

# WANSARC NEWS

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The monthly magazine of the



Western & Northern Suburbs Amateur Radio Club

Melbourne, Australia



 [www.wansarc.org.au](http://www.wansarc.org.au)

146.450 MHz FM **VK3AWS** 28.470 MHz USB



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## NEXT WANSARC CLUB MEETING

**Tina's Pizza, 445 Plenty Rd Preston @ 7.30pm Start**

**Last meeting for 2005 – Friday 2<sup>nd</sup> December**

**WANSARC HAS NO CLUB MEETING IN JANUARY!!!**

But a January 2006 edition of WANSARC NEWS will be sent to you with all the details of the WANSARC Family Fun Day to be held at the usual Rotunda at Mount Cooper, Bundoora Park

**WANSARC Family Fun Day – in its 3<sup>rd</sup> year – Sunday 22nd January**

Max VK3ZCW accepting his framed photo on behalf of WANSARC from Mick VK3CH and Bob VK3EL, who took the photo, on commemoration of Max holding an Amateur License for 50 years. Still running his own 'net' nearly every afternoon on the club chat frequency of 146.450MHz – Wonder how many radios have managed to keep up with him, not many survive 50 years, he had to build them all back then!



*In the shack underneath in the cool air*



*Max reflecting on 50 years of QSO's & DX*

## FIRST WANSARC 2006 CLUB MEETING (NEXT YEAR!)

**Friday 3<sup>rd</sup> February 2006 @ 7.30 pm, at the TAFE**

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### SEASONS GREETINGS FROM YOUR EDITOR – VK3CH, MICK

As a new year is ushered in we often look back at the old and muse upon the changes that have occurred in our lives over the past twelve months. More often than not, our conclusion is 'not much'. It's only when we look back over the years (or decades) and make comparisons, are we able to clearly define significant changes. For example, five years ago the millennium bug threatened to change our lives, but we survived (and many other bugs of a more tangible nature). If we go back forty years, to a time when cars didn't require to be fitted with seat belts, ABS braking, cruise control, child locks, air bags or air conditioning, we can see the changes made by technology and issues of safety.

Sixty years ago there were no childproof tops on detergent, poison or medicine bottles (to the relief of the arthritic). Water was drunk straight from the tap, with no thought of a triple filtering from a clear blue mountain spring. In my grandparents younger years, beef dripping on bread and beef dripping jelly were a treat (not to mention Jam) and, rather than make us fat, were believed to replace the energy we expended playing in the back yard. Before Penicillin and antibiotics, we innocently shared 'good' things like fizzy, sugary drinks from the same bottle, and the 'not so good' things like colds, pimples, boils, rashes and sometimes hair lice, miraculously most of us lived. Prior to the advent of a safety education, we naively rode bikes and scooters oblivious of the need to protect our heads, elbows and knees and a broken chain or flat tyre meant a long walk home, generally uphill. Somehow we made it through. We went yabbing or left early in the morning for a bike ride, and as long as we came back before tea, no-one was overly concerned about "Stranger Danger". We climbed trees and fell out of them, broke bones or received cuts and bruises, and it was all considered learning at the school of "hard knocks". Well, we certainly learned - I still have memories of kids at primary school with broken teeth and bones being displayed like valor medals. Unlike today no-one issued lawsuits, and there was little expectation of financial reward for community service.

I remember clearly as a child that we were taught to ask the old man and lady down the street if we could run messages for them. We never took any money for doing so - a piece of cake and/or a glass of lemonade was considered payment.

If you look back far enough and compare, it's not difficult to see the effects of changes in technology, education, attitudes and thinking. Political correctness is a case in point. As opposed to only a generation ago, it seems today that we are always at pains to ensure our well-intentioned communications are not adversely misconstrued. Our dialogue has undergone significant change, and it seems to me that the responsibility for political correctness should be shared equally between the communicator and the receiver. Given that sometimes I wonder at political correctness, (perceiving it at times to be a little over- the-top), I will endeavor to keep pace with change, and in conveying my new year wishes, be as politically correct as possible (tongue in cheek);

#### Subject:

#### A politically correct New Year's Best Wishes for other people

May you enjoy, by whatever standards or reference 'enjoy' relates to your benchmark for enjoyment, a fiscally successful, personally fulfilling and medically uncomplicated recognition of the widely accepted calendar year for 2006. These Best Wishes are without prejudice, but do however convey all due respect and deference to those non-adherents of the Gregorian calendar and bear no discrimination to culture, belief, age, state of health, political persuasion or choice of computer hardware, software & radio gear.

**Disclaimer:** By accepting these Best Wishes for the ensuing year you agree to accept the following terms and conditions:

This wish is conveyed with due consideration for the purpose for which it is issued and no guarantee or warranty is expressed or implied for its enjoyment, see 'standards of enjoyment' above, and no liability shall be incurred by the wisher for any lack of performance nor adverse experience or expectations the wishor may encounter.

