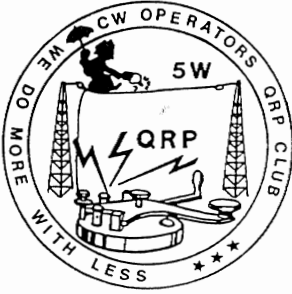


September 1991  
Issue No. 31



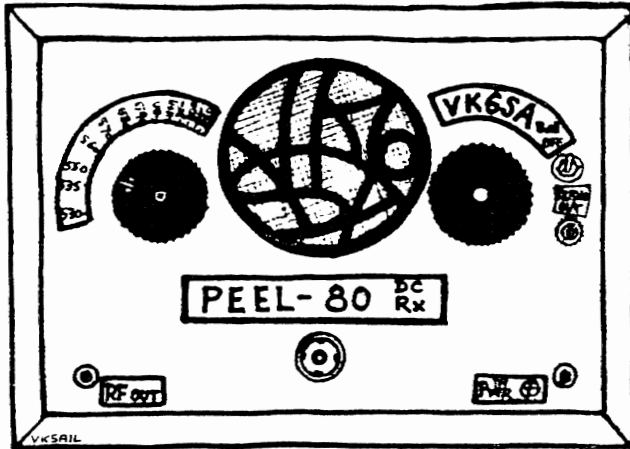
# Lo-Key

THE JOURNAL OF  
THE CW OPERATORS QRP CLUB

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



PICTURE THE  
PEEL-80 IN  
YOUR SHACK !  
(See page 6)



## CONTENTS

- |    |                                      |    |                                      |
|----|--------------------------------------|----|--------------------------------------|
| 2  | Key Positions                        | 16 | The Transplus 160 DSB/CW Transceiver |
| 3  | Organiser's Offerings                | 24 | A Crystal Set for the 90's           |
|    | Clubtivities                         | 25 | Receiver Notes                       |
| 4  | Kevin's Komments                     |    | News About 72                        |
| 5  | Treasurer's Annual Report            | 26 | Kit-Set Activity Centre              |
| 6  | "Peel-80" Direct Conversion Receiver | 27 | From the Editor's Desk               |
|    |                                      |    | U Can Help !                         |
| 13 | Awards and Contests                  | 28 | Interested In Joining Us ?           |
| 15 | CW Net News                          |    |                                      |
|    | Boomerang Circuit Book               |    |                                      |

DAYLIGHT SAVING - CW NET AND SSB/QRO NET TIMES - SEE P. 2  
SCRAMBLE #16 - 40M TUE 15 OCT - 80M THU 14 NOV - SEE P. 14  
EXTRA SSB/QRO NET - SEE P. 3

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

# POSITIONS

## EXECUTIVE COMMITTEE

### ORGANISER

Max Brunger VK5OS #2  
3 Durham Ave. Lockleys SA 5032  
Membership enquiries; general club business.

### 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)

|       |       |       |       |
|-------|-------|-------|-------|
| 1815  | 3530  | 7030  | 10106 |
| 14060 | 21060 | 28060 |       |

### 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.

© COPYRIGHT

CW Operators QRP Club  
Not to be reproduced without permission.

## OTHER POSITIONS

### CW NET CONTROLLER

Ted Daniels VK2CWH/QRP #89  
Call is "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 CONTROLLER

Max Brunger VK5OS #2. Call is "VK5OS" QRO SSB is used. Talk is social + technical. CW stations pse call "BK de callsign" to have your presence acknowledged. ALL WELCOME. FRIDAY NIGHTS FROM 1000 UTC (Daylight saving - 0900 UTC) Near 3620KHZ.

### CLUB STATION VK5BCW

Based at the Richmond SA QTH of Len O'Donnell VK5ZF #1.

### AWARDS AND CONTESTS MANAGER & PUBLIC RELATIONS OFFICER

Ian Gotsil VK3DID #112  
25 Monaco St. Parkdale Vic. 3194  
Scramble logs; ideas about Club promotion & liaison with other Clubs.

### PROJECTS OFFICER

Rod Green VK6KRG #28  
106 Rosebery St Bedford WA 6052 \*\*\* NOTE NEW ADDRESS \*\*\*  
Radio projects for Lo-Key & kit-sets.

### THE BOOKSHOP & BOOMERANG CIRCUIT BOOK

Norm Lee VK5GI #139  
25 Ralston St. North Adelaide SA 5006  
Magazine & book reviews; circulation of circuit book.

# ORGANISER'S OFFERINGS

By Max Brunger VK5OS #2  
3 Durham Ave. Lockleys SA 5032

A few points of interest.

Firstly, as explained elsewhere, the QRP Clubs have indicated support for "72" instead of "73" when signing off; this is an international decision/suggestion which adds just another touch of exclusivity to QRP adherents. I intend to use it, perhaps you might too!

In December we will have a new scheduling time-table for Scrambles, with more of them and greater variation in frequencies, hopefully to coincide with the best propagation conditions for the nominated band. Please join in, even if infrequently - "make another member's day".

As there has not been any increase in the size of the SSB/QRO net on Friday's, I am going to call on **40Metres on Thursday nights, commencing with the issue of this Lo-Key, at 1030Z, on 7080kHz** [+/- QRM, of course], to see if I can establish a group who may wish to chat, but cannot "come-on-air" on the existing Friday Net. Please note, **THIS WILL BE IN ADDITION TO the existing 80 Metre Net.**

Finally, if anyone exhibits even the slightest interest in QRP, please let me know, and information will be sent forthwith; either drop a line to: 3 Durham Ave., Lockleys, 5032, or drop into one of the two QRO nets.

For the present, 72 from Max VK5OS #2

ccc

## CLUBTIVITIES

THE Q R P  
U A E  
A D O  
I I P  
N O L  
T E  
'S CLUB ?

David VK3ANP #125 writes:

"Here in Wangarratta we have a club for people interested in the restoration of old radios from the valve era. The club is called "The North East Vintage Radio Club" - we meet once a month and there are about 20 members. Of that 20 members there are 5 of us who are members of the CW Ops QRP Club. They are -

Harvey VK3AHU  
Rod VK3UG  
Eric VK3BXA  
Ralph VK3CQK  
David VK3ANP

So how about that !"

*Well, that sort of activity must be very rewarding and quite a few members are known to be very keen on valve rigs - so, keep up the good work !*

*(By the way, Steve VK5AIM tells us that his XYL Sue says that QRP stands for Queer Radio People !*

*Who are we to argue with this ?)*

ccc

# KEVIN'S KOMMENTS

By Kevin Zietz VK5AKZ #43 Treasurer and Membership Secretary

WELCOME TO NEW MEMBERS



Welcome back to:

#90 SWL. Ray ROSE GATTON QLD

Welcome to the following new members:

|             |         |         |                |     |
|-------------|---------|---------|----------------|-----|
| #229 VK3ESC | Michael | TOMS    | RICHMOND       | VIC |
| #230 VK2NLU | Eddy    | TURNER  | BADBURY        | NSW |
| #231 SWL    | Geoff   | OSBORNE | MEEKATHARRA    | WA  |
| #232 VK5APS | Peter   | SPENCER | CLARE          | SA  |
| #233 VK2BUS | Chris   | PROUD   | FAIRFIELD WEST | NSW |

#189 James Glenn is now VK2AIQ, QTH TWEEDHEADS SOUTH NSW, in lieu of VK3AIQ; #155 Dave Tompkin VK3FDT has upgraded and is no longer VK3PBM; #59 Barry Ridgeway is VK3DBR, not VK3VBR as on our list in issue #28.

My work on **program file conversion** has been progressing and I am now attempting to run all the club's records from the new system - most of the bugs I hope have been ironed out. The old system is still being partially maintained to provide emergency backup just in case. The project has already shown considerable advantages. Computer compatibility between members of your executive is also being addressed. (Notice I have not tempted the new system in this issue !)

Elsewhere in this issue you will find my **Financial Report to the Club**, including some statistics from the club's records.

Some of the old logo stickers sold several years ago are losing their 'stick' so we will exchange them for an equal number of new logos at no cost to you. Just fold them into a standard envelope and return them to me or to Don VK5AIL #75 and they will be swapped.

