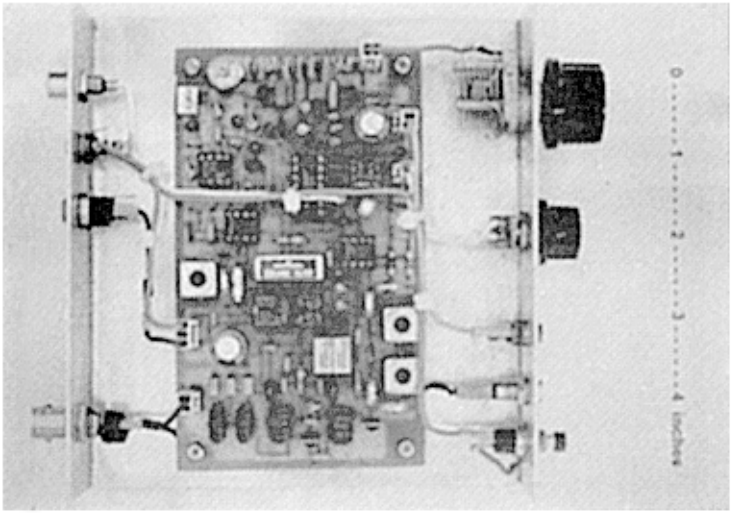
(a) Available from Mouser Electronics



EPIPHYTE PCB [Half Size]



EPHIPHYTE BOARD LAYOUT



BOARD MOUNTED WITH CONTROLS

The B.L.T. 20/17m SSB EXCITER Part 2

Byron C. Weaver WU2J. 430 Plant Ave.,NE, Palm Bay, Florida 32907

This project started out with several ideas and challenges in mind. The NE602 was to be used as a balanced modulator; the VXO and the Carrier Oscillator would be separated by only 455 KHz thru the use of small, inexpensive, no-fuss ceramic filters; simplicity and minimum parts count were to be an aim (words of the great Fred Sutter); and the 75 dB gain CA3020A (NTE 784) was to be pushed beyond its specified range to 20 and 17 meters.

Yes, I can hear the sceptics! Yet, I wanted to do something different for a change. My first QRP receiver was for 40m and that was almost 30 years ago. (The "Wee-Ceiver", CQ, Oct. 1967). The lower bands don't lend themselves to quiet SSB DX with G-QRPers. Antennas must be long and up high. Mobile antennas are not too efficient either. I often wondered why I never heard many European QRPers on 17 meters and those heard were running 100 watts. Finally, it dawned on me, may be they don't have a rig for 17m? That was my situation three years ago, until I built one. My opinion is 17m is a rare band that could be owned by QRPers!

My original exciter was finished in the Spring of '93 and it met all my goals with a power output of .75 watts. The carrier and spurious (include. VXO!) were down over 50 dB; quite respectable. To achieve these results a designer has to drive the NE602's (Pin 6) with not much more than the 200 mW minimum signal required. Separate oscillators permit controlling this level. Simplicity dictates NO IC SOCKETS in the TX or RX, otherwise the suppression will suffer. In my original unit, small walls from transformer cans were installed after the TX Mixer (IC3) to act as shields and prevent any leakage past the filter stages (T1 & T2). This is good practice and effective in this type of circuit. The shields were as high as the filter cans on the top side of the board and only one-quarter inch high on the bottom side. Their effect was very measurable. RG-174 is used for any signal leads.

The current PC board was designed especially for this SSB Exciter with the help of FAR Circuits. 'RJV ;thought with PC boards it'd make a nice Club "fun" project. FAR made an error in using 10mm transformer cans instead of the 7mm I used and prefer. The larger cans do make it easier for amateurs to adjust the turns. The larger cans do make it easier for amateurs to adjust the turns. You might think they are more 'robust' which ;is incorrect. First, unwinding a turn or two can have a marked difference in frequency change, i.e. you can't fine-trim them at higher frequencies. Their BW (for two) seems to be wider than the 7mm cans. Second, out of 10 I purchased, 4 were scrambled wound when the interior was examined. I had to rewind them! Guess a better employee is used on the 7mm cans as they're always perfect.

Since I've been using both transformer sizes for many projects the last few years, I've provided that additional information for amateurs interested in the higher frequency bands using these cans. (For bands lower than 30m, shunt capacitance is simply added). When adjusting the Receiver input transformers for 50 ohms (see SPRAT 80), it's useful to also measure the voltage on Pin 1 of the NE602 (via a diode detector and DVM. Voltage should be near maximum when the filters have been adjusted for minimum SWR at the centre receive frequency. Many times, I've rewound the transformer that feeds the '602 tapping off the primary winding and not using the small secondary. This way I could pick an impedance point near 1500 ohms the '602 is said to have as input impedance. Actually, I feel a high Z is better for the '602 because of its very small capacitance. I must say, however, little difference in results have been noticed so the simpler the better! Incidentally, the internal capacitor is 47 pf. and I prefer them inside the can.

RIT and a vernier dial I find unnecessary. An IF Noise Blanker may be added for mobile operation nit it's not needed on my own car. An amplifier will be added later.

The microphone circuit in SPRAT 80 (pg 35) is used with my TX by going directly to Pin 1 , IC1. It's recommended. Note that the PC board has been designed with holes for a conventional audio amplifier prior to the '602 to facilitate your mic design. My intent was to make these boards a general purpose as possible for many projects.

Adjustment for the Carrier Oscillator is by selection of C13 and/or C14. Adding capacitance in parallel with C13 will take the frequency down. There is a place for a trimmer capacitor between CR1 and ground

although I haven't found it necessary. You can jumper the Carrier Oscillator via C11 directly to the input of CFL1 to get a CW output to align T1 & T2 roughly. Be careful to adjust to the correct and desired frequency. It's possible to get the VXO frequency, the sum and the difference frequencies with the 10mm cans. A frequency counter is ideal for tune-up and a second receiver the bare-minimum. I built the two-tone audio generator (QST, Nov.'93) which sure beats whistling! A good heat sink is required for IC6. I made my own from copper strips in a flange fashion. It was soldered directly to the top of the final via a small hole in the heat sink. (Not recommended)

Perhaps the best method of checking out a SSB Transceiver it to talk and listen to your XYL (using another Xcvr) with dummy loads connected to the antenna jacks and a short piece of wire on the hot-side of the load. Best results are achieved with equipment in different rooms and each of you changing positions a few times. (She'll love it, gives her a chance to talk to you once in a while!)

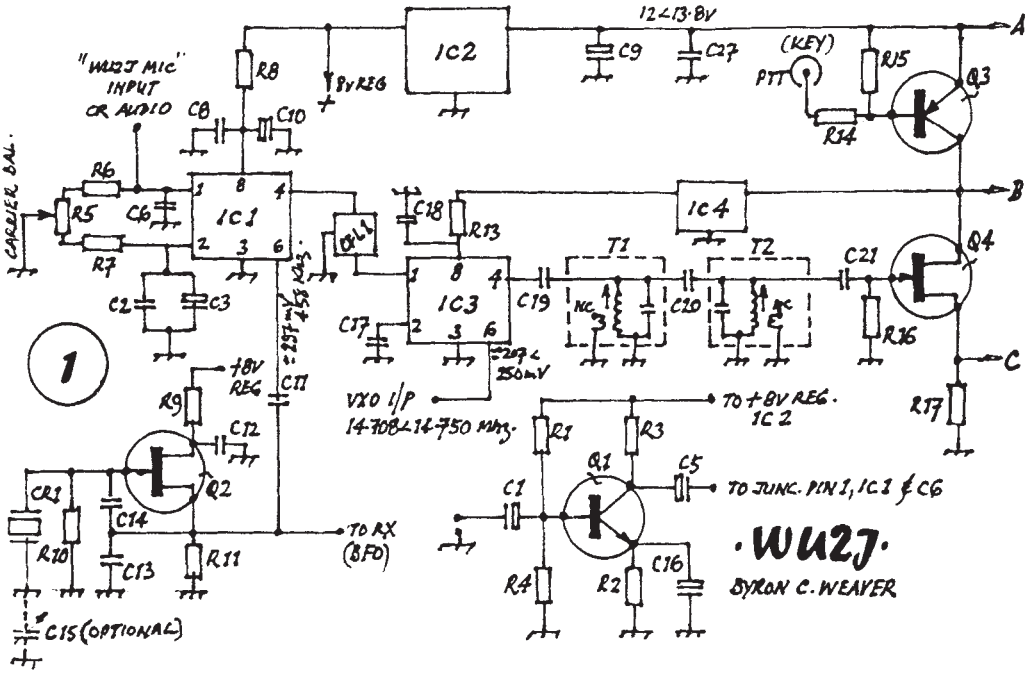
I've had very good success using just the exciter's low level power for communicating. Last year I had a 'pile-up' when I said I was running 125 mw SSB. One mobile 2000 miles away said I was louder than my QRP neighbour running 100W to a long wire. My research indicates creatively designed short verticals really excel on autos (17m & 20m). Maybe SPRAT would wish some new information on mobile antennas...tu veus? A two element yagi has been built for 17m with 4.5 dBd gain and its only 13 ft (4m) long ...ou to veus pas?

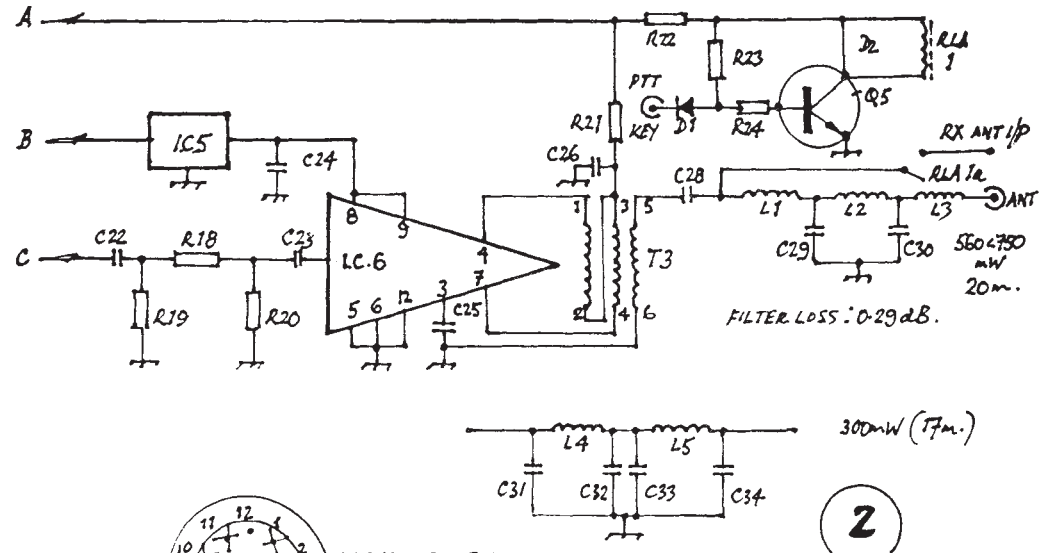
You may wish to design your own amplifier to boost the power, only one transistor is required with this power-packed exciter featuring excellent audio. Ah, I forgot to mention, the 17m Exciter delivers a third of a watt!! Incroyable, mais vrai! Similar receivers to the BLT RX have been used on this band for 3 years so the BLT is relatively simple to build. I'm looking into a source for cheap 17m crystals (18.627 MHz) for 'RJV. Practically the entire 17m SSB portion of the band is covered.

