LO·KEY

NEWS BULLETIN

CW OPERATORS QRP CLUB
WE DO MORE WITH LESS
5W
QRP

PUBLISHED QUARTERLY

CONTENTS

"WE DO MORE WITH LESS"!

25 12th AVENUE W. MOONAH, HOBART, TASMANIA AUSTRALIA

INFORMATION CENTRE

EDITOR.	RAI TAYLOR VK7VV	(3)
ASS. EDITOR	JOHN ROGERS VK7JK	(40)
PRESIDENT.	DON CALLOW VK5NDC	(75)
SECRETARY.	RAI TAYLOR	(3)
TREASURER.	KEVIN ZIETZ VK5AKZ	(43)
AWARDS/CONTEST MANAGER	JOHN ELLIOT VK3CVF	(12)
PUBLIC RELATIONS	GRAEME HARRIS VK3BGH	(82)
SCOREBOARD MANAGER	RAI TAYLOR	(3)
W.Q.F. DELEGATE	TED LECA VK4EML	(11)
TECHNICAL PROBLEMS CONSULT	ROD GREEN VK6KRG	(28)
TECHNICAL EDITOR	A.N.OTHER	

STATE CO -ORDINATORS

VK3	NEIL EMENY VK3CGE	(19)
VK5	JEFF WALLACE VK5BJF	(57)
VK7	RAI TAYLOR VK7VV	(3)
DX	JAY STURDIVANT KV7X	(78)

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MEMBERSHIP

The CW OPERATORS QRP CLUB is an International Club, open to Amateurs and Short Wave Listeners from any country. The Club was formed with the aim of promoting QRP using the CW mode, on ALL frequencies allocated to the Amateur Service.

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ANNUAL MEMBERSHIP FEES

VK....$8 : ZL.... Lo-Key by surface mail....$A9 : ZL....Lo-Key by airmail....$A10 : DX....Lo-Key by surface mail.... $A9 : DX.... Lo-Key by airmail....$A12. Please make all Money Orders and Cheques payable to the CW OPERATORS QRP CLUB. IRC's not acceptable.

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CORRESPONDENCE

Please address all correspondence for the Secretary, CW Operators QRP Club, 25 12th Avenue, West Moonah, Tasmania. 7009. Australia All membership fees to be sent to the Treasurer, CW Operators QRP Club, 41 Tobruk Avenue, St. Marys, S.A. 5042 Australia.

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CLUB CALLING FREQUENCIES

1815:3530:7025:14050:21130: 28125

INTERNATIONAL CALLING FREQS

*** 3560:7030:14060:21060:28060:

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LO-KEY

Published in March : June : September : December.

GUEST EDITORIAL

GUEST EDITORIAL JOHN ROGERS VK7JK No 40

When I first began in the radio field, I was still at school so clearly the only outlet for my interest was in building receivers. Can you imagine a mahogany box with hinged lid, copper-lined and containing a D210, an L2 and an L210? Basket-weave coils and - my pride and joy - a couple of 100-1 slow motion dials. I recount this little bit of history because the interest in the actual construction job has never left me, so in today's world of black boxes covered in buttons, bells, whistles and digital readouts, the joy of building your own equipment is in the smaller world of QRP. And perhaps your own personal test gear. Although my mahogany box can now be reduced to a tiny piece of P.C.B. or Vero board, there is still great fascination in creating an item of working equipment. Not without some frustration, in my case, because I'm one of those people for whom nothing works first time. Alternatively, I build an experimental "lash-up" which operates beautifully, so I "tidy it up" and make everything neat - and it DOESN'T WORK! Thus the real simplicity of QRP means a greater possibility of success for a Murphy's Law-plagued person like myself. Already, Lo-key has provided me with several circuits which have proved, by the quality of the results, that the designers have really done their home-work.

However, the crunch in QRP obviously comes in antenna design, and here I'm very envious of those amateurs who live out of town. Most urban dwellers are extremely limited when it comes to erecting the sort of antenna that will do the most good. No-one has yet worked out a way of reducing the size of an antenna without reducing its efficiency, in spite of all the claims that advertisers make. What wouldn't I give for a few hundred yards around my house, far from neighbours with their objections to my array! Here's where the QRP expert really excels - in being able to ensure that every last milliwatt actually goes "up the spout". And in the right direction! Antennas are a study all on their own, and anyone who has managed a successful design will earn the undying gratitude of at least one amateur. (ME!) I shall the pages of "Lo-key" with keen anticipation in future months, not with soldering iron in hand, but with saw, spanner, welding gear and even climbing irons at the ready. Go on, put me to the test!

VK7JK

VK VERSUS THE WORLD
CW QRP CONTEST
VK VERSUS THE WORLD
CW QRP CONTEST
DON,T MISS IT DON,T MISS IT
NOVEMBER 16 NOVEMBER 17

DATES. SATURDAY NOVEMBER I6 and SUNDAY NOVEMBER I7 I985.

Duration Total of 48 hours (ooooz NOV I6 to 24ooz NOV I7)

MODE CW only.

CALL CQ QRP.

BANDS I60M to IOM (Not WARC).

SECTIONS. QRP. Single operator.
QRP. Multi operator.
QRO. Single operator.
All Multi band or single band.

PERIOD. Full period 48hours
Half Period any 24 consecutive hours within the 48 hours period.

Exchange All stations six digits comprising RST and serial number starting with 00I up to 999 then starting again with 00I.

SCORING QRP stations indicated power output must not exceed FIVE WATTS.
QRO stations power exceeding FIVE WATTS.
Each contact shall score points based on the following table,

Up to I watt	6Points
Between I and 2 watts	5Points
Between 2 and 3 watts	4Points
Between 3 and 4 watts	3Points
Between 4 and 5 watts	2Points
Over 5 watts	IPoints

QRO stations over 5 watts QRO/QRP only allowed

MULTIPLIERS. Every contact in a different ITU Zone counts as a multiplier on each band.

BONUS SCORE. Field stations using Battery/Solar/wind/ Hand generated power, excluding Motor Generators, Multiply the grand total score by I.5 (Stations to be erected same day as contest).

Conditions One contact in each band in each 24hour period.
Seperate log sheet for each band.
Each logged QSO to show DATE. TIME (gmt). STATION WORKED. RST EXCHANGE. MULTIPLIER. POWER OUTPUT. POINTS CLAIMED. GRAND TOTAL SCORE.
The Grand Total Score is derived from the total points from all bands X total multipliers from all bands X bonus score.

Entries All entries must have a summary Sheet showing the calculation of the grand total score Name and Address, Call sign, and Signature with a Declaration. " I CERTIFY THAT ALL ENTRIES IN MY CONTEST LOG SHEETS ARE TRUE AND HONEST ". Entrants are requested to include a brief descrip ion of station equipment and any comments/suggestions.

CERTIFICATES. To the QRP single operator and multi operator in each Country with the highest score in each section. To the QRO operator with highest score in each section. To the highest scoring CW OPERATORS QRP CLUB member in each section.

CLOSING DATE. Entries to be addressed to, CONTEST MANAGER J. ELLIOTT 8 Queens ST Rosedale VIC.3847. no later than I4/I2/85.

CLUB AWARDS

STATION	1.8	3.5	7	10	14	18	21	24	28	52	144	430	ZONES NEW	ZONES PROG	CONTIN NEW	CONTIN PROG	COUNTRY NEW	COUNTRY PROG	STATES NEW	STATES PROG	TOTAL
VK3BGH		796	166	2	24		33		1				3		2		3				1022
KV7X		23	36	2	426		16						13		5		21				503
VK5BJF	2	77			10	75	18						8		4		5				182
VK7VV		62	6		94								5		3		6				162
VK3CVF		106											3		1		2				106

The CLUB AWARD Programme is well away, not many participants it is not to late to join in, just go through your log book and count the points from I/4/85 you will find a copy of the suggested log sheet format to use on page 7 in last issue of LO-KEY. A most important point about this particular awards programme is that it makes no difference if you have worked 370 countries on all bands or are a newcomer to the hobby everyone is starting from scratch , come on have a shot at it. I suggest you get a copy of the ARRL Countries list, VK lads find this in Amateur Radio Action V7 Issue I3, DX members I am sure will find one without problem, considering that the same listing is used internationaly by all and sundry, you will find the listing sets out the zones for both CQ and ITU zone plans. The zone plan of interest to us is the CQ zone plan commonly called the 40 zone plan. Another handy tool is the Radio Amateurs Prefix Map Of THe World published by the ARRL and available through Ham radio stores every where, if you are a member of the WIA, MAGPUBS can supply them, and I am sure that most of you pass or pause near a Tricky Dicky store if only to drool over the latest technical gadget. Thankfully John VK3CVF our awards and contest manager will be taking over the compilation of all future award logs so please send them to himnext time, it would be a great help if your log sheets reach John not later than the IOth Dec So that he in turn can collate them and send the results to me by the I8th Dec, I am sure you can see the difficulty of editing and printing the next bullitin at that time of year. You will make Johns task easier if the suggest log sheet is used and the contacts on each band are totalled and kept seperate. Jay KV7X is only looking for the Africa Continents to claim the first Work all Continents Award, I haven't seen Jays latest log sheets but no doubt he has increased his country total to. Graeme VK3BGH has put in a tremendous log as you can see, sure going to be an effort to catch up, but would'nt life be booring without a challenge?.
Matt ZL1ATW has at last got some HF ant. up so will be heard and worked by all, and I am sure will be getting involved in the awards programme. Neil VK3CGE should also be putting in his log sheets soon, so John VK3CVF, Jeff VK5BJF and myself had better pull our socks up. So thats it for now, keep your logs and letters comeing in, thanks to all who have already sent logs in, and thanks to all in anticipation to the flood of logs in the next few months.

