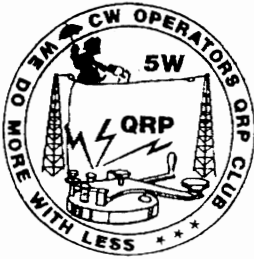


December 1991
Issue No. 32

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*



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SUBS/QRP =

Quick Response with Payment of Subs
NEW L-K DEADLINES

1st day of month of issue for regular
columns; 15th of month before issue
for other contributions

Season's Greetings to All

&

Best Wishes for the New Year

Editor: Don Callow VK5AII. #75 5 Joyce St. Glengowrie SA 5044 Australia



POSITIONS

EXECUTIVE COMMITTEE

ACTING ORGANISER

John Bishop VK5JO #223
26 Surrey Cres. Lower Mitcham SA 5062
Membership enquiries; general club business.

TREASURER & MEMBERSHIP SECRETARY

Kevin Zietz VK5AKZ #43
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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

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The Editor reserves the right to edit all material including letters sent for publication and to refuse acceptance of material without specifying a reason.



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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 CONTROLLERS

(Until further notice) Steve VK5AIM #184,
John VK5JO #223 and Len VK5ZF #1.
QRO SSB is used. CW stations pse call "BK de callsign" and you will be acknowledged.

ALL WELCOME - FRIDAY NIGHTS

From 1030 UTC near 3620kHz.
*** DAYLIGHT SAVING -
0930 UTC near 3620kHz ***
Call used is that of the Controller, except that Len VK5ZF operates the Club Station VK5BCW.

CLUB STATION VK5BCW

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

AWARDS AND CONTESTS MANAGER & PUBLIC RELATIONS OFFICER

Ian Godsil VK3DID #112
25 Monaco St. Parkdale Vic. 3194
Scramble logs and suggestions.

PROJECTS OFFICER

Rod Green VK6KRG #28
106 Rosebery St Bedford WA 6052
Club radio projects.

THE BOOKSHOP & BOOMERANG CIRCUIT BOOK

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

CCC

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Silent Key

We regret to advise members that Max Brunger VK5OS #2, Organiser of the CW Operators QRP Club, became a Silent Key on Wednesday 6 November 1991, following a brief illness.

It is with deep regret that we record in this issue of Lo-Key the passing of our Club Organiser Max VK5OS #2 at the age of 65 years. Max died of leukemia on 6th November 1991 at the Queen Elizabeth Hospital, after a short illness. The Club extends its sincere sympathy to Max's wife Roma and family.

I have known Max for more than 30 years and I have appreciated him as a good friend. Max always had his priorities right: he was a good family man and member of his church community, and was a conscientious employee of Carr Fasteners Pty. Ltd. for 47 years. He had retired from work only a few weeks before the extent of a recent illness became apparent. Max had been an active Radio Amateur Operator for 35 years and enjoyed his hobby very much indeed. Another hobby and relaxation that Max and members of his family took pleasure in was the sailing of Heron class yachts.

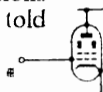
My first recollections of Max as a Radio Amateur centre around the 7MHz band, AM modulation and valve transmitters. VK5OS would very often join in a social net that used to operate on the band at 6pm every night. Max was mostly known as 'Old Socks' because of his call sign. The net was very popular with many Amateurs and Shortwave Listeners and it enjoyed a very large following. Building your own gear was the only way to go in those days, and Max used to build most of his. He is very famous for his 807 driver into a 7C5 power amp. valve Tx; what is more, it really worked well. Max had a strong sense of humour and loved a little stir. I would not know how many times during QSOs with other Amateur stations 'Old Socks'

by well-meaning Amateurs that he had the 807 driver and pa valves around the wrong way. Max would politely thank them and remind them that the transmitter was doing fine as it was. If you have never heard VK5MZ, VK5SS and VK5OS trying to sing 'Auld Lang Syne' on a New Year's Eve at midnight, then you missed one of the funniest acts in Amateur Radio that I have ever heard.

Max first became interested in QRP when he became a member of the first Australian QRP group: the VK CW QRPp Club. When our present group was formed Max was a foundation member - Member No.2. The cheery and helpful voice of Max controlling our 3.5MHz net on Friday evenings will long be remembered by all the members that heard him. His efforts as Club Organiser are well known and appreciated, as he helped to put this club on a sound basis.

The Club mourns the passing of a good friend.

Len VK5ZF #1



KEVIN'S KOMMENTS

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

WELCOME TO NEW MEMBERS



We welcome the following new members to the club and wish them well in our hobby:

#234	VK3JHX	MURRAY	Lewis	Vermont South	VIC	3133
#235	VK3AUC	ALAN	Cook	Beaumaris	VIC	3193
#236	SWL	MARTIN	Hazell	Narraweena	NSW	2099
#237	SWL	JAMES	Walker	Lower Mitcham	SA	5062
#238	SWL	STEVEN	Jackson	Gosford	NSW	2250
#239	VK2NBF	MICK	Uren	Coogee	NSW	2034
#240	VK2EWT	PETER	Truscott	Wahroonga	NSW	2076
#241	VK6NQ	MERV	Turner	Albany	WA	6330
#242	VK7DMJ	DARYL	Honeywood	Huonville	TAS	7109

Elsewhere in this issue is the annual membership list which includes our new members, plus other changes to members' details received since September Lo-Key.

Enclosed with this issue of Lo-Key you will receive an account. Please check your address and other details so I may keep the Club records up to date.

Your subscriptions are now due. Some accounts will include pro rata adjustments to bring them into line with the normal calendar year subscription period. If you have any queries regarding your account please feel free to contact me at the address shown above.

On the back of your account is a note about addresses, along with space set aside for you to provide your Executive Committee with some feedback (mentioned elsewhere in this issue).

When mailing your subscription - complete with your account notice - why not take the opportunity to make best use of your postage? If you ever need to make a payment for your subscriptions and another item (e.g. kit-set or logo stickers), it's quite OK to use only one cheque, money order etc. - you don't have to make the payments separately. Also, you can send kit-set orders to me and I will pass them on to Don VK5AIL, likewise Don will pass on other information and payments he receives to me. And you can pay your subs in advance, if convenient to you.

Do you know a person who is working towards obtaining a Novice Licence?

If so, they may enjoy being a member of our club - don't forget that SWL's are welcome to join.

Regards, *Kevin* VK5AKZ

ccc

CLUB ACTIVITIES

John Bishop VK5JO #223 has agreed to step into the role of Organiser for a period until we make other arrangements, following the untimely passing of our Organiser Max VK5OS #2. This allows the club Executive to continue as a 3 person team. John's QTH is listed on page 2.

Nice to hear Lindsay LaPouple VK3DXH #47 back on the bands now that he has changed QTH to a location where the antenna can be erected OUTSIDE the house. We were more than a little surprised when you came up on the 40m ssb Net Lindsay!

Another rare call logged the very next night on the Friday Info. Net was VK5AKZ Kevin Zietz #43, taking time off from his Treasurer's duties. *Now for the key, Kevin!*



Marisa and Graeme VK3BXG #55 have once again been active at homebrewing and produced a 2nd harmonic on about 26 September. The little girl has been named Leticia. *And still he finds time to call into the Club Nets!*

'Doc' Update - VK5HP #221 mentioned in a recent letter that he has had about 3,000 QRP QSO's since December 1990 and has 120 countries on 20m (5W input power) and 38 on 21Mhz. *fb!*

Brenton Zerbe VK5BZ #172 - Yes, it's a new call-sign for Brenton, ex VK5AQ. *Hands up those who guess it was the one he asked for!*

SSB Nets

The final Friday night 80m Club Info. Net for 1991 will be held on 20 December. John VK5JO #223 will be Net Controller that night, as Steve VK5AIM #184 may well be out celebrating his birthday that night!

This year we will have a break of four weeks, with the first Friday night Net for 1992 to be held on 24 January.

Len VK5ZF #1, operator of Club Station VK5BCW, is unable to operate ssb at the time this is being written (late November), so cannot do any Net work.

In addition to helping on Fridays, Len has also been running the new 40m Net which he started as a trial on Thursday 3 October.

Len had originally planned a major upgrade on his rig for January - we hope it all works out (See *U Can Help!* column).

**** THANKS ** THANKS ****
to Len VK5ZF and Steve VK5AIM for taking over the ssb Net when Max VK5OS was hospitalised at the end of September; and also to John VK5JO for undertaking the role of Acting Organiser soon after. John's agreement to temporarily step into the position is much appreciated.

40m Net (Thursday night - ssb)
Although we made a good start with this (and propagation was good), the numbers taking part don't justify keeping on with this net, so it has been stopped as a Club activity.

ccc

VK2CWH Solar Power

By Ted Daniels VK2CWH #89

Here is some info. on my solar powered setup.

Basically the shack uses one 20 Watt (nominal) solar panel, charging two six volt, 100 A-hr batteries in series. These are ancient (1959 vintage) ex PMG/Telecom batteries.

The regulator used may be of interest, as it was cheap to construct and can be modified to suit quite a range of charging currents by judicious selection of the relay used. See circuit diagram opposite.

It is based on E.T.I.'s Expanded Scale Voltmeter (ETI326) using an LM3914 LED bargraph driver. (Ed. - See Sep. 1980 *Electronics Today International*)

Two of the LED's were substituted by 4.7k resistors, and the switched voltage outputs from these were used to drive a CMOS bistable switch; one operates at the cut-in voltage, the other at the cut-out voltage.



The output from the bistable switch controls a transistor which turns the relay controlling the current flow from the solar panel to the battery on and off.

To avoid wasting battery power during the night, when the relay would mostly be powered, a second transistor, controlled by a light dependent resistor has been placed in series with the other switching transistor.

If desired, a 'bleed' resistor of appropriate value and wattage can be placed across the relay contacts to give a trickle charge effect.