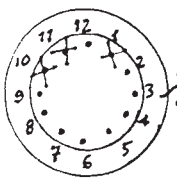
This article has been in various stages of print and production for over a year now as the Editor well knows. The ANV-20 in the last issue surprised me so you'll astutely observe my new emphasis on this also being a 17 meter SSB Xcvr! Probably the most surprised person will be 'RJV as I write this in. mid-October. Gotcha!

Hope to work you on SSB QRP one day.....on 17m, of course.

* 62 dB if you do not consider the error of a 1N34 diode at 2-4 mv. (See W7EL's article, QST, Feb. 1990).







The B.L.T. 17/20m. Exciter
···SSB···

BLT SSB EXCITER : PARTS LIST

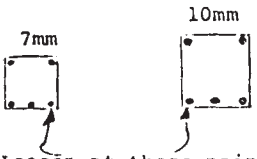
Audio Amp Parts: Your Choice, your ckt!
Q1, C1, C5, C16, R1, R2, R3, R4

R5 (mismarked R11)	1K pot(#271-280 Tandy (Horiz. Micro-Size)
R6, R7,	68K
R8, R9	100R
R10, R16	100K
R12	omitted
R13,R19, R20	150R
R14	15K
R15	10K
R17	220R
R18	39R
R21	3R or 2.7R
R22	47R
R23	22K
R24	27K
R11	1K
D1	1N34
D2	1N914
RLA1	SPST Reed, 12VDC,11ma(Tandy) N.O. contact

C21, C22,C23, C26,	10n
C2,C6,C8, ,C17,C28, C27	10n
C3,C10	33u tantalum16V
C4	omitted
C7	omitted
C11	8p
C12	470n 16V
C13,C14	270 p poly
C15	Optional
C18,C24,C25	100n
C19	5 p
C20	1 p
C29, C30	270 p mica
C9	220 u 16V
C31, C32, C33, C34	180p

Q2, Q4	MPF102
Q3	2N3906
Q5	BC108
IC1, IC3	NE602
IC2, IC4	78L08
IC5	78L09
IC6	NTE 784 (or CA3020A) Mouser
CFL1	CFU455IT MuRata Erie.
CR1	455KHz Ceramic Resonator, Oak Hills Research; MuRata Erie
L1,L3	T37-6 12t
L2	T37-6 18t
T1, T2	7mm 10.7 MHz Xfmr, Mouser Part 42IF223 with 4 turns removed from top of bobbin (6 turns for 17 meters).
T1, T2	10mm 10.7 MHz Xfmr, Mouser Part 42IF123 with 4 turns removed from top of bobbin (6 turns for 17 meters).
T3	FT-37-61 11t trifilar, AWG30
L4,L5	T37-6 12t

TRANSFORMER CANS
(Viewed from Bottom)

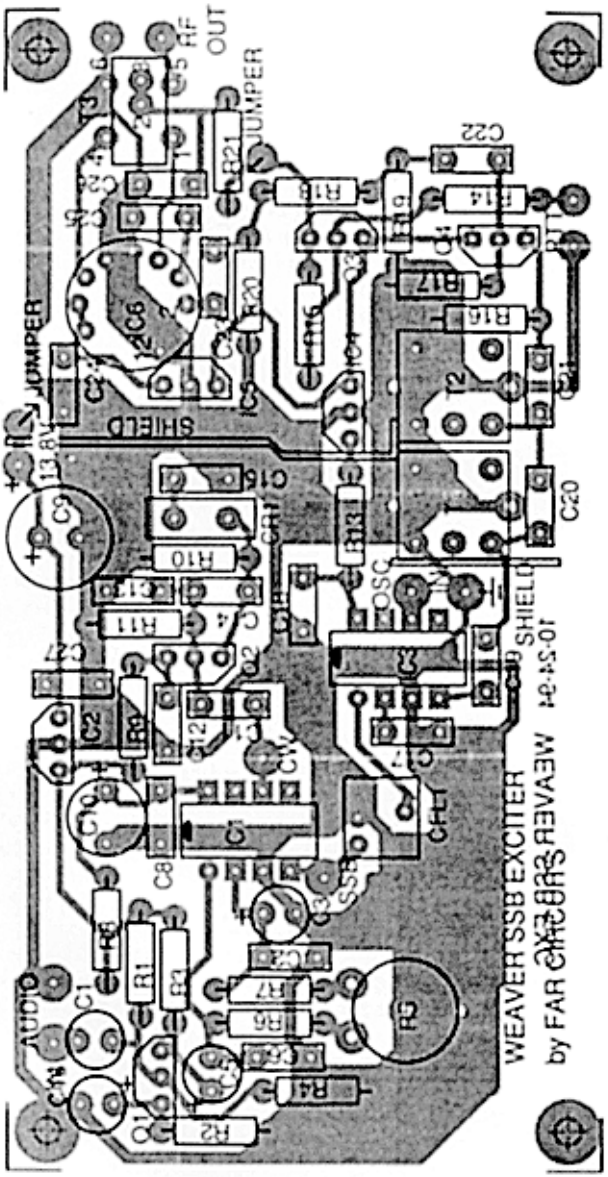


Loosen at these points to remove turns. A needle is helpful.

7mm Green Core
20m- remove 3 or 4 t
17m- remove 6t

15m- remove 8 t

10mm Green Core
20m- remove 4 turns
17m- remove 6 turns
15m- remove 7 t



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The B.L.T. LINEAR AMPLIFIER

Byron C. Weaver WU2J. 430 Plant Ave.,NE, Palm Bay, Florida 32907

Rather than put off a Linear Amplifier for the BLT's until some time in the future, I thought I'd wrap up the project quickly for those of you that feel milliwatting is not your chief interest.

With the appropriate out put filter, this linear should work from 80-10m. No feedback is employed so on the lower bands you should increase the emitter resistor and remove or reduce its bypass capacitor. On 20m you should be able to adjust these values to yield an output of around 8 watts. You could also add a 2 or 3 dB pad between the Exciter output and the linear's input capacitor.

The MRF 475 and the NTE 236 equivalent I find easy to work with in circuits using only one transistor. They can tolerate a good size VSWR without damage. Many transistors like the MRF749 and MRF630 have grounded emitters which prohibit the use of a small resistor in the emitter. The MRF630 put out about 4.5 W in the same circuit but that was pushing it. The MRF749 gave over 10 watts and ran nicely at 7-8 watts. But, it's expensive and you'll have to use a heftier (larger core and wire size) 5.6 to 50 ohm output transformer as the power approaches the 8-13 watt range. An emitter resistor prevents thermal runaway.

The manufacturer recommends a quiescent current (ICQ) of 20 ma. This is the collector current with not signal input. Some prefer ;this current in the 20-30 ma range but even at 15mA the products are tolerable for QRP operation. If the current doesn't return fairly quickly to your present value after driving the amplifier at full power for some time, it means your heat sink isn't as good as it could be. The ICQQ will return to normal as the transistor cools even if the heat sink isn't the best, it just takes a little time!

Conventional transformers can be used instead of transmission line transformers. You only have to adjust the turns ratio and use balun cores or 0.5 inch O.D. A transmission line transformer of this diameter has been tested at 27 watts by the author many times. That's the maximum power I have available. The core isn't the problem, it is the wire size. At the 27 watt level I was using AWG 22. Over 100 transformers have been built in recent years as I use them in all my antenna work. Although the schematic is the same, different techniques are employed in fabrication. I used FT-37-61 cores for the 17m transformers but if you're uncomfortable with such a small core you can use larger. Again, it's the wire size and its current capacity you have to worry about. The same size core was used for the Output Filter after the NTE 236 at the 5 watt level. The filter values were given on the Excited schematic and the loss was less than n 0.1 dB when tested at the 3 watt level in a filter-test set-up. This size has been used by me for several years up to 8 watts in a different Xcvr.

The amplifier is straight forward for many of you except n IC regulator is used to drop the voltage to 5 volts so the 100 lk ohm adjustment resistor can be 1/2 watt size. An insulator kit for the heat sink is available from Tandy. A good size heat sink is always preferred and the metal box wall ,is ideal. You might also wish to investigate the solid-state change-over used in the NORCAL 40 Xcver small fixed capacitor, and the Output Filer's first capacitor adjusted to account for the new shunt capacitance, you might prefer it to a relay. It's certainly less expensive and smaller. That's the way I like to see circuits.

