BARG NEWS

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

VOLUME 30 ISSUE 6 JUNE 2007

President: Bob Pitcher VK3NBV
Secretary: Ian McDonald VK3AXH
Treasurer: Gordon Cornell VK3FGC

NEXT MEETING - FRIDAY 29, 2007

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: vk3bml@barg.org.au

We're on the web
www.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
VK3RBU-1	(APRS)	145.175 Mhz	Mt Hollowback

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

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 a gain 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.

QST Report with Craig, VK3CMC

Content review of current QST in library

QST Review 2007 June

P28 ESD control for the radio amateur. Strap on and earth thyself.
P30 An Audible antenna bridge. For blind or sighted amateurs.
P33 Learning to PIC with a PIC-EL. Part 2.
P37 Add a 30M and 40 M dipole to your SteppIR Yagi. Costs $60 US
P44 Better Field day, Have a go soon.
P47 Unidentified signals on the bands. What we CAN do about them.
P49 Insert covering aspects of Field days.
Look at antennas for field days.
Space race. Use satellites for scoring.
Power sources for field days.
P50 The Doctor is In. Talks on using old valve equipment.
Horizontal loop uses.
Astatic D-104 microphone on a IC 706PRO
P52 Using LED as lights.
P53 Terminating 75R 7/8" Hardline with a SO 239. Use small lengths.
P55 Computer sound cards on different Modes.
P 57 Measure Q with your Antenna analyser.
P 58 Listing some simple tools for working Home projects.
P 59 Sound cards and how to remove Hum.
P 60 Hands on Radio Exp #53 RF Peak Detector. Roll your own.
P 62 Hints and Kinks. Power Pole adapters, Cure Alternator whine, Protect open wire feeders from lightning.
P 65 Review of ICOM IC-V85 2 M FM handheld.
P 67 RF Vector VHF Direction finder system.
P 69 Review Battery powered Soldering irons.
P 72 Tech Correspondence. Fusing car rigs, HF band echoes and Delays.
P 88 Old Radio: asks Why SOS?

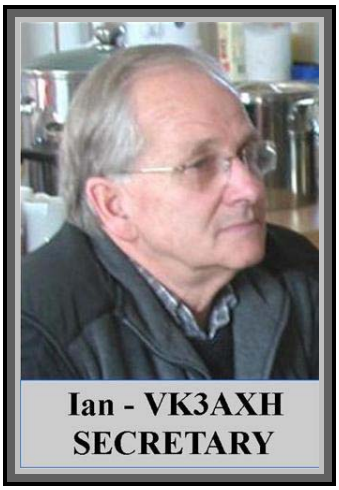
The normal collection of contesting and other ARRL matters is present as is on P 103 HAMSPEAK, which lists some vocabulary terminology from various articles that explains for newcomers what is meant. The list is alphabetical and has a good explanation . For example Half Power Beam Width and Linear Loading are mentioned.

That's the end of this months review of QST magazine.

73 Craig
VK3CMC

MISSING…….

We are still missing a copy of the Amateur Radio Magazine for April 2007. It has been borrowed by someone and not filled out in the loan book. Would members please check if they have the item and return to it ASAP. The magazine seems to have not reached the Librarians hands and therefore hasn't been stamped with the Clubs marking identity .



The Secretary's Page

Minutes of BARG General Meeting May 2007

Meeting opened by VK3NBV 7:35pm

Apologies: VK3CFH, VK3CAZ, VK3SE, VK3DET, VK3WL, VK3HHJ, VK3HHK, VK3HRZ, VK3AIG, VK3IDL, VK3BNC, VK3ADX, VK3PAL

Foundation Members: Welcome extended to new calls VK3FSTU, VK3FPOL, VK3FSDH, VK3FGLD, VK3FIVE all in attendance.

Minutes of the previous General Meeting as circulated.
Business Arising – No Action re gas pipe and Silent Key Board
Moved VK3GND/VK3CMC Carried

Secretary .

