Amateur Radio

Volume 82
Number 4
April 2014
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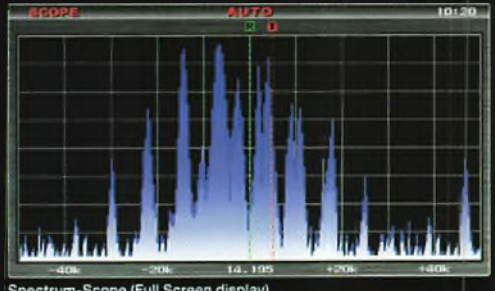

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General

This month's cover

Now is the time to plan your final preparations for the Australian Foxhunting Championship, to be held in early June in and around Mount Gambier. The cover shows one of the hounds during last year's event – Suzanne O'Callaghan VK3FSZI. Read the promotional information on page 21. Photograph by Charles Prime VK5HD.

Technical

Columns

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

Back Issues
Back issues are available directly from the WIA National Office (until stocks are exhausted), at $8.00 each (including postage within Australia) to members.

Photostat copies
If back issues are unavailable, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest
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Representing
The Australian Amateur Radio Service
Member of the International Amateur Radio Union

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Editorial

Peter Freeman VK3PF

Our future?

One needs to ask "What is the future of *Amateur Radio*?" That is, the future of this magazine.... As you read in last month's issue, the WIA Board is seeking input from you, the member, about your history as an amateur radio operator and your ability to access on-line content.

Please do complete the survey (preferably via the on-line form or via a hard copy) and return your information and thoughts by the deadline of Monday 14th April. Your input will inform the Directors and assist their deliberations.

Hopefully most have examined the sample copy of the March issue via the link from the WIA website. It should give you all an idea of what might be available from the July issue onwards via electronic delivery. That leads to the question of what will be available to those without electronic access? The members of PubCom are very interested in the outcomes from the survey. At present, we are concerned that whatever occurs does not disenfranchise members. To be fully informed, we need **ALL** members to give us and the Board feedback via the survey.

I hear anecdotal evidence that "seniors" are embracing the new technologies. The real question is about how many members can, or cannot, access an electronic form of this magazine? One would expect that most that can access the magazine via electronic means can probably either save the e-magazine in a form for later retrieval and/or print a copy to read in hard copy. Of course, it should be possible to ensure that all members can obtain a copy – either via direct electronic access or via some service which provides a hard copy to the member at a nominal cost.

As some have pointed out in other forums, it is not that *AR* magazine is the only benefit of WIA membership. In some respects, this magazine could be considered to be simply the "icing on the cake".

To me, the broader benefits of membership are the advocacy roles undertaken by the WIA at the state, national and international levels that are the most important. Without these representations and advocacy at these levels, one could see that those influencing the legislative bodies could see us (the licensed amateur operators) as a small group of enthusiasts that are being made redundant by the advances in commercial telecommunication technologies.

We clearly need to convey to the "powers that be" that we have things to offer to the broader community. This might be in the provision of (or preparedness for) communications when a disaster strikes and the commercial systems are overwhelmed. Or it could be as simple as showing that we have a small role in the area of STEM (science, technology, engineering and mathematics) education to our broader community.

I am not sure that we (the WIA) have the available resources to actively promote our hobby in the broader sense – that really falls to all of us as individuals and to our local clubs within our local communities. However, there are some relatively easy options....

Continued on page 5

WIA comment

Phil Wait VK2ASD

Should amateur repeaters run 120 watts?

For many years the WIA Beacon and Repeater Coordinator has handled all issues relating to the frequency allocation and licensing of amateur repeaters. However, just recently, we have received some complaints from amateurs asking why their club's application for a repeater licence was changed from a proposed power of 120 watts (pY) to 50 watts (pY). Why the discrepancy? And why shouldn't an amateur repeater be allowed to run the same power as any Advanced licensee? After all, repeaters (and beacons) are licensed under the Advanced LCD.

I am told the current amateur repeater frequency allocation and licensing procedure goes back many years, to a time when the ACMA proposed to charge all amateur repeaters the full commercial repeater licence rate, based on the fact that amateur repeaters, especially those located on shared sites with commercial services, required the same amount of frequency coordination work as commercial repeaters.

Apparently, the WIA was able to obviate that fee increase by offering to perform much of the evaluation work itself, as a WIA service to clubs, and the volunteer WIA Repeater and Repeater Beacon Coordinator was appointed from our members to screen applications and make recommendations to the ACMA. The ACMA would then only have to check the repeater application for potential site interference and issue a repeater licence. This protocol was implemented with the cooperation of the ACMA and has been the established custom for many, many years. More recently, the WIA appointed a second volunteer Repeater and Beacon Coordinator, and since then, over 30 repeater and beacon applications have been processed over the past year or so. The coordinators are both qualified to do the work; they work professionally in the field, and give their time very generously. Owing to the nature of the amateur repeater service, and the fact that many repeaters are located on sites shared with commercial services, the WIA has generally applied the land mobile communications engineering standards to amateur repeater licence recommendations, with the concession that antenna gain is not restricted. Although applying the land mobile standard does depart in a minor way from the spirit of the hobby, which is primarily about experimentation, and no doubt the crux of the recent complaints, amateur repeaters on co-shared sites do have characteristics, and require considerations, that are very similar to land mobile applications:

- A repeater licence gives exclusive use of a frequency pair to a comparatively small group of users, and geographic coverage and frequency sharing issues become important, particularly in urban areas on the east coast where clear frequencies are very scarce. Many amateur repeaters are located on co-shared sites with commercial services and issues such as cross-interference and intermodulation are a serious concern.
- Restricting repeaters to 50 watts average power ensures that most, if not all, will be Electromagnetic Emissions (EME) Compliance Level 1 and thus compliance requirements are reduced.
- Many amateur stations operate into local repeaters from hand-held transceivers, so their effective range is restricted by the power of the hand-held rather than the repeater's transmitter power.

In general, the WIA believes the limited spectrum available for amateur repeaters should be available to as many groups as possible, and unnecessarily high power and range should be avoided. The WIA has applied that basic spectrum management policy to amateur repeater recommendations for many years, and the policy appears to have had wide support within the amateur community.

On occasion, the WIA does recommend repeater power levels up to 120 watts pY in situations where the additional power is shown to be justified, after considering factors such as remoteness and size of the coverage area, local site sharing constraints, and EME effects.

So, is the WIA doing the right thing? Should the WIA continue to apply the land mobile standards to most amateur repeater applications, or should we just operate as a "post box" and submit a club's application requesting a 120 watt power limit?

Phil Wait VK2ASD
President

PS - Please don't forget to fill in the WIA survey in your March AR. If you have internet access, please do it on-line, otherwise copy or tear out the survey from the magazine and send it to the WIA office. Surveys must be received before the closing date, Monday 14th April.

WIA news

WIA Directors actively support the PR4AmateurRadio Expo

When the idea of a concentrated effort to publicise Amateur Radio was first mentioned, the very busy WIA Board of Directors eagerly embraced the concept. Now with less than a month to go, WIA President Phil Wait VK2ASD and other WIA Directors are set to either visit an Expo station, or get on air in support.

The WIA late last year, with a few clubs and individuals, took part in the hobby exhibitions - Eurisko in Melbourne and the Mini Maker Faire in Sydney's Powerhouse Museum. It learnt a lot from those two events, including showing to many hobbyists that modern amateur radio can handle telemetry for their experiments and other practical experimentation.

Now next month, through the PR4AmateurRadio Expo, we have a concentrated effort to show what amateur radio can offer the community. This can be a club having a public event, or exercised by an individual, to show what we do is relevant to a modern technological age, and easily assessable through the Foundation licence.

The Wireless Institute of Australia wants clubs, organisations and individuals to think about how they can be involved in the PR4AmateurRadio Expo, held during the period of April 11 to 13.

Visit the 'Whats On' column of the WIA website for more details on this exciting event.

Missing flight search involves amateur radio emcomm

The disappearance of the Malaysian Airline (MAS) Boeing 777-200ER jetliner with 239 passengers on board is a mystery that nine nations are trying to solve. When flight MH370, ex-Kuala Lumpur bound for Beijing, disappeared from the air traffic control radar, the MAS Emergency Management Centre (EMC) at Kuala Lumpur Airport provided accommodation for all next-of-kin at the Everly Hotel at Putrajaya.

The Malaysian Amateur Radio Transmitters' Society President, Mohd Aris Bernawi 9M2IR, said MARTS was asked to provide a link between the airport and the hotel. Mohd 9M2IR said at the hotel MARTS quickly set up a station, led by Zanirul Akhmal Zanirun 9M2PRO, and Azizi Samsuri 9W2ZZE was the MAS team leader. NESRAC, a club from Negeri Sembilan, provided the volunteers for the station at the airport's Emergency Management Centre.

MARTS provided a cross-band VHF/UHF link to avoid any unnecessary interference from the public services. An HF link was later added. During the call-out there were 11 volunteers at EMC and 23 volunteers at the hotel, on a shift roster for the link. Mohd 9M2IR, who oversaw the entire process, said MARTS an IARU member society, was pleased to be able to provide the link on the very tragic occasion. The search for MH370 continues as this issue is being prepared.

65th Lake Constance Convention and the HAM RADIO 2014

The 65th Lake Constance Convention and the HAM RADIO 2014, both organised by DARC, Germany's most prominent amateur radio club, will take place from Friday, June 27th until Sunday, June 29th, 2014 in Friedrichshafen on Lake Constance.

Please note that on June 28th and June 29th there will be also a MAKER WORLD exhibition at the same location.

In case you require a visa for your travel to Germany we would like to remind you to apply for it as soon as possible as the visa screening and issuing process can take quite some time.

We would also be very pleased to welcome you at the "Informal International Meeting for Representatives of IARU Member Societies" on Friday, June 27th at 18:30.

Further details can be found at the web site: *http://www.hamradio-friedrichshafen.de/ham-en/index.php*

WIA expresses thanks to ARRL on its Centenary

It is with great pleasure that the Wireless Institute of Australia acknowledges the 100 year milestone reached this year 2014 by the American Radio Relay League. The consistent leadership shown by the ARRL is well known and admired. However, now is opportune to reflect and record some of the occasions that WIA has benefitted from having a close relationship with ARRL.

These include the Trans-Pacific Tests of the mid-1920s proving that shortwave radio was viable, the introduction of television in 1956, the later roll-out of cable TV, and the trial use of Broadband Over Powerlines (BPL).

Your partnership on these, and in many other areas, has been invaluable, writes the WIA President Phil Wait VK2ASD in a letter. The ability of the WIA to have its own popular DX Century Club (DXCC) Award program is appreciated, and it continues to be a mirror of the DXCC that was introduced by the ARRL. The Australian Novice grade of licence drew on its existence in the USA. Although the WIA had asked for that stepping-stone licence years earlier, its eventual

introduction was partly due to the ARRL experience.

The ARRL works with all at global forums including International Amateur Radio Union meetings, and the Word Radiocommunications Conferences by the International Telecommunications Union. A range of publications from the ARRL, stocked by the WIA Bookshop, continue to be a source of knowledge and experience. There are many things to be learned from the ARRL in the way it approaches issues. For example, it has shown a recent growth in the number of radio amateurs that is counter to the worldwide trend.

The WIA notes that the ARRL has announced an exciting program of celebratory events and activities to mark its 100th year. At the same time the League is looking to the future and how to engage the next generation. On behalf of WIA members, a warm thank you for the role undertaken by the ARRL, best wishes for the celebration and the century ahead.

Editorial

Continued from page 2

Are you or your club planning to participate in the PR4AmateurRadio Expo? Did you participate in the John Moyle Field Day contest? Are you a member of WICEN or a similar group? Are you or your club planning to set up a station for the ILLW activity weekend? Participation in such activities can expose our hobby to the broader public, hopefully in a positive manner. We all need to "do our bit" to promote our hobby.

So much for the broader philosophical questions. What about **your** magazine?

Our stock of available articles, both "general" and "technical" for publication is rapidly becoming depleted. I often have difficulty to find a reasonable photo to transform into a cover.

We need you to consider writing an article about your latest project or activity. We need well composed, high resolution photographs as part of such articles, even if the articles are short. Otherwise, we will all lose local content in **our** magazine. Do we simply move to publishing articles previously published in a sister IARU member society publication, with a number of regular columns and club news contributions?

I hope that we do not need to resort to such an approach. As Editor, my preference is publish local content. Okay, it may take a little time for your article to move from receipt through our review system and onto the printed page... But at least it is your contribution, about local (VK) amateur radio activities.

So, it is over to you..... The contribution can be short and to the point. It might be a long epistle about a complicated project – but please try to organise such an effort in a way that might be logically split across more than a single article.

Always remember – good quality images help us to present your efforts in the best light.

The PubCom team looks forward to being overwhelmed by your high quality contributions!

Cheers,

Peter VK3PF

2014 WIA Conference

Sunshine Coast, Queensland 16-18 May 2014

For more information and booking, visit:
http://www.wia.org.au/joinwia/wia/2014agm/

IC based Audio Oscillator Project

Ross Fraser VK2WN - vk2wn@wia.org.au

At the September 2012 meeting of the Orana Amateur Radio Club I presented an integrated-circuit (IC) based audio oscillator project. The IC I used for this project is the very popular 555 timer. As an aside, the 555 timer IC was originally created by Signetics (in the United States) in 1972 which means the IC is now over 40 years old!

This circuit would be suitable for a number of applications. There are three that I can immediately think of: a Morse code practice oscillator (CPO); a continuity tester/buzzer or a simple alarm. It produces a fairly loud tone especially when using a reasonably large speaker. I have drawn the circuit (Figure 1) to show where to connect a Morse key (for a CPO) or multimeter-type probes if you intend using the circuit as a continuity tester/buzzer.

Photo 1: The 555.

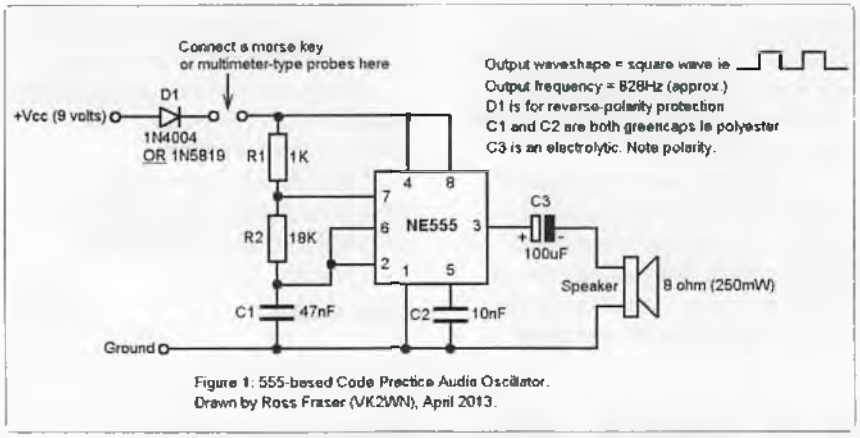

Figure 1: A schematic of the 555-based code practice audio oscillator.

Suitable probes would, for example, be 2 mm test probes from Jaycar (Catalog Number: PP0425)) or just connect a link wire, between these two points, if using the circuit as part of an alarm system. I'll leave the triggering of the alarm up to you.

The circuit is relatively simple and I have presented a Veroboard™ (also known as strip board) layout for ease of construction. Because of the simplicity of the circuit it could easily be built in any of the other well-known construction methods such as Paddyboard (also known as Manhattan-style) or Ugly-style which is where you build the circuit on a small piece of printed circuit board (pcb) or similar and it ends up, despite being well-made and working well, looking ugly. If you're unsure as to what these different construction methods are then I suggest you go to your favourite search engine and type in the relevant word(s)! Whichever method you choose – just

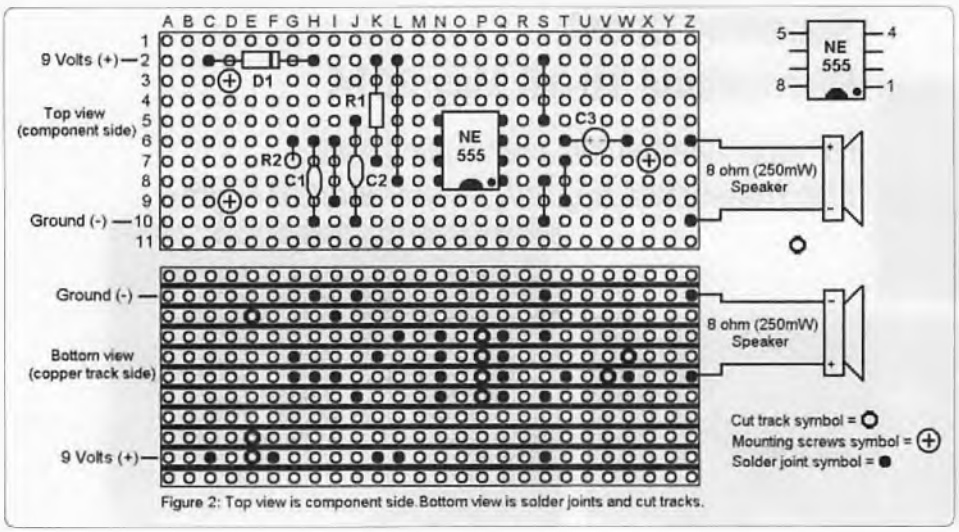

Figure 2: The 555-based CPO Veroboard ™ layout.

build it! It is quite an easy circuit to build. Make your solder joints electrically solid and neat and you should have no problems getting the circuit to work.

Some notes and suggestions

- On the component side of the Veroboard™ layout solder joints (black circles) are shown. These solder joints can't actually be seen from this view as they are underneath on the copper track side! I have shown them on this view to make it easier to see where the component leads go.
- Whenever you make a battery-operated circuit that contains an IC *always* use a rectifier or barrier diode in series with Vcc (the positive side of the nine volt battery). I normally use a 1N4004 silicon rectifier diode but a Schottky barrier diode (1N5819) with a lower forward voltage drop (about 0.45 volt) could be used instead. The reason for using the diode is for reverse-polarity protection. ICs, including 555s, can be damaged, if not destroyed, if the supply is connected backwards. The diode will only conduct if the supply is connected the right way around so if the battery is connected back-to-front the diode won't conduct and will block the voltage. This protects the IC from damage. This is not just dry theory because I have, in fact, actually destroyed one or two ICs, over the years. The ICs formed part of a circuit without reverse-polarity diodes. By accidentally touching the battery connector (also known as a battery snap) back-to-front on the nine volt battery led to damage or destruction of the IC. You can learn from my experience and *always* use a diode in series with Vcc!
- The output on pin 3 can go to a 741 IC configured as a voltage follower or, in other words, a non-inverting buffer. The buffer doesn't load down the output because it has a very high input impedance and a very low output impedance.
- The no-load output on pin 3 will be a clean square wave but when loaded, that is when driving a speaker via a capacitor, the output will have overshoot spikes on the waveform.
- The output on pin 3 can go to three resistance-capacitance (RC) networks which will give a sine wave output but on one frequency only:

$$\text{Output Frequency} = \frac{1}{2\pi RC}$$

  The capacitors in the three network stages are connected to ground.
- Output measured at pin 3, with no load connected, will be approximately a square wave if R2 is much larger than R1 (say about 10 times or more).
- An electrolytic capacitor connected to the load, that is the speaker, should have its positive side connected to pin 3 and its negative side to the load, that is, the speaker.

Use values in the range of 10 µF to 220 µF. At audio frequencies the value of this capacitor is not critical but use a 100 µF or 220 µF electrolytic if you have one.

- The output on pin 3 can be fed to the input of powered computer speakers via the output coupling (10 µF to 220 µF) capacitor. Using this method the audio tone sounds quite good and is loud and you can control the volume as well.
- An alternative method to control the output volume is to use a 5 kΩ linear pot connected between pin 3 of the IC, and the coupling capacitor.

Parts List

Note: The numbers in brackets are Jaycar catalog numbers

1N4004 rectifier diode (Catalog number: ZR-1004) or 1N5819 Schottky barrier diode (Catalog number: ZR-1020)

NE555 IC timer (Catalog number: ZL-3555)

1 kΩ resistor (Catalog number: RR-0572)

18 kΩ resistor (Catalog number: RR-0602)

47 nF greencap (polyester) capacitor (Catalog number: RG-5105)

10 nF greencap (polyester) capacitor (Catalog number: RG-5065)

100 µF, 16 volt electrolytic capacitor (Catalog number: RE-6130)

8 Ω, 250 mW small round speaker (Catalog number: AS-3000)

Other required parts: Veroboard™ and hook-up wire.

References

1. 'Basic Electronics', Peter Phillips, *FPC Magazines*, 1998, pages 80 to 84.
2. '555 timer IC', *Wikipedia*.
3. 'A Buzzer with a Difference', Ross Pittard VK3CE, *Amateur Radio*, June 2012.
4. 'Morse code practice generator', Alan Gibbs VK6PG, *Amateur Radio*, October 2000.

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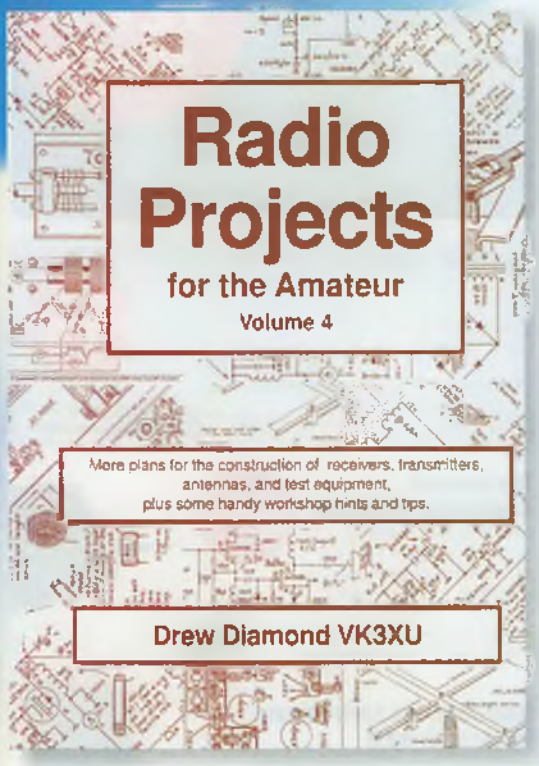

Radio Projects for the Amateur

Volume 4

120 pages of projects, hints and tips from Drew Diamond, a regular contributor to *Amateur Radio* magazine.