Components used are not critical provided attention is paid to the ratings of TR1 and TR2 to ensure they will carry the current drawn by the relay selected.

ccc



BCB #3 CIRCULATION LIST

If you are on this list you are in the current 'flight' (number 3):-

Steve	VKSAIM	#184
Martin	VK6BER	#211
Ben	VK6XC	#147
Peter	VK6BW1	#66
Rai	VK7VV	#3
Ian Jones	SWL	#227
Don	VK5AIL	#75
John	VK5JO	#223

BOOMERANG CIRCUIT BOOK

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

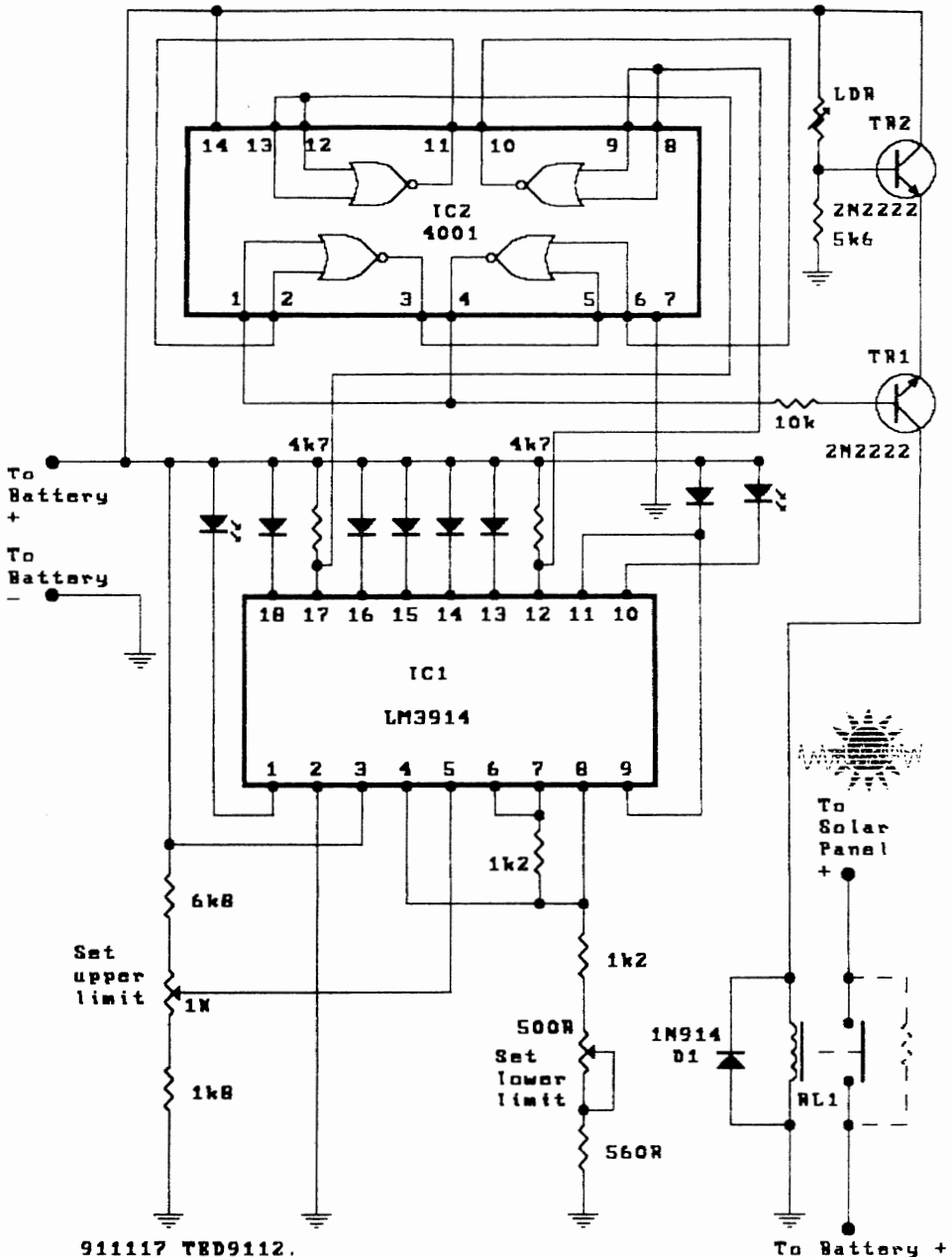
It's an opportunity for VK members to have access to many circuits and homebrewing tips relevant to QRP and amateur radio. You pay the postage to the next person on the list. Postage is currently \$2.80.

The list of members and their addresses is in the packet with the sheets, along with the 'rules'. If you can suggest other articles please send details to me or a member of the Executive.

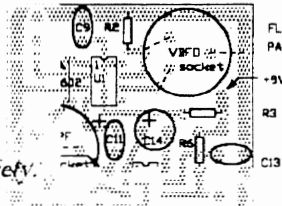
Norm Lee VK5GI
25 Ralston St.
North Adelaide SA 5006

ccc

VK2CWH Solar Power (continued)



**BEST TECHNICAL ARTICLE...
DECEMBER 1990
TO SEPTEMBER 1991**



by Rob Gurr VK5RG. Adelaide Hills Amateur Radio Society.

Selecting the most outstanding article from a publication that has a generally high standard of such articles is always difficult. All contributions small through to large are of value to someone, even if not used in their original concept but as a prod to something similar - or completely opposite. None of us can really claim to have home brewed any project that was a total product of his or her own ingenuity... most are a combination of ideas collected from many sources over many years, but put together in our own individual way.

In the issues under consideration four articles of special interest caught my eye:

**#29 March 1991 The Forrestfield 21MHz TX Part 7/8 by Rod VK6KRG #28
and Don VK5AIL #75**

The concluding articles in an eight part presentation, the overall series being a most ambitious project, and a successful combination of technical and editorial input.

#30 June 1991 Bentley Six CW QRP Transmitter for 6m by Peter VK6BWI #66

A significant project for QRP CW enthusiasts, with good sourcing of components and final testing methods well explained. A good starter article for experience on one of the most fascinating bands at our disposal.

#31 September 1991 PEEL-80 DC Receiver by Rev VK6SA #61

Another excellent construction project with good sourcing and construction information. Certainly an appealing circuit for the purpose for which it was developed.

#31 September 1991 Transplus 160 by Martin VK6BER #211

This would be one of the best articles for bright ideas. It is full of innovative ideas and suggestions, most of which have to be gleaned from the circuit, the text being very brief. The usefulness of the article as a transmitter is somewhat restricted with the inability of Australian licensees to use Double Sideband Suppressed Carrier transmissions. The transmitter as described would be very broad and perhaps objectionable on the bands due to its wideband balanced modulator and audio system. A description of a SSB transmitter using the same approach would make an outstanding article.

I consider the award for the December '90 to September '91 period should go to the authors of the series on The Forrestfield 21 MHz Transmitter.

Rob Gurr. VK5RG.

(See opposite)



(Cont. from p.8)



CONGRATULATIONS TO AWARD WINNER ROD VK6KRG !

As mentioned in Lo-Key #30 (p.20), the Award consists of a certificate, a voucher to the value of \$25.00 for items from the Kit-Set Activity Centre and free Club membership for one year.

Co-author Don VK5AI. #75 is a member of the Club Executive and is therefore not in contention. This is fair enough as Rod was responsible for the inception of the Forrestfield project, its design and prototyping etc.

Thanks to all who sent in articles and congrats. to all those who made it onto our judge Rob's 'short list' opposite. Look at the call signs - the VK6'ers must be doing something right !!

Thanks again to Rob Gurr VK5RG for spending the time (enjoyable, we hope) to examine the entries, which comprised those articles printed in Lo-Key issues #28 to #31 inclusive.

ccc

CW FIVE WATT ONE VALVE QRP TRANSMITTER
PETER PARKER VK6NNN MAR 88

GETTING ON THE AIR PART 2
AN 80 METRE QRP TRANSMITTER
PETER PARKER VK6NNN MAR 88

EIGHTY METRE FIVE WATT QRP TRANSMITTER
ROD GREEN VK6KRG MAR 88

ccc

'AMATEUR RADIO' MAGAZINE ARTICLES WITH 'QRP' IN TITLE

(Extracted from the WIA's index
Period checked: - 1975 - 1989)

The structure is:-

Title of article

Author

AR Issue; classification of article

In alphabetical order of author.

(Some of these names are familiar !)

QRP IN THE 1920'S
COLIN MACKINNON VK2DYM JAN 89

SIMPLE QRP LOW POWER MORSE TRANSMITTER USING VALVES
DAVE JEANES VK2BSJ DEC 77

SIMPLE QRP UPDATES
DAVE JEANES VK2BSJ JAN 78

AN OPERATORS EYE VIEW OF THE HW7 AND QRP OPERATION
DAVID DOWN VK5HP AUG 77

QRP CW RIG FOR 7 MHZ
DREW DIAMOND VK3XU NOV 75

QRP SOLID STATE LINEAR AMPLIFIER FOR HF
DREW DIAMOND VK3XU OCT 81

QRP CW TRANSMITTER WITH BREAK IN PART 1
DREW DIAMOND VK3XU DEC 81

QRP CW TRANSMITTER WITH BREAK IN PART 2
DREW DIAMOND VK3XU JAN 82

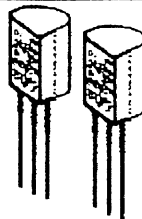
QRP CW TRANSMITTER WITH BREAK IN PART 3
DREW DIAMOND VK3XU FEB 82

QRP CW LETS GIVE IT A SHOT IN THE ARM
J SWINEY VK6JS MAY 80

VK CW QRP
JACK SWINEY VK6JS JUN 80

QRP OPERATION AND THE ARGONAUT 509
LES SMITH VK2BCU OCT 76

The Milliwatt Two



A 2m CW QRPp Transmitter

By Peter Parker
VK6BW1 #66

INTRODUCTION

Although 99% of Amateur frequencies are above 30 MHz, VHF and UHF have received very little attention in the QRP press. This may be due to the perceived complexity and difficulty of alignment of VHF equipment. Provided wires are kept short and good construction practices are followed, VHF equipment can be as easy to build and align as HF gear.