Correspondance: Silent Key cards from VK3LBA, Account from VK3KQB, ReInvestment from VicState, Letter from Damascus – thanks
(Out) Card to Vk3HHK – get well

Treasurer: Current balance is $6691.31
Moved VK3FGC/VK3ADE Carried

Reports

President Bob gave an overview of the committee meeting which included – new procedure for entry to the club rooms.
Need for a Welfare Officer to keep in touch with hams not able to attend meetings, tower mods ready for installation, sign at airport entrance seems to be done, agreed to sent club mugs to Vk3HY and Vk3XPD for their donations of equipment to club projects, dining night a success and next venue is Market Hotel.
Club register available at meetings, George Fowler auction Sunday 27th May.

Ammenities: Doug Vk3VBA reported on bus trip to Moorabbin hamfest, contact been made with Ballarat News re date error for foundation licence course and AR for date error for BARG hamvention. Due to new entry procedure to club rooms all keys to be returned, guest speaker Capt Kaylene Baird next meeting.

Education: Craig Vk3CMC reported that all 7 candidates for the Foundation Licence Course were successful and now have callsigns, some enquiries re upgrade to next level.

Technical Group

Roger Vk3ADE reported he has the new controller and exciter for the 70cm beacon and a 1296 exciter just arrived. The 50 watt base for Ben Nevis is progressing, new HF antenna's to be put on tower when wx permits and a new router to be installed by John Vk3TJW in the clubs computer system.

Computer Course

The course conducted by Roger VK3ADE was well received on its first night. Apart from some PC problems all is progressing well.

Construction Group

All the dummy loads are at various stages of construction. At our next meeting there will be some comparisons and possible calibration taking place. Brian Vk3KQB generously gave out 15 kits to make up in car constant current battery chargers suitable for charging hand held transceivers. If you have any ideas then bring them along and join in the fun.

Wicen The Mallee Rally will take place on the weekend 10/11 June

General Business:

A number of cards have been designed by Norm VK3LBA for Silent Key purposes. The club recognizes the effort that Norm does and the cards are on display to select the most appropriate card for the clubs needs. Ian VK3AXH will contact Norm re costs etc to produce them.

The next dining night will be held at the Market Hotel on 15th June. Please let Bob VK3NBV know if you are planning to attend.

The need for a Welfare Officer was raised to keep in touch with any current or past club member that may be on the sick list or unable to get to meetings due to age/disability. A motion was then put to nominate Bob Vk3NBV to this position.

Moved VK3AXH/VK3FGC Carried

A meeting of members involved in the Damascus College activities is to be held at Gordon's place at a time to be set to further discuss a better presentation to the students.

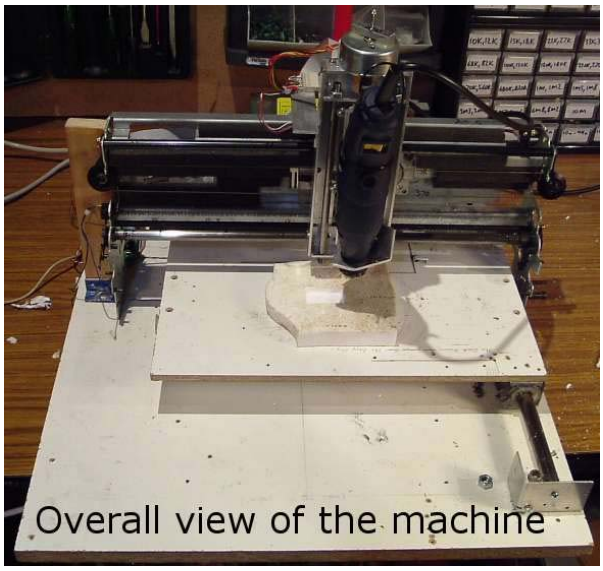
Scott VK3FSDH has indicated he won't be at the next meeting due to commitments.

