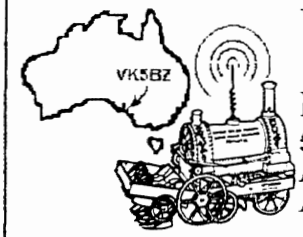
THE JOURNAL OF THE CW OPERATORS QRP CLUB

June 1992
Issue No. 34

Promoting the Use of Low Power CW Mode Communication and Homebrewing in the Amateur Radio Service

Lo-Key



VK5BZ

Member #172

BRENTON ZERBE
5 CHELMSFORD GROVE
ANDREWS FARM SA 5114
AUSTRALIA

CONFIRMING QSO WITH: *Don*

SAMPLE

CALL SIGN	DAY	MONTH	YEAR	TIME UTC	FREQ MHZ	MODE	R	S	T
VK5AIL	*9*	*Sep*	*1999*	*0930*	*3.531*	*CW*	*5*	*9*	*9*

EQUIPMENT Club Communicator POWER OUTPUT 3W/QRP

ANTENNA Temp. dipole to tower

PSE QSL TNX DXCC 73 FROM *Brenton*

Custom QSL Cards Now Available - See Page 3

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Scramble #19 80 m Thursday 23 July
Scramble #20 20 m Thursday 20 August

Editor: Don Callow VK5AIL #75 5 Joyce St. Glengowrie SA 5044 Australia

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POSITIONS

EXECUTIVE COMMITTEE

ORGANISER
(Vacant)
General Club business; Membership enquiries.

TREASURER &
MEMBERSHIP SECRETARY
Kevin Zietz VK5AKZ #43
41 Tobruk Ave. St Marys SA 5042
Membership applications; subscriptions; other payments (except for kit-sets); requests for past issues of Lo-Key; financial correspondence; changes of address, call-sign or other details.

EDITOR OF *LO-KEY* &
KIT-SET ACTIVITY CO-ORDINATOR
Don Callow VK5AIL #75
5 Joyce St. Glengowrie SA 5044
Contributions, ideas and suggestions for Lo-Key; technical requests; kit-set and component orders & payments.

GENERAL INFORMATION

QRP CALLING FREQUENCIES (kHz)
1 815 3 530 7 030 10 106
14 060 21 060 28 060

CLUB MEMBERSHIP SUBSCRIPTION
Due each January - Aust. $A10
New Zealand $A12 DX $A14

LO-KEY - THE CLUB JOURNAL
Published quarterly -
March June September December
ARTICLES ALWAYS WELCOME
The Editor reserves the right to edit all material including letters sent for publication and to refuse acceptance of material without specifying a reason.

OTHER POSITIONS

CW NET CONTROLLER
Ted Daniels VK2CWH/QRP #89

Call:- CQ CW OPS/QRP de VK2CWH/QRP k"
QRP power is used - 5W maximum to ur antenna. Ted adjusts speed to suit the slowest operator on the Net.

ALL WELCOME - TUESDAY NIGHTS
From 0945 UTC at 3529kHz or lower if QRM.
Daylight Saving -
7031 to 7035kHz from 0830 UTC

INFORMATION NET CONTROLLERS
Steve VK5AIM #184 and colleagues.
Call used is generally that of the Controller.
QRO SSB is used. Talk is social + technical.
CW stations pse call "BK de callsign" and your presence will be acknowledged.

ALL WELCOME - FRIDAY NIGHTS
From 1030 UTC near 3620kHz.
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Club radio projects.

THE BOOKSHOP
& BOOMERANG CIRCUIT BOOK
Norm Lee VK5GI #139
25 Ralston St. North Adelaide SA 5006 Magazine & book reviews.

CW NET * * * SSB NET * * *

ooqc

KEVIN'S KOMMENTS

By Kevin Zietz VK5AKZ #43 Treasurer and Membership Secretary
41 Tobruk Ave. St. Marys SA 5042 Australia

WELCOME TO NEW MEMBERS

#249	VK2KW	Alan	HORSPOOL	ORANGE NSW 2800
#250	SWL	Greg	DAVIS	CHISHOLM ACT 2905
#251	VK2SKY	Richard	MURNANE	DEE WHY NSW 2099
#252	VK3BOL	Peter	LAYCOCK	HURSTBRIDGE VIC 3099
#253	VK5ADY	Trevor	DAYMAN	ELIZABETH DOWNS 5113

Welcome back to:

# 56	VK2ESR	Stephen	RAPLEY	ENMORE NSW 2042

Once again I have been busy amending the club records and attempting to catch up, as I have received many changes of address and other details. If you have been following this column you would be virtually up to date with our new members but not with those who have left us or just not renewed. So I think it may be time for a few more stats -- 18 Members have not responded to their final Lo-Key notice (response was about 50%) and we currently have 180 active members. This compares with 176 active members at 16/06/91 & 189 at 27/11/91, and I expect more late subs to come in when unfinancial members realise that no Lo-Key has arrived !

The economic times seem to be taking a toll but as a club we are holding our own. Your committee in reviewing club financial affairs is taking a hard look at expenses in an effort to eliminate as many as possible, so as to absorb as much as possible the increasing costs (of which postage is significant *) in producing and distributing Lo-Key.

There were no offers to purchase the club photocopier, hence I will start looking for other avenues of disposal with the view to obtaining the best results for the club.

Kevin OOOC

* We pay standard letter postage, not Registered Publication rates (soon to rise). However, postage rates for kit-set packets have risen greatly in the last 5 years - much more than standard letter rates.

CLUB SALES Postscript: *Custom QSL Cards*

As you can see from the cover we can now supply masters of custom-designed QSL cards (in addition to the Club QSL cards C095, which are professionally printed on glossy paper). The custom cards will suit members who need only a few cards and/or don't wish to outlay many $$$. You provide a sketch of what you want, with details, and special artwork (if any) to be used. The master will be printed black on white, A4 size, containing 4 cards per sheet, and can be copied onto coloured manila card. Price of a master artwork sheet is $25.00. For more information contact the QRP Kit-Set Centre (See p.22)

(pps. Don't believe anything about the QSO mentioned on the cover !) OOOC

CLUBTIVITIES

Recognition - The WIA's 'Amateur Radio' magazine for March 1992 reported that Maggie Iaquinto VK3CFI #138 won this year's Ron Wilkinson Achievement Award "for her highly successful assistance to and packet communications with the Russian spacecraft MIR, and her involvement of her high school students." FB, Maggie!

Callsigns - Alan James VK2ACN #182 has upgraded from VK2FIZ - and it's nice to hear you on the Friday Net, Alan!

Mouse Code - K1TTY, a regular visitor to the shack of Steve VK5AIM #184 is in fact Steve and Sue's CAT. Wonder if there IS a K1TTY stateside?

Thanks - to those members who volunteered to assist in running the CW and ssb Nets or offered to help the Club in other ways. You'll read more about all this in future issues of Lo-Key.

OOQC

The Max Brunger Awards for Best Technical Articles

These are awarded in memory of the late Max Brunger VK5OS #2 and were announced in Lo-Key #33 p.6. The inaugural awards are for articles appearing in Lo-Key #32 to #35 inclusive, December 1991 to September 1992, and the winners will be announced in the coming December issue.

All you have to do is submit articles - there is no need for special application.

We intend to arrange for independent judging, as previously.

So, *GO TO IT !*

The guidelines for the 1993 Awards are:

1. Articles will be considered for Awards in two Sections:- an Open Section and a Test Gear Section. Both Awards will comprise a certificate and a voucher to the value of $25.00 for items from the QRP Kit-Set Centre (to be used before the end of the 1993/94 financial year) and in addition the Open Section Award includes free Club membership for one year.

2. All members' articles published in Lo-Key from #36 December 1992 to #39 September 1993 (inclusive) will be considered, regardless of dates submitted.

3. An Executive Committee member or a person involved in judging for the Award is not eligible to win an Award.

4. The winning articles will be chosen using the following criteria, plus any others deemed necessary at the time of judging:-

** Relevance to the spirit and aims of the Club. See the Club logo, motto and statements published from time to time above the membership application form in the item *Interested in Joining Us ?* and in our Club's promotional brochure.
** Likely usefulness to members.
** Originality of content.
** Layout and degree of completeness. Is it attractive as submitted and can it be published with little extra effort ? Note that articles submitted as rough notes could still win provided they are assessed highly under the other criteria.

5. The Test Gear Section is for articles about test gear and related procedures. An article on test gear may win the Open section, but the same article cannot win both.

OOQC

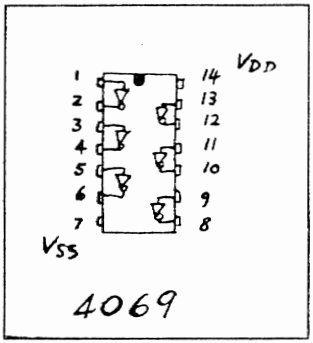
Some Experiments with Ceramic Resonators

By Peter Parker VK6BWI #66

The availability of the 3.5MHz ceramic resonator makes it easy for anyone to construct a high quality, frequency-agile 80m CW transmitter for a minimum outlay from readily available components. The ceramic resonator, available for about $2.20 (RS Components cat. 656-170) can be shifted over a frequency range of at least 60kHz in contrast to crystals which can be pulled by only about 3-4kHz at most. While ceramic resonators are claimed to be less stable than conventional crystals, a ceramic resonator VXO remained zero-beat with crystal controlled direct conversion receiver for over 30 minutes, when the test was concluded.

In contrast to conventional VXOs, where the shift obtained heavily depends on the individual crystal used, the shift of my prototype VCRO concurred almost exactly with the results obtained by **G3BBD**, as reported in Reference 1, which also includes a simple CW transmitter for 80m. Other advantages of VCROs include their simplicity:- no alignment required and no need for a separate shielded enclosure for the oscillator.