VHF construction often involves the use of double-sided fibreglass printed circuit board. While this is suitable for commercial kit applications and is visually appealing, it is time-consuming and tedious for the experimenter who is continually adding to and modifying equipment.

A more flexible (and cheaper) approach is to mount the components on a blank PC board. If mechanical rigidity is required, which is advisable for VHF projects, high value resistors can be used as stand-offs. This technique makes circuit changes easier and is much quicker than the conventional method. One thing to be aware of, however, is the possibility that the stand-offs could affect circuit operation, particularly if FETs are used.

An objection some may have to homebrew VHF is its complexity. These people argue that whilst it takes only two

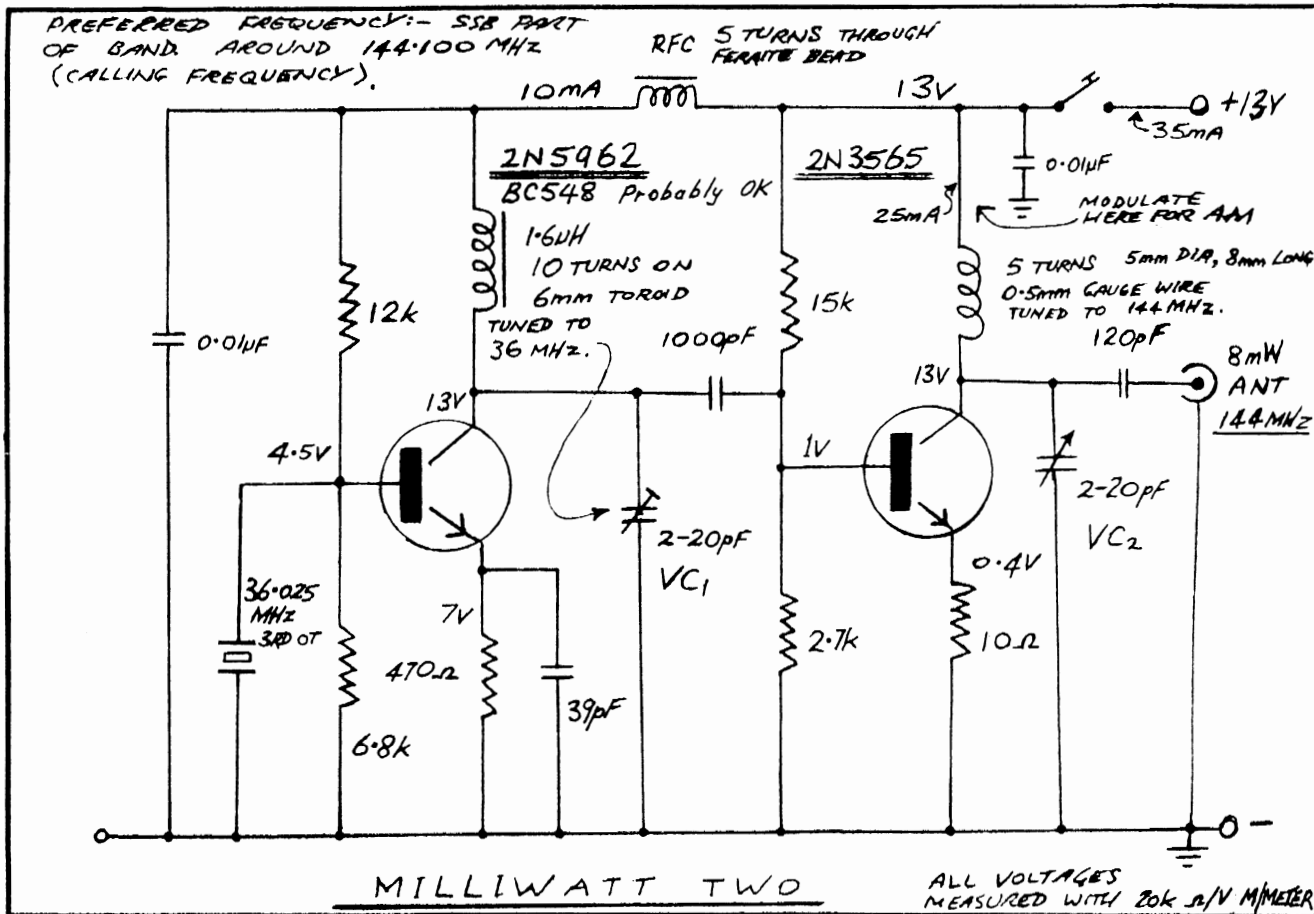
transistors to generate a couple of watts on 80m, four or five are required to produce similar power on VHF. This is true, but powers of much lower than a watt are practical on 2m as QRM and atmospheric are absent. Antennas for VHF are small and the possibility of TVI is much reduced at VHF/UHF.

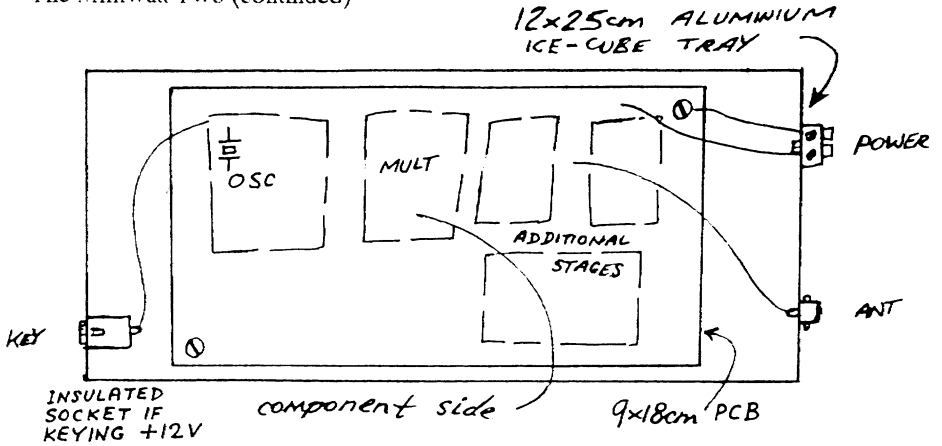
QRP VHF - THE MILLIWATT TWO

The circuit shown could be considered a basic 'building block' for a VHF homebrew station. Although cheap and simple, it will transmit beyond your back fence, even with a simple antenna such as a $5/8 \lambda$ whip. Output power as measured on a homebrew milliwattmeter¹ is 8mW.

The 'Milliwatt Two' uses a 36MHz 3rd overtone crystal oscillator whose signal is quadrupled by a 2N3565 to the required frequency. Both collectors are tuned to reduce spurious. The oscillator transistor can be a general purpose type such as a BC548. The multiplier transistor is a little more critical and should have a f_T of 400MHz or more. Experiment with various transistors as there are variations between apparently identical devices.

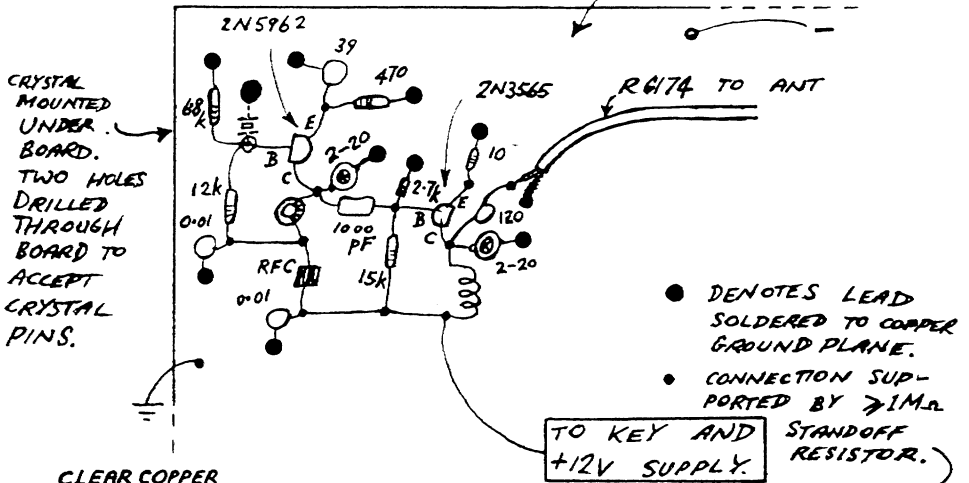
(Text continued on p.13)



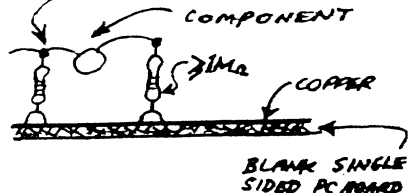
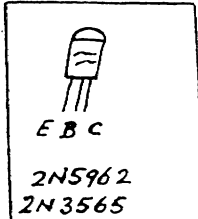
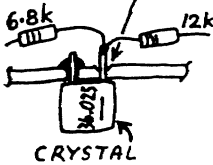


COMPONENT LAYOUT

BLANK SINGLE SIDED PC BOARD -
COPPER SIDE



CLEAR COPPER AWAY TO PREVENT CONTACT



Firstly, drill the two holes required for the crystal. With a slightly larger drill bit, clear out 2mm of copper surrounding one of the crystal pins. Then assemble the oscillator circuitry. The 6mm toroid used is obtainable from the Club (Philips 4322 020 97160 4C6 ferrite, violet-coloured). Apply power to the oscillator circuit and test for RF output with an RF probe. Tweak VC_1 for maximum power. Oscillator power consumption should be around 10mA.

Now construct the multiplier, again keeping leads short. Note that the 2.7k and 10 ohm resistors act as base and emitter stand-offs respectively. Apply 12V power and measure RF output.