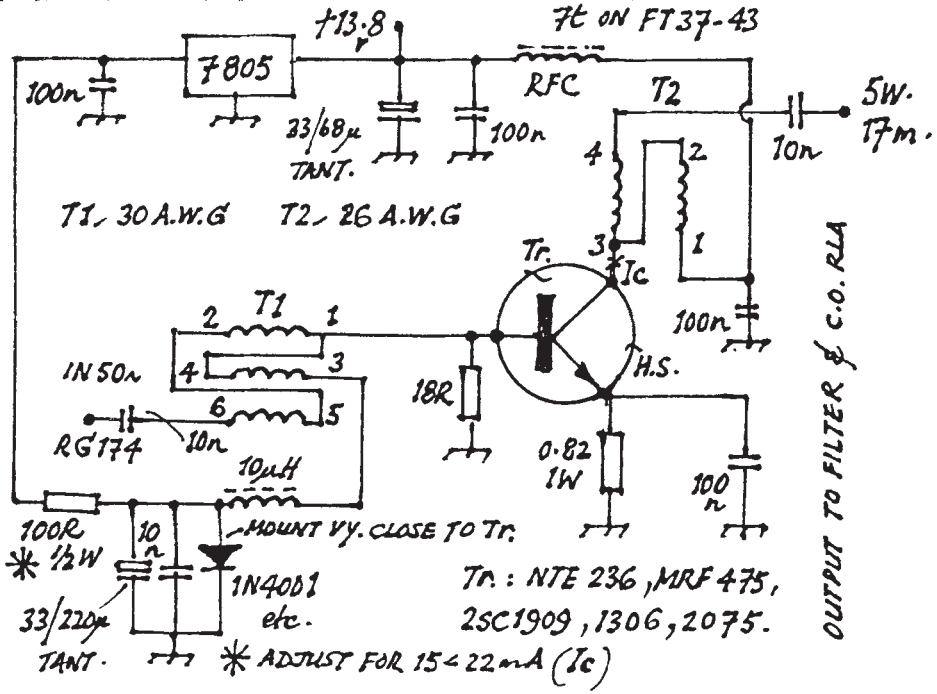
The Linear Amplifier was evaluated using the Mizuho MX-17S, an attenuate to reduce its power, and a SWR Bridge (low loss, non-resistive type) as a separate unit at first. It was then evaluated with the 330 mw drive from the Exciter through the SWR Bridge. In ohm wattmeter, was 1.3:1 or less. Power output was just over 5 watts with the supply at 13 6 volts. I should think FAR Circuits would be willing to make a small PC Board for this Linear if there is sufficient demand. As I stated previously, 17 meters is the place to be for QRPers

You should not over look SPRAT 70 wherein G3XXQ presented his design for a linear to be used in the CSP project He used the 2SC1969 which is equivalent to the NTE 236, conventional transformers, and feedback Perhaps this transistor is less expensive

Sometimes I get the impression QRPers just feel they need to have a "little more" power when they operate SSB Some fiddled with a circuit to gain a half-watt to a watt more when their real problem rests with an poor antenna system Ask yourself, do you really need to operate on all bands? Are you "on the air" 24 hours a day? If you'd ever wish to have a "QRP Presence", you should consider an antenna dedicated to a band of your liking As 'RJV well knows, I hate ATU's and believe they destroy the meaning of antenna technology Even if you had an ATU and wire system that permits you to tune-up on

14 bands, you'd still never be able to work everybody. But, you could well display a weak and mucky SSB signal typical of what many say about QRPers. If you intend to work "over the pond" and farther on 17m you should learn to be less demanding of the other guy's antenna to pull you through. Start thinking like an "over the ponder" and concentrate on a dedicated antenna about which you know all the particulars! be a professional QRPer and we'll all have more respect and a consistent growth in membership.

Anyway, there you have it, "Byron's Last Transceiver" or "Bacon, Lettuce, and Tomato".....on a roll!



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Please make out all cheques to "G QRP Club" and add £1.50 post & packing

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KK7B SPRAT Technical Cartoon #1
A Passive Phase-Shift Network to Cover the Whole Band

Rick Campbell, KK7B, Rt.1, Box 195, Chassell. MI 49916.

Here is an LO phase-shift network that I've been using with single-band phasing receivers and transmitters lately. The quadrature hybrid (C1 T1 and C2) provides 80 degree phase shift over a wide range, but equal amplitude signals only at the design centre frequency. If this phase shift network is used to drive the LO ports of saturating mixers (like diode rings and Gilbert cell ICs) the amplitude balance is not critical, so in practice an entire amateur band may be covered without readjusting the network.

Practical phasing receivers and transmitters need a few degrees of adjustment of the LO phase-shift network to compensate for small phase errors elsewhere in the system. I added a pair of identical 1/8th wavelength lumped-element transmission lines to the output ports of the hybrid, using fixed ceramic capacitors and toroid inductors. By squeezing the turns of the inductors I get a few degrees of phase adjustment without affecting the amplitude.

The complete circuit is shown in figure 1, along with design equations. 10% tolerance capacitors are fine, as the network is adjusted anyway. Table 1 shows the nearest-standard component values for the amateur bands from 160 through 10 meters.

A PSPICE analysis of the network in figure 1 on 20 meters shows a maximum phase error of 0.2 degrees from 13 MHz to 16 MHz, and an amplitude variation of plus or minus 1 dB over the same range. The network may therefore be adjusted only once, anywhere in the amateur band, and then left alone until the radio is cannibalized for parts years later.

This LO phase-shift network has the desirable qualities of being completely passive, providing 90 degree phase shift over an entire ham band, adjusting easily and operating gracefully in a 50 ohm system. In addition, the 1/8th wavelength lumped-element transmission lines are lowpass structures, which reduces the effects of LO harmonics reflecting back and forth on the transmission lines from the LO to the mixers.

Since the phase errors in a phasing transmitter are likely to be different than the phase errors in a companion phasing receiver, it is useful to be able to independently tweak the transmitter and receiver LO phase shifts. The network in figure 2 is one I used in a 20m transceiver incorporating an R2 receiver board and a T2 transmitter board. My junk box had a two-hole ferrite core for the in-phase splitter, but a pair of small ferrite toroids as specified will work just as well.

RICK CAMPBELL (KK7B) PHASING RECEIVER/TRANSCEIVER KITS AND ARTICLES

Kanga US now supply kits for most of the KK7B projects including:

R1 Module, R2 Module, MiniR2 Module and Audio Filters. (The R1 is a high performance, convential, direct conversion board, the R2 is a single-signal Phasing Receiver board)

Kanga US, Bill Kelsey, N8ET, 3521 Spring Lake Dr. Findlay, OH 45840 Telephone: 419-423-4604

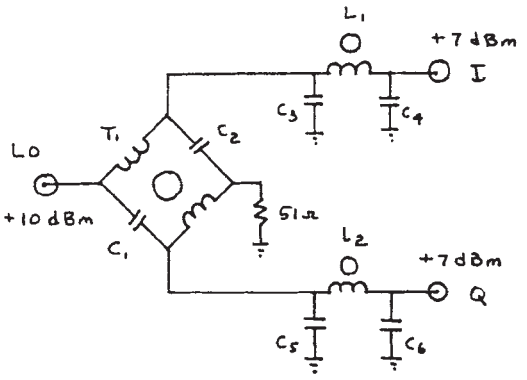
Bibliography of KK7B QST Articles:

Campbell, Rick, "High Performance Direct Conversion Receivers," QST August 1992, p. 19-28. (Describes the R1, a conventional direct conversion receiver board optimised for sound quality.)

Campbell, Rick, "High Performance Single-Signal Direct Conversion Receivers," QST. January 1993, p. 32-40./ (The R2, an phasing version of the R1).

Campbell, Rick, "A Multimode Phasing Exciter for 1 to 500 MHz," QST, April 1993, p. 27-31. (The T2 board, for CW, SSB, Am and NBPM.)

Campbell, Rick, "Single-Conversion Microwave SSB/CW Transceivers," QST, May 1993, p.. 29-34. (One of Rick's applications for the R1/R2/T2 is microwave mountaintopping. This article talks about how to turn the R2 and T2 into a 2m SSB/CW transceiver for mountaintopping.)



T_1 50Ω $X_L = \frac{50}{\omega}$

L_1, L_2 25Ω $X_L = \frac{25}{\omega}$

$C_1 - C_6$ 100Ω $X_C = \frac{1}{100\omega}$

$\omega = 2\pi f_o$

f_o = design center frequency

A Passive "Whole-Band" LO Phase-Shift Network

Figure 1

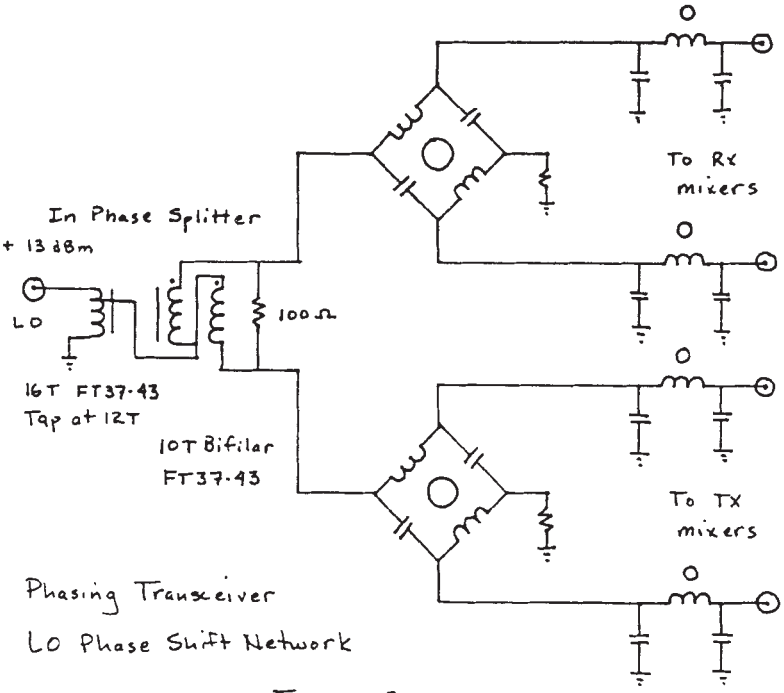


Figure 2

RLC 10/20/84

Table 1

Component Values for Amateur Bands

fo MHz	T1 uH	#turns	Core	L1,2 uH	#turns	C1-6 pF
1.8	4.2	29	T50-2	2.1	21	820
3.7	2.2	21	T50-2	1.1	15	390
7.1	1.1	17	T37-2	0.55	12	220
10.1	0.79	14	T37-2	0.40	10	150
14.1	0.56	14	T37-6	0.28	10	100
18.1	0.44	12	T37-6	0.22	9	82
21.1	0.38	11	T37-6	0.19	8	68
24.9	0.32	10	T37-6	0.16	7	56
28.5	0.28	10	T25-6	0.14	7	56
50.1	0.16	8	T25-6	0.08	5	27

Notes: Wind T1 with a pair of enameled wires side-by-side. The "#turns" for T1 is the number of times the pair is wound through the center of the core.

The same core type is used for T1, L1 and L2.

Capacitors are the nearest lower standard value, to help compensate for the capacitance between the windings of T1.

FURTHER NOTES ON THE MALTA 40 Mike Faulkner G0IFK

Ref : G3TXQ [Sprat 78] and G3XIG [Sprat 80]

Following from the notes in SPRAT 80 on the Malta 40 transceiver, here are a couple of things I have come across.