Ron.

VK5 STATE NEWS BY JEFF VK5BJE, STATE CO-ORDINATOR

Well we all know that the higher frequency bands have been a bit quiet of late. Sometimes on 15 meters, it has even been necessary to turn the power up from 1 watt to 4 watts to get a quick response from our JA friends!
Don VK5NDC has now contacted many members with his HW 9. His signal pounds into Clare here with an S9+ on 80 meters. Keep up the good work and good luck with the studies, Don.
Len VK5ZF stoked up his FT200 and we had an enjoyable cw and ssb chat, recently. He now has a Uniden 2020 to relieve the FT200. We should also be able to find him lurking around the bands with his h/b valve Tx. (valves were used back in the "Glass Ages").
With the weather warming up soon we might hear Clarry VK5NAI come out of hibernation. I believe Clarry's shack gets so cold that he could send at 30 wpm with his teeth Ch!)!
Eric VK5PH kindly loaned his qrp modified FT7 to another amateur but should have it back again soon. He operates an electronic keyer now, so folks watch out!
Despite, or because of the lack of sunspots, I am still managing to get my 4 watts into U.S.A. and Canada with up to 5 6 9 reports on the 30 meter band. I am looking forward to meeting some of our overseas members over that way. The WARC bands are great so lets make use of them. As a starter, any ZL's interested in skeds on 17 meters? I will be pointing my h/b log periodic to ZL on Sat. afternoons at 0300-0330 UTC for the next few months and calling CQ with the aid of my tape recorder, on 18.070 Mhz.
A very nice postcard and qsl was received from HP1XYJ of Panama recently following a 5 watts 20 meter qso. The operator, Mikio is very interested in qrp operations. Incidently he said I was his first VK, so he won't be sick of us yet!
Anybody wishing to purchase crystals might like to try Clem Tilbrook of P O. Box 41 Daw Park S.A. 5041. His price has been $14 per crystal plus 60¢. Give him all relevant details of style, and use e.g. VXO etc. The crystal(s) usually arrive within only a few days of ordering!
Any news from members in VK5 will be most appreciated. Perhaps a particularly noteworthy qrp contact could be shared with other members.
Happy qrp ing!

"No, I'm not after a license I just want to know what he is saying on that contraption".

S.C.D. FINAL CHAPTER

THE "S.C.D.", PART III

CONCLUDING THE LOW COST, LOW TECHNOLOGY, QRP TRANSCEIVER PROJECT

REV. G. C. DOBBS, G3RJV

THE S.C.D. is a complete transceiver for QRP CW operation on the amateur bands designed for simple home construction at low cost. In *Part I* and *Part II* the basic transceiver was described. This third, and final section, goes on to describe various additions which will ennance the operation of this simple rig; as in the previous parts, the circuits are described fully, but are open to adaptation and experimentation depending on the ability or pocket of the constructor.

Receiver Incremental Tuning

Part II of these articles described how the S.C.D. could be amended for VFO operation by the use of a tuned circuit in the oscillator stage. This was accompanied by a warning about the main problem of transceiver operation with a common VFO for transmitter and direct conversion receiver operation — the problem being that of transmitting and receiving on the same frequency. The VFO will have a frequency offset when keyed on transmit, and the operator must ensure he can listen on the frequency offset when keyed on transmitter output. Although this technique can be simple and gained by experience, a distinct advantage can be gained by having independent receiver tuning.

Receiver independent tuning adjustment is common in commercial transceivers and is often called "offset tuning". The author prefers the term Receiver Incremental Tuning, or RIT, and abhors the American "clarifier" so beloved in CB equipment.

The object is to provide a small degree of additional tuning on receive only so that a comfortable listening pitch can be obtained. (Old hands may say it's for chasing drifting UA signals up and down the band, but we'll ignore that!). In a simple transceiver like the S.C.D., the incremental tuning control will enable the operator to listen on the exact frequency of his transmission and obtain a comfortable pitch without tuning the VFO which would also alter his transmitting frequency.

Fig 1 shows the RIT circuit used in the S.C.D. Again it is a very simple circuit. C1 and D1 form a varicap circuit such that the capacitance across C1/D1 can be changed slightly by a voltage change at D1. This voltage change is provided by VR1 which forms a potential divider across the 12 volt line. As VR1 is turned clockwise, D1 sees an increasing voltage through R1. The increasing voltage raises the capacitance across C1/D1 and, if they are connected across a tuned circuit, the frequency will lower. C1 goes to the top of the VFO tuned circuit.

Construction

C1 and D1 must be placed across the VFO tuned circuit (L2, TC1, VC2). In practice it is easiest to mount C1, D1 and R1 very close to the socket arrangement into which the VFO tuned circuit is plugged, as described in *Part II*. D1 is named as the 1N914, but several junk box unmarked diodes were tried in the prototype and gave good results. Since the RIT works at RF it is also useful to have VR1 close to the rest of the circuit. If the lead between R1 and the slider of VR1 is to be more than a couple of inches, it may be a good idea to slip on a couple of ferrite beads to help decouple RF.

Operation

When the RIT circuitry has been connected, try the S.C.D. as a VFO receiver, without 12 volts at the top of VR1: the receiver should operate in the normal way. Connect 12 volts to VR1 and swing the control. It should become apparent that VR1 now provides a useful amount of fine tuning which will aid the reception of CW signals. If the VFO tuned circuit allows the receiver to tune onto the SSB portion of the band, it should now be very easy to resolve SSB signals with clarity. If VR1 is turned fully anti-clockwise, that is down to ground, and the 12 volts is removed from VR1, there should be an imperceptible change in frequency. At this stage the RIT offset can be checked by listening to the VFO on another receiver and noting the frequency change between VR1 at minimum and maximum; there should be a several KHz change. If the change is thought to be too small, C1 can be raised or other junk box diodes tried to give a larger swing.

In theory it is now possible to use the RIT with the transceiver. The only problem is that it is connected on both transmit and receive and will, therefore, provide offset in both modes. One could use it by returning the VR1 control to ground on transmit, advancing it to a suitable point when receiving. This is clumsy and inconvenient and the RIT is best switched out on transmit as described below.

Transmit-Receive Switching

The original S.C.D. circuit has a diode arrangement in the receiver front-end to provide protection on transmit and no transmit-receive switch was used. This did give a slight problem with keying thumps in the receiver during transmit and an additional problem is now present with the RIT being in circuit on transmit: these problems can both be solved by adding a simple switching circuit. It would be possible to add electronic switching to the S.C.D. but in line with the simple construction and circuitry techniques a single switch will be used for this facility.

The transmit-receive switching circuit is shown in Fig 2. A single pole change-over switch provides all that is

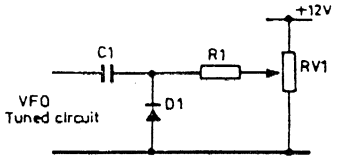


Fig. 1 R.I.T. CIRCUIT

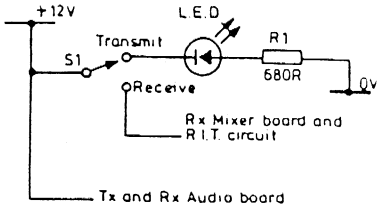


Fig 2 SIMPLE TRANSMIT/RECEIVE CIRCUIT

required. Follow through the 12 volt power supply as it is used in this circuit. The 12 volt supply is connected to the centre of the change-over switch; also connected to the supply all the time are the transmitter board and the receiver audio board. As the transmitter is on all the time care has to be taken not to press the key when on 'receive'. This will not damage the receiver as the diodes on the input provide protection, but RF will be transmitted and those awful thumps will appear in the receiver.

On 'receive', the receiver mixer board is switched on with the RIT circuit. This allows for full receiver operation, including RIT. It is pointless to switch the transmitter off at the same time as the oscillator is used on receive and is part of the transmit board.