Peak VC_2 for maximum output on 144MHz. Power output on the prototype was 8mW into 50 ohms. With the output tuned circuit values shown, only one peak on 144MHz was noted. If your tuned circuit is different, there is the possibility of it being resonated on (36 x 3)MHz or (36 x 5) MHz. A sensitive absorption wave meter or 2m receiver with S-meter can aid tuning-up your Milliwatt Two.

Current consumption for the whole rig should be around 35mA.

Now connect the transmitter to an antenna and try your luck with QRPPP (!) on VHF.

Probably the best plan would be to set up skeds with local Amateurs, starting with the closest. The first test here was with a friend parked in the driveway. This confirmed the transmitter was working. The next test was with an Amateur

5km away. My QRP signal, although not showing on his S-meter, was plainly audible. Antennas at both ends were about 8m AGL. Best range so far has been 10km under non-enhanced conditions with a 5/8λ groundplane, but with gain antennas and more height, powers of less than a milliwatt should be practical for communication over suburban terrain if there are not too many obstructions. Due to the low level of VHF activity, calling CQ, especially on CW, is likely to prove fruitless, so prearranged contacts will be the order of the day - a telephone is very useful!

It is suggested that if a yagi is used to increase ERP, horizontal polarization be used to conform with general VHF SSB/CW practice - cross-polarization losses can exceed 20dB.

REFERENCE:-

1. DeMaw & Hayward, Solid State Design p147, 1986, ARRL.
(Describes a 50mW QRP power meter.)

FURTHER READING:-

Brandt, H-J. DJ1ZB, G-QRP Club Circuit Handbook, p32, 1982.
(Gives information on a complete 2m FM QRP station.)

Schlesinger, R.J. K6LZM, QST, p31, September 1968.
(Circuit of a 1 Watt 2m AM Tx.)

De Lange, D, Electronics Australia, p86, November 1989.
(Circuit of 2m 1 Watt FM Tx.)

□□□

CW OPS QRP CLUB - MEMBERSHIP LIST - 1 DECEMBER 1991

#	CALL	NAME	ADDRESS		
60	SWL	Trevor	THOMAS	D.A.O.H.S South Coast Highway	DENMARK WA 6333
90	SWL	Ray	ROSE	55 Hunter St	GATTON QLD 4343
174	SWL	Philip	McHUGH	P.O. Box 816	COOMA NSW 2630
177	SWL	Lorenz	ECKARD	15 Angus Cres	KUREELPA QLD 4560
179	SWL	Wayne	HAYS	RSD 361	ULVERSTONE TAS 7315
200	SWL	Qwintin	FOSTER	77 Church St	BEAUMARIS VIC 3193
206	SWL	Alex	BERKUTA	117 Koona St	ALBION PARK NSW 2527
227	SWL	Ian	JONES	59 Main St	CUDAL NSW 2864
231	SWL	Geoff	OSBORNE	C/O Box 105	MEEKATHARRA WA 6642
236	SWL	Martin	HAZELL	18 Towradgie St	NARRARWEENA NSW 2099
237	SWL	James	WALKER		LOWER MITCHAM SA 5062
238	SWL	Steven	JACKSON	RMB 4620	GOSFORD NSW 2250
163	VK1BL	Ted	GARNETT	G.P.O. Box 1164	CANBERRA ACT 2601
121	VK2AGC	Garry	COTTLE	22 Johnston Rd	BASS HILL NSW 2197
189	VK2AIQ	James	GLENN	24 Tweed Broadwater Village	TWEEDHEADS SOUTH NSW 2486
5	VK2AKE	Jim	EDWARDS	P.O. Box 385	BOWRAL NSW 2576
210	VK2AOH	Nick	EICHHORN	20 Autumn St	ORANGE NSW 2800
152	VK2ATJ	Thomas	KING	P.O. Box 140	KENSINGTON NSW 2033
180	VK2AW	Basil	DALE	27 Grandview Pde	GOROKAN NSW 2263
32	VK2BBX	Bill	BALOGH	23 Bathurst St	LIVERPOOL NSW 2170
219	VK2BJI	Dave	KENT	P.O. Box 564	PARKES NSW 2870
233	VK2BUS	Chris	PROUD	5 Chadwick Cres	FAIRFIELD WEST NSW 2165
22	VK2BVH	Brian	HALPIN	5 Carramar Cres	MIRANDA NSW 2228
161	VK2BWW	Bill	WATTS	P.O. Box 263	NAMBUCCA HEADS NSW 2448
16	VK2CBI	Ken	ELKINGTON	44 Boland Ave	SPRINGWOOD NSW 2777
171	VK2CDO	Ype	TIMMER	Box 18	BOWRAVILLE NSW 2449
11	VK2COH	Cec O.	HEALEY	121 Jamison Rd	PENRITH NSW 2750
226	VK2COX	Ray	TURNER	6/276 Bunnerong Rd	HILLSDALE NSW 2036
102	VK2CSA	Warren	MARRIOTT	9 Darkwater St	GLADSTONE NSW 2440
36	VK2CVR	Vincent	ROBERTS	60 Edgar St	FREDERICKTON NSW 2440
89	VK2CWT	Ted	DANIELS	Wombat Hole Bylong Rd	RYLSTONE NSW 2849
159	VK2DCD	Maurie	CAMPS	Box 72	COLEBALLY NSW 2707
95	VK2DMV	Paul	IRELAND	81 Azalea Ave	COFFS HARBOUR NSW 2450
192	VK2DN	John	HARPER	U7/77 Bandon Rd	VINEYARD NSW 2765
124	VK2DRL	Bob	JOHNSON	19 Britannia Rd	CASTLE HILL NSW 2154
144	VK2EPD	Peter	CANNON	"BINALONG"	FORBES NSW 2871
126	VK2ERA	Rob	ABEL	6 Laurel Street	KOOTINGAL NSW 2352
173	VK2ETW	Trevor	WILKIN	BORONIA	COONABARABRAN NSW 2357
240	VK2EWT	Peter	TRUSCOTT	130 Foxvalley Rd	WAHROONGA NSW 2076
35	VK2EXD	Col	McDOUGALL	"WOODLANDS"	COOLAMON NSW 2701
182	VK2FIZ	Alan V.	JAMES	424 Prune St	LAVINGTON NSW 2641
217	VK2FKE	Bill	SCOVELL	13 Tulani Ave	DALEYS POINT NSW 2257
216	VK2FKU	Warren	ROGAN		DRUMMOYNE NSW 2047
128	VK2FNF	Jim	MCNEILL	15 Pacific Street	ANGOURIE VIA YAMBA NSW 2464
81	VK2FNJ	Jose	SIQUEIRA	63 Tanbark Circuit	WERRINGTON DOWNS NSW 2747
166	VK2GJW	Jim	WATSON	Smiths Creek Rd	STOKERS SIDING NSW 2484
207	VK2JG	Noel	HILL	28 Kangaroo St	LAWSON NSW 2783
156	VK2KB	Allen	FAIRHALL	7 Parkway Ave	NEWCASTLE NSW 2300
165	VK2KSD	Stan	DOGGER	Tunnel Road	STOKERS SIDING NSW 2484
148	VK2LW	Les	GABORIT	347 MacQuarie Rd	SPRINGWOOD NSW 2777
202	VK2NBC	Doug	CHAFFEY	89 McClelland St	CHESTERHILL NSW 2162
239	VK2NBF	Mick	UREN	4-81 Bream St	COOGEE NSW 2034
230	VK2NLU	Eddy	TURNER	50 Pinaroo Cres	BRADBURY NSW 2560