The circuit uses a 4069 CMOS hex inverter as the oscillator/buffer, as shown in Fig. 1. Remember to earth all unused inverter inputs. The variable capacitor is the common two gang 10-60/10-160pF transistor radio variable capacitor. The terminal marked 'G' is earthed while the 'O' and/or 'A' terminals are used as required. The 'O' section has a maximum capacitance of about 60pF while the 'A' section can be varied up to 160pF. Table 1 shows the effect of varying capacitance and inductance on the output frequency of the VCRO. Depending on the capacitance of VC1 at minimum capacity, the oscillator may refuse to start. If your variable capacitor has trimmer capacitors on the back of the case, these can be set to maximum to ensure reliable oscillation. Alternatively, a 5 or 10pF capacitor can be wired across VC1. Like a conventional VXO, tuning is non-linear, but becomes less so as the parallel



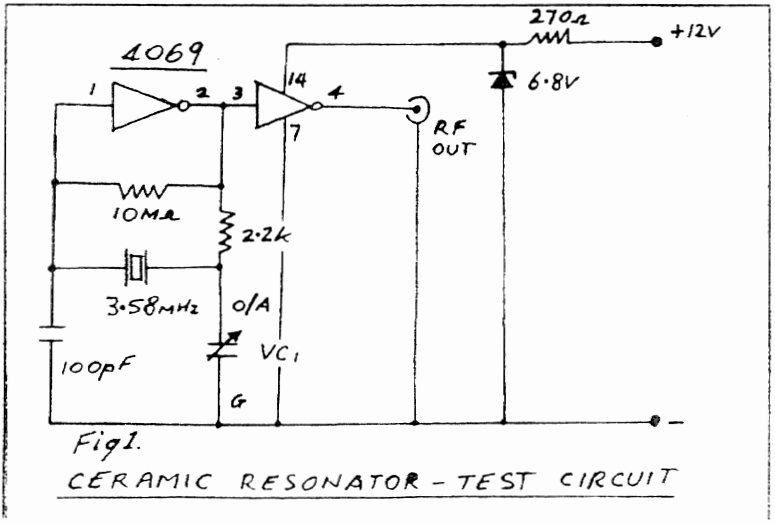


Fig1.

CERAMIC RESONATOR - TEST CIRCUIT

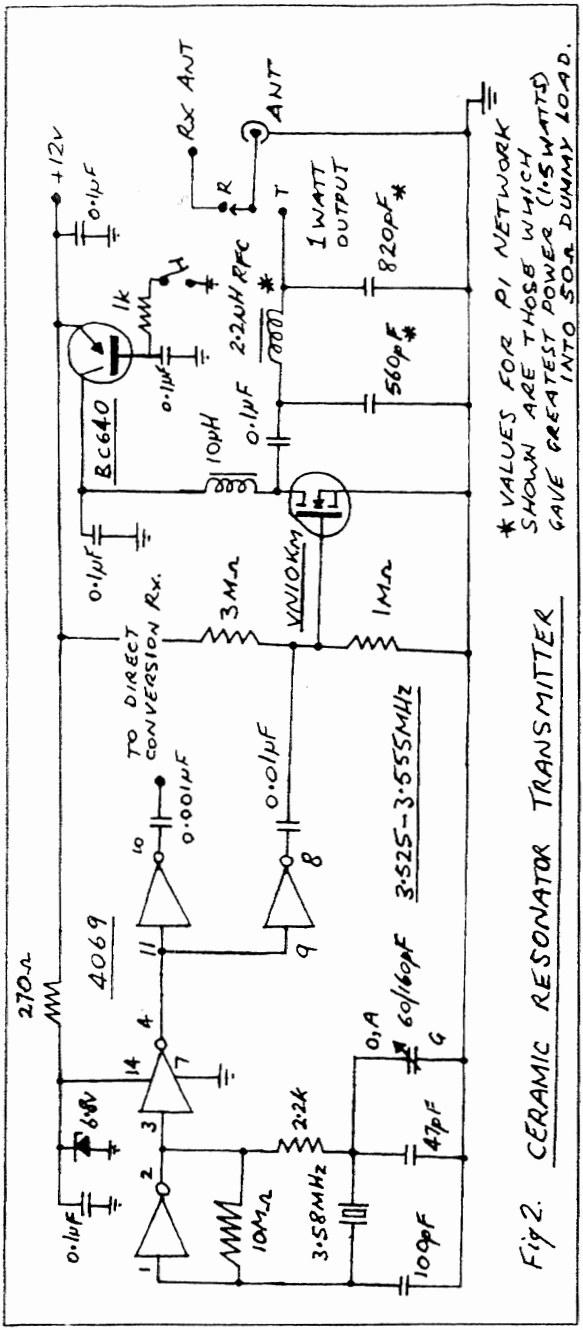


Fig 2. CERAMIC RESONATOR TRANSMITTER

capacitor across VC1 is increased and the tuning range is reduced. To drop the range of frequencies slightly, an inductor could be connected in series with VC1. This technique provides a wider coverage than adding parallel capacitors. This oscillator can be keyed, without chirp, by switching the supply to pin 14 of the 4069, so the VCRO lends itself to break-in CW operation.

Figure 2 shows an example of a transmitter using a ceramic resonator. This circuit is similar to that in Reference 1, but has been modified for use with a direct conversion receiver which includes a CA3028A detector plus a BC548 and 741 audio amplifier. The VN10KM PA as described in Reference 1 provided an output of only about 100mW until 2 x 1.5M ohm resistors in series were wired between the gate of the VN10KM and the positive rail. RF power output can be increased by reducing the value of this resistor, but at the risk of destroying the transistor if the resistor is reduced too much.

This transmitter has been used on air with excellent reports of stability and keying quality, and has netted *(Ed.- Good pun, Peter)* many contacts not possible with the crystal controlled Oner (Reference 2) used previously on 80m. In my opinion a frequency-agile 1 watt is far preferable to a crystal-controlled five watts and, even with all new components, this rig should cost less to build than the cost of ONE crystal.

Before the Oner was modified for use with a ceramic resonator, the Oner crystal oscillator was tried with a 3.58MHz

ceramic resonator (see Fig. 3). Unlike the CMOS oscillator, where most of the frequency shift is below the nominal frequency of the resonator, this oscillator can be varied from 3.598 to 3.627MHz, a range of 29kHz, although no effort was made to optimise component values. This circuit would be ideal for use in a simple, low-cost 80m DSB transmitter. 160m enthusiasts might like to try feeding the output from the oscillator to 1/2 of a 4013 CMOS IC to halve the frequency to the 1.8000-1.813MHz range. The oscillator can be left on continuously if the 4013 is keyed by a 741 as in VK6KRG's Club Communicator (Reference 3).

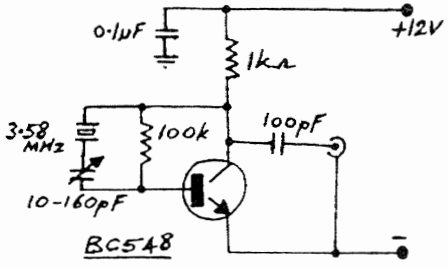


Fig 3 TRANSISTOR CRYSTAL OSCILLATOR

As ceramic resonators for other frequencies apart from 3.58MHz are available, they should be useful in a wide range of applications in transmitters and receivers. Although untried, it may be feasible to substitute a pair of varicap diodes for VC1. This lends itself to the possibility of narrow band FM experiments on 80m with only an audio amplifier required.

REFERENCES

(1) Harrison, R Amateur Radio July 1991, p21.
(2) Burt, G Lo-Key September 1987, p22-3 (Ed. - from G-QRP Club's SPRAT)
(3) O'Donnell, L Lo-Key June 1987, p21-4

Table 1. VCRO COVERAGE

VC Sec	Parallel Cap	Ser L	Coverage	Range
'O'	0	0	3·550-3·590	40kHz
'A'	0	0	3·532-3·592	60kHz
'O'+'A'	0	0	3·526-3·587	61kHz
'A'	47	0	3·528-3·558	30kHz
'O'+'A'	47	0	3·525-3·555	30kHz
'A'	100	0	3·524-3·538	14kHz
'A'	150	0	3·522-3·531	9kHz
'A'	0	3·3µH	3·527-3·590	63kHz
'A'	0	5·5µH	3·524-3·575	51kHz
'A'	5	0	3·532-3·589	57kHz

WHERE INCLUDED, THE INDUCTOR IS WIRED IN SERIES WITH VC1.

Reflex Receiver Terns Out O.K.

By Glyn Gibbings-Johns VK4LA #203

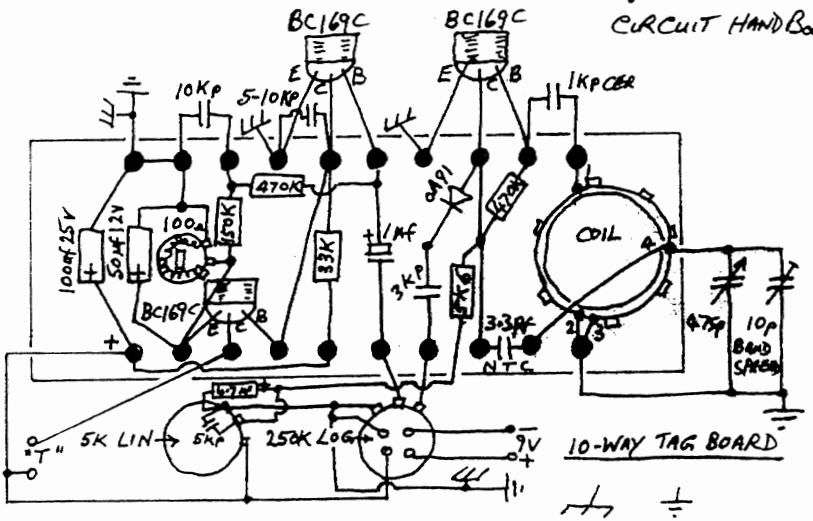
I was browsing through the G-Club Handbook(1) during the commercial breaks on TV and came across the circuit of the Silver Tern reflex receiver by **Emil SM0AMI**. It was soon apparent to me that the component layout sketch didn't conform to the schematic within the receiver's feedback circuit. The next day I set about redrawing the component layout and then wondered "Would it work ?", so I decided to build it and try it.