On 'transmit', the receiver mixer board is switched off which relieves the keying thump, and the RIT is off allowing the VFO to be at its normal frequency. The audio board to the receiver is still on, so the sidetone oscillator will be heard in the headphones. The transmit side of the switch does not switch any circuit boards and, so as not to waste the switch position, a transmit indicator has been added. On transmit the LED is switched on. This LED may be any cheap type and the value of R1 can be lowered to increase its brightness. The author has used values as low as 100 ohms, but bear in mind that an LED is not intended for shack illumination and they may not like dissipating too much current! The constructor may like to use another LED to indicate receive, which could be added to the receive switch position. Perhaps a green LED could be used which would indicate that the transceiver was on all the time — and enhance the front panel.

In these days when break-in operation is common, it may seem a regression to use a switch to control transmit-receive functions, but in practice the single operation of a switch proves no real handicap when operating the transceiver. The prototype used a miniature switch with a long toggle which was convenient to flick over. Slide switches, although cheap, are not recommended as they are often prone to poor contacts. The operator must learn to use the RIT to find the exact frequency of the transmitter: this can be checked by listening to the VFO on 'transmit' and 'receive' and noting where the RIT control has to be placed for good netting of the signals. Bear in mind that this will vary according to the band in use and also with the antenna in use. The actual use of the RIT is best confirmed by practice on the bands. Since the RIT tunes to a lower frequency by adding capacitance, operate the receiver by tuning high-to-low on the band.

Audio Filter

Because of the inherent lack of tuned circuits in a direct conversion receiver, the selectivity is somewhat less than a conventional superhet. It is usual to add selectivity at the audio stages, by using a sharp bandpass filter to enhance an audio signal of the required VW pitch. Passive filters may be used, but these involve the use of critical R-C or L-C circuits. The simple active audio filter of Fig 3 may be added to the S.C.D.

The 741 integrated circuit op-amp functions as an audio amplifier with selective feedback, controlled by C1-C2-R5 tuning it to accept the frequency governed by their values. The resistor network R2-R4 enables a single rail to be used with the op-amp. This circuit provides a bandwidth of some 110 Hz at a frequency of about 800 Hz. C1 and C2 should be close tolerance components.

Construction

The prototype audio filter was built on a printed circuit board, but it would be easy to construct it on 0.1 inch perforated matrix board (*Veroboard* without the strips) with interconnecting wires on the underside; a layout is shown in Fig 4. By using small physical components, quite a neat layout may be obtained. The circuit and layout is identical to the filter used in the Direx Receiver, a project by the author in the April 1978 issue of *Short Wave Magazine*.

Operation

The audio filter is inserted into the receiver circuit between the mixer board and the audio amplifier board. Screened leads may be used if the filter is not close to either boards, but ideally it should be placed between the two. The output from the mixer board (C7 on that board) goes to R1 of the filter; the output goes *via* C4 to the volume control VR1 of the audio amplifier board. The filter may give a very slight reduction in audio output within the receiver, but the overall audio gain of the receiver is more than enough to cope with such a minor reduction. Upon inserting the filter, an immediate improvement in selectivity should be heard. Some receivers arrange for the filter to be switched in and out, and this could be done by putting a single-pole switch between the input to R1 of the filter and the output of C4. Since this transceiver is only used for CW operation it is best to leave the filter in circuit.

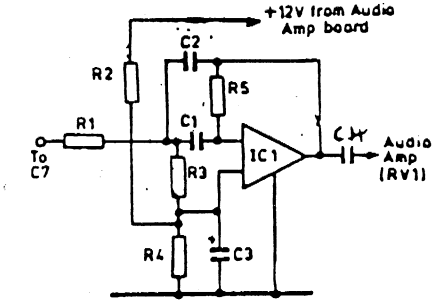


Fig. 3 AUDIO FILTER CIRCUIT

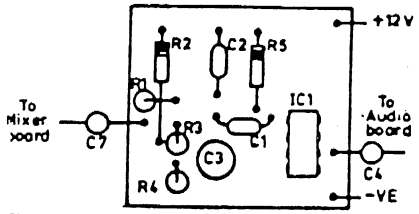


Fig 4 AUDIO FILTER LAYOUT

SWR Bridge

This is no place to go into the theory of transmission lines, even if the author considered himself competent so to do! It is sufficient to say that with such low powers the operator wishes to avoid much reflected RF power returning down the line to reduce his signal level. The basic SWR bridge circuit shown in Fig 5 is a version of the famous design by Bruene. It could be calibrated for actual SWR values, but in this application a relative reading is all that the operator requires.

The signal passes through L2, a small but substantial coil, straight out without much loss; L1 takes a sample of the signal and small RF signals 90 degrees out of phase appear across the load resistors R1 and R2, representing the forward and reverse RF power in the line. S1 can check either end of the L2 circuit. The signal is rectified by D1 and read on the meter M1; C2 decouples RF at the meter and VR1 provides a meter sensitivity control.

Construction

The layout of the bridge is shown in Fig. 6. This may be a printed circuit board, a small panel of paxolin or a [illegible] board. The windings for L1 and L2 are shown, and the layout is best symmetrically arranged. The SWR bridge may be built into the transceiver, in which case screened leads go in and out as shown. The prototype was built externally in a small screened box with phono sockets on each end; this enables the bridge to be used with other transmitters. The meter should be as inexpensive as poss[illegible] and an old tape recorder level meter was used in the prototype; this had a full scale deflection of some 200 μA, but any meter up to about 1 mA could be used. The sensitivity control VR1 is simply adjusted for the meter to be used.

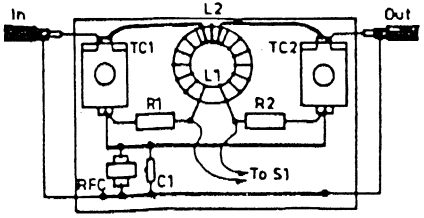


Fig 6 SWR BRIDGE LAYOUT

Fig. 5

R1, R2 = 100 ohm
C1 = 100 pF s/m
C2 = 0.01 μF
RV1 = 10K linear
TC1, TC2 = 20 pF compression
D1 = OA91
RFC = 1.5 mH RF choke
L1, L2 = see figure
S1 = single-pole changeover
M1 = see text

The bridge should be nulled before it is used. This can be done by using a dummy load — a 50 ohm (or so) 2 watt resistor; this load is connected between the output and ground. Apply transmitter power to the input of the bridge. Adjust VR1 for full scale meter reading with S1 in the 'forward' position (FWD). Then, set S1 in the 'reverse' position (REV) and adjust TC1 for the lowest meter reading. Reverse the dummy load and transmitter output to use the bridge the other way round. Repeat the process, this time adjusting TC2 for minimum reading. (Remember that the FWD and REV position are reversed on this test). The fastidious may repeat the process several times to get the best overall settings.

Operation

Always use the SWR bridge between the transmitter and the ATU (Antenna Tuning Unit). The purpose of the ATU is to take the odd impedance of the antenna and "show it" as a 50 ohm load to the transmitter output. The best rule of thumb is to work to the lowest reflected reading (REV). Set th[illegible]U to its usual setting for the band in question. If this is not known, it can be checked roughly by seeing which settings give the best receiver results. Apply the transmitter power and check that the forward reading is high and set it to full scale on the meter with VR1. Switch to REV and adjust the ATU for the lowest reading of the meter; re-check that the forward reading is still high. It is possible to get false ATU settings which give either a high output but with a high reflected power or a low reflected power with a low output: check which gives the best overall compromise and note the ATU settings for future use on each band.

It is convenient to be able to use a tuned antenna for operation. This eliminates problems of antenna tuning and certainly a tuned antenna such as a simple dipole will give good results on QRP. Sadly few of us have the space for dipoles on the lower bands. The prototype S.C.D. gave good results using about 90 feet of end-fed wire and a basic L-match ATU. This ATU is described below.

The transceiver is now complete for reasonable use on the bands, but naturally with such low power full use must be made of the RF output from the transmitter. QRP transmitters are difficult to tune-up for reliable use by the usual method of monitoring the DC input to the transmitter PA. This transceiver is simpler than most, having no tuneable circuits in the output from the PA; but good matching should be ensured into the antenna. The operator may be using his favourite ATU — if a tuned antenna is not in use — so good matching is vital. Few seasoned QRP operators would be happy about matching their low output to the antenna without some indication of any standing waves that might be present. A basic Standing Wave Ratio Indicator is a valuable aid for the QRP operator.

