

B.A.R.G. News



Official Newsletter of the Ballarat Amateur Radio Group Inc. # 6953T
ABN 44 247 200 143

VOLUME 29 ISSUE 8 August 2006



President: David Tilson VK3UR
Secretary: John Kennedy VK3AIG
Treasurer: Gordon Cornell VK3FGC

NEXT MEETING - FRIDAY 25, 2006
At 7.30 pm

Contacting us

You can write to the club at the address below, or e-mail the secretary.

The Secretary : B.A.R.G. Inc.
Box 1261
Mail Centre
Ballarat. Vic. 3354.



Or E-Mail: vk3aig@barg.org.au

BARG Inc. Life members

Kevin Hughes	VK3WN
Ian McDonald	VK3AXH
Charlie Stewart	VK3DCS
Bob Terrill	VK3BNC
Jim Wright	VK3CFB
Norm D'Angri	VK3LBA
Phil Seddon	
Stan Widgery	SK

CLUB INFORMATION

REPEATERS and BEACON

VK3RBA	(Voice)	146.750 Mhz	Mt Buninyong
VK3RWA	(Voice)	147.100 Mhz	Mt Ben Nevis
VK3RPC	(Packet)	144.750 Mhz	Mt Warrenheip
VK3RBU	(Voice)	438.475 Mhz	Mt Hollowback
VK3RMB	(Beacon)	435.535 Mhz	Mt Buninyong

IRLP Node 6310 using VK3RRWA

CLUB e-mail vk3bml@barg.org.au.

CLUB NET VK3BML 3.610+/- QRM Thursday Nights at 8 pm E.S.T (Summer & Winter)

WIA Broadcast and Club Call Back. Sunday's 11.00 via VK3RWA (IRLP Node 6310)

NEWS ITEMS Send to Harry VK3KGL

Or mail to Box 1261 Mail Centre BALLARAT 3354 or e-mail vk3kgl@barg.org.au

Broadcast Times and Dates on VK3RWA Repeater

Every Sunday at 10.30 am, WIA National News, followed by VICLINK

Every Monday night at 9.30 pm, ARRL News

Every Tuesday night at 9.30 pm, WIA National News Repeat

Every Wednesday night at 9.30 pm, Spectrum Tasmania News

MOWING ROSTER



It is that time again when we publish the mowing roster for the Club rooms. The mower and fuel are at the rooms, but when the fuel is getting low please contact the committee to get a refill. Any new "mowers" will be fitted in.

Grass growing has been cancelled.

Therefore no roster.



B.A.R.G.
Ballarat Amateur Radio Group Inc.
Inc.# 6953T ABN 44 247 200 143
HAMVENTION

SUNDAY 5th. NOVEMBER 2006

at the

**THE GREAT
SOUTHERN WOOLSHED
WESTERN HIGHWAY (SEE MAP)
A NEW VENUE**



DISPLAYS & SALES

START STRICTLY AT 10 AM.

Gates open for set-up of traders at 8 am.
TRESTLES AVAILABLE—\$15 (1.8m)
(Includes 1 admission)
BOOKING ESSENTIAL

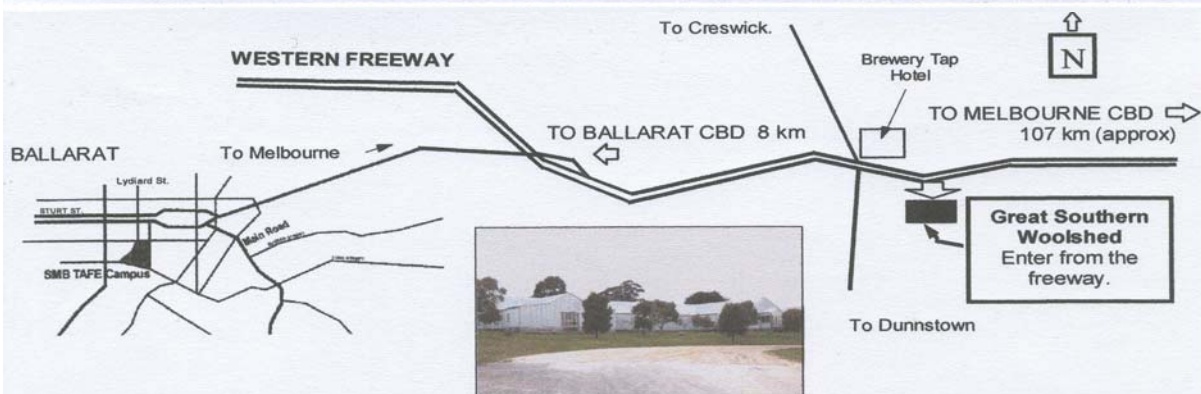
ENQUIRIES TO:
Ian VK3AXH
03 5341 3012
Email:
<igm@netconnect.com.au>
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Mail:
P.O. Box 1261
Mail Centre
BALLARAT VIC 3354