#	CALL	NAME	ADDRESS	
205	VK2PA	Peter	ALEXANDER "NANDARI"	Rollands Plains VIA TELEGRAPH POINT NSW 2441
41	VK2QB	Leo	PINKEVITCH 20 Cathrine Street	KOTARA SOUTH NSW 2289
30	VK2VBO	Brian	O'BRIEN 14 Belgrave Street	NEUTRAL BAY NSW 2089
142	VK2WAS	Bill	SHORT 129 Simkin Cres	KOORINGAL WAGGA WAGGA NSW 2650
162	VK2WES	Wes	TYLER P.O. Box 43W	WEST GOSFORD NSW 2250
131	VK2YA	Rex	BLACK 562 Kooringal Rd	WAGGA WAGGA NSW 2650
224	VK3AAM	Phil	CARNE 2731 Nepean Hwy	RYE VIC 3941
85	VK3ADX	Merv	QUINN 12 Westley Court	BALLARAAT VIC 3350
169	VK3AHU	Harvey	UTBER P.O. Box 40	VIOLET TOWN VIC 3669
125	VK3ANP	David	WARING Banksdale Road	HANSONVILLE VIC 3675
150	VK3APH	Tony	GOLDSWORTHY 1522 Main Rd	RESEARCH VIC 3095
235	VK3AUC	Alan	COOK	BEAUMARIS VIC 3193
204	VK3AVH	Harold	TRIBE 20 Morotai St	SORRENTO VIC 3943
20	VK3AYV	Howard	ANDERS P.O. Box 197	MT WAVERLEY VIC 4020
111	VK3BBI	Bob	LUKES 22 Dorothy Street	EAST BURWOOD VIC 3151
178	VK3BDH	David	DUNN	EAST BRIGHTON VIC 3187
82	VK3BGH	Graeme	HARRIS 9 Loma Street	RINGWOOD EAST VIC 3135
149	VK3BIE	Douglas	PEARCE 4 Lockwood St	POINT LONSDALE VIC 3225
97	VK3BMC	John	CARWARDINE 38 Barcelona St	BOX HILL VIC 3128
53	VK3BNC	Bob	TERRILL 7 Locksley St	WENDOUREE VIC 3355
7	VK3BPG	Reg	BEDFORD 45 Milne Street	CRIB POINT VIC 3919
13	VK3BXA	Eric	IRVINE P.O.	THOONA VIC 3726
55	VK3BXG	Graeme	BROWN RMB 8375 Pryor Rd	DROUIN VIC 3818
114	VK3BYA	Derek	MCNIEL 17 Manning Rd	MALVERN EAST VIC 3145
157	VK3BYW	Frederick	PIESSE 61 Munro St	EAST KEW VIC 3102
33	VK3BZB	Jack	ELLIOTT 1 Colin Street	ROSEBUD WEST VIC 3940
138	VK3CFI	Maggie	IAQUINTO	COLAC VIC 3250
19	VK3CGE	Neil	EMENY 1 Beaumont Crt	MONTROSE VIC 3765
4	VK3CQ	Gilbert	GRIFFITH 7 Church Street	BRIGHT VIC 3741
134	VK3CQK	Ralph	ROBERTSON P.O. BOX 23	KYABRAM VIC 3620
225	VK3CQP	V.	HEARNE 54 Marshall St	WODONGA VIC 3690
199	VK3CTM	Tony	MORRIS 22 Boyd St	BLACKBURN VIC 3130
123	VK3CJC	Ken	SHIELDS 47 Sullivan Street	INGLEWOOD VIC 3517
12	VK3CVF	John A.	ELLIOTT 8 Queen Street	ROSEDALE VIC 3847
59	VK3DBR	Barry	RIDGEWAY Box 116	BEECHWORTH VIC 3747
39	VK3DGE	Garry	NEWTON 12 Bayliss Place	VERMONT VIC 3133
168	VK3DGR	Graham	RUNCIMAN P.O. Box 76	COLAC VIC 3250
112	VK3DID	Ian	GODSIL 25 Monaco St	PARKDALE VIC 3194
110	VK3DJI	Joe	LESLIE 79 Mitchell Street	BENTLEIGH VIC 3204
183	VK3DVB	Dave	ARCHER 41 Greville St	HUNTINGDALE VIC 3166
47	VK3DXH	Lindsay	LaPOUPLE 33 Cassels Rd	BRUNSWICK VIC 3056
164	VK3ED	Geoff	BUTTERWORTH Lot 4 Coburns Lane	TOOLERN VALE VIC 3337
194	VK3EOP	Peter	GROVE P.O. Box 255	CHADSTONE CENTRE VIC 3148
229	VK3ESC	Michael	TOMS 36 Canterbury St	RICHMOND VIC 3121
155	VK3FDT	Dave	TOMPKIN P.O. Box 78	LARA VIC 3212
122	VK3HG	Trevor	STARTRIT "JENALAN" RMB 2340	TATURA VIC 3616
234	VK3JHX	Murray	LEWIS 7 Shalimar Crt	VERMONT SOUTH VIC 3133
108	VK3JQ	Liz	RANDALL P.O. Box 378	RINGWOOD VIC 3134
6	VK3JY	Steve	PHILLIPS 37 Mangarra Rd	CANTERBURY VIC 3126
93	VK3KRL	Simon	ANDERSON 12 Ramsey St	EAST BURWOOD VIC 3151
62	VK3PUC	Mark	JEFFREY 311 PEEL St Nth	BALLARAT VIC 3350
176	VK3PUI	Ian L.	BOYD P.O. Box 337	BALLARAT VIC 3350
212	VK3UG	Rodney	CHAMPNESS 17 Helms Crt	BENALLA VIC 3672
215	VK3VAG	Jim	REID 301 Clarendon St	BALLARAT VIC 3350
24	VK3WQ	Marlene	BROWN	YARRAMBAT VIC 3091
214	VK3WRB	Richard	WALLACH 8 Whalley Crt	DONCASTER EAST VIC 3109
49	VK3XU	Drew	DIAMOND Lot 2 Gatters Rd	WONGA PARK VIC 3115

#	CALL	NAME	ADDRESS			
143	VK3ZF	George	COVENTRY	Happy Hollow Dve	PLENTY VIC	3090
218	VK4AAD	Ian	CAMPBELL	44 Banksia Dve	FOREST GLADE QLD	4306
27	VK4ACL	Bob	NEVILLE	124 Roscommon Rd	BOONDALL QLD	4034
94	VK4ATZ	Ted	WALTON	U42/56 Miller St	KIPPA RING QLD	4020
45	VK4BIL	Bill	RAHMANN	28 Fontayne St	ASPLEY QLD	4034
44	VK4BSD	Stan	DEAN	380 St Vincents Rd	NUDGEE QLD	4014
193	VK4CRS	Chris	ROY-SMITH	14 Carige Crt	BILOELA QLD	4715
120	VK4DWA	Marcelo	FRANCO	5/54 Cramond St	WILSON QLD	4560
130	VK4EV	Ron	EVERINGHAM	30 Hunter St	EVERTON PARK QLD	4053
99	VK4GH	Murray J	YOUNG	36 Raintree Evde	Little Mountain CALOUNDRA QLD	4551
21	VK4KFF	Donald	STIELER	89 Rosemary St	CABOOLTURE QLD	4510
203	VK4LA	Glyn	GIBBINGS-JOHNS	P.O. Box 966	BILOELA QLD	4715
104	VK4LKF	Kerry	FIELDING	22 Ellis Street	LAWNTON QLD	4501
113	VK4MUQ	Bill	MARTIN	92 Clarke Street	GARBUTT TOWNSVILLE QLD	4814
15	VK4RE	Roy	HILDRED	P.O. Box 387	TOOWOOMBA QLD	4350
14	VK4SF	Jack	FORD	222 Warwick Rd	CHURCHILL IPSWICH QLD	4305
167	VK5ABY	Barrie	BRICE	21 River Way	FULHAM GARDENS SA	5024
75	VK5AIL	Don	CALLOW	5 Joyce Street	GLENGOWRIE SA	5044
184	VK5AJM	Steve	MAHONY	19 Kentish Rd	ELIZABETH DOWNS SA	5113
43	VK5AKZ	Kevin	ZIETZ	41 Tobruk Ave	ST MARYS SA	5042
232	VK5APS	Peter	SPENCER	4 Paxton St	CLARE SA	5453
8	VK5BA	Malcolm	HASKARD	Bassnet Rd	ONE TREE HILL SA	5114
185	VK5BJE	John	DAWES	2 Angove Rd	SOMERTON PARK SA	5044
57	VK5BJF	Jeff	WALLACE	Box 344	CLARE SA	5453
209	VK5BLS	Barry	SAMUEL		INGLE FARM SA	5098
170	VK5BVM	Mick	SCHMIDT	37 Arthur St	PENOLA SA	5277
172	VK5BZ	Brenton	ZERBE	5 Chelmsford Gve	SMITHFIELD SA	5114
139	VK5GJ	Norm	LEE	25 Ralston Street	NORTH ADELAIDE	5006
221	VK5HP	Doc	WESCOMBE-DALTON		WHYALLA NORRIE SA	5608
223	VK5JO	John	BISHOP	26 Surrey Cr	LOWER MITCHAM SA	5062
154	VK5LG	Leith	COTTON	64 Weroona Ave	PARKHOLME SA	5043
196	VK5NLY	Graham	LOCK	27 Tumut Dr	MT GAMBIER SA	5290
145	VK5PAS	Brian	COOPER	128 Queen Street	PETERBOROUGH SA	5422
1	VK5ZF	Len	O'DONNELL	33 Lucas Street	RICHMOND SA	5033
54	VK6ATM	Terry	MAITLAND	P.O. Box 12	WYALKATCHEM WA	6485
220	VK6BEK	Shaun	PATSTON	9 Silenards Ave	WEST LEEDERVILLE WA	6007
211	VK6BER	Martin	REECE	8 Koel Way	THORNIE WA	6108
213	VK6BFE	Graham	CHAMBERS	7/17 Stanley St	SCARBOROUGH WA	6019
66	VK6BWI	Peter	PARKER	14 Marquis St	BENTLEY WA	6102
222	VK6ELL	Elliot	GREENFIELD	21 Henley Rd	ARDROSS WA	6153
25	VK6KC	Keith	WILLIAMS	6 Shelton St	WAIKIKI WA	6169
80	VK6KHZ	Peter	SCALES	P.O. Box 47	CHIDLOW WA	6556
28	VK6KRG	Rod	GREEN	106 Rosebery St	BEDFORD WA	6052
191	VK6LT	Bill	TOUSSAINT	9 Desford Close	SHELLEY WA	6155
103	VK6MX	Warren	MEAD	347 Serpentine Rd	ALBANY WA	6330
241	VK6NQ	Merv	TURNER	P.O. Box 738	ALBANY WA	6330
61	VK6SA	REV	SUTER	P.O. Box 261	MANDURAH WA	6210
147	VK6XC	Ben	KOH	13 Sovereign Plce	FORRESTFIELD WA	6058
133	VK7ABH	Greville	KNIGHT	P.O. Box 104	MOWBRAY TAS	7248
65	VK7AJ	L	WILLIAMS	19 Gloucester St	LAUNCESTON TAS	7250
242	VK7DMJ	Daryl	HONEYWOOD		TAS	7109
26	VK7FN	Neil	FITZPATRICK	P.O. SCAMANDER	TASMANIA	7215
40	VK7JK	John	ROGERS	1 Darville Crt	BLACKMANS BAY TAS	7152
38	VK7KBA	Arthur	BLACKWELL	"FAIRVIEW" Elderslie Rd	BRIGHTON TAS	7030
37	VK7NRE	Bob	EDWARDS	205 Davey Street	HOBART TAS	7000

MAKING ONE SUPERHET-DC RECEIVER WORK

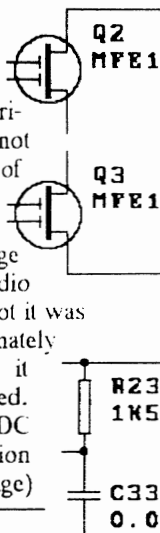
By John Bishop, VK5JO, #223 All rights Reserved.