I don't particularly like reflex receivers for two reasons: (1) my ears are sensitive to sudden oscillations; and (2) I don't think they can be adapted to transceiver mode - but I decided to build it anyway.

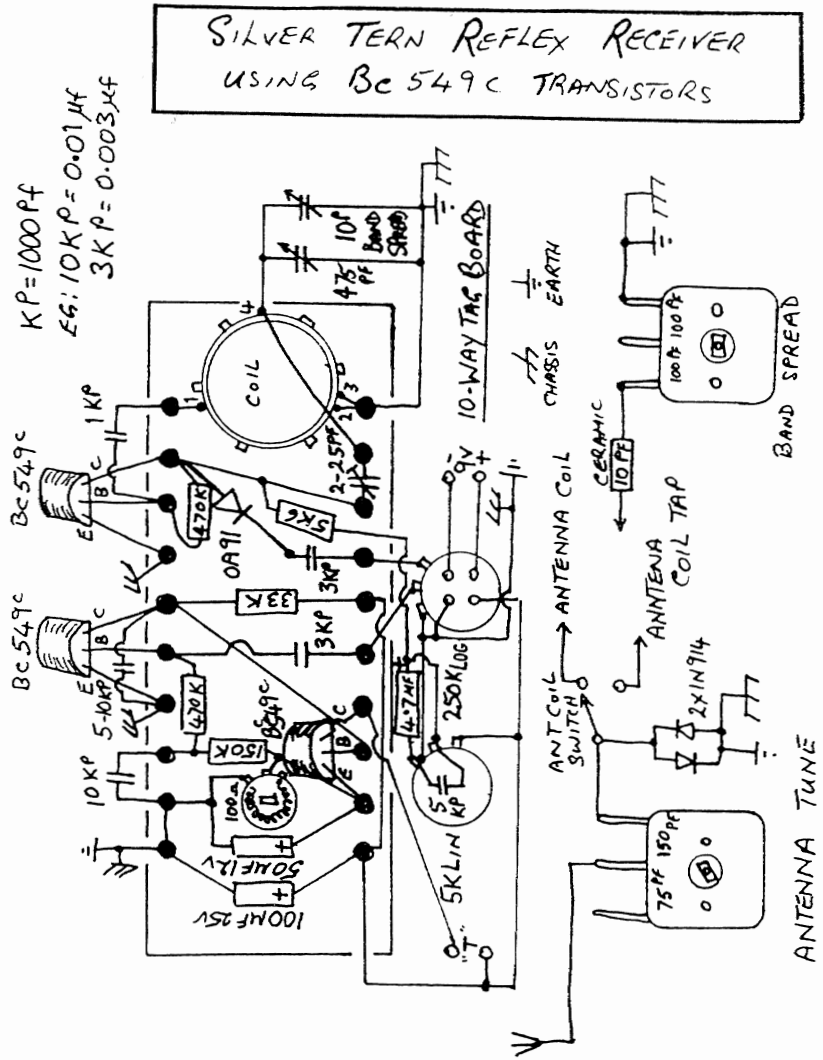
It became clear to me that my well-stocked junk-box failed me when it came to the transistors - I couldn't find a BC169C anywhere, so decided to use BC549C's instead. I only had three of them, but then that was all that was needed anyway. The "C" following BC549 indicates the device is a high gain type. Pinouts are different to the BC169C, so it was back to the drawing board to sketch out a components layout to suit. Both drawings are included here.

A piece of scrap aluminium was found and cut to 8" x 10" (a little larger than 20 cm x 25 cm) and bent to an "L" shape so that the front panel is 8" x 5". This accommodates a separate ON/OFF switch, antenna tuner, band spread, coil-tap wafer switch, a dual gang 500pF x 500pF frequency tuner (only one gang is used), phone socket and the 5k LIN and 250k LOG pots. Both of these were in poor condition and I had to strip, clean and re-tension the central contacts until a smooth reading was seen on the ohm meter. Don't forget to insulate the phone socket from the chassis.

AMENDMENT TO SILVER TERN REFLEX RECEIVER, PAGE 45 G-QRP CLUB CIRCUIT HANDBOOK



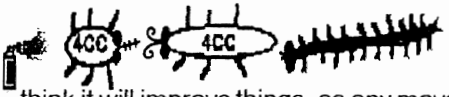
(1) Available from our QRP Kit-Set Centre (C098)



Greencaps were used as the non-polar capacitors on the tag-board and I had to experiment to find the right feedback trimmer. the ceramic tubular types were good but I finally settled for a small round ceramic type about 2-25pF. as used for xtal pulling.

I built a screening can for the coil from an old coffee can. cutting it and re-rolling and soldering to the specifications - the coffee can lid served the same purpose here too. I later discovered that an Edgells (empty) 130 gm Creamed Corn can is the right diameter and would be ideal.

The coil former is a plastic cotton reel with a 3/4" (19 mm) barrel and holes drilled around the lip for wire anchors. A wooden reel may be better here. as I found that the plastic melts rather easily



when soldering the coil wires to the anchor pins. I also drilled holes in the barrel at the ends and taps of the coil and ran the wires up the bore of the reel to the top and terminated all contacts there.

I didn't have the specified coil wire either and used cotton covered litz 20/44 spaced just over a millimetre for the secondary windings and close wound for the antenna primary loops. The matchsticks were cut to size and affixed with superglue. The coil was coated with clear nail enamel; this can be purchased as an end-of-stock item from chemists etc. quite cheaply. (Don't rob the XYL's if you want your coil to stay in one piece.)

There isn't room on the tag board for the screening can so it was placed on the chassis at the end of the tag strip. Lugs were soldered on the bottom of the can and bolted to the chassis. The coil & tag strip were stuck to the chassis with Bostik two-way adhesive pads, stacking two pads for height on the tag strip.

A conglomeration of junked control knobs makes my receiver quite ugly, but it works very well into a set of ex-Army DLR No.5 phones. *It is advised here that such phones should be placed only partially over the ears lest you enjoy tears rolling down your cheeks:* it can be quite painful when this rig breaks into oscillation. Of course, a speaker and appropriate transformer will alleviate this problem.

The Rx drew 21mA, which is a little high for battery use. I tried a 9-10 volt power supply, but this rig didn't operate as well as it did on a flat 9 volt battery with only 7 volts lingering. My rig covered a frequency from 6.345MHz to 21.360MHz and covered 40-30-20-17 and most of the 15 metre band, if the 3kp greencap is used at the wiper of the gain pot instead of the 1uF electrolytic. You will need patience to tune in SSB signals. I haven't put the Rx into a screened box yet but think it will improve things, as any movement (including the phone lead) around the receiver while it is in operation will introduce stray capacitance to the set thus detuning it.

I spent far too much time on this one but found it hard to keep away from, especially when the bands were open. Amazingly the set didn't suffer from station 4CC, which happens to be the biggest 'bug' in my shack: this broadcast station puts a very strong signal into this QTH.

As an experiment I added the antenna tuner, which is one side of a small tuning gang from a pocket broadcast receiver. I didn't include the attenuator pot but added back-to-back diodes in case of Tx overload; it reduces the volume only slightly.

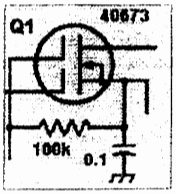
The bandspread was also a small tuning gang from a B/C pocket radio with both gangs connected in series to form 50pF. This alone will give a band spread of 3MHz and a 10pF capacitor in series with this set up will reduce the band spread to 680kHz.

It is an educational and fun set to build and something I would have missed out on had there not been a discrepancy in the drawing in the original article.

I noticed also that the OA91 diode comes before the capacitor, instead of following it, which is unusual. It probably would not make much difference to the operation (?), so I left it 'as is' to find out, but as yet haven't tried it the other way around.

My drawings were intended as amendments to my copy of the G-QRP Club handbook, but then I thought that it may be of interest to others - hence these notes.

73 & 72 de VK4LA Glyn #203 cccc



Receiver Notes

26 Surrey Crescent
Lower Mitcham
South Australia 5062
May 20, 1992

Letter to the Editor of Lo-Key

Dear Sir,

I would like reply to Drew Diamond's letter that appeared in the March 1992 issue of Lo-Key.

Firstly I would like to apologize to Drew Diamond if I had upset or offended him in any way in my article in the December issue of Lo-Key. It was not my intention to criticize the design but report on my findings on one far from exact replica of his design. I certainly agree that unless a constructor exactly replicates a published design using identical components then the chances of duplicating the prototypes performance is minimal. Having worked with communications equipment for over 25 years, including some experience in putting prototype equipment into production, I have found that component substitution does not always produce the desired results but may lead to further changes to be made to bring the performance up to the desired level. I also agree with Drew in that I also find it sometimes difficult to duplicate the results of other authors and I have spent a lot of time trying to work out why not.

I believe that Drew's analysis of the lack of sinusoidal oscillator output was correct as, from memory, a yellow Amidon core had been used by the builder. As for his comments on the input filter, I agree that 0.5MHz bandwidth at 3.5MHz is not easily obtained but I also believe, based on my knowledge of the theory of tuned circuits, that there must be a better, may be not simpler, solution to the problem than a low value resistor across one of the tuned circuits, but I reserve my rights to make any further comments on this subject until after I have completed my own experiments. I also believe that Drew's offer of assistance to builders of his projects is very generous and commendable.