- 1. I found that with the crystals I used in the VXO circuits that they would not swing far enough, what appeared to be needed was more L. I substituted the T37-2's with T68-6's and wound 55 turns on them.
- 2. I had severe problems with the PA stage and after a chat with G3ROO at the Rochdale convention he suggested that the NE602 was being overdriven. I therefore replaced R31 with a 2.2k preset and added some ferrite beads at the base and collector of Q6.
- 3. I noticed in Sprat 79 a circuit for 'anti hiss' on the LM386, the design presented by KA5UOS works very well.

Altogether I have found this to be a super little rig and have enjoyed constructing it. So far I have worked 28 countries including WPZ and 7Z on it.

CORRECTION : VK2AW Minicom Receiver [SPRAT 79]

In Version 4, General Coverage Receiver: there should be a connection from the 5v rail to pin 4 on the MC3357. Also the 100Ω resistor 0.0uF on the right hand end of the 5v rail can be deleted (This was decoupling for the NE602 not used in version 4)

A RESISTIVE BRIDGE
For Antenna Resonance and Feedpoint Resistance

Byron C. Weaver WU2J. 430 Plant Ave.,NE, Palm Bay, Florida 32907

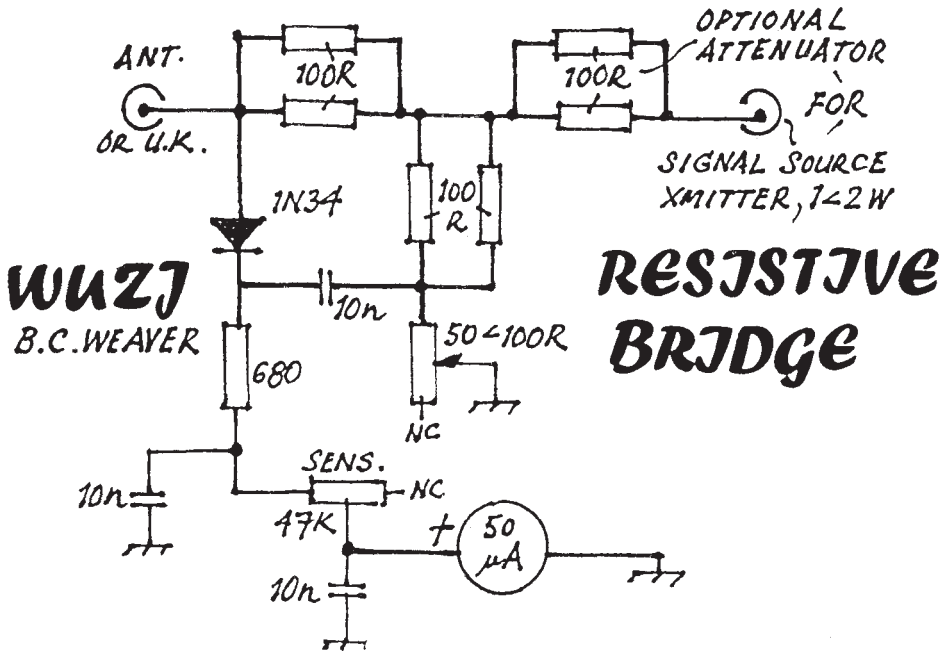
Rather than buy a Noise Bridge, an SWR Analyser, or the new RF Analyst by Autek, QRPers can do MUCH BETTER with the simple home-brew resistive bridge. We've all built similar units for VSWR bridges, but rearranged as below, the project is inexpensive and more accurate than the above equipment. Only a low power source is required and all QRPers already have that.

The 50 to 100 ohm potentiometer should be linear and NOT the wirewound type. A dial for this potentiometer should be calibrated with known values of resistance connected to the unknown input. My dial is calibrated in 2 ohm steps from 0-50 ohms because most of the antennas I work with are "loaded" or parasitic arrays with feedpoint resistances less than 50 ohms (also vertical antennas). A small thumbwheel pot connected to an appropriate connector can be adjusted and measured in 2 ohm increments then connected to the unknown to calibrate the dial.

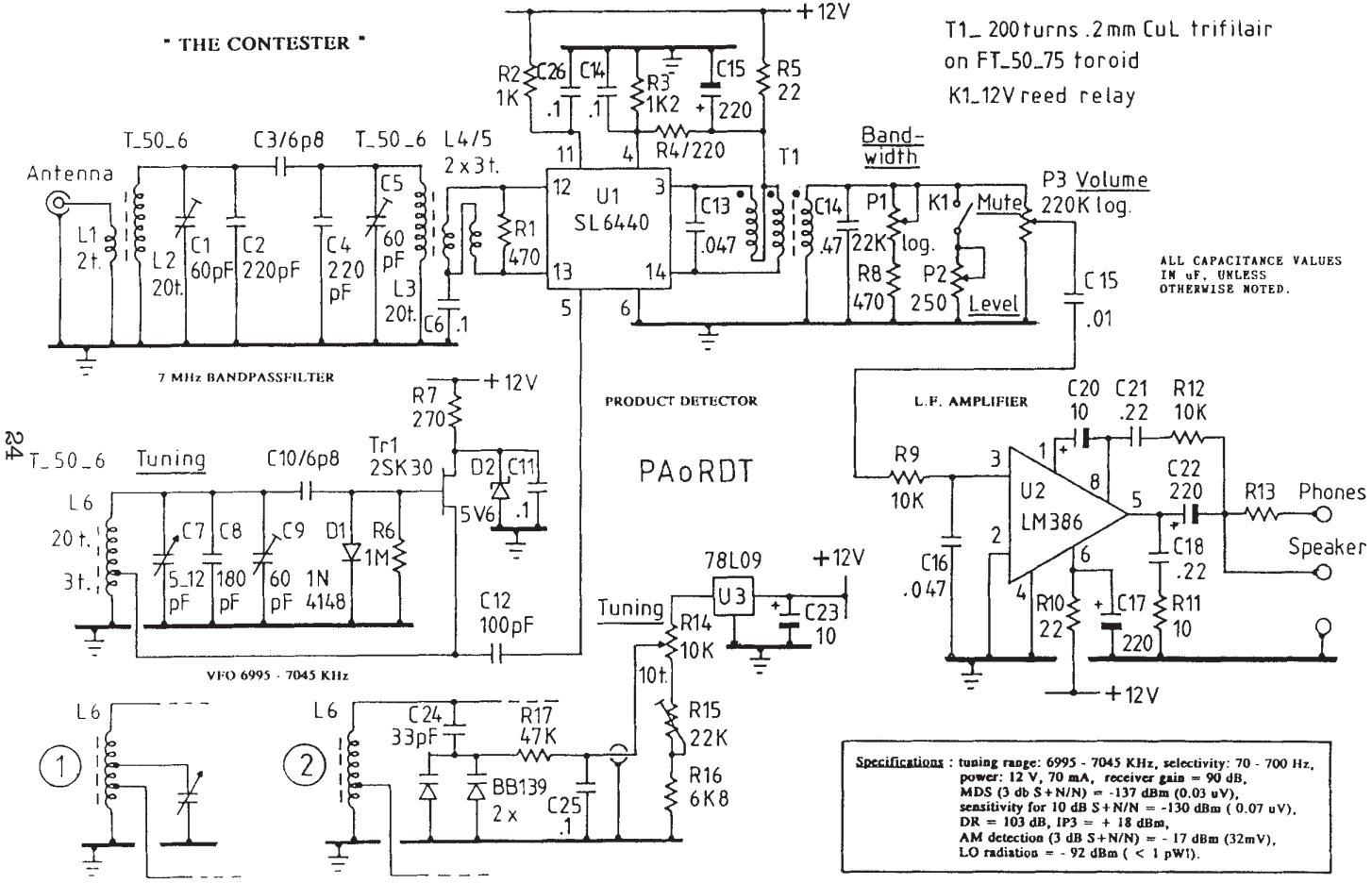
in use, you'll see a deep null at exact resonance of the antenna being measured or adjusted. Then the dial pot is varied to reduce the null to complete zero and the resistance value read on the dial. Since inductive and capacitive reactances cancel at exact resonance, you will know your feedpoint resistance exactly! You won't have to guess from an SWR of 1.5:1 whether your input resistance is 75 ohms or 33.33 ohms.

I have all the above test equipment (with several hundred dollars invested in them) and find this home-brew is preferred in. all cases for THE MOST ACCURATE antenna measurements. It's a gem and it doesn't take but half a day to build.

If you work with higher input resistance antennas, you might wish to limit the range from 50 to 200 ohms by inserting a resistor (50R) in series with the dial pot's ground lead! (with a 150 R pot). All measurements should be at the actual antenna feedpoint itself and not through coaxial cable for best accuracy (just like the commercial equipment above).



" THE CONTESTER "



Specifications : tuning range: 6995 - 7045 KHz, selectivity: 70 - 700 Hz, power: 12 V, 70 mA, receiver gain = 90 dB, MDS (3 db S+N/N) = -137 dBm (0.03 uV), sensitivity for 10 dB S+N/N = -130 dBm (0.07 uV), DR = 103 dB, IP3 = + 18 dBm, AM detection (3 dB S+N/N) = - 17 dBm (32mV), LO radiation = - 92 dBm (< 1 pW!).

THE CONTESTER

A Contest Grade DC Receiver for 40m with Continuous Variable Bandwidth

Roelof Bakker, PA0RDT, Esdoornlaan 11, 4334 CC Middelburg.

Circuit

This receiver uses only three active components: a SL6440 as product detector, a low cost FET as local oscillator and the well known LM 386 as audio amplifier.

The 7 MHz signals from the antenna are routed through two-pole bandpass filter and via a bifilar link on L3 coupled to the balanced input of the SL6440. The output of the product detector is also balanced. T1 serves a double purpose. It transforms the balanced output to the unbalanced input of the audio amplifier and at the same time functions as an audio filter. C13 and C14 determine the filter centre frequency: in this case 440Hz. P1 controls the filter bandwidth. With P1 in the clockwise position the bandwidth is 70 Hz. By turning P1 counterclockwise, the voltage swing over the secondary winding of T1 is damped and the bandwidth is gradually increased, so providing a continuous variable selectivity control. The beauty of this system is increased again as the bandwidth is decreased, giving the impression of "digging the weak ones out of the noise".

K1 acts as mute control and is wired in parallel to the antenna changeover relay. P2 sets the side tone level. P3 is the volume control. C15 blacks the lower audio frequencies. The value of C15 can be changed to adjust the tone balance to your personal preference. R9 en C16 form a RC lowpass filter. Without this simple filter the LM386 was plagued by LFI.. (No it was not AM breakthrough of the product detector).

