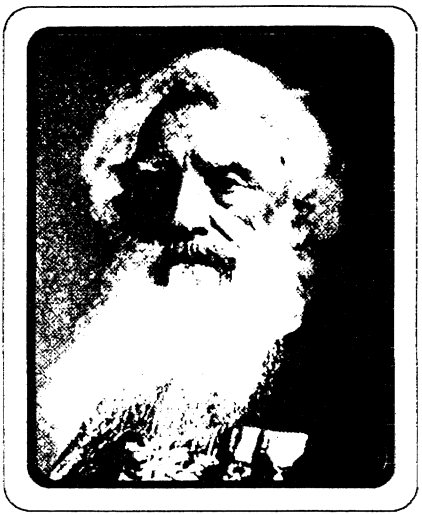
MARCH 1991
ISSUE No. 29

Lo-Key

THE JOURNAL OF
THE CW OPERATORS CLUB

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

CONTENTS



Samuel F.B. Morse
Born 27 April 1791

***** 200th Anniversary *****

CW NET - JOIN IN - NOW ON TUESDAYS - SEE PAGE 11

WINNER OF AWARD FOR BEST TECHNICAL ARTICLE - SEE PAGE 16

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
1815kHz 3530kHz 7030kHz
10106kHz 14060kHz 21060kHz
28060kHz

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

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

OTHER POSITIONS

CW NET CONTROLLER
Ted Daniels VK2CWH/QRP #89
Call 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.***
TUE. NIGHTS FROM 0945 UTC
(Daylight Saving - 0830 UTC)
AT 3529KHZ or lower if QRM.

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 1030 UTC*** *(Daylight saving - 0930 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 Godsil VK3DID #112
25 Monaco St. PARKDALE
Vic. 3194
Scramble logs; ideas about Club promotion & liaison with other Clubs.

PROJECTS OFFICER
Rod Green VK6KRG #28
4 Rothsay St. FORRESTFIELD
WA 6058
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.

KEVIN'S KOMMENTS

By Kevin Zietz VK5AKZ #43 Treasurer and Membership Secretary

WELCOME TO NEW MEMBERS

Welcome *back* to:

#138 VK3CFI Maggie IAQUINTO
COLAC VIC

Welcome to the following new members:

#219 VK2BJI David KENT
PARKES NSW

#220 VK6BEK Shaun PATSTON
WEST LEEDERVILLE WA

#221 VK5AP Doc WESCOMBE
WHYALLA NORRIE SA

#222 VK6ELL Elliot GREENFIELD
ARDROSS WA

#223 VK5JO John BISHOP
LOWER MITCHAM SA

Membership Renewals

Congratulations to all those who spotted my "obvious mistake" (or should I blame the word processor ---- *shhh it might hear me*). Pse rest assured all 1991 renewals were for the year ending 31/12/91. (that's right *91*....) WHERE DID THAT YEAR GO TO!

If You Haven't Renewed Yet ....

The stats speak for themselves - approx. 80 members have not yet responded to their December 91 account and will receive a REMINDER with this *Lo-Key* (DUE DATE DECEMBER 1990). THIS WILL BE THEIR LAST *LO-KEY* UNTIL THEY RENEW.

YOUR due date appears on YOUR address label. Accounts are sent out in December each year and a reminder notice is in the LAST *LO-KEY*. *It pays to pay up* in December/January each year.

STOP PRESS
STOP PRESS
STOP PRESS
STOP PRESS
STOP PRESS

NEW STYLE LOGO STICKERS NOW AVAILABLE

See Club Sales Price List and page 25 of *Lo-Key* #28 December 1990. We've included a couple of samples for you to use to promote our club.

73 Kevin VK5AKZ

A SIMPLE ANTENNA TUNING UNIT FOR ALL BANDS

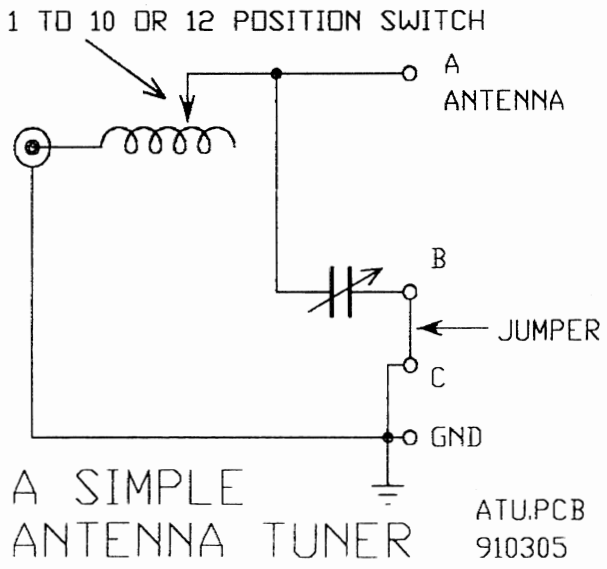
by John Dawes, VK5BJE Member Number 185

I have long had a fascination for 160 metres. I can't remember when I first heard a signal on that band. It was probably in the early sixties while I was living in Hobart. I can certainly remember hearing amateurs on the 160 metre band in Melbourne in the early seventies. The *coffee break* net was popular. Every morning at 10.00 local time, on 1.825 MHz, magnificent AM signals could be heard from stations like VK3DH Ivor Morgan, VK3ARL Lyn Brown and VK3EN Henry Pearce. Sadly, these three operators are no longer with us, but all will be remembered.