Secondly I would like to add my appreciation to Drew for his prolific output of interesting and practical constructional articles that have appeared in Amateur Radio over the last decade or so. I have had difficulty in finding the time to do the little that I have done so I am pleased to be able to express my appreciation to Drew for the interest and stimulation that his articles have provided to encourage home brewing within the amateur fraternity in Australia. I would like to encourage others to give it a go, have a try at home brew as I believe that learning comes through the fingers as well as the eyes, and write to the editor telling us of your discoveries.

yours sincerely,

John Bishop

Review of K1BQT's QRP-20 Receiver

A Simple Super Superhet Receiver

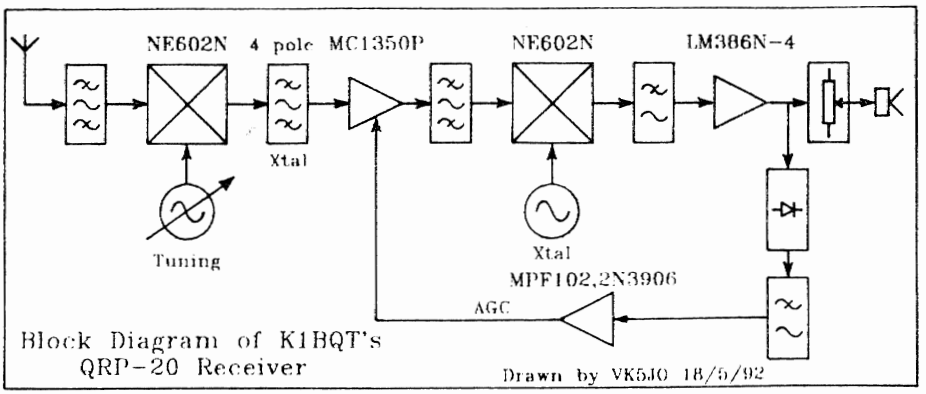
By John Bishop VK5JO #223

Over the years the American "Ham Radio" magazine, now incorporated into "CQ" magazine, has published many interesting and thought provoking receiver and transceiver articles by Rick Littlefield, K1BQT. The first one that I can recollect was a "Compact SSB Receiver", which used MOSFETs, JFETs & a LM386 IC. (Ref. #1) Before I had got round to starting to build it, another very interesting design for a compact 75 meter monoband transceiver using LM1496, MC1350, & LM386 ICs plus a few FETs was published. (Ref. #2) I actually started working on a suitable board layout of the receiver section but before long K1BQT was in print again in June 1987 (Ref. #3) and again in January 1989. (Ref. #4) In the 1989 article K1BQT described an NE602-based QRP TRANSCEIVER for 20M CW. Through reading other technical articles (Refs. #5 & #6) I was convinced that using the NE602 IC not only simplified printed wiring board layout but had the potential of providing reasonable performance.

All fired up in 1989, I designed a circuit based on K1BQT's latest design but using components that I had on hand. Between my mistakes, a couple of static damaged NE602s, and a circuit error that I discovered sometime later, my first receiver design and printed wiring board layout was not successful. It was then that a friend provided me with a set of printed wiring boards for what was then K1BQT's latest published design. (Ref. #4) So far I have only built only the receiver section without the optional extra IF and audio selectivity and have since used this little receiver board as the basis for some comparative experimentation - some of my discoveries are outlined below. I have built other receivers of similar complexity but so far none of them have performed significantly better than this design and some not as well. As with most published designs there are a few modifications that can be added that will improve its performance, see Reference #7. If you compare the circuit in this article with the one published in Reference #4 you will notice a few small changes and the correction of the omission in the published circuit (Ref. 4) of the link between pins 2 & 8 of the MC1350. It was this circuit error or omission that significantly contributed toward my first receiver effort using the NE602 to be a flop as I had duplicated that section of the circuit.

Initially I used 455kHz ceramic resonators for the IF filter and the receiver performed quite well on 40m. The selectivity, whilst adequate, left a bit to be desired. Some borrowed 9MHz CB crystals (27,240kHz) were then pressed into service for the IF filter and the receiver was then tuned up on 20m. The image performance improved out of sight but whilst the selectivity improved it was not the dazzling improvement that I had been expecting. Well, as the original design had specified 10MHz crystals I purchased a batch of 10 low profile 10MHz crystals, tested them and selected 4 that were within 100Hz series resonant frequency as per the instructions for the IF filter. Their series resonant frequencies were actually within 80Hz of each other, much closer than I was able to select from the 23 or so ex-CB crystals which had a spread of more than 200Hz. The new filter dramatically improved the selectivity of the receiver to such an extent that for SSB reception it seemed better than the main station receiver. Until I complete the construction of my frequency counter I will be unable to measure accurately the bandwidth and skirt selectivity but I estimate the

POSTSCRIPT - In the April 1992 issue of ***CQ*** magazine (just received) **MJF Enterprises** has a full-page advertisement for a 20m transceiver designed by **K1BQT**. From the description, it appears that its receiver is the same as that referred to in our article.

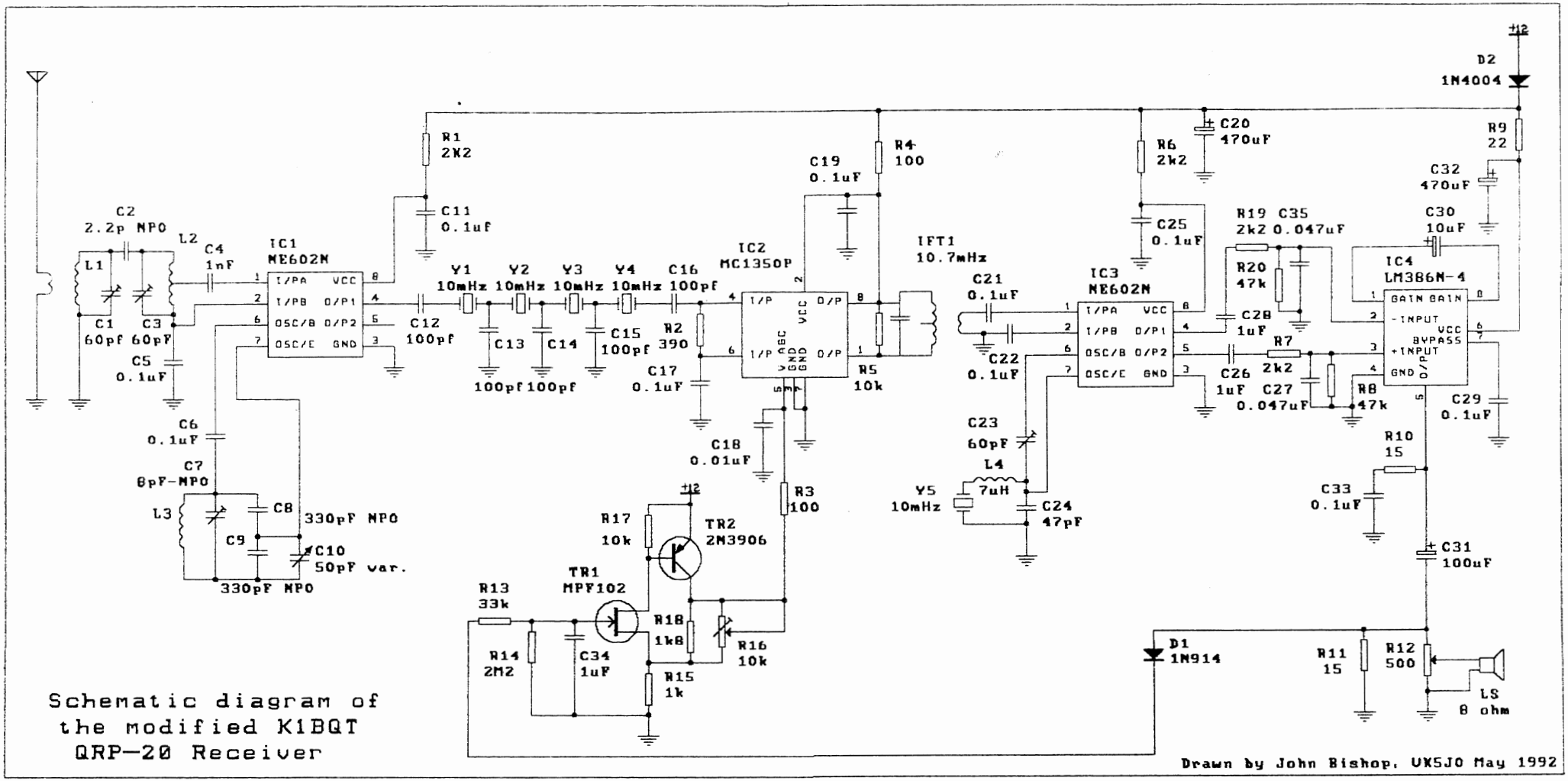


bandwidth to be approximately 1.7kHz wide and the skirt selectivity quite steep. K1BQT's original design provided for greater selectivity suitable for CW reception - for more details I suggest that you read K1BQT's comments in Reference #7. Here he has changed the crystal filter design from a Cohn to a ladder design, significantly improving selectivity of the receiver.

After assembly of the receiver was completed I noticed that whenever receiving SSB signals there was some annoying distortion. This was traced to inadequate supply decoupling so C32 was increased from 100uF to 470uF and C20 was added. The distortion that I noticed may not be a problem if the receiver is intended to be used only for CW reception. D2 was added to prevent incorrect connection to a power source that may damage the semi-conductors by the application of reversed polarity supply voltage. The addition of a three-terminal TO-92 package type of voltage regulator, for example a 78L05, to supply both the NE602s would solve any possible drift problems due to power supply voltage variations. If you use a regulated supply to feed your receiver then the addition of other voltage regulators should not be necessary, as I have noticed with the performance of my receiver.