LIGHT LUNCH AVAILABLE

**TEA and COFFEE
ALL DAY**

MAP OVER PAGE →

ADMISSION \$6.00
(Under 15 Y/O Free)



The new Hamvention site is the **Great Southern Woolshed**, and is located approx 8 km East of the Ballarat City Centre, on the Southern side of the Western Freeway from Melbourne.

THE HAMVENTION IS ON SUNDAY THE 5TH OF NOVEMBER 2006
WE LOOK FORWARD TO SEEING YOU THEN - DRIVE SAFELY.

The Internet Linking Project Some IRLP Functions

DTMF Code:	Announcement / Function:
# 0	Check node status
# 1	Announce what the menu options are (Does not list all #2x options)
# 73 and 73	End any connected link
# 2	Weather menu (List's what the #2x options are)
# 20	Weather for Ballarat
# 21	Weather for Bendigo
# 22	Weather for Stawell
# 23	Weather for Ararat
# 24	Weather for Hamilton
# 25	Weather for Maryborough
# 26	Weather for Horsham
# 27	Weather for Castlemaine
# 3	Say the time
# 4	Call a random node
# 5	Watch a busy node and try to connect when it's free
# 10	Announce BARG General Meeting information
# 11	Announce BARG HF Net information
# 12	Announce BARG Hamvention information
#1 3	Announce BARG Monthly information

We have some more cool stuff happening on the **Google Earth** front:

1. Update your [google earth client](#) to the latest BETA version
2. Click this link: <http://www.irlp.net/setup-irlp.kml>

It will download a "network linked" kmz file from the server which will update every 2 minutes, complete with all the info for all the links and nodes.

Soon we will split the Active nodes, down nodes, and links out into separate "Network Links".

When existing Google Earth, when prompted, save the changes. That way all you will have to do is open up Google Earth, and all IRLP connections will be displayed. Yellow lines are node to node while blue are reflector connections.

DO'S and DON'TS

***DO** pause between transmissions to let other in or others to enter DTMF command.*

***DO** identify before sending DTMF command tones.*

***DO** hold your microphone PTT for about 1 second before talking to allow all systems time to rise.*

***DO NOT** rag-chew on your local repeater while connected to the reflector.*

***DO** pause for 10 seconds or when entering the reflector before talking.*

DO NOT start or plan a Net without pre-authorization from the reflector owner

Ballarat Amateur Radio Group Inc

Minutes of General Meeting July 28 2006.

President David opened meeting at 1945 hrs and welcomed visitors Central Goldfields Amateur Radio Group, also special welcome to BARG visitors Neville and Darryl.

President David outlined the activities for this evening,
Business of BARG meeting.
Overview of both clubs followed by Coffee and chat.

Apologies, Vk3hrz. Vk3fgc. Vk3tcv, Vk3dcs, Vk3kqq. Vk3det, Vk3se, Vk3bnc, Vk3caz.

Minutes of June meeting as circulated. Moved Vk3cmc/Vk3nbv. Carried.
Business arising from minutes. Ian Vk3axh reported on Hamvention map and direction now complete. September or October AR.

Correspondence, In City of Ballarat and Neighbourhood cable A/Cs QST.
WIA acknowledgement of Grants application,
Moved Vk3vba/Vk3hhk that correspondence be accepted. Carried.