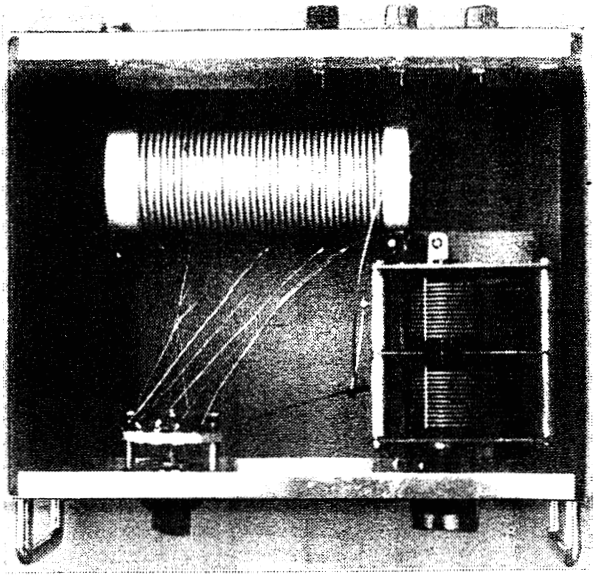
When I became a licensed amateur in 1976, it wasn't long before the fascination of 160 metres took hold. I wanted an AM signal that sounded like most of those on the coffee break net. Looking back through my log I see that I conducted my first transmission on that band on 31 December 1977 as VK3BJE which was just a little over one year after I became an amateur. The radio was a Forest Phone, all solid state and 15 watts of carrier. It was easy to convert, and needed just two crystals. But it wasn't home brew!! I operated the radio into a folded Marconi antenna made from 300 ohm television antenna lead and it did not need an ATU because of the design of the output tuning.

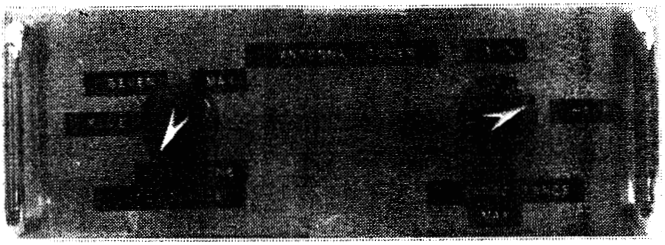
When I became VK5BJE in June 1982 after moving to South Australia, I decided to build a home brew valve transmitter for 160 metres. That project may be described another time. At present I operate regularly on 160 metres every Monday night where a small group of home brew AM enthusiasts gather on a popular crystal frequency of 1.843 MHz. I also operate CW.

For this I needed an ATU which would enable me to match my transmitter with its pi-coupler output circuit to random wire antennas, which



is all I could fit in my backyard. The circuit is not original, and over the years circuits have been published in a variety of books and magazines, see ARRL1, and Orr and Cowan2. What I hope to provide is a translation of a circuit into a practical project for people like myself whose access to parts and skills is limited. The circuit provides a simple ATU for end-fed antennas and requires only an inductor, a capacitor and a switch together with appropriate case and markings to make a worthwhile and attractive finished article.





My ATU is built in an aluminium and steel box (Horwood 25cm x 21cm x 10cm) available from most of the suppliers and is the most expensive part of the project. A similar box could be made by a skilled metal worker. Such a box is not absolutely essential, but is a good idea in reducing the amount of RF floating around the shack and keeping dust at bay. The front panel of the ATU contains two controls. One is a one to twelve position switch which enables the operator to switch in or out of the circuit the appropriate amounts of inductance to load the transmitter. The second control is that of the variable capacitor. I have used a two gang broadcast receiver capacitor with the widest plate spacing that I could find. The spacing on my capacitor is about 1.5 to 2 mm and it is mounted on a sheet of clear plastic which insu-

(Continued over)

Simple ATU (cont.)

lates the capacitor from the chassis and therefore earth. The two sets of fixed plates are wired in parallel and connected to the position on the switch which I call position one. The variable plates are connected to a separate binding post on the rear panel of the ATU which for most of my operating is connected via a jumper lead to the earth post.

The inductor, which I purchased at a "buy and sell", contains 36 turns on a ceramic former. An equally effective coil could be made on a piece of PVC water pipe. The coil is mounted parallel to the back panel with the taps facing the front panel to enable easy connection to the switch and the capacitor. I have used nylon bolts and nylon spacers to mount my coil which is about 1 cm from the bottom of the box. The former is 50mm in diameter and the end of the coil is connected to position two on the switch and then the first tap to position three and so on. The other end of the coil is connected to an SO239 antenna socket. I have ten taps and this has never failed to enable a perfect match to my antennas. Tinned copper wire of a sufficiently heavy gauge is hard to find these days. I have used single strand picture hanging wire for my connections and this has worked well. The wire is either brass or copper and about 20 swg. There is no reason why enamelled copper wire cannot be used in a heavier gauge, but you have to clean off the enamel for the tapping points.

On the rear panel I have two red binding posts or connectors. One of these is for antenna A, and when both the inductor and the capacitor are in circuit it makes the ATU an L Network. If the jumper lead connecting the second red terminal to the earth post is removed, the circuit functions as a series tuned circuit i.e. just the coil is in circuit.

The accompanying circuit diagram and photographs make the layout and connections clear.

The ATU works well. With my home brew transmitter and choice of solid state or valve modulators or my morse key, it gives me a versatile 160 metre station. If there is any interest, I would be very happy to share some more of my experiences on 1.815 MHz or 1.843 MHz. For those in Adelaide I can demonstrate on amateur television. If requested I will describe my transmitter and modulators.

Good building!
John Dawes

References:

1.Grammer, George, *Understanding Amateur Radio* - ARRL, Newington, Connecticut, 1971

2.Orr, William I.,W6SAI and Cowan, Stuart D.,W2LX, *Simple, Low-Cost Wire Antennas for Radio Amateurs*

AWARDS AND CONTESTS

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

***Greetings** to all members and what an interesting event Scramble 14 turned out to be! In a nutshell, I thought that only one or two of the members were able to get on air and give it a try, but subsequent logs and contacts revealed that several members in various states were on air but could not hear one another because of QRN and conditions in general, which simply did not allow certain states to hear others. In fact the general opinion was that the QRN was very bad indeed. However, there were some good DX contacts, so I shall give the Log details in full of those members who sent them along. Both **Ron VK2DQR** and I worked new callsigns and it was a great pleasure to work **Ian VK8CW** (a stalwart of the 20m band) for the first time.*

Again my thanks to all those who took part and sent along their logs. I had hoped for an increased number of logs this time, but not so. Still, I hope that everyone enjoyed it and will make a big effort next time round.