On first building the receiver I had substituted violet (4C6) Philips toroids for the Amidon types specified but on 20m there was noticeable 10MHz WWV breakthrough into the IF. This was due to the fact that at 14MHz the Philips violet toroids have a Q of approximately 40 and the ***blue*** ones, supplied to me as being violet, had a Q of approximately 30 whereas at 10MHz their Q's were about 80. The Q of the specified Amidon cores was approximately 120 at 14MHz. The IF breakthrough disappeared when the correct Amidon toroids were installed (obtained from our Club's Kit-Set Centre). The resulting increased front end selectivity made alignment difficult due to the flexibility of the plastic narrow diameter alignment tools required to adjust the miniature trimmer capacitors, C1 & C3. The use of the very small ceramic trimmer capacitors was made necessary because of the limited space available to fit the trimming capacitors on the printed wiring board. The performance obtained from such a small printed wiring board measuring approximately 84mm x 43mm is quite remarkable. To actually build this receiver you will need to obtain very small components. Be prepared to stand resistors on end and use a fine-pointed, temperature controlled soldering iron along with 0.71mm diameter multi-cored solder. I refer you to W6ZH's article for helpful constructional hints. (Ref. #8)

With this receiver I didn't notice any drift; it has adequate sensitivity, good selectivity for SSB reception; for single signal



CW reception one probably could use the extra selectivity provided for in the original design. Power consumption is modest, approximately 12V @ 25mA under no signal conditions to approximately 75mA under full volume, strong signal conditions when using a 50mm 8ohm loudspeaker. The receiver probably cost me approximately $70 to construct as I used some components from my junk box. Overall, I can recommend this design to anyone who wants a compact receiver or a receiver for a compact transceiver.

For those of our readers who wish to build a transceiver featuring this style of receiver: I suggest you read Reference #7 for details of K1BQT's latest design. If you require a transceiver with additional selectivity then you may desire to construct the design with the additional crystal filter as well as audio selectivity. May I suggest that you read Reference #8 for details of the new version of the 1989 design and if you wish to duplicate one of his designs then read References #4 & #7 - then perhaps you may decide to send away to the USA for either a kit or the printed wiring board. Since the publication of the 1989 design the whole transceiver has been laid out to fit on one board measuring approximately 104mm x 76mm, a truly remarkable little package.

Anyone wishing to talk to me about this receiver, or about the technical aspects of any other design I am often on the club SSB net that normally starts at 1030 UTC on the nominal frequency of 3620kHz (+/- QRM). It is my plan to lay out a printed wiring board for a receiver of similar design, enabling use of a MC1349 for 10db more IF gain in place of the MC1350, a different AF gain control circuit, a modified and hopefully improved AGC system. The board will be laid out to utilise components more readily available here in Australia. If there is sufficient demand I anticipate that details will be published in a later issue of Lo-Key. *I look forward to receiving your feedback on a project of this style.* (Continued over)

SSB Net

By Steve Mahony VK5AIM #184
19 Kentish Rd. Elizabeth Downs SA 5113
Telephone (08) 255 7397 (H)

A roster of Friday Info. Net Controllers is being prepared and will be sent to those on it. We intend to list the callsigns in Lo-Key #35. If you are coming up on the ssb Net, then listen for our club's name or for callsigns such as VK5AIM. VK5JO and VK5BLS. Hopefully we will have some callsigns from other states soon.

This net operates for at least an hour each Friday night at 3620kHz +/- QRM. It can go longer if the Controller wishes, but of course you can call in for a single over if you like. Normal starting time is 1030 UTC. We usually change this time during the Summer Daylight Saving period, but this is under review.

The roster will include members who have already volunteered and others who may only have indicated they may be available. If you can't participate please let me know soon, at the address given. If you are unable to operate on your rostered night please try to arrange for someone else to replace you. Either way, we'll just carry on as usual !

cccc

Review of K1BQT's QRP-20 Receiver (Cont.)

References

1. Rick Littlefield, K1BQT, "Compact SSB Receiver," Ham Radio, November 1983, Page 10.
2. Rick Littlefield, K1BQT, "A Compact 75-Meter Monoband Transceiver," Ham Radio, November 1985, Page 13.
3. Rick Littlefield, K1BQT, "A Compact 20-meter CW transceiver," Ham Radio, June 1987, Page 8.
4. Rick Littlefield, K1BQT, "An NE602-based QRP Transceiver for 20-Meter CW," Ham Radio, January 1989, Page 9.
5. D. Anderson & R.J. Zavrel Jr., "RF ICs for portable communications equipment," ELECTRONIC COMPONENTS AND APPLICATIONS, Vol. 7 No. 1, 1985, page 37.
6. Robert Zavrel, "State of the art ICs simplify SSB-receiver design," ELECTRONIC COMPONENTS AND APPLICATIONS, Vol. 7 No. 4, page 223.
7. Rick Littlefield, K1BQT, "The QRP-15 CW Transceiver," CQ, September 1990, Page 43.
8. Pete Hoover, W6ZH, "The QRP-20 Plus 20 Meter CW Transceiver," CQ, November 1991, Page 20.

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CW NET NEWS

By Ted Daniels VK2CWH #89

Conditions have been good on 80mx over the past three months, and there has been quite good support for the Net.

A total of 16 different stations has checked into the Net, including several for the first time: **Ian VK2IRJ #227, Glyn VK4LA #203, Mick VK5BVM #170**. *Just when I was becoming convinced that the path to VK5 was gone for ever !* Three ZL stations were included over the period, headed by **Matt ZL1ATW #34**, with signals pretty consistently around S5.

It was also great to hear from **Rex VK2YA #131** shortly after his 80th birthday, sending perfect morse on his hand key. Rex still assists the VK2 WIA Slow Morse practice group on Sunday nights.

QRP activity in VK2 has increased lately, and one reason is the success of the Westlakes A.R.C. QRP Tx kit. It sold for $15, and was crystal-locked on 3.579MHz, but they located a cheap ($2 each) source of crystals for 3.527MHz and also 7.017MHz, and quite a lot of activity now occurs on the 80m frequency. Several have checked into our Net and they put out a good signal for 2-3 watts.

72 from Ted. cccc

CIRCUITS AND SHORTCUITS

CENTRE TAPPED TRANSISTORS ?
By Wes Tyler VK2WES #162

Component Tap

A method I use to salvage components from old circuit boards may be of interest to other members as after a little practice it is fast and efficient.

Tools required

(1) Soldering ("desoldering") iron of sufficient wattage to rapidly make the solder joint fluid (not your assembly iron as it won't work).

(2) Wooden bench or solid block about 300x300x25.

Method

(1) Select your component, hold the board in one hand, edge resting on bench/block (large boards should be cut into manageable size pieces).

(2) Apply hot iron to the joint and as soon as the solder is fluid, a light sharp tap of the board edge on the bench/block removes the solder.

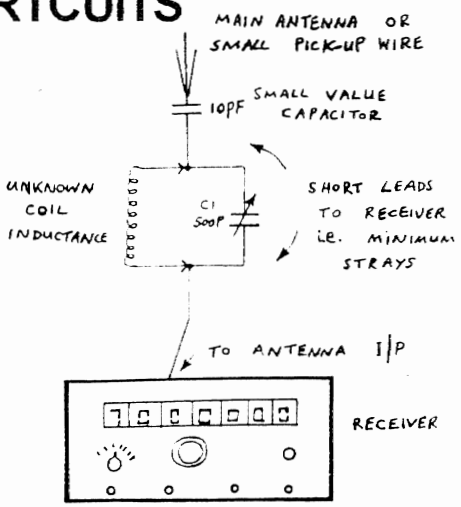
Even 18 pin DIP. IC's are barely warm after their removal.

(3) If recovering a majority of the on board components, work systematically from the perimeter of the board inwards to avoid a build up of solder splashes on items yet to be removed.

(4) A piece of felt or cloth laid on the bench top will catch and prevent damage to components that drop out on tapping.

My parts trays contain hundreds of resistors, capacitors, coils, transistors, IC's and even relays recovered this way.

Wes.



A Technical Tip From VK6BER -
HOW TO DETERMINE THE VALUE OF AN UNKNOWN INDUCTANCE WITHOUT USING A GDO
By Martin Reece VK6BER #211

This uses the 'TRAP' Method of finding the resonant frequency of a tuned circuit

Method (1):
Connect as shown with a capacitor across the coil. Assume 7MHz required. Tune Rx to 7MHz, then adjust C1 for minimum signal received. With a 500pF linear capacitor gradually re-adjust receiver so that minimum signal occurs at half mesh .i.e. use about 250pF for resonance.

Method (2):
Connect capacitor of fixed value then tune receiver dial for minimum signal. You can then calculate the value of inductance or use charts found in reference books.

(Ed. - Similar to those in Lo-Key #27 p17)

'The Boot' 100W Power Amplifier for 3.5MHz

By Rod Green VK6KRG #28

The new amplifier was designed primarily for people who like to work high power, but also enjoy homebrew, and on QRP. Now you can have both.

AMPLIFIER DESCRIPTION

The new amplifier will give near full output with only 2 watts of drive. I fed it from the Club Communicator both via a power splitter (See Lo-Key June 1990 p.5) and direct from 2 to 4 watts, with little variation in output.

The amplifier and its power supply were built in quite a hurry for the WA Hamfest as a demonstration unit. It created a lot of interest, particularly when the cost of the transistor was shown to be only $2.75. Surprise was also shown at the apparent complete lack of a heat sink !

At this time (late 1991) I have only powered up to about 75 watts out, as my power supply has its limitations. For 100 watts you will need a well filtered power supply capable of 28V at about 4 Amps.

The schematic shows points A and B in the source circuit of the power FET, this is for the keying transistor. Use 2N3055. I have not yet developed this circuit, but I think one similar to the Forrestfield or Club Communicator would be fine. Try using the keying transistor from either of these circuits to key the 2N3055 as part of a darlington pair. If much interest is shown I will definitely develop the circuit further, as it is an easy unit to get going.

CONSTRUCTION NOTES

Capacitors

If you look at the schematic you will see several capacitors connected in parallel, in the output coupling network. The reason for this is that a single component of the correct value would overheat, as did indeed happen to me. The odd thing is: splitting up a component into (say) 2 or 3 parallel components **DRASTICALLY** reduces heat generation, without taking up any more space. The reason for this is not at all clear to me. The parallel components don't even get warm, whereas the single component would have melted in a matter of seconds.