The meeting closed at 8:38pm.

Building a DIY CNC Machine

John Watts VK3TJW

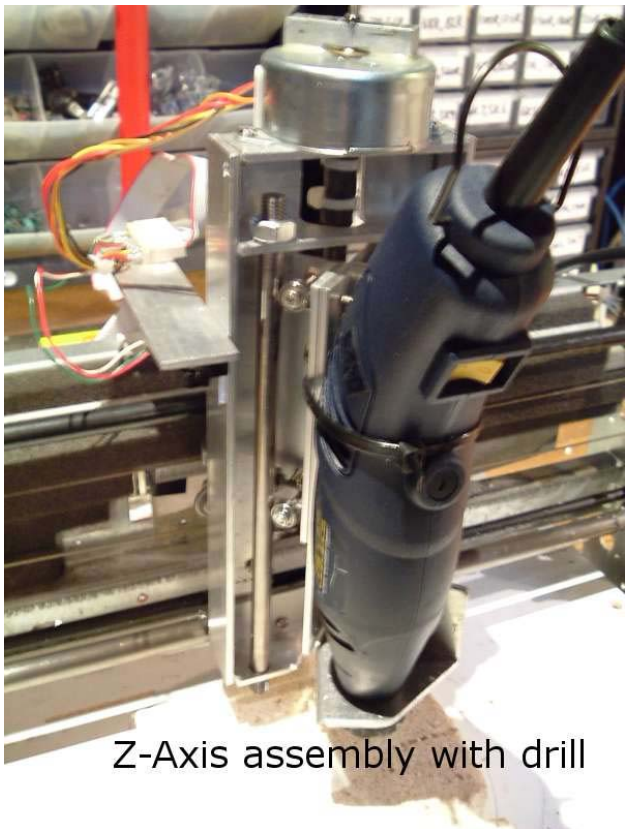
A CNC (Computer numerical control) machine is a device for automatically positioning a cutting tool, such as a drill or router bit, and producing a shape or pattern on a work piece. The operation is controlled by a computer file, and permits complex parts to be made without the labour involved in marking out a design by hand. While most CNC machines are large scale industrial devices, it is also possible to have smaller machines which have many applications in the home construction of radio and electronic equipment. In this article, I will describe a machine that I constructed, and provide links to further information for readers interested in this technology.



Overall view of the machine

The machine, shown opposite, was initially constructed for the purpose of drilling printed circuit boards. In operation, the PCB is attached to a sliding table. The overhead gantry has a carriage that slides at right angles to the table, which holds the drill motor, chuck, and bit. A third slide enables the drill to be raised and lowered.

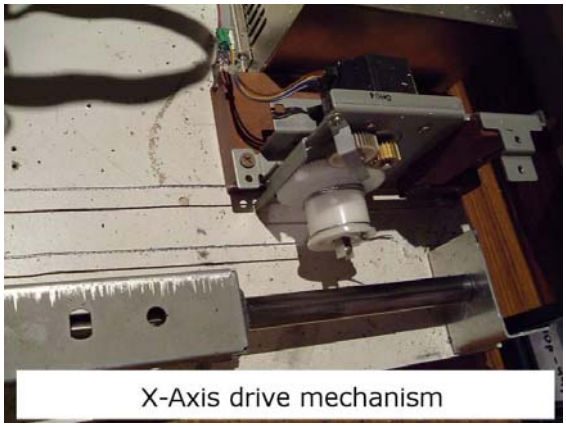
The table, gantry, and drill head are positioned by means of stepper motors. Unlike conventional motors, these are driven by pulses of current, and move a precise fraction of a turn in response to each pulse. The pulses are generated by the shareware program "TurboCNC" (available at http://www.dakeng.com/), running on an old PC, and interfaced via the parallel printer port and a series of power transistors. The PCB design software (I use Cadsoft's "Eagle") generates a file giving the X and Y coordinates of each hole. This is then converted to the 'G-Code' language used by TurboCNC. The machine will then position the drill above each pad on the PCB, then lower the drill at a predetermined rate in order to drill a hole.