In other words, Happy New Year and a very prosperous 2006. May these sentiments never be subject to change, be you a **WANSARC** member or otherwise!!! *Best 73's – Mick, (Editor)*

**Club President, Graeme VK3NE along with all the WANSARC committee would like to wish members of WANSARC, their families and friends and all Radio Amateurs a safe happy and healthy Christmas 2005 and New Year 2006. Have an enjoyable break and we will catch up with you all at either the Family Day at Mount Cooper or the next February 3<sup>rd</sup> meeting.**

### NEXT MEETING AT TINA'S PIZZA

Don't forget Friday 2<sup>nd</sup> December meeting is NOT at the TAFE, it's at Tina's. Every club member knows where it is, but just in case, it's on the western side of Plenty Road, between Murray Road and Pender Street, if you heading north and cross Wood Street, you have gone too far. If you are heading south on Plenty Road and cross Murray Road, you have gone too far! 7.30pm start.

### SIDEBAND SWITCH FOR QRP GROUP

In a bold and perhaps controversial move, the HF Pack group that successfully encourages QRP portable operation has declared that Upper Sideband is now its standard on all HF bands. The thinking behind this is to accommodate commercial and military portable HF radio systems that radio amateurs are now using for pedestrian or back-pack portable operation. HF Pack says that with the advent of simultaneous "multimedia" capability SSB voice, CW, image, text, selcall, ALE Automatic Link Establishment, HF-APRS, and digitized QSOs on the same channel, Upper Sideband standardization will become even more important. The amateur radio tradition is to use Lower Sideband on bands 7MHz and Upper Sideband on the higher bands. This due to the early method of generating SSB. Commercial HF radios standardized on Upper Sideband. So if you hear someone on the 'wrong' sideband on 40 or 80 meters, it might not be a pirate, fishing trawler or a commercial intruder, but someone adopting the HF Pack standard of Upper Sideband on all bands. –*Amateur Radio Victoria website*

### FREE TO A GOOD HOME - FROM JOHN - VK3KJW

John has to clear out some items from his place to make room – in a bit of a hurry actually so anyone WANSARC member or not; call him when he's on the air on 146.450MHz (QTHR)

- (10) VDU's varying in size 13" to 15"
  - (100+) 3.5" Floppy Disks, many containing games, utility programs (100+) 5.25 Floppy Disks – brand new unused, still in the wrappers (10+) 5.25 Floppy Disk Drives – brand new unused, in their box
  - (4) Microwave ovens, just for bits – 2.4 gig anyone!
  - (4) RTTY Machines – all in working order
  - (25+) 20 liter plastic drums – about 18" square
  - (10) Computer 101 Keyboards both old + new PS2 plugs
  - (3) Large Color Televisions, 17" & 21" Screens, working
  - Lengths of 15 feet by 6 or 8 inch by 1 inch thick new builder's timber and Lengths of galvanized steel tubing 1.5 – 2.5 inch diameter, 12 to 15 feet length. **REMEMBER IT'S ALL FREE!!!**
- But if you want to give a token \$ amount, John won't mind!**

### FOR SALE- FROM ALLEN - VK3SM

Allen has these items for sale to anyone in WANSARC, contact him on 9386 4406. (QTHR) Half sale proceeds go to WANSARC.

- (1) Frg-7 Communications Receiver, complete with handbooks
- (1) Voltrol 240 volt variable transformer about 10A

No idea what price to post - Make an offer, bound to be cheap...

### WHAT A SUCKER

When a man attempted to siphon petrol from a motor home parked on a Seattle Street in USA, (where else!), he got much more than he bargained for. Police arrived at the scene to find a very sick man curled up next to the motor home next to some spilt sewage. A police spokesman said that the man admitted to trying to steal petrol and plugged his siphon hose into the motor home's sewage tank by mistake. The owner of the vehicle declined to press charges, saying that it was the best laugh he had ever had!

### WELCOME BACK – JOHN VK3KJW

A big welcome back and hello to past club Treasurer, John, first heard on the NET on Cup Day in many years. Was heard about S5 to your editor with an indoor antenna, but will soon put up something more substantial, maybe by the time this hits the press.



*Max White VK3ZCW on attaining 50 Years in Amateur Radio , 29th November 2005*

Max in his shack, which is a great place to escape the coming summer heat. This framed picture was presented to him on behalf of the club to a very happy Max, by Bob VK3EL and Mick VK3CH. No doubt it will feature proudly on the shack "trophy" wall. Max would like to pass on his thanks and gratitude to all at WANSARC.

### SILICON CHIP SLAMS BPL

Australia's electronics magazine Silicon Chip describes broadband over power lines (BPL) as a flawed technology flying in the face of Electromagnetic Compatibility (EMC) regulations. The cover story "BPL is coming here ..." in its November edition has a good look at the spectrum-polluting broadband enabling technology delivered along mains power lines. The article by staff technical writer, Ross Tester said that the promise of delivering fast broadband without significantly new (and costly) infrastructure, BPL has been a pipedream for years. However, the wires to carry the broadband signals are stretched in the air and make "magnificent antennas radiating interference" right across the spectrum.

The article said, "Whether by fiendishly clever design or simply dumb good luck (we'll leave you to make up your mind which) BPL has avoided heavy-use areas of the spectrum where there could be huge public up cry."