Heat Sinking

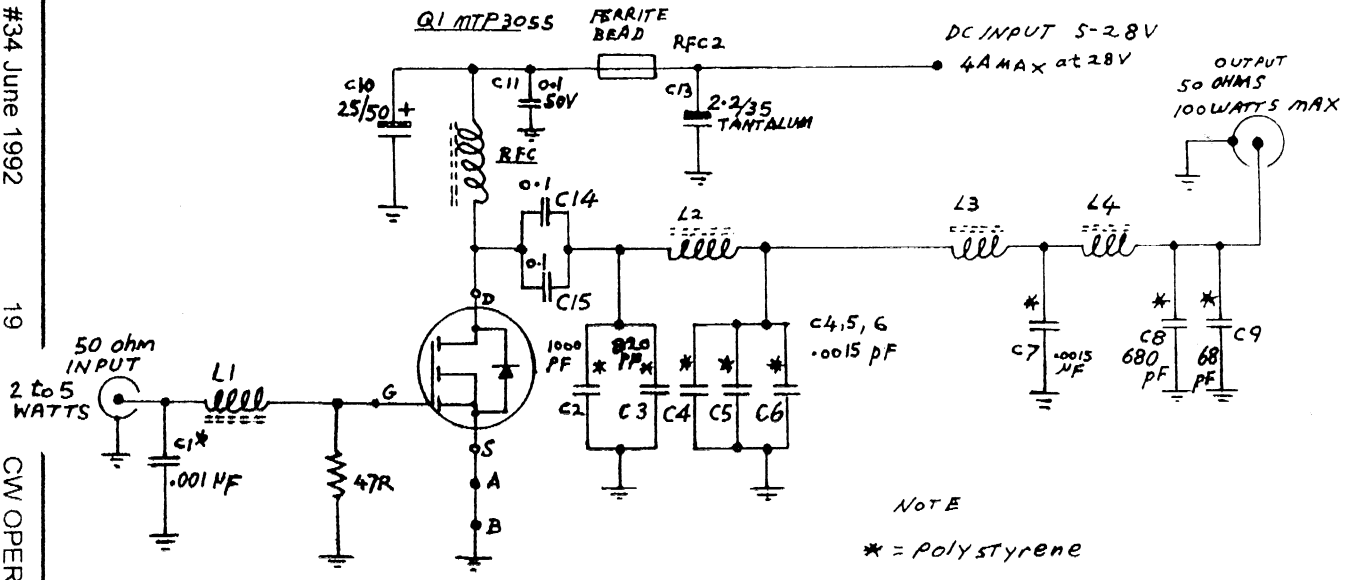
The amplifier was built without a PCB, directly on the chassis. The chassis was home made, with a 2mm thick top plate and 1.2mm side walls. Right-angle aluminium extrusion 13mm x 13mm was used to hold it all together, connected by small self-tapping screws. The transistor was bolted to the chassis with a 3mm bolt, using insulating hardware and heat compound. No other heatsink was used. At 75 watts the chassis gets only slightly warm to touch.

The input socket is an RCA and the output socket is an SO239 - however an RCA would be just as good.

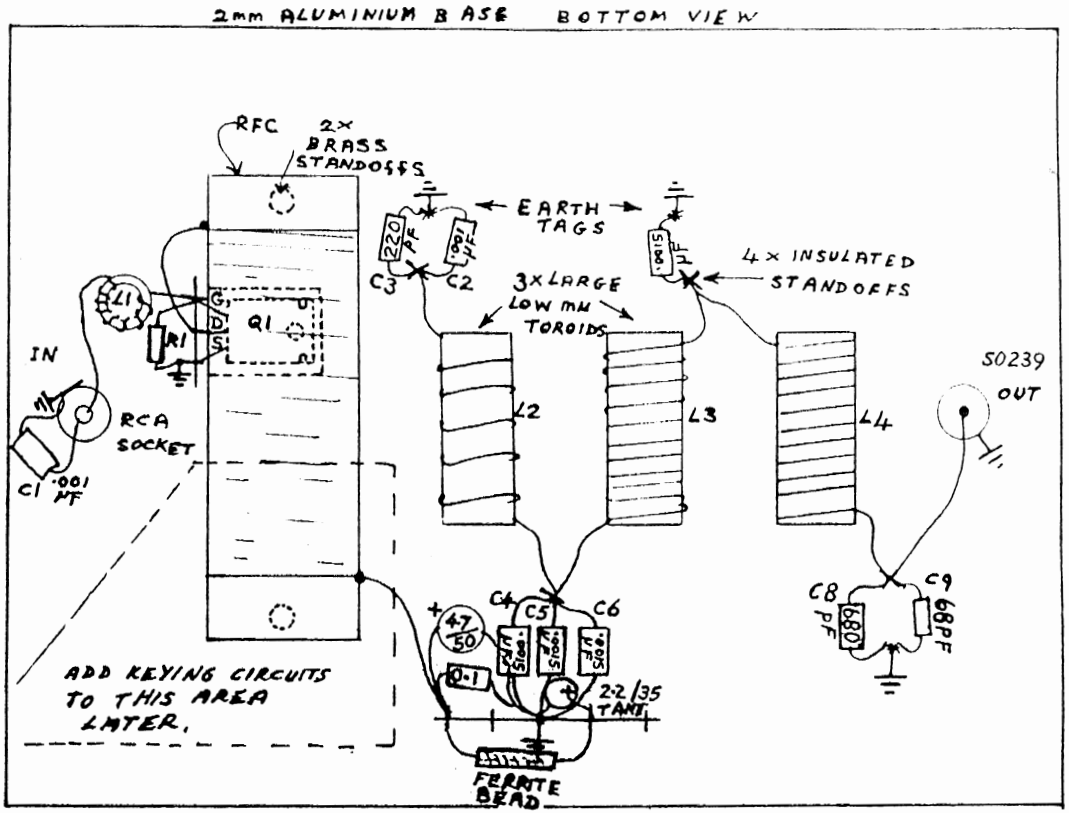
Tune Up and Operation

Firstly check your circuit for shorts, particularly from the drain terminal of Q1 to ground.

Apply a DC power supply - anywhere in the range 5 to 12 volts would do. Very little, if any, current should be flowing. Select your 50W dummy load for the output. A 5 watt load will do for a 5 volt supply and 18



THE BOOT 100 WATT AMPLIFIER
FOR 3·5 MHZ



EXPERIMENTAL 100 WATT PA FOR THE CLUB COMMUNICATOR

PARTS LIST FOR 100 WATT AMPLIFIER FOR 3.5MHZ

Designator	Component Description
Q1	MTP3055 Power FET TO-220 case
L1	9 Turns hookup wire on toroid Philips 4322 020 97160 violet
RFC	44 Turns 1.4mm enamel wire on plastic pipe 20mm diam. Use toroid if you want
L2	0.7uH 6 Turns on 25mm diam., low μ (mu) toroid from junkbox. 1.4mm wire
L3, L4	1.9uH 11 Turns on same 25mm toroid Type as above
RFC2	Ferrite bead RF suppression single hole
R1	47 ohm 1 watt
C1, C2, C11, C14, C15	0.1uF Ceramic 50V
C1, C2	0.001uF Polystyrene
C3	820pF Polystyrene
C4, C5, C6	1500pF Polystyrene. *Warning: Don't use a single capacitor*
C7	1500pF Polystyrene
C8	680pF Ceramic or polystyrene
C9	68pF " " "
C10	25uF 50V Electro.
C13	2.2uF 35V Tantalum
-	Aluminium box. 190mm long x 135mm high The top is 2mm thick; walls 1.2mm thick No other heatsink required
-	3mm Standoffs 25mm long x 2
-	Solder tags earthing
-	Tag strips
-	3mm Nuts and bolts and TO-220 mounting hardware

watts for a 12 volt supply.

Connect the dummy load and the input signal from 2 to 5 watts via a sensitive SWR meter and coax. Hopefully you will have almost no reflected power but, if you do, adjust the spacing of the turns on L1 for minimum reflection. If necessary add or remove 1 or more turns. The prototype showed no reflected power. The output network is easy to adjust. With the power switched OFF gently squeeze or open the turns on L2 and look for an increase or decrease in output power. Reapply power and recheck until you get the maximum. Remember to switch OFF during adjustments. This is not to protect the equipment, but YOU against the 100 volt peak RF signals which may appear here when you apply higher DC voltage. If all is well connect a 100 watt dummy load, then increase the DC power supply voltage.

CONCLUDING REMARKS

There are a few refinements to be added later, such as a keying circuit, however the circuit presented here works well.

ooqc

CLUB SALES - PRICE LIST - 1 June 1992

Kit-Set Activity Co-ordinator

Don Callow VK5AIL #75 5 Joyce St. Glengowrie SA 5044 Telephone (08) 295 8112 (day/night)

Supply of Kits & Components

"We give more for less"

We stock some components which may be hard to get from normal sources and there are many other items in addition to those listed - so if you are having difficulty finding specific parts give us a try.

The items are new except where stated otherwise. We cannot guarantee availability and may have to limit quantities sold to individuals. The responsibility for all outcomes of using replacement/ substitute transistors, diodes etc. are yours. Also, we can give no more than the equivalent of the normal commercial warranty for items sold. The items are for the personal use of Club Members ONLY.

Ordering Kits and Components

Orders and payment should be sent to Don VK5AIL #75 - or to Treasurer Kevin VK5AKZ #43 if you are applying for membership or paying subs. at the same time. Please make out the cheque to the CW OPERATORS QRP CLUB and cross it 'Not Negotiable'. For small money amounts up to $A 15.00 it is alright to send the equivalent value of Australian postage stamps. $1 stamps and any lesser values are fine. The receipt will be enclosed with your next issue of Lo-Key.