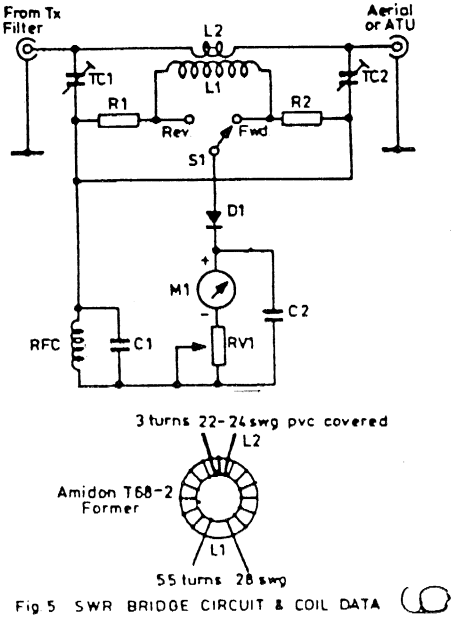


Fig 5 SWR BRIDGE CIRCUIT & COIL DATA

Antenna Tuning Unit

The ATU coils may be adversely affected by metal screens, so construction in a plastic case or wooden box is advised. The prototype, which the author has used for 15 years, is built on a wood base plate, with a tinplate front panel, and otherwise open for the world to see. L1 is shown clearly in Fig. 8 and may be wound on any former with a diameter around 1¼ inches; S1 is a 10-way wafer switch, but this was a late addition to the unit which originally had a crocodile clip which fastened onto the required tap. A 12-way switch would also serve, using more tappings. The tappings are spaced out over the whole winding in about the ratio stated on the diagram.

C1 is a 500 pF variable capacitor (half of a dual 500 pF tuning capacitor from an old broadcast valve receiver would do). A large component with airspacing is best for C1, although the author has a portable version of this ATU which uses a miniature solid dielectric variable for a Japanese transistor radio, and this appears to work well.

Stout wiring and short leads are helpful in ATU construction. Two large, easy-to-handle knobs should be used for S1 and C1 and a simple calibration should be provided for both to help locate settings. When building ATU's, junk-box hunting is the order of the day and anyone spending good money on an ATU should hang his head in shame!

Operation

Follow the outline for operation of the SWR bridge in the section above. Approximate settings for S1 can be found with the receiver, but the final adjustment should be made with the SWR bridge.

This ATU has been used with various QRP transmitters including the SCD with end-fed bits of wire of lengths from 40 feet to 200 feet. If the shack has a good earth, then it is ideal to load the antenna against earth. But if the earth is in the slightest suspect or the earth lead-in is long, the author would advise the use of a counterpoise.

An article on a transceiver is no place for a treatise on the author's preference for counterpoises over an earth, but if in doubt, or getting poor results, try one. The S.C.D. has been used with end fed-wires and the L-match ATU against quarter wave counterpoises for the band in operation. Suitable lengths for counterpoises are:

80 metres — 63'0"
40 metres — 32'6"
20 metres — 16'6"
15 metres — 11'0"

Such counterpoises should not be underground, but raised slightly above ground. Experts quibble, but the author has put counterpoise wires all over the place and with reasonable results: under stair carpets, down the outside of house walls, along garden fences and walls. The only common denominator is that they have rarely managed to fit into a straight line! The simplest way is to get some cheap PVC covered copper wire and try it.

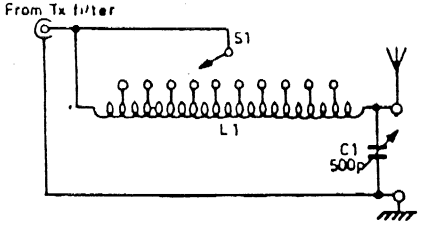


Fig 7 ATU CIRCUIT

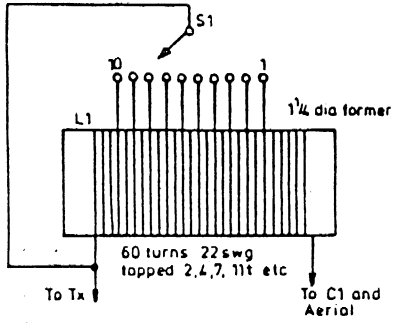


Fig 8 ATU COIL

Fig. 3

R1 = 38K	C1, C2 = 0.001 μF, 2%
R2, R4 = 27K	C3 = 10 μF elec.
R3 = 24K	C4 = 0.01 μF
R5 = 1.8M	IC1 = 741

Conclusion

The purpose of describing the S.C.D. in these three articles is to bring back a little of the fun into our hobby:

Amateur Radio is too serious and expensive these days. It is up to the reader to use as much or as little of these circuits for his individual entertainment, have fun, avoid spending money and be surprised at what simple circuits can do. You may even be able to look the XYL straight in the eye as you tell her how much this transceiver cost. But be warned QRP — is addictive!

Components:

Amidon Coils by *T.M.P. Electronics*. Other components — *J. Birkett* can supply most for those with shallow junk boxes. (Both advertise in *S. W.M.*).

Bibliography:

SPRAT, Journal of the G-QRP Club (Secretary, Rev G.C. Dobbs, 17 Aspen Drive, Chelmsley Wood, Birmingham B37). *"Solid State Design for the Radio Amateur"* (ARRL) is a mine of a circuit ideas, available from the Publications Dept. of *Short Wave Magazine*

→

TECH TIPS

SOME FILTER IDEAS SUBMITTED BY NEIL VK3CGE (A.R.R.L. H.BOOK.)

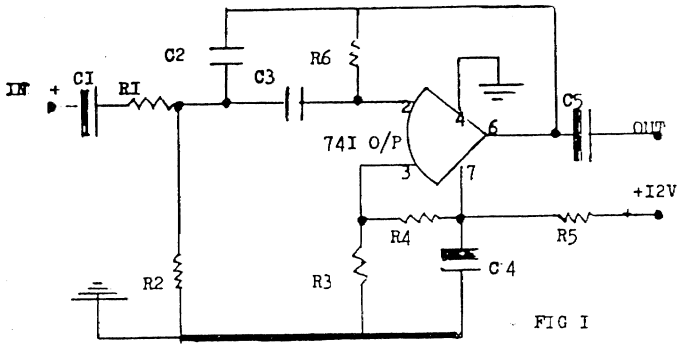


FIG I

SINGLE POLE FIG. I
C1 and C5 IUFD.
C2 and C3 .022
C4 22UFD.

R1 22K
R2 IK
R3and R4 4.7K.
R5 6.8K
R6 I00K.

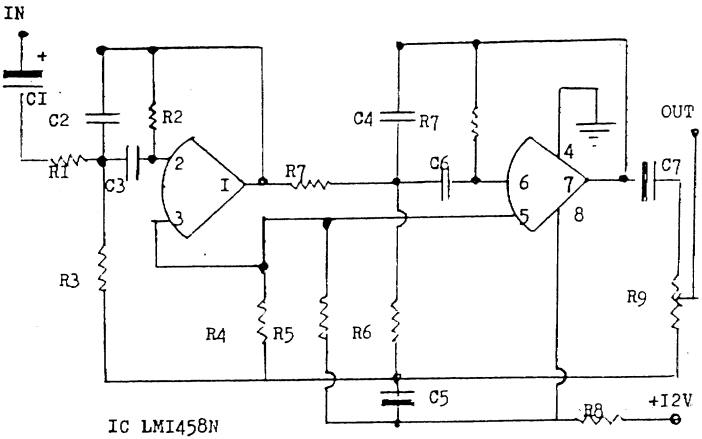
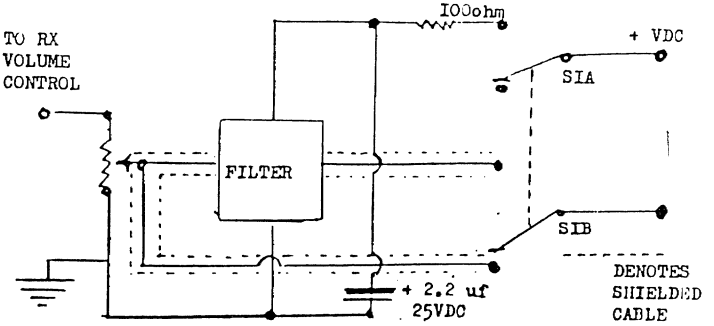


FIG 2

DOUBLE POLE FIG. 2
C1 and C7 IUFD
C2 C3 C4 and C6 .022
C5 22UFD

R1 22K
R2 and R7 I00K
R3 and R6 IK
R4 and R5 IOK
R8 5.6K
R9 20K POT

SUGGESTED INSTALLATION.



NOTE
The trim pot on the output of the two pole filter is to allow for level adjustment. This filter has some gain so output adjustment is necessary to avoid volume changes between filter in and filter out.
CENTRE FREQ. 800HZ
BANDWIDTH I50 HZ

BUILDING A ROTARY WIRE BEAM.

The VK2ABQ antenna has been around for many years. Obviously, by its popularity, it is still a favourite "cheapy".

Over the years the basic design has undergone many changes. I feel competent to put my experiences on paper, having conducted many practical tests on the original design and subsequent versions.

The following observations, I hope, will be of benefit to those who are contemplating building a beam. It will be noticed that the shape of the version described is rectangular, in contrast to the square versions of the original VK2ABQ. By being rectangular, the optimum spacing between elements is achieved, and it requires no increase to the length of the spider arms if you are modifying the earlier version of the VK2ABQ.