The magazine's Publisher and Editor-in-Chief, Leo Simpson in an editorial said, "Just imagine every street in every major city and town in Australia blanketed with BPL signals ranging from just above the AM broadcast band to just below the FM band.

"This will play merry hell with all radio (and TV) services in that range. In fact, it would mean the end of any useful radio services in that range."

Mr. Simpson posed the question, "So why have trials been authorized, both here and overseas?"

His conclusion is that the relevant energy authorities have lobbied very hard to be able to use their grids for something else besides just carrying electricity.

"Even so, it is incredible that the trials have even started, let alone be permitted in the first place. It makes a huge mockery of all of the EMC compliance regulations that all electronic equipment must now meet," he said.

"Why have EMC compliance when the power authorities will be able to blast interference out to everyone, completely unfettered by past regulations? It just beggars the imagination."

Mr. Simpson concluded: "BPL in its present form is a very bad idea. It might at first appeal to the non-technical populace but when the true ramifications take hold, there will be hell to pay."

- *Amateur Radio Victoria website.*

### FOUNDATION STUDY GUIDES NOW AVAILABLE

The Foundation License Training Manual was released for sale on November 9<sup>th</sup>. You can buy it at any major newsagent or it can be ordered from the WIA bookshop, Member price \$17.50 Non Member price \$19.50 Order via the website at [www.wia.org.au](http://www.wia.org.au), you either print the form and post it to WIA or fax your order to 03 9523 8191 If you want to see one before purchase then contact either Mick VK3CH or Chris VK3FY, trust me, it's good.

### F.A.Q's About The New Amateur Licensing Arrangements

1. What are the main changes that came into force on 19 October 2005?

The amateur licensing structure and operating conditions have generally been simplified. Other changes include the introduction of the Foundation license and arrangements that permit holders of a Standard license (previously holders of a Novice or Novice Limited license) to operate on a greater range of frequency bands.

2. I am already licensed; do I need to apply for one of the new license types?

No - existing licensees will have their license replaced and mailed to them automatically, 1-2 weeks after the new arrangements come into force. Unrestricted, Intermediate and Limited licenses will be replaced by an Advanced license. Novice and Novice Limited licenses will be replaced by a Standard license.

3. Does my call sign remain the same?

Yes - existing call signs will be automatically transferred to the replacement license.

4. How do the changes affect reciprocal licensing arrangements?

Overseas amateurs visiting Australia with qualifications or a license that would have gained them an Unrestricted, Intermediate or Limited license will be issued with an Advanced license. Overseas amateurs with qualifications or a license that would have gained them a Novice or Novice Limited license will be issued with a Standard license.

In respect of Australian amateurs visiting overseas countries, the situation is less clear. For some time to come, administrations in overseas countries will not be familiar with the new amateur licensing arrangements. Amateurs visiting overseas countries are advised to provide the overseas administration with as much detail as they possess about their qualifications, current and previous licenses, and relevant syllabus information.

5. Is there a change in the fees?

No- license fees have not changed.

6. Can I request a call sign with a 2 letter suffix?

Call sign groups allocated to the Advanced license include all call sign groups previously allocated to the Unrestricted, Intermediate and Limited licenses. However, call signs with 2 letter suffixes are in very short supply in some States. Because of the anticipated high demand for these call signs, they are not being issued until an equitable arrangement for their allocation can be put in place. ACMA will announce details later about how eligible amateurs may obtain call signs with 2 letter suffixes.

7. What has changed with regard to qualifications and examinations?

Three new amateur operator certificates of proficiency have been introduced. They are:

- \* Amateur Operator's Certificate of Proficiency (Advanced) (AOCP(A));
- \* Amateur Operator's Certificate of Proficiency (Standard) (AOCP(S)); and
- \* Amateur Operator's Certificate of Proficiency (Foundation) (AOCP(F)).

The syllabuses for all three certificates include a practical examination that tests operating skills.

Examinations for these certificates contested through the Wireless Institute of Australia.

*From ACMA Website*

### ACMA has frozen issue of new 2 letter call signs, across VK

Under the new amateur licensing arrangements, callsign groups allocated to the Advanced license include all groups previously allocated to the Unrestricted, Intermediate and Limited licenses. That is, a person with a Z call may now apply for a callsign previously only available to a full call.

However, call signs with 2 letter suffixes are in very short supply in some States, particularly VK2, 3 and 4. Because of the anticipated high demand for 2 letter call signs, they are not being issued until an equitable arrangement for their allocation can be put in place.

ACMA are developing new arrangements for the issue of 2 letter call signs. These arrangements will be notified shortly.