Prices

The prices listed below are per pack and apply to members within Australia.
The 'Nbr in a pack' column tells you how many units are in each pack. Prices may change at any time without notice. ***PLEASE ADD $3.00 TO THE TOTAL VALUE OF YOUR ORDER, TO COVER POSTAGE, PACKAGING & LOSSES ETC.*** If outside Australia additional postage costs will be added.

Codes

(next to prices)

K = Kit-set, usually short-form.
C = Component or other item.
N = New item on the list.
D = Simple data sheet provided with each order.
H = Insulated mounting hardware is included.
P = Change in price.

ID Nbr	Nbr/pack	$A Price/pack

K001 1 81.00
Club Communicator 3.5MHz CW QRP Tx. Complete with 52 page manual.
Full kit-set, except cases. See Lo-Key #14 Jun '87 and #25 Mar '90 p. 16.

K006 1 28.00
Sensitive SWR meter. Plus 5W dummy load. Manual included. Short-form kit.
See Lo-Key #19 Sep '88 & #25 Mar '90 p. 16. and Amateur Radio Apl '83.

K007 1 28.00
VFO Variable Frequency Oscillator board for Forrestfield 21MHz CW QRP Tx. Instructions in Lo-Key #22 Jun '89. **Note: C094 is a complete manual for the Forrestfield.**

K010 1 20.00
VCO Voltage Controlled Oscillator board for Forrestfield 21MHz CW QRP Tx. Instructions in Lo-Key #23 Sep '89.

K011 1 47.00
Flexi-Sudden multi-band Rx. 80m sup-plied. Based on design by George G3RJV #96. Short-form kit with manual. See Lo-Key #25 Mar '90. Extra modules available for other bands - see K014.

K012 1 31.00
PLL Phase-Locked Loop board for Forrestfield 21MHz CW QRP Tx. Instructions in Lo-Key #24 Dec '89.

K013 1 18.00
KDB Key Delay, Buffer board for Forrest-field 21MHz CW QRP Tx.
Instructions in Lo-Key #24 Dec '89.

K014 1 pair 19.00
BPF and VBFO modules for the Flexi-Sudden Rx. You nominate band.
Instructions in Lo-Key #25 Mar '90.

K015 1 25.00
DVR DriVeR board for Forrestfield 21MHz CW QRP Tx. Instructions in Lo-Key #26 Jun '90.

K016 1 26.00
PA Power Amplifier board for Forrestfield 21MHz CW QRP Tx. Instructions in Lo-Key #27 Sep '90.

K017 1 19.00
RLA ReLAy board for Forrestfield 21MHz CW QRP Tx. Instructions in Lo-Key #28 Dec '90.

C001 1 5.00
Ammeter edge type 500uA f.s.d. (DC) Kyoritsu EW-40. Panel cut-out size is 14mm x 42mm

ID Nbr	Nbr/pack	$A Price/pack	
C002	2	**6.00**	DHP

IRF510 transistor N-channel MOSFET (=IRF511).

C003	10	1.50	

0.1uF (104) capacitor monolithic (blue colour).

C004	4	2.50	

BAT85 Schottky (hot carrier) diode.
Voltage drop is 0.2 - 0.3V. High sensitivity - can replace germanium types.

C007	2	3.00	D

BS170 transistor VMOS N-channel FET.

C008	2	5.00	DH

VN88AF enhancement MOSFET transistor. Can use to replace VN46AF & VN66AF

C011	2	6.00	DH

IRFZ32 MOSFET transistor VDS = 50V PDS = **75W** ID cont. = 25A TO-220AB case.

C013	2	1.10	

Toroidal core 9mm od x 6mm id x 3mm ht.
Philips 4322 020 97170 material 4C6 ferrite (violet)

C014	2	1.50	

Toroidal core 14mm od x 9mm id x 5mm ht. Philips 4322 020 97180 material 4C6 ferrite (violet)

C015	4	1.90	

BA102 equivalent: BB119 varicap (varactor) diode.

C018	2	0.60	

Toroidal core 6mm od x 3mm id x 2mm ht.
Philips 4322 020 97160 material 4C6 ferrite (violet)

C021	10m	0.10	

Enamelled copper wire 0.112mm diam. approx. 37B&S 40SWG

C022	10m	0.20	

Enamelled copper wire 0.17mm diam. approx. 34B&S 37SWG

C024	1m	0.15	

Enamelled copper wire 0.40mm diam. approx. 26B&S 27SWG

C025	1m	0.70	

Enamelled copper wire 1.25mm diam. approx. 16B&S 18SWG

C026	5	7.50	

TIP31C transistor VCEO = 100V
(TIP31, 31A, 31B = 40, 60, 80V)

C031	1	Free	

Crystal (for experimenting) Y3 10X W (large) type ex RAAF. You nominate frequency 6561.111 or 7810. Postage and Packaging charge only.

☼ CHANGED DETAIL ☼

C032 - NE602AN	1	**6.70**	NDP
C032 - NE612AN	1	**5.60**	NDP

NE602 or NE612 double balanced mixer & HF oscillator for Rx. Nominate which of the two you require.

At the moment we have a stock of NE602AN IC's as well as NE612AN. NE602AN has a better specification than NE612AN or the NE602 & NE612 previously stocked, but you pay more. We will get more NE602AN only if there is sufficient demand. D = Several pages of data provided with each order.

ID Nbr	Nbr/pack	$A Price/pack	
C034	2	**3.50**	DP

IRFD1Z0 FET (Can replace IRFD1Z3) Suits Gemal transceiver (Lo-Key #21 Mar '89).

C035	2	2.60	

Toroidal core Neosid 4327R/2/F25 ferrite, as in K006 Sensitive SWR meter.

C036	2	3.00	D

BF981 Si N-channel dual gate MOSFET SOT103 case. (Similar to 40673, MPF121 and MFE131, but case is different).

C037	2	4.70	D

LM386 audio power amplifier. N3 version 4-12V power supply.

C038	2	**7.50**	DP

LM4250 programmable amp.
See Lo-Key #26 Jun '90.

C039	1m	**0.80**	P

RG-174 mini coaxial cable 50 Ohms 2.5mm o.d.

C040	1	**8.50**	DP

MC4044 phase frequency detector for use in PLL.

C041	10	1.00	

Screening beads. Ferrite FX1115 or similar.

C043	1	1.50	

Toroidal core Amidon T-50-2 (red) iron powder. 2 - 10MHz tuned circuits; 0.5 - 30MHz broadband.

C044	1	1.50	

Toroidal core Amidon T-50-6 (yellow) iron powder. 10 - 20MHz tuned circuits; 2 - 50MHz broadband.

C045	1	11.00	D

SBL-1 double balanced mixer 0 - 500MHz.

ID Nbr	Nbr/pack	$A Price/pack	

PostScript - Custom QSL Cards - See page 3

C046 1 12.70
Nylon hardware, bargain bag of 127 pieces.
See Lo-Key #30 Jun '91.

C047 1 1.20
Toroidal core Amidon T-37-2 (red) iron powder.
2 - 10MHz tuned circuits; 0.5 - 30MHz broadband.

C048 1 1.20
Toroidal core Amidon T-37-6 (yellow) iron powder.
10 - 20MHz tuned circuits, 2 - 50MHz broadband.

C049 1 1.80
Toroidal core Amidon T-68-2 (red) iron powder. 2 - 10MHz tuned circuits; 0.5 - 30MHz broadband.

C050 1 1.80
Toroidal core Amidon T-68-6 (yellow) iron powder.
10 - 20MHz tuned circuits; 2 - 50MHz broadband.

C051 1 1.00
Adaptor RCA (phono) plug to 6.5mm phone socket.
Shielded - metal body.

C052 1 2.90
BNC adaptor right-angle plug to jack.
Branded "Telegaertner - West Germany - Military Type". Good quality. Individually wrapped.

C060 1 2.50
Neosid coil set: 6-pin base, former, can and 4mm screw core. You may nominate F25 (1.0 - 50MHz), F14 (0.1 - 5MHz), F16 (0.5 - 15MHz) or F29 (10 - 300MHz). F25 will be supplied if nothing nominated.

C061 10 0.30
Resistors 1/4W, carbon film or better.
You nominate one value (10% tolerance; standard figures 10-12-15-18-22-27-33-39-47-56-68-82). Range of 22R to 10M in stock.

C096 1 sheet 0.60
Club logo stickers. 38mm diam. Each sheet contains 20 stickers. Black print on white. See Lo-Key #28 Dec '90 p.25.

C098 1 10.00
G-QRP Club Circuit Handbook. Copied with permission.

C099 1 2.00 P
Past issues of Lo-Key. You nominate month/year or issue number. #1 and #2 count as one.

BISHOP GRAPHICS 'PREKUT STIKONS' & CIRCUITAPE LTD. 'CHARTPAK' PCB DRAFTING AIDS

If you need these you may wish to contact the QRP Kit-Set Centre with details of the types & sizes sought, as we have a wide range of shapes & track widths available.

☼ NEW ITEM ☼

C094 1 3.00 N
Manual for the Forrestfield 21MHz CW/QRP Transmitter - Complete Set of Lo-Key Articles. Reprinted from 9 issues of Lo-Key (36 pages).

This is a very useful manual if you are building the Forrestfield. All known corrections have been made and are indicated on the relevant pages. Several illustrations have been reworked and are now easier to read.

☼ CLUB QSL CARDS ☼

C095 1000 177.00 *
500 137.00 *
Club QSL cards. You nominate exact wording of name and address etc.
See Lo-Key #28 Dec '90 p.25.
* Price will have to be confirmed.

If you would like to use our unique QSL cards, please contact me at the address given and I will let you have all the details including prices and layouts.

☼ CHANGED DETAIL ☼

C097 1 set 0.50
Latest quarterly issue of the Club Lists, comprising updated versions of:-
- Membership List with names, call-signs and addresses (if approved for publication) as published from time to time in Lo-Key;
- Lo-Key Index including Technical Articles and General sections; and
- Club Sales Price List.