**Secret new address ?** Seen in a recent magazine (the QRP/ARCI journal from USA) .....

"Please notify me when you move. I have had several letters from members who say something like, 'I haven't received my quarterly for more than a year. (By the way, I moved twice in the past year.) Here is my new address.' " *Now none of OUR members would do this - would you ?*

We have got quite resourceful in the past to find members but "not known at this address return to sender" with out any other information forth coming resigns us to a nervous "wait for a complaint" situation.

ccc



**TREASURER'S ANNUAL REPORT -  
STATEMENT OF RECEIPTS AND EXPENDITURE  
FOR YEAR ENDING 30 JUN 1991**



|                    | <u>RECEIPTS</u> | <u>EXPEND-<br/>ITURE</u> | <u>BALANCE (1)</u>        | <u>(1989-90)<br/>(15 months)</u> |
|--------------------|-----------------|--------------------------|---------------------------|----------------------------------|
| VK5BCW             | \$***0.00       | \$**32.00                | \$-**32.00                | \$-**30.00                       |
| BANK CHARGES       | \$***1.60       | \$***6.46                | \$-***4.86                | \$-**16.97                       |
| ADMINISTRATION     | \$***0.00       | \$*682.72                | \$-682.72                 | \$-***1.47                       |
| POSTAGE GENERAL    | \$***1.26       | \$**48.50                | \$-**47.24                | \$-**72.22                       |
| LO-KEY             | \$*234.22       | \$1782.86                | \$-1548.64                | \$-1400.94                       |
| BANK INTEREST      | \$*181.51       | \$***0.00                | \$**181.51                | \$**304.27                       |
| SUBSCRIPTIONS      | \$1867.66       | \$***0.00                | \$*1867.66 (2)            | \$*2141.86                       |
| DONATIONS          | \$**10.00       | \$***0.00                | \$***10.00                |                                  |
| KIT SETS           | \$1995.40       | \$2717.00                | \$-721.60 (3)             |                                  |
| SUNDRIES           | \$***7.00       | \$**72.88                | \$-**65.88                | \$***34.22                       |
| SUB TOTALS         | \$4298.65       | \$5342.42                | \$-1043.77                |                                  |
|                    |                 | ORDINARY A/C             | \$1260.04                 |                                  |
|                    |                 | CHEQUE A/C               | \$*575.24                 |                                  |
| 1990-91            | \$-1043.77      | SPECIAL PURP             | \$**60.80                 |                                  |
| B/F BALANCE (6/90) | \$*3226.53      | IN HAND                  | \$*286.68 (at book close) |                                  |
| SUB TOTAL          | \$*2182.76      | CURRENT:                 | \$2182.76                 |                                  |

1991-92 BUDGET:

|                              |   |
|------------------------------|---|
| BROUGHT FORWARD              | \$2182.76                               |
| EST LO-KEY                   | \$1500.00                               |
| EST STATIONERY+POST          | \$*200.00 (includes some 90-91 expense) |
| EST BANK+VK5BCW              | \$**60.00                               |
| BUDGET WORKING BALANCE 91-92 | \$*422.76                               |

NOTES:

- 1/ These accounts are on a cash flow basis and therefore do not account for stock or liabilities; significant items are addressed in the notes. There are some expenses not claimed by 30/06/91. Allowance for these stationery/administration expenses have been made in the budget for the 1991-92 year.
- 2/ \$121.00 included in the subscription accounts paid during 90-91 is in respect to advance subscriptions for 1992 and beyond.
- 3/ The Kit Set activity has stock of apx \$762 at sale price to cover the balance shown above. A loan of \$800 towards new kit batches brings the net to apx \$841 (if all sold during 91-92.)
- 4/ The membership stats for period ending 30/06/91 - 21 members left the club, and 24 joined the club - giving a membership of 179. Thank you to ALL those responsible for joining up new members.
- 5/ We have shown a cash flow loss for the 1990-91 year, this is partly because of carried forward expenses, stock being purchased but not consumed during the accounting year, and a loan to the kit set activity. This is also our first accounting year to coincide with the fiscal year. Your committee will be keeping a close eye on budget matters during the next year. **THANK YOU FOR YOUR SUPPORT.**
- 6/ **A BIG THANK YOU for ALL DONATIONS of both TIME and FINANCE.**

K. R. Zietz.  
TREASURER 1990-91.

## "PEEL-80"

### Direct Conversion Receiver (3.500 - 3.650 MHz)



by

'Rev', VK6SA, #61 PERTH

©1991, Suter, Box 261, Mandurah, 6210



The stimulus for a very simple efficient economical 80m receiver comes from the need of class members of the PEEL Amateur Radio Group (VK6ARG) to listen to local Morse Code broadcasts and to learn by building.

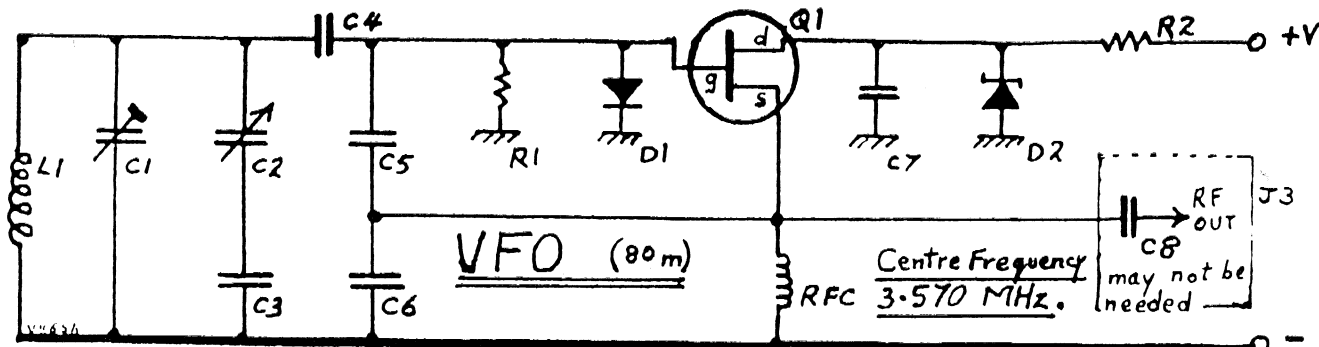
An ambition of the writer is for present members to make such a thing which can be loaned to class members who may listen to it and copy it and have something to loan to next years' class. ... ..

Being neither a technician nor a technicians son he voiced his thoughts to Ray VK6RY who very quickly came up with the MPF102, ZN414, LM386 combination and a very robust Mk-1 on a galvanised chassis (with room for the coming Tx!) in chipboard cabinet. (It's borrower has since passed Novice).

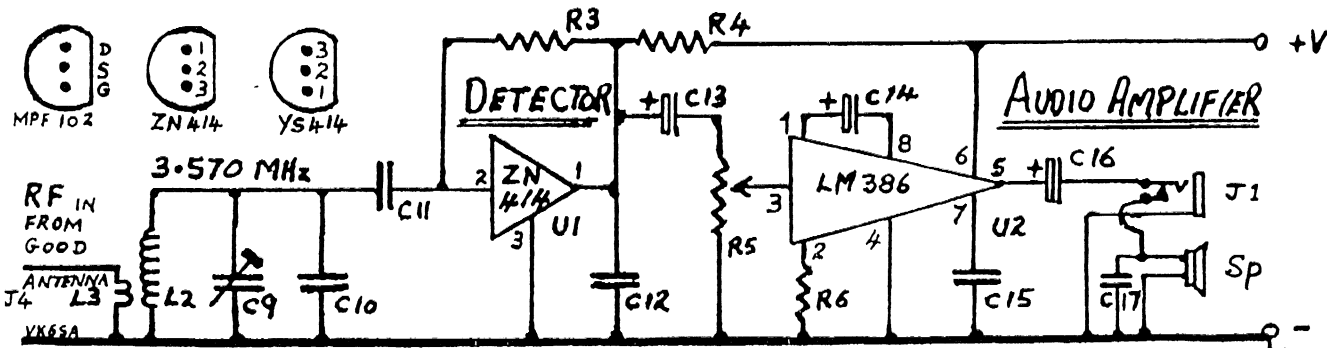
The set is only loaned to those who have made a good antenna (80m dipole OR G5RV).

Remember, we wanted something simple for LOCAL morse reception? Well, the serendipity of the gadget, and the reason for publishing, is the Heard-All-VK-States-And-ZL-Within-Two-Nights Syndrome.

My Mk-2 was attempted on a 110 x 40mm board (and will work soon!!!?). Mk-3 was layed out and spread out (220 x 120mm) and works very well. What is really exciting is that black-box operators looked at it with their first reaction, "I could make that!" Well, Mk-4 is slightly condensed so that two boards (165 x 120mm) can be cut from one Altronics offcut - and is the "PEEL-80" presented here.



Adapted from *Solid State Design... Hayward + DeMaw.*



Adapted from 1991 D.S.E. catalogue P.P. 179, 180.

"PEEL 80"

Variable Frequency Oscillator,  
Detector & Audio Amplifier.

ALL components are mounted on the single piece of double-sided circuit board. Electronics behind, switch knobs jacks sockets to the front.

You DO need access to a Gate Dip Oscillator.

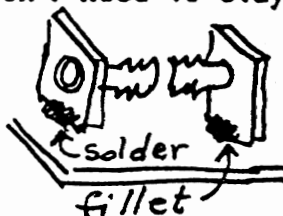
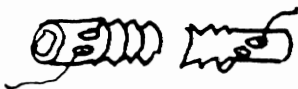
The oscillator may need to be shielded (with a fence) from the detector section. You may want to take signal from "RF-out" as a signal generator. Mount components close to the board so they do not move nor vibrate. Wax if necessary.

Allow ONE DAY to get L1 right (and please do not be in a hurry). Adjust C2 (and C1) to centre and wind, unwind L1 until full movement of C2 gives controlled spread of 3.500 - 3.650 MHz. Check GDO against a good receiver. Check your VFO against a receiver.

The detector L2 requires similar patience and time. Maybe the L2,C10 combination could be replaced with an input filter for other bands.