Actual mechanical construction will vary with the individual's aptitude for such things - unfortunately not one of my virtues. Bent towers, broken beams and quads and odd bits of crumpled aluminium litter my property as evidence of my "expertise".

However, you will need four spider arms 12 ft to 13 ft long. If you can afford and obtain fibre glass arms, all the better. If not, bamboo lengths suitable for the task are obtainable locally at a reasonable price - about $5.00 each. You also require about 150 ft of 14 SWG copper wire.

First task is to build the centre hub and fit the spiders. Again, how you construct the centre hub is a matter of personal choice. If a commercial Quad hub is available, all is well and good. Lay the assembly on a flat open surface (see Fig. 1), and using strong nylon fishing line, secure one end to point A until the spacing between A and D is exactly 12 feet. Then tie the other end of the fishing line to point D. The structure should now look like Fig. 2. Repeat exercise at points B and C. The assembly should now look like Fig. 3. At this point the whole assembly should be under tension with an upwards curve, size approximately 20 ft x 12 ft as in Fig. 4. String points A,B,C,D with strong nylon fishing line.

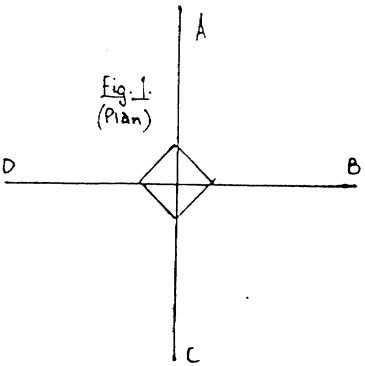


Fig. 1. (Plan)

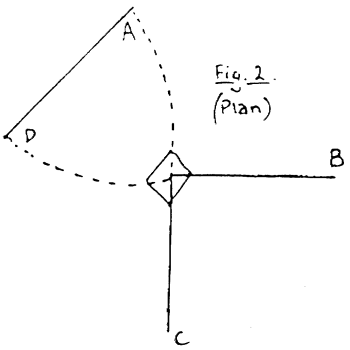


Fig. 2. (Plan)

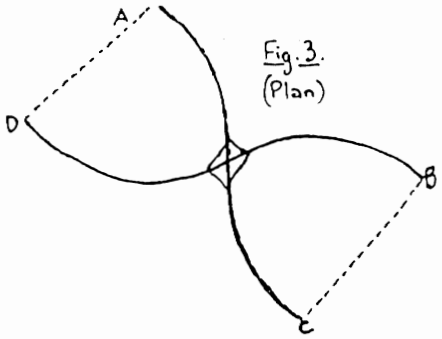


Fig. 3.
(Plan)

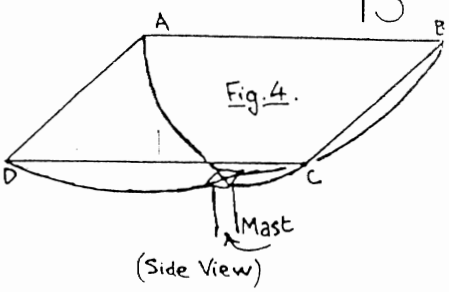
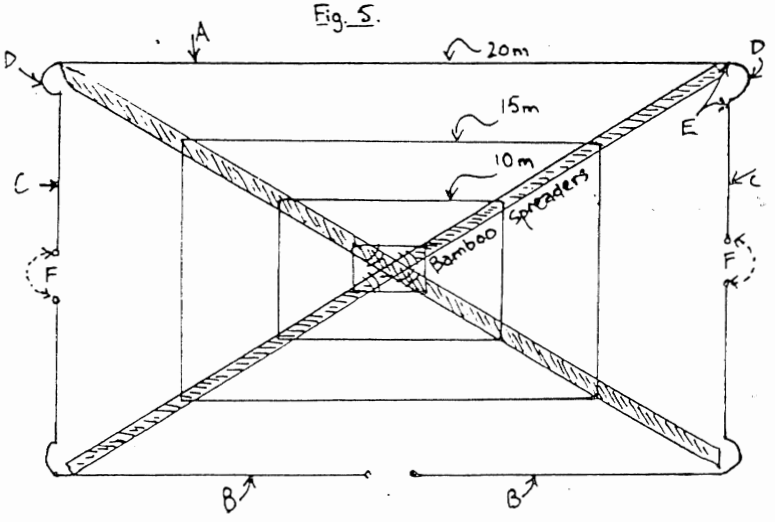


Fig. 4.

String the wire elements to the dimensions indicated in Fig. 5, taking particular care that the spacing between the ends of the element at F is correct. Check the resonant frequency on each band. If necessary trim the elements to suit. The wire tucked away in the corner loops allows plenty of leeway. But you must trim equal amounts off both elements and retain the spacing between the elements at point F.

Best results depend on the correct phasing between the two elements A and B. This is achieved by ensuring that equal currents flow in both elements, and can be measured by using the current probe in Fig. 6.

Fig. 5.



20m
A= 18ft.
B= 9ft.
C= 3'10".
D= 4' 2".
E= 1'.
F= 2'2".

15m
A= 11'4".
B= 5'8".
C= 2'1".
D= 2'7".
E= 1'.
F= 1'10".

10m
A= 9'.
B= 4'6".
C= 2'.
D= 2'.
E= 1'
F= 1'8".

Note: Loop "D" can hang loose or be taped to bamboo spreader. It can be trimmed to resonate element lengths, all loops to be trimmed equally.

Simply place the probe at point F - the mid-position can be judged well enough by eye. Since the current flows in opposite directions, zero current will be indicated at the halfway point between the wire ends. If not, then adjust this spacing. You will have plenty of wire to vary the spacing accommodated in the loops of D in Fig. 7.

Fig.6.

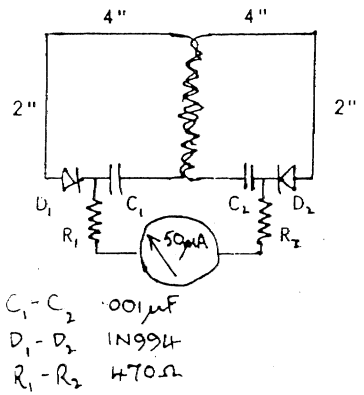
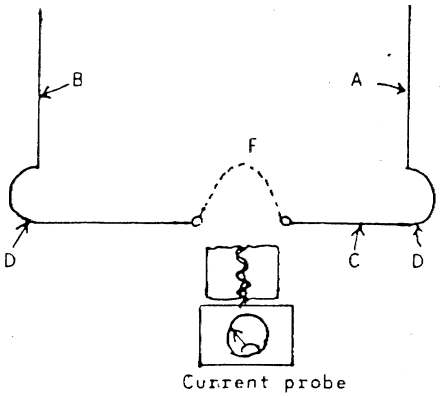


Fig. 7.



The antenna can be fed in many ways. A Tri-Gamma match system similar to that used on a Quad would be the ideal way.

Fig. 8.

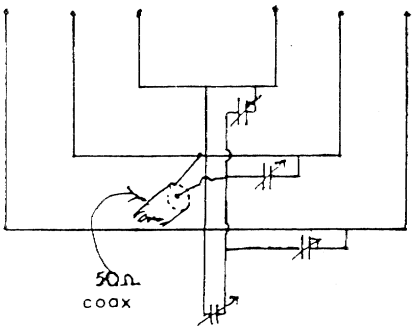
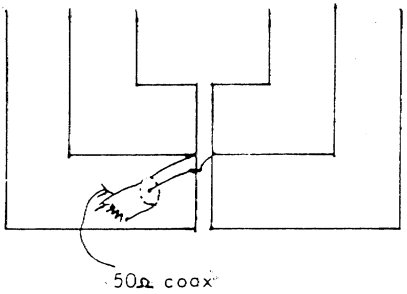


Fig. 9.



If fed as in Fig. 9, reasonable results can be achieved. However, the 10 metre elements do interact with the 15 and 20 metre bands. If this is objectionable, 10 metres can be fed with a separate length of feeder.

VK7VV (+G6XN, VK7BP)

80 METER DX OPERATING PRACTICES.
Submitted by John Elliott VK3CVF No 12.

Frequencies.

The intent of this portion is to show the major 80 meter ham bands around the world along with a few important exceptions.