In the past I was not too fond of the LM386, due to excessive hiss. But adding C21 and R12 cured this problem effectively. R13 lowers the gain when headphones are used and takes care of any residual hiss. The value of R13 depends on the type of headphones in use, so some experimentation may be required. The audio sounds now incredibly good.

The LO is a Hartley oscillator. It delivers an output voltage of 200 mV RMS which can be routed direct to pin 5 of the SL6440 due to the relatively high input impedance. (1500 ohm). Tuning is effected by C7. The required capacitance swing is quite low. In insert (1) is shown how a larger variable capacitor can be used by connecting it at a tap of the tank coil, so avoiding non linear tuning when using a series capacitor to reduce the tuning range. A 100 pF variable capacitor wired to the 3 turn source tap produced a frequency shift of 23 KHz. Insert (2) shows the tuning system I eventually ended up with: a voltage controlled oscillator tuned by a ten turn pot. C24 eliminates the highly non linear tuning of the varicaps. Using the values shown, gave 5.1 KHz shift for one revolution of the tuning knob at the lower band edge and 4.9 KHz at the higher side. This amount of low gear tuning is really needed to take full advantage of the smaller bandwidths. The psychological effect is of 40 metres CW being a vast band with lots of frequency space! LO stability was no problem at all. And any frequency shift can so easily be corrected using so much bandspread.

CONSTRUCTION

I used a piece of unetched pc-board as a groundplane. The input filter and LO are build in screened compartments. All coils are wound on T-50-6 toroids. They are cheap, readily available and easy to wind. To make the bifilar link L4/5 on L3, just twist two wires; wind three turns at the "ground" end of L3.. Connect the end of wire 1 to the start of wire 2. That's your centertap. It is quite simple.

To wind T1, take 3 enamelled wires of 2mm and 7 metres long. Twist the wires using a handdrill until the result looks like a thin rope. Put half of this rope on a winding dowel 3 mm wide and 10 cm long and wind the wire on a FT-50-75 toroid. After this has been done, do the same with the other half. Keep winding in the same direction otherwise you end up with zero inductance. T1 can be glued on a small piece of Vero board. Mark the windings . The end of wire No. 1 is connected to the start of wire No. 2. This end of wire No. 1 is connected to the start of wire No. 2 . This is the centertap. Wire No 3 is the secondary of T1. This procedure looks more difficult than it really is. I even wound one on a T-37 size toroid. You can also use a larger size high mu toroid (u=5000) which names it easier to do. One might wonder if this system will work using an audio interstage transformer. The answer is yes and no. These

transformers are designed for a flat passband. The Q is low and the voltage swing than can be realised is not as high when using one wound on a toroid. More serious is the susceptibility to hum pick up. This is a problem unless you can get hold of one with magnetic screening. I could not, so I learned the skill of winding my own.
none of the components are critical. By reducing the value of C14 you can shift the filter frequency to a higher value. Tr1 can be any general purpose FET such as 2N4416, MPF102, 2N3819, BF256 etc. C8 are a number of 27 pF NPOs ceramics. The varicaps are not critical either. Use what you have got. My life as homebrewer has become much more relaxed since I adopted the philosophy that if you cannot get what you need, use the things you have already got.
Alignment is done by first bringing the LO in the band. Set R14 in the clockwise position and adjust the upper band edge with C9. Set R14 counterclockwise and adjust the lower band edge with R15. Now the input filter can be aligned with C1 and C5, using signals on the band.

SOME FINAL REMARKS
This little receiver was called "THE CONTESTER" for three reasons. It was finished two days before the AGCW-QRP summer contest of 1994. and used with great success. (Yes some home brewers do run contests!). It also served the purpose of testing how little hardware is needed to build a real receiver. And third when you look at the specifications for sensitivity and strong signal handling capabilities you will find that this receiver can compete with fancy designs as the TS850, FT 890 et.c. Talking about value for money! I really enjoyed listening to those beautiful QRP signals on 40 metres during the long summer evenings of 1994.. Night after night appear as a single signal trace on my oscilloscope. Although the far-off selectivity cannot stand up to crystal filters, digital signal processing etc., this little receiver is a very useful device. With a matching QRP transmitter it will serve as a mature amateur radio station.
Conversion to other bands is easily done by changing the input filter and LO frequencies.

ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS

WANTED : MECHANICAL FILTER MF 455 10CK 12129 for KW2000. Peter Oliver, G0PEM, 12 Tudor Rise, Kennington, Ashford, Kent. TN24 9AR. Tel: 0233 627777 / 631999

FOR SALE : HOWES CTX40 [3w.TX] £8, HOWES CVF40 [VFO with capacitor] £8, HOWES ST2 [Sidetone Gen. Practice Osc] £6. All three kits built and tested. Ernest Kenyon, G4KSB, 'Hillview' 206 Nab Lane, Birstall, Batley, w. Yorks. WF17 0HU.

WANTED : TO BUY OR COPY, Service or Worskshop Manual for Yaesu FT7. J. Bell, G3DII, 'Ilex' Tattershall Road, Woodhall Spa, Lincs, LN10 6TL. Tel: 0526 - 353362

WANTED : 1] Information on converting No.19 MKII Set to 14mhz operation
2] BC455 [ARC5] Command RX-TX [convereted to 14mhz] or unmodified version. Details, price etc to: K. Barnes, ZC4KB, OC Cyprus Calibration Centre. Akrotiri, BFPO 57.

WANTED : Low Power Communications Vol 1. Ring Brian at 0983 - 298126

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LOGS MUST CONTAIN : DATE, UTC START, CALL, FREQ, RST [TX&RX], QTH, UTC END
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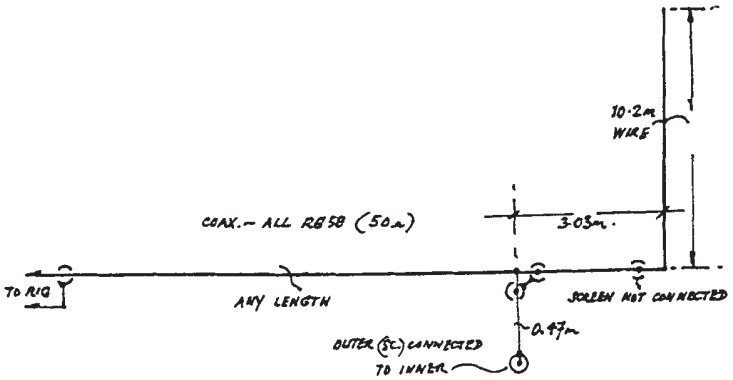
LOG WITH POINTS CALCULATED SUBMITTED BY 30th AUGUST 1995 TO
IK0VSV CW MARATHON, PO BOX 156, 06059 TODI PG ITALY.
TROPHIES AND AWARDS TO THE FIRST THREE - CERTIFICATES TO ALL ENTRANTS

ANTENNAS - ANECDOTES - AWARDS

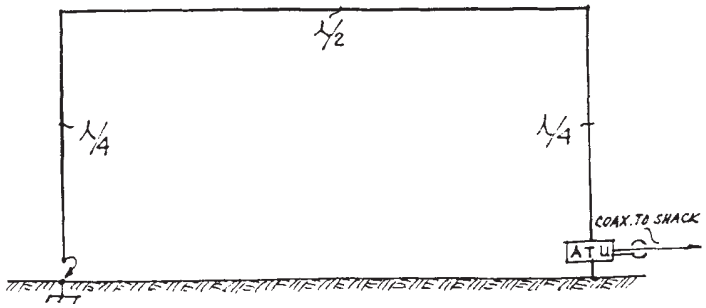
Gus Taylor G8PG 37 Pickerill Road, Greasby, Merseyside, L49 3ND

THE PARAGRAPH AT THE BOTTOM OF PAGE 25 IN THE 1994/5 MEMBERS HANDBOOK IS INCORRECT. PLEASE CONTINUE TO SEND APPLICATIONS FOR CLUB AWARDS/ENDORSEMENTS AND THE CW NOVICE AWARD TO G8PG.

A METHOD OF END FEEDING A HALF WAVE WIRE VIA CO-AX CABLE has been drawn to our attention by Lutz, DL2HRP. It is shown below. This is the 14 MHz version, and it can be scaled for other bands. Lutz erected his by twisting the wire around a 9m plastic fishing pole.Lutz found the idea in "Antennenbuch" by DM2ABK.(Presumably published in DDR days).Take care to thoroughly weatherproof all joints and cable ends !



THE BOBTAIL IS USUALLY REGARDED AS A SINGLE BAND DIRECTIONAL ANTENNA, but Mike GoROT, has been using his 7 MHz version on 3.5 MHz by grounding the far end as shown in the diagram below. This gives a sort of half-loop configuration, with radiation angles giving excellent results around Europe. One could also use this idea to operate the antenna on all hf bands above its design frequency either as a half loop (far end grounded) or as an inverted U random wire (far end not grounded). Mike uses a Z-match atu with his.



BRIAN WEAVER,WU2J, (430 Plant Ave NE, Palm Bay, FLA 32907), has been using his antenna measuring set-up to investigate one version of the Up-and-Outer antenna. His version had the horizontal leg only 12 to 15 cm above ground, which is probably a "first" as far as this antenna is concerned. His measurements confirm what others have already found, namely that maximum radiation is in the direction of the horizontal portion, and that there is a distinct back to front ratio. Comparing this antenna with a mobile whip mounted on the trunk of a car 3 feet above ground, it was found that the latter was 1 dB up (Brian obviously has great faith in the accuracy of his equipment). The Up-and-outer, perhaps better known in former days as " a quarter up and a quarter out " has been around for perhaps as long as 70 years, It is normally used with the horizontal portion well up in the air (say 7m) and the top of the vertical portion considerably higher. It is claimed that under these conditions it is a useful compromise antenna with with horizontal leg providing high angle radiation for shorter distances and the vertical leg lower angles for greater distances. In the true amateur spirit those who can only get the horizontal leg one or two metres above ground have experimented with the antenna, using its vertical radiation only, and in so doing have worked some very useful DX. So far no member has reported trying it in the original "Quarter up and a quarter out" configuration. It would be interesting to have a report on (say) 6 months of such operation.

STILL WITH BRIAN, WU2J, the complete set of his papers on quads, dipoles etc can be had from G8PG (3 1st class stamps or 3 ircs). The DJ1ZB paper on using co-ax for twin feeders has already gone to several countries.