*From ACMA Website*

# The New Foundation License - Your Entry into Amateur Radio

## What is the foundation License all about?

The hobby of Amateur Radio has a long and proud tradition. The very first radio amateurs were true pioneers of radio technology. Amateurs 'invented' and refined much of the early radio technology and were the first to transmit music, radio plays, and information to the handful of people who had the new fangled radio receivers. During the war years amateur radio communication was silenced, but radio amateurs enlisted as highly trained and technically competent radio operators in all theatres of war. After World War II the hobby of amateur radio flourished. Radio clubs sprang up in schools all over the world and kids went home each night to build some new contraption, or have a chat with someone over the wireless. These young people became the mainstay of the technical professions and developed much of the modern technology we use today. Times change, and Australia is now faced with a serious shortage of people with technical skills. Our country needs more bright young people to become technicians, scientists and engineers, instead of lawyers, money managers and mobile phone salesmen - we already have plenty of them! The new entry level Foundation License provides a great opportunity for young people to foster an interest in communications technology and perhaps lead on to a rewarding career in science, electronics, and communications. But most importantly amateur radio provides an opportunity to communicate with people. Outback travelers, sailors, retirees, or anyone with a little time to spare and a curious mind will find amateur radio very rewarding. The new Foundation License makes an amateur radio License very achievable with a just few hours study.

## What do I need to know to get a license?

The emphasis is on candidates having the knowledge of skills to demonstrate a practical ability to put together an amateur radio from commercial equipment and operate it without causing interference to other users and have the knowledge to be a competent radio operator. You will also need to be aware of how amateur radio relates to other users of the radio spectrum, your license conditions, technical basics of electricity and electronics, transmitters, receivers, feed lines and antennas, propagation, electromagnetic compatibility (EMC), electromagnetic radiation (EMR).

## What bands can I operate on, what are the modes I can use?

The foundation license operator can operate in the bands listed. The foundation license operator can only use commercially manufactured equipment. What distance will I be able to work on these bands?

3.5MHz (80 meters) up to 150KM (day) up to 3000KM at night.  
7MHz (40 meters) up to 1000KM (day) and during good conditions world wide at night.

21 MHz (15 meters) World wide mostly during the day.

28 MHz (10 meters) World wide during periods of high sunspot activity and up to 3000km in summer.

144MHz (2 meters) local, world wide via IPLP & Echo Link.

432MHz (70cm) local, world wide via IPLP & Echo Link.

## Is there a book with all the information I need to know?

The WIA has produced a book called the Foundation License Manual. It is a full color manual consisting of 95 pages of relevant information for those studying, or those who would just like a reference book for Foundation License Operators. The manual contains the all relevant information you will need to know to successfully complete a training course to obtain a foundation license. It also contains a wealth of information a Foundation License operator will need. Items like Band Plans, Electrical Safety information, operating procedures such as the Q code, how to contact you local radio club, the WIA and much more.

## Were do I get this book and what does it cost?

Budding candidates can obtain the Foundation License Handbook from several sources. It can be purchased via the WIA website, from the WIA office in Melbourne, via many radio clubs throughout Australia, from most amateur radio equipment suppliers and ultimately newsagents. The recommended retail price for the manual is \$16.50 plus postage. The booklet will be available mid November, 2005

## What study is needed to be ready to sit for an assessment?

The new license structure introduces a practical assessment that is common to the three grades of license. This means that once you have been declared competent by an assessor for the practical assessment as part of the qualification in receiving an amateur license, that competency is transferable should you upgrade your license. An exemption is provided for Novice and Novice-Limited licensees who exist prior to the implementation date of the new structure.

## Were can I go to attend a course?

The radio clubs will run the foundation License training courses. The clubs are the ideal place to learn all about amateur radio. You can meet other hams, attend interesting lectures, and find out lots of information. If you decide to take up amateur radio as a hobby you will soon learn there are hundreds of different facets to the hobby. The WIA foundation license WebPages will list all the clubs that are offering training and assessment. If you have trouble finding a club then send us an email to [foundation@wia.org.au](mailto:foundation@wia.org.au) and we will assist you.

## How long does a training course and assessment take?

The standard time for training is around 12 hours; some clubs will conduct training over several nights and some over a weekend. The practical and 25 question multiple choice written assessment takes around 1 hour.

## How do I find my nearest club?

A full list of all the radio clubs and their contact details can be found on the WIA webpage, click on the clubs tab on the top right hand side. Details about WANSARC and how to find or contact us are on page 8 of this newsletter or log on to [www.wansarc.org.au](http://www.wansarc.org.au)

## How much will it cost me to attend a training course?

Any charges associated with foundation license training are up to the radio clubs conducting the training. You will need to check with your local club to find out what their charges are.

## How much does an assessment cost?

The WIA charge for a foundation license assessment is \$25.00

## How much does the foundation license cost?

The foundation license is issued by ACMA and the license cost is currently \$58.00 per year.

What if the club is a long way from my location?

The WIA has made provision to conduct remote assessments for those people who live a long distance from a radio club or an assessor. A specially trained assessor will be able to conduct the assessment (via the phone) the candidate will need to be in the presence of a person, such as a local policeman or school headmaster. If you are one of these people and you would like more information you should contact the WIA

## What service does the WIA provide?

The WIA is the peak body representing amateur radio to ACMA, the government instrumentality who administers the radio spectrum; it also represents Australian amateurs internationally. The WIA also produces a monthly magazine set to members, weekly broadcasts, provides a bookshop with a discount for members, works closely with the 100 affiliated radio clubs, provides the amateur examination service and helps members with the many questions and information they need to make the hobby more enjoyable.