Financial Report, Nil,

Grants. David Vk3ur reported on progress of grant applications to City of Ballarat and WIA re Radio Modernization and Multi -media facilities. Correspondence from WIA indicated that there are 12 applications from Clubs around Australia and outcomes to be finalized end September.

Life Membership. David Vk3ur reported that Committee decided to acknowledge life members with a framed Certificate to be hung from wall This is now complete thanks to Norm Vk3lba.

JOTA. John Vk3cfh reported on communicating with JOTA re scout activities in October. Fine tuning will take place closer to the event.

Surplus Equipment David vk3ur reported on Committee decision and motion. :That all surplus equipment belonging to BARG be advertised in an open and transparent arrangement allowing all members an equal opportunity to purchase if so desire: .

There have been no issues to date. But the Committee wants fairness and equity in the future when surplus gear becomes available.

Gippsland Hamvention Doug Vk3vba reported on successful trip to Gippsland Gate Hamvention, 40 tables on offer and 9 members made the trip.

RD Contest. John Vk3aig reported on progress RD Contest on behalf Steve Vk3se, Steve would like list of participants so as to arrange training hour prior to Contest. 7 members indicated they would be attending.

Repeater 6m. John Vk3aig reported on verbal contact with Tim Vk3tim re letter to Tim on his offer to donate 6M repeater to BARG. Tim has expressed his willingness to be a member of BARG and be part of the repeater installation. Tim to be invited to next BARG Committee meeting and discuss the proposal.

IRLP/Packet. John Vk3tjw reported on Packet /IRLP interface. Group met during week . Software to be installed. David Vk3ur has produced an on line website form so as members can report any malfunction of BARG gear.

Club Nets. Clem Vk3bva reported on successful Club net. Ian vk3cis reported on Western Zone missed the last night but still ok.

Construction Group. Ian Vk3axh reported on activities of Construction Group.

Dining night very successful at Rokewood. Next outing 18 August Crown Hotel Buninyong.
Hamvention. Ian Vk3axh reported on arrangements in hand for coming Hamvention and stressed the importance of all hands on deck for an early start.

Education. Craig Vk3cmc reported on forthcoming Foundation Licence course planned for the weekend of 16/17 September. The proposed midweek course in August had to be cancelled due to lack of numbers.

Awards. John Vk3aig reported from Ernie Vk3det that he would like to see the award more open to all modes i.e. IRLP Repeaters etc etc. Would like the Committee to discuss and recommend an outcome.

Newsletter, Harry reported on early start for August newsletter due to his departure to sunny places. David Vk3ur to complete .

General Business. Annual General Meeting Members asked to give serious consideration to Nominations for positions being vacated this coming month. Nominations close on 11 August. The President ,Secretary and Vice President will not be seeking reelection.

Meeting closed 2050 hrs.

President David Introduced President Peter Vk3cc of CGARC and through Dennis Vk3dwc gave an interesting overview of their Clubs history. In rented premises at the moment but hope to have permanent home in the coming future. Have a membership of 35.

The Construction group busy with many projects, Very successful with the Foundation Licence examinations.

President David Vk3ur gave an equally interesting overview of BARG, The facilities for members. The current repeaters. The proposed Radio Modernization Project.

Craig Vk3cmc overviewed the library.

Ian Vk3axh outlined the Construction groups Projects.

John vk3aig on behalf of Ernie vk3det outlined the interest in the Awards and is hopeful of initiating an award that will encompass IRLP. Repeaters etc etc. Our visitors to be kept informed.

John Vk3tjw gave an overview of the IRLP and Packet interface.

Doug Vk3vba served up a very nice supper and evening concluded over coffee.

Understanding Engineers

To the optimist, the glass is half full. To the pessimist, the glass is half empty. To the engineer, the glass is twice as big as it needs to be.

What is the difference between Mechanical Engineers and Civil Engineers?

Mechanical Engineers build weapons and Civil Engineers build targets.