IGOR, RZ3ZK, MADE HIS KAYAK TRIP from Lipetsk to Voronez on the Voronez river, a tributory of the mighty Don. Because of the hazard presented by large motor cruisers on the river it was only possible to stream a fairly short, terminated wire behind the kayak, raised a few inches above the water by plastic bottle floats. Two watts on 7 MHz produced several QRZ ? but no QSOs. Changing to 27 MHz (which they were using for intercom) provided excellent results to paddlers in other kayaks, and also back to base. Probably a QRP "first".

WITH THE LF BANDS COMING INTO THEIR OWN because of the sunspot minimum, ground and counterpoise systems are once more to the fore. It is therefore worth reminding readers, and in particular lf band enthusiasts,of the very important article "Efficient Ground Systems For Vertical Antennas" , which appeared in QST for February 1983. In this the three authors show how comparatively small elevated ground screens can produce very effient results.They proved their point, using a 35 foot high loaded antenna over a 100 foot square ground screen to make ssb WAC on 1.8 MHz. Scaled for hf this would mean a 12 foot square ground screen and and an antenna just over 4 feet high ! Reports from anyone using these techniques for hf antennas in cramped locations would be of interest we feel.

I NEED A KW 202 RECEIVER, working or faulty so as to match my KW204 transmitter, says Helmut Bohn, DL2ECL, Kuhstr 35, 42555 Langenberg, Germany. Can anyone help him ?

IN A RECENT RADCOM it was shown, with the aid of a computer, that 86 feet is an excellent length to choose if one wants an all-band, end fed antenna with few matching problems. Some 58 years ago W3EDP came to the same conclusion (85 feet in his case) using a reel of wire, a pair of cutters, and a lot of patience. As a Club we have advocated the W3EDP for many years, particularly for beginners on hf. In our version we recommend the 17 ft counterpoise used by W3EDP (or if you have lots of real estate, replace this with a second 85 ft at rightangles to the first, and watch your DX score rise.)

THE INCREASE IN APARTMENT DWELLING AND SHELTERED ACCOMMODATION for the elderly brings many problems in the antenna area. Some German members are doing wonders with indoor magnetic loops. A GM member gets out on an "invisible" thin wire antenna stuck to the brickwork on the outside of his building. A G who found he could get out alright, but that reception was often impossible owing to electrical noise solved his problem with the aid of an SEM QRM Eliminator. If you have solved the problem of getting out from an"impossible" location, write and tell G8PG so that your experience can be shared for the benefit of others.

AWARD NEWS

QRP MASTER. WELCOME TO EVA, GoKZO, who makes history by becoming our first lady Master. Congratulations also to new Master LY3BA

Congratulations also to the following.

QRP WAC. iK5SRD, UU4JMJ.

QRP COUNTRIES. 225 DJoGD (Wow !); 100 OH9VL/qrpp, 75 GoKZO, IK5SRD, LY3BA ; 25 GoMOU, GoSCZ, GoJJQ, IoVSV, UU4JMJ.

WORKED G QRP CLUB. 1100 GM3OXX (unstoppable !) 1060 G4JFN (coming up on the rails), 640 GoIFK,480 G3INZ, 280 GoKCA, 260 G4NBI, 200 OH9VL, GoMOU, 160 GW3SB, GoKJN, 120 GoTDK, 100 LY3BA, 80 G4EIB, 40 GoSFV, GoTUE, GoSWU, 20 EilDG,9A3FO.

TWO-WAY QRP. 70 GM3OXX (great stuff !), 50 OH9VL/qrpp, 30 DL8MTG,W2JEK, 20 LY3BA, GoTDK, 10iKoVSV, EilDG.

ONCE AGAIN, CONTINUE TO SEND AWARD APPLICATIONS TO G8PG, BUT SEND EVENT LOGS TO G3MCK. TKS.

CHRISTMAS GREETING, and best wishes for a healthy, peaceful and prosperous New Year to all Members. See you in the Winter Sports.

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COMMUNICATIONS AND CONTESTS

Gerald Stancey G3MCK 14 Cherry Orchard, STAINES, Middsx. TW18 2DF

NEW HEADING You will notice that the heading has been changed. This is to emphasise that G-QRP does support QRP contest activity and is happy to give publicity to major events. We cannot give results or details of the rules but this is solely due to space limitations.

ERRATA PLEASE NOTE THAT ALL CLAIMS FOR AWARDS MUST BE SENT TO GUS, G8PG, NOT TO ME. I know this is not what the Handbook says but errors do occur even in the best run organisations.

GB2SM Thanks to all who wrote protesting about the proposed closure. However I have seen an internal Science Museum memo which states they are "not planning a permanent station in the museum". The station closed on 7 November and has now been dismantled with most of the equipment being returned to the owners. All in all a very sad state of affairs.

7030 KHz and IOTA The IOTA Committee has amended its guidance to read "No specific frequency is nominated for 7 MHz CW but it is recommended that operations should include a frequency above 7.025 MHz when the band is open to North America".

LY QRP During July this year Dave, G0BZF, visited Lithuania to participate in their annual DX camp. Many LYs can only operate from their club station even though they have receivers at home. This is due to their difficulty in getting what to us are common components. Dave took with him six Oner kits which had been generously donated by KANGA. These were eagerly seized so look out for LY QRP on 3579.5 KHz. Dave also spread the word about QRP so we should expect to see more LY QRP activity on all bands.

EMC My club recently had an excellent talk on EMC a member of the RSGB EMC Committee ;who made the following statement, "5W HF CW is unlikely to cause any problems but running 100W HF SSB you should expect to have problems". Nuff said! Incidentally while many of us complain about the RSGB this is an area where they are doing a great job. Not only do they produce filter kits, write articles and books but they also work closely with manufacturers to get them to design EMC problems out of their products in the first place.

WINTER SPORTS A final reminder, 0001z 26 December to 2359z 1 January 11995. Logs to me by 7 February, certificates will be issued to the most meritous.

HF NFD It was a pity that only two clubs entered the QRP section. As my contribution was minor I am not inhibited from congratulating the winners Echelford ARS. If we want this section to continue there will have to be more entries next year. Please try to encourage your club's HF NFD Committee by showing them how well the leading QRP station would have done if they had entered in either the open or restricted sections.

GM4CFS Glynn was flying the QRP flag from Sicily in July/August and worked 23 countries including VK with 1 watt. however no UK stations were worked even though many were heard. If anyone in the UK heard IK/GM4CFS please let Glynn know. He has plans for more non-UK HF CW QRP activity so keep watch on 3560/14060.

COAST STATIONS 3.5 MHz I know many people use GNTI as a propagation beacon including N4AR Kentucky) who tells me at times he hears it at S9. I hope these other stations will be helpful. If anyone has details of aerials and power used please let me know.

FREQ	CALL NAME	LOCATION	LAT/LONG	(DEGS/MINS)
3517.0	GNT1 NITON	ISLE OF WIGHT	N 50 35	E 01 18
3540	URD	ST PETERSBURG	N 59 59	E 30 21 *
3542.7	GNK2 NORWICK	SHETLANDS	N 60 48	E 01 20
3607.3	GKZ1 HUMBER	MABLETHORPE	N 53 20	E 00 17
3607.8	GHD2 GALLAN HEAD	ISLE OF LEWIS	N 58 14	W 07 02
3615.7	GND1 STONEHAVEN	STONEHAVEN	N 56 57	W 02 13

Note: * This frequency now used by UGC which I assume is just a change of call.

QRP CALENDAR 1995

1 Jan	Last day of 1994 Winter Sports
7 Jan to 8 Jan	1500z AGCW DL QRP Contest (1) 1500z
7 Feb	Last day for Winter Sports logs to G3MCK
26 Feb to 28 Feb	1600z CZEBRIS 1995 2359z Rules in this issue of SPRAT
9 May to	Yeovil Fun Run
21 May	Yeovil QRP Convention
17 Jun	IARU Region 1 QRP Contest
15 Jul to 16 Jul	1500z AGCW DL QRP Contest (1) 1500z
17 Jul	Last day for International QRP Day logs to G3MCK
29 Sept to 1 Oct	Europe for QRP
12 Nov	Last day for Europe for QRP logs to OK1CZ
26 Dec to 1 Jan 1995	G QRP CLUB Winter Sports Maximum activity on all QRP frequencies Longs to G3MCK by 7 February 1995 G4 DQP Trophy and Certificates

Notes 1
Full information from DJ7ST,
Schllesierwet 13, D-38228 Salgitter,
Germany
(Or see G3RJV QRP Column - RadCom December 1994)

CZEBRIS 1995 RULES

1. When. 1600z 26 February to 2359z 28 February 1995.
2. Modes and frequencies. CW only on 3560, 7030, 14060, 21060, and 28060, all +/- 10 Khz.
3. Power. Not to exceed 5 watts RF output. Stations unable to measure their output take half DC input power to PA, ie 10W DC = 5W RF.
4. Stations eligible. Any licensed amateur.
5. Call CQ QRP.
6. Contest exchange. RST, power, and name of operator.
7. Scorinng:

   Station worked once per band
   Only QRP/QRP QSO score
   Points score as follows:

QRP Stn located in	QSO with QRP Stn in			
	UK	OK/OM	EU	NON-EU
UK	2	4	2	3
OK/OM	4	2	2	3
EU	4	4	1	2
Non-EU	4	4	2	1

   No multilpliers
   Final score is the sum points obtained on each band.
8. Logs. Separate log sheets for each band showing for each QSO, date, time, call, exchanges (RST, power, name) sent and received. Also a summary sheet showing name, QTH and call-sign, claimed score for each band and brief details of equipment used must be submitted to:

   For UK stations to G P Stancey G3MCK
   14 Cherry Orchard
   Staines TW18 2DF
   UK

   All other logs to P Doudera OK1CZ
   U 1 baterie 1
   16200 Praha 6
   Czech Republic

   All logs to be received by 30 November 1995
9. The leading three stations in each continent will receive a certificate.
10. Disputes. The decision of the organisers will be final.

CAN YOU HELP ON THE CLUB STAND AT THE LONDON RADIO SHOW ?
Saturday and Sunday, March 11th and 12th Please contact G3RJV

FOR SALE : C M HOWES 10-15m SSB/CW Transceiver [DXR10, HPA10, DS2, HTX10, VF10, CA10M, Built and working, inc. dual bandwidth and Howes case, SSB/CW Filter. Call David on 0181 - 317 - 2223.