Please be careful gouging the board around the LM386 position for the audio amplifier.

Before mounting components lightly tin the board where leads are to be soldered. That way, when you get to the leads with the iron you won't need to stay long.

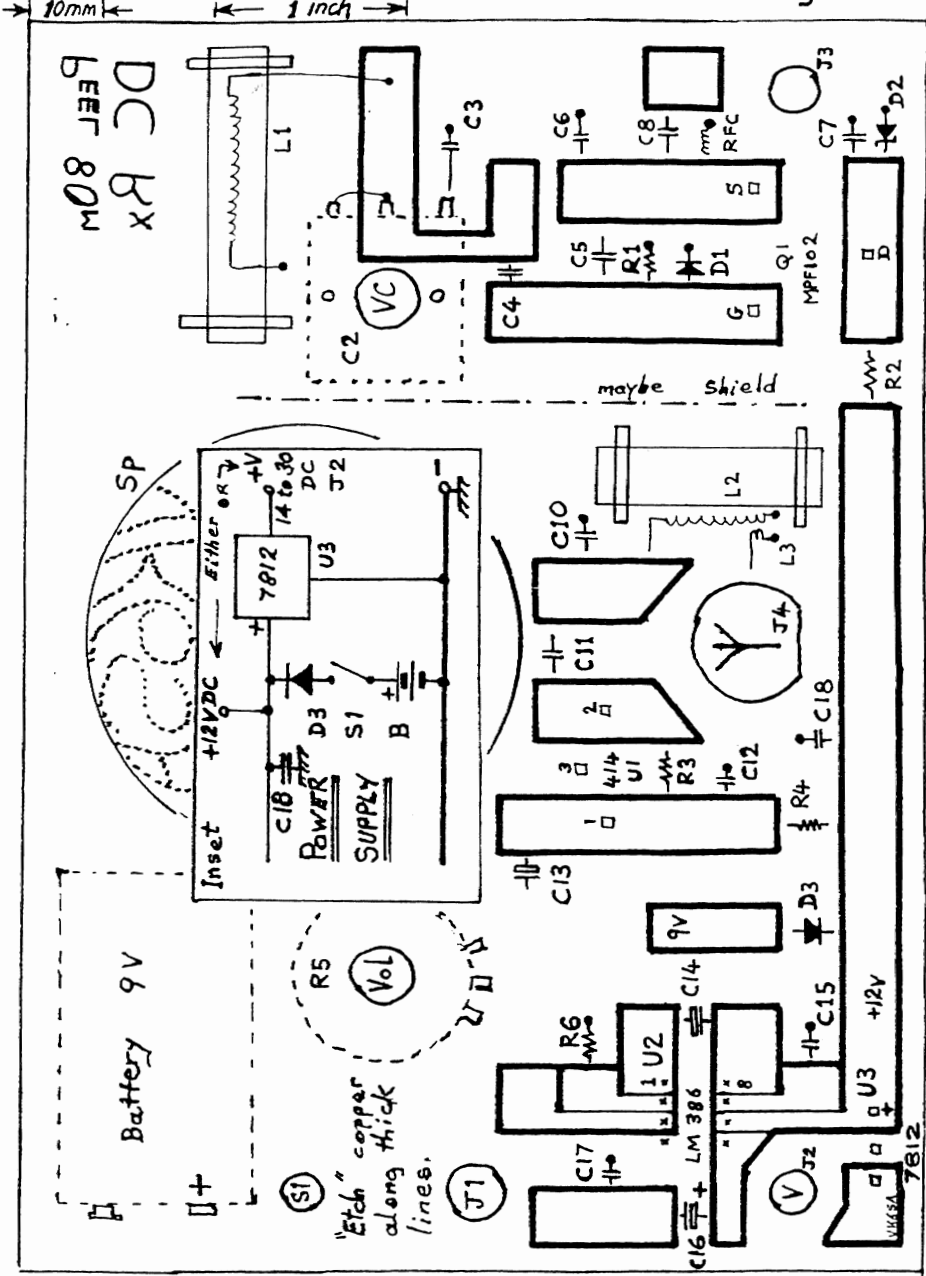


**Winding** little coils. Break the point off a .55mm needle, file the end to a "spade" bit. Drill texta barrel twice, fix end of wire, start winding, 60t, drill twice, finish off. Trim leads, tin. Tack mount. **Measure.** Repeat. Do again the previous task.

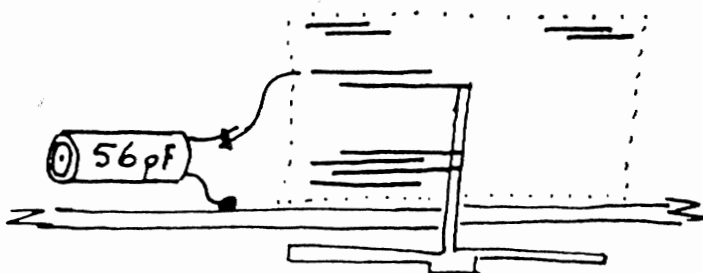


# "PEEL 80" DC Rx

Full size circuit board layout.



The tuning gang contains 4 capacitors - 2 caps and 2 trimmers of which we use mainly only the small capacitor in series with the 56pF polystyrene cap.



Parts list, Dick Smith Cat.No., Price list

You DO need access to a Gate Dip Oscillator.

|        |   |                    |             |      |
|--------|---|--------------------|-------------|------|
| Q1     | MPF102  | FET transistor     | Z-1832      | 1.35 |
| U1     | ZN/YS414  | TRF radio IC       | Z-6520      | 4.95 |
| U2     | LM386   | Power Amplifier    | Z-6086      | 1.95 |
| U3     | 7812  | *Voltage Regulator | Z-6552      | 1.25 |
|        |   |                    |             |      |
| D1     | 1N914   | Signal diode       | Z-3120      | .10  |
| D2     | Zener   | diode 6.2v/1W      | Z-3529      | .35  |
| D3     | 1N4002  | Power diode        | Z-3202      | .15  |
|        |   |                    |             |      |
| S1     | Switch  | *P-7673 OR         | P-7700      | 1.95 |
| J1     | Audio out*socket                                |                    |             |      |
| J2, J3 | *RCA Sockets                                    |                    | P-1440 @.70 | 1.40 |
| J4     | PL259   | *Antenna socket    | P-2342      | 2.30 |
| Bd     | Double sided circuit board 165mm x 115mm        |                    |             |      |
| Kb     | Knob for *volume control pot.                   |                    |             | 1.00 |
| Sp     | 57mm  | *Mini speaker      | C-2222      | 2.95 |
|        |   |                    |             |      |
| *      | For a cheap quickie leave these off. (Be sorry) |                    |             |      |
|        |   |                    |             |      |
| 5      | Resistors 1/4W @5c, R2, 220Ω,                   |                    | R-1058;     |      |
|        | R6, 4k7, R-1090; R1, 22kΩ,                      |                    | R-1106;     |      |
|        | R4, 33k, R-1112; R3, 100k,                      |                    | R-1124      | .25  |

|            |   |      |
|------------|---|------|
| <b>R5</b>  | Potentiometer 20k   | 1.60 |
| <b>7</b>   | Disk Ceramic Capacitors<br>C11, 22pF, R-2243; C8,C12, 0.01μF, R-2321;<br>C7,C15,C18, 0.1μF, R-2243; C17, 0.22μF, R-2370 | 1.95 |
| <b>3</b>   | Electrolytic Capacitors<br>C13, 0.47μF, R-4290; C14, 22μF, R-4318;<br>C16, 470μF, R-4410                                | 1.30 |
| <b>5</b>   | Polystyrene Capacitors @ 90c<br>C3, 56pF, R-2813; C4, 390pF, R-2833;<br>C10, 560pF, R-2837; C5,C6, 820pF, R-2841        | 4.50 |
| <b>2</b>   | Trimmer *Capacitors @ 1.75<br>C1,C9, 3-27pF, R-2935   | 3.50 |
| <b>C2</b>  | Variable tuning gang + knob R-2970  | 1.95 |
| <b>2</b>   | Mounting screws and washers for C2<br>Keep the ends of the screws out of the VC plates                                  |      |
| <b>RFC</b> | 500μH Choke   |      |
| <b>3m</b>  | 0.5mm enamelled Cu wire   |      |
| <b>1</b>   | Deceased 8mm TEXTA barrel   |      |
| <b>1</b>   | Snaffled 0.55mm needle (or cct bd fine bit)   |      |
| <b>4</b>   | 20mm x 15mm pcs of cct bd to support L1, L2   |      |
| <b>1</b>   | Amount of fine solder   |      |
| <b>L1</b>  | About 60t, .5mm wire close wound on 40mm of 8mm<br>diam. resurrected texta barrel                                       |      |
| <b>L2</b>  | About 40t, .5mm wire close wound on 30mm ditto  |      |
| <b>L3</b>  | 3t wound in same directn around earthy end of L2  |      |

(Continued over)

## Some additional notes on the PEEL-80 RECEIVER from Rev VK6SA #61

I advocate strongly the recycling of junk-box components - hence the use in the prototype of ex-TV resistors and some caps and the case cut from a telebox.