President's Report:

August has come around quickly and once again it is time to elect a new Committee for our Club. It has been another busy year and I would like to reflect on the activities that the Club has undertaken and the efforts made by a number of members over the last 12 months.

We have had some very interesting guest speakers throughout the year including Mark Schmid from Neighborhood Cable, Chris Long talking on optical voice communications, and Jack **VK3WWW**, Peter **VK3QI** and Max **VK3WT** talking about their Dx-Pedition to St Peter Island, off Ceduna. Each of these presentations had something for everyone and we are grateful for the generosity of the speakers.

We have been visited throughout the year by members of the Geelong Radio and Electronics Society (GRES), the Ballarat Astronomical Society and the Central Goldfields Amateur Radio Group. These opportunities have allowed our members to socialise with fellow enthusiasts and expand our knowledge in different aspects of our diverse hobby.

Doug **VK3VBA** has organised 2 bus trips for our members to attend the Moorabbin and the Gippsland Gate Hamfests, complete with the obligatory food stops for Clem, providing our members with a chance to attend Hamfests that they may not otherwise be able to get to.

BARG participated in the highly successful Planes, Games and Automobiles Open Day at the Ballarat Airport last October. We had approximately 150 visitors through our display including various Councillors from Ballarat, who gained a better understanding of BARG and Amateur Radio.

With the revitalised licencing structure for the Australian Amateur Radio Service and the introduction of the new Foundation Licence BARG conducted its first Foundation level training course during the year. Under the leadership of Craig **VK3CMC** all 4 students successfully passed the written and practical examinations. We have been donated an overhead projector and have produced OHP slides of the training material to assist with courses that are scheduled over the coming months.

Our Hamvention, under the leadership of Ian **VK3AXH**, was very successful with a large number of amateurs attending from around Victoria and interstate. We continue to attract a large number of commercial exhibitors who generously donated prizes for which we are grateful. This year we move to a new venue which looks very attractive.

Although there was not very much equipment available this year we held another fun George Fowler Memorial Auction with all of the items going under the hammer of Bob **VK3BNC**.

Craig **VK3CMC** has been busy sifting through the contents of our library, identifying duplicates, and putting a system in place to better manage our resources. Our member for Ararat, Stewart **VK3ASH**, has assisted in the wood working department to effectively double our storage space in the library. As can be observed during most meeting nights, this is probably the only library that doesn't have a "Silence Please" sign and is often noisier than the main meeting area...

The Construction Group, under the stewardship of Ian **VK3AXH**, continue to grow from strength to strength with several new projects including the modification of computer power supplies, construction of an antenna analyser as well as 1296MHz and 2304MHz transverters and optical voice transceivers. The group also ran CAT5 computer cable throughout the club rooms enabling internet access to our various computers. Works have also been undertaken to develop the Workshop next to the Meeting Room, including the acquisition of drill presses, vices, etc.

John **VK3TJW** and Rick **VK3BEB** have been busy maintaining our IRLP system, establishing internet access to our computers and are in the process of developing a packet radio BBS.

Our Dining Nights have grown in popularity and have been a great opportunity to socialise with fellow members and their partners.

Les **VK3JEM** and Merv **VK3ADX** have volunteered to build a board to celebrate and remember former BARG members who are now Silent Keys. A small board, designed by Norm **VK3LBA** has been produced to remember and acknowledge our Life Members.

During the year the Committee and Membership endorsed a plan to modernise the Club's Radio Shack and bring it up to a "state of the art" facility, pending the availability of funding and in a staged process.

As a Club we have applied for financial assistance through the Ballarat City Council Community Grants Scheme and the Wireless Institute of Australia Club Grants Scheme. We are awaiting the results of these applications and hope to achieve some success with these to aid with a number of our endeavours over the next 12 months.

Harry **VK3KGL** has been a busy lad producing our newsletter on a monthly basis, which has been greatly appreciated. Apart from meetings and on air nets this is our primary method of keeping our members, and others, informed of recent and coming activities within the club and across the hobby.

It has also been satisfying to note that there has been a steady increase in the number of memberships during the last 12 months. Welcome to all concerned and I hope that you will enjoy the benefits that your Club has to offer.