- Build - Receivers, Transmitters, Antennas, Test Equipment, Power Supplies.
- Hints and Tips for the home constructor.
- Projects include simple superhet receivers for 160, 80 and 40 metre bands, CW transmitters for the LF and HF bands. Build a 200 W dummy load with power meter.
- Projects feature B/W photos of the finished item, plus schematic diagrams and parts layouts.

If you're into "home brew" this book will be an excellent addition to your library.

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Knobless Wonder - A bipolar 40 metre SSB transceiver

Peter Parker VK3YE - www.vk3ye.com

Modern HF transceivers sport an impressive number of knobs, buttons and hidden menus. Circuit diagrams can be as big as a bed sheet if the insides of all chips are included. The result is a radio that though versatile can be limited by high receive current use, fragility and risk of damage, especially if used portable.

The transceiver presented here is the direct opposite. It has no knobs. Just ten transistors and an audio IC perform all functions. The circuit can be drawn on a single A4 sheet. And it will run for hours on the same energy that other rigs exhaust in minutes. Yet the *Knobless Wonder* delivers a punchy two watts on 7160 kHz and costs under a hundred dollars to build.

A special attitude is needed to use it. Instead of numerous settings, one must accept a given frequency, volume and microphone gain. Take it or leave it. On or off. There is no other state. With nothing to tweak this transceiver is guaranteed ineffective against anxiety, nail biting, smoking or eating habits.

Notwithstanding the lack of therapeutic efficacy, its elegant simplicity has benefits. Concentrating on received signals is easier. Building and using is highly satisfying. And because it has similar 'back end' circuitry to the famous BitX transceiver, only a few more stages will make it frequency agile if desired.

Circuit description

The *Knobless Wonder* is a filter type SSB transceiver with some stages common to both transmitter and receiver. No further mixing is required as the crystal filter is on the operating frequency. Direct conversion reduces cost, complexity and spurii with frequency agility the only loss.

The transmission starts as a 7.160 MHz carrier derived from a 7.159 MHz crystal pulled slightly up. It is mixed with amplified audio from the microphone in a diode balanced modulator. The resultant 7 MHz DSB is amplified and fed to a ladder filter which chops off the unwanted upper sideband to generate an LSB signal. This is amplified further and filtered before passing to the antenna.

The receiver operates in reverse. Only a narrow three kHz span is passed to the balanced modulator (operating as a product detector) and the receive audio amplifier. A transistor switch in the audio amplifier mutes the receiver during transmit to ensure a smooth changeover.

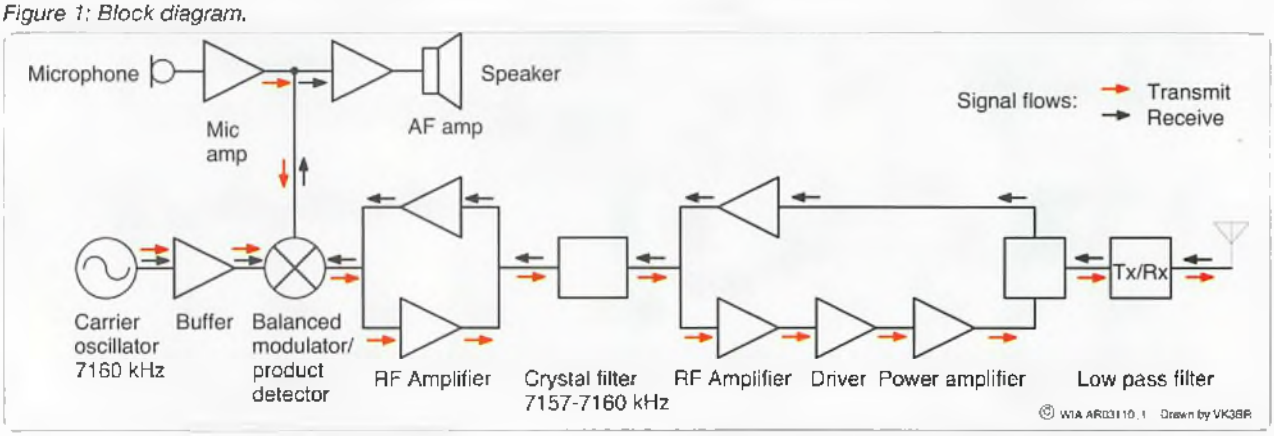
Sharing several stages between transmit and receive simplifies the circuit. The carrier oscillator, buffer, balanced modulator/product detector, crystal filter and low pass filter are all common. The four amplifier transistors either side of the crystal filter are connected so that only two are switched in at any one time when power is applied. This is a bidirectional circuit, so-called because the signal flow through the filter reverses when switched between transmit and receive. The block diagram at Figure 1 shows the different paths that transmit and receive signals take.

Description of parts

Mostly common discrete parts are used. They can nearly all come from Altronics or Jaycar with Rockby and others supplying the crystals.

A double sided printed circuit board forms the base for all components. The board pictured is 12 x 15 cm though smaller is

Figure 1: Block diagram.



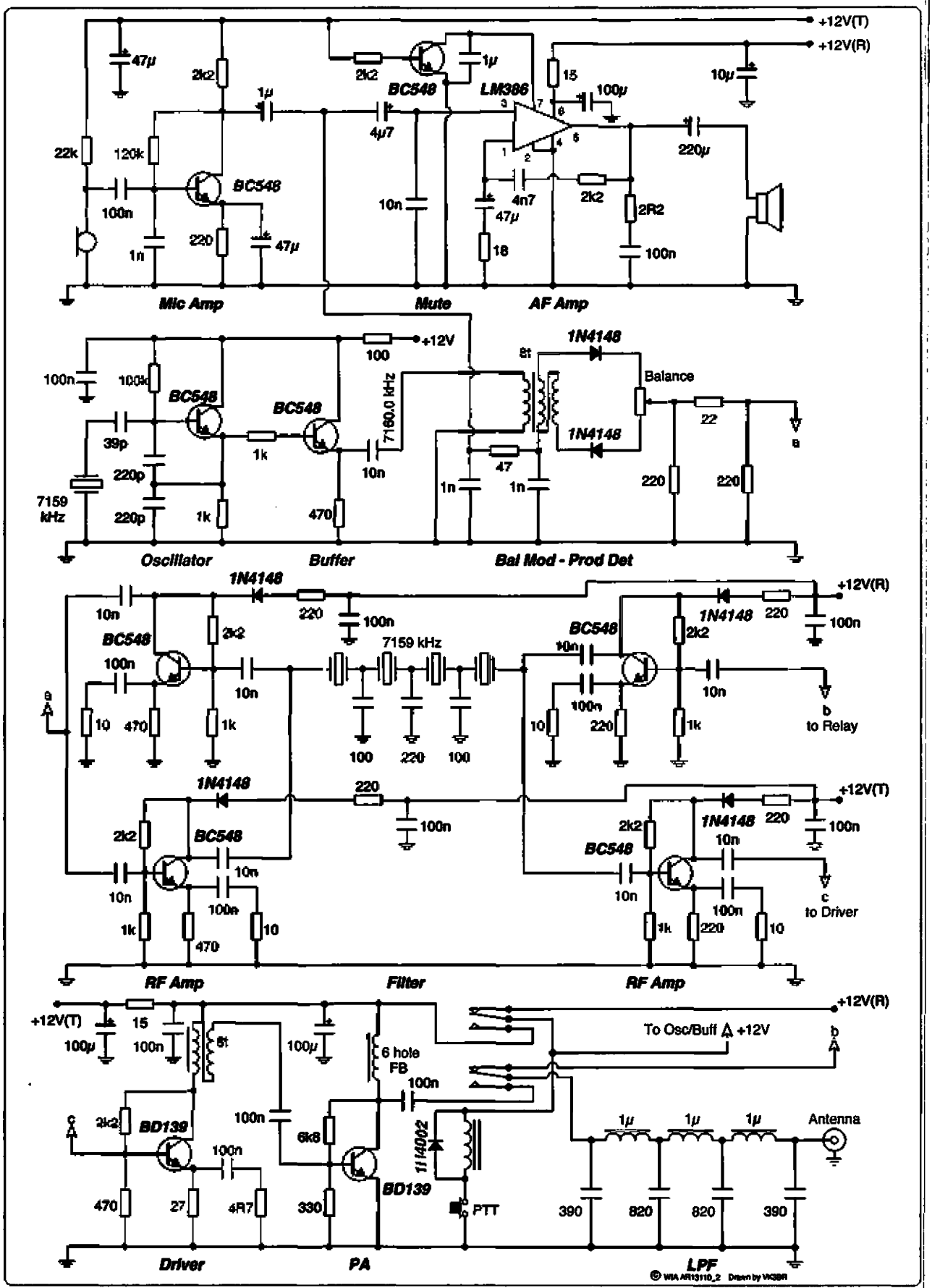


Figure 2: The schematic diagram of the Knobless Wonder.

possible with care. Connect both sides together with several short wire links around the board edges.

All resistors are ¼ watt 5% tolerance types. Capacitors can be disc ceramic for values of 100 nF and below and electrolytic for those above. Polystyrene or mica capacitors are not mandatory in the pi network filter but can offer less loss.

RF chokes are used in the pi network output filter, while the balanced modulator and RF driver amplifier coils are wound on two hole TV balun formers about 12 mm wide. A six hole ferrite bead threaded with enamelled copper wire forms the RF choke in the power amplifier. Photo 3 shows both ferrites used.

Obtaining the hardware should be equally easy. Though not used here, a metal case is preferred for good RF shielding. You can buy new but used is cheaper. Computer printer switch boxes are abundant, solidly built and a good size for QRP projects. Or consider a decorative tin, often stocked by op-shops for a few dollars. Salvaged sockets and microphones allow further savings, as does blank circuit board material ordered via eBay.

Construction

Parts are mounted on pieces of blank unetched printed circuit board material. Several pieces of board can be soldered together to form a chassis if desired. Offcuts from another board can be cut into four or five mm squares to provide anchor points for parts that must be insulated from the earthed main board.

To make best use of expensive double-sided circuit board material and save space, I mounted the board on stand-offs and used both sides for components. Both audio stages, the RF driver, RF power amplifier, transmit/receive relay and low pass filter are built on top. The local oscillator, balanced modulator/ product detector and crystal filter

Photo 1: The top view of the Knobless Wonder's circuit board.

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are underneath. This arrangement provides some shielding between stages. Partitions made of circuit board material around the crystal filter provide further isolation and reduce RF 'blowthrough'.

Unless experienced, confident or foolhardy, build and test each stage individually to simplify troubleshooting.

Start with the 7.159 MHz crystal oscillator and buffer. It should produce a strong carrier on a nearby receiver. For now try to get it on 7.160 MHz. If the capacitor in series with the crystal does not produce the right frequency try a slightly different value or even an adjustable 50 or 60 pF trimmer. A frequency too high means that the capacitor needs to be larger while too low a frequency requires one smaller.

The balanced modulator is next. Forming its coil is most complex. To do this, take three pieces of 0.3 or 0.4 mm diameter enamelled copper wire about 20 or 30 cm long and twist together until there are three or four twists per centimetre. A hand drill and pliers can be useful for this job. Then loop through the two-hole toroid, out of one hole and into the other. Once about eight or 10 turns have been wound cut any overhanging wire to about two or three cm long, untwist and strip each end to expose the copper. Identify with a multimeter or continuity tester which ends meet with which and connect the start of one winding to the end of another. The result will be two windings connected to one another and one independent winding (used for the oscillator connection). Polarity of both this and the diodes is essential for correct operation.

Build the microphone amplifier next. While not essential I put this (along with the receiver audio amplifier) on the opposite side of the board to the crystal oscillator, buffer and balanced modulator. Passing power and signal connections via 2 mm holes in the board keeps them short and construction neat. The 22 k resistor is only needed if using an electret microphone.

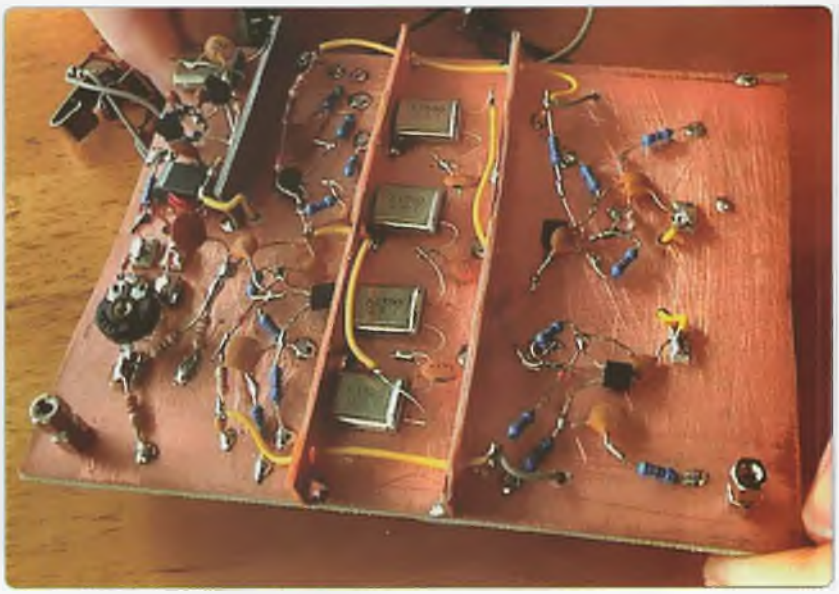

Photo 2: Underneath the Knobless Wonder's circuit board.

The stages built thus far should allow a DSB signal to be generated. Demonstrate this by applying power, attaching a short antenna to the balanced modulator's output, speaking into the microphone and monitoring on a 7160 kHz receiver. Your voice should be plainly heard. Tune the receiver slightly off centre frequency to hear a carrier and note its signal strength. Adjust the balance trimpot for minimum carrier signal strength, which should be much lower than what your voice peaked at. To prove that it is indeed double sideband, tune in to yourself with the receiver set to USB as well as LSB.

Only filtering and amplification stand between DSB and the desired SSB transmission. Build the crystal filter and the transistor stages around it. The capacitor values around the filter are critical as they shape its two-three kHz bandwidth. As per the photo, use circuit board material to provide some shielding around the filter. Small holes are cut in the partition sides to pass signal and power connections. Signal connections are marked on the schematic as small letters - 'a' goes to the balanced modulator/product detector, 'b' is used on receive only and goes to the antenna via the relay and low pass filter while 'c' is used on transmit only and supplies the driver stage with RF.

While the RF amplifier stages around the filter are ordinary, the way they are connected is not. Particularly note the two power connections. Power is applied to one pair during receive and the other pair during transmit. The power connections are marked '+12v (R)' for receive and '+12v (T)' for transmit. Both come directly or indirectly from one section of the transmit/receive relay. Signals pass left to right on transmit and right to left on receive. Hence only two stages are in use at any one time. While it goes against the grain to leave two transistors unused half the time, the arrangement works out simpler and cheaper than if relays had to be used.

Repeat the listening test done before but with the crystal filter in circuit and power applied to the transmit pair of transistors either side of the crystal filter. Your voice should still be audible in the receiver but will be sound different compared to the test with DSB. Most noticeable is that while it's strong and readable with the receiver on LSB, it is much less so with it on USB.

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Set the receiver back to LSB and critically evaluate the audio after re-tuning for best readability. If it's high and thin then the carrier oscillator is set too high in frequency. If it's bassy and muffly then it's adjusted too low. Vary the capacitor in series with the oscillator crystal accordingly; lower capacitance values lower the frequency and vice versa.

The greatest density of components is found around the receiver audio amplifier. It uses more parts than other LM386 designs due to its higher gain and transistor muting circuit off Pin 7. The more cautious can use a small piece of matrix board to mount the IC and possibly surrounding parts. Or, if game you can simply mount it, upturned dead bug style, hard against the copper side of the board, with pins 2 and 4 bent back to be soldered to it. The resistors and capacitors can then be wired point to point around it. The circuit shown drives a speaker even on weak signals. If use with headphones only is required then omit parts between Pin 1 and the ground, and between Pin 1 and Pin 5. Then connect a 10 µF capacitor between Pins 1 and 8.

Connect an antenna to the base of the BC548 in the top right of the filter circuitry via a 10 nF capacitor. Apply power to those parts of the circuit that should be powered on receive (labelled '+12v (R)'). Band noise should be audible, as should any signals. A locally generated LSB signal on 7160 kHz should be plainly heard. Disconnecting the antenna should greatly reduce noise from the speaker, indicating both adequate sensitivity and low internal noise.

Assemble the low pass filter. This comprises commonly available 1 µH RF chokes and capacitors to earth. Disc ceramic will work though polystyrene or silver mica may offer lower loss.

The transmit/receive relay can be tackled next. Wiring is critical, otherwise the wrong signals or currents will go to the wrong part of the circuit at the wrong time.

The antenna via the low pass filter connects to the common terminal of one of the double pole double throw relay's switch sections. The 12 volt supply rail connects to the common terminal on the other section. Note that this also goes to the crystal oscillator, buffer and relay coil as power is needed to these at all times. The normally closed sections of the relay go to the receiver antenna input (BC548 base via a 10 nF capacitor) for the antenna section and receive supply rail (labelled as '+12v (R)' on the diagram) for the power section. These are the LM386 audio amplifier circuit and two of the BC548 stages around the crystal filter. The normally open sections go to the final amplifier transistor (via a 100 nF capacitor) and the driver and power amplifier supply rail. Other stages are also supplied with power on transmit via a 15 Ω resistor. These are the microphone amplifier and the remaining two of the BC548 stages around the crystal filter. These are labelled '+12v (T)' on the schematic diagram.

If you can't tell which relay contacts are which, use a multimeter and 12 volt supply to find out. Firstly identify the coil. This will be the only set of contacts with a resistance that is not either nil Ω or open circuit between them. Confirm this by connecting 12 volts (preferably current limited in case you make a mistake!) and hearing the relay click. Then test continuity between the other contacts both when the relay is energised and not.

With the relay connections done check the receiver for band noise like you heard before. Double check relay connections if there isn't any. Pressing the PTT should mute the receiver and allow very low power SSB to be generated.

The driver and final stages complete the project. These are mounted near the relay but a bit away from potentially sensitive stages such as the carrier oscillator, crystal filter and microphone amplifier. The collector circuit of the BD139 driver has a wound ferrite in its collector circuit. This is similar to the one in the balanced modulator/product detector except there are only two instead of three windings. Use the same type of wire and two-hole ferrite balun former though.

The final amplifier's collector inductors is simpler, comprising three turns through a six hole ferrite bead approximately 10 mm long. The other consideration is the heat dissipated so fit the BD139 with a heatsink. A small U piece of

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aluminium bolted to the transistor will suffice. A small dab of heatsink compound will ensure good heat conductivity.

Testing

Connect an RF power meter on a five or 10 watt scale and speak loudly into the microphone. The power should rise to one or two watts on voice peaks and fall to almost nothing with the PTT in and no speech. If not try re-tweaking the balanced modulator's null potentiometer to null out the carrier. If this doesn't work the driver or final amplifier stages may be oscillating or inducing RF feedback. Peaky or distorted audio as heard on a nearby receiver is a good tell-tale. Improve shielding and decoupling until the distortion goes away.

Try measuring the crystal filter's band pass characteristics. All this needs is a CW transmitter with an accurate frequency display and a multimeter set to AC volts. The transmitter is keyed into a dummy load. The carrier signal is heard on the receiver and its AC voltage across the speaker measured. Plot the response by moving the transmitted frequency in 100 – 200 Hz steps and noting the voltage.

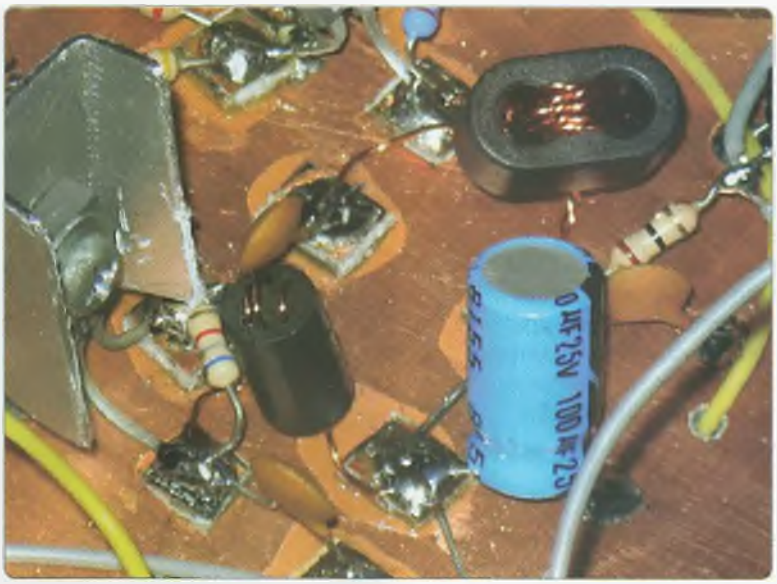

Photo 3: Close up of the driver and power amplifier stages, showing ferrites used.

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Normal band noise at the author's location gave an output of 30 millivolts with a full-sized antenna connected. This level hardly changed when the transmitter was operated above 7160 kHz, indicating good opposite sideband suppression. A peak of 1.5 volts was achieved at 7159 kHz, that is, an output carrier signal of 1000 Hz. Relatively high output was maintained between approximately 700 Hz and 2000 Hz, with severe attenuation below 400 Hz and above 2500 Hz.

SSB textbooks typically recommend a flat 300 – 3000 Hz filter band pass. The above measurements and on-air reports confirmed the narrower response with restricted bass. However listeners also reported sharp and punchy audio that penetrated well through interference; an over-riding quality for a QRP SSB transceiver. While not done in the prototype, altering the filter's capacitor values would broaden the response if desired.

Photo 4: The front view of the Knobless Wonder.