Z-Axis assembly with drill

The machine was constructed mainly from parts taken from discarded electronic equipment, with the result that the overall cost has been approximately $50. The X-table uses the slide from a photocopier, while the Y-gantry is the complete carriage assembly from a 132-column dot matrix printer. Both axes use a cord drive (similar to that used in tuning dials, but with steel wire), which is fairly free from backlash when lightly loaded. The drill is lowered using a lead screw.

The stepper motors and drivers were also salvaged from old printers. Information on the driver chips can usually be found on the Internet (type the part number and 'datasheet' into a search engine).



X-Axis drive mechanism

The printer logic was bypassed, with the driver inputs being wired directly to the parallel port. Infrared beam sensors are used to detect the 'home' positions of each axis, so the machine can start from a known position.

Although the machine was originally only designed to drill PCBs, it can also be used to engrave aluminium and plastic, and mill shapes in plastic. However, the accuracy does suffer due to the higher loads encountered, and cutouts can only be made in many passes, cutting a fraction of a mm deeper each time. I have also successfully milled and hot-wire cut polystyrene foam, which works well due to the low cutting forces.

I hope this article has given you an idea of the possibilities of computer control, and perhaps encouraged you to attempt a similar device. While the actual time saved by the machine may not outweigh that spent in building it, it is an interesting project in its own right. There is plenty of information available on the subject, and I recommend the following websites:

- http://www.fullnet.com/~tomg/gooteecn.htm
- http://home.comcast.net/~scottxs/pcbcnc/cncindex.htm
- http://cq.cx/pcb-router.pl
- http://www.majosoft.com/engraving/
- http://www.buildyouridea.com/cnc.html
- http://www.cnczone.com/

The following points may also be of assistance if you want to build a similar machine:

- Rigidity of the structure is important. Look for printers and photocopiers with solid metal construction. The older and heavier, the better
- If constructing you own slide ways, proper alignment is necessary so that the carriage does not bind. It is easier to design in some adjustability, rather than trying to make everything 'spot-on'. Making the carriage at least as long as the distance between the rails will also help.
- At higher speeds, stepper motors will produce less torque, and may 'drop' steps, resulting in inaccurate positioning. Abrupt acceleration can also cause this. The software can be set to increase the speed gradually. More advanced driver circuits can also provide more torque at higher speed.
- If the machine is used for heavier duty milling, lead screws may be a better drive system than a cord. Precision threaded rod is available to reduce friction and backlash, but this is very expensive.

Examples of work created on the machine

Hot wire cut foam

Engraved plastic

Engraved aluminium

Working on BARG Radio tower and this is what happened……

The story and photo's from Roger, vk3ade.

This Saturday morning, June 9, Jeff (VK3PAP) and Merv (VK3ADX) had attached the new rotator mount to the tower and had completed the work to the point that the rotator worked fine and was calibrated to due north. After some discussion it was decided to replace the rotator control cable with some new cable that was more flexible and capable of conforming to the available space.

For the sake of safety it was decided to raise the tower to the vertical position while the new cable was obtained.

The photos tell the rest of the story, while raising the tower Jeff noticed a sharp cracking sound and a few seconds later the plate that had the rotation hinge attached just peeled off the tower, it missed Jeff (narrowly), the tower hit the ground and then fell onto the roof of the clubrooms.

So far there does not appear to any major damage to the roof and the use a crane should ensure that this remains status quo. We think that several bodies on the roof to attempt to lift it down would not be a good idea.

Well that's the story. Have a close look at the weld on the tower, it was pretty poor with rust well established for at least two thirds of the weld area.

The tower is fully repairable and well worth the investment to repair, the hinge plate and weld area will be much larger in its next life!!