In summarising, there have been a number of members that have contributed to the successful running of the club over the last 12 months. The Committee has worked well as a team in promoting the best interests of the Club and I would like to thank them and all others who have assisted in various ways in making BARG a vibrant and successful Club. Please give some consideration to becoming actively involved with the development of the Club at the AGM.

On a personal note I would like to highlight the efforts of our esteemed Secretary John **VK3AIG** who has gladly taken on various tasks throughout the year and has always put up his hand to offer assistance when requested.

Yours in amateur radio,

David Tilson, VK3UR

COAX DIPOLE

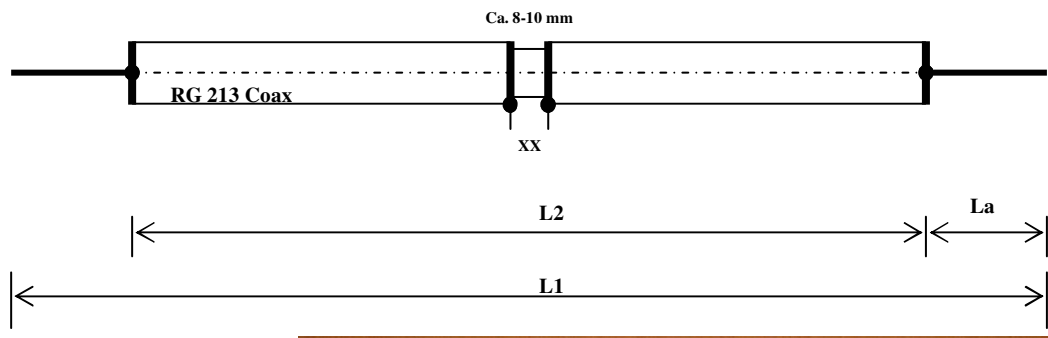
On the next page is a project for a UHF Dipole.

The antenna on the next page is designed for 432 Mhz. ,but the formula is there to design for any frequency.

Some were made for UHF TV antennas for Caravans, and work very well.

Coax-Dipol

Der Coax-Dipol wird komplett aus einem Stück Koaxialkabel RG 213 oder RG 58 (je nach mechanischer Grösse) aufgebaut. Es entfällt dadurch jegliche Anpassung und Symmetrierung. Bedingt durch den konstruktiven Aufbau weist die Antenne immer eine Impedanz von ca. 50 Ohm auf.

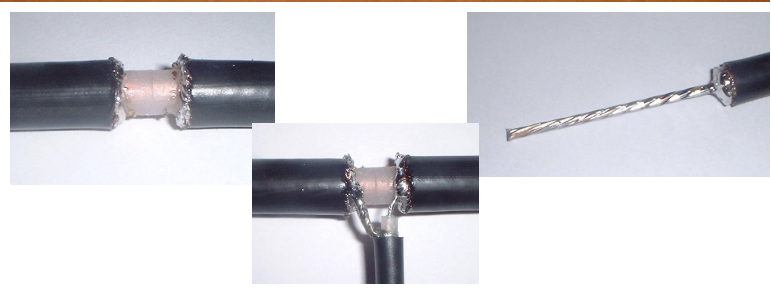


$L1 = 148 / f \text{ in MHz} = \text{Länge in Meter}$
 $L2 = 99,4 / f \text{ in MHz} = \text{Länge in Meter}$
 $La = (L1 - L2) / 2$



Beispiel: 432 MHz (RG-213)

$L1 = 0.34 \text{ Meter} = 34.0 \text{ cm}$
 $L2 = 0.23 \text{ Meter} = 23.0 \text{ cm}$
 $La = 0.055 \text{ Meter} = 5.5 \text{ cm}$



In der Mitte wird ein ca. 10mm Stück der Aussenisolation entfernt und das Schirmgeflecht in der Mitte getrennt. Das Schirmgeflecht zurückschieben und auf ca. 1-2mm kürzen und sauber verzinnen. (Hier wird später das Speisekabel angeschlossen.)

Der isolierte Innenleiter sollte etwa 8mm freiliegen.