Modifications

The trouble-free development and construction of the Knobless Wonder attests to the quality of the BitX design from which it was largely derived. However some builders may wish to customise their version, for instance by making it waterproof or putting it on a different frequency or band.

7160 kHz is an excellent frequency for daytime operating in VK and its use is recommended to allow contacts between *Knobless Wonders*. However builders elsewhere may wish to use other cheaply available crystals such as 7122 or 7200 kHz for SSB or 7040 kHz for digital modes such as WSPR. Such crystals should be drop-in replacements, with only minor tweaking of the carrier oscillator required.

Slightly more ambitious is conversion to 80 metres. Common crystal frequencies include 3579 and 3686 kHz. As a minimum capacitor values around the crystal filter will need changing and pi network component values will need doubling. 20 metre operation, with 14318 kHz crystals, may also be possible, again with changed values. This is not recommended as a first project as RF output power will be less (due to the BD139's lower gain) and the crowded DX nature of the band makes contacts much harder than on 40 metres.

A fixed frequency makes the rig simple but increases the effort needed to make contacts. Adding frequency agility requires changing the crystal filter to an intermediate frequency such as nine or 10 MHz and building extra mixer and oscillator circuitry. The BitX is a good design to follow since the Knobless Wonder uses most of the same circuitry.

Operation and results

Using the Knobless Wonder couldn't be simpler as there are no user adjustments. The only choice is on or off. You must accept what the frequency presents, including times when it can't be used because others are on or near it.

Still, its two watts is highly effective, even for random contacts up to approximately 1000 km. Only a few CQ calls are typically required to raise someone and strength seven reports from interstate stations are common. The quiet and selective receiver is a refreshing change from unfiltered direct conversion designs. Also, SSB is noticeably more effective than DSB thanks to the narrower transmit bandwidth and suppressed opposite sideband.

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A surface mount resistor dummy load for QRP power levels

Erich Heinzle VK5HSE

Introduction – what is a dummy load?

Simply put, a dummy load for radio amateur use is just a fifty ohm resistor designed to absorb power. This can be useful when testing an amplifier, or when measuring the power output of a transmitter. An inexpensive dummy load using surface mount resistors and an equally inexpensive setup for reflow soldering will be described.

Design considerations

Managing heat dissipation and designing a dummy load with minimal parasitic inductance or capacitance, thereby keeping its characteristic impedance purely resistive over the frequency range of interest, are the usual design challenges. The dummy load presented was conceived to see how well a compact array of 44 surface mount resistors worth around 31 cents in total and a cheap BNC connector would perform as a dummy load at HF, and also as an introductory project for those new to surface mount soldering. 0805 devices were chosen as a compromise between hand solderability, power rating and price. '0805' refers to the device dimensions, namely, 0.08 inches by 0.05 inches (2 mm by 1.2 mm). Surface mount resistors, being compact, were expected to suffer less from parasitic inductance or capacitance than leaded components, but this would also limit power handling, as most 0805 devices are rated at no more than 330 mW, and many at 250 mW or 10 mW. My roll of 5,000 (yes, 5,000) 0805 resistors cost less than $10, making a dummy load using them still cheaper than some of the thick film RF power resistors now available.

The question was, how well would it perform?

Figure 1: The dummy load schematic.

Circuit theory and schematic

Before the advent of discrete thick film RF power resistors, homebrew dummy loads have relied on a parallel array of resistors to minimise inductance, and increase power handling, with the overall resistance of the array being given by the familiar equation:

$$R_{total} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \ldots + \frac{1}{R_n}}$$

and if

$$R = R_1 = R_2 = R_3 = \ldots = R_n$$

this simplifies to

$$R_{total} = \frac{R}{n}$$

In this case a total resistance of 50 ohms was desired, and forty four resistors valued at 2.2k seemed a convenient number. This allowed a minimum of 11 W to be dissipated with 250 mW devices and about 5 W for 100 mW devices. Probably a bit more for short periods, given the substantial PCB ground planes.

For power measurement, the usual sampling circuit employing a capacitor, detector diode and 3.9 MΩ resistor were added to allow simple RMS voltage measurement with a standard 11 MΩ multimeter if desired.

Power in an AC circuit is given by:

$$Power_{average} = V_{RMS} \times I_{RMS}$$

Using ohm's law:

$$I = \frac{V}{R}$$

We can substitute the current (*I*) to get:

$$Power_{average} = \frac{V_{RMS}^2}{R}$$

In our circuit, the 3.9 MΩ resistor, in series with the 11 MΩ input resistance of a standard multimeter acts as a voltage divider, making:

$$V_{out} \approx V_{RMS}$$

Which allows us to estimate power using the following equation:

$$Power_{average} = \frac{(V_{out} + V_{diode})^2}{R_{50\Omega}}$$

The choice of detector diode will determine V_{Diode}, the turn-on voltage of the diode, and the accuracy of power measurement at low voltages.

The resistors rated at 250 mW will have 23 volts applied when dissipating 11 watts, a voltage which risks destroying germanium diodes. More robust silicon diodes will be less accurate at low voltages. Diode choice is therefore determined by the range of power levels being measured, and resistor power ratings.

Below the turn-on voltage, the accuracy of power readings will be suspect.

In any event, the sampling circuit was devised with through-hole components to facilitate replacement of blown diodes.

PCB design

A PCB was designed using the free and open source gEDA circuit and PCB design tool suite on Ubuntu GNU/Linux. The BNC footprint and transmission line forming the key elements of the PCB were "copied and pasted" from the PCB design file for a step attenuator that had been designed previously. The BNC footprint supports both a cheap vertical and a cheap right angle 50 ohm BNC connector.

Additional landings were created for the voltage sampling network. Gerber format design files were exported and sent off for manufacture, once again, to Hackvana.

The absence of a solder mask is likely to make cheap and easy reflow soldering more difficult, and interested constructors may wish to obtain a commercially manufactured board either via the author (who also has around 4,956 resistors left over at the time of writing!) or directly from a PCB manufacturer for larger quantities. The design has been released under the TAPR open hardware licence.

Assembly

Solder paste was obtained from Aztronics, one of the local electronic component suppliers in Adelaide. A fine tipped hypodermic needle was used to manually dab solder paste onto each pad for the resistors along one side of the transmission line, and two continuous lines of solder paste were applied to the two rows of resistor pads on the other side of the transmission line to allow a comparison to be made.

The forty four SMD resistors were placed into position with tweezers.

A $40 electric hotplate rated at 800 W with a 3 mm aluminium plate attached to a lift-off jig with countersunk M3 screws and thermal

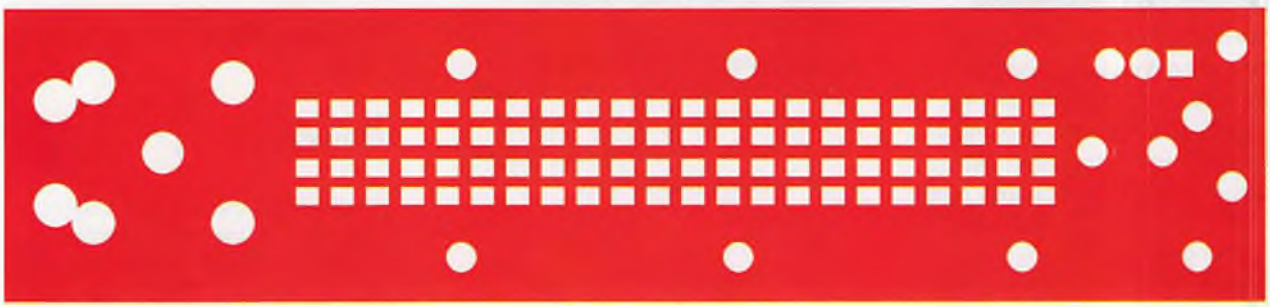


Figure 2: The dummy load solder mask.

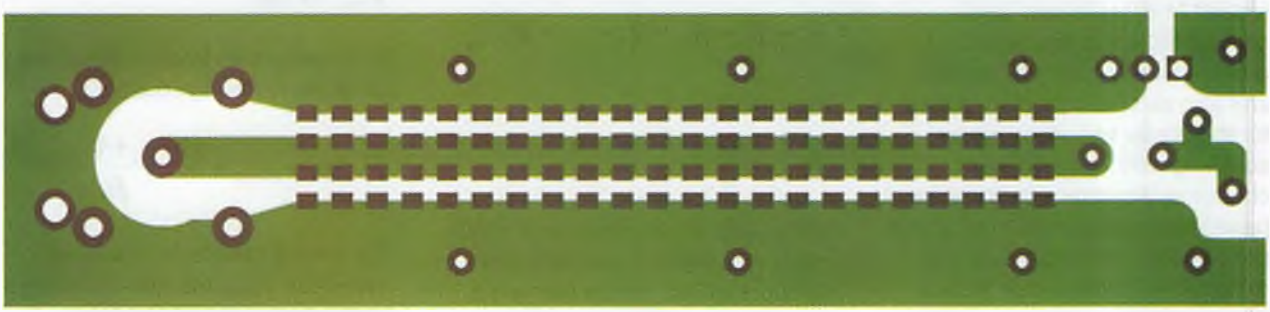


Figure 3: The dummy load top layer.

Figure 4: The dummy load bottom layer.

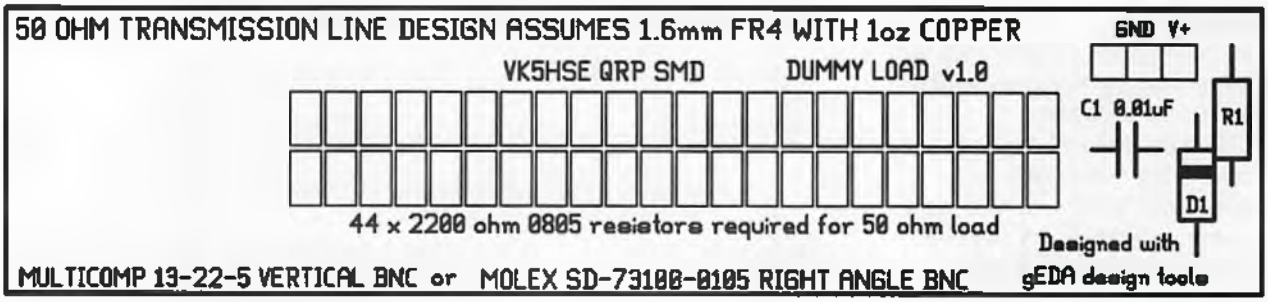


Figure 5: The dummy load silk screen.

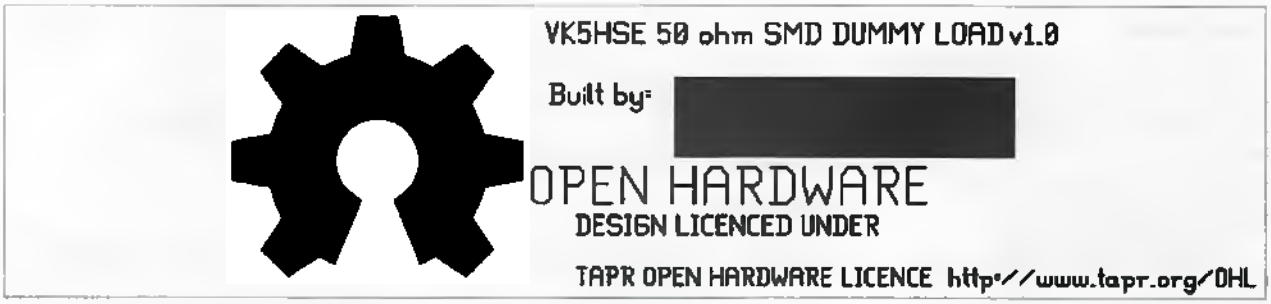


Figure 6: The dummy load rear silk screen.

spacers (sandwiched M3 nuts) was used to reflow the board. The lift-off jig was made in about ten minutes with an offcut of floorboard, another offcut of 42 x 19 mm timber for a handle, two nearby lengths of aluminium angle, some screws, and the scrap aluminium plate. Ideally, the rear fulcrum should be at the same level as the feet of the hot plate when the aluminium plate sits on the hotplate, to allow for gentle lift-off while the solder is molten.

This technique has been used successfully for dsPIC chips, a softrock and other sundry surface mount projects. Times are shortened slightly for boards with a lot of copper in the form of ground planes, or small boards generally, as both factors improve the rate of solder paste heating.

The board was placed on the lift-off jig and power was applied to the hotplate. With visual inspection, by around three minutes the solder paste was about fifty per cent fused, and by four minutes all joints had reflowed, and the SMD resistors had aligned themselves with surface tension. The lift-off jig was used to gently elevate the PCB, and the hotplate was turned off and removed from under the now chocked lift-off jig. The hotplate has too much thermal inertia to allow the PCB and components to cool properly if left on it.

After cooling, a few residual adherent solder balls were removed with a cotton bud. Happily, little difference was seen between the quickly and easily applied solder paste landings and discrete solder paste application landings.

The BNC connector, in this case the right angle Molex SD-73100-0105, was then attached and a DC check with a multimeter gave the hoped for 50 ohm reading.

Construction only took around 15-20 minutes in total, and would have been even quicker if the continuous line of solder paste application technique had been used for all of the resistors.

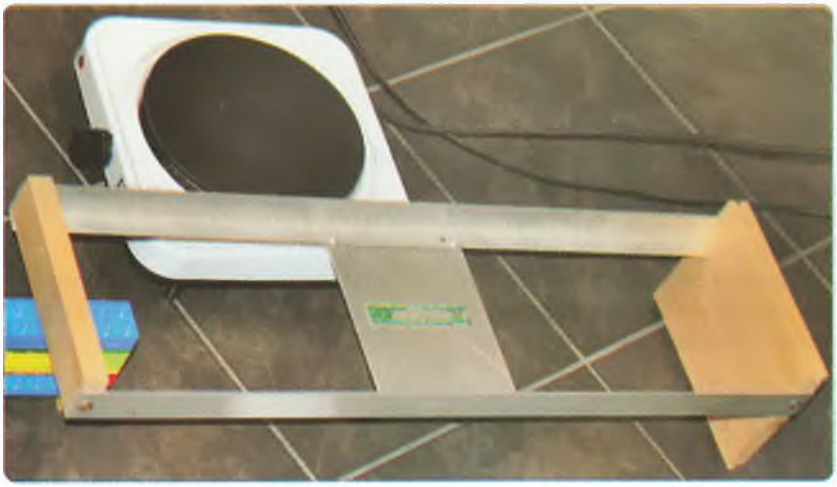


Photo 1: The lift-off jig.

Testing

Initial testing with a nearby VK5JST antenna analyser found an SWR of around 1.02 at 30 MHz.

More accurate testing was subsequently undertaken by VK5JST/VK5TR himself, who used a proper vector network analyser. VSWR was found to rise fairly linearly from 1.00 to 1.10 from 50 kHz to 60 MHZ, with VSWR almost exactly 1.05 at 30 MHz.

Conclusions

A cheap surface mount dummy load project has been described with fairly satisfactory performance for HF and even low VHF applications, along with a simple and cheap method of reflow soldering.

It may serve as a good introduction to reflow soldering for QRP operators or a project for a club construction night.

Larger '1206' SMD resistors are sometimes cheaper, and would likely perform similarly with better power handling, and the PCB design could be easily modified to suit them.

Finally, I would like to extend my thanks to Jim Tregellas, VK5JST/VK5TR who put the completed dummy load through its paces.

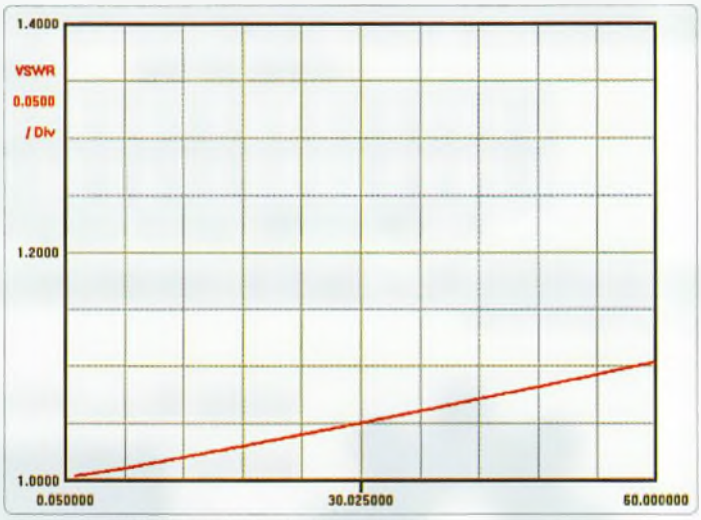


Figure 7 – VK5TR analysis of dummy load.

Parts list

R1-R44	2200 Ω resistor, 0805 SMD, 125 mW (5.5 W), 250 mW (11 W) or 330 mW (14 W).
BNC	Molex SD-73100-0105 right angle BNC or equivalent, or
	Multicomp 13-22-5 vertical BNC or equivalent

Optional (voltage sampling network)

C1	0.01 uF, 50 V or similar
R45	3.9 MΩ resistor (shown as R1 on the PCB silkscreen)
D1	See text - germanium or silicon diode, depending on voltages being measured
J1	Either 0.1 or 0.2 inch spaced header for voltage detection network output

Further Reading

Power measurement with RF probes: *http://n5ese.com/rfprobe1.htm*
Hotplate lift-off reflow soldering: *http://www.ahars.com.au/htm/hb_reflowsoldering.html*

VK3news WANSARC

John Karr VK3FMPB

ANZAC Day at Ballarat

The Ballarat Football Oval and Showgrounds saw the formation of the 39th Battalion in World War 1, and will feature in this year's ANZAC Day on April 25.

The involvement of amateur radio in the commemoration is driven by Johnno Karr VK3FMPB, himself formerly from the Australian Navy.

The day begins with the Ballarat RSL march at 9.30 am, and then move to the Ballarat Football Oval, where a portable amateur radio station hoping to contact other ANZAC Day stations.

If you can assist with the portable station, contact Johnno VK3FMPB, on the phone at (03) 9372 5062.

Participate **QRP Hours Contest** 5 April

VK5news South East Radio Group

John Drew VK5DJ

South East Radio Group 50th Anniversary Convention and Foxhunting Weekend

Photo 1: Bruce Paterson VK3TJN in the crater during the sniffer hunt.

Photo 2: Pierre Brokner making some adjustment to the automated antennas on one of the chase vehicles.

Formed in 1962, the South East Radio Group has held conventions in all but one year since 1963, so 2014 is our fiftieth. For many years the successful formula has been to provide a venue for old and new friends to meet, sell or buy some new treasures or join in the fun of the Australian Foxhunting Championship. Of course the infamous Wayne Kilpatrick Memorial Night Fox Hunt will again be held on Saturday night and the South East's forests will provide the usual challenges. The hounds may become more skilled but the fox gets more cunning.

Catering in later years has been excellent with better than average offerings. We have our own chef, his steak sandwich 'with the lot' has to be the best in the country. There's quality and quantity. The ladies provide outstanding sweet snacks too, so don't think you'll lose some weight on this get-together. This year there will again be a convention dinner at the Scout Hall but with even more variety to celebrate the occasion so we hope that everyone will stay for a good feed, great company and the sharing of many recollections of the weekend.

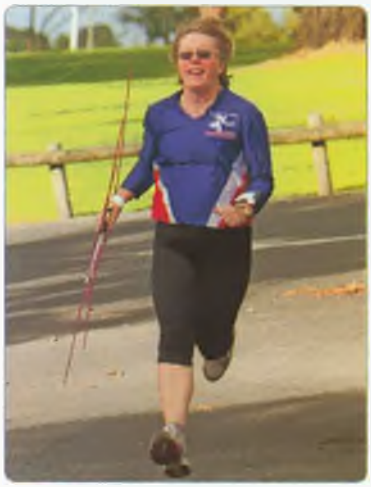


Photo 3: Suzanne O'Callaghan VK3FSZI chasing down the fox during the 2013 event.

A 100 W CW transmitter for 472 ~ 479 kHz

Drew Diamond VK3XU

On New Year's Day 2013, advanced amateurs were granted use of a new medium frequency band of 472 to 479 kHz. To date, indications are that it is a remarkable window for experimenters to explore. At writing, an enthusiastic group of perhaps a dozen, mainly urban, amateurs have been making good long-distance contacts using small-signal digital modes, aural CW and even SSB.

Offered here are plans for a basic CW transmitter which, it is hoped, will make an ideal entry-level project for persons wishing to gain some practical knowledge of the rather interestingly different (from HF) operating, technical and propagation conditions on 'MF'.

Circuit

The set-up is greatly simplified by choosing crystal control. Rather than employ a fundamental crystal, greater flexibility may be had by using a crystal at 10 times the required output frequency, thus allowing use of available surplus crystals in the 4724.5 to 4766.0 kHz range (see Parts below). Furthermore, the excellent frequency stability thus obtained will allow receivers using narrow-band/small-signal 'capture' modes to obtain a steady trace.

Output from an ordinary 2N5485 FET Colpitts oscillator is applied to a 74LS90 wired to divide by 10. A 5.1 V Zener diode at the divider's input clamps the sine-wave input signal, and shifts it entirely into the positive region in order to provide a logic-level drive at pin 1.

The output amplifier requires gate signals that are 180 degrees out of phase – or 'push-pull'. 472 kHz output from the 74LS90 is applied to a 74HC04 hex inverter chip, where the second gate shifts the phase by 180 degrees. The two 'phases' are each applied to parallel pairs of gates to provide sufficient drive to the PA gates. CW keying is obtained by ramping the +6 V supply to the inverters through a 2N3906 PNP transistor up and down in response to the key (or keyer), resulting in clean click-free keying of the output signal.

A pair of 20N60C3 insulated gate bipolar transistors (IGBT, Reference 1) form a robust class D power amplifier (Reference 2). A small amount of forward bias voltage (about 1.7 V) is applied to the pair to improve their sensitivity, such that the 6 V square-wave signal from the driving inverter gates turns the devices fully on and fully off at signal frequency.

Transformer T1 couples near square-wave output signal through a series resonant tuned circuit to shape the wave-form into a reasonable sine-wave. Inclusion of the series tank also significantly improves the efficiency of the output amplifier to around 85%.