Also, a copy on diskette will be provided if you send a blank (any size) in an adequate protective box with details of the desired IBM-compatible format. If I can't handle your format you will be sent an ASCII text file version, at least.

Two copies of the Club's promotional brochure are included.

These lists are printed in Lo-Key every year or so, but this way you get up-to-date information in a convenient 12-page booklet.

E. & O.E.

AWARDS AND CONTESTS

By Ian Godsil VK3DID #112
25 Monaco St. PARKDALE Vic. 3194

Greetings to all members.

I hope that the coming Winter will be a time of flexing the wrist, oiling the key, tuning the QRP rig to an appropriate frequency and calling CQ -- all this in between tinning the soldering iron to make up the latest project, of course.

I am delighted to report that Scramble 18 was a resounding success, with many members taking part. Some were new to the fun and some I suspect had not indulged for a very long time. Also, many States were heard and worked. Ten logs were received, of which two were from Western Australia. My sincere thanks to you all.

For the first time in ages I was able to take part, but not having a proper antenna system I hoped that I was upholding the spirit of amateur experimentation by running out a coax cable and hooking it to one of the holding bolts of the carport roof ! I was amazed at what I could hear and astounded when a reply was received !!!

Seriously though, I found the QRN to be not as bad as I expected; but I heard nothing of VK1,4,6 or 8. However, there was a very good representation of most States and some contacts into ZL.

I am grateful to Peter Parker VK6BWI #66 for the suggestion that perhaps the bandwidth for calling in the Scrambles is a little too wide and that we should work around the recognized QRP frequency for 80 metres. I think that this should be tried, so I propose two Scrambles for the June Quarter, 1992, as follows --

Scramble 18 Results

1st	VK3XU	#49	Drew Diamond	60 pts
2nd	VK3DID	#112	Ian Godsil	41 "
3rd	VK3AAM	#224	Phil Carne	40 "
4th	VK2AW	#180	Basil Dale	36 "
5th	VK3ESC	#229	Michael Toms	35 "
6th	VK5BVM	#170	Mick Schmidt	30 "
7th	VK4LA	#203	Glyn Gibbings-Johns	20 "
8th	VK6LG		Ron Hartley	16 "
9th	VK6BWI	#66	Peter Parker	7 "
10th	VK4EV	#130	Ron Everingham	5 "

Congratulations to Drew VK3XU for an excellent effort; and also for being the only Victorian to work the W.A.'s. A certificate and Clothespeg Key will be in the post soon.

Scramble 19

Thursday, July 23rd 1030-1200UTC on 3530kHz +/- 5kHz (i.e. 3535 - 3525)

Scramble 20

Thursday, Aug. 20th 1030-1330UTC on 20 metres, unrestricted coverage.

Scoring and Rules to remain unchanged. See Lo-Key #33 p.27.

My thinking here is that any Novice operators will be able to join in on 80 metres. And on 20 there is DX about that may take a little longer to get to and hopefully be equally beneficial to all the States. I shall certainly welcome comments on these changes.

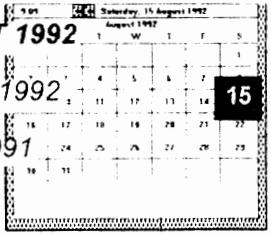
Keep well, warm and happy and I hope to hear you around the bands sometime.

73, Ian VK3DID #112

Coming Contests for CW'ers

***It's RD time again**, so put this one in your diary if you're into contests: - and start preparing NOW* ↙↙

RD CONTEST 1992
Date:
15-16 August 1992
Rules:
Same as in 1991



Gus Taylor G8PG #50 has sent information on two QRP contests scheduled for later this year. The rules of the **EUROPE FOR QRP WEEKEND 1992** are printed on the next page. The report from Gus on the 1991 event follows ...

EUROPE FOR QRP WEEKEND 1991

(Ed. - Rules were in Lo-Key #31 p.13)

As a first-off event this was a great success, no less than 50 logs being received from 14 European and 3 DX countries. The three leading European stations were G3JFN, HB9DAK, and OK3CUG. The three leading DX stations were RA9CEI, VU2ITT/LID, and WN2V. In the milliwatt (1W or less) class the leaders were OK1HR, OK1DEC, and OK5SLP. These three stations were also amongst the top ten overall. RA9CEI obtained 5th place overall, an excellent QRP performance from Siberia. All leading stations received certificates from the G QRP Club.

Many useful comments were received from entrants and these, together with the massive political changes in eastern Europe, have lead to the rules being redrafted for the 1992 event. It is hoped that these changes will encourage even greater participation from European and DX QRP operators.

The 1992 event will take place from 1600 UTC 2 October until 2359 UTC 4 October, 1992.

Issued on behalf of the G QRP Club and OK QRP Club by:-

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

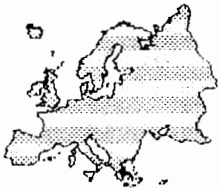
RULES FOR THE RUSSIAN QRP CONTEST 1992

IMPORTANT NOTE. Owing to the recent sweeping political changes, stations outside Russia must only work stations within the Russian Republic, but each prefix within the Republic which is worked counts as a multiplier.

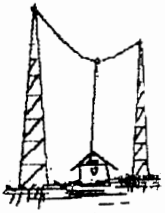
Dates. **22 and 23 August, 1992**
Times. 1500 gmt to 1500 gmt
Power. Five watts or less.
Frequencies.
All QRP frequencies ± QRM.
Calls. Call CQ R QRP Test.
Exchanges.
RST/serial number/power.
Milliwatt stations use 01 (100 mW-), 02 (200 mW) and so on.
Scoring.
HQ Station RV3GM 10 points.
Russian stations outside own continent 3 points.
Multipliers.
Each Russian prefix contacted, RA1, RA3, RV1, RV3 and so on, counts as a multiplier on each band.
Total Score.
This consists of the total points for all bands multiplied by the total number of multipliers.
Logs. Separate sheets for each band, together with a summary sheet showing score, stations details, and name/address.
Logs must be sent to U QRP Club, P.O. Box 229, Lipetsck, 398043, Russia, within 30 days of the contest. Stations enclosing a one dollar US bill will receive a special prize. Leaders will receive certificates.

Please support our Russian friends who are trying so hard to establish QRP in their country despite many difficulties

EUROPE FOR QRP WEEKEND



1992



RULES

1. Dates and times. From 1600 UTC on 2 October 1992 until 2359 UTC on 4th October 1992.
2. Mode and frequencies. CW only on 3560, 7030, 14060, 21060, and 28060 kHz, all ± 10 kHz.
3. Power. Not to exceed 5 watts rf output. Stations unable to measure output take half their dc input (10w input = 5w output and so on).
4. Stations eligible. Any licenced radio amateur.
5. Contest calls. Call CQ EU QRP when seeking contacts.
6. Contest exchanges. For a contact to be valid RST, power output, and name of operator must be exchanged and logged.
7. Scoring. Contacts with own country do not score.
   European stations score 1 point for each European contact and 3 points for each contact outside Europe.
   Stations outside Europe score 5 points for each contact with Europe.
   The final score is the sum of the points scored on each band used.
8. Logs. Separate log sheets must be used for each band, showing for each contact date, time, call and RST, name, and power received and sent. A summary sheet must be provided showing call, name and address, claimed score for each band, total claimed score, and brief details of equipment used.
9. Submission of logs. Logs must be submitted to P. Doudera, OK1CZ, U1 baterie 1, 16200 Praha 6, Czechoslovakia, by 15th November 1992.
10. Awards. Merit certificates will be awarded to the three leading stations from each continent.
11. The judges decision is final in the case of dispute.

Event organised jointly by G QRP Club and OK QRP Club

G QRP Club
37 Pickerill Road
Greasby,
Merseyside L49 3ND,
England.

OK QRP Club,
U1 baterie 1,
16200 Praha 6,
Czechoslovakia.

EUROPE FOR QRP

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Well Done Neil VK7FN #26 and Ian VK8CW #91, who both scored well in the 1991 Commonwealth Contest. *(Results in AR March '92 p.33)*

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U CAN HELP !

By Don Callow VK5AIL #75 5 Joyce St., Glengowrie, SA 5044

Peter Grove VK3EOP #194 (P.O. Box 255, Chadstone Centre Vic. 3148) writes:-

"*I have recently come by a 'scope tube which appears to be a type **CV243**. The marking is obscure. It has a face of 67mm diameter; overall length is 167mm. It has a 12 pin base.*

Information required is a socket connection (diagram) as well as details of heater voltage, voltages on deflection plates and any other information.

Any help able to be given will be greatly appreciated."

Don VK5AIL #75 (address above) is having great difficulty tracking down various books in Adelaide. I would like to buy the books but am prepared to borrow if necessary.

Books covering the use of **mosfet transistors in power amplifiers** - including manufacturers data books with applications notes & design hints e.g. those published by Silconix, International Rectifier, Hitachi or Harris Semiconductor.

Books on RF design by Doug DeMaw, Joseph Carr or Chris Boswick.

A book by Ronald Bracewell on the Fourier Transform.

oooc

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Photocopy or cut along this line

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CW OPERATORS QRP CLUB

Promoting the Use of Low Power CW Mode Communication and Homebrewing in the Amateur Radio Service

Please post this application to:

Kevin Zietz VK5AKZ
41 Tobruk Ave.
ST MARYS SA 5042
Australia

I would like to apply for membership of the CW Operators QRP Club.

With this application I enclose the annual membership fee of $A 10 for VK Amateurs, $A 12 for ZL Amateurs or $A 14 for DX Amateurs.

(please print)

FIRST NAME & CALL SIGN ....

INITIALS & SURNAME ....

ADDRESS.....

.....

.....

I agree to the required details being held on the Club's data base.
I DO AGREE to publishing of my street name and number.
(If not, write `NOT' in the space provided.)

SIGNATURE . . . . . Lo-Key #34 June 1992

A receipt and your membership number will be sent with your next *Lo-Key*.

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95/50/0/60