## Were can I find more information?

The Internet is a great source of information on amateur radio; the WIA website has a lot of information including links to club websites and a link to the WIA broadcast pages. You can download last weeks or up to two year of broadcast and listen to the on MP3. The WIA website is [www.wia.org.au](http://www.wia.org.au). Also see WANSARC's website at [www.wansarc.org.au](http://www.wansarc.org.au)

## If I have other questions who can I ask?

The WIA does not have the resources to answer a large number of telephone enquiries All questions should be directed to you nearest club as listed in the club section of the WIA website or e-mail us with you question at [foundation@wia.org.au](mailto:foundation@wia.org.au)

*Ted Thrift VK2ARA, one of your WIA Directors,  
[tthrift@iprimus.com.au](mailto:tthrift@iprimus.com.au) (taken from WIA website)*

## Super Rod 9009 – A 9 Meter H. F. Vertical Collapsible Antenna

Summer is here, time get out and about, time to get mobile and work some H.F. DX on the side as well, time for “an erection!” No matter what they say, the more “metal in the air” is the secret to getting a signal out as well as receiving it.

If you're thinking of going mobile this summer, have I found the H.F. antenna for you!

Only ONE CAVEAT - Just don't even think about operating with it driving MOBILE!!!

It's the **SUPER ROD – 9009**, it is 9 meters extended length (ABOUT 1 METER COLLAPSED) fits in the boot just nice as you can see!!!

And only 80 g in weight as its all fiberglass in construction. I bought the more expensive one – the tougher one, as I have kids!!

Price for antenna – delivery + insurance was around \$400. It arrived in the post in less than a week. There is a more fragile version that sells about \$60 or so cheaper. **STATIONARY USE ONLY!!! TREAT IT WITH CARE!!! CHECK FOR POWER LINES FIRST!!!**

It comes complete with a tube type holder mounted on a bracket, the antenna just sits neatly in the tube holder and gets pulled up section by section, the pieces are held by gently twisting until it JUST jams and holds, care is required but you soon get the feel for it.

The wire inside is pulled up, when your finished just lower it section by section and pull the wire through as it comes down, this takes a bit of practice if your on your own, or real easy with a second person. I will bring it to the next few club meetings, you can come out to the TAFE car park for a demo, just ask me. It will also be on display at the WANSARC Family Day 2006, Sunday 22<sup>nd</sup> January.

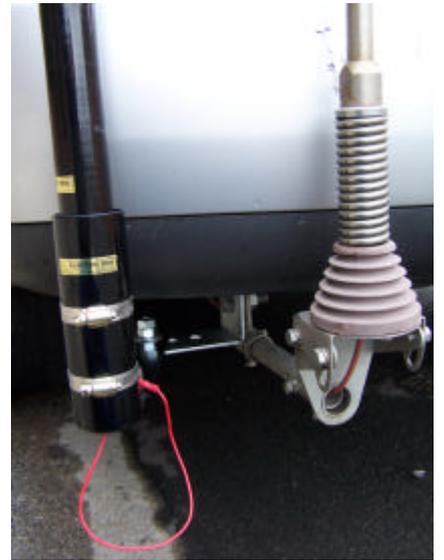
It comes with the instructions on one A4 piece of paper, which all that's necessary! They tell me it will take up to 400 watts no problem. I first saw one of these at the NERG's Open Day attached to one of the VKS737 Group 4WD's on display. The guys said they had owned it for 5 years using it in all sorts of weather, but not really strong winds, still working well. The only mob in VK that I know selling them is - **ELECTRIC BUG, 199-203 TORRENS ROAD CROYDON S. A. 5008 Phone 08 8346 9234 [www.electricbug.com.au](http://www.electricbug.com.au)**

Right angle bracket I added under the car, from any hardware shop,  
Black bar under the silver bracket is attached to coax socket and tube holder.  
The Mark II bracket is a welded solid one piece unit, only 1 bolt to attach it.

Super Rod on left, existing ICOM AH-2 whip on right,  
Bracket seen is the MK II type as is usually supplied.



The tube mount ready to place it inside.  
While not in use it just stays in place.



Antenna in its collapsed state fits neatly in a small car boot, only 80 grams.  
The two transceivers, HF/VHF/UHF and the dual VHF/UHF visible as well.



ATU is hidden under the carpet, next to the spare tyre bay.

The red wire you can see is the wire that runs up the mast. This plugs into a nib that is on a PL259 type socket that the coax terminates into. I ran mine to the ATU in the boot. I just change over the wires from either antenna as needed.

A coaxial switch would be nice, a nice lazy way of switching between them if you're happy to spend the money. Using the ICOM AH-4 A.T.U. Tuner I got all bands 3.5 MHz to 54 MHz. The AH-4 specifications state that it will only tune 3.5 MHz to 54 MHz, with at least a 7 meter length of antenna, but Chris, VK3FY was told by Electric Bug “Just add a coil at the base in series with the lead and presto 160, 80& 40 no problems.”

This would require the ATU to not be used (bypassed). About 12 to 15 turns was suggested to tune the frequencies that the ATU won't give me, 1.8 MHz (160 Meter Band).

As each person's car, coax run, etc. will be different, experimentation is the order of the day.

Or you can take the other option and get a tuner like the ZCG-SG-237, 1.8MHz to 54MHz.