Although the wave-form at this point is reasonably sinusoidal, it would be irresponsible to apply this harmonic-rich signal to an antenna – remember, our second and third harmonics lie right in the AM broadcast band! An ordinary 5 or 7-element low-pass filter cannot offer the out-of-band attenuation required in this application. An elliptical filter (Reference 3) with resonators for the 2nd and 3rd (2f and 3f) harmonics does a much better job. For the prototype model these are measured at greater than -55 dB below fundamental.

Construction

The home-made aluminium chassis/cabinet shown in Photo 1 measures 290 mm x 240 mm x 100 mm. A 'paddyboard' style circuit board (PCB pads and substrates hot-melt glued upon the copper side, see Reference 4) measuring 250 x 100 mm accommodates the RF components. A suggested board layout is pictured in Photo 2 and schematically in Figure 2. Power supply components are fitted – again 'paddyboard' style, upon a board measuring 100 x 100 mm, visible in Photo 2.

Two 18 x 25 mm rectangular holes in the RF board allow the output devices to be attached to the bottom panel of the chassis. Rather than use the device mounting holes, a better arrangement is illustrated in Figure 1, where an aluminium clamp is attached to the top of the IGBTs to so they are securely bonded to the chassis for effective heat transfer. Electrical connection to the collector is made through a rectangle of shim brass interposed between each device and the silicone/mica washer. Remember to include mica or silicone washers.

Trifilar output transformer T1 is made as follows. Take three 900 mm lengths of #20 B&S (0.8 mm) ecw. Twist them together at one end and fix the group in your vice. Chuck the other end similarly in your drill. Whilst maintaining tension on the group, operate the drill until there are about three twists per cm. Check that there are no bumps or transpositions in the entire length of the triplet. Give the wires a firm pull to 'set' the twist. Carefully wind 21 loops of the triplet on to an Amidon T106-43 or Jaycar LO-1234 toroidal core.

A multimeter on ohms is applied to find the start and finish of any two of the three windings. Connect the end of one to the start (shown dotted on the circuit) of the other to form the centre tap of the primary.

Not a lot of waste heat is generated. However, for prolonged operation (the prototype has done hundreds of hours in 'beacon'

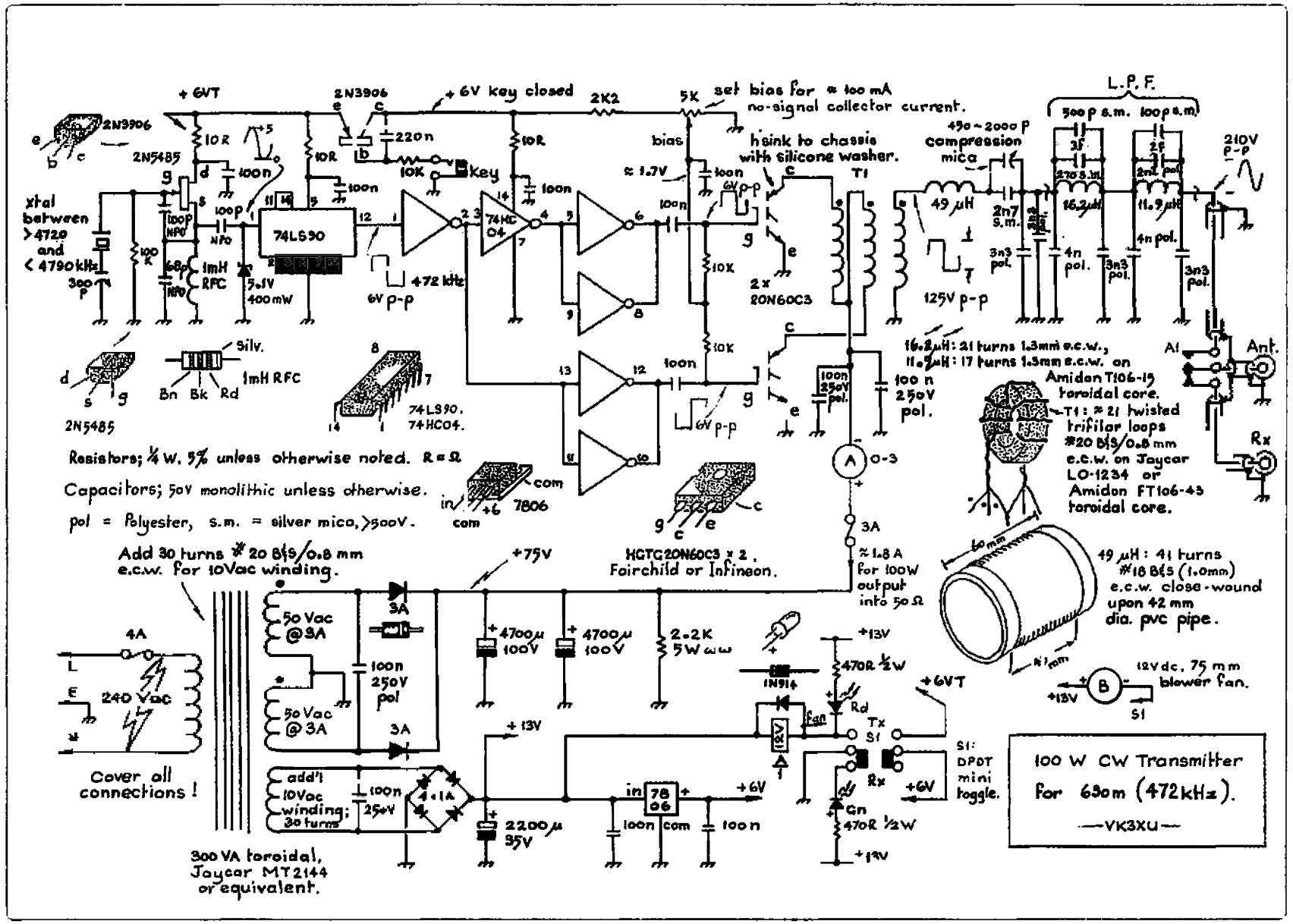


Figure 1: Schematic of the 100 W CW transmitter for 472 kHz.

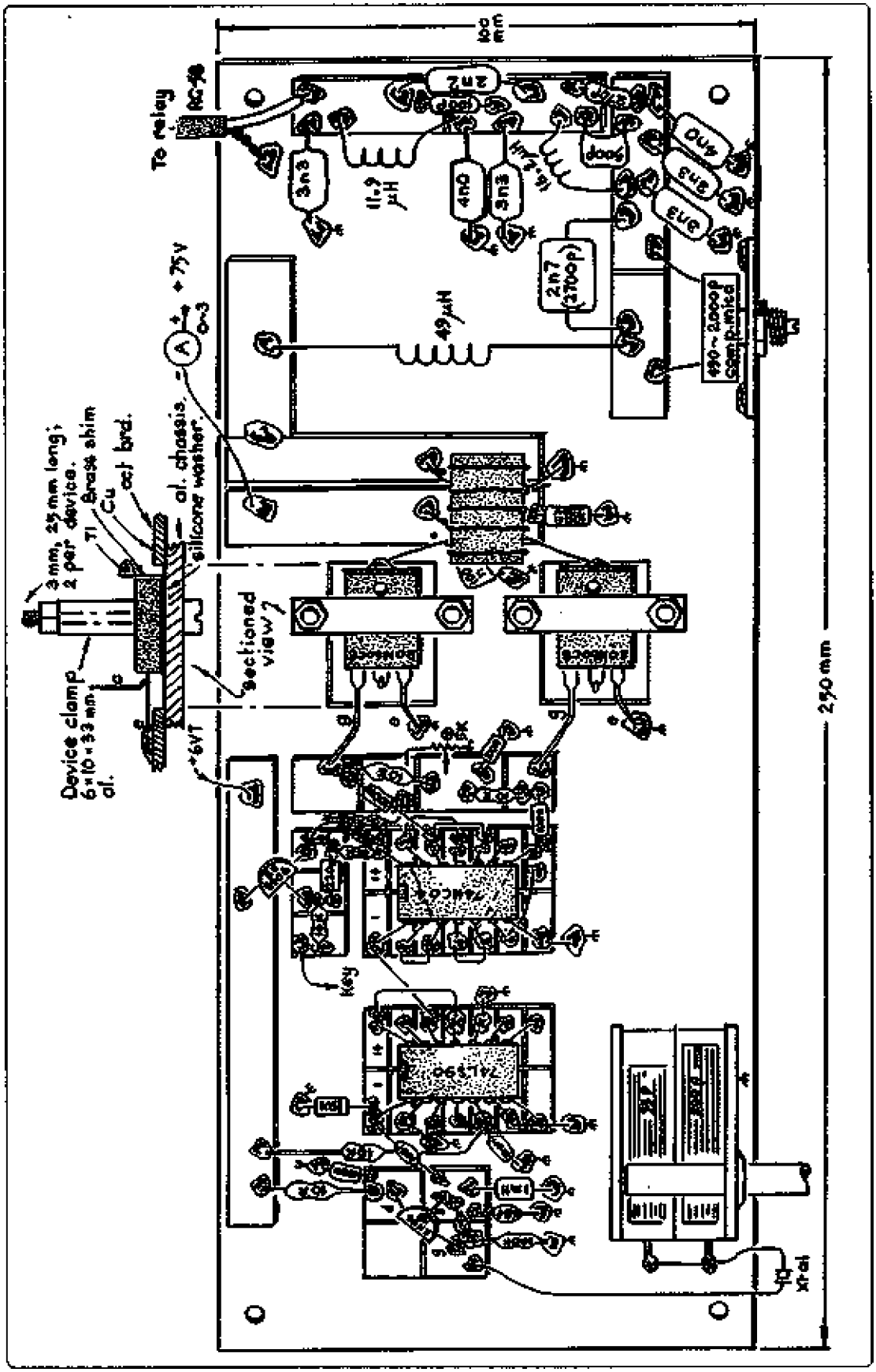


Figure 2: Diagram showing layout of components on the 'Paddyboard.'

mode), a small 12 V computer-type blower fan is recommended. It should be fitted into the case and located so that air is moved from right, across the filter and tank components, then exits through a similar hole on the left.

Operation

Check again that all components are correctly located and oriented for correct polarity where applicable. Remove the 3 A fuse in the +75 Vdc supply line. Apply mains power and confirm that your +13 V, +6 V and +75 V supplies are working. Connect a suitably rated 50 ohm power meter via 50 ohm coax to the output connector.

Replace the 3 A fuse. Set the 5 k trim-pot at the zero volts (ie the 'earthy') end of its travel. With the key open, increase the bias voltage until a small amount of collector current is indicated, about 100 mA, thus readying the PA gates. Close the key. The power meter should indicate about 100 W output power. Adjust the compression mica capacitor for maximum output, whereupon collector current should be about 1.8 A.

If an oscilloscope is available, sample the keyed output signal. The keyed wave should have nicely shaped rise and fall transitions. There must be no evidence of instability, indicated by squiggles and/or bumps on the displayed wave-form. You may observe a trace of 100 Hz ripple top and bottom, however, which is of no consequence.

Listen to the signal on the station receiver. It should sound clean, without chirps, clicks, or other undesired aberrations.

Parts

HC-6 type crystals at 4.7245, 4.7250, 4.7315, 4.7550, 4.7615 and 4.7660 MHz, (average price about US $5), and 'Arco' compression and fixed mica capacitors may be mail-ordered from Surplus Sales of Nebraska. Amidon toroidal cores are supplied in this country by TTS Systems. Low-loss 'Orange drop' polyester and some mica capacitors for the output tank and filter may be mail-ordered from Antique Electronic Supply of Arizona. Our local Jaycar and Altronics can supply the ordinary electronic components. Infinion or Fairchild IGBTs, full type number HGTG20N60C3, may be purchased from Rockby Electronics, Clayton, Victoria (I bought a whole box of these devices when they were 'on special' – so do please write or 'phone if you require a pair for this project).

Photo 1: 100 W CW transmitter for 472 kHz.

Photo 2: Internal view showing suggested 'Paddyboard' construction.

References and further reading

1. Data Sheet for Fairchild HGTG20N60C3.
2. *LF Today - a guide to success on 137 and 500 kHz*; RSGB. See also the LF chapter in any recent edition of the RSGB's *Radio Communication Handbook* (both available from the WIA Amateur Radio Bookshop).
3. Lowpass Filters for solid-state linear amplifiers; Kent Shubert, WA0JYK, *Ham Radio* (USA), March 1974.
4. 'Paddyboard' Circuit Construction – Revised; *Amateur Radio* May 2005.

'The Silent Key'

Steve Mahony VK5AIM

I had known Fred on a personal level as well as at a technical level for many years. On a personal level I had once, when about 18 or 19 years old, asked him about drinking alcohol. I said I did not particularly like the taste of beer, or the effect even a small amount had on me. I had seen other young fellows violently sick from drinking too much beer. I also explained how I had been told that my grandfather who, when he had too much alcohol, mistreated his women. I did not know if I had inherited the trait, and if so would I behave in the same way! I did not want to get such a reputation. 'Well, said Fred, if you don't like, it don't drink it'! I have never touched it since then.

My professional contact with Fred was at a government department were we were both employed. My boss called me and said: 'They want to install a two way radio in the new ambulance and Mr F Mille asked for you to do the job.'

I met Fred at the work bay beside the new ambulance. He had given the motor garage a mounting cradle and an empty case along with a mobile whip antenna base. An auto electrician had wired the DC from the battery to the transceiver connector. The base and whip were mounted in the vehicle roof: the TCA type with the small tight coil as part of the mount, with the coax cable coming out from under the dash with the DC cable. I soon had a coax connector on the end of the cable.

With the transceiver in its cradle and the antenna connected via a nice little Bird power meter, we pressed the PTT. The reflected power went hard over full scale.

'Oh hell' said Fred, 'I bet those sparkeys have got a short on the antenna end of the coax.'

'Let me get an Ohm meter and an extension cable and check the coax for continuity,' I said.

I returned with a small step ladder, an Ohm meter and about four metres of wire with crocodile clips at each end. With one lead of the meter connected to the centre pin of the coax connector I climbed up the ladder and connected clip to the antenna.

'OK', said Fred, 'continuity.'

It was when leaning on the roof of the new ambulance that I felt something different! I came down the ladder and said to Fred, 'Go up the ladder and feel the vehicle roof.' This he did: he thumped his fist on the roof and said, 'Oh s..t, its bloody fibreglass, not steel!' We just stood there looking at one another.

'Well Jim, have you any idea's from mucking about with mobile amateur radio gear?'

I thought for a moment and said 'yes.' I explained, years ago in the 53.1 MHz AM days I had a little ZETA car all made of fibreglass. I wanted to fit a 53 MHz vertical to the vehicle. After reading some amateur radio publications, I came across a reference to using a piece of metal fly wire for a ground plane. I bought about a square metre of fly wire. With a vertical mounted in the middle and all held in place with masking tape, it worked. The masking tape was not strong enough, and we never had Gaffer tape back then and the wind pressure on the long 53 MHz whip ripped the whole thing off the roof. I went back to a ground free vertical, gutter mounted.

'We can't stick a piece of fly wire on the ambulance roof, Jim, got any better ideas?'

'Yes, can you get a piece of brass fly wire or mesh? It could be glued up on the inside of the fibreglass roof in between the head lining.'

'Brilliant' said Fred. 'You pack everything up and I will ring around and see what I can get.'

A week later my boss said to me, 'I believe you and Fred had some trouble with the fibreglass ambulance roof and the radio.'

'Yes,' I said.

'Well, Mr Mille said he has got a metre of brass in the roof and wants you to go over and get it going.'

I met Fred at the work bay, and saw he had a big grin on his face.

'There is a big piece of brass mesh about a metre square glued in the roof under the head lining, with the whip antenna in the middle, let's see if it works!'

We checked it for continuity on the coax inner and the outer to the brass mesh. Both were OK. We connected everything up, including the Bird power meter. On pressing the PTT the forward power read 25 W and the reflected reading just lifted the needle off the stop. Better than 1.5:1 VSWR. 'Oh, what a difference,' said Fred. 'Thank you Jim,' and patted me on the back. I packed up all the gear and went back to my less exciting job at my work bench. So you see Fred and I had a bond, personally, professionally, and as amateur radio fellows.

I sat in Fred's shack. Where to start? Books. There were bundles of *AR*, *QST*, *RadCom*, *Radio & Hobbies* and other magazine publications all in bundles, all tied up with string, and dated. I decided that the publications from 2000 onwards would be kept and taken to my club's Buy and Sell meetings. The previous 40 years could go into the paper recycling bin. The books were just as many and varied. ARRL, RSGB and other specialist subjects, all in excellent condition. I started to separate the different publications and I came across a copy of an ARRL book that brought back happy memories.

Way back when I was 15 years old, I was crazy on building crystal sets. I visited the Children's Library for information. I did find some circuits and built a successful receiver. By this

time I had turned 16 and the library lady said I had to go up to the adult section. I did this and obtained more circuits. I must have annoyed the librarian with my requests. The lady then got down a copy of the ARRL Handbook. 'Here you are,' she said and, probably under her breath, 'that should shut him up!' I borrowed the book and took it home. I was *hooked*. I was going to be an amateur radio operator. That's why I am sitting here doing what I am doing now!

I had been sorting books nearly all day. Ann, Fred's widow, had fed me cups of tea and biscuits for morning and afternoon tea, along with sandwiches and home-made cake for lunch. I arranged to return another day to continue the task.

Fred looked after his amateur radio equipment. All the instruction books and workshop manuals were stored away in a large filing cabinet. His favourite transceiver was an older FT-101. He used it most of the time on his favourite bands, 80, 40 and 20 and, if propagation was available, on 15 metres. He always loved CW. He was one of the older amateurs who had to pass the CW to get his licence. He used to have regular skeds and the occasional DX QSO but he reckoned his brain and wrist were slowing up. *Always a straight key. He reckoned* that those electronic keyers with a paddle were for lazy operators! On the shelf was a more modern PLL controlled set with DSP that he used if the going got tough, but it was mainly used on 50 MHz SSB when the band became active during the summer months. He did not like the MENU system and said the 'F' button was well named! For 2 metres he had an older 144-148 MHz multi-mode transceiver with enough memories to use most of the local FM repeaters and a couple of simplex frequencies. It had little use on the SSB end of the band. He would only go there if someone said, 'it's open to VK6, give it a go.' Similarly to Brisbane or the like.

Fred had a beautiful home-made Z Match. It looked as good as a bought one with its big vernier dials and knobs. It was used on 80 and 40 metres with his Balanced Zepp antenna. For the higher bands, Fred believed that the antenna should be resonant and no ATU required. Since he had lost his 10 metre tower with its TH-3, he had used the Z match and the Zepp for the occasional QSO. He had succumbed to the newer cross needle SWR meters in the last few years. Much easier to use, three lots of information all at once. It saved him from remembering to switch from forward and back each time.

Fred had always enjoyed home brewing his own gear. This was from the early days when it was the only way to get on the air! He had gone from the early days of AM through the phasing type of SSB generation to the 9 MHz crystal filters type. There was a massive HB amateur band all valve receiver from the 1950/60s, bigger than the FT-101, and an FRG-7 in excellent condition. He had probably used the FRG-7 as a monitoring receiver or to listen out of band. In my hunting around for odd bits and pieces I found in the back of a cupboard an Atlas HF mobile transceiver with a set of Hustler mobile whips still in their cardboard box. It was hardly used. I had not known Fred to run a HF mobile setup very much, just a portable setup for a Field Day or just for the fun of it some years ago. I decided to pack the Atlas and the Hustler up as a package deal. Some of the other home brew gear was well made and along with good documentation it would sell at a Club Buy and Sell. The rest of the stuff, components of all kinds would just have to be put into cardboard boxes and go on the trestle tables for bids at auctions on club Buy and Sell days.

I sat there surrounded by all Fred's equipment, feeling a bit sad.

The homebrew and bits and pieces are the saddest because you know all the time and work put into making them. The bits and pieces were probably put away to be used on the 'next project' which, of course, will never be made.

Ann was so pleased I was able to arrange and sort out all the equipment. I then asked why I was asked to sort out Fred's equipment. Ann then produced Fred's logbook, opened it at the last page and handed it to me. There, stuck in the back of the book was a note. It read; 'Dear Ann. In the event of my passing would you please contact Jim VK5.., my name and call sign, and ask him if he would arrange to dispose of all my amateur radio equipment, please.' Signed and dated by him. I had a lump in my throat! I looked up at Ann. I am not sure if I had tears in my eyes or not. Ann smiled at me and said 'He must have thought a lot of you, Jim.' I swallowed hard, smiled and said, 'I will only be too pleased to grant Fred's wish.' Over more cups of tea and homemade cake she asked me if I would like any of the pieces of equipment myself. 'No thanks', I said, 'I have enough stuff myself.' I commented that possibly in another 10 to 15 years somebody would be doing the same job for my wife, with my equipment.

Each piece of equipment, along with the correct microphone, I packed into a stout cardboard box along with the instruction book in the bottom. I had shown Ann some prices, values of some of the same equipment in the For Sale pages of recent copies of *AR magazine. On a proper* deceased estate form, agreement on the values was reached and signed by Ann.

The sale of the gear went well at the next Club Buy and Sell, with transceivers going to new homes. The usual 'magpies' pecked around the boxes of components and whatever looking for bargains.

Ann was pleased with the cheque from the Club I handed to her from the sale. I commented, 'You will have to buy yourself something nice with the money.' 'Yes,' she said, 'and have Fred grumble from up there!'

I see Ann at the local shopping centre some times. We chat about life and she says she is going well.

Editor's Note: This story is another work of fiction, but is partly based on real events.

Cooktown Radio Station VIC

Mike Patterson VK4MIK – vk4mike@yahoo.com.au

An interesting historical station

Recently members of the Tableland Radio Group, TRG, went to Cooktown to take part in their 9th International Lighthouse & Lightship Weekend operating from Grassy Hill Lighthouse AU 0019. We always enjoy this event as it is multifaceted being active in aiming to preserve the historic lighthouses, encouraging the public to view amateur radio in operation and affording us a social weekend away together. During our many years of operating at Cooktown in this event, we have developed relationships with the area including Cook Shire Council, Lions Club and the Cooktown and District Historical Society. Prior to our arrival this year the Mayor of Cook Shire, Peter Scott, had a talk to the owner of the site where the Cooktown Radio Station VIC once stood, and the owner, Barry Hunter, was only too happy to allow us to tour his property.