I read the results of the 1990 RD Contest with great interest, but could not find any QRP CLub callsigns in the CW sections of the various States, except my own (3rd in VK3) Am I wrong? I certainly hope so and will be more than happy to have to publish an apology! Please let me know if <u>you</u> figured in the list for your State.

Seriously, I do wonder at the amount of CW on our bands, which seems very small indeed. In fact, many of the bands are hardly used, so what will be our feelings when the WARC 1992 takes them away from us? Have you really thought about it????

Also, have you really thought about your participation in the 1991 RD?????? No, it's not too early. I've set my goal and will be hoping like mad that my allocated shift for that week won't have me working on that Saturday night. I have planned my strategy, so why don't you prepare now for what is a very interesting event? After all, I'm sure that many of you will not want VK3 to win again!!!

Keep up the good work of home brewing and oil up the CW keys. See you in the next Scramble.

73, Ian VK2DID

P.s. <u>Note my new address</u>

SCRAMBLE 14 LOG DETAIL

1	*VK3DID*	*112*	*Ian*	*Melbourne*	*25*	*points*	*2*	*VKs*	*3*	*DX*
2=	*VK8CW*	*91*	*Ian*	*Darwin*	*21*	*"*	*5*	*"*	*0*	*"*
2=	*VK4LA*	*203*	*Glyn*	*Biloela*	*21*	*"*	*5*	*"*	*0*	*"*
4	*VK2DQR*	*127*	*Ron*	*Kempsey*	*18*	*"*	*3*	*"*	*3*	*"*
5	*VK2CVR*	*36*	*Vince*	*Frederickton*	*15*	*"*	*3*	*"*	*0*	*"*
6	*VK2AW*	*180*	*Basil*	*Gorokan*	*5*	*"*	*0*	*"*	*1*	*"*

SCRAMBLE

*The mid-year 1991 Scramble is on 40m on a **MONDAY**:*

SCRAMBLE DAY	*DATE*
#15	***Monday** 1st July 1991*

BAND	*SUGGESTED FREQ. RANGE*	*TIMES (UTC)*
40m	*7.001 to 7.040 MHz*	*1000 to 1200*

Rules are much the same as previously. As usual, the aim is to gain maximum points - or if you are not a serious contender it might just be to enjoy yourself 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

***OBJECT**: To score maximum points in Scramble #15 by working as many CW stations as possible during the Scramble, on the band nominated.*

***DURATION/TIME**:*
2 Hours from 1000 UTC.

***MODE**: CW only. Club members to use QRP - 5W maximum 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 Members should use the /QRP suffix. There is no need to exchange serial numbers.*

***SCORING**:*
QRO VK 1 point QRO DX 5 pts
QRP VK 5 points QRP DX 15 pts

***ENTRIES**: Send log extracts to me without delay please. Just show time of contact (UTC), callsign of station worked and /QRP if it 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 June 1991 issue of* Lo-Key.

****

COMING CONTESTS FOR CW'ERS

A search of recent issues of Amateur Radio *magazine did not reveal any contests for CW'ers in the late March - June period. Of course the Commonwealth Contest was on 9/10 March, so we hope some members participated in this and enjoyed the experience.*

cqc

CLUBTIVITIES

***** UPGRADES ON THE WAY *****

Very reliable sources have let us know that :-

Wes VK2MIR #162 is waiting to receive his new Full Callsign, and
Brian VK5PAS #145 now 'only' needs to pass Theory to claim his.

Congrats Wes - enjoy it ! and a hint to Brian: Try thousands of practice exam questions. And good luck !

cqc

CUTTING BACK FT7 POWER

By Bill Rahmann VK4BIL #45

I thought I would put pen to paper having just got going a device to cut back the power on the old FT7. In a recent issue of Lo-Key (#27 September 1990 page 27) the Editor had interrogated the WIA Journal Index files to search for articles on FT7 QRP. One which sounded interesting was in AR for February 1981.

The article was on cutting back the FT7 power without removing the case. Anyhow, after making it up, finding it didn't work and realising there was a slight error in the article, I thought I might pass this on for anyone else who might feel inclined to try it. It works fine now and, since the FT7 has a nice Rx, it makes a good QRP rig.

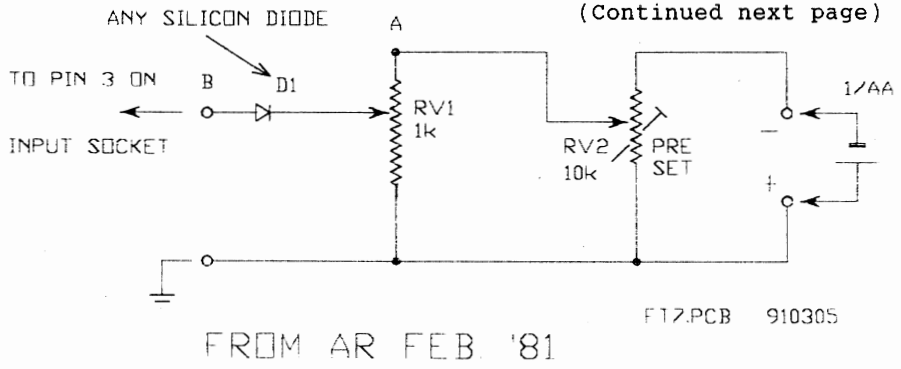
The gadget simply uses a dry cell, or other source of EMF with a voltage divider, to apply a small negative voltage with respect to earth, to the AVC line. This line conveniently comes out to pin 3 on the main power input socket - hence the bit about not removing the case.

The cell feeds through RV2 (a preset), to feed a voltage across RV1, the latter being the power adjuster. This feeds via D1 to pin 3 on the main power input socket, and so biases back the final PA (just as the high SWR sensing network does).