THE 11th YEOVIL QRP AND CONSTRUCTION CONVENTION
SUNDAY 21st MAY 1995

The Preston School/Centre, Monks Dale, Preston Road, Yeovil.
Talk in S22 GB2LOW. Doors open 9am, Admission £1-75, Free car park.
Formal opening by the RSGB President Clive Trotman GW4YKL at 10am.
Talks on QRP and Construction topics, Equipment displays and On-Air stations.
Trade stands (biased towards QRP and Construction), Bobs G-QRP Club stand & QSL exchange.
A Novice and newcomers Display and Advice centre.
The convention will be preceded by a Morse Funrun on each evening from Tuesday 9th May to Friday 12th May, Rules in Spring SPRAT No. 82.

THE 1995 CONSTRUCTION CHALLENGE
A CW Audio Filter

Build a CW filter using up to ten (10) passive components in any combination of R, Land C, which will pass a wanted signal of 750KHz, while rejecting unwanted signals of 500Hz and 1000Hz.
The winning entry will be that which gives the greatest rejection of 500 Hz and 1000Hz signals in comparison to the 750Hz signal. The use of test frequencies above and below the desired one, means that the filter can have any combination of bandpass, lowpass highpass characteristics.
The Test Procedure
Three audio oscillators will provide the reference frequencies at a level of 1 volt RMS (open circuit) and a source impedance of 1Kohm to the Filter input. The measuring equipment connected to the filter output will present a load of 1 Kohm and comprise an amplifier driving a calibrated audio voltmeter.

- The Tester will first apply the wanted 750Hz signal to the filter, and the meter amplifier adjusted to give full scale reading representing "OdB.
- The signal will be set to 1000Hz and meter reading taken, and expressed as "X" dB below full scale.
- The signal will be set to 500Hz, and the meter reading taken, and expressed as "Y" dB below full scale.
- The entrant having the greatest value of (X+V) will be the winner.

The adjudication will take place during the lunch break on Convention day.
Further details from G3CQR QTH R, Tel 01935 813054.
(No call on Sat 20th May, Preparation day, please!)

THE CQ CENTRE BBS Mike Gathergood G4KFK

The CQ Centre Bulletin Board

The CQ Centre BBS will be celebrating its first anniversary in February '95. The CQ centre is a computer bulletin board system dedicated to all facets of amateur radio and short wave listening. Access is totally free, and the system is available 24 hours per d;ay at all popular modem speeds between 3000 and 14400 bps. The CQ Centre BBS provides news (RSGB, WIA, AMSAT and ARRL), electronic mail and conferencing (Fidonet and Chatnet), plus the very latest amateur radio software for IBM PC-compatible and Amiga computers. At the time of writing, the system has approximately 100 Megabytes (compressed) of radio-related files, plus a further 500 Megabytes (compressed) of general interest software. Files ave available for down load even to first-time callers. The system can support two simultaneous callers, with node 1 on 01753 595468 and node 2 on 01753 593524.
The CQ Centre BBS is a local call from the following area codes:
0171, 0181, 018915, 01923, 01753, 01628, 01784, 01494, 01344, 01172, 01276 and 01932.

SCOTTISH CONVENTION 1994 Ty Nicholson, GM0LNQ/KA9WRI

Mill of Schivas Cottage, Ythanbank, Ellon, Aberdeenshire. AB4 0TN

This years Scottish Amateur Radio Convention was hosted by the Aberdeen ARS. The event was well organised and despite initial setbacks a good number of traders turned out to make the event a success for the seven hundred-odd visitors.

Some 25 traders attended including SMC Northern, JAB Components, Mainline and the RSGB. Maurice Hately was demonstrating his latest antenna as well as the controversial Cross Field Antenna. QRP and home construction was well represented with the club stand including a range of Kanga products courtesy of Dick Pascoe, JAB Components offering Badger Board kits and Sheldon Hands all the way from North Wales with a fine display of his kits including the unveiling of the club's 20th Anniversary rig the "ANV-20".

Chris GM4YLN brought along his homebrewed modular CW transceiver, 20M Convertor and P.A. units . The lecture programme included Dave Stockton GM4ZNX who held one of his now famous "Any Questions" sessions. Only 16 club members signed in which was less than in previous years and of those who did visit the club's stand a number brought up the subject of.....

"MacSPRAT 95"

and the fact that it's been sometime since the GM members held a MacSPRAT get-together. I have been asked to organise the event for 1995, a task I am only pleased to undertake. However, I need assistance in securing a centrally located venue as Peterhead is too remote!. Would any member who knows of a suitable site (local radio clubrooms, college, community centre, etc) **please write** (QTH above) **and let me know**. I would also appreciate if prospective attendees would drop me a line letting me know of their interest, preferred dates and their preference for an informal "rag-chew" or a more formal meeting with talks, demonstrations of gear, etc.

COMING SOON - THE GQ KITS

Encouraged by the enterprise and success of the NorCal 40 Kit and the New England 40-40 Kit, the G QRP Club is in the process of producing a **CW Transceiver Kit for members**. Kits, to be called the **GQ40** and **GQ20**, will be available for 40 and 20 metres. They will be designed with European conditions in mind, so will include substantial input filtering, an SBL1 first mixer, a superhet receiver and an RF output of at least 5 watts.

Watch For Details in the Next Issue of SPRAT

THE G3YCC QUARTER CENTURY AWARD

We are pleased to announce that the winner of this competition to design a spy-type transceiver is Igor Grigorow, RK3ZK. Igor has been presented by a plaque and certificate by Frank Lee, G3YCC, and we hope to publish the design soon.

GERMAN G QRP CLUB MEMBERS MEETING 20th and 21st May 1995

For more information, please contact :

Rudi Dell, DK4UH, Weinbietstr. 10, 67459 Bochl - Iggelheim. Tel: 06324 - 64116

The NorCal 40A Kit

Following the success of the NorCal 40, the Northern California QRP Club are to produce an updated version of the 40 metre QRP Transceiver Kit. (See SPRAT 79 for the NorCal 40)

The Kit will cost $99 00 IN US FUNDS ONLY for non-USA orders, which includes Airmail shipping. Money Orders should be made out to Jim Cates and mailed to

Jim Cates, WA6GER, 3241 Eastwood Rd. Sacramento, CA 95821. U.S.A.

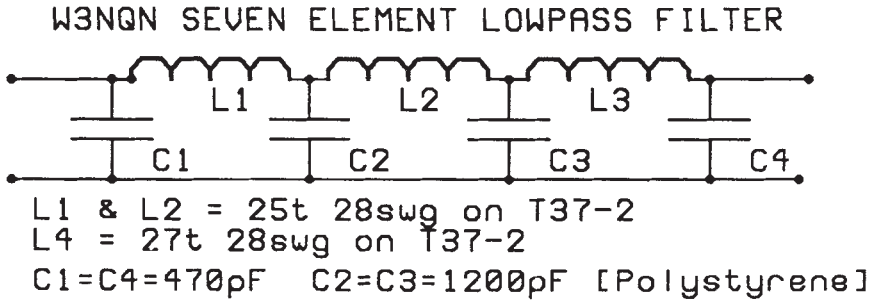
The offer is for NORCAL MEMBERS ONLY To become a member, send an additional $5 to Jim Cates. The offer closes on February 1st for Non-USA orders.

NOVICE NEWS

Steve Ortmayer G4RAW
14 The Crescent, Hipperholme, Halifax. HX3 8NQ. Tel: 0422-203062

Tony 2E0AIR has written, to say that in Sprat No 78 John G0BXO is looking for Novices on 10.106MHz and this is not in the Novice 10MHz allocation of 10.130 to 10.106. Sorry Tony about this mistake. In Members news Sprat 79 Tony noticed Chris mentions Novices on 40m which is not a Novice band.. Chris has recently retired from the same calling as you Tony so it looks like a serious case of proceeding in the wrong band M'lud.

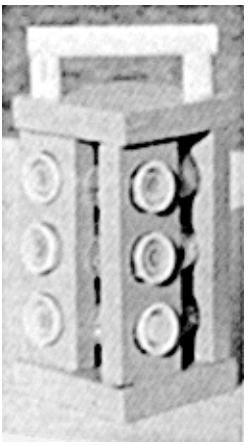
Tony also asks about more frequency allocation for novices and I understand that this is in the pipeline. Ron 2EOAIS has asked if anyone has a list of equipment that can be turned down to the Novice 3 Watt output. Ron has also built a transmitter for 80m buy finds it full of harmonics. Well they always are and you need a low pass filter following the transmitter and an ATU also helps. The best low pass filters are the Ed Wetherhold type and they have appeared in Sprat. The following is the 80m version. Any harmonic getting past that is not worth calling a signal. You could have taken your TX to the Rochdale Convention Ron to try on Dave Stockton's spectrum analyser. I once let him check one of mine and he remarked "If this was a car it would fail its MOT!



G3PDD Stuart has sent me a Novice Morse tutor which is ready made and is excellent value at £7.00 Stuart's telephone number is 0502 732322.

I have also had details of kits from Ben G4YNM they look very professional and Ben can be contacted on 0225 482604

HANDY HINTS FOR A HAPPY SHACK Baity W2LQ has sent details of how he uses 35mm film canisters. The enclosed photo' shows a component rack to hold 12 canisters full of small components. Baity also carries instant tea in a canister so he can produce it in a restaurant if the tea served is not to his liking. Must try that in Fortnum and Masons next time I am in London can't await to see the waiters face! Baity also makes 3.5mm to 5/16" headphone adapters in 35mm film canisters so don't throw them away!



Australian SCD Boards! Did you buy an SCD Board from the club stand at the Rochdale Convention? I did and I am afraid they have been etched upside down To make the transmitter you will have to drill holes in the board and mount the components in the conventional way instead of "bread board" fashion Ian Strachan, G0OKY [see Handbook for address] has some boards left at £1.00 each - with data.

That's all for now please keep writing with your news or hints

SSB COLUMN : Dick Pascoe G0BPS

Seaview House, Crete Road East, Folkestone. CT18 7EG. Tel: 0303 891106

The Annual convention has passed once more with the celebration of the 20th anniversary, cutting of the cake and general merry making. It is amazing to think that we have been going to 20 years. The ARCI have been in existence for slightly longer, but I have the papers from the original QRP society in the late 50's, which shows that the UK had the very first QRP club.