Underpinning our tour and interest was a recent book written by Ms Jean Stephan, a member of the Cooktown and District Historical Society titled 'Victor India Charlie – The Wireless Telegraph Station, Grassy Hill, Cooktown, Australia' and published by the Historical Society.

Australia's first electric communications came in the form of the telegraph in Melbourne in 1858, with the Victorian Telegraph Service VTS. It quickly spread throughout Australia, linking cities and towns and also linked into the undersea cable from Darwin to Java, and thence to the rest of the world. The Cape York Telegraph was completed in 1887 and suffered from the impacts of many cyclones and wet season issues, the worst being in 1899 with Cyclone Mahina, which was also responsible for over 300 lives being lost in Bathurst Bay. This cyclone knocked out the telegraph for 122 hours.

Photo 1: The 60 metre mast on its way to its vertical position. Note the method of erection, via the use of a fulcrum. Printed with permission of the Cooktown Historical Society.

In 1912 the Commonwealth of Australia acquired land at Grassy Hill for the wireless telegraph. Alfred Shaw and Company of Townsville was responsible for the construction of the site. Oregon and Jarrah timbers were ordered for the mast which allowed a mast 60 metres high and around 51 cm square, which stood on a large concrete block and had four sets of multiple guys to ensure its strength and longevity.

The photo taken on the day it was erected, makes interesting viewing as the boom, fulcrum and method of erection can be deduced.

Also on the day of the erection, the spectators and especially the ladies in their long dresses and big hats, are clearly in evidence - nowadays it would be hard hats and no one in the work area - how times have changed!

Other buildings included a main building which was the operating area, battery and charging, and accommodation plus there is evidence of foundations of other buildings. There was also earth works including several stone walls to overcome landslips and a track in to allow carriages. It was officially opened on 13 June, 1913 and was part of 24 such stations eventually erected around Australia with others in Papua, New Guinea and Fiji. The initial operating mode was radio telegraph using the spark system which had drawbacks due to its use of bandwidth, power use and interference to other stations. Indeed, I was told by Henry Fulford VK4JHF (SK) in the mid-1990s and who was living in Cooktown around that time and had a school friend whose father was an operator, that he was in the transmitting room when the station was operating and it was both noisy and sparks flew and so did he, as it scared him.

An interesting fact was that the Cooktown Radio Station VIC would also send and receive traffic when the land telegraph was not operational and the message would be sent via a short telegraph line to the Cooktown Telegraph Office – they knew about back-up systems even back then. The station was designed to give ships radio coverage if they were within 800 km of the coast.

During World War 1 the station was operated by the navy and was on continuous operation. Following the ceasing of hostilities on 11 November, 1918 the station reverted to operating from 6 am to 8 pm and later 9 am to 6 pm and in 1920 transferred to the Post Master General (PMG) department.

In 1922 AWA took over the coastal radio stations (CRS) from the PMG. From 1928 the AWA developed more modern radio equipment using valves and amplitude modulation and a more efficient method of transmitting Morse code. During World War 2 Grassy Hill was a restricted area as a RAAF radar station was established near the lighthouse. AWA also tied into the transmission of defence traffic and were also monitoring the Australian Coast Watchers via a special frequency.

In 1946 the coastal stations were taken over by the Commonwealth Government and came under the control of the Overseas Telecommunications Commission (OTC) and Cooktown Radio Station VIC closed in 1947.

References

1. Victor India Charlie – Wireless Telegraphy Station, Grassy Hill, Cooktown, Queensland, Australia - Ms Jean Stephan, published by Cooktown and District Historical Society 2013.
2. The Coast Watchers – Feldt, published by Oxford, 1946.
3. Handbook of Wireless Telegraphy, Volume 1, Admiralty, 1938.

Photo 2: The mast nears vertical incidence. Printed with permission of the Cooktown Historical Society.

Paddy board cutter

John Sutcliffe VK3TCT

The latest home-brew product here was a 475 kHz transmitter and one section was to be built on a paddy board; the question then was how do you punch buttons as demonstrated by Drew Diamond or does one engrave pads directly into the copper board (PCB). Volume work is needed to justify a button punch such as Drew uses so the next best thing would be to engrave the board possibly with a hand engraving tool. Attempting this on some scrap demonstrated the procedure would work but to get a neat job would require more patience than I certainly had.

Hole cutters are available but are expensive in small sizes. Next I tried a divider to engrave a hole but the diameter changed very easily. Searching around in the drill box revealed a broken 12 mm drill bit. Could this be modified? I knew I had saved the bit for some good reason? A few minutes on the grinder and the broken bit was reshaped.

It must have been one of these days when Murphy did not intervene as the first cut went remarkably well. Marking out the copper PCB and cutting the pads for the transmitter took only a few minutes and the job was quite acceptable; having completed this task I could see one could alter other drill bits for smaller pads.

Modifying the drill bit was easily done by grinding down the face of the drill and leaving a raised section on one side; this raised section is flat on the top and is 2 mm high, and you can gain a good understanding of this from Photo 1.

Cutting the pads

- Mark the PCB carefully where the cuts are to be made.
- Clamp the PCB firmly to the drill bench for each cut.
- Cut the PCB slowly - the depth determines the cut width with my tool.
- Wear protective equipment, as the cutter produces PCB dust.

The cutter could be used to cut buttons completely out of the PCB; one would need to cut from both sides to get a neat button.

Remember to have the job well clamped as I did slip a little on one cut simply because the clamp was not fully tightened.

All the best with your home-brewing.

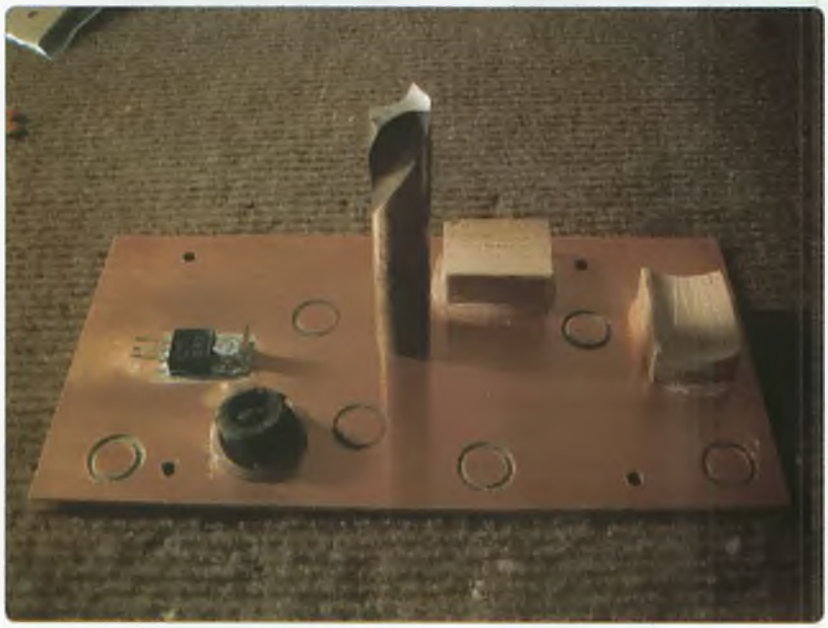


Photo 1: The solder pads have been cut – note the modified drill bit.

Photo 2: The test run went well, but remember that the job must be well clamped and appropriate safety equipment used.

Niue E6 on six metres

Alan Meek VK4WR

Photo 1: The E6RQ/E6SG QTH on Niue Island.

Well, where is Niue Island? It is located half way between the Cook Islands and Fiji at 169 W and 20 S.

It is a very small country of only 1,000 residents with its own government but with its external relations managed by New Zealand. The capital is Alofi and there are a number of small villages scattered throughout the island. There is one major resort and a number of motels and cottages available for holiday letting.

The Island is a volcanic rock that juts out of the ocean and most of the island is 20 to 50 metres above sea level. There are no real beaches on the island but amazing rock pools at low tide for diving, snorkelling and swimming amongst the tropical fish.

How do you get there?

Niue usually has only one flight per week which leaves Auckland on Saturday mornings and arrives three hours later on Friday afternoon. Niue is on the other side of the date line, but has the same local time as NZ. During December there is also a Tuesday flight. The aircraft is an Airbus A320 operated by Air New Zealand.

This trip was to be a return trip to Niue for Alan VK4WR/E6RQ and Graeme VK4FI/E6SG being for 10 days this time. The previous trip in late March/April 2013 yielded some good TEP into JA, BA4, 9M and KH6 with side scatter to northern VK. We also managed one contact to TI5.

The return trip in December 2013 was aimed at the summer sporadic E season to provide VK and ZL operators with the opportunity to work a new country. Once again we would be staying at the Coral Gardens Motel located 3.5 km from Alofi. The motel is owned and operated by Stafford and Salomi who made us most welcome. The usual accommodation consists of five wooden Fales along the cliff edge, however this time we would be staying in a rented house across the road from the motel which offered

more space to erect masts and string wires in the coconut palms.

The six metre station consisted of an IC-7000 plus 400 watt solid state amplifier into a four element Yagi on a nine metre pole. HF was an IC-706Mk2G into dipoles. We had a very good outlook to VK and ZL beaming straight out across the ocean; toward the east there was a slight rise.

As soon as the antenna was raised we made instant contact with two old Niue hands, Peter ZL2IK and Bob ZL1RS who were both residents on the island in the late eighties. We continued to work ZLs consistently from early morning to late into the evening; in fact we had a virtual pipeline to Bob ZL1RS. VKs were less frequently worked with openings mainly in the late afternoons and sunset paths to VK4.

TEP was scarce this time compared to the previous trip with only a handful of JAs worked. We also worked E51 and FW5. We listened to Bob ZL1RS working into central America, however this path did not open for us in Niue which we found disappointing but suspect that TEP is required from this latitude.

Most of the HF worked was on 10 metres with a dipole strung between a coconut palm and a squid pole. Conditions were good to the USA, Japan and VK/ZL. We did take part in the ARRL 10 metre contest but it was hard going with low power and a dipole.

Apart from the radio activities Niue offers amazing snorkelling in the rock pools at low tide. We hired a small car to get around the island and between both trips have been just about everywhere there is to see. There are a small number of very good restaurants including a Japanese style restaurant with the freshest and best sashimi we have ever tasted. On Sundays everything closes expect one small bar that is self-service. Just help yourself to a beer from the fridge and write your name in an honesty book. Pay upon leaving. Fantastic system.

There is one supermarket on the island which is supplied by a monthly ship from NZ and, as we had a self-contained house, we purchased as required. The range was quite good and prices not too high considering the remoteness. The Coral Gardens Motel has a bar overlooking the ocean which opens each afternoon at about 1630 local for sunset drinks. Most afternoons a number of local ex pats would arrive and we were made most welcome.

All in all, a great trip with good radio and other activities to be had. We will return sometime in the future as it is an easy DX location to activate from VK or ZL.

Photo 2: One of the many spectacular sights on Niue Island. A brilliant area for snorkelling.

Foundation Corner 25 - IRLP and other internet protocols

Ross Pittard VK3CE

Most F calls will remember in the practical assessment questions asked about touch tones and their use in controlling IRLP enhanced repeaters.

IRLP (Reference 1) stands for Internet Radio Linking Project, a system originally conceived by Canadian amateurs in 1997 to link repeaters via the internet. The first system was prone to problems but the current Linux based networks are extremely reliable and useful in extending the range of contacts an amateur with VHF/UHF only gear would normally have. It is now possible to set up an IRLP node using one of the small Raspberry PI processor boards about the same size as a cigarette packet. The network has grown to in excess of 2800 nodes and reflectors worldwide. It is used for interfacing to repeaters and RF links and is not available for home PC operation.

There are other amateur radio based Voice Over Internet Protocols (VOIP), including the very popular EchoLink, developed by Jonathon Taylor K1RFD; at the time of writing EchoLink has about 200,000 validated users worldwide with around 5,000 logged on at any time. There are many repeaters and simplex gateways in the EchoLink network but the major difference for the average ham is that unlike IRLP, EchoLink allows connections to their network directly from PCs. There is even an iPad application to download and also an Android version. It can be used while mobile, in trains on the way to work, anywhere there is an internet connection.

Kenwood is the first major manufacturer with built in EchoLink support in two of their radios, the TM-V71 and TM-D710. You have the ability to store favourite node numbers in the radio memory, handy if you are mobile and they also have a built-in soundcard interface and serial port for easy connection to a PC.

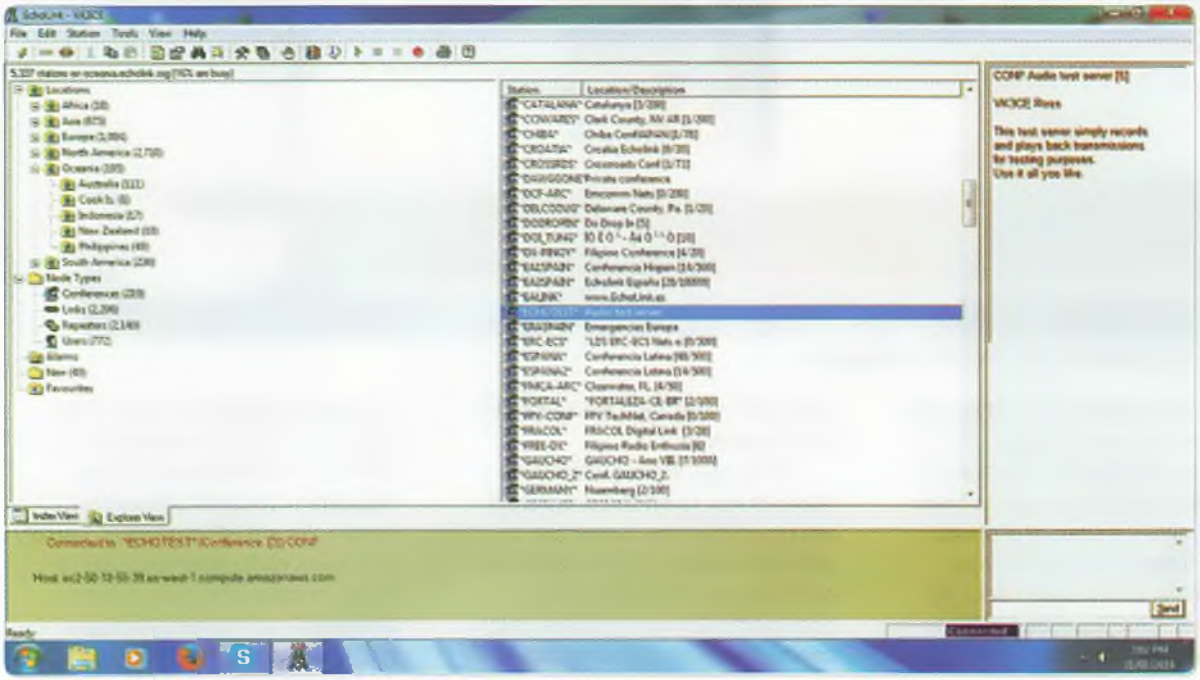
There is no requirement to register on either system if you just want to use them over the air on your local repeater.

Local PC operation

If you wish to install EchoLink on your PC or tablet you will need to register (more about this later).

For hams that are restricted to flats or are in housing with covenants prohibiting erecting antennas EchoLink can be a useful alternative. The EchoLink program

Photo 1: The test server.



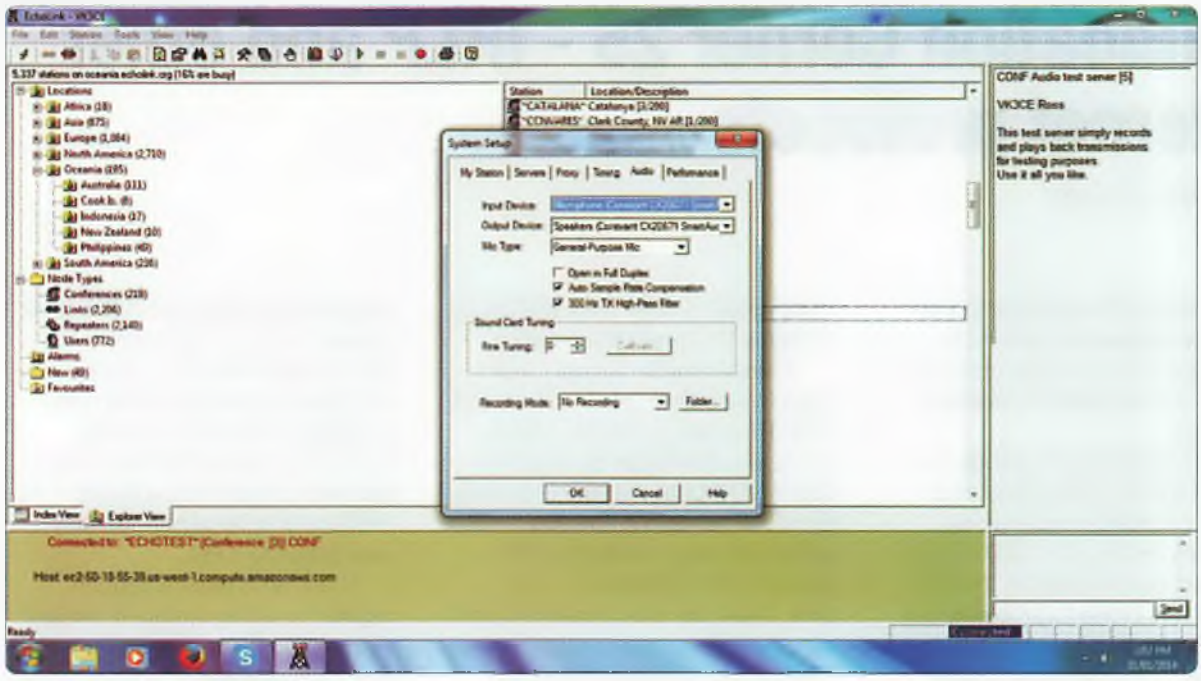


Photo2: Sound card set-up.

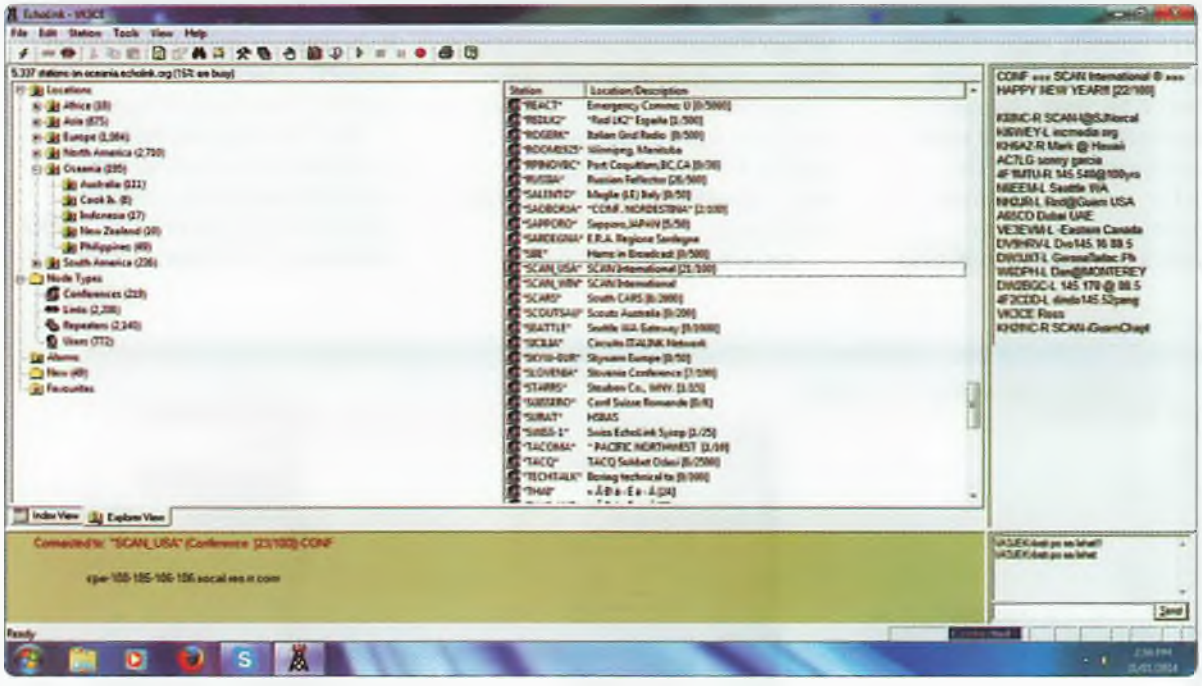


Photo 3: Connected to SCAN USA conference.

can be downloaded from their site (Reference 2) and installed. Once this is done there is a registration procedure involving sending them a copy, either a scan or a photo, of your licence to confirm your credentials. In my case I sent my licence at 1300 local and was approved by 1600 local - not bad going as I think they are based in North America.