However in the past I have often been frustrated by articles advocating the use of junk which I don't have and can't get and don't know how to substitute - or the sale of 'short-form' kits which can never be completed or perhaps never properly housed.

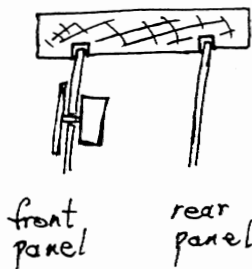
For this reason a detailed parts list is appended.

The need for and use of a proper antenna is emphasized. Found that a receiver filter was not needed.

0.5mm wire is fine enough to be winding and correcting - any finer is too fine to be fun.

If the power supply used is a 12v battery then the 7812 should be disregarded and the 12v lead connected directly to + side of D3.

I used a picture frame "cabinet" with mitred corners (see front cover):

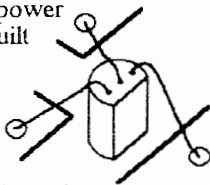


### QRP (Quick Receiver Play) Review By Don VK5AIL #75, Editor

Rev kindly posted the little receiver over so that I could give you a personal report. My looking and listening time was extremely limited, but here goes ...

The circuit is simple, which is the intention in this type of project. It uses a Colpitts VFO, with 'RF OUT' C8 not connected (see circuit diagram). ZN414 detector and the ubiquitous LM386 chip in the audio amp. For power I used the 9V battery built in to the Rx.

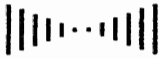
Construction was simple, with plenty of space for experimenting.. Dead bugs looked good. Front panel of the prototype was very artistic (see front cover), but functional.



You could partly etch the double sided board to give the effect shown on the cover photo.

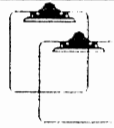
Let's try it out! I had a quick listen on 80m with this Rx - and a couple of others for comparison, using half of my dipole (fed by half a 300 ohm TV ribbon) for each. Results were very pleasing. Rx must have been well aligned. Phone was a little tricky to tune, as usual for DC Rx, but the CW was a joy. The extra signal you often hear is not a problem provided the pitch is different from the station you are listening to. It's good practice for that DX QRM on 40m or 20m when there really are a couple of CW signals on about the same frequency. *And you really like the challenge, don't you.*

Overall - The Peel-80 Rx does the job intended & would be a simple, worthwhile and satisfying project to build. *ccc*



# AWARDS AND CONTESTS

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



*Greetings all* and hope that everyone is surviving the Winter quite happily with plenty of home-brew projects and CW practice!

As I write this the RD Contest is only a few days away and I hope very much to hear many club members taking part and to see the calls of our members prominent in the publication of results about December.

## EUROPE FOR QRP WEEKEND 1991

A special event for all serious QRPers will be the "Europe for QRP Weekend" to be held from 1600 UTC on 27th September to 2359 UTC on 29th September, 1991.

I don't know how the propagation to Europe is at present, but you chaps with big beams may have some luck. This is an important event in the QRP calendar and any help to the Europeans would be appreciated. Here are the details:

1. 1600 UTC 27th Sept. – 2359 UTC 29th September, 1991
2. Mode & Freq's.: CW on 3560, 7030, 14060, 21060, 28060; all +/- 10 kHz
3. Power not to exceed 5 watts output
4. Contest Call: CQ EU QRP when seeking contacts
5. Contest Exchange: RST each way, power o/p and name must be exchanged

and logged

6. 3 points for each contact with Europe or a USSR Asiatic Republic. Final score is the sum of the points scored on each band used

7. Logs: Separate log sheets must be used for each band showing for each contact date, time, call, RST, name, and power received and sent. A summary sheet must be provided showing your name & address, with claimed score for each band and total, and brief details of equipment used.

8. Submission: Logs must be submitted to - P. Douderas, OK1CZ,  
U1 baterie 1, 16200 Praha 6,  
Czechoslovakia,  
by 30th October, 1991

9. Awards: Merit certificates will be awarded to the four leading stations from each continent.

Please make an effort to support our European colleagues in this most interesting event.

## §§§ Coming Contests for CW'ers §§§

VK-ZL Oceania DX-CW Contest  
Rules in *Amateur Radio* July 1991 p.34.  
Dates: 12-13 October 1991.

# RESULTS: SCRAMBLE NR 15

40m on 1 July 1991

Many thanks to those who took part and submitted logs -- in all eight were received. All results listed below.

I was very pleased to see several DX calls worked by some stations. Congratulations and I think it justifies the use of the international bands for occasional scrambles and contests.

One word of caution though -- DX QRO stations are only five (5) points. It is DX QRP which qualifies for the fifteen points. Consequently, I had to adjust two or three logs. Nevertheless, everyone seemed happy and I hope that even more of you will join in future.

Here are the results:-

|     |            |       |           |
|-----|------------|-------|-----------|
| 1st | VK3CQ/QRP  | Gil   | 75 points |
| 2nd | VK2DQR/QRP | Ron   | 65 points |
| 3rd | VK7FN/QRP  | Neil  | 55 points |
| 4th | VK4LA/QRP  | Glyn  | 45 points |
| 5th | VK3BPG/QRP | Reg   | 40 points |
| 6th | VK2WES/QRP | Wes   | 30 points |
| 7th | VK4BIL/QRP | Bill  | 25 points |
| 8th | VK2AW/QRP  | Basil | 20 points |

Again many thanks on a good set of contacts.

Had a few interesting letters over the last quarter from members, which I enjoyed receiving and reading. David VK3ANP #125 suggested that we organize the bands for the Scrambles by season, to take advantage of any DX around and simply to allow a wider coverage of the Australian continent, whilst at the same time keeping an emphasis on 80m, as most of us would have made our home-brew gear for that band. Thanks David, I like that suggestion and shall pass it on to the boys in Adelaide.

Well that's all for this time. Keep up the good work and see you in the next Scramble.

73 (What happened to 72?)

Ian VK3DID 112

## SCRAMBLE #16

(Another 'two bit' Scramble)

The third-quarter 1991 Scramble is to be held over two nights:

|           | BIT ONE  | BIT TWO  |
|-----------|----------|----------|
| SCRAMBLE  | #16a     | #16b     |
| DAY       | Tuesday  | Thursday |
| DATE      | 15 Oct.  | 14 Nov.  |
| BAND      | 40 metre | 80 metre |
| FREQUENCY | 7.001 to | 3.501 to |
| RANGE     | 7.040MHz | 3.529MHz |
| SUGGESTED | 1000 to  | 1000 to  |
| TIMES     | 1200UTC  | 1200UTC  |

As usual, the aim is to gain maximum points - or if you are not a serious contender it might just be to enjoy yourself and help others by participating. Home-brew or similar equipment is preferred, but is not mandatory. *Try a Scramble* especially if you are not keen on contests - you will be pleasantly surprised.

### RULES

AIM: To score maximum points by working as many CW stations as possible during the Scramble periods, on the band nominated for the night.

DURATION/TIME: 2 Hours.

MODE: CW only. Club members must use QRP - 5W max. output to antenna.

CALL: No control station to check into, JUST COME UP, START CALLING AND ENJOY YOURSELF.

The call to use is CQ QRP TEST and Club Members should of course use the /QRP suffix. There is no need to exchange serial numbers.

#### SCORING:

QRO VK 1 point QRO DX 5 points  
QRP VK 5 points QRP DX 15 points

ENTRIES: Send log extracts to me without delay please. Just show time of contact (UTC), callsign of station you had QSO with and /QRP if he/she was a QRP station, name of operator (if you know it), signal reports given and received, and points claimed. Some info. about your rig or other comments would be of interest.

RESULTS: Results including names of certificate winners will appear in the December 1991 issue of Lo-Key.

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

ccc

## CW NET NEWS

By Ted VK2CWH #89

.. 40 metres ... 40 metres ... 40 metres ..

Just a note to confirm the

Daylight Saving arrangements:  
Frequency between 7031 and 7035kHz  
and time 0830 UTC on Tuesday nights.

Very little to report on the Net - not much activity since the last report - just a few regulars turning up.

It will be interesting to see what happens on 40 metres.

Regards,  
*Ted*



Editor's Apology - Last issue we referred to Ray VK2COX #226 as Reg. No, he hadn't changed his name, just (another) editorial slip!

ccc

## BOOMERANG CIRCUIT BOOK

### BCB #3 CIRCULATION LIST

(2) = Now in Flight #2

|        |        |      |     |
|--------|--------|------|-----|
| Leith  | VK5LG  | #154 | (2) |
| Col    | VK2EXD | #35  | (2) |
| Warren | VK2FKU | #216 | (2) |
| David  | VK3ANP | #125 | (2) |
| Reg    | VK3BPG | #7   | (2) |
| Roy    | VK4RE  | #15  | (2) |

Next on list will be -

|        |        |      |
|--------|--------|------|
| Steve  | VK5AIM | #184 |
| Don    | VK5AIL | #75  |
| John   | VK5JO  | #223 |
| Martin | VK6BER | #211 |
| Ben    | VK6XC  | #147 |

*Do you wish to go onto the list for BCB #3?*

It's an opportunity for VK members to have access to many circuits and homebrewing tips relevant to QRP and amateur radio. You pay the postage to the next person on the list. Postage is currently \$2.80.