Anyhow, the article says to adjust the preset RV2, to provide 1 volt across RV1. However, as there is a drop of 0.6 to 0.7V across D1, this means there is rather less than half a volt available bias at the AVC line. I found it needed around 0.8V before the PA would start to cut back. Hence I think the article should ask for around 1 volt at the AVC input. When so adjusted it works fine and cuts the FT7 down to anything from zero up. I tried it at 1 watt and got to Jack VK2BJH in Kempsey on 7MHz.

The 0 to 4 calibration on the FT7 meter indicates PA collector current in amps. According to the AR article, the following approximate power out v's collector currents apply:

(Continued next page)



FROM AR FEB '81

4	amps	25 watts
3	"	12 - 15W
2	"	5 watts

And if you plot that up, then 1 amp would be about 2 watts. The efficiency drops at lower currents.

My gizmo is now mounted externally on the back of the rig, in a small DSE (Ed. - Dick Smith Electronics) box, with a single AA battery holder on the outside. A 6.5mm plug with the tip connected to pin 3 of the plug on the power cord plugs into the box. The jack socket is one which closes a connection of B+ to earth when the plug is inserted.

Apart from appreciating the rig's QRP value, one now feels a bit happier fiddling with the tuning of a new mobile antenna of uncertain resonance and impedance. Previously, as the rig had no drive control, you had to feed full power during testing and adjustment.

. o O o .

(Editor's Note: Lo-Key #1 March 1984 p. 9 has an item based on an article "RF POWER CONTROL FOR THE FT7, WITHOUT REMOVING THE COVERS" which appeared in the RSGB journal Radio Communication March 1980.)

Receiver Notes

Contributor: **Maurie Camps VK2DCD #159**

I thought I would let you know about my progress with the *Sudden* receiver. I have completed it and am impressed with such good results from such a simple circuit. For the case I used an old army remote control box 5" x 4" x 5" cast aluminium with a flange to take a lid. The corners had threaded holes so all I had to do was to cut a square piece of aluminium to fit over the flange. At the back of the box I fitted an ON/OFF switch and a square flanged coax socket. I mounted the circuitry on the lid complete with audio and r.f. gain controls and phone socket - the lid is attached to the casting by four screws.

For the tuning I used one of those vernier drives sold by Dick Smiths (DSE) - it is certainly a neat and compact receiver.

I have had another receiver idea using some of the circuitry from the Sudden. The original circuit is from *Silicon Chip* Dec. 1989 p.82. This is a 40m Rx but I can't see why it couldn't be used on 80m. The chips are MC3359 narrow band FM IF IC and LM386 audio (speaker vol.) and an I.F. 455kHz (super het) is available with this circuit.

What I was thinking is: Would the circuit work if the B.P.F. is attached to the input pins 18+17 and the V.F.O. (from *Sudden*) to pins 1 and 2 of the MC3359 leaving the rest of the circuit as in the original article ?

(Does anyone have ideas about this idea - or perhaps even tried something like it ?)

FROM THE EDITOR'S DESK

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

*** ARTICLES ON DISKETTE ***

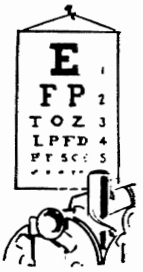
Many thanks to those who sent contributions for *Lo-Key* on floppy diskette.

Any size IBM-compatible diskette is OK. Let me have a version produced by your word processor package and, if you can, a DOS text file or ASCII version. A printed version is useful for me to have as it displays your intended page layout. Please advise the name and version number of your wp package, to help me choose the correct 'import filter'.

Try to use a proper box for the 5¼" size, or pack it with cardboard to stiffen things up. I received one which had been folded over by the postie to fit the letterbox slot (which was easier for him than facing our mini. dachshund). Fortunately there were no 'read errors' !

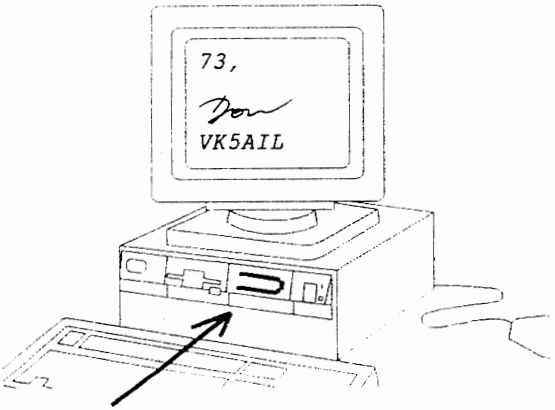
*** DIAGRAMS FOR LO-KEY ***

If you are sending in circuit diagrams and sketches for *Lo-Key* don't forget that I often need to reduce them to about 3/4 full size for the journal. This sometimes results in the printing becoming unreadable. Lettering about the same size as ordinary typewriter print should be OK - larger is better. (Who said '*small is beautiful*' ?)



*** FUTURE ISSUES ***

Len VK5ZF #1, Rod VK6KRG #28, Bill VK4MUQ #113 and Peter VK6BWI #66 have all been active developing project circuits and writing up the results. And later this year we'll publish a 'heap' of practical information provided by Basil VK2AW #180, on receivers etc.



Bendable Disk Drive (BDD) slot

CW NET NEWS

From Ted Daniels VK2CWH #89

*** CHANGE OF TIME FOR WINTER: 0945UTC* (until Daylight Saving starts again)

*** NEW DAY UNTIL FURTHER NOTICE* »»» TUESDAY «««
(From the end of March - instead of Wednesday)

Better days are ahead !

REPORT ON MEMBERS' QRP/HOME-BREW EQUIPMENT

THANK YOU to all who supplied information in response to the recent questionnaire; some members included the details of their commercial `ready-built' equipment, but this is not included in the present analysis.

The groups reported below are as I allocated them; if members require any other information, in the form of alternative groupings, please contact Max VK5OS #2 (QTH shown on p.2).