After emailing Chris VK3FY the details of the Super Bug 9009, he was straight back to me about ordering one and will probably be in use by the time this issue is out! So WANSARC will have 2 operators at least that are playing with the Super Bug 9009, so if you ever decide to get one and want to see it 'up close' or hear more results of our matching arrangements, come up on the NET on 146.450 MHz and Chris or myself will be happy to tell you about our findings. Looks like the John Moyle will be interesting this year! “6 meter” band DX, here we go...

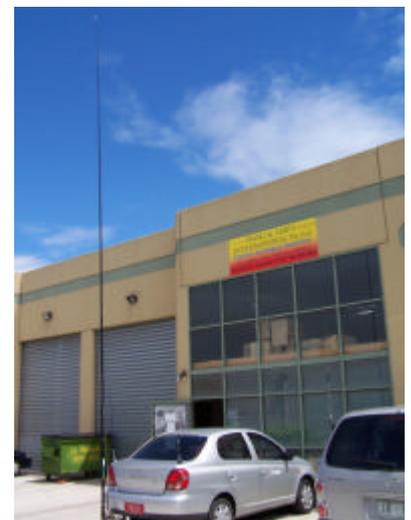
One last word of warning – be prepared for the ‘looks and stares’ from passers by while you have the Super Bug 9009 extended to full height – it really is something to see – but hey, if you're a seasoned amateur operator – you are already long used to that!

The difference in signals received between the Super Bug and my existing 2.5 Meter whip are nothing short of staggering. You can just make out the white nylon tail at the top of the photo.

The instructions warn to remove any other existing antenna's or keep a reasonable space between them – I did not bother and even when I removed the 2.5 meter whip I could not tell any difference, bad SWR or degradation of signals, so when I go out I will just leave the old AH-2B whip element on the car, (only for mobile work), but electrically disconnected of course. Now all I have to worry about is not draining the car battery flat while having a DX rag chew!



'Super Bug' at full height



## Amateur Radio's hidden curriculum - Practical skills the study courses don't always teach

By Peter Parker VK3YE - first appeared in *Amateur Radio*, April 2000, *Reproduced with permission.*

**What you need to pass the exam and the practical skills required to be a successful amateur are two quite different things. This month we outline six vital skills for radio amateurs. Mastering them will assist you to fully enjoy amateur radio and further your electronics knowledge. In many cases, possession of these skills is what distinguishes newcomers from experienced hams.**

### Soldering

If anyone asked me what was the number one skill required for someone in electronics, I'd reply the ability to solder. Despite the availability of solder less connectors, people who can't solder are severely handicapped. Even if you use all store-bought equipment and antennas, sooner or later you'll need to re-solder a loose microphone or antenna connection. The main alternative to soldering when making connections is crimping. Crimping has its advantages, but the decision to use crimped connectors should be made on a sounder basis than an inability to solder. Antenna and earth connections should always be well-soldered to reduce the risk of interference due to oxidized connections which can radiate harmonics even when the transmitter is clean. A soldering iron of around 20 watts is satisfactory for most electronic work. The main exception to this is when soldering PL259 plugs onto coaxial cable, where a larger iron, variable temperature soldering station or butane torch will be found handy. Larger irons are also useful when soldering onto large metal surfaces, as would be required for some antenna work. Successful soldering requires you to apply heat to the joint and then let the joint melt the solder. Soldered connections should be made quickly with a clean, hot tip to reduce the risk of overheating components. Putting solder onto the iron's tip and then trying to let this solder drip onto the connection is not the right way to do it. Trying to economize by recycling solder from old valve TVs is also a no-no! Applying too much solder is also undesirable as it causes unwanted bridges to form between adjacent circuit board tracks or plug connections. Further information on soldering is provided in the beginner's electronic books sold by the major components stockiest.

### Practical ability to use basic test instruments

All amateurs should be able to use a multimeter and an RF power/SWR meter. An ability to use and interpret readings from dip oscillators, impedance bridges, switched attenuators and noise bridges is essential to the antenna experimenter. Constructors of transmitters and receivers should be able to use RF signal generators, crystal calibrators, frequency counters, inductance and capacitance meters and (ideally) oscilloscopes. With few exceptions, the above items can either be bought cheaply (e.g. multimeter) or constructed in a day or two (e.g. attenuators, dip oscillators, RF signal generators, noise bridges). Ample constructional information on test equipment will be found in back issues of *Amateur Radio*, the standard handbooks and the World Wide Web.