The list of members is in the packet with the sheets, along with the 'rules'. If you have suggestions for other articles please send details to me or a member of the Executive.

Norm Lee VK5GI  
25 Ralston St.  
North Adelaide SA 5006

ccc



# THE TRANSPLUS 160 DSB/CW TRANSCEIVER

By Martin Reece VK6BER #211

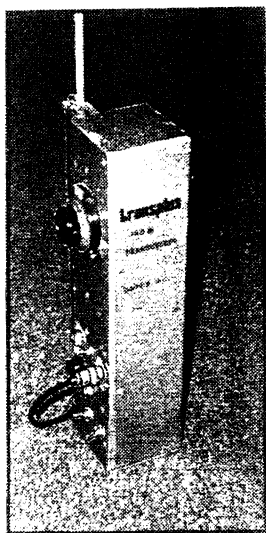
*Martin VK6BER (ex G3TCF) recently joined our club after emigrating from the UK in 1990. Martin writes:*

"I love building radio gear - HF,SSB, FM, TV ... Everything is home-made even the 2 metre antenna which I made from a coat hanger.

Please find enclosed circuits and an article on the "Transplus 160". The name I took from the transfers I put on the box. The rig was built about five years ago.

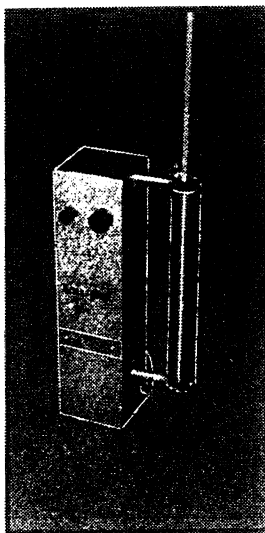
The Transplus 160 was designed to fit inside a standard briefcase, be battery operated and include the antenna on the case, be capable of CW and DSB and run at least 3 watts output.

I worked for GEC and part of my job included travelling throughout the UK giving lectures, so I spent a lot of time in hotels. As I'm not much of a drinker and I love my wife, hence the rig.



## FRONT VIEW

Showing main tuning control, SSB/CW switch, on/off switch, VFO crystal switch, RF o/p to whip via BNC socket, mike i/p, key i/p and charge i/p.



## REAR VIEW

Showing audio vol. control & RF gain control.

The shape of the box is similar to a walkie/talkie and is 3 X 4 X 12 inches (about 75 X 100 X 305mm). At the top of the coil is a 90 volt neon which is used for tune up. The coil is then connected to the 5 foot whip antenna. With the key down I can get an RF burn from the top of the coil !!

It works best with a good earth. Most hotels have a central heating system so I used to clip onto a nearby copper pipe radiator.

I used to select the hotel carefully. It must be somewhere above ground. I used to have the top floor and on several occasions at Newcastle, UK, I worked London on CW 160m 579 both ways. Not bad at 3 watts and a 5 foot (sorry, imperial again) whip leaning onto the hotel window. Distance 200km."



# transplus 160

## THE TRANSPLUS 160 DSB/CW TRANSCEIVER BY VK6BER

The TRANSPLUS 160 is a full transceiver for 160m band. It is both XTAL controlled and VFO controlled. It has 3 watts O/P on CW and DSB. It has both SSB and CW audio filtering. It is self contained, battery operated and the antenna is a 5 foot base loaded whip attached to the case.

On the receive side is a 40673 MOSFET RF stage feeding a CA3028 transistor array as an active detector. The output feeds an audio interstage transformer, this feeding the OP amp/active filters. LPF 300HZ/HPF 3KHZ for DSB and SSB reception, with a simple switch, switches in a peak filter on 800HZ for CW reception.

The audio OP device is a LM380. There is no automatic gain control, only RF gain at the antenna input and audio gain.

The transmitter starts with a half cowan ring modulator. This is driven by the VFO or crystal oscillator. More than 40DB of carrier suppression is achieved. With the aid of a switch CW is produced by unbalancing the balance modulator with a voltage via a switching transistor BCY71 and CW shaping. The T9 note produced has a very distinctive sound. Out of the ring modulator the signal is amplified and drives a 2N2876 transistor to 3 watts.

The prototype was all built on vero board in modular form. Each module was tested and then copper laminate board for screening was added. The loading coil for the whip antenna is fixed to the case but the top 5 foot section is detachable. The whole rig fits inside a briefcase.

### MISCELLANEOUS CONSTRUCTION NOTES

**Whip** - 5 foot top section made from 2 pieces of 1/4" aluminium square and a small telescopic top section for tuning.

**Coarse tuning** by 1/4" diam. ferrite rod 3" long - push in/out for tuning.

**Coil former** used was an ASR tele-type paper holder, 1" diam. 250 turns of 20 SWG.

**Spacers (2)** are 1-1/2" long.

**Case** - Use aluminium box.

Transplus 160 DSB/CW Transceiver (continued)

PANEL LAYOUTS

(Not to Scale)