A fellow member of our club built a Superhet-DC receiver to VK3XU Drew Diamond's design as described in "Amateur Radio" of May 1990 but he had trouble in getting it working correctly. When I tested the receiver it was very deaf. It appeared that my colleague had followed the words and music of the article closely except that he had used Philips ferrite toroids for the front end signal frequency tuned circuits and a 7.8 MHz crystal filter that came out of a C.B. radio in place of the ladder filter described by the author, Drew Diamond. The builder had changed the

local oscillator to the appropriate frequency so this was not the cause of the problem of lack of sensitivity.

After applying power to the receiver, the first stage that I checked was the audio section to see whether or not it was working and had approximately the right amount of gain; it operated as well as I expected. I then checked the various DC voltage levels in the RF section

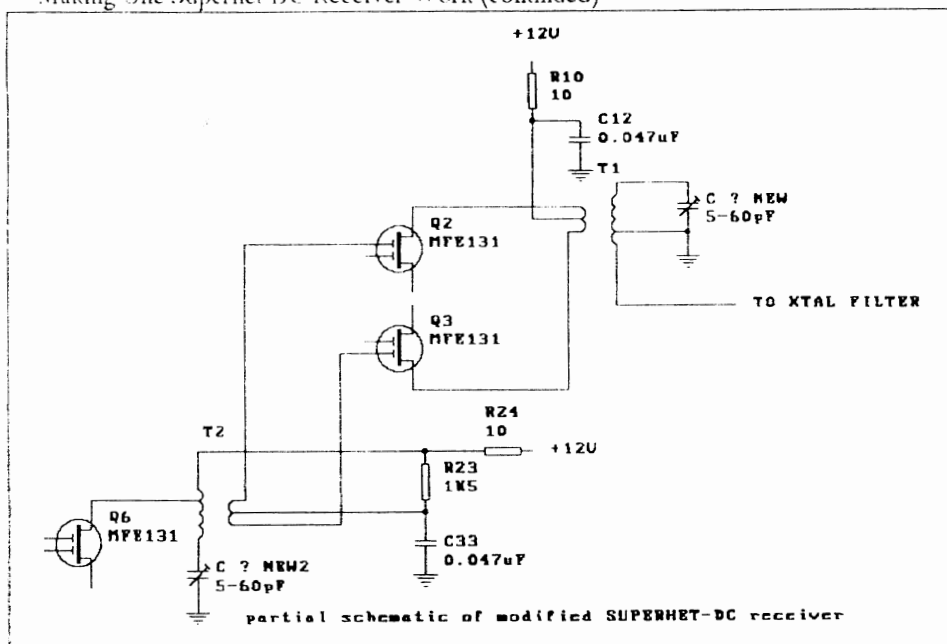
(Continued next page)



#	CALL	NAME	ADDRESS		
48VK7NXA	Stuart	BEAN	9 Sussex Street	GLENORCHY TAS	7010
3 VK7VY	Rai	TAYLOR	Lot 2 Daniels Rd	MAGRA TAS	7140
69 VK7ZO	Graham	RANFT	DAL SEGNO Millvale Rd	DROMEDARY TAS	7030
91 VK8CW	Ian	SMITH	P.O. Box 4756	DARWIN	0801
96 G3RJV	Rev.George	DOBBS	498 Manchester Road	ROCHDALE LANGS	
50 G8PG/GW8PG	Gus	TAYLOR	37 Pickerill Road	GREASEBY OL11 3HE ENGLAND MERSEYSIDE L49 3ND ENGLAND	
228 K4UOD	Dennis	ABDALLA	9843 S Chelsea Rd	COLUMBIA SC 29223	U.S.A.
201 K5VOL	Red	REYNOLD	S835 Surrey Rd	LAKE ZURICH IL60047	U.S.A.
74 K7DAP	Alan	MacALEVY	E660 Pickering Drive	SHELTON WASHINGTON	
197 K9PNG	Jim	JONES	615 N. Benton St	PALATINE IL 60067	U.S.A.
71 NW6F/XE2IM	Bob	JACOBS	APDO 73 MULEGE	BAJA CFA. SUR	MEXICO
52 P29IL	Ian	LESLIE	P.O. Box 175	GOROKA EASTERN HIGHLANDS PROVINCE PAPUA NEW GUINEA	
132 PA3ELD	Jan	VISSER	Wethow Der In't Veldstraat 28	1107BJ AMSTERDAM	HOLLAND
9 W3TS	Mike	MICHAEL	P.O. Box 593	CHURCH LANE HALIFAX PA 17032-0593	U.S.A.
31 W5QJM	Fred	BONAVITA	P.O. Box 2764	SAN ANTONIO TEXAS 78299-2764	U.S.A.
67 W6SKQ	Bob	SPIDELL	45020 N. Camolin Ave	LANCASTER CALIFORNIA 93534	U.S.A.
18 WA2YMW	Bill	BREARE	P.O. Box 867	HICKSVILLE NY 11802	U.S.A.
106 WB0NQM	Richard	LUCAS	412 Cattleman Ct.	LAWRENCE KANSAS 66044	U.S.A.
101 WB8ZWW	Wayne	WATSON	706 Torrence	SPRINGFIELD OHIO 45503	U.S.A.
17 WF6U	Hollis	BUTTON	1025 Parr Ave	CAMPBELL CA 95008	U.S.A.
188 ZL1ATN	Gilbert	LONG	2/22 Mona Avenue	OREWA AUCKLAND	NEW ZEALAND
34 ZL1ATW	Matt	MEENAGH	223 TE Tamo St	TE AWAMUTU	NEW ZEALAND
208 ZL1AWZ	Tim	LEITCH	38 David St	MOLRINSVILLE	NEW ZEALAND
29 ZL1BYY	George	CARTWRIGHT	6 Haycock Ave	MT ROSKILL	

ccc

Making One Superhet-DC Receiver Work (continued)



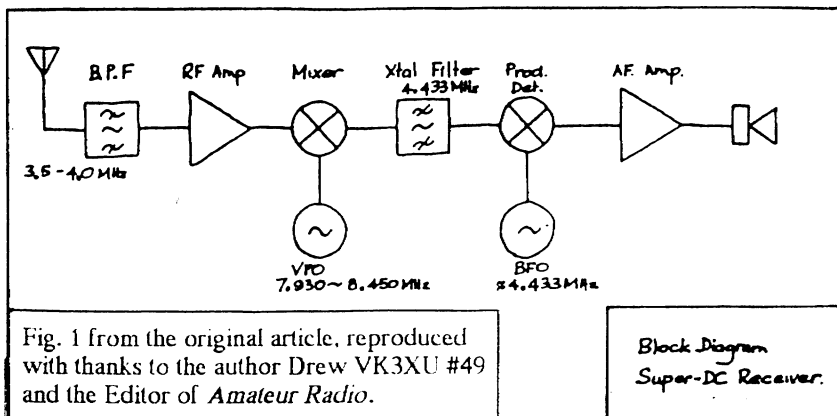
of the receiver but they seemed to be in order. With the aid of a borrowed CRO I checked the local oscillator injection into the mixer; I expected to see a nearly sinusoidal waveform but this was not the case! The output of the oscillator buffer was showing gross signs of distortion, not unlike excessive crossover distortion, but the waveform generated by the local oscillator before the buffer amplifier looked quite clean.

By connecting a signal generator to the crystal filter input I was able to determine that the filter, product detector and BFO were working in the manner expected of these stages. This meant that the mixer was suspect! The DC voltages in this area were checked and found to be what I would expect. As I noticed that the mixer output transformer was the same design as the oscillator buffer stage perhaps the design or the inductance value of the this component may be the cause of the prob-

lem. I was not able to prove that the design was at fault but I substituted a tuned transformer in place of the trifilar wound transformers specified in the original article. When the replacement tuned transformers were resonated on the appropriate frequencies with 5-60pF trimmer capacitors the receiver showed signs of life.

Whilst I do not expect all examples of this design to have similar problems, I have included details of the tuned transformers below. If you have had similar problems or just simply just wish to experiment feel free to alter the turns ratios of the transformers below as they were not designed but wound by the "seat of the pants" so to speak. I chose to use tuned transformers as they offered a simple way of filtering out the inevitable signal distortion caused by mixer and high level amplification stages thereby reducing the likelihood of spurious signals.

The schematic diagram shows how



the transformers were connected. The mixer output transformer was wound on a Philips 14mm O.D. purple toroid - the primary was 12 turns, centre tapped, the ends going to each of the mixer F.E.T. drains, the tap to the supply rail. On the other side of the toroid I used a 13 turn winding (dependent on choice of I.F. frequency) for the tuned circuit. The output to the filter was a 5 turn winding (may need to be adjusted by a turn or two for best impedance match) placed at the earth end of the tuned winding.

The oscillator buffer transformer was also wound on a 14mm; the primary was 12 turns centre tapped, the ends going to each of the mixer F.E.T. gates, the tap going to the junction of R23 and C33. The secondary, wound on the opposite side of the toroid, was a 25 turn (dependent on choice of oscillator frequency) winding tapped at 6 turns, the start connected to the junction of C31 and R24, the tap to the drain of Q6 and the end going to the tuning trimmer capacitor.

Other modifications included adding a turn to L2 and removing 3 turns from L3 and the removal of R1 to improve the performance of the receiver's input filter. These inductors were wound on 10mm O.D. Philips purple toroids.

With the modifications described

above, the receiver was now able to respond to signal levels of the order of 10 microvolts for a reasonable signal to noise ratio. Whilst this particular receiver is still not very sensitive the noise level at my QTH is sometimes up to the 50 microvolts level so I consider that this receiver has an adequate sensitivity for an 80 metre receiver.

The sensitivity of this particular receiver, as built and later modified, still did not meet the specifications nominated by the author of the original article. With hindsight, I believe that I should have altered the value of C1 so that the tuned circuits were slightly overcoupled and also investigated other aspects of the RF stage. I then may have discovered why this particular receiver still was not as sensitive as the prototype, but as the receiver has been returned to its owner, it is too late for me to try this line of approach! I also believe that the addition of an IF amplifier IC, such as the MC1349 or MC1350, with simple hang AGC along with a filter similar to the one described in the A.R. article, would have improved the receiver's performance up to normal amateur standards. It is my intention to describe such a receiver, using ICs, at a later date.

ccc

CW Ops at the 1991 NCRG HAMFEST

By Peter Parker VK6BWI #66



Yes, the CW Ops Club was at this year's NCRG Hamfest and our stand was successful. All of our Lo-Key's were taken as well as all the club leaflets.