AREA.	CW section.	Phone section.	Phone DX.
AFRICA			
(Most countries)	3.500-3.600	3.600-4.000	3.790-3.810
ARGENTINA, CHILE.	3.500-3.750	3.600-3.750	3.740-3.750
Asia			
(Most countries)	3.500-3.600	3.600-4.000	3.790-3.810
Australia	3.500-3.600	3.600-3.700	3.690-3.700
Canada	3.500-3.725	3.725-3.999	3.750-3.800
Europe			
(except USSR)	3.500-3.600	3.600-3.800	3.790-3.800
Greece	3.500-3.600	3.500-3.600	3.590-3.600
India	3.650-3.700	3.650-3.700	3.675-3.700
Japan	3.500-3.550	3.550-3.575	3.793-3.803
New Zealand	3.500-3.600	3.600-4.000	3.775-3.825
South America			
(most countries)	3.500-3.600	3.600-3.999	3.775-3.800
USA			
and territories	3.500-3.775	3.775-3.999	3.775-3.825
Marshall ISL	3.500-3.900	3.800-3.999	3.800-3.825
USSR	3.500-3.600	3.600-3.650	3.640-3.650

For CW DX, the most widely used portion is 3.500-3.510 MHZ. This segment, as well as 3.790-3.800 MHZ, has been officially recommended by the IARU region I (Europe) as 'only to be used for intercontinental traffic'. The frequencies used most by DXpeditions are 3.515 or sometimes 3.525 for CW and3.795 or 3.803 for S.S.B.

It's obvious that in the middle of the day (during the summer), the DX segments can be used for local traffic. The best propagation occurs at dusk and dawn, however, and even with full D-Layer attenuation several hours before sunset.

Shame is'nt it nobody believes he is only running QRP.

QRP Amateur Radio Club International

REPORT FROM BOB SPIDELL W6SKQ No67

1985 QRP FIELD DAY

The 1985 QRP Field Day for the "Zuni-Loop Mountain Expeditionary Force" was held at a campground in the San Gabriel Mountains of Southern California at an elevation of approximately 7100 feet overlooking the Mojave Desert to the North and East. The FORCE consisted of W6SKQ, N6LZN, KF6EC, K6MDJ and N6GA.

The first to arrive at the scene was Bob, W6SKQ, who rapidly erected his tent, and started to put together a 15 meter ZL Special Beam. Noon time arrived with a helper, N6LZN ex WD5DNY, who unpacked his solar panel, tent, battery, and other gear. Brian and I rapidly put together the beam and then awaited the arrival of the rest of the "force". At approximately 1 P.M. , Friday the 21st, the whole crew arrived and broke out their gear, put up another tent, finished the ZL Special and started work on the "six-shooter". The "six-shooter" was prepared with 16 Formvar wire and nylon cord for spacers. W6SKQ tried to top the 90-100 foot pine trees with his accurate arm, but after several tries we opted for the trusty sling shot approach of the "force" and easily topped all required trees to erect our 20 meter monster with the top at about 90 feet above ground. We fed the 20 meter array with 300 ohm twinlead.

Next came the 40 meter 2 element delta loop. N6GA had the antenna packaged up befor as he had used this antenna on previous Field Days. We again sling shotted our leaders in the pines and used our strong lacing cord for the support but there was too much sag in the middle. A few of the group had brought extra heavy duty [illegible] line with them and we hauled up the heavy duty cord and everything went up fine business. The 40 meter antenna was fed with 50 ohm coax.

Our next project was the erection of the 80 meter horizontal loop which required the rest of the afternoon. That antenna took a little bit of acreage to put up and adjustment to make it as horizontal as possible. It was also fed with 300 ohm twinlead.

Operation started off on 20 CW and 15 SSB with a rover. The first hour of operation produced 15 QSOs on 20CW and 21 QSOs on 15SSB. There were no problems with interference with each other on any bands during the contest and the operation on 20 appeared that it would last all night the way all operators attested to the fb operation of the "six-shooter". I should add here that last year we could not hold our own on 20 SSB with the Vee-Beam that we used but this year with the "six-shooter we had no problems...jst knocked them off one by one with ease. Nighttime hovered around 8P.M and that called for a shift in operations as we started to get the 40 meter operation in gear with the 2 el delta loop. Well, needless to say - that antenna worked flawlessly as we started off on 40 meters with contacts with NJ and CXLA and SD, MONT, MICH AND CT to start at 0400-0500GMT. Not bad for 2.4 watts out....This continued all night with K6MDJ holding down 40 meters....we were all impressed with the delta loop...maybe a 3 element delta loop next year...

80 meters provided us with an insight on the horizontal loop...we found that we worked mostly 6's and 7's and not much of anything else which proves that it did have a fairly high radiation angle.

15 meters did fairly well, but noticed that the band started to fade out around 2300GMT It started with good contacts to the NW first two hours then over to the east coast, but signals were down for most of the contest in general. Possibly a new strategy next year will be the abandonment of the 15 meter band and concentrate operation on 20 and 40 only with a smattering of 80 meters thrown in..

I believe there were 3 stations on from KH6 land and we worked all of them....

Almost forgot to mention where the sign came from....

K6MDJ told us that originally he was to have a banner done up for our little effort, but came in contact with a friend of his that indicated that the sign would possibly look better and that was our surprise when Fred, K6MDJ arrived. It was made up with Red and Black lettering on a white background and was a beautiful piece of artwork.

The name came from the Xyl's of N6GA and W6SKQ just about a month before the event while we surveryed the area for antenna sighting. Our families got together for a steak feast at that time.

Equipment in use was Argonaut 509 and 515. Power supplied by (I) solar panel at times and car batteries.

The tents came in very handy at night as it did get very chilly when the sun went down. Sunday morning was a special delight as Cam, N6GA, master chef prepared breakfast for us. All in all it was one of those special times where the only things on our minds was QRP....did not have to think about our air conditioner bills, honey-doos, entertaining the kids, catch up things to do that could be put off and no TV..... hi.....hi....Just a great time had by all....very relaxing.

73.

Bob Spidell W6SKQ QRP

Left to right.
KF6BC-BOB
N6LZN-BRIAN
W6SKQ-BOB
K6MDJ-FRED
N6GA-CAM

80m	CW	51	80m	SSB	32
40m	CW	152	40m	SSB	5
20m	CW	190	20m	SSB	7
15m	CW	18	15m	SSB	69
	TOTAL	580			

The "Six-Shooter" Broadside Array As a good compromise between gain, directivity, compactness, mechanical simplicity, ease of adjustment, and band width the array of figure 21 is recommended for the 10 to 30 Mc. range when the additional array width and greater directivity are not obtainable. The free space directivity gain is approximately 7.5 db over one element, and the practical dx signal gain over one element at the same average elevation is of about the same magnitude when the array is sufficiently elevated. To show up to best advantage the array should be elevated sufficiently to put the lower elements well in the clear, and preferably at least 0.5 wavelength above ground.

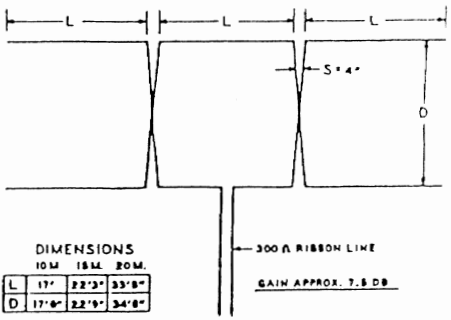
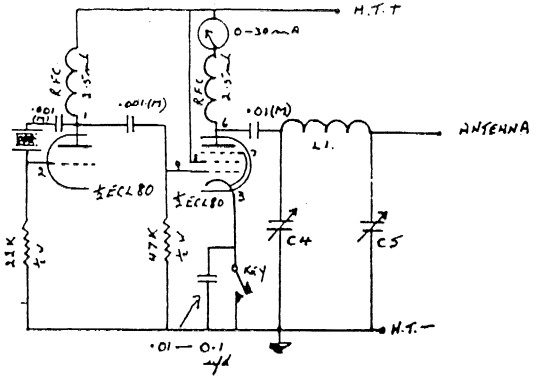


Figure 21
THE "SIX-SHOOTER" BROADSIDE ARRAY

A SINGLE VALVE TRANSMITTER. (Input of 4 to 4.5watts)

From "PRACTICAL WIRELESS" September 1957 Submitted by Matt ZLIATW.



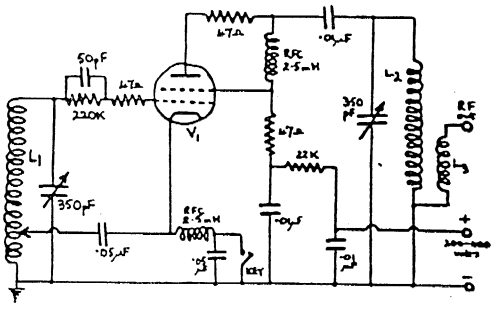
Reference to the circuit diagram will show that the Transmitter comprises a Pierce oscillator built around the triode section of the valve,and capacity coupled to the P.A. stage , which is the pentode section of the ECL80. By means of a pi-coupling,the transmitter can be coupled on 3.5,7,and14Mc/s into an antenna of almost any length. Radiation on 3.5Mc/s can be obtained using a 3.5Mc/s crystal, while the same crystal will also give transmissions on the 7 Mc/s band, the output stage being used as a doubler with fair efficiency. A 7Mc/s crystal may be used for transmission on the 7Mc/s band and will give greater output since the P.A. stage is now tuned to the fundamental instead of the second harmonic. If output is required on the 14Mc/s band, then a 7Mc/s crystal must be used and the output stage tuned to the harmonic.