Tx and TCVRS

Commercial

Argosy	1
Ten-Tec 505 etc.	8

Kit-Sets

Mizohu	2
Heathkit HW-7	2
" HW-8	2
" HW-9	3
Chelmsford	1
Tassie Devil	4
Howes	10
Club Communicator	15
Drew Diamond designs	7
Un-named	32
Two-fer	1

Rx

Kit-Sets

D.S.E.	1
Sudden	11
Drew Diamond designs	8
Un-named	20

Pwr Output

5W	10
4-5W	5
3-4W	6
2-3W	32
1-2W	16
500mW-1W	5
1uW-500mW	6

S/State or Valve Tx/TCVRS

Solid Stae	73
Valve	12
Hybrid	1

Accessories

A.T.U.'s	7
Keyers	6
S.W.R. bridges	6

Frequency Control, Homebrew

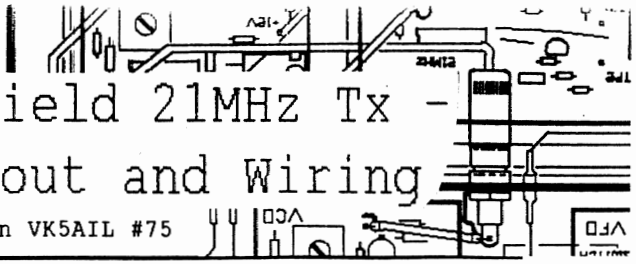
Xtal	69
VXO	0
VFO	13

These results are interesting, but as many replies had no information on A.T.U.'s, keyers etc. we are in the dark regarding the proportions of home-brew versus store-bought (although suspect most would be the former). But no matter, the information regarding transmitters shows a very healthy interest in home-brewing.

There were also many interesting comments and requests regarding future articles, and these will be elaborated upon in the next issue of *Lo-Key*. In the meantime, ***carry on*** those who have revealed an interest in building - one member has listed seven QRP xtal-controlled Tx. And to those who have yet to `roll their own': *Try it, you won't regret the impulse.*

73 Max VK5OS

OOC



The Forrestfield 21MHz Tx - Part 8 - Layout and Wiring

By Rod VK6KRG #28 and Don VK5AIL #75

INTRODUCTION

This final part covers the transmitter layout, installation in a case and wiring.

After installation you should repeat all the other tests and adjustments detailed in the earlier parts.

LAYOUT

The Wiring Diagram in Fig. 28 is schematic only and is not meant to specify a precise layout for the boards or wiring. Other suitable layouts can be developed from the representative ideas illustrated.

It is very useful with a rig of this type to position the boards to give quick and easy access for testing, making adjustments, replacing components and rearranging wiring.

Don't overlook the possibilities from placing some boards on edge. This is one way of giving access to both sides of the PCB.

CASE

The case should be RF proof, with a screen to divide the VFO (and tuning capacitor) and VCO from the remaining five boards. It is best not to try to cram the boards into a small case, as implied in the section on layout.

WIRING

The type of wiring for particular connections is shown in Fig. 28. All coaxial cable must be good quality.

Connections for individual boards are shown on the various parts layouts, Fig. 1 - Block Diagram and Fig. 25 - T/R Switch Wiring.

Care should be taken to ensure earth returns are installed thoroughly, to ensure that stray currents do not interfere with signals e.g. the pulses in VCO control lines.

Double-check power supply polarities and voltages before connecting individual boards.

PARTS FOR ASSEMBLY/WIRING

All the parts should be readily available, if not already in your junkbox.

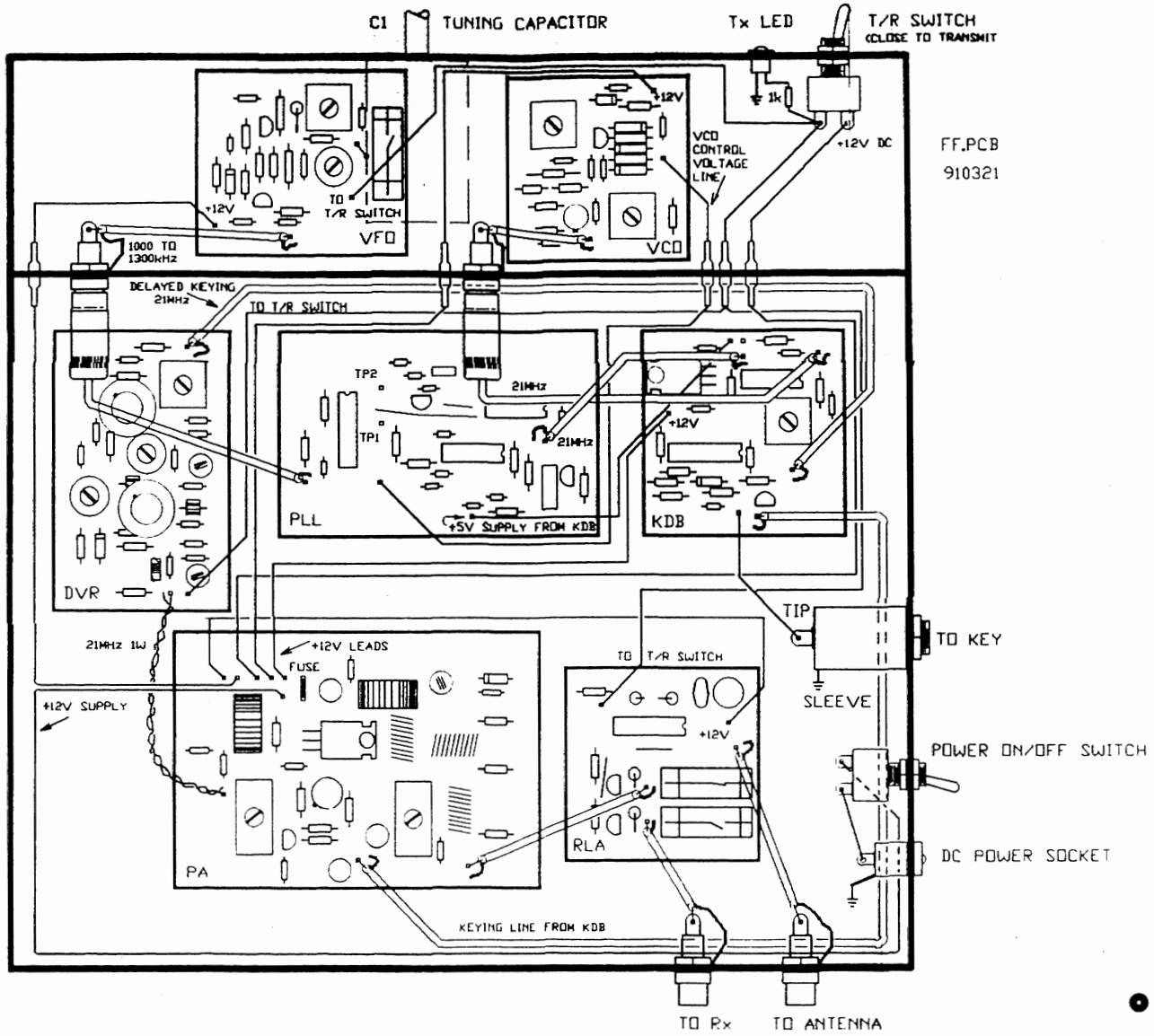
Well, good luck - Let us know how you get on.