Von den äusseren Enden aus in Richtung Mitte wird nun die Aussenisolation auf einer Länge von 55mm entfernt. Das Schirmgeflecht wird soweit gekürzt, dass noch 3-4mm sichtbar ist. Dieses wird jetzt über den Kabelmantel zurückgeschoben.

Nun wird die Isolation des Innenleiters ebenfalls auf einer Länge von 55mm entfernt. Das zurückgeschobene Schirmgeflecht wird wieder nach vorne geschoben und mit dem Innenleiter verdreht und gut verlötet.

Der Antennentest erfolgt in horizontaler Position, so dass das Speisekabel senkrecht nach unten führt. Bei vertikaler Position muss das Speisekabel ca. 1 Wellenlänge im rechten Winkel vom Strahler wegführen.

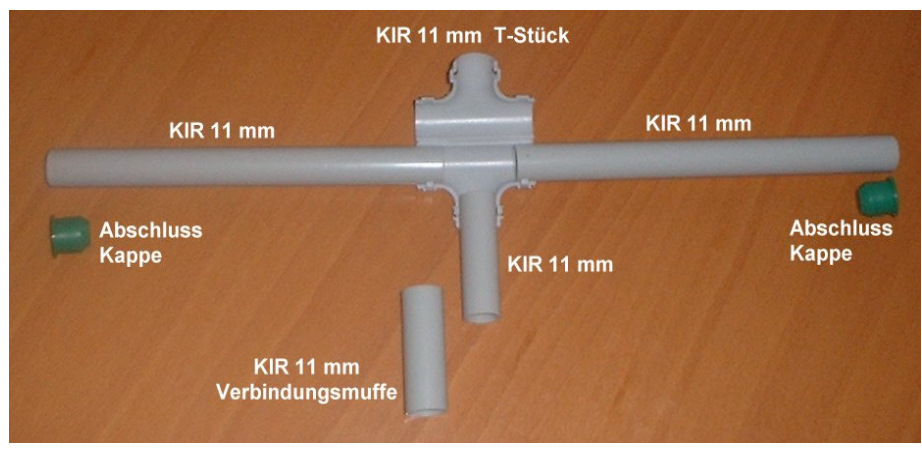
Eine eventuelle Korrektur auf die Resonanzfrequenz erfolgt über kürzen oder verlängern der Schenkel (La).

Erfahrungsgemäss sind die mechan. Längen relativ unkritisch und ein Abgleich ist meist nicht erforderlich.

Outdoor-Variante:

Nach dem Abstimmen wird der Dipol mit Heisskleber in die Elektroröhre eingebaut.

Das Speisekabel wird durch einen Schlitz im kleinen KIR-Stück herausgeführt.



Well its another month and again another QST review. Seems just like I looked at the July edition and here's the next one.

This month is hailed as the annual antenna issue, so the first article covers "building UHF yagis – the practical approach" pp28. The author W6PQL likes using the DJ6WU wideband yagi design and uses the John Drew VK5DJ web site for *Yagi Calculator* at www.vk5dj.mountgambier.amateur.radio.html for additional usage. If you are just a beginner in rolling your own antennas for VHF and UHF then this design is well tried amongst the VHF fraternity. Also the saying that "a picture is worth a thousand words" bears looking into as there are some fifteen close up photos of how to make the folded dipole driven element, the matching balun for these units. Another secret is shown as how to accurately measure the same distance along a circular boom when you need to make two or more booms for stacked beams. Very simple really. And how do you drill multiple holes thru a round tube so that all the elements are in the same plane at the end? Read this article.

More interested in an 15 & 20M loop antenna. It has two elements and droops downwards. An extra bonus of this one is that it will resonate on 10M as well although the SWR is slightly higher [less than 3:1] but a good ATU will make it better than that with about 9dBi forward gain.

Pp35. Read about going mobile on VHF and the effects of the path and propagation when using a repeater. It considers the multipath signals from various buildings and other natural formations.