### Construct a project from a schematic diagram and make intelligent substitutions

Studying for the exam teaches one how to identify components from a schematic diagram. Students should also have learned about the basic functions of each component and the purpose of each component in common stages found in transmitters and receivers. When it comes to making projects, many beginners are unconfident about tackling a project for which a printed circuit board layout is not provided. Yet, many of the most interesting projects (whether appearing in amateur magazines or on people's websites) lack a printed circuit board layout. This is generally because the builder uses alternative forms of construction (e.g. matrix board, 'ugly construction' and 'paddy board') that are cheaper, quicker and more easily modified than specially-etched printed circuit boards. Also, developing a reproducible circuit board layout requires time that in many cases experimenters would rather spend on developing the next project. Being able to construct a project directly from the schematic diagram is one of the most important skills that the home brewer can possess. This ability greatly the range of projects that can be built and makes it much easier to customize circuits to suit one's needs. A good plan for most projects is to try to base circuit layout as much as possible on the schematic diagram. Have the low-level or input stages on the left-hand side of the board, and the high-level or output stages on the right part of the board. Build and test large projects in modular sections to assist fault-finding, modifications and upgrading. Before cutting the circuit board to size, draw a plan showing the proposed mounting of components on the board. There is nothing more frustrating than cutting a board, and finding that it's 2cm too short! More experienced constructors will have an idea of the size of board needed from a cursory glance at the schematic diagram, and may wish to proceed straight from gathering the parts to cutting the board without drawing a diagram.

Also very important is the ability to make intelligent substitutions, especially when building projects developed overseas. This is often not feasible with circuits using rare, special-function integrated circuits such as the MC3362 VHF FM receiver chip. However, substitutions are easier when circuits use discrete components. Constructors should have some idea of the function of each stage and the type of components that are used in it so that they have some idea of suitable substitutes. As an example, let's take the keying stage in a low power CW transmitter. It may require an esoteric PNP transistor that is unavailable locally. Inspection of the circuit reveals that the stage is a transistor switch that applies voltage to the collector of the final output transistor when the key is held down. Depending on the current drawn by the final, a low to medium power PNP transistor is called for. As the keying stage is not handling RF, an audio transistor such as the BC640 or BD140 would be a workable substitute. Try the BC640 first, and if it gets too hot, substitute the higher power BD140.

### Computer literacy

Computers now occupy an important place in most amateur shacks. Whether used as a terminal for digital modes, logging, designing antennas, Morse practice, and e-mail or running circuit simulation software, a computer will be found indispensable for many amateur activities. However, a computer will only be useful if you're able to drive it. As a minimum, amateurs should possess the following computer skills:

- \* Ability to use an operating system such as MS Windows (including use of a mouse, minimizing / maximizing windows, switching between applications, saving and retrieving files)
- \* Ability to use common Windows and DOS-based software
- \* Ability to send and receive e-mail messages
- \* Ability to read and post on newsgroups
- \* Ability to use an internet browser (including the use of search engines)

These general skills will serve well for most people. However, many specialist facets of amateur radio require additional computing abilities.

Examples include:

- \* \*Controlling equipment with computers.\* Programming knowledge and the ability to construct proper interfaces between the computer's input/output ports and the equipment to be controlled is required. Typical applications of computer control include repeaters, antenna rotators for satellite tracking, Morse CQ callers, etc. Microcontrollers (such as the BASIC Stamp) can also be used in many of these applications.
- \* \*Modifying ex-commercial VHF/UHF equipment.\* Modern equipment uses programmable EPROMS instead of expensive crystals to set the operating frequency. Converting these sets requires an ability to program EPROMS to allow operation on amateur frequencies.
- \* \*Creating an amateur radio webpage. You will need to know how to write a webpage, use File Transfer Protocol (FTP) to transfer it to your service provider's machine and inform search engines of its existence. Knowledge of Hypertext Mark-up Language (HTML) is a bonus, but not essential, given the large number of webpage editors around. If you want pictures on your page, you must know how to use a (computer) scanner and convert between different image file formats.
- \* \*Circuit simulation, computer-aided drafting, satellite tracking, digital communication and logging.\* To get your computer to perform these functions requires special software for each task. The 'user-friendliness' of such software varies enormously, from intuitive to hostile. See back issues of this magazine and various specialist internet mailing lists or newsgroups for user reports on various pieces of software.

**NOTE - SINCE THIS ARTICLE WAS FIRST WRITTEN, 2002, MORSE CODE IS NO LONGER REQUIRED FOR H.F. OPERATION**

### **Morse proficiency**

Notwithstanding the proposed regulatory changes that will make Morse proficiency less important for amateur HF privileges, Morse remains a desirable skill. This is because it can be handy for identifying repeaters and beacons on VHF and its utility as an additional mode, especially when signals are weak. Also, Morse transmitters are much simpler and cheaper to build than transmitters for any other digital or voice mode.

Learners should aim to be competent in the following:

- \* At least 15 to 20 words per minute receiving speed
- \* An ability to receive Morse without needing to write it down, using paper only to note important details
- \* Being able to send off the top of one's head (i.e. not requiring a written message to send, as provided in the exam)
- \* Knowledge of commonly used on-air abbreviations

Almost all active Morse operators have the above mentioned skills. However, you will notice that the 5 and 10 words per minute Morse exams test none of these essential abilities. This means that these skills must be learned on air after the exam. There is thus a large difference between the Morse taught to prepare people for the exam and the mode as used on the air by experienced operators. It is unfortunate that people frequently obtain a jaundiced view of the latter based on their experiences of the former. Morse at 5 wpm is indeed a slow, clumsy and tortuous mode. However, 20 wpm sent and received in one's head, with appropriate use of abbreviations, is many times faster and a fully practical mode for communications purposes.