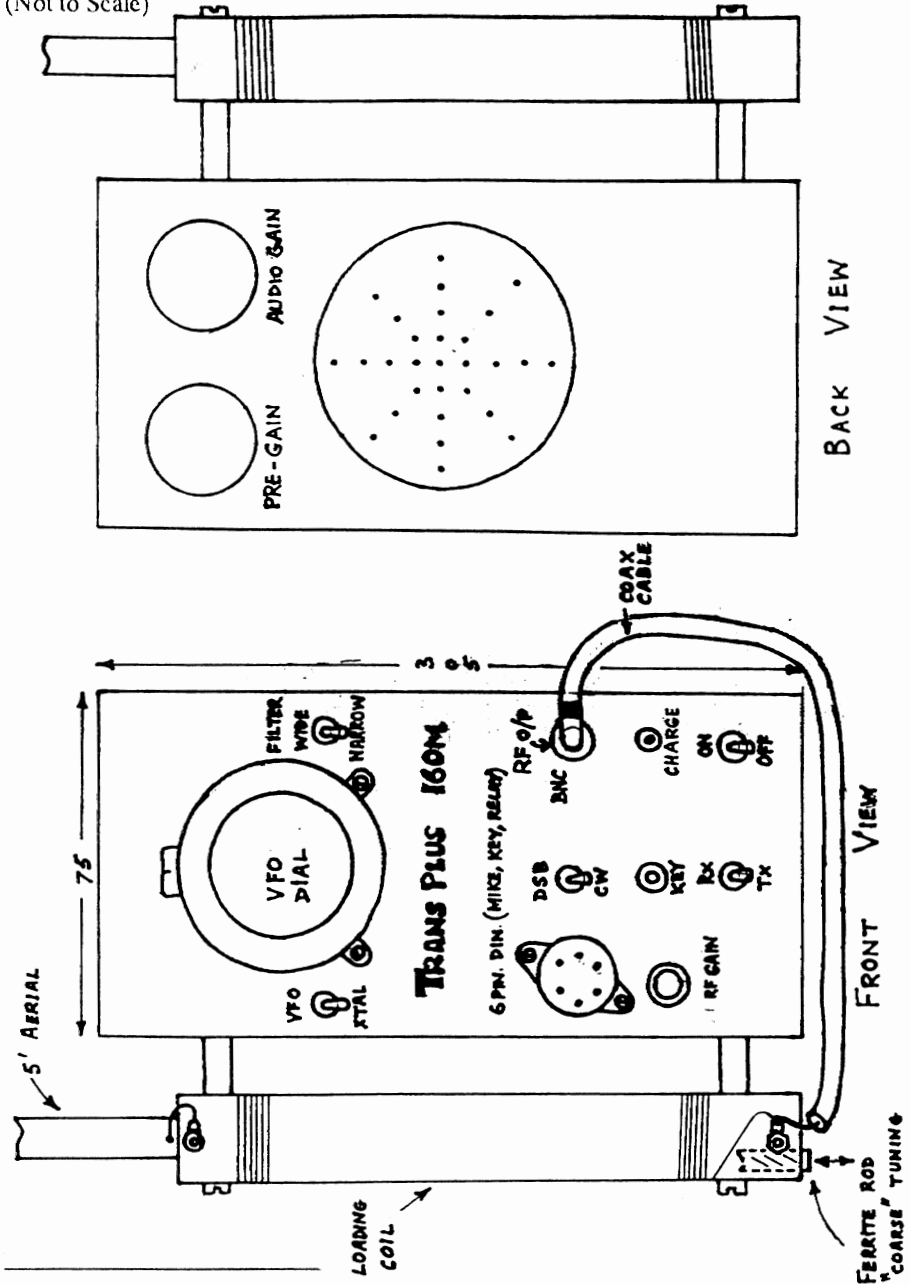


FIG. 1 - HP/LP FILTER FOR 160M RECEIVER

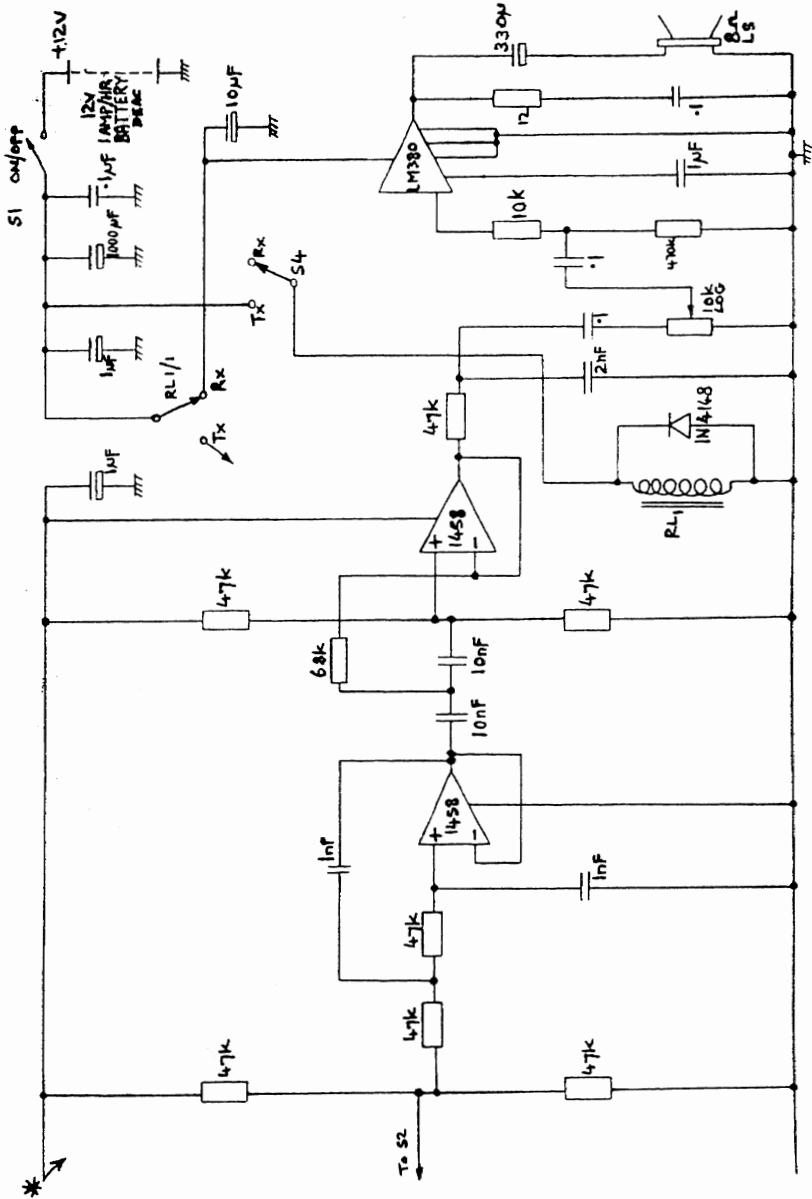


FIG 1 HP / LP FILTER 160 m RECEIVER

FIG. 2 - 450/800 HZ PEAK FILTER FOR 160M RECEIVER

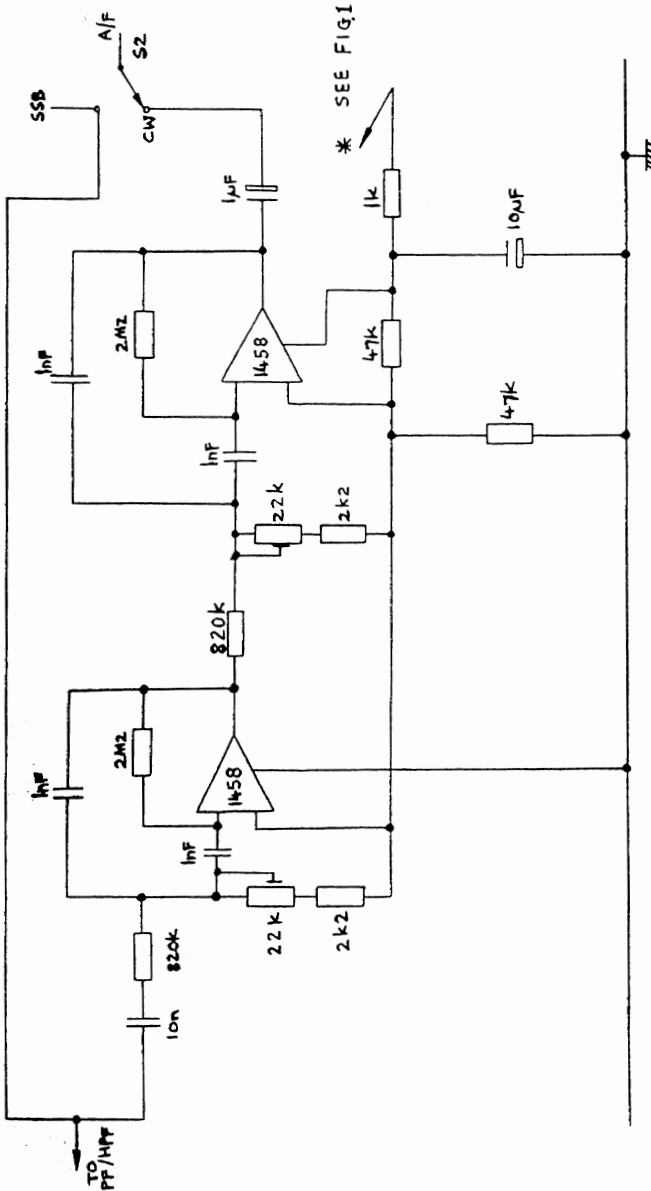
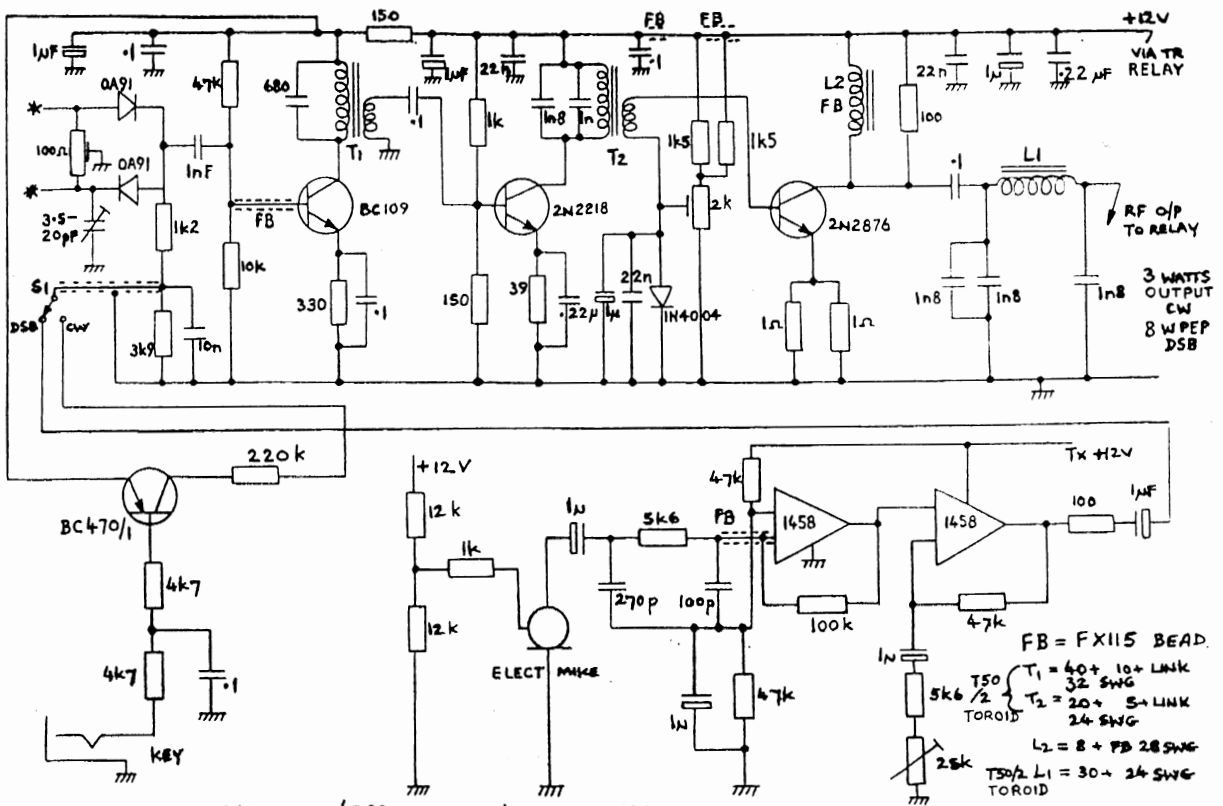