A compact Quad multiband antenna is discussed on pp38 and how to easily match to it for four band coverage. The loop covers 40 to 15M and uses 18G enamelled wire. It uses 72 feet [they still use feet in the USA] for the loop and another 72 feet for the open wire matching section. An advantage of the loop is its resonance on all multiples of the fundamental frequency design allow it to be used on 80 through to 10M but not the newer WARC allocation bands.

The famous Dayton 2006 Hamvention is given a run through on pp40. This must be a place to see if you are going over stateside. Only problem is fitting some of the heavier bargains there into the cabin baggage on the return home. The theme this year was towards newer licences and accent on young people.

The Doctor answers queries on making ones own ladder line feeder [see previous article for the quad antenna] and how to calculate the desired matching impedance using different sized wires AWG. Another question deals with fusing BOTH the positive and negative leads on a vehicle mounted unit and where to connect the leads to the power source.

Another query concerns power line noise and how to locate the source for remedy.

A review of a new Free charge portable energy source is very similar to the early Alf Treager pedal radio power source for the RFD service in out back Australia. Used for low powered battery equipments [7AH capacity] it can be recharged with 15minutes of pedalling.

Are you keen to know how good earth's really are in antenna installations then read the article pp48 in the getting To Know Your Radio section. Worth knowing best way to protect your station when lightning is nearby.

Want a simple dual 2M and 70cm vertical antenna for home or even to take to field day or WICEN activities. Look at the article on pp50 and see how simple it is to make from pvc plumbing and aluminium tubing. Having broad band characteristics and acceptable SWR on both bands, well under 2:1 its another idea for the home constructor.

Hands on Radio pp52 looks at RF Oscillators Exp #43. Following on from Phase shift oscillators last month #17 the author describes how to make an amplifier oscillate by use of positive feedback. Some simple mathematics and we look at the basic oscillator configurations of the Hartley and Colpitts and the relative advantages and disadvantages of each one.

They encourage construction of simple circuits to try your own hand at “home brewing” and describes a simple breadboard or “ugly” construction to make a usable base for next months article which will allow you to build your own tunable Hartley oscillator for a 40M transmitter. Give it a go.

Hints and Kinks this month pp54 looks at 1. Errors in the May H&K article on making your own High Voltage capacitors. 2. A tuning fork as a Tuning Aid for CW. 3. Repairing a damaged boom on a beam antenna.

REVIEWS this month are on medium to HP antenna tuners. For low power units look at the review in May 2004 QST [100-200W max]

MICROWAVE interests may care to look at pp76 and read about: how to read frequencies accurately at these frequencies. The article discusses GPS and the REFLOCK systems for doing this.

Another section in the magazine takes us back 75, 50 and 25 years ago and reviews what was in the August edition in 1931, 1956 and 1981. Makes for some interesting memories for old timers, [especially Gordon!! In 1931 Ross Hull describes his transmitter for “Duplex Phone on 56Mc.”

Well worth a look at what I would call MEMORY LANE.

Who knows we may just have one or two copies of the old editions in the Library for members to peruse.

Finally there are the commercials to look at and if you are into contesting and such like activities. I notice that our Presidents mother is up in the DXCC with a score of 341 overall score also. Well done Gwen.

That’s all for this months review. Look forward to seeing the magazine, and all the others doing the rounds of individual shacks in future weeks.

73 Craig VK3CMC

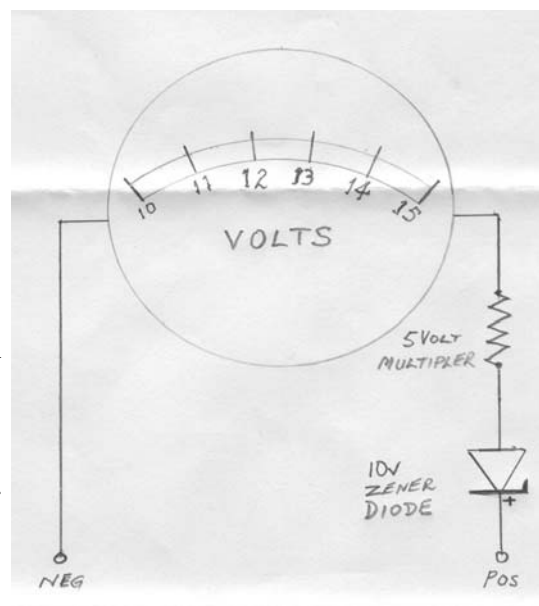
A helpful hint

Brian, VK3KQB

So your new power supply has a volt meter fitted but it has a range of 15 or 20 volts and 13.8 volts is hard to determine. Here is a simple method to make the scale of the meter only indicate say from 10 volts to 15 volts or 12 volts to 15 volts, as you may desire, for full scale indication.