When you are registered, as soon as you open the program it will download the current list of available online stations including conferences, repeaters, links and users. Conferences are multi connect servers allowing large numbers of parties to join a net; these are similar to reflectors in IRLP and D-STAR terminology. Repeaters are self-explanatory, while links are RF gateways, usually a simplex radio operated from a home or club QTH, which local amateurs can connect through and users are basically keyboard

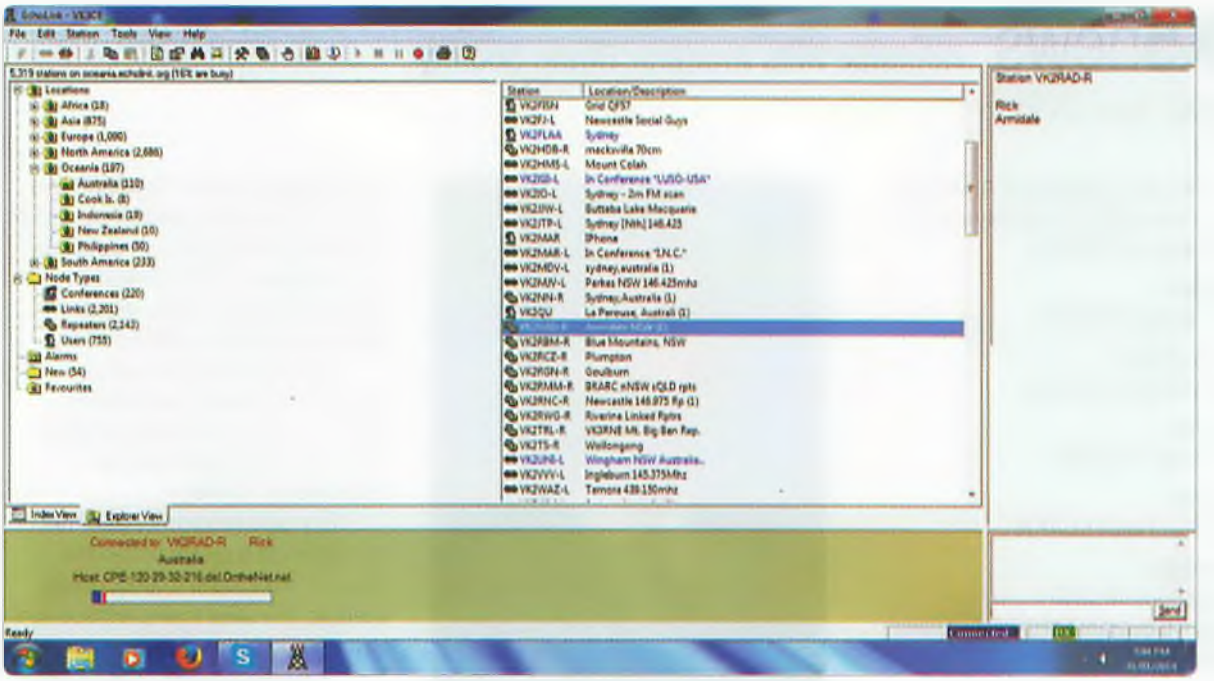


Photo 4: Connected to VK2RAD.

operators either from a PC, smart phone or tablet device.

The only issue that might arise with the installation is to make sure EchoLink has a path through your firewall to access the net. There is a test utility built into the software to check to see if the correct ports are being forwarded by your modem click on tools/firewall router test. There is information on popular ADSL modem setups for EchoLink at: *http://portforward.com/english/applications/port_forwarding/Echolink/*

Once the software is up and running and your registration is complete, it's a good idea to connect to the EchoLink test conference (found in the 'conf' tree), as this will enable you to check both transmit and receive levels. You can, within EchoLink, open your soundcard settings screen to adjust these, click on tools/adjust sound device/ playback or recording. Normally on a PC EchoLink would use the default sound card settings but there is provision within the programme to choose an alternative audio device, from the pull downs click on tools/ system setup/audio and select the required sound card. There is a useful accessory on this screen, if you are using a hi-fidelity microphone, to roll off the low frequencies to suit voice communications.

As seen in the screen snapshots the stations appear in an explorer like display and all that is necessary is to drill down to the station that you want to connect to, highlight it and press enter on the keyboard to connect. To transmit press the space bar and to disconnect press alt-D; there are other commands which are available, just read the help screens in the program.

For RF users

Below are the common DTMF commands for RF users to access either system but it is best to check with your local sysop as they are sometimes altered to suit local arrangements.

IRLP only or Dual IRLP/ EchoLink Repeater Commands

	IRLP	Echolink
Connect	####	*######
Disconnect	73	73
Node Status	0	0
# = node number		

EchoLink only repeaters and links

Connect	Node number
Connect to Random Node	00
Connect to Random Link	01
Connect to Random Conf	02
Disconnect	# or ##

For a full list of EchoLink DTMF commands try:- *http://www.echolink.org/Help/dtmf_functions.htm*

I hope this small introduction will enthuse new amateurs to try some of the internet related modes that are available on your local repeaters. Of course once you have upgraded there are many more digital modes available including APRS, SSTV and, of course, D-STAR.

That's it for this month. I hope you try out EchoLink or call via your local IRLP enabled repeater, don't be afraid just have a go!

References

1. *http://www.irlp.net/*
2. *http://www.echolink.org/*

VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The February meeting of AHARS is always the AGM so we have a new committee, as follows:

President
Tony Hughes VK5KAT

Vice President
Barry Williams VK5BW

Secretary
Jean Kopp VK5TSX

Treasurer
Peter Reichelt VK5APR

Committee
Roy Gabriel VK5NRG
Dennis Haseldine VK5HH
Paul Simmonds VK5PAS

The out-going President David VK5KC thanked all the committee members with whom he had served and wished the new committee well.

President Tony comes to us with a long career history in RF and electronics; he is now a high school teacher specializing in senior mathematics. He has held his amateur licence since 1981, and has been involved in many aspects of amateur radio including such things as ATV. Tony outlined some of his vision and ideas which included shorts talks at meetings by members of their interesting achievements in radio, which will promote member participation.

Photo 1: New AHARS President Tony VK5KAT.

He would like the club to have an increased involvement with schools by bringing amateur radio into the classroom as an educational strategy.

Tony also recommended the formation of a group within the club for the F calls to encourage them to increase their participation in amateur radio and upgrade their licence category. The club's Saturday morning technical sessions have a significant advantage and positive impact on members, and therefore an expansion to this program will be investigated to assist in developing member's technical skills. A focus on 'PCs in the Shack' may be included.

Photo 2: A view of the Aviation Museum, with Tony VK5ZAI, on the right, showing one of the air cadets how to use a microphone.

The members wished President Tony well and look forward to working with him during his presidential year.

After the AGM Paul VK5PAS provided a presentation about the WIA Awards Committee and the various awards available through the WIA... Paul has only recently joined the committee, but the WIA has been offering several Awards for many years.

Few of us probably realise it is possible to have DXCC awards from the WIA as well as the ARRL. Unfortunately, due to a technical fault, Paul was unable to show us pictures of the Award certificates however he did print out some material for us to take away.

Paul additionally explained that these days it is necessary for all award applications to be done using electronic logging programs. There were a few negative responses to this insistence on electronic logging although members realised that checking cards and logs is time consuming and that we ARE now in the Age of Technology. Not all amateurs are computer literate, and that many do not even have a computer. The point however was made and acknowledged, some training within the club may be instigated to assist members with the transition to electronic logs...

Paul despite being unable to show the actual pages on screen clearly explain how easy it is to submit your application for an award, via the computer.

Please have a look at the WIA website to see what awards are available and maybe apply for some of the interesting certificates.

Barry VK5BW invited us to an evening at the Aviation Museum at which he had arranged for a group of Aviation Cadets to talk to the ISS through ARRISSA with Tony VK5ZAI. This was very successful and interesting. The Governor of South Australia was there and spoke to the cadets and Channel Nine filmed an item that was shown on the Saturday night news.

The cadets and others will certainly know significantly more about the lives of the astronauts on the ISS, and about the program: Tony and others have arranged so that young people can actually talk to the astronauts.

AHARS meets on the third Thursday of each month at the Blackwood Community Centre on Main Road, Blackwood. For further information please contact any of the committee members.

French QSL cards

Geoff Atkinson VK3TL

Recently a shipment of QSL cards was sent from France to Australia.

The box of cards was received at Australia Post International Department in a soaking wet condition. They put the wet box in a plastic bag and forwarded it to the VK Inwards Bureau, with a note advising that it was received in this "poor" condition.

After much effort, the bulk of the cards have been "rescued", although unfortunately some show the effects of being stuck to other cards. Separation and drying of the cards was an arduous task, however being able to save all but a couple of dozen from the shipment, has been satisfying, and hopefully members will be appreciative.

Some of the cards are being returned to France, as some have no VK callsigns as the ink has run, others are so stuck together that nothing has been able to separate them. A separate letter will accompany the returned cards explaining the problem and asking the French bureau to contact members and advise of the problem.

The cards have now been sorted into state order and forwarded to the VK state bureaus for further distribution sorting. Your cards will find their way to you, if you are a WIA member and registered with your state bureau.

This is the first time we (Inwards Bureau) have received cards so heavily water damaged. Maybe they were sent by sea mail! We've often had torn boxes and surface wet, but not so permeated through the whole consignment.

I'm sorry if these cards are not in the usual condition, but they are in a much better condition now than when they were received at the Inwards Bureau mailbox.

Hopefully this doesn't happen again as water does tend to damage the various card stock used for the QSL cards.

73

Geoff VK3TL
WIA VK Inwards QSL Bureau

Attend

Moorabbin and District Radio Club Hamfest 2014 | 10 May

VK2 news

Tim Mills VK2ZTM
vk2ztm@wia.org.au

ARNSW will be holding their AGM at 10 am on Saturday 3rd May, 2014 at the VK2WI site, 63 Quarry Road, Dural. Committee nominations closed late last month.

Last month the upgrade course commenced at the ARNSW VK2WI Dural site. Held each Monday evening, except for public holidays, it will run until November. Times are 7 to 9 pm. There is still time to attend. ARNSW has a presence on Twitter and to a lesser extent on Facebook: *twitter.com/arnsw* The ARNSW library is open during the Monday evening upgrade class and details are given on the weekly Sunday VK2WI broadcasts.

ARNSW recently announced the introduction of a Development Fund to provide assistance to radio clubs currently established within the VK2 region. The scheme commenced in February 2014 and submissions close on Friday 11th April, 2014. To apply for information, guidelines and application form either write to ARNSW, PO Box 6044, Dural Delivery Centre, NSW 2158 or email *office@arnsw.org.au* Details are also downloadable from the web site *www.arnsw.org.au*

Over Easter will be the annual **Urunga Convention,** held in the Senior Citizens hall in Bowra St, Urunga on the Saturday and Sunday. Ken VK2DGT is the usual contact point.

The annual **Central Coast ARC Field Day** was held at the Wyong racecourse with a day of fine weather. There was a large crowd from most VK call areas judging by the various name badges being worn. Book your attendance for the same time slot next year. There was a good collection in the flea market with many bargains to be had. Not as many traders this year but there was still a range of goodies to be had. Assessments for various license grades were also held. The WIA was in attendance with the usual good range of books and merchandise, along with renewals.

There will be the annual field day conducted by the **Oxley Region ARC** in Port Macquarie over the June long weekend. This year will again be at the Lighthouse Beach Surf Club. Currently they are conducting a Standard course with an Advanced to follow later in the year. Those interested in a Foundation course should register so a class can start when the numbers are up a bit. Register by mail to PO Box 712, Port Macquarie, NSW, 2444. *www.orarc.org*

Richard VK2SKY of **Manly Warringah RS** has traced the club's origan back to a meeting held on the 28th February, 1923. They currently meet weekly at Beltana Ave, Terrey Hills. See *www.mwrs.org.au*

This month [April] **Westlakes ARC** celebrate their 50th birthday and will include operation of a special callsign VI2ATZ50. On Sunday 6th April a lunch at the Cardiff RSL Club, Macquarie Rd, Cardiff with a 12 noon start. Bookings to Greg VK2CW at *vk2cw@bigpond.com*

The **Fisher's Ghost ARC** held their AGM on 26th February with the 2014 committee as follows: President Frank VK2FRW; Vice President Peter VK2PR; Secretary Bruce VK2HAP; Treasurer Derrick VK2DEK; Committee members Ian VK2ND, Craig VK2KDP and Tanu VK2MHZ. Derrick VK2DEK is also Social Secretary. Publicity and IT Officer Peter VK2PR and Public Officer and QSL manager is Ted VK2AU. This year they introduced new positions of Scout Liaison Officers which were filled by Frank VK2FRW and Ian VK2ND. Wal VK2ZWK and Lynn VK2FKMK retired this year from positions of Treasurer and Secretary. Ian VK2ND also retired from the position of President. FGARC meet in Campbelltown on the last Wednesday evening of the month.

Recently we reported that the **Illawarra ARS** decommissioned and relocated some of their southern repeaters which left a gap in south coast coverage. A group of amateurs from round Batemans Bay are investigating the establishment of a two metre repeater, in the first instance, and later 70 cm to fill the gap. They are seeking both help and equipment for the project. The leader is Brad VK2HAV from Batehaven.

In recent notes we advised that VK1 had commissioned new beacons. This prompted Rod VK2TWR to advise about the beacons operating in the Snowy Mountains and maintained by the **South Eastern Weak Signal Group**. They have VK2RSF just to the east of Nimmitabel at 1200 metres ASL at grid square QF43ql, on two metres 144.414 MHz with 10 watts and 70 cm on 432.414 MHz with 20 watts in the CW mode. Both use big wheel antennas. They are hoping to add 23 cm. During summer the Dural VK2RSY 23 cm beacon was copied at intervals

across the Tasman in ZL1. It was a help in aligning antennas on Sydney.

The **Hornsby and District ARC** will be working in the International Marconi Day on April 26th under the callsign of VK2IMD. Besides their two metre repeater VK2RNS on 7250 they have a 70 cm unit at Chatswood, VK2RHT, on a non-standard offset of 5.4 MHz. Output 438.350 MHz with the input on 432.950 MHz and a 91.5 Hz tone. It can also handle P25 with a NAC of 293. Refer to *www.hadarc.org.au*

Waverley ARS have their next Foundation and assessment weekend planned for the 24th and 25th May. Contact the Learning Organiser at *education@vk2bv.org* The annual Waverley auction is set down for Saturday 5th July.

73 Tim VK2ZTM.

The Keith Roget Memorial National Parks Award

J G (Johnno) Karr VK3FMPB

The aim of this award is to encourage portable operation in Victoria's 45 national parks. So goes the blurb on the ARV website. I think it could actually be a conspiracy between the ARV and the petrol companies! Since I started the Keith Roget award I have driven to Echuca, Warrnambool, the Mornington Peninsula, the Grampians and the Alpine National Park where I supported my mast and VHF vertical by pushing them into a snow mound about 1.5 metres high. It did the job too!

I've been to our 'home' park, Bundoora Park, and Kinglake more times than I can remember. I've been north, south, east and west in our beautiful state. I've met heaps of amateurs in the process, spent heaps on petrol and gas and had lots of fun too. I reckon I've done a couple of thousand km cruising around our state to the various parks. In my travels, I have seen 16 metre high trees and snowy mountains, beaches and traffic. I've seen an echidna walking across the highway without a care in the world. And seen lots of dead 'roos, too. I have slept in a motel that I couldn't get to sleep in because the trees were banging on the roof all night. I've eaten lots of junk food and it shows too, I bet! In the process however, I have learned lots about our glorious state that I had no idea about before I got my F call and an Icom IC-706. I've seen sights from mountain tops that are so beautiful they take your breath away. I've seen snow, rain, ocean, highway, mountains, small country towns, met and chatted to, and been helped by, Aussies all over the place. I suppose we all know that the most asked question you get asked is 'Is this like CB or two way radio'? Then you explain well sort of but not really. I've seen some history of our state and there is plenty more to come too.

Hang on! Perhaps the KRMNPA is not all about radio, not all about drive, stop, set up, talk, pull down and drive some more. Then repeat that same process 45 times just to activate all the National Parks in Victoria. That would make it an awfully mechanical pastime, I reckon. The Keith Roget Memorial National Parks Award just may be about learning about our state?

Meeting people. I've met a heap of different people in my travels all over the state since 2008 or so. Getting to appreciate the beauty of nature and wanting to preserve it a little. Perhaps there is a hidden agenda here? I wonder if the ARV may be trying to turn me into a greenie?

Well, I've done my 25 parks now, so I get award number one. When I get to 45 parks and the real award I'll let you know if I have turned into a greenie or not!

Having said that, I certainly do have a new appreciation of the beauty of our glorious state and the flora and fauna within it. I can't wait for the chase for the rest of our parks to start now. I just gotta work out which ones I still need. Cheers Johnno VK3FMPB.

Adapted from the article published in the WANSARC journal volume 45, issue 2, 2014.

In the park, where else, with the recently awarded Keith Roget Memorial National Parks Award, for 25 parks. Photo courtesy Mick VK3CH.

ALARA

Margaret Blight VK3FMAB – Publicity Officer

The ALARA Annual General Meeting will take place in May this year. Nominations for office bearers are currently being taken.

Registrations are now being accepted for the ALARAMEET to be held at Nelson Bay from 24th-27th October, 2014. For details, go to the ALARAMEET website and you will find lots of information about the interesting program on offer, plus registration forms. I have already paid my deposit to attend and to obtain nearby accommodation, so look forward to meeting as many of you as possible.

Radio Nets are a good way to catch up with other operators. For woman operators I would encourage you to tune in to the ALARA Net on Monday night on 80 metres, 3.570 MHz at 9.00 pm eastern daylight saving time, and 8.30 pm at all other times. Lots of encouragement is given to newcomers to the hobby so ladies get on the air and join in.

VK2 news – from Dot VK2DB

The last Sunday in February was the Wyong Field Day where ALARA was once again represented. Nancy, Agnes VK2GWI and Dot VK2DB welcomed everyone to the table. YLs to visit the table were Karen VK2AKB, who managed to get a day away from her truckload of baby chickens, Diane VK2FDNE, Judy VK2TJU and Leonie VK2FHRK plus visitors Irene and Pamela who are plucking up courage to sit for their licence and thinking of joining ALARA.

Agnes was advertising ALARAMEET at Nelson Bay on the 24th to 27th October this year and people were interested. However numbers are still low and Agnes needs more people to register so we can reach the numbers needed to get a discount on group outings. ALARAMEET is a great way to meet some of the YLs you talk to on radio, OMs meet up with OMs from other states and there is lots of chatter all round. This year while the YLs are having their 'formal' conference on the Saturday morning, the OMs will be visiting FighterWorld at Williamtown. FighterWorld, an exhibition in two hangars at Williamtown RAAF Base, is dedicated to preserving the history of fighter aircraft of our air force. You can touch, look into the cockpits, walk around or go outside to enjoy the noise and action of an operational air force base. It sounds exciting to me.

We all meet for lunch and from then on we tour by coach to see the local area. A dinner cruise around Port Stephens will finish the day. On the Sunday we will go into the Hunter Valley and walk through Maitland Gaol where many dangerous prisoners were held, and some escaped too. We will have lunch in a winery and finish the day at a historic town, Morpeth. Dinner that night will be a Mad Hatter Affair. On Monday we hope to see dolphins as we are ferried to Tea Gardens. This may be a very historic area, but the views we will see and the tales that will be told about it, will be far from boring. For more information and the registration sheet go to *alarameet2014.com*

Photo 1: The old power supply.

VK5 news – from Christine VK5CTY

Things have been very quiet here recently. Our February lunch was poorly attended; only six came as it was raining 'cats and dogs'. We were glad to see the rain after 13 days of over 40° temperatures, but it came down very solidly which made going to town less attractive than usual.

Conditions on 80 metres have not been very good lately either but some of us persevere. Once we go back to winter timelines propagation will be better – not that I want to see the end of daylight saving! That means summer is over! Boo hoo.

VK3 news – from Margaret VK3FMAB

This last week-end proved to be interesting for a variety of reasons. On returning home from shopping on Friday it was to discover that a good part of the brick and paling side fence had disintegrated and exploded right across the front lawn. Being on a corner block does mean having traffic on two sides. Apparently the accident occurred as the result of a driver, trying to avoid a collision with a garbage truck coming up the side street, veering across the road and into the fence. Unfortunately we missed all the excitement as only the police patrol car remained outside when we arrived home.

The following day a group of radio friends arrived for lunch and

Photo 2: The new power supply.

to check out the antenna as there had been problems with reception at my end and we hoped to clarify the cause. While examining the equipment it was discovered that in fact a new power supply was rather urgently needed. Apparently I was quite close to causing some serious damage to the radios if I had carried on obliviously as was happening. So thank goodness for technically minded radio friends! A new power supply has been duly installed.

As to the antenna, further height was added by using swimming pool cleaner poles for the added extension. How is that for lateral thinking?

Silent Key

Colin Coles VK3DEG

Colin Coles VK3DEG became a silent key on 19/2/2014 aged 96 years

My father Colin was first introduced to CW when he was called up for national war service in 1940. He joined the Navy in the Signals Branch and served on retrieval tugs in the North Atlantic and also minesweepers with deployment to India and Ceylon.

Post war he joined the Royal Navy Volunteer Wireless Reserve (RNVWR) where he continued his interest in radio operation and became a licensed amateur in 1956 with the call sign G3LLM.

In 1980 Colin and his wife came to Australia where he continued with amateur radio as VK3DEG.

Colin was an avid HF CW operator and continued on- air until the last couple of years when he became too frail to work a key or keyboard.

Colin was keen to help novice operators to learn CW for their full call and in 1984 offered to help novice operators VK3PGY (later VK3EVG) and VK3VZW with regular practical exercises at a mutually convenient time. 0700 to 0800 EST was the time selected and it was not long before a regular net was established at that time at each morning on 3547 kHz.

The ideas was an immediate success and was called 'The Early Bird Net' and it was not long before help was forthcoming from VK3CES (later VK3EDS), VK3AHU and VK3CLV... the latter two with VK3DEG, providing the 10 wpm passages and VK3DES as net controller. Each passage of text was read back immediately following its transmission.

In addition to receiving-practice, the 'Early Bird Net' provided opportunity for those taking part to exercise their sending ability, whereupon helpful and constructive criticism was given to correct any faults in their sending technique.

Later an additional net was established from 1815 to 1900 EST on 3545 kHz conducted by VK3DEG and VK3DZZ.

Colin continued his participation the 'Early Bird Net' for the next 25 years.

The usefulness of this work can best be judged by the number of full-call operators who have acknowledged the help given them by the 'Early Bird Net'.

Colin was CW operator for 69 years and an active licensed amateur operator for over 53 years.

Tim Coles VK3TAC (Colin's Son)

Silent Key

Graeme Sutherland VK3AGS

Graeme was born in 1922 in Ballarat and undertook his primary and secondary education in the same city, attending Macarthur Street Primary and the Ballarat Church of England Grammar schools. His tertiary education was completed through the Ballarat School of Mines and finally the Royal Melbourne Institute of Technology, from where he graduated as an Electrical Engineer. He spent his working life at the Commonwealth Ordinance Factories in Melbourne and later in Bendigo.