If Jeff wants volunteers to crank the tower next time we fully understand.

Regards.

Roger VK3ADE

FROM OUR LIBRARIAN…….

A reminder to members when borrowing a book or magazine to accurately record all items taken from the library in the exercise book on the shelf. Hopefully we will have an online recording system in the near future so the record will be kept on the computer and we can track the movement of all items.
[Provided the borrower takes the time to record details.]

Thanks,
Craig VK3CMC

The ZQB Puzzle page

A Simple Puzzle.

Here is a "simple" puzzle to exercise the mind with. It appeared in a monthly magazine a good many years ago and created plenty of interest.

Twenty (20), one ohm resistors are in a parallel circuit.
One of the resistors has short circuited.
Find the faulty resistor in three (3) readings using an OHM Meter.
You may divide the resistors into any combination or configuration to take the three readings.

The solution will be given in next month Newsletter.

With Sympathy

Silent Key.

It is regret I announce the passing of Fredrick James Archer (JIM) Wright. VK3CFB.
Jim was a Life Member of BARG, which tells us how highly thought of he was.
Jim and his new wife Vera (dec), came to Australia after the end of World War 2 on a motor bike and sidecar travelling across Europe and Asia only using ships when absolutely necessary.
He did write his life history and put it in book form and CD.
Jim had been suffering ill health for a number of years but managed to keep up with new and old friends on "echolink"..
As was Jim and the family's wish's a private funeral has been held….

Bob Pitcher VK3NBV..

Bob, VK3NBV

A few words from the President……

Hello All,

Our next meeting is next Friday June 29th at 7.30pm.
We have a Guest speaker from the Army, Adjunct Kaylene Baird of 8/7th 2RUR, Ballarat Ranger Barracks. She has had recent deployment in Iraq.

Since the last meeting on the 27th May we had the George Fowler Memorial Auction. Auctioning was in the capable hands of Bob 3BNC who dragged the money out of people who had no intension of buying. Some of those new F/calls bid and buy well !!
Keeping the records up to date were Harry 3KGL and Ian 3AXH.
Thanks to all members who brought along all the good preloved gear that helps the clubs finances along.
Remember, if you didn't like what you bought, bring it back next year and we will sell it again ! !
And hey, the soup and rolls for lunch, all donations and the good work from the ladies.
Great work one and all.

The dining night was held at the Market Hotel, a big rollup attended, the food was great, not so the smoke. The next dining night will be at the Queens Head in Humffray Street North, Ballarat.

We have some good works going on in the club, like beacons, tower mods, computer updates. Things are happening everywhere.

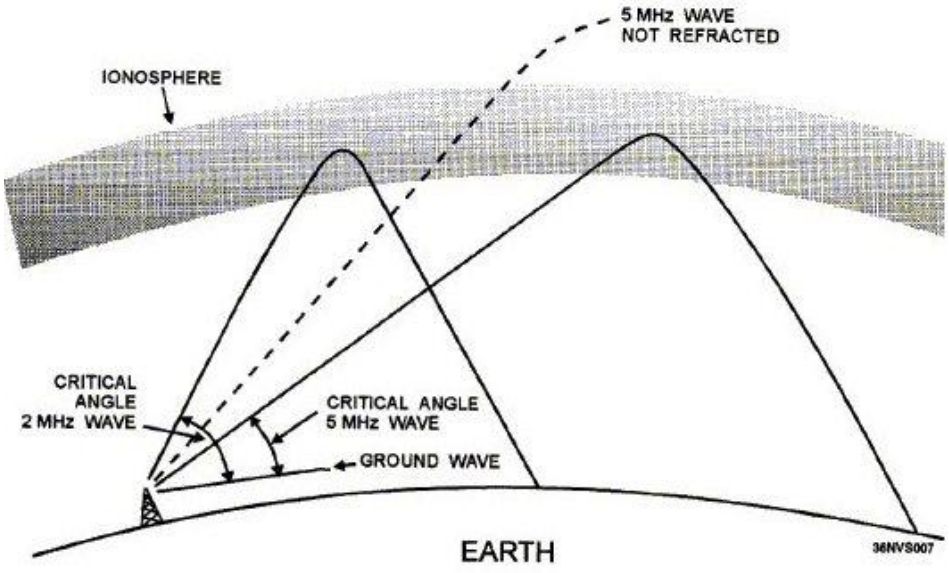
Also coming up in August is the Annual General Meeting. That means get your thinking cap on and start nominating persons to run your club for the coming year. I believe nomination forms will be included with this newsletter edition. All nominations have to be in 1 week before the AGM.