Wire a 10 volt or 12 volt Zener Diode in series with the meter and the multiplier resistor for either the 3 volt or 5 volt range you desire to read. The meter scale can be altered to read eg. 10 to 15 or

12 to 15 for f.s.d. It may be necessary to select the zener diode for the correct starting point but if it is almost correct a simple adjustment of the zero setting of the meter (that little slotted thing at the lower center of the meter case) will set the needle - best done at 13.8.



Propagation Report August 2006

HF

Again this month there has been listing to get excited about in regard to HF propagation. Whilst I have heard plenty of VK's and ZL's on the lower HF bands namely 160M, 80 and 40M there is not too much happening.

There is a bit of DX about in the late afternoon on 40M into Europe and the USA with a fairly prominent station with either Canadian/American accent with a big signal into VK. Ed can be heard most days (terrible I forget his Callsign)

VHF and above

Apart from the normal communications heard there is little to report on 2 metres and above. The activity seems to be somewhat lower than normal we will blame the cold weather on this one. However I see Lee VK2KRR is continuing to achieve access and contacts on many FM repeaters from his location at "The Rock" in NSW just south of Wagga Wagga.

Club Projects

I can report there are now 3 stations that have been able to communicate as a result of completing or near completion of the 1296 transverter project. Kevin VK3WN, Ian VK3IDL and Ian VK3AXH have had contacts across town with good results.

In relation to the limited number of 2.4GHz kits being undertaken (5) a couple of the group are close to some testing.

Work is continuing with the construction of the Modulated Light Transmissions and preparation is well underway for the 16 participants undertaking the 1-500MHz Antenna Analyser Project.

Till next time 73, Ian VK3AXH

B.A.R.G. Inc.

(Ballarat Amateur Radio Group Inc. #6953T)

ANNUAL SUBSCRIPTION & CLUB REGISTER CHECK

DATE:.....

RECEIPT No:.....

NAME:.....

CALL SIGN:.....

ADDRESS:.....

PHONE HOME:.....

SUBBURB:.....

MOBILE PHONE:.....

POSTCODE:.....

PHONE WORK:.....

SUBSCRIPTION PAID:..\$......

E-MAIL:.....

If the Club decides to publish a Club Directory, are you willing to have the above information included?

Y or N

SIGNATURE:.....

B.A.R.G. Inc.

(Ballarat Amateur Radio Group Inc. #6953T)

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SUBSCRIPTION PAID:..\$......

E-MAIL:.....

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Y or N

SIGNATURE:.....

Available from Brian, VK3KQB

List of Parts

Resistors are 1/4 watt Carbon Film

**6R8, 12R, 18R, 33R, 47R, 56R, 82R, 100R, 470R, 1K, 1K2, 2K2, 3K3,
3K9, 4K7, 6K8, 10K, 15K,
22K, 27K, 47K, 56K, 68K, 82K, 100K, 270K, 1M**

Red Leds plus mounting escutcheon

100uF/25V and 1000uF/10 electrolytics

Si Diodes in packets of 50

1N914/1N4148 small signal diodes

0.8A NTC

Neons with leads, and IC-uA7806 for 6 volt regulation

The list of parts are available from Brian VK3KQB at competitive prices. Brian can also supply parts for those involved in the Analyser Project in particular the Knobs for the Switch and Potentiometer. These parts are very useful to have in the shack so why not get a list of your requirements to Brian so you will have that elusive component on hand when you next need it. Catch up with Brian at the Club Meetings or direct.