Graeme's interest in amateur radio started at the age of 11 and it became a life-long passion. He was first licensed in 1954 when he obtained the first limited call sign in Victoria – VK3ZAA. His full call sign of VK3AGS was obtained in 1968. He operated on HF, VHF and UHF and frequently spent many hours each day communicating with fellow operators in Australia and

overseas. This continued right up until a few days prior to his death. He was a long-time member of the Wireless Institute of Australia, Amateur Radio Victoria and served as President of the WIA Midland Zone several times. Graeme was interested in Amateur TV both fast scan and slow scan and was a keen user of the local ATV Repeater and also a beta tester for the Australian developed Digital SSTV program EasyPal. Purchasing equipment was almost a last resort for Graeme as he enjoyed building as much of his own 'gear' as possible. He built a 1250 MHz television transmitter using surface mounted components at the grand age of 87 years. Over the years Graeme built a number of radios, transmitters and in the early 1950s constructed a B&W television receiver. His amateur radio interests also extended to assisting others to gain appropriate qualifications and his family vividly recall the long periods Graeme spent tutoring prospective operators in their lounge room.

Graeme died on the 14 February 2014 after a short illness and will be sadly missed by all who knew him. A true gentleman. His wife Joan (VK3NLO) died in 1989 and Graeme is survived by his three children Peter (VK3FPMS), Jennifer, Ann-Maree and their families.

Submitted by Ross Pittard VK3CE.

VK4news QTC

Mike Charteris VK4QS
e *mikevk4qs@gmail.com*

Hello fellow amateurs and welcome to the April edition of *QTC*.

The month of April is for me and many others, the most important month of the year. It sees us as a nation reflect upon one the most significant events in this country's short history, ANZAC Day. This is something we all share by way of different degrees of involvement. Our ancestry sees us reflect upon relatives who answered the call, and sadly many who paid the supreme sacrifice on foreign shores. All who came after to uphold the torch of freedom embodied the ANZAC spirit which is our nation's tradition. And in each and every war since 1914, the amateur has been there in one form or another utilizing his communications skills to save lives, and balance the success of battle in every way. Whether it was Bert Billings, amateur radio operator, wireless operator, signaller, 1st Light Horse, AIF, on the shores of Gallipoli on 25 April 1915, or the last Australian to use communications equipment in Afghanistan in 2014, radio has always been a great part of any military achievement.

It should also be remembered that well before the landings at Gallipoli in 1915 the Royal Australian Navy was, in 1914, taking the war to Kaiser Wilhelm in his foreign possessions. Places like German Samoa, Apia, Nauru, Yap and German New Guinea in our own front yard. The fact is that the Germans had one of the greatest transoceanic wireless station networks the world had ever seen. Such was the threat from these wireless stations on Germany's Pacific possessions that England requested from Australia, 'Urgent Imperial Service' requiring their destruction in 1914.

Of particular historical interest for Queensland amateurs is the fact that Mr Andrew Couper Junior, the holder of 'XQM', the second official call sign issued on 7 February 1914, answered the call to arms on 16 October 1916. Andy travelled to Townsville where he enlisted as Private 7225 into the 15th Battalion, Australian Imperial Force. Andy had previously tried to enlist, perhaps in 1914, but was rejected on medical grounds.

On 24 January 1917, Andy embarked aboard the SS Ayrshire at Sydney with the 24th Reinforcements to the 15th Battalion, bound for England. Almost three months later on 13 April, he disembarked at Devonport, bound for the 4th Training Battalion at Codford. After three months intensive infantry training Private Couper embarked at Southampton bound for France.

Andy was taken on strength of the 45th Battalion AIF in the field on 27 July 1917. This battalion was involved in some pretty heavy battles against the Germans in the following months. Consequently, Private Couper was seriously wounded in action on 8 August 1917, after less than two weeks in the front lines. Andy received severe gunshot wounds to his back and left kidney. He was stretchered to the 4th Australian Field Ambulance for treatment, before being admitted to the 2nd Australian Casualty Clearing Station on 10 August 1917. From here he embarked aboard the hospital ship 'Elizabeth', sailed across the English Channel, and was admitted to the Northampton War Hospital, in Duston, England. On 5 September 1917, Mrs Couper received a telegram from the Army, from Major JM Lean, Victoria Barracks in Melbourne, to inform her that her son had been wounded in action, and transferred to Northampton Hospital for treatment. Over the following months, right up to 22 January 1918, further telegrams arrived, addressed to Mrs AM Couper, The Foundry, Mareeba, Queensland, to inform her of Andy's progress and recovery from his terrible wounds.

Then, on 31 January, Private Andy Couper embarked on the troop transport 'A8' Argyllshire bound for Australia. A few months passed on the high seas before Andy finally stepped ashore in the country for which he had so gallantly fought. Private 7225, A. Couper was discharged from the Australian Imperial Force on 17 May 1918, as a wounded soldier. Such was the sacrifice of Queensland's first licensed amateur to go to the Great War. Andy Couper Junior's legacy echoes loudly throughout the past century of our proud wireless history in this state.

I would like to thank Ron Goodhew VK4EMF for inspiration in writing up Andy Couper's military service, after reading his exceptional article in 'OTN' March 2014.

For a more in depth description of Andy Couper's whole life, I would strongly recommend the March 2014 edition of 'OTN', the journal of the Radio Amateurs Old Timers Club Australia Inc.

In honour of our military tradition, it is on ANZAC Day each year that amateurs in Australia strive to communicate using the age old modes of amplitude modulation and continuous wave. Some enthusiasts go as far as using period equipment to enhance the reality of what it must have been like. So spare a thought, and perhaps an hour or so on ANZAC Day, to dust off the key, or work a few on AM. Spare a thought for those who served in the name of the freedoms we so easily take for granted today.

News from Toowoomba 'Intruder Watch'

This month I have introduced some news of a kind that relates to us all as amateurs, wherever we live, and that is 'Intruder Watch', and the people who undertake this important and necessary task. Let's hear from John Kirk VK4TJ, about 'Toowoomba, The Spiritual Home of Intruder Watch'.

For over two decades, Tom Walker VK4BTW, SK, of Toowoomba, collated Intruder Watch reports from all over Australia, as well as adding many thousands of his own personal observations. Upon Tom's retirement from the role, the job bounced around from pillar to post for a few years before it eventually landed on the desk of Peter Young VK3MV. One thing has not changed over time, and that is that most of the observations still come from Toowoomba.

VK involvement in Intruder Watch is currently at an all-time low. With retirement of the prolific Intruder-Buster of them all, Karl VK6XW, after 20 or so years of service, that pretty much leaves myself and John VK4TJ reporting from, you guessed it, Toowoomba. In a way I suppose it makes a convoluted sense as around the Toowoomba area is renowned for being one of the best listening spots in the world. In the 1960s NASA established a 'Monitoring Site' here for their space program, and you can bet the military have thought about it as well. If you have ever worked a Toowoomba area station, you will notice that they have a distinct advantage over you coastal dwellers. At 700 metres above sea level, often with negative horizon in three if not four directions, surrounded by hobby farms, often serviced by underground power, you'd hope so. We hear well!

I am a relatively recent arrival in VK, a refugee from the 'Chosen Frozen' in VE6. The single biggest difference I noticed upon arrival was the sheer number of intruders on our bands here, and not much being done about it. Well ten years on, I am happy to report we've found the hive, and killed the nest of vipers, but in fact the situation is much, much worse now than it was then. Various news media have just reported that Vladimir Putin has just signed the purchase orders for an additional six 'over-horizon-radar installations'. This probably takes the world wide total to something like 30 or 40, to the point where they can and often do QRM each other.

In an average month, I report approximately 500 unique 'Intruders'. To put this in perspective, 500 would be about 25% of all unique reported intruders worldwide. This is not including the Russian naval beacons that send individual letters in Morse to represent a particular naval base on 7.039.3 kHz 24 hours a day. Over one half of my observations will be south-east Asian land mobile AM or FM intruders operating in our 10 and 12 metre allocations, predominately Chinese nations. In terms of impact, obviously the 'over-horizon-radar' installations are by far the worst, with China's Hainan Island radar gobbling up at least 200 kHz of spectrum. Lately the Falun Gong's 'Sound of Hope' propaganda transmitters have been showing up in our bands as well, often with vigorous jamming from the PRC, adding to the misery.

If you have even a few hours a month to dedicate to 'Intruder Watch' I am sure that Peter VK3MV would be delighted to send you out the reporting template and some background material. I am very fortunate to have two non-amateur co-workers who cover off about five different Asian languages between them. They are kind enough to indulge my occasional interruptions with sound grabs gleaned from our bands. But I admit, I am hopeless with digital modes, so we would really look forward to hearing from someone who is prepared to separate the wheat from the chaff in that department. Perhaps some of the Queensland clubs could look at it as a club extracurricular activity to spice up the monthly meeting, with the results being forwarded to Peter Young. If we all work together we can achieve a greater result, and assist the dedicated individuals who fight to protect our bands from Intruders.

That's it for this month, something a little different for a change, I hope you enjoyed it. I look forward to hearing from all the clubs with a few snippets or paragraphs of news.

73, Mike VK4QS.

Plan ahead

VK Shires Contest	7 & 8 June
Winter VHF/UHF Field Day	21 & 22 June

VK7news

Justin Giles-Clark VK7TW
e *vk7tw@wia.org.au*
w *groups.yahoo.com/group/vk7regionalnews/*

New 24 GHz EME world record news

On the evening of 5 March 2014, Rex VK7MO was able to extend the 24 GHz EME world record to 17,403 km. Rex contacted G3WDG for the record in difficult circumstances. It took over an hour to complete the QSO using WSJT and G3WDG had to average his signal over six periods. Rex was on Mt Wellington keeping his portable dish aligned with the moon in the dark in 1-2 degree temperatures and winds gusting to 35 km/h. Persistence indeed! Congratulations Rex.

Not quite the distances or high frequency, the VK3FI (Noel Ferguson) beacon in Mildura has been heard in Tasmania by at least two 630 m enthusiasts. Edgar Twining SWL and the author have both regularly received the beacon up to strength 7 (-85 dBm) for prolonged periods. The beacon is on 473 kHz and is activated around 1100 UTC when VK3FI is present, and he receives reports of its

VK3FI beacon signal at the author's QTH. Photo courtesy of VK7TW.

AMSAT-VK

AMSAT Co-ordinator
Paul Paradigm VK2TXT
email: ***coordinator@amsat-vk.org***

Group Moderator
Judy Williams VK2TJU
email: ***secretary@amsat-vk.org***

Website:
www.amsat-vk.org

Group site:
group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial amateur radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net
Australian National Satellite net

The net takes place on the 2nd Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. Check-in starts 10 minutes prior to the start time. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales
VK2RBM Blue Mountains repeater on 147.050 MHz

In Queensland
VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia
VK5TRM, Loxton on 147.175 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, EchoLink node 399996

In Tasmania
VK7RTV Gawler 6 metre repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 metre repeater 146.775 MHz IRLP node 6616

In the Northern Territory
VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT or VK3JED conferences. Past experience has shown that the VK3JED server offers clearer audio. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Currently only SO-50 is available.

Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

reception on *vk3fi@wia.org.au*

Repeater news

In the last month Dion VK7DB and Lucas VK7FSLB have upgraded the batteries at the VK7RNW Lonah repeater site in north west Tasmania which now have a storage capacity of 500 Ah.

VK7RBH atop Ben Lomond in north east VK7 underwent maintenance courtesy of Joe VK7JG, Peter VK7PD, Al VK7AN and Clif VK7CH. Previously a solar panel was damaged due to ice and snow and so a new panel was carried in a walking frame to the site and installed and now provides 280 W of solar energy for battery charging. Peter VK7PD is interested to hear from anyone to let him know whether VK7RBH has the highest repeater antenna in VK7?

Northern Tasmania Amateur Radio Club

We congratulate Laz VK7LAZ who recently upgraded from an F-call, VK7FLAZ. The NTARC AGM was held on 12 February 2014 and the following club office holders were elected – President Lewis VK7FLPL, Vice President Idris VK7ZIR, Secretary Yvonne VK7FYMX, Treasurer Norm VK7KTN and Committee Member Kevin VK7HKN. Phil VK7JJ has been updating the NTARC website front page using Google maps to show the repeaters around VK7. If there are any corrections or additions then please let Phil know.

North West Tasmanian ATV Group

The NWTATVG held their AGM on 1 February 2014 and the following club office holders where elected: President Tony VK7AX, Vice-President Jim VK7JH, Secretary Steve VK7EQ, Treasurer Ursula VK7FROO and Executive Officer Neil VK7NX.

Cradle Coast Amateur Radio Club

On 26 February 2014 the CCARC AGM was held and the following club office holders were elected: President Rick VK7RI, Vice-President Eric VK7EK, Treasurer Dick VK7LDK, Secretary (Acting) Dave VK7DC and Committee Dion VK7DB. The Mt Duncan Tower upgrade is progressing with site preparation work. CCARC shirts and caps are now available with the club name and your call sign printed on them. If interested please contact Rick at *vk7ri@wia.org.au*

Radio and Electronics Association of Southern Tasmania

The REAST February presentation was by Kevin Madden VK7MZ aka 'Zak' who has recently settled in VK7. Zak took us through his teaching in China and starting an ex-pat group of amateurs in the area of China he lived for 10 years. A foreigner is not allowed to operate amateur radio within China however remotely controlled stations via VOIP and control through the internet is possible and Zak was able to operate remotely using a Norway ex-pat's remote station. This was a fascinating talk and thank you to Zak for the presentation.

The REAST AGM was held on 16 February 2014 and the following office holders were elected: President Tony VK7VKT, Vice-President Frank VK7FINF, Secretary/ Public Officer TBA, Treasurer Christina, and Committee members Barry VK7TBM and Dave VK7DM.

DATV nights have kicked off again with some great show and tell including miniature Morse keys, crystal sets, adafruit Trinket microcontrollers, thermocouple RF ammeters, Raspberry Pi's, 'Useless' box, telephones, barcode scanners, calculators and much more. Our videos included Ham Radio Now and many other video casts. Our DATV nights happen Wednesday nights and go out on RF - DVB-T (446.5 MHz) around Hobart and streaming courtesy of the BATC.TV members stream and look for the REAST club callsign - VK7OTC. See you soon.

Silent Key

Bill Carter VK7AK

It is with great sadness we advise the passing of Bill Carter VK7AK of Deloraine on Tuesday, 11 February, 2014, on his 91st birthday, with his family by his bedside.

Bill was a great amateur, had a wicked sense of humour and was a thorough gentleman. He was also an accomplished master of CW, his preferred mode that he had learnt as a youth in his early days with the PMG. Bill always told inspirational stories of his time in the PMG at the Launceston Telephone Exchange and his years on Flinders Island. These were the days when radio was being experimented with to establish a reliable telephone service across Bass Strait.

At the Launceston exchange he told how he tracked down high speed Morse on one of the Melbourne telephone circuits. The telephonist called it 'a racket'. Bill read the Morse, found it was US Navy traffic and contacted the authorities. It was traced to a US submarine off King Island, its 17 kHz transmissions breaking into the carrier system of the Bass Strait telephone cable, which came ashore on the island.

Later Bill was involved with the early ABC television transmissions from Mount Barrow where he was employed as one of the Shift Leaders/ Supervising Technician during the sixties, also participating in the installation of the original Channel 3 (ABC) transmitters and antennas. After shift work ceased on Mt Barrow, Bill became head of the Deloraine Telephone Exchange District, from which he retired.

The Northern Tasmania ARC decided to dedicate their radio room to Bill and a suitable plaque will be placed to this effect.

Vale Bill.

Submitted by Winston Nickols VK7EM and Yvonne Maxwell VK7FYMX.

if accurate range information was not needed.

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It appears that the theory and practice match nicely and its full steam ahead to get the VK6RIO beacon on air and the ZS6 receiver end operational.

Phil also tells me that it may eventually be possible to use this mode with a standard radio and computer setup, so watch this space.

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Photo 3: A few of the FT5ZM Amsterdam Island team at the NCRG BBQ.

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They had a good look around and complimented us on our excellent setup. Yours truly ended up cooking 36 steaks and the same amount of snags and everything was devoured. We had a good yarn and many drinks and they were delivered safely back to their hotel to return to their various countries. It was a good night!

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That's it for this month, enjoy the hopefully cooler weather and we will meet again in a month's time.

73 de Keith VK6RK.

Over to you

A tip from Scotty

I have a tip for all amateurs:

When tying cables to masts, towers, etc., many people use black cable ties. These go off over time after exposure to the sun and the coax or cable may no longer be neat and tidy and well supported.

A tip a TV antenna installer gave me years ago was to use black PVC tape and to put one thin strand of copper wire over the tape and twist it reasonably tight. It will keep the tape in place even when the adhesive has dried out and the cable will stay nicely in place for a very long time.

I'm even using this technique with my poly pipe in the garden as the clamps on the ends of the pipe joins eventually crack and let go, causing spillage of water when the join breaks apart.

73, Scotty VK2KE

VK6news

Keith Bainbridge VK6RK
e *vk6rk@wia.org.au*

Greetings one and all and welcome to the April VK6 Notes.

I have one article left over from last month's bumper edition, so I'll start off with a report from Rob VK6LD on the **Katanning Ham Feast** (note feast not fest!)

Thursday 16 January 2014 was the date of the annual Katanning Ham Feast. (Thanks to Mal VK6MT for coming up with the name). Sixteen amateur radio operators descended on Katanning for lunch at Oscars Café in the Royal Exchange Hotel.

Those attending included: Bevan VK6BL (Mt Barker), Wes VK6WX (Mt Barker), Mike VK6MB (Manjimup), Glenn VK6GWM (Manjimup), Phil VK6FHIL (Manjimup), Jim VK6NFV (Boyup Brook), Dave VK6NB (Albany), Janet VK6NB XYL (Albany), Brett VK6GE (Albany), Mal VK6MT (Katanning), Ron VK6VOX (Katanning), Rick VK6XT (Bromehill), John VK6GG (Perth), Lee VK6TY (Perth), Warren VK6VET (Perth) and Rob (Perth). A brief early guest appearance was also made by Gary VK6GS and XYL Grace on Gary's lunch break.

Lunches were ordered and arrived quite quickly from the kitchen, followed by dessert and coffee. Plenty of drinks (non-alcoholic and alcoholic) all round and there was plenty of conversation to be had. The afternoon wound up around 4.30 pm and the conversations still continued on the front veranda and car park across the road. This is now the 4th year for Katanning Lunch (aka Ham Feast) and all those in attendance agreed they were already looking forward to next year's event.

The day also raised $457.10 for Southern Electronics Group to help pay for repeater licence and maintenance costs. Thanks to all. 73. Rob VK6LD.

Photo 1: Attendees at the Katanning Ham Feast. Photo courtesy of Bevan VK6BL.

Thanks Rob that's a good financial boost to the SEG!

Also down south but on the coast we have a new scribe from the **Bunbury Radio Club**, Norm VK6GOM.

For the information of our east coast colleagues, Bunbury is a port city on the south west coast of Western Australia, about 150 km south of Perth. It is a major centre for commerce, shipping and administration for the south west region of the state.

As mentioned in an earlier contribution to VK6 news, the Bunbury Radio Club is undergoing a resurrection in membership and interest. The club was born in 1973 as a CB operators club, with approximately 100 members, but as time passed and interest in that medium waned, the membership also dropped off and the club has had a low profile for some time. However, some members who had been hooked on CB DX remained and transferred their interests to amateur radio. Following a major resurgence of interest by a handful of members, and some active recruiting, we now have twenty two (22) financial members and growing. The Club is now devoted to amateur radio.

The club generally covers the south west area of the state, but with members as far away as Exmouth, Kellerberrin and Nannup. Club meetings are held on the second Saturday of each month. The club operates and maintains two repeaters, on two metres and 70 cm (VK6RBY) near Harvey; so please give us a call when in the Bunbury area.

Currently, under the gentle, cultured guidance of Danny VK6FDRW, the repeater mast located on the property of Nic VK6NA is being moved further uphill and extended by 20 metres, resulting in the antennas being effectively raised to 30 metres. This should result in a significantly wider range as well as covering some previously dead spots in coverage. To further improve performance the club recently installed a pair of 70 cm folded dipoles on the existing mast while Danny VK6FDRW is in the throes of developing a pair of two metre folded dipoles.

Some of our erstwhile members managed to obtain a 40 metre mast from a Collie business house,

surplus to its requirements, and offered free to a good home on the condition that the new owner take the tower down. Being a country club there was no problem finding members with the skills and qualifications to perform this task. The mast, in three metre sections, was swiftly removed and distributed among interested members.

A major activity at present is getting some eight Foundation licence holders upgraded to Standard licences and later to Advanced licences. We also have a couple of potential Foundation licence applicants as well as one upgrade to Advanced. Until recently we had to drive to Perth for assessment, but with Doug VK6DEW currently qualified as an Assessor and another member, Norm VK6GOM seeking recognition of his prior trainer/assessor qualifications, we hope to be self-sufficient in these skills making it easier to provide appropriate examination facilities in the south west region. The training will be done on-line through the Queensland based Radio and Electronics School, backed up with local mentoring and discussions groups on the club's repeater and internet Google group.

We also plan to operate a field station in the John Moyle Field Day contest. So watch this space.

Finally, any south west based amateur is more than welcome to join and participate in our activities. The annual fee is only $20.00. Hams wishing to join can contact the club via our Secretary, Brian Andrews, on 0403 975 953 or email *vk6brc@wia.org.au*

Thanks Norm, it's great to see the resurgence of amateur radio in the south west and I look forward to your contributions.