FIG 2 450 / 800 HZ PEAK FILTER FOR 160 m RECEIVER

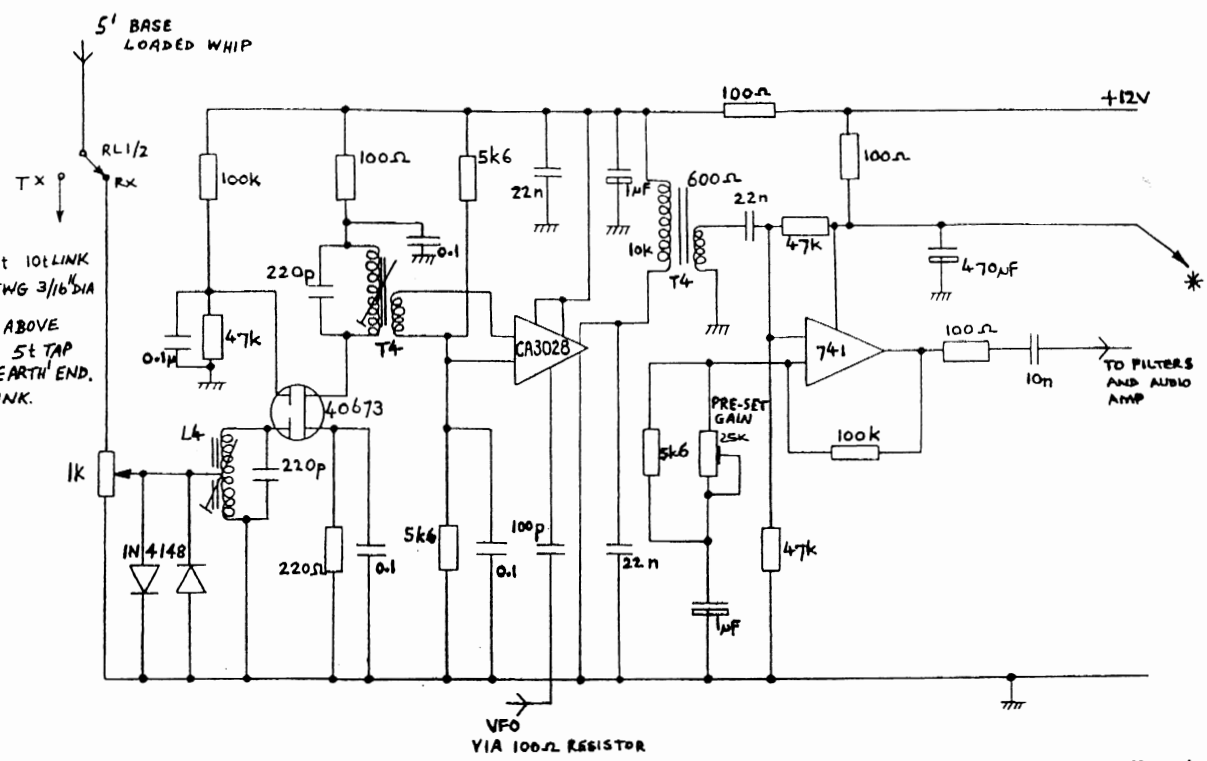
FIG. 3 - TOP BAND CW/DSB TRANSMITTER



TOP BAND CW/DSB TRANSMITTER. FIG 3

VK6BER/  
G3TCF

FIG. 4 - 160M RECEIVER FRONT END



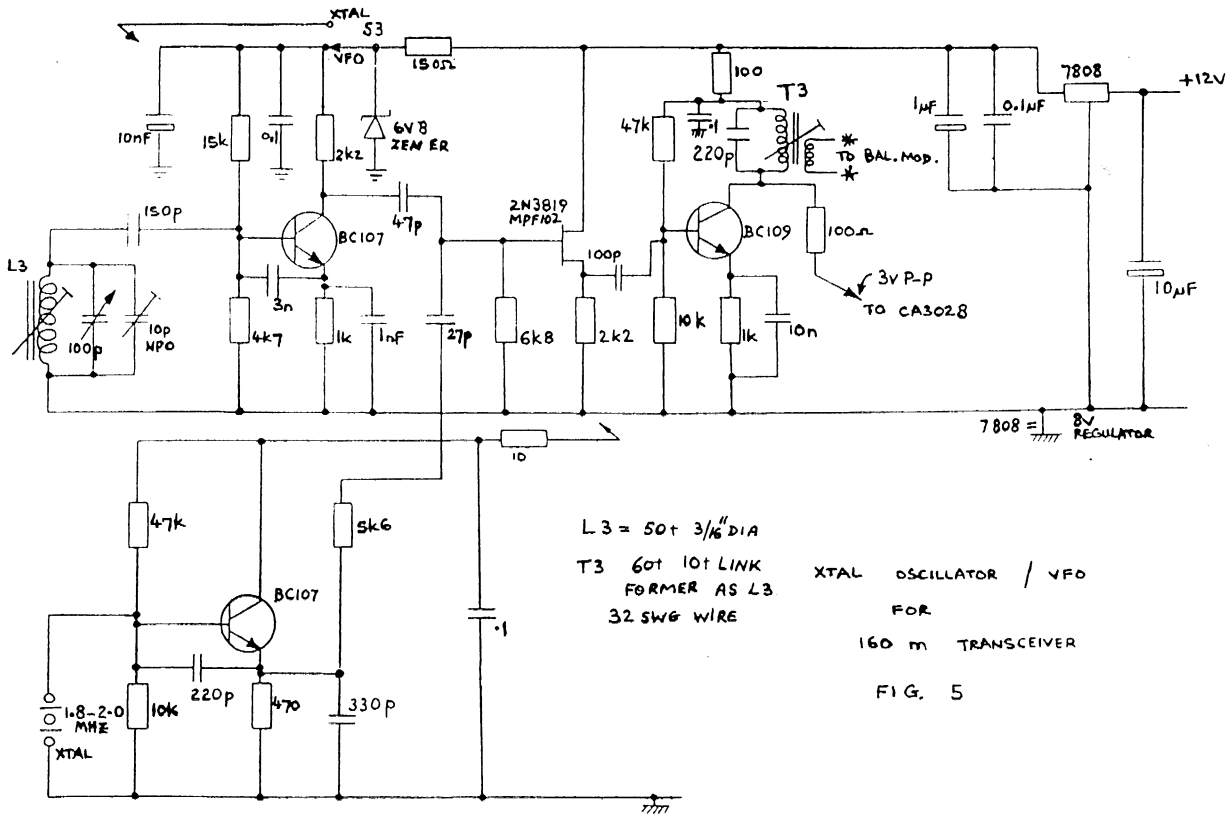
160 M FRONT END RECEIVER FIG. 4

UNCLER  
G3TCF

T4 60t 10t LINK  
32SWG 3/16" DIA  
L4 AS ABOVE  
BUT 5t TAP  
AT 'EARTH' END.  
NO LINK.

VFO  
VIA 100Ω RESISTOR

©



L3 = 50t 3/16" DIA  
 T3 60t 10t LINK FORMER AS L3  
 32 SWG WIRE

FIG.5 - XTAL OSCILLATOR / VFO FOR 160M TRANSCEIVER

VK6BER

# A Crystal Set for the 90's

By Rick Lucas  
WBONQM #106

**H**ere is a design I think the members will have fun with. This little circuit has provided me with a lot of pleasure and is very functional. This isn't a new concept or design, but is a modern version of an old style of radio. The design is an old time crystal radio with a new twist in that the tuning is a little different and it can be built in a very small package and still work well. I have built several of these and have had really good results. I have received signals from China, Japan, Germany, South Africa, South America, and England.

The main part of this little receiver is the antenna in that the long wire type of antenna works best. I have found the length is somewhere between 50 and 100 feet for the best results. This little radio works well with a ground and without a ground depending what frequency you want to listen to.

Here is the schematic (on page opposite), followed by the parts list:

1. Crystal earphone: Part # 30-5303  
Supplier - Antique Electronic Supply  
P.O. Box 27468  
Tempe, AZ 85285-7468 U.S.A.
2. Crystal Diode: Supplier Radio Shack  
Part # 276-1123 (1N34A)
3. Trimmer Capacitor: Supplier Radio Shack  
Part # 272-1336 (95-420pF)
4. SPST DIP Switch: Supplier Radio Shack  
Part # 275-1301 (Note: This is the same size as a 16 pin IC.)



5. Magnetic Wire Assortment: Supplier Radio Shack Part # 278-1345 (I found # 26 gauge works the best.)

## INSTRUCTIONS

1. When winding the coil you can use any type of insulating coil form material. The coil can be wound on a toroid core and it works fine. The number of turns and the tap points are up to the builder. I have used this method and it works fine - the first tap is made at 3 turns, then 6 turns, then 9 turns and so on until you have 7 taps and the eighth one is the end of the coil.
2. Solder each tap to a different position on the dip switch so certain sections of the coil can be used leaving the rest of the coil open. (See diagram)

This little radio makes a good radio for using in remote areas like the outback of Australia where power isn't available. I think you will find it is a lot of fun and works real well.

. o O o .