This year we displayed a Club Communicator Tx, Forrestfield Tx, VK6KRG Rod's new 80m amplifier (plus power supply) connected up to a light bulb through an ATU. Rod's R1000 monitored the signal. Rod also displayed his AR88 Rx which has been 100% transistorised.

Martin VK6BER brought along an ultra miniature 80m DSB txcvr - it fits in the palm of your hand (excluding case). A polyphase SSB generator, ATV Tx as well as the VK6BER 160m handheld (Lo-Key #31 p.16) were also on show.

Also, we displayed the Milliwatt Two (2m CW) 30mW version with a map showing its coverage as well as a map showing 40m 1W QRP CW contacts from VK6. I also brought along a valve CW Tx built into a cake tin.

This was a very diverse display, including VHF, SSB, AM and ATV equip-

ment, while maintaining the emphasis on HF CW. Last year we centred on HF-CW-QRP only. Certainly there was a high level of interest shown by visitors. This was helped by the fact that our stand was placed further back from the pathway than the other displays, which gave enough room for groups to stand in front and talk.

Club members did well from the homebrew competition section. Rod won an extension speaker for his transistorised AR88 Rx while another member gained second prize (a \$99 digital multimeter) for his VK3XU 80m DSB Tx and YARG80 Rx incorporated in the one box as a txcvr.

All in all it was a good day and once again we had enough people (3) manning the stand, so we had time to shop for bargains.

Hopefully Kevin VK5AKZ will receive lots of membership applications from VK6 in the coming months!

Club Management Matters

During the next couple of months your Executive Committee will be reviewing our club's administrative arrangements and deciding on how to fill the present vacant position.

For the last three years we have operated with an Executive Committee of three: the Organiser (President), Treasurer (also Membership Secretary) and Editor of Lo-Key (also running Kit-Set Activity) - see top left side of page 2. This appears to have been successful - certainly our club membership has grown significantly.



ccc

It is obvious that a team approach is essential, with frequent, close communication. plus joint efforts on tasks such as collating and enveloping Lo-Key, to help spread the work load. This has been facilitated by having the Executive based in one city, even though our membership is scattered geographically.

Prior to late 1988 there were strenuous attempts made - unsuccessfully - to fill positions by seeking nominations, with the intention of holding elections.

(Continued opposite)

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, with the procedure for ordering. Some changes appeared in #31.

NEW ITEMS

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

'ONE-OFF SPECIALS' FOR SALE

We have for sale a limited number of brand new Weller and other soldering accessories. The descriptions are the best I could do. The usual \$3.00 per order postage/packing charge applies.

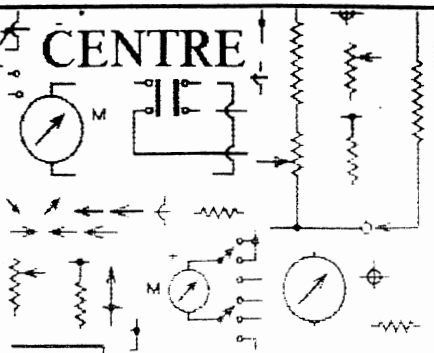
** PT series soldering iron tips. These pencil tips are suitable for use with the Weller WTCPN station. The price is only \$5.00 per tip which is about half the usual retail price. The list follows -

If you have any positive suggestions for improvements to our administrative arrangements, please send them to the Treasurer, Kevin Zietz VK5AKZ at 41 Tobruk Ave. St. Marys SA 5042. Please respond before the end of January 1992.

Space is available on the back of your account form or you may wish to send a letter if the space provided is insufficient.

Responses received from members will be considered before a decision is made on changes (if any) to the structure of club administration and, if the arrangements stay 'as is', on the method of filling the vacant position.

ccc




PTA-8	1.6mm Screwdriver point
PTA-7	1.6mm Screwdriver point
PTF-7	0.8mm Conical flat point
PTH-7	0.8mm Screwdriver point
PTO-7	0.8mm Long cone point

One CT series tip (for WD60D iron) - Probably CT5C7 3.2mm (1/8") Chisel point. This one has a shank 6.4mm (1/4") diam. and a tip reach of 29.5mm.

The Weller temperature code is -

6 = 315°C = 600°F	
7 = 370°C = 700°F	
8 = 430°C = 800°F	

** Weller Heater Element marked TCP-1 24V 2A (the measured resistance across the leads is about 12 to 15 ohms). Two available. This is a good opportunity as the only catalogue price I can find is about \$42! Price is \$14.00, so a cheap spare may be good 'insurance'.

** Tips for Economy Solder Sucker 
Only \$0.50 each (NOT \$4.00). No identification numbers on these plastic items, but cap has 16mm diam. x 1mm female thread.

** Give away these secondhand tips - There are two secondhand tips which will be given away to the first two buyers of any of the above, who request them -

PTK-7	1.2mm Long screwdriver
PTL-7	2.0mm Long screwdriver

E. & O.E.

ccc

2 - 25V Regulated Supply

By Peter Parker VK6BW1 #66

A variable power supply is essential for experimentation. Having tried many designs which did not work satisfactorily, I tried this circuit and it worked first time. It is a very common circuit, using the ubiquitous LM317T regulator and very few other components. The design below will give at least 500mA over a 1.5 to 25 volt range. If a higher voltage transformer secondary voltage is available, the supply can provide up to 37 volts. If you buy new components this project can be rather costly (around \$50), but much can be saved if your junkbox is co-operative.

As this is a mains powered project, this unit can be LETHAL, so take precautions to make the supply safe to use. You must build the supply in an earthed metal box. The prototype was housed in a Dick Smith H2744 box costing \$10 (Ed. - DSE price now \$14.95) but a home-made enclosure is just as suitable. Use a DPDT mains switch,

fuse properly and use a three-conductor lead and three-pin plug. If in doubt, seek advice from someone more experienced.

The transformer should provide 18V at 1 amp or more. My transformer came from a battery charger incorporated in a burglar alarm. The provision of metering is an optional extra. If you would like to measure current consumption, a 0-1A meter should be placed in series with the DC output from the supply. The LM317T is a TO220 device and should be heatsunk if more than a few hundred mA are drawn.

The actual current which can be drawn from this supply depends on the transformer and the heatsinking of the LM317T regulator, which will handle 1.5A maximum. The circuit below was derived from G3VA Pat Hawker's *AR Techniques*, 7th Edition, page 262. The original circuit's author was Doug DeMaw W1FB.

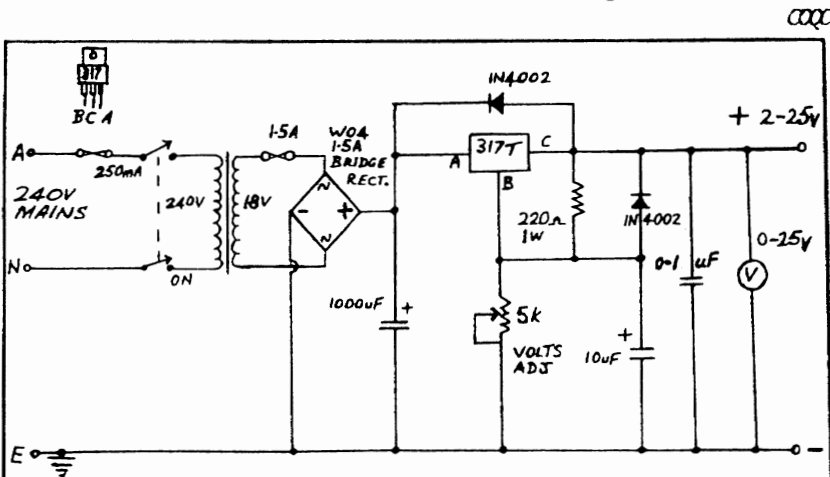


Figure "8" Flex Low Cost Antennas

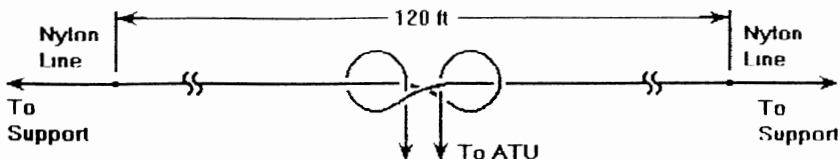
By Steve Mahony VK5AIM #184

Some time ago while recovering from sickness, I came across some interesting comments on using Figure "8" cable for Amateur antennas in that antenna builder's bible, The ARRI. Antenna Book.

The Yanks call it Zip Cord, while in VK we call it Twin or Figure "8" Flex. It comes in many colours and has been available for years. You may have looked at it yourself and wondered how it would go as a balanced feed for antennas?

Well, ARRL did some tests and measurements on it - 107 Ohms Z at 10 MHz. The Velocity Factor was 69.5%. Doesn't sound bad! They did find that it became a bit lossy above 10 MHz.

I suggest trying a 100 ft length of "8" to make up a jointless 80 Metre dipole. The "8" is marked at 65 ft, and unzipped or split for 65 ft then knotted to stop it unzipping, with a special knot. Any knot will do.



As this is a balanced feeder it could not be fed from the 50 Ohm unbalanced output from your QRP Tx. You could use a toroidal balun, but this could be quite lossy if there is a mismatch. The dipole antenna in a temporary setup could be anything but 75 Ohms!

A better idea would be a balanced output antenna coupler. With a couple of small broadcast two-gang capacitors and some 16# tinned copper wire a neat little ATU could be made.