VK6RIO Chirp beacon update

This has been moving steadily of late and a complete receiving system is almost completed to send to ZS. Phil VK6PH (ex VK6APH) has been working hard on the software

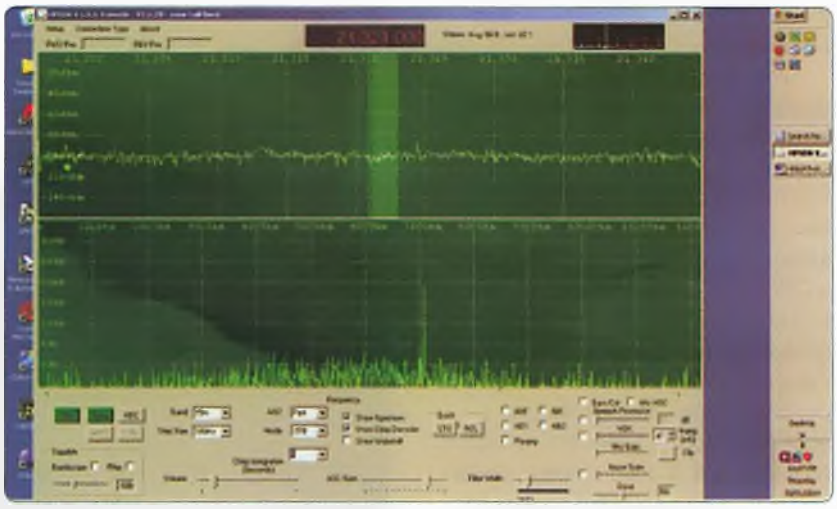

Photo 2: A screen shot of the bandscope output (top) and the chirp decoder (bottom) following the transmission from the shack of Phil VK6PH.

of late and sent me this report on his activities:

We are making very good progress with both the hardware and software for the Perth VK6RIO two metre Chirp beacon. The intention is to use this to prove the two metre path between VK6 and ZS6.

The beacon is based on an idea by Andrew VK3OE and Phil VK6PH, and builds upon Andrew's use of a Chirp signal to probe the ionosphere. It seems that a Chirp signal could be an ideal weak signal beacon mode.

The mode works as follows. At the transmitter the carrier frequency is linearly swept over a specific frequency range for a set period. For the VK6RIO beacon the frequency sweep is 2 kHz and the period is one second. The beacon frequency is locked to a GPS source and the start of the one second sweep is derived from the one pulse per second (1PPS) from a GPS source. At the receiving end the receiver is frequency locked to a GPS source and a 1PPS is used to synchronise the decoder software.

The theoretical performance of such a Chirp system is very impressive in that a signal 36 dB below the noise floor in a 2 kHz bandwidth is detectable. This performance is realised within a second and is some 10 dB better than any existing digital mode.

If the signal is integrated over time then the signal to noise ratio (S/N) will improve in proportion to the time. So with 60 seconds of integration the S/N will improve by a further 17 dB.

Tests in Phil's shack indicate that the system works as expected but this is no substitute for an actual on-air experiment. To this end, on 30 January, 2014 at 8 pm local, Phil transmitted a 2 kHz swept Chirp signal on 15 metres towards Bob VK4XV, who had built a suitable receiving system.

The results are shown in the screen shot taken by Bob nearby. The top image is the bandscope output and the bottom is the output from the Chirp decoder. Bob advised that the Chirp signal was not audible nor visible on either the bandscope or waterfall. Even so the decoder output showed the Chirp detected at 20 dB over the noise.

What's so interesting is that at the time of the screen shot Phil was transmitting 2 mW! Also 15 metres appeared to be dead and not a single other signal could be found anywhere on the band.

Bob had also deliberately mistuned the receiver frequency by one kHz to prove the theory that accurate tuning was not necessary

if accurate range information was not needed.

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A tip from Scotty

I have a tip for all amateurs:

When tying cables to masts, towers, etc., many people use black cable ties. These go off over time after exposure to the sun and the coax or cable may no longer be neat and tidy and well supported.

A tip a TV antenna installer gave me years ago was to use black PVC tape and to put one thin strand of copper wire over the tape and twist it reasonably tight. It will keep the tape in place even when the adhesive has dried out and the cable will stay nicely in place for a very long time.

I'm even using this technique with my poly pipe in the garden as the clamps on the ends of the pipe joins eventually crack and let go, causing spillage of water when the join breaks apart.

73, Scotty VK2KE

DX-News & Views

Chris Chapman VK3QB and Luke Steele VK3HJ
e *vk3qb@wia.org.au*

February on the bands

Plenty of DX was on offer, with generally very good conditions across all bands. DXpeditions both large and small were on offer, and mostly workable on at least a couple of bands.

The sun was quite active right through February. Returning sunspot 1967, re-numbered 1990, and now on its third transit, gave us an X4.9 flare on 25 February. This resulted in some geomagnetic storms a few days later, and some changes in propagation conditions. At the leading edge of the geomagnetic storm, often the higher bands really peak up and some very nice DX late into the night can be enjoyed, before the high bands go flat for a few days. Usual propagation on 40 m during the day can be disrupted.

We appear to be on the 'second peak' of Cycle 24, but it is anyone's guess as to whether it gets better still, or declines from now. Whatever the case, make sure you get on air and enjoy the good conditions while they last, especially on the higher bands.

Twenty metres still gives quite consistently good propagation most of the day and night, with strong long and short path openings in most directions. Fifteen metres has been very good too, with good long path openings to Europe in the late afternoon. Ten metres has shown some very good activity, especially on contest weekends. Thirty, 17 and 12 metres are also great, with some nice DX, often not found on the 'traditional' bands.

The FT5ZM DXpedition finished up early in the month with over 170,000 contacts in the log. This was a very well-run operation, and readily workable on all bands. Also around Africa, there were a number of activations, including S9TF Principe I, a couple from Tanzania, 5I0DX and 5H1Z/3 on Zanzibar I, Eric OE4AAC on Rodrigues I, Nigel G3TXF and Col MM0NDX were on from Senegal, TO7CC was a DXpedition to Reunion I, 9J2T in Zambia, Roger LA4GHA was on in Kenya. Roger may also be on from time to time from Somalia as 6O0LA. Elmo 3C0BYP has been on air from Annobon I, but has been hard to work here.

There have been a number of stations active in the Caribbean, including most of the Netherlands Antilles, Turks and Caicos, Grenada, Bermuda, Aruba and Jamaica, mostly activations for the ARRL DX contests.

Also on air was Allan W6HGF from Pierre et Miquelon I, off the coast of Newfoundland, Canada. Vlad UA4WHX was last heard as CP4WHX in Bolivia. This country is rarely heard here, so Vlad's

Some upcoming DX operations

The following table summarises some of the DX activations that may be of interest to VK operators.

Date	Call	QSL via	Information
28 Mar – 9 Apr	VK9MT	M0URX	Mellish Reef (OC-072). Team of eleven, 160 – 10 m, CW, SSB, RTTY.
2 – 14 Apr	5J0X	LotW	San Andres (NA-033). Four operators, 80 – 10 m, CW, SSB PSK.
4 – 18 Apr	A35	LotW	Tonga (OC-049). GM3WOJ as A35V and GM4YXI as A35X, 160 – 10 m, CW, SSB, RTTY.
5 – 18 Apr	PJ4H	LotW	Bonaire (SA-006). German team, 160 – 10 m, CW, SSB, RTTY.
7 – 14 Apr	HI7	EA5ZD	Dominican Republic (NA-096), Punta Cana beach. ZP9MCE, 40 -20 m, CW QRP.
9 – 20 Apr	KH8	DL2AWG	American Samoa, Ofu I (OC-077). DL2AWG, DL6JGN, PA3EWP, 40 – 10 m, RTTY, CW, SSB.
15 – 16 Apr	V26MN	DF8AN	Antigua (NA-105). DF8AN, 160 – 6 m, mainly CW.
16 – 24 Apr	VP2MMN	DF8AN	Montserrat (NA-103). DF8AN, 160 – 6 m, mainly CW.
18 – 25 Apr	HK0/LW9EOC	LotW	San Andres and Providencia, San Andres I (NA-033). HK0/LW9EOC, 80 – 10 m, CW, SSB.
24 – 25 Apr	V4/DF8AN	DF8AN	Saint Kitts (NA-104). DF8AN, 160 – 6 m, mainly CW.
25 – 29 Apr	V4/DF8AN	DF8AN	Nevis (NA-104). DF8AN, 160 – 6 m, mainly CW.
Apr	YW0A	OQRS	Aves I (NA-020). 4M5DX Group, 160 – 6 m, CW, SSB, digital.

operation on many bands and modes was most welcome.

Closer to home have been activations from Vanuatu YJ0OU and YJ0ZZ, East Yap V6T, Majuro Atoll V73MW, Tonga A35AX, and Christmas I VK9X/K7CO.

The Brazilian national amateur radio society LABRE celebrated its 80th anniversary in February with a special 'ZZ80' prefix. India's National Institute of Amateur Radio celebrated its 30th anniversary with the special callsign AU3NIAR. And the ARRL continues its Centenary celebrations with the W1AW callsign rotating around all states this year.

Enjoy the good DX around the Equinox!

VK9MT, **Mellish Reef.** By the time this reaches your mailbox, the Mellish Reef DXpedition should be in full swing. This one should be relatively easy to work right across Australia. Planned daily uploads to ClubLog. Leaderboards will NOT be activated. The team aims to maximise the number of unique calls logged, that is, best chance for a New One to as many as need it. QSL via LotW as soon as possible after the expedition, and OQRS, or M0URX. Please consider some support with a donation, as this is a very expensive undertaking, with each team member contributing in the order of $15,000 to make it happen. For more information see *vk9mt.com*

5J0X, **San Andres and Providencia.** Operating from San Andres I will be Hugh W4VAB, Rob N7QT, Melanie AB1UH and Guy N7UN. They will be on 80 – 10 m, using CW, SSB and PSK, in a holiday-style operation. Logs will be uploaded to Club Log during the expedition and to LotW shortly after. QSL via LotW, via burea or direct to N7QT.

A35, **Tonga.** Chris GM3WOJ and Keith GM4YXI will be operating as A35V and A35X respectively from Tongatapu I.

PJ4H, **Bonaire.** Ernst DK7AN, Juergen DJ2VO and Martin DL3KMS will be 160 – 10 m, CW, SSB and RTTY. They will be using TS-590 and K3 transceivers, THP amplifiers to a five band Spiderbeam and verticals. QSL via ClubLog OQRS and LotW.

HI7/ZP9MCE, **Dominican Republic.** Manu ZP9MCE will be operating holiday-style 'from the beach'. He will be on 20, 30 and 40 m CW QRP. QSL only via EA5ZD.

KH8, **American Samoa.** Guenter DL2AWG, Hans DL6JGN, and Ron PA3EWP will be on air from Ofu Island. They will be on 40 – 10 m, CW, SSB and RTTY, using two stations with K3 and amplifiers. Antennas will be a Spiderbeam and verticals. Daily Club Log upload, subject to a reliable internet connection. QSL via DL2AWG using OQRS, bureau or direct. For more information see *http://www.ofu2014.de*

V26MN, **Antigua.** Michael DF8AN will be operating from four Caribbean islands using mainly CW, 100 watts, on 160 – 6 m, to wire antennas. First is Antigua as V26MN, then Montserrat as V26MMN, then St Kitts and finally Nevis as V4/DF8AN. QSL to DF8AN direct or bureau.

HK0/LW9EOC, **San Andres and Providencia.** Tim LW9EOC will be active on San Andres I, 80 – 10 m, CW and SSB. QSL via LotW or LW9EOC direct or bureau.

YW0A, **Aves I,** Bird Island. This DXpedition has been announced, but final dates are to be confirmed. Latest information suggests '10 days in April'. The 4M5DX Group including 11 operators and a research scientist have committed to activate this Caribbean island on 160 – 10 m, with plans for CW, SSB, PSK31, PSK63 and JT65. Keep an eye on the website for more information *http://www.avesisland.info*

Special thanks to the authors of The Daily DX, 425 DX News, DX World, NG3K's Announced DX Operations, and QRZ.DX for information appearing in this month's column. Interested readers can obtain a free two week trial of The Daily DX from *www.dailydx.com/trial.htm*

Last chance to get ready for Expo

Jim Linton VK3PC

PR4AmateurRadio Expo, supported by the Wireless Institute of Australia (WIA) and provided through the participating radio clubs, is an excellent opportunity to promote modern amateur radio and how it fits into the community.

A commitment of a few hours with knowledgeable radio amateurs will showcase how the hobby can be enjoyed by different age groups, sexes, and abilities.

Some clubs will announce their Expo location and times in the local media to give further publicity for amateur radio.

The Expo is not a competition, but an opportunity for everyone, at a public display or on the air, to show amateur radio to the public.

Held on 11, 12 and 13 April 2014 it gives the flexibility for clubs to hold their event on the Friday, Saturday or Sunday.

For more details and for clubs and organisations to register, check out the WIA website, or listen to the weekly VK1WIA broadcast.

VHF/UHF - An Expanding World

David Smith VK3HZ
vk3hz@wia.org.au

Weak Signal

VK3RXX beacons

Alan VK3XPD reports on the status of the VK3RXX beacons in Camberwell. The 2403.530 MHz beacon is still working fine. The 10,386.530 MHz beacon has been repaired and is working from a temporary location on his upstairs balcony.

The 1296.530 MHz beacon was suffering from poor quality signal. A change of hardware from direct PLL generation to a high-side transverter plus some other hardware and software modifications have cleaned up the signal substantially and it is now back on air with a much improved quality.

All beacons are, of course, GPS locked.

All signal reports welcome.

New VK1 beacon

Chris VK1DO reports that there is a new beacon in Canberra – VK1RSB on 144.410 MHz - located in the northern Canberra suburb of Evatt, which has an excellent outlook towards VK3 and probably quite a decent take-off towards Sydney. The beacon uses 850 Hz FSK keying and is running 10 W into a temporary vertical antenna. Dual cloverleaf antennas are planned. There are also beacons for 70 cm and 23 cm in the pipeline.

Alan VK1WX and Rob VK1KW are the people behind the project with the Canberra Region Amateur Radio Club (CRARC).

Reception reports would be appreciated.

23 on 23

Adam VK4GHz reports on a new initiative in south-east Queensland to stimulate activity on the 23 cm band.

The '23 on 23' activity days will be held on the 23rd of each month, commencing in March. This concept means that the actual day will change each month, which will help accommodate those who may not be available on certain days of the week due to family/work/whatever commitments. Activity will be centred on 1296.1 MHz commencing at 8 pm (1000Z) on weeknights and during the day on weekends (times to be confirmed). Keep an eye on the VK Logger forum area for updates to the planning.

The VK Logger's '23 & Above' chat area will be used for liaison.

This would also be an ideal opportunity for 23 cm equipped stations outside of S/E Qld to look in that direction. Digital modes could also be tried to improve the distances worked. Hopefully, this might become more of a national 'thing'.

Originally intended to start in March, an impromptu gathering on February 23rd included VK4CZ, VK4CRO, VK4EA, VK4GHZ, VK4KJJ, and VK4MJF. A great start!

There are ten 150 W class 1296 PAs being built in Brisbane alone, so there are plenty of stations keen to be active, more often.

Please send any Weak Signal reports to David VK3HZ at *vk3hz@wia.org.au*

Meteor Scatter

Dr Kevin Johnston VK4UH

Activity levels and conditions for meteor scatter were not great through February. Other activities and events, including the Wyong convention, further reduced the number of stations on-air during the weekend activity sessions. There were no major meteor showers to rely on in February or much evidence of tropospheric enhancement extending meteor scatter paths. Random meteor rates were similar it seems to last month but rapidly declining after sunrise, at least here in VK4.

In case anyone has not spotted this, there has recently been a new version released of the WSJT suite of programs. The latest version 9.7 is available, free of charge, from Joe Taylor K1JT's site at *http://www.physics.princeton.edu/pulsar/K1JT/wsjt.html*

Here is some information about V 9.7 from the site:

WSJT 9.7 is the latest version of the familiar weak-signal communication program WSJT. Until a complete WSJT 9 User's Guide is available, the present document should be read in conjunction with the older WSJT6 User's Guide and Reference Manual, most of which is still relevant.

New features in WSJT 9 (relative to WSJT 6 and WSJT 7) include the following:

1. New modes
   a. ISCAT is a new mode that replaces JT6M. It has significantly better performance on the propagation paths where JT6M has been popular, such as tropospheric and ionospheric scatter and weak Es or F2 on six metres. If you liked and used JT6M, you will like ISCAT even better.
   b. JTMS is a new mode for meteor scatter. It uses a

variation of FSK called Minimum Shift Keying (MSK), which allows a faster transmission rate per unit bandwidth. Extensive tests show that JTMS performs slightly better than FSK441, especially with very short pings. It also tends to produce cleaner decodes and less on-screen 'garbage'.

c. Echo mode has been missing in recent versions of WSJT, but is re-introduced in WSJT 9. It allows testing for echoes of your own signal from the moon.

2. Enhancements to FSK441: an improved decoder does a better job of (a) determining frequency offset DF and (b) rejecting non-FSK441 signals and noise spikes, thereby producing fewer 'garbage' decodes. Sensitivity to legitimate FSK441 signals is unchanged.
3. T/R period for ISCAT is normally 30 seconds, the same as for FSK441. However, WSJT 9 also supports optional T/R sequence lengths of 15 seconds for both FSK441 and ISCAT modes. The shorter sequences may be useful in particular situations such as contests, multi-hop Es, etc.
4. Message templates: the Setup/Options screen offers an improved user interface for setting your preferences for templates that generate messages for the FSK441 and ISCAT modes.
5. Lunar librations cause EME signals to exhibit fading at VHF/UHF frequencies and Doppler spreading at higher microwave frequencies. WSJT 9 computes these effects in real time and displays the expected frequency spread both for your own echoes and for the DX station. Fading timescale is the inverse of frequency spread.
6. User interface has been cleaned up and simplified in several ways. In general, only those controls relevant to the selected mode appear on screen. The new version downloaded and installed without any difficulty being experienced onto a fairly 'standard' laptop at this QTH.

The new modes ISCAT and JTMS installed directly without the need to open any hidden files, as on earlier versions, while they were under development.

The only issue that has arisen at this location, and one that I have yet to sort out, is how the new version of WSJT writes the auto .wav files at the end of each receive period. Clearly there has been some change as it has not proved possible to run the MSRX decoding programme in the background while running Version 9.7 With earlier versions MSRX performed a decode on each new .wav file saved at the end of each receive period provided the 'Save' function was active.

I would be grateful to hear from anyone who has got both programs to run together, as was discussed last month there is a distinct advantage in having 'the second bite of the cherry' with MSRX running in the background.

Don't forget the next significant Meteor Shower with be the Lyrids Shower expected around 22nd April 2014.

Please send any reports, questions or enquiries about Meteor Scatter in general or the digital modes used to Kevin VK4UH at *vk4uh@wia.org.au*

South East Radio Group 50th Anniversary Convention and Foxhunting Weekend

When

Saturday 7th and Sunday 8th June 2014

Doors open Saturday 7th at midday and 9:00 am on Sunday.

Where

Mount Gambier Scout Group Hall in Margaret Street, Mount Gambier.

What

The Australian Fox Hunting Championship is a highlight of the event. Beginning at 11:00 am on the Saturday, the nine event programme runs until early Sunday afternoon. Some events may need physical agility and speed, others guile and there is always an event or two to surprise and challenge the competitors. What will take the place of the fox riding sky high in a balloon this year?

A home brew competition with great prizes will be held as is our tradition and there are tables of new equipment, pre-loved gear and parts that no shack should be without. Entry fee is $5 for the weekend and this includes the lucky door prize raffle. To book a table contact John VK5DJ.

Catering

Excellent, reasonably priced catering will be continuously available for the duration of the convention including the famous steak sandwich, soup, hamburgers, Sunday breakfast selection, cakes and goodies, coffee, soft drinks and of course a happy smile from the helpers.

Contact us

Programme information and where to find us may be found on the club website at http://serg.mountgambier.org or contact John VK5DJ on 0400043916, 0887332138 or johnfdrew@bigpond.com Accommodation should be booked early as this is a busy weekend in Mount Gambier.

Contests

James Fleming VK4TJF

This year the Holyland DX contest starts at 2100 UTC on the 18th of April and finishes at 2100 UTC on the 19th. Categories are single operator mixed, SSB, CW, digital, QRP (10 watts) or multi-operator single transmitter. Bands are all except for the WARC. Exchange is: worldwide stations give their RST and serial number and Israeli stations give RST and 'area'. QSO points are two (2) for 1.8, 3.5 and 7 MHz and one (1) point for 14, 21 and 28 MHz. Multipliers are for each 'area' worked once per band. The country is divided geographically, by the Survey Department of Israel, into a grid system resulting in squares of 10 by 10 km. North to south coordinates are identified by numbers, while west to east coordinates are identified by letters. The square is defined through the combination of the relevant coordinates, that is, E14.

An 'area' (multiplier) is made up from the 10 by 10 km grid reference square and the region. For example, F15TA, E14TA, H08HF. The 'area' is the basis for the 'Holyland Award' and the 'Holyland DX Contest'. Email logs in cabrillo format to *4Z4KXX@gmail.com* During the weekend of the Holyland DX contest I hear many big contest stations working this contest. I reckon it must be fairly popular with them. And it could be popular with you as well.

The Japanese International DX Contest (JIDX) is a time zone friendly contest starting at 0700 UTC to 1300 UTC the following day, making it a bit more than 24 hours. The date is the 12th and 13th of April. All the bands are used except for the WARC bands. Due to propagation Japan should be a bit easier to work on the upper bands of 10 and 15. Consequently, these bands are open during the daytime hours to work Japan. Entry classifications are single operator high and low power, multi-operator with single transmitter all band high power and maritime mobile. As a single operator you can either do all band or focus in on one band. You can use DX Summit but no self-spotting. High power is anything over 100 watts. JAs send their RST plus the prefecture number and others send RST and CQ zone number. For points, only contact with JA stations count and only once per band. 1.8 MHz is four (4) points, 3.5 and 28 MHz is two (2) points and 7, 14, and 21 MHz are one point per contact. Multipliers are the number of different Japanese prefectures. The Japanese operators are a pleasure to work. I find them friendly and courteous and working CW they line up for your contacts rather than creating a pile up. They will likely do the same thing for SSB operators. This makes working this contest a real good opportunity to hone your contesting skills and dip your feet into contesting especially if this is your first time. So it's a real good contest to do if you're a beginner. The JARL has many awards that it sponsors including the all Japan districts award that you will easily be able to get during the contest. The JARL staff are very friendly and respond well to emails. Email log in Cabrillo