LI (a) 32 turns No 20 closewound
L2 (b) 20 turns No 20 closewound
L3 (c) I0 turns No I8 closewound
All on I½ inch formers.

C4 .0003uf Variable or in series with .0005uf and a good .00I mica
C5 .0005uf Variable.

L1 30uH 35 turns 20 AWG on 2½" former. Tap 7 turns up.
L2 10uH 10 turns 20 AWG on 2½" former.
L3 1 or 2 turns over ground end of L2.
V1 6V6, 6L6, 6Y6, 6K6, 6W6, etc.
All resistors 1 watt carbon.
Capacitors mica or ceramic.

By combining the oscillator, multiplier and output in one valve element, we will find better isolation from oscillator and load variations than with a simple oscillator. The triode Hartley oscillator is tuned to 160 metres whilst the tetrode multiplier stage is tuned for maximum output on the 80 metre band. As there will be a fair amount of harmonic radiation present at the output stage, it is suggested that you use an antenna tuner to increase harmonic attenuation.



Component values are in no way critical. That good old Aussie saying, "Close enough. She'll be right, mate!" applies here, except possibly with the physical position of L1 and L2. Keep them about six inches apart and, most important, at right angles to each other. Power requirements: a modest 50mA at 200 to 400 volts H.T. will give an R.F. output of anything from 3 to 10 watts depending on valve used,

SUBMITTED BY ROD GREEN VK6KRG No28

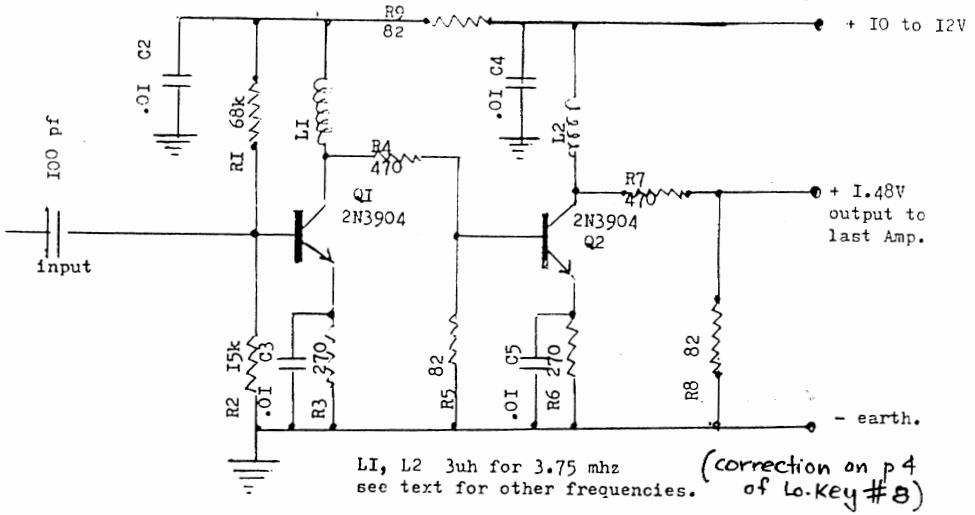
A HIGH ISOLATION BUFFER FOR VCO OR VFO.

I have been experimenting recently with Phased Locked Loops, with the aim of improving the technical excellence of QRP equipment, without being bound to crystal control.

My main efforts have been aimed at stabilising VFO's in transmitters and receivers both QRP and QRO. Out of this reseach has come some very interesting material. Here are the results of some of the research.

As far as I am aware, the buffer shown below is a new design and I hope does not infringe on any copyright. However it is a very logical design see Fig I.

Fig. I Isolating Buffer for V.F.O. (useful frequency 2:1)



(correction on p 4 of Lo-Key #8)

The buffer has a low input impedence, so depending on your VFO circuit, you may need to use an emitter follower ahead of it. Transistor Q1 acts as a convent - ional class A amplifier, with the collector DC current conveniently set to 5MA by the bias network R1,R2 and R3. The coil L1 is tuned to the VFO centre frequ ency using the output capacitance of Q1 plus stray capacitance, about 6pf. The collector load of this stage is an attenuator R4 and R5. The attenuator has 3 major functions. (1) Broadens the tuning of L1, this is due to the low impedance of the attenuator (470+82 ohms).

(2) Isolates the second stage from the first. Unlike coupling networks or transformers , a variation of the load impedence on the attenuator (eg Transmit-Keying) does not reflect back to the privious stage, but the change tends to be absorbed by the attenuator. Just to show you, if the 82 ohm resistor were shorted (representing a massive change in load resistance, 82 ohms to 0) The impedance change at QI's collector would be from 552 to 470 ohms only a I5% change. (3) The attenuator provides about + I.4V of bias for the next stage and hence no base bias resistors or coupling capacitors are needed for the next stage. Q2 and the following components are a second identical stage. Notice that there is bias avaible at the second stage output for your final amplifier if desired.

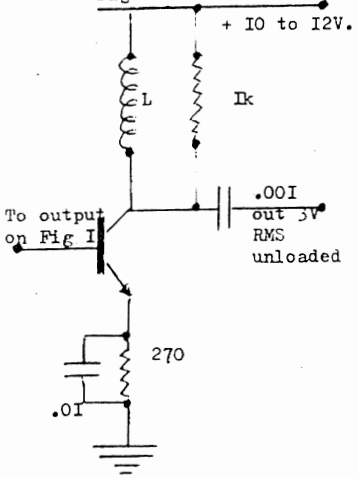
Fig 2 and 3 show a couple of output stages you can use. When adjusting my circuit of Fig3, no VFO frequency variation was noted as the tuned circuit was brought through resonance, and various loads put on it. (note this is not a transmit final only the last VFO stage).

There are many things that I have left out of this article, mainly basics such as how to bias transistors, how to calculate LI and L2 ect this is because these things are needed to design a circuit not for building. The article would be quite long if I did this.

I feel that the CW OPS QRP BULLITIN is an excellent source of educational material, and I would like any one who is interested in learning to design his or her own basic equipment to write to me, and I will depending on the response, write a series on things like those mentioned above.

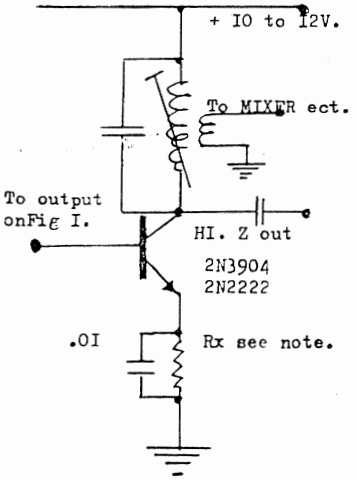
Much money can be saved by improvising with QRP, for instance home made chokes are much cheaper than bought ones, and you can make them to non standard values, and you can accurately measure them with very limited equipment. Accuracy of better than I% or even 0.I% are easy to make.

Fig. 2 Broad band Amp.



Note.
Select L same method for Fig. I.

Fig. 3 Narrow band Amp.



Notes

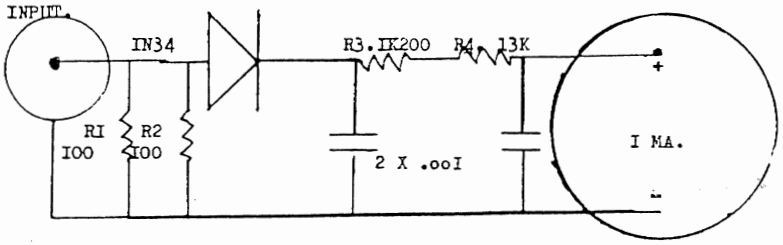
880
Rx = desired collector MA.
Rx = 470 ohm for I.9 MA.
Rx = I.5K ohm for 0.6 MA.

You can make tour own toridal ferite corec by using the slugs from old TV sets of the valve era, they are made from material easilly cut with a Junior hacksaw Many of these slugs had a Hex hole through them, they can be cut and filed to the required dimension.
The slugs with screwdriver slots are easilly drilled also to make toriods.
These cores are not hard like the rods used in AM radio aerials, a word of cautio the ferite cores in the Line oscillator coils are of a very hard glass like ferit The softer cores mentioned above generally have a low mu value and therefore most suitable for low value inductors up to 3uhy and for VHF baluns and tuned co

ROD GREEN

SIMPLE POWER OUTPUT METER. VK7VV

Just the job for tuning up your latest QRP project, of course it will not be as accurate as a commercial unit, but adequate for relevent output-levels. Resistors RI and R2 selected to handle around 4 or 5 watts,(non inductive) certainly not wire wound. I calibrated my unit against a laboratory standard power meter, the values of R3 and R4 have been selected to arrive at the value of I4K200 and the chart indicates the direct reading on the I MA meter. The unit did not appear to be frequency conscious up to 50MHZ.