*Editor's Note: Orpheus Radio (RSD B98 Ballarat Victoria 3352) listed a crystal earpiece Cat. No. OH1200 priced at \$3.00 in its catalogue late in 1989.*

©©©



# Receiver Notes:

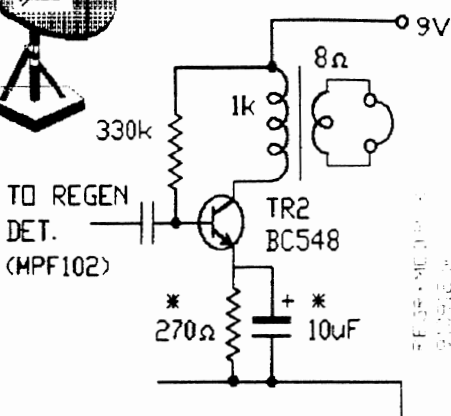
## MOD FOR REGEN Rx

By Peter Parker VK6BWI #66

See circuit in Lo-Key #19 p.18

SWL NOTES by Len VK5ZF #1

I built this mod which works O.K. on 80m. Used 60-160pF variable capacitors. I used a BC548 as TR2 (in place of BC108), but found that there was practically no audio amplification provided by it. This was remedied by putting in a 10µF cap. and a 270-ohm resistor from emitter to earth.



ccc

## NEWS ABOUT 72

by Max VK5OS #2

Several months ago we received a request from the G-Club to lend support to a proposal for '72' to be added to existing code-numbers, with this '72' to mean "Good QRP-ing". We replied giving support.

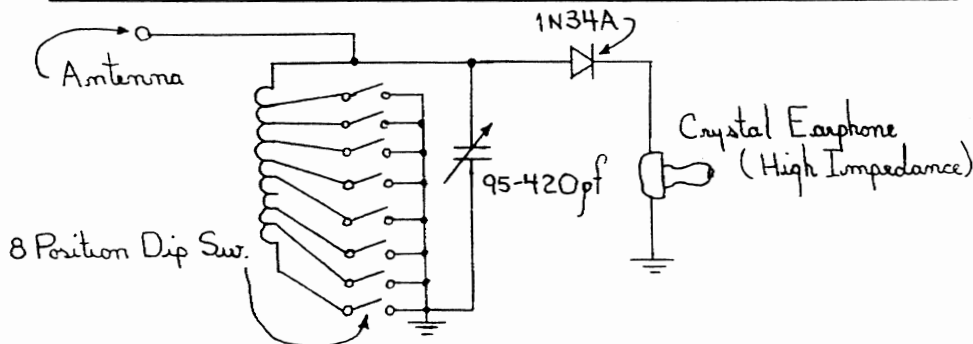
It is not intended to delete '73', which is a long established tradition – rather to have a specific code for the use of QRP-ers, and there seems to be no harm in that !!

The letter indicated that all the European bodies, and in fact all QRP organisations contacted were considering it - so why not give it a go ?

Only positive comments have been received from our own members. I will use it myself [when? says Reg 3BPG, who can never find me on air] and commend it to other members. It is your choice - we leave it up to you.

72 Max, VK5OS

(p.s. At a later date we'll let you know what the other QRP clubs think.)



# KIT-SET ACTIVITY CENTRE

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

The 'full' price list of kits and components appeared in Lo-Key #30, along with the procedure for ordering. This Lo-Key only has additions and changes to the list items or prices. Several members took note of the hint in the June issue and made some excellent purchases in advance of the price review.

## NEW ITEMS

Thanks to a suggestion by Glyn VK4LA #203 we have broadened the range of Amidon cores available.

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

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

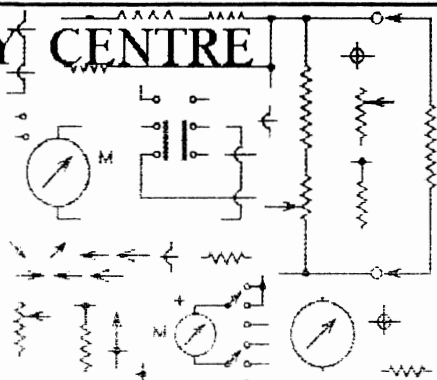
C049 1 1.80 N  
 Toroidal core Amidon T-68-2 (red) iron powder. 2 - 10MHz tuned circuits; 0.5 - 30MHz broadband.

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

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

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 PRICES From 15 September 1991  
 Changes to the list printed in Lo-Key #30.

K001 1 81.00  
 Club Communicator 3.5MHz CW QRP Tx.

K006 1 28.00  
 Sensitive SWR meter.

K011 1 47.00  
 Flexi-Sudden multi-band Rx. 80m

K014 1 pair 19.00  
 BPF and VBFO modules for the Flexi-Sudden Rx.

C002 2 5.00 DH  
 IRF510 transistor

C004 4 2.50  
 BAT85 Schottky (hot carrier) diode.

C015 4 1.90  
 BA102 equivalent: 1S2688 varicap (varactor) diode.

C032 1 5.00 D  
 NE612 double balanced mixer & HF oscillator for Rx. Replaces NE602.

C035 2 2.60  
 Toroidal core Neosid 4327R2/F25 ferrite

C037 2 4.70 D  
 LM386 audio power amplifier.

E. & O.E.

ccc

# FROM THE EDITOR'S DESK



By Don Callow VK5AIL #75  
5 Joyce St. Glengowrie, SA 5044  
Phone [08] 295 8112 (H)

DX/QRP - Mentioned in a recent letter from 'Doc' VK5HP #221 were some fb CW QRP/QRP contacts made on 20m during July/August, mostly around 2100 - 2400UTC, also 1130 - 1200UTC.

These QSOs were with Petes OK1CZ/P (G-QRP Club member holidaying in Czech mountains), Eric G3TXZ, Ken G4JIO (G-QRP Club member), Karol SP5YQ, Greg KD4HZ, Kana JA8AQK, Ed W2HTI.

Doc has worked 96 countries since December 1990 (maybe 100 by now ?) and has experienced true Amateur fraternal spirit, where QRO stations moved well clear of QRP-QRP frequency after unintentionally causing QRM during one of his QSOs.

TECHNICAL ARTICLES - There has been a gratifying flow of good articles to this QTH. Many of these have been processed ready for inclusion in Lo-Key. *Great work by all - so keep it up !*

If you are typing an article or preparing circuit diagrams it makes editorial processing easier if the 155 x 230 (6" x 9") text/drawing area maximum dimensions as shown on this page are used, because of the photocopier reduction ratio used during printing of the journal. Your overall paper size is not critical.

As indicated in June (page 20), the winner of the 1991 Award for Best Technical Article will be chosen from articles in issues #28 - #31 inclusive. *CCC*

230 mm  
= 9"

## U CAN HELP!

**WANTED TO BEG,  
BUY, BORROW OR  
STEAL !**

Ten Tec Century 21 or 22 HF 70W tcvr; Heathkit HW8 or HW9 transceiver; any pre-1975 HF transceiver-transmitter (e.g. Johnson, Eico, Heath, Swan etc.) - going or not going. Must be cheap and I will arrange collection.

Doc VK5HP #221  
(086) 49 1956(AH)  
(086) 45 9044 (W)

Postal address: c/- Whyalla Amateur  
Radio Club PO Box 444 WHYALLA  
SA 5600

155mm = 6"

**WANTED - SERVICE  
MANUAL FOR AX190  
OR SX190 DC RE-  
CEIVER - TANDY**

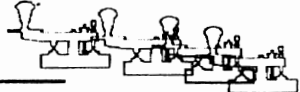
John Bishop VK5JO #221 would like to locate a service manual for this Rx - he is after the book or a copy or access to one. *Can U Help ?*

**EDITOR WANTS NOTES ON  
SPECIAL CHARACTERS/  
WORDS USED IN CW QSO'S**

Chris VK4CRS #193 asked about the above. Maybe you have a contribution or some opinions on on-air procedure etc. If so we will come up with an article (or two ?). *CCC*

# INTERESTED IN JOINING US ?

**IF YOU ARE A NON-MEMBER,  
THEN THIS PAGE IS FOR YOU !**



THIS COMPLIMENTARY COPY OF OUR CLUB JOURNAL has been sent (or loaned) to give you an appreciation of the scope of activities of the CW OPERATORS QRP CLUB.

In each issue of *Lo-Key* we include many technical items on all types of QRP and related equipment and we encourage members to make their own gear. Many articles are written with the inexperienced builder in mind - as are the instructions with the Club's kit-sets.

We promote the use of the CW mode to show support for a skill that has been part of Amateur Radio since its inception - and we are proud of it. Our Club is possibly the only Radio Club in Australia that actively supports CW exclusively.

Using low power and homebrewing our own equipment gives QRP'ers a great feeling of achievement and satisfaction. And it gives us a direction and purpose in holding an Amateur Licence and enjoying our hobby. We are saying to Amateurs that you can enjoy your hobby just as much as at present - in fact more - without having to spend thousands of dollars.

*Would you like to join us in putting the AMATEUR back into Amateur Radio ?  
Would you like to use more of the Amateur skills you have acquired ?  
Would you like to become enthusiastic about your hobby again ?*

If so, fill in the application form (or a copy of it) and post it to our Treasurer at the address shown on the form.

=====

Photocopy or cut along this line

-----

**CW OPERATORS QRP CLUB** Please post this application to:



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

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 \$A10 for VK Amateurs or \$A12 for ZL Amateurs or \$A14 for DX Amateurs, which is the annual membership fee.

(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 .....

September 1991 910912

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

-----