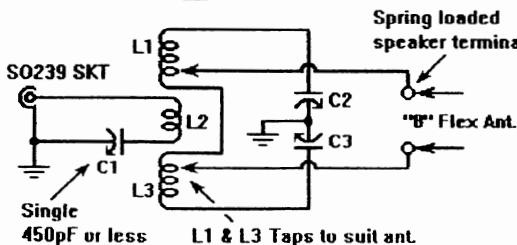
A suggested circuit is shown. L1 and L2 are about 30 turns, 1" dia. with a space for about 10 turns in the middle. L1 and L2 must resonate with C1/C2 on 3.5 MHz.

Most antenna books have some sort of article on the balanced feeder type ATU that would do the job. (Ed. - See Lo-Key #18 p.3)

With some nylon cord to support the centre and ends, a cheap antenna could be made.

I have not tried out the "8" flex ant myself yet, but it's worth a try for a low cost antenna for 80 Metres.

Keep welding that soldering iron!
73 Steve VK5AIM



ccc

CW NET NEWS

By Ted VK2CWH #89

The early indications are that the move to 40 metres has been successful, but conditions there just go to prove the old saying: "Life wasn't meant to be easy!"

Instead of the impossible 2RM on 30 metres, we now have instead the nearly impossible 2RM on 40 metres! Still, it has proved possible to hold the Net each week since changing over.

A real bonus is the increase in strength from Matt ZL1ATW, who is consistently S6 to S9 into Rylstone. On the other hand, VK2 stations are down to S3 -

U CAN HELP!

Len VK5ZF #1 is urgently trying to obtain a pair of 6146B valves for his rig. If you can help with valves which are in good order or know of a source (at a reasonable price) please contact Len at:

33 Lucas Ave. Richmond S.A. 5133

S6, depending on conditions. In fact, last Wednesday, 26-11-91, Matt was QSP'ing to me from Wes VK2WED!

Thanks to all the regulars on the Net, who have continued to support it since the change.

Best wishes to all members from the.....

72 Ted



ccxc

VK4LA
Glyn. Gibbins-Johns.
47 Bell Street
BULOELA
Queensland 4715
Australia

If you've worked VK4LA you may have seen this card before!

SOLDERING SAFETY

Don't Squander Your Inheritance

Frank Rae G4 ITQ

After a busy winter of homebrewing, I discovered in Spring 1986 that I had acquired a wheezy condition and cough, despite never having smoked. After visits to the doctor and after hospital tests, asthma was diagnosed and an inhaler was prescribed. This is still necessary today.

Was this change in my health due to swimming in the Irish Sea or was it due to working in the City of Glasgow for 40 years?

By chance, I happened to read in Technical Topics in RADCOM, November 1979 some observations on an article in "The Lancet" which drew attention to the danger of breathing the fumes given off by resin-cored solder (colophony being the villain of the piece - a well-known cause of breathing difficulties.) Whilst of importance to commercial people, the reviewer felt that it should be brought to the attention of radio amateurs.

Further emphasis is given to this matter in QST (March 1991) by Dr Bergeron in his article "Making Soldering Safer", which again warns of the danger of breathing colophony fumes. If good ventilation is not feasible the Author suggests that you should wear a special respirator with a filter element which neutralises colophony fumes. In addition, the need for washing of hands before handling food is stressed. Also the dangers of breathing the very poisonous fumes from melting plastic insulation and from PCB cleaning fluids are highlighted.

Since reading the first-mentioned article I have employed an electric fan air freshener at my elbow when soldering so that I do not breathe the concentrated fumes. This may be just sufficient as my work is done in a Victorian house with large, high, rooms.

Natural breathing is easy but once the lungs have become sensitised this happy state may not continue; so until the solder manufacturers come up with a different flux, take care of your priceless inheritance - your lungs.

NOTE: Heathkit have included a warning on soldering on the above lines in their recent kits.

G3RJV.

The above item is reprinted from
SPRAT #67. Thanks to G-QRP Club.

I was reading through the "LO-KEY" issue of 1988 - page 17, where it suggests that it is better to send BCK TO U rather than BK TO U. The "back to you" usage came from the CB ranks in various forms, including "BACK ATCHER", which, I presume means "BACK AT YOU" in its refined form. However, what is wrong with sending the letter "K" in CW, after a fullstop to end the OVER. Why send 6 letters when ONE will do same job. SHORTEN is the key word in Morse and I try hard to observe this principle. Anyway - that's for what it is worth!

At one stage in another issue I read that someone does not like the use of starting the teaching of Morse with the E I S H T M O method. First, after almost 40 years of teaching I still pursue the idea of "Start the easy things and advance to the more complicated". The notion that this method leads to teaching of OPPOSITES is quite incorrect. My old LEARNING MORSE CODE BOOK does not use "opposites" at any stage. We would never use it in the Army or Air Force. Just another thought!

Early in September your Editor received a very interesting letter from Rex VK2YA #131, which included a couple of opinions on abbreviations and teaching of Morse code ...

FROM THE EDITOR'S DESK

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



MARCH ISSUE

This December issue is notable - from my point of view - as much for what had to be left out as for its contents. In the March issue I plan to include several substantial articles which were originally intended for #32 but will have to wait. These include an audio amp project by Ian VK8CW #91, a pair of valve circuits submitted by Graeme VK3BXG #55 and a "Sudden" superhet (yes, superhet !) by Basil VK2AW #180. All these - and others - are *very* interesting.

TECHNICAL ARTICLES

In this column last issue I mentioned the ideal size (155mm x 230mm or 6" x 9") at which to prepare your articles, if they are typed or are circuit diagrams or other drawings). Another aspect is the size of printing on drawings. This should be large, preferably about the size of normal typewriter characters, as all work is reduced to just under 80% of full size in the printing process. Figures on circuit diagrams may be readable to the writer, but may not be understood by others after reduction photocopying. It is best not to provide work at the size of Lo-Key - I will do the reduction.

Sometimes you will receive a draft (not the master version) of the article back for checking and you may also have some extra points to make. If so these are best done in red pen or similar so that I don't have to do a thorough check to search for the changes and corrections.

If you notice errors in your articles as published in Lo-Key, please let me have details of the corrections quickly so that they can go into the

next issue. At the same time you may have more information on practical experience with the project. And let us all know about those *improvements* you made just recently !

You've probably guessed by now that most of the above is aimed at saving me time and work - but it also allows us to fit a little more value into Lo-Key and at the same time make it easier for members to read and to build construction projects.

We will once again provide an award for Best Technical Article for the period from this Lo-Key to the September 1992 issue. Keep those articles coming - even if they're written on teleprinter paper tape (as long as it's unperforated) !

IN CLOSING ...

All three of us at my QTH - my XYL Dynah, our watchdog and 'defender of the property' little Rusty and myself - will miss the visits from Max VK5OS #2. Max was a gentle man, quietly spoken (but with firm, commonsense opinions), always helpful, and neat & tidy in all that he did.

Max had volunteered to be President at the meeting on 5 November 1988 when the possibility of disbanding this club had been discussed. Characteristically, he chose to use the term 'Organiser' rather than 'President'.

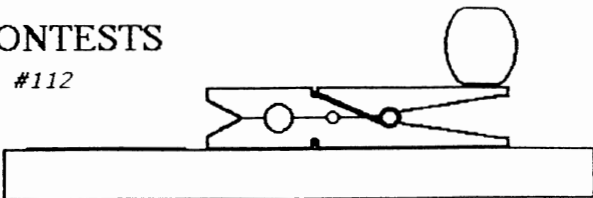
Between now and the March issue of Lo-Key, the Executive team will consider ways of appropriately commemorating Max.

Don VK5AIL



AWARDS AND CONTESTS

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



e:\winpain\peg.pcx

SUMMER SCRAMBLING - #17

We will be Summer Scrambling for honours in Scramble 17 over three nights and three bands this quarter, but note that each will be of 1-1/2 hours duration instead of the usual 2 hours.

Apart from the usual certificates, which the first three placegetters receive, the winner will be awarded an inscribed **Clothespeg Key Trophy, donated by Steve VK5AIM #184. Work the World while you hang out the washing!**

Here's the schedule:

PART	#17a	#17b	#17c
DAY	Wed.	Wed.	Thu.
DATE	8 Jan.	22 Jan.	6 Feb.
BAND	20 m	40 m	80m
FREQ. RANGES (MHz)			
.....	14.050	7.001	3.501
.....to	to	to	to
.....	14.070	7.040	3.529

TIME PERIOD
..... 1030 to 1200 UTC (all)

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. Homebrew 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: 1-1/2 Hours.

MODE: CW only. Club members must use QRP, with no more than 5W 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 March 1992 issue of Lo-Key.

(Continued over page.)

Awards and Contests (continued)

Greetings to all and I hope that you are all getting regular amounts of CW listening, even if we don't hear many of you on the air! Not many logs received for Scramble 16, so here are the results:-

1st	VK3BPG	Reg	37	points
2nd	VK4LA	Glyn	34	points
3rd	VK2AW	Basil	26	"
4th	VK3ESC	Michael	22	"
	VK4EV	Ron	22	"
6th	VK6BWI	Peter	2	"

Thanks to everyone concerned and a welcome to the Scramble ranks for newcomers Michael VK3ESC and Peter VK6BWI. Let's hope that they will become regular participants. The outstanding comments received mentioned about increasing QRN levels. Unfortunately no-one can do much about that, except to hope

Congrats to Stuart Bean VK7NXX #48 for a fine effort in the WIA 1991 Novice Contest. Stuart scored well in the CW and Phone sections and won a certificate for the highest aggregate Novice scorer for VK7.

that it will be minimum on the Scramble dates. In order to try and spread it around a little more, I have arranged three Scrambles for the first quarter of 1992, using three bands, each to run from 1030 to 1200UTC. Usual points scoring applies. **PLEASE send your logs to me within five days** as I need to compile the information for the Editor.

Very best wishes for 1992 and I look forward to hearing you in the Scrambles.

Ian Godsil VK3DID #112
25 Monaco Street,
PARKDALE Vic 3194

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

December 1991 91105

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