### **Operating skills and general knowledge**

Passing the regulations exam is a good start, but is not sufficient on its own. There are many skills that are best learned by listening to good operators on the air and reading the operating section of the ARRL Handbook. Have at least a vague idea of what's happening on the bands. This way you won't be caught unawares when asked to give a number for a contest that you didn't know about. Reading W.I.A. "Amateur Radio" each month and listening to your weekly divisional or club news transmission is usually sufficient.

Gain a broad knowledge of band plans and the frequencies allocated to each license class. This is so that you do not cause interference to other modes by operating in the wrong part of the band, or worse, breach your license conditions by transmitting outside your allocations. All required information on these topics appears in the WIA Yearbook. (Call book)

You may be asked questions on amateur activity and clubs in your area. Make it your business to familiarize yourself with local groups, on-air nets, coming ham fests and examiners near you. Most of the required information is provided in this magazine, the WIA Yearbook (Call book), on-air WIA/club news bulletins and what you yourself hear on the air.

These days most repeater channels are referred to by the last four digits of their output frequency. Thus a 2 meter repeater transmitting on 146.700 MHz is 6700 and a seventy centimeter repeater transmitting on 438.525 MHz is 8525. In the early days of channelised two meter FM operation, Australian amateurs used several different channel numbering conventions. You still hear old timers refer to frequencies by their old channel number. Possibly the most common is 'Channel 50' - 146.500 MHz - the national simplex calling frequency. As to repeater frequencies, 146.650 MHz was known as Channel 1, progressing upwards until Channel 15 on 147.350 MHz. Also worth knowing is your grid locator square. Knowing your square to four characters is acceptable to give out in contests, but if there is a need to calculate distances, knowing all six characters will be necessary. Grid squares are seldom used on HF SSB or VHF FM, but are commonly used by VHF and UHF SSB operators.

### **Conclusion**

Passing the amateur exam is a great start, but is only the beginning. Learning several of the practical skills mentioned above will assist you to become an experienced amateur better equipped to enjoy what amateur radio has to offer.

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# WANSARC VK3AWS

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## WANSARC CLUB PROFILE

### History

The Western and Northern Suburbs Amateur Radio Club (WANSARC) was first formed in 1969 and since then has served the needs and interests of amateur radio operators, short wave listeners and those interested in hobby radio and electronics. The club is not gender specific, having both female and male members. Members come from all walks of life with a mix of experience, young and mature, novice and technical. The most important aspect of the club is the willingness of all members to share their knowledge for the benefit of others. Members mainly reside in the west and north of Melbourne; however membership is encouraged from all interested.

### Meetings

Building K, Northern Metropolitan Institute of Technology (NMIT), St. Georges Road, Preston (Western side between Bell Street and Cramer Street) Melway 18 E12 **PARKING at NMIT- Members please note that parking adjacent to the club room building K is illegal and NMIT staff WILL book any cars which are parked in that area. ALL members must park cars in the main car park to the WEST of building K. Just look for vehicles with lots of aerials!** Meetings held on the 1st Friday of each month (excluding January) commencing at 7.30pm local time.  
Talk in on 146.450MHz FM—call club station VK3AWS.

### Benefits

Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of like minded radio and electronics enthusiasts, excellent club facilities and environment.

### Club Nets

146.450MHz FM each Tuesday evening commencing 7.30pm local time.

Linked to Echolink for intrastate, interstate and international stations participation, Echolink VK3FY Node # 20928, Repeater VK3RFY Echo IRLP Repeater Nodes Echolink Node # 3037, IRLP Node # 6079, 438.400MHz (-) offset, PL=123Hz (coming soon) 147.425MHz Simplex (cross-band linked) currently being updated, not currently always functioning, check on the actual night. This link is only brought up on the frequency of 146.450 MHz during the running of the WANSARC Net on Tuesday nights and *only when VK3FY is present at his QTH.* <http://members.tripod.com/~VK3FY/index.html>

### More Information

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## ***A proud tradition of supporting hobby radio and electronics enthusiasts since 1969***

All editors comments are the comments of Mick, VK3CH and may not always represent the opinions of other club members of WANSARC.

In any case anything stated is to promote interest and active discussion on club activities and the promotion of Amateur Radio in general.

Contributions to WANSARC are always welcome from any part of the world. You can either post material to the Post Office Box address at the top of this page, or email your submission to the editor direct at [vk3ch@alphalink.com.au](mailto:vk3ch@alphalink.com.au)

Email attachments not to exceed 2 Mb in file size. Attachments of (or thought to be) executable code will not be opened.

Other persons or radio clubs may edit or copy out such as they like from the magazine but a reference to WANSARC is appreciated.

Other articles that are credited to outside sources should be asked for their permission if they are used.

While we strive to be accurate, no responsibility will be taken for errors, omissions, or other perceived deficiencies, in respect of information contained in technical or other articles.

Any dates given for upcoming events should always be checked with a reliable source – coming up on the weekly WANSARC Tuesday evening NET on 146.450 MHz starting at 07:30 pm AEST is recommended to discuss and confirm information.

If not delivered within 7 days, please return to:  
WANSARC P.O. Box 336 Reservoir 3073

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