Also mentioned elsewhere in the newsletter is the death on the 18th of Jim Wright VK3CFB , life member of BARG….

That's it for this month, see or hear you someplace,
73's,
Bob Pitcher…Vk3NBV.

Annual General Meeting

Positions up for election are: President, Vice President, Treasurer, Secretary and 6 Committee members.
Nomination forms are in this Newsletter. Deadline 7 days before AGM.
Nomination forms to be send to Secretary.



Propagation Report for June 2007 from Macca

HF Bands Well not much happening on these bands over the past month. However there is some local activity occurring on the 160 metre band. Some of the locals taking part are VK3AIG, VK3GND an VK3KQB. Brian now has his club project vertical up and running and reports hearing signals from several states including VK6. I wonder what has happened to all those other verticals?

6 Metres Kevin Vk3WN reports not much activity over the past month. Kevin has heard and worked some VK4's and VK2's but not very often. There have been a couple of reports saying we have now reached the bottom of the sunspot cycle so like the shortest daylight of the year things can only look up from now. Shortest daylight of the year things can only look up from now.

VHF/UHF It was sad to hear about the beacons on Adelaide's Mount Lofty have been taken off air and looking for a new home. These propagation indicators have been in the one location for more than 40 years. The new site owner says they can no longer be accommodated and the VK5 boys are looking for another suitable site.

Locally the Wednesday night hookup on 144.150 then 144.160 is running well. We are now attracting a few stations from outside of the Ballarat area. During this session we have round 5 local members participating which has been great.

2 Metre EME I can report that Ian VK3IDL with his much upgraded antenna installation has been receiving signals off the moon using the WSJT program for weak signal operation. Ian has received signals from Europe, Japan and the USA and although has yet to have a completed 2-way contact on 3 metres, I' m sure he won't be far away.

Construction Group

At our last meeting there were around 7 HF dummy loads produced and tested with all working well. Some of the group have decided to make some changes to allow reading lower power levels by adding some extra components

Future Projects

We are now ready to take on something new so if you have any suggestions please let me know. There is some interest in a 2 metre preamp available through the VK5 Minikits Group which includes all components and switching relays up to 100 watts of power. This unit is suitable for either end of the 2 metre band so if you want to improve the sensitivity of your system please let me know. The cost is around $45 and $60 with a suitable mast head box.
Another suggestion comes from Brian VK3KQB who has some parts to make up a audio amplifier that can plug into you existing equipment for when you are outside and wish to keep an ear on what's happening in the shack. The cost of this project is not finalized yet.
But shouldn't be too steep.

Till next time…73 de VK3AXH

B.A.R.G. Inc. NOMINATION FORM

Ballarat Amateur Radio Group—Inc # 6953T

31th August 2007

DATE: _____

I wish to Nominate _____ CALL: _____

For the position of _____ of BARG Inc.

Nominated by: _____ and _____

Nomination accepted by: (Nominee) _____

B.A.R.G. Inc. NOMINATION FORM

Ballarat Amateur Radio Group—Inc # 6953T

31th August 2007

DATE: _____

I wish to Nominate _____ CALL: _____

For the position of _____ of BARG Inc.

Nominated by: _____ and _____

Nomination accepted by: (Nominee) _____