4 WATTS	IMA
3.5	.93
3	.86
2.5	.79
2	.72
I.5	.61
I	.50
.5	.35

So many operators only hear the loud signals or the potent, interference free stations, what the don't realize is that they are missing out on Ham Radios greatest Challenge, working DX others can't hear. Its there, all you need to do is devolpe the perserveranoe and patienoe to wait it out.

SOMEONE FINALY ANSWERED HIM .

BITS AND PIECES.

A good suggestion passed on by Rod Green Member No 28 to stimulate home brewing and activity on 80 meters is that we should change our present club net freq, of 3.530 Mhz to 3.584 thereby utilising the cheap and easilly available colour burst xtls , good idea Rod, but it is a pity that the freq does not fall in the novice section or the " Exclusive ? " CW portion of 3.500 to 3.535.
What do other members think? I would be pleased to hear your comments, Why don't you let me know?, and to get the full value of your postage stamp, submit your pet xtal controle circuit, be it valve,transistor or I.C.

Gus G8PG Member No50 has some interesting comments on the " VK VERSUS THE WORLD " contest, I have taken the liberty of repeating a paragraph from Gus's letter and invite your comments. "Thanks for the very nice certificate, received a few days ago, but I do feel very guilty about it. Actually I was trying to support the contest and NOT win yet again, but the rules are so stacked against your VK members that I don't believe a VK can ever win, because of the geographical location of Australia. I have thought about it quite a bit, and feel that if the VK boys are to have a fair crack of the whip we should take the word " versus " out and substitute the word " and " thus making it the "VK AND WORLD QRP CONTEST " This would allow us to award a certificate to the VK leader and one to the World leader, both of whom would rank equal in achievement. This would get rid of the very unfair handicap imposed on the VKs, and might well encourage more of them to compete. At the moment they are on a hiding to nothing however hard they try".
Thanks Gus for taking the time to write and to give us your thoughts on the matter I wont make my attitude to it known at the moment, but certainly hope your comments stir other members to put pen to paper and air there point of view.
For me, undeterred, its to the 'hills' tall trees, big wire beams, the trusty ARGO, my camperwaggon, a full ESKI, and "Come on World".

Jeff VK5BJF Member No 57 has a large number of valves free to members, there are to many to list, but if he has what you are looking for they are available free apart from postage.

Don Callow Member No 75 VK5NDC appears to be having a ball on his recently home constructed HW 9 kit, he runs CW QRP only and is looking for contacts with other members on 80 meters, Don listens most evenings.

Neil Emery VK3CGE Member No19 Club net controller reports he is having difficulty finding many takers, will members please note that the Club net will be held on the second friday of each month at 1030Z on 3.572, and committee nets on the first wednesday of each month at 1030Z on 3.675, all are welcome to join in.
Neil can also be found on 3.572 at 0900Z most evenings.

Information on this years "VK VERSUS THE WORLD CW QRP CONTEST" has been sent to all Major QRP clubs, International and VK magazines, I am hoping for a good turn up, VK boys don't let me down, now is the time to plan your strategy, lets make this contest the event of the year this year and all other years to come.

Due to lack of space a members list is not included in this issue, in fact I feel a half yearly listing should be sufficient, if you would like a list at any other time I will send you one (SASE).
A.R.A Mag will be printing the clubs information in the 'Club Directory' section.

BITS AND PIECES CONTINUED.

Club Logo stickers have been requested by many members to put on to their QSL Cards ect, unfortunately all the quotes that I have, are much to expensive to consider, should any member be able to help in this matter Kevin our Treasurer or myself would be pleased to hear from you.

I WONDER WHY?, The Q5 AWARD OF EXCELLENCE sponsored by 73 MAG does have a most unusual condition, in order to qualify your RST must be no less than Q5, that is 559,529,589, ect a 459,399,279 499 just wont do. One would think that an achievment of excellence would be to complete a qso with any report be it 339 or 559 Surely the excellence of the operator be more proven working with less than ideal conditions through QRM, QRN ect. Maybe some one out there can answer that one and stop me "Wondering why".

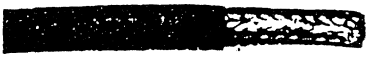
You come across a "pile up " on the band, and being a QRP nut tend rather not to bother calling, well you should you know. I find that following a few simple rules there is no reason why you as a QRP'er can't steal the edge on your fellow hams frantically calling their heads or wrists off.
Most experienced DX CW operators tend to work stations about 1KHZ up from their transmitting freq. when the have the pleasure of being on the hot end of a pile up Listen very carefully for a few minutes and try to find out his operating pattern When he puts it over to some one, find them and put your TX freq. just slightly off his freq. a matter of a few hertz not KHZ, now your signal will be right where the DX station's RX is tuned, he will hear you without him having to touch his - tuning dial. Some DX'ers sort the mess out by listening to the tailenders, if this is so play his game and tailend yourself. Tailending means giving your callsign or suffix, or just a sneaky/ QRP. (alls fair in love and working DX) at the very end of the transmission of the station signing off with the DX.
Generally tailending degenerates into one almighty mess eventually, don't use the technique unless the DX station appears to encourage it, and then only if it is working for other stations.
The golden rules to apply are, listen for as long as it takes to learn the DX stations working pattern, think like he does, call at the right time and on the right frequency, or like the other fellows you can call your head off all night to no avail.

Keep in mind that your editor is looking for matterial for next issue of LO-KEY technical articles, personal stories, funny or unusual happenings, in fact any - thing of interest. Lets have a'dob in a matè' section next issue, I think I will put all the members numbers into a hat and have a draw, the lucky members number drawn will be expected to submit a 'THUMNAIL SCETCH' of himself, both Len NoI and myself have this done to us in the old 'VK QRP CLUB' days so it would not be news to some of the earlier members, QRX a minute..... just put the numbers into the hat..... let me see.....and the lucky number is 28.....
so come on Rod get pen to paper and start thumnail scetching yourself, HI.
NOTE. The fore mentioned draw was supervised by my dog DOT and my cat DASH so as to preclude any shinanikin on my part.

Happy hunting
RAI VK7VV EDITOR.

PL 259 PLUGS

Very Frustating are they not?.
If you follow the following procedure to the letter they will ne longer be a problem, get armed with a pair of cutters, a ruler and a small pipe cutter and lets get started.
(I) The coupling ring of the PL259 is slid over the co-axial line, circumscribe a cut in the outer black jacket of the cable one and a quater inches from the end. with a sharp knife a cut is made at right angles to the to the cable making a good square end, remove the free end of the jacket.



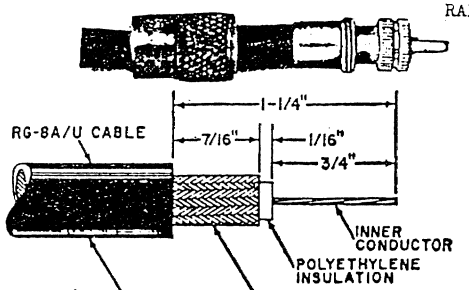
Using a soldering iron quickly and smoothly tin the exposed braid making the entire braid a solid entity. This must be done quickly so as not to overheat the inner polyethylene. Remove the left over flux and clean the braid thoroughly when the tinned section has cooled.

Measure exactly seven sixteenths of an inch out from the black jacket and mark with a fine scribe, position the tube cutter on the scribed line and slowly revolve and tighten the cutter, the cutter will slice the braid neatly, then pull off the unwanted braid.

Measure exactly onesixteenth of an inch out from the end of the braid and using the sharp knife remove the inner polyethylene insulation, take care that you do not nick the inner conducter. Tin the conductor.

Push the PL259 shell on to the cable end rotate with the fingers so that the internal threads of the shell screw onto the outer vinyl jacket of the cable, when the shell is screwed fully home, the tinned braid should be fully visable through the holes set in the body of the shell.
Finally solder the braid through the solder holes using an iron with a fine point, again care must be taken not to over heat the internal polyethylene, solder the centre conductor and screw the coupling ring over the shell.
Now sit back relax and pat yourself on the head for a job well done.

RAI VK7VV.



UHF CONNECTORS
For RG-8A/U and RG-58/U Cable

Plugs: PL-259, PL-259A, UG-295/U
Adapters for RG-58/U: UG-175/U, UG-410/U
Right-angle adapter: UG-297/U, UG-646/U, M-359
Adapter, straight (female-female): PL-258, UG-360/U, UG-299/U
Receptacle: SO-239, UG-296/U
Adapter, straight (male-male): Dow-Key F-2
Hybrid adapters:
- UHF (female) to BNC (male): UG-255/U
- UHF (male) to BNC (female): UG-273/U
- UHF (female to N (male): UG-146A/U
- UHF (male to N (female): UG-83B/U
- UHF (female) to male phono connector: Dow-Key A-210
- UHF (male) to male phono connector: Dow-Key A-211
- UHF plug (solderless): Amphenol 83-851 (for RG-8A/U)