. o O o .

ERRATA - *LO-KEY* #28

The T/R Switch Wiring in Fig.25 did not show the 1k (or other suitable resistor) in series with the LED.

FIG. 28 - WIRING DIAGRAM



AWARD FOR BEST TECHNICAL ARTICLE

This award was announced in the 25th issue of *Lo-Key* (p.10), following a suggestion by Len VK5ZF #1. All articles submitted in the period *1 March to 31 October 1990* were eligible.

We were very fortunate to have **Rob Gurr VK5RG** agree to judge the articles. Rob has a strong technical background combined with a high level of expertise as a designer/homebrewer and author of technical articles.

Thankyou for your efforts in the role of independent judge, Rob.

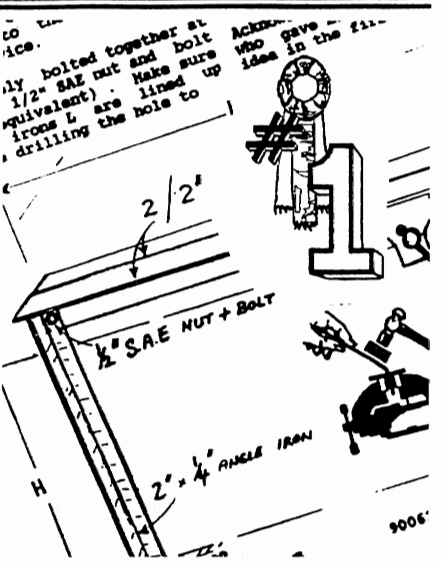
All submissions, some of which are yet to appear in *Lo-Key*, were studied and analysed in terms of the published criteria. The short-listed items came from six Members:
Basil VK2AW #180 Ted VK2CWH #89
Graeme VK3BXG Norm VK5GI #139
Peter VK6BWI #66 Rod VK6KRG #28

We commend the Members who submitted items and have pleasure in announcing that the
Winner of the Award for Best Technical Article is:

Graeme VK3BXG #55
for the article
Benchtop Bending Jig

which appeared on page 26 of *Lo-Key* #26 June 1990. At that time Graeme's callsign was VK3EII.

As winner, Graeme will also receive a special winner's certificate, free Club membership for one year and a voucher to the value of $25.00 for items from the Kit-Set Activity Centre. ***Congatulations Graeme, from all of us.***



Rob VK5RG commented: "All submissions contributed towards the aims of the Club and the principles of Amateur Radio. The most innovative and pertinent to the selection criteria was that by Graeme VK3EII *(now VK3BXG)* on construction of a metal bender utilising an innovative technique of a false leg. This item, although not electronic in its operation, would be a valuable asset to any homebrewer's workshop and may solve a number of metalworking problems currently being experienced by Members. The content of the contributions will assist greatly in maintaining the high level of homebrewing activity encouraged by the Club and promoted in its publications."

Watch this space - maybe we will repeat this or something similar for the period to the end of 1991.

ccc

LO-KEY #1 TO #29 - INDEX OF TECHNICAL ARTICLES

LO-KEY #1 TO #29 - INDEX OF GENERAL ARTICLES

NOTES

The use of capital letters at the start of every word generally indicates that the actual title of an article is given.

There are some minor technical items not yet indexed and the *Index of General Articles* is not complete.

cqc

KIT-SET ACTIVITY CENTRE

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

Supply of Kits & Components
See previous issues of *Lo-Key* for details of kits and components available. We try to include on the component list some which may be hard to get from normal sources. There are many other items in addition to those listed - so it's worth asking. If you are having difficulty finding specific parts we may be able to help, so please come up on the Club Info. Net or send us a note.

The items are brand new except where stated otherwise. We cannot guarantee availability and may have to limit quantities sold to individuals.

The responsibility for all results of using replacement/substitute transistors, diodes etc. are yours. Also, we can give no more than the equivalent of the normal commercial warranty for items sold.

Ordering Kits and Components
Orders and payment should be sent to Don VK5AIL #75 - or to Treasurer Kevin VK5AKZ #43 (address on page 2) if you are applying for membership or paying subs. at the same time.

Please make out the cheque to the CW OPERATORS QRP CLUB and cross it 'Not Negotiable'.

For small money amounts up to $A15.00 it is alright to send the equivalent value of Australian postage stamps. $1 stamps or any lesser values are fine. The receipt will be enclosed with your next issue of *Lo-Key*.

If you don't receive a packet within what you think is a reasonable time pse contact me on the Club Info. Net or write, in case things have gone astray.

CLUB SALES - PRICE LIST

15 March 1991

We give more for less

See previous issues for other items.