As usual Jo-Anna Dobbs made us all extremely welcome at the Vicarage and grateful thanks must go to all the local ladies and members who made the Special Rochdale Pie and Mushy Peas so very welcome I had to miss out on the pickled cabbage yet again, I must get in earlier next year. It always amazes me how many members come along on the Friday with the sole intention of helping to set up the hall ready for the convention. They are always the same faces of course year after year but welcome none the same. Congratulation to George 'RJV for yet another great convention.

It must be remembered too that 1995 is the 21st birthday of the club. We must to something very special for this next October.

Back to SSB matters.....

Ralph G3PGC 6771 replied to my comments in the last column about more QRP SSB being done on VHF, he says.. "....rang a bell with me, I have always thought of myself as a CW man... my log shows only 24 HF SSB QSO's since 1961, but.... on VHF there is another tale most of my DX QSO's have been on 'phone". His station consists of the ubiquitous FT 290, unmodded with a simple 8 over 8 Jaybeam at about 30 feet. He lives only about one mile from the sea and with a height of 300ft ASL seems to have a good takeoff.

His comment to his local club of "ditch FM and give 144.300 a try" Some mention lack of activity but a few CQ calls usually get a reply. I find at my own home that this is often the case, I am lucky with a great VHF takeoff (abt 700ft ASL) but it takes more than just the position.

My own attempts recently on HF have been limited to the latest offer from Ten Tec the Argo 556. Readers will have read my comments no doubt, a good buy at the right price. Email comments on the QRP Plus seem to be mixed, with some owners in the USA being very happy with their purchase and others being less enthusiastic.

That's it for this quarter. News to me via GB7RMS, Email Dick@kanga.demon.co.uk or direct to Seaview House, Crete Road East Folkestone CT18 7EG UK.

Win £25 in a new QRP Competition.

Kanga Products are sponsoring a new QRP competition for all members to enjoy. The rules are very simple, work stations taking the first letter of the prefix to make up the name KANGA PRODUCTS. The stations must be in order, i.e. the "K" (KA9PJ) first then the "A" (AA2U) and so on.

It will be seen that the USA can provide 4 letters with the UK, Holland and our Czech friends helping too. Others will become obvious. The one difficult one could be the "T". Power levels must be normal QRP levels and any mode may be used. Entries should be sent to KANGA PRODUCTS, the address is on the back page. Names will be put into a "hat" and the winner will be drawn at the convention in Rochdale next October. Entries must be in normal log book format and signed as a correct copy by another amateur. QSLs are not required. In the event of a dispute the judges decision will be final.

VHF MANAGER'S REPORT

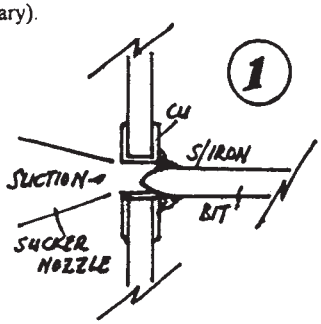
John Beech, G8SEQ
124 Belgrave Road, Wyken Coventry CV2 5BH Tel. or Fax 0203 617367.

Some "Hot Tips" for the constructor when working with printed circuit board materials

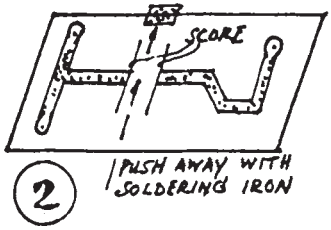
When re-working commercial double sided boards with plated through holes, two problems arise:

1. Removing components
2. Clearing the holes so new ones can be inserted.

DSPTH boards are very expensive to produce and are used in computer hardware and some RF boards, so some care should be exercised when working on these boards.
If the component being removed is definitely scrap or not worth salvaging, cut its wires or pins and remove the stubs individually.
IC's can be successfully removed by inserting a screwdriver blade under the IC and heating all the pins down one side simultaneously. Run some new solder onto your iron, to give a good thermal contact. Lever this row of pins out by twisting the screwdriver.
Hold the IC with the fingers and heat all the remaining pins and pull the IC free. The pins can be carefully straightened with long nose pliers if you want to re-use the IC.
The holes in the PCB will probably close up if it is PTH.. To clear these holes support the board vertically either between the knees or in a suitable clamp. (See diagram). Heat the hole from one side by pushing the point of the soldering iron into the hole (apply fresh solder if necessary).
Hold the solder sucker over the hole on the opposite side of the board and when it is good and hot press the solder sucker button and sharply pull the soldering iron away at the same time (or a fraction of a second earlier.)



If the hole is in ground-plane it may need several seconds heating (up to about 30) before suction. If you suck the innards of the hole out, all is not lost. Put a pin or stout wire through and solder both sides.



If you ever need to cut a track on a PCB, here's an easy way:
1. Score two "cuts" with a scalpel, Stanley knife or razor blade.
2. Heat the section between cuts with soldering iron to meld glue and push away.

MEMBERS' NEWS

by Chris Page G4BUE

"Alamosa", The Paddocks, Upper Beeding, Steyning, West Sussex BN44 3JW.
Tel/Fax: 01903 814594
Packet: GB7DXS on UK DX PacketCluster

Not so much news from you this time. I wonder why? I know band conditions are pretty rough now we are nearing the bottom of the cycle, but there are some good days. I worked G3SXW operating as XX9TSX on 21MHz with my Argonaut and Nigel, G3TXF told me he worked quite a few QRP stations from the UK on 30 metres while operating as XX9TXF.

I usually receive a lot of news via packet, but not this time. You will see I have deleted GB7VRB from my address above. This is due to a change of nodes in Sussex and unfortunately I can no longer access GB7VRB. I have not received any messages sent to me there since May, so apologies if your news sent via GB7VRB has not appeared in SPRAT. For the time being I can only be reached on packet via GB7DXS on the UK DX PacketCluster.

One consequence of less news is that I have some space to share one of the landscape photographs that **PA3BHK** sent of the QRP Summer Party. Robert also attended the QRP Convention in Rochdale and afterwards spent four days visiting relatives at The Lizard, in Cornwall. He used his Argonaut II and G5RV to work several members on 40 and 80 metres, but missed the superb lifts on VHF and UHF that had been on for the previous few days.

I finally made the QRP Convention myself this year and hasn't it grown? I hadn't been for several years and was amazed at the number of people attending. It is confirmation (if any was needed) that QRP really has grown in the U.K. It was nice to meet many members who I had not seen for some time and to meet others for the first time. On behalf of all of us who attended, many thanks to George and Joanne for organising it and making their Church Hall available to us.

The weekend before the QRP Convention was our FOC annual dinner in London, which also involves a party for overseas members here on the Friday and an Open House on the Sunday at another local QTH. I had **N4AR** and his wife, **KC4DWT** (both Club members) staying here and during the few days prior to the FOC Dinner I took them to Wales to visit GW3KGV and GW3YDX. I stay with Bill and Betty in Kentucky when I visit the Dayton Hamvention and so it was nice to return the hospitality. Talking of Dayton, from 1996 the date is being moved from the last weekend of April to the second weekend of May. Rumour has it that the reason is due to this years weather. It rained solid for the three days!

The weekend before the FOC Dinner was the RSGB HF Convention, which was the best for several years, with lots of Club members there. Things have been rather quiet since then during November!

GØVGP started off his QRPing in grand style. Brian's second ever QSO was with his HW7 at two watts on 21MHz when he worked a W3 in Pennysylvania. I wonder what sort of DX he is going to be working when he builds up a bit of experience! **G4ELZ** spent two weeks holidaying in Mallorca in September with his FT301 at one watt signing /EA6. Jeff made 205 CW QSOs operating from a third floor studio flat which luckily faced northwest. He was able to put out a doublet which sloped down as a vee configuration and conveiently tied it off on the perimeter fence! Jeff thanks all the members who gave him a call.

Bill, **GØSTR** is planning some QRP activity from J3 (Grenada) between the 8th and 19th April. Look for him on the 20 metre

The Summer QRP Party in full swing.

QRP frequencies, both CW and SSB between 1000 and 1200Z. Bill says that after his success last year with two watts, he is going QRO with five watts this time! He invites members who would like a sked to drop him a line, QTHR.

GU4YBW says that the Guernsey Amateur Radio Society will be operating a special event station from Castle Cornet, St. Peter Port for a week from the 7th May to commemorate the 50th anniversary of Liberation Day (9th May 1995). Peter says some QRP operating will hopefully take place during the week and the call they hope to use is GU5ØLIB or GB5ØLIB.

G4UDG built the 20 metre transceiver featured in Rad Com's "CW the Easy Way". After getting it on the air, Chris found himself hooked on homebrew CW QRP, although the rig will give 15 watts output. He then built the Yeovil transceiver and added an extra IF amplifier to improve the sensitivity and a variable drive control. The Yeovil has now become Chris's main station rig making the FT990 redundant! He took the Yeovil on holiday with him to Cornwall and worked BV2OO whilst using a pro-am whip on the car! Chris's latest project has been to finish a G3TAQ 40 metre transceiver that a friend started and left incomplete.

It is always a pleasure to hear from QRP Novice operators. **2EØADM** is now using an IC726 which reduces down internally to just under three watts for QRP use on all the Novice bands. Les spent time on 10 metres in September and worked some Europeans and ED9TQ for only his second contact to Africa. He asks me to point out that I incorrectly showed his reports in previous SPRAT columns as being on 40 metres. Les, and several others, pointed out quite rightly that there is no Novice allocation on 40 metres. Sorry Les, it must be the pressures of retirement getting to me!

Cedric, **G4JBL** is Chairman of the organising committee for the Yeovil QRP Convention and reminds me of the new date for 1995, 21st May. This is a couple of weeks later than usual and has been changed to avoid a clash with a local rally. Hopefully it will result in even more attending.

I will be using GBØQRP in the QRP Winter Sports once again and hope to meet some of you on the air.

The AGCW-DL will again be organising their QRP Party on New Years Day between 1300 and 1900z on 80 and 40 metres and the Winter QRP Contest over the weekend of 7th/8th January. This latter event always creates a lot of QRP activity, especially on the LF bands in the late evening.

I have just received the December edition of QRPp, the journal of the Northern Californian QRP Club. It contains 72 pages similar size to SPRAT, mostly of constructional articles, and is a superb magazine. Congratulations to editor, Doug, KI6DS. Subscription info from Jim, WA6GER.

Finally, I wish you all a very happy New Year. Let me know how your winter goes, by 20th February please.

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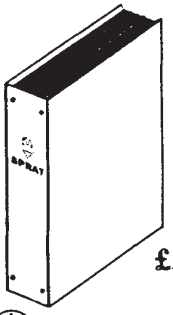

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