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

The items are for the personal use of Club Members ONLY and you are responsible for all outcomes of their use.

'K' in number indicates a it-set, usually short-form.

Code No.	Nbr in a pack	$A Price per pack
K001	1	79.00
Club Communicator Full Kit-Set 3.5MHz CW QRP Tx. Complete with 52 page manual. See Lo-Key #14 Jun 1987.		
K006	1	25.00
Sensitive SWR meter. Short-form kit. Plus 5W dummy load Manual included. See Lo-Key #19 Sep 1988 & AR Apl 1983.		
K011	1	42.00
Flexi-Sudden multi-band receiver; 80m supplied. Based on design by George G3RJV #96. Short-form kit with manual. Extra modules available for other bands. See K014.		
K014	2	18.00
Pair of extra BPF and VBFO modules for the Flexi-Sudden. You nominate band. See Lo-Key #25 Mar 1990.		
C043	1	1.50
Toroidal core Amidon T-50-2 (red) iron powder. 2 - 10MHz tuned circuits; 0.5 - 30MHz broadband.		
C044	1	1.50
Toroidal core Amidon T-50-6 (yel) iron powder. 10 - 20MHz tuned circuits; 2 - 50MHz broadband.		
C095	1000	177.00
	500	137.00
Club QSL cards - You nominate exact wording of name and address. See Lo-Key #28 Dec 1990.		
C096	1	0.60
Club logo stickers 38mm diam. One sheet of 20 stickers. Black print on white. See Lo-Key #28 Dec 1990.		
C098	1	10.00
G-QRP Club Circuit Handbook. Copied with permission.		
C099	1	1.80
Past issues of Lo-Key. You nominate month/year or issue number. #1 and #2 count as one.		

200TH ANNIVERSARY OF THE BIRTH OF SAMUEL MORSE

Samuel F.B. Morse was born 200 years ago, on 27 April 1791 - certainly a FB day !
Morse developed the first successful electric telegraph in the United States during the 1830's. The means of sending and receiving the messages have changed over the years - for example, we have now achieved *wire-less* communication using radio. Morse gave his name to the code we now use, which has been modified a little over the years.

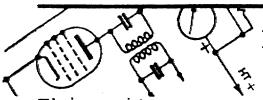
Samuel Morse was a talented artist who gained recognition as a portrait painter. He used earnings from his art to fund telegraphy experiments.

By the way, Morse was born in the year of Wolfgang Amadeus Mozart's death.

Let's hope there will be plenty of CW activity on this anniversary, which falls on a Saturday.

It is interesting to note that many other activities which were at the forefront of technology or were essential ways of doing things many years ago, are now also enjoyed as leisure, sporting or hobby activities e.g. sailing, jogging, archery and various martial arts plus wrestling and boxing - and of course morse code. Maybe writing will fall into this category during the *next* 200 years ?

ccqc



HOW TIMES HAVE CHANGED !

This item arose out of an exchange of letters with **Bill VK2WAS #142**. Bill is quite active at homebrewing equipment and also makes good use of it on the bands. Bill mentioned in one letter that he had overcome a problem he found when building the *Sudden* DC receiver. After the main technical bit, Bill went on to write:

"CW was easy to tune but of course without a reduction gear on VC1 SSB was difficult but possible with care. I have since fitted a Dick Smith (DSE) reduction drive which is a big improvement. I haven't had much opportunity to try it out as I only got it back in the case yesterday but have heard ZL, FK8 and USA on CW (US stations were in a contest last Saturday night about 1am after VK stations closed down). Also heard VK2/3/4/5 on SSB, using my station trapped dipole. I must try a simple wire antenna to a tree !

I will now have to go back to my *Club Communicator* which is fairly well advanced. I was thinking that it must be about 48 years since I last constructed a receiver - a 1 valve shortwave set with plug-in coils using a 19 valve. It was about 1942 and I was a Postal Clerk in a Military Post Office, doing morse about 8 hours a day. I had the radio in our tent with a wire up a tree for an antenna."

(In 1942 if Bill had gone out for some chips and a dip it would not have been for IC's in a D.I.P. package !)

Early Bird Net - Postscript

By Colin Coles VK3DEG

(Editor's Note - Colin VK3DEG has sent some more info. on the *Early Bird Net*, with some practical ideas about teaching Morse code. This latter is a valuable point of view in response to VK2DRL Bob's request for comments - See December p.9)

• • • • • •

Concerning *the method of 'teaching' beginners - I do not approve of the E-I-S-H etc. method as this inevitably leads to "opposites" being taught i.e.* ▬▬• *= G and* •▬▬ *= W.*

This is "FATAL" as the beginner never learns to sort one from the other ! I am already in the process of "un-learning" a Novice who mixes 'em up !!

I teach the regular (R.N.) way by taking the letters A - Z, then the numerals - a few at a time until the whole alphabet is recognised - <u>each</u> letter/numeral as a <u>separate</u> individual entity.

I have a "Beginners Tape" for this method and an instructional 3-page leaflet taking the "beginner" through the code, teaching elementary recognition of 5-character groups (the real way to learn Morse !) and, finally, slow plain language.

If your "beginners" are interested I can copy onto their blank C90 tape + postage + 20¢ for the photocopying of the sheets.Note that the spare space on the reverse side of the C90 tape, I fill up with plain language to suit the "beginners" requirements or capabilities i.e. he/she tells me what is wanted there.

****

Early Bird Net 0700 - 0800 EST /EDST-

New Frequencies

* * * * * * * * * * * * * * * * *

Because of QRM from IVT the net has shifted frequency from 3547kHz to -

* 3539kHz (SSB)

* 3538.3kHz (CW)

****

cqc

MAGGIE'S SURPRISE PACKET !

A tearsheet from *Amateur Radio* March 1991

Musa on 13th January 1991 at 2145 UTC.

Maggie spoke with Musa and Victor U9MIR on each of several mornings and then, during the contact on Saturday, 19th January, Musa asked her to come up on packet. After a hurried setting up, connects were made [illegible] but by then the [illegible] later. On subsequent passes files were exchanged and Musa is now fully operational on packet. He is also anxious to experiment with BBSs.

Maggie has sent up files on this and VK3JAV has set up a port for Musa to access his BBS. Maggie is justifiably very excited about her activities.

World First for VK3 Amateur

Maggie Iaquinto, VK3CFI, has become the first in the world to work the Russian satellite station, U2MIR on packet radio. After two years of trying to make an MIR contact she finally spoke to

DC SWITCH/ANTENNA C/O RELAY

By Ian Smith VK8CW #91

The main characteristics I feel are important for an antenna change-over relay are:

1. Must be key compatible i.e. low current, no false triggers
2. Relay must operate 'instantly'
3. Relay must release after a preset time (0.5-1.0 sec)
4. Timing must be consistent i.e. if only one 'dit' is presented at 30 wpm speed, the release time must be the same as for a 'dah' at 5 wpm
5. Low current
6. Should provide output for sidetone oscillator.

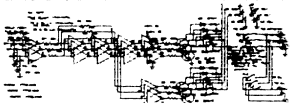
I went for the IRFDZ13 type for Q2 as the CMOS device requires only small RC component values (small C, high R) to give a usable time constant. This leads to quick operate time and low trigger (key) current.

The Tandy part may not be available but Farnell or other IR stockist can supply the equivalent IRF1Z0 (@ $1.71). The rest is pretty straightforward.

(Editor's Note: The IRFD1Z0 is available from the Kit-Set Activity Centre. Two are provided, with data sheet, for $3.20. The transistor Tandy nominates as IRFDZ13 is actually IRFD1Z3. The IRFD1Z0 is 'stronger'. The same transistor is used in the Gemal tcvr - see Lo-Key #21 March 1989).

(Continued opposite)

BOOMERANG CIRCUIT BOOK



BCB #3 CIRCULATION LIST

Basil	VK2AW	#180
Ted	VK2CWH	#89
Alan	VK2FIZ	#182
Jim	VK2FNF	#128
Wes	VK2MIR	#162
Reg	VK3BPG	#7
Roy	VK4RE	#15
Steve	VK5AIM	#184
Don	VK5AIL	#75

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

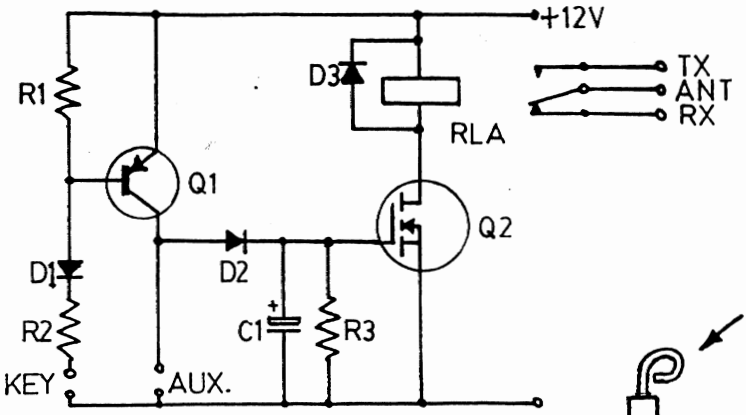
It's an opportunity for VK members to have access to many circuits and homebrewing tips relevant to QRP and to the general field of amateur radio. You pay the postage (currently $2.40) to the next person on the list.

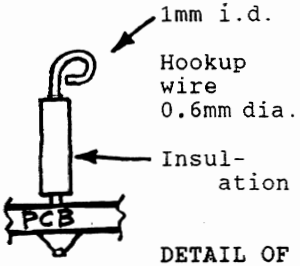
The list of members is in the packet with the sheets, along with the `rules' e.g. Sign the list to show that you have seen the BCB. Be quick so that others don't have to wait too long. Rather than adding new papers to the packet (which we need to keep just below 500g to save postage charges), send your suggestions to me or a member of the Executive (list on p.2).

If you are on this list, but don't wish to see BCB #3, please tell me or one of the Executive.

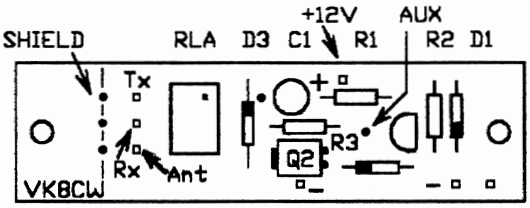
We will send BCB #3 out on its first flight at the start of April 1991. The process will be repeated while there are still members who wish to see it - but the those last on the list will probably have longer to wait !

Norm VK5GI 25 Ralston St. North Adelaide SA 5006





DETAIL OF TERMINAL (2X full size)



VK5AIL IANANT.PCB 910317

COMPONENTS:

R1,R2 39K

R3 560K - 1M

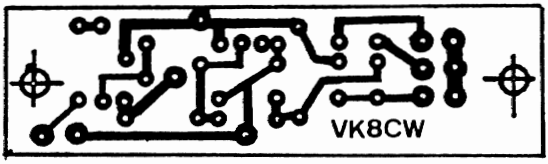
C1 0.47uF

D1,D2,D3 1N4148

RLA 12V, SPDT (TANDY P/N 275-241)

Q1 BC559

Q2 IRFDZ13 (TANDY P/N 276-2073) OR I.R. EQUIV.



PCB LAYOUT DC SWITCH / RELAY

PURPOSE: To produce an antenna change over relay with quick operate and slow release times, thus allowing the key shaping circuit to control the Tx output prior to release of the relay.

CONSTRUCTION: Straight forward; D1,2,3 polarity important; CMOS handling precautions are required for Q2.

PERFORMANCE: Release time 0.5 seconds - increase R3 to increase; key-up current 0mA; key-down current 35mA; auxiliary 12V output for side-tone generator. 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 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 c u t a l o n g t h i s l i n e

==========

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 .....

March 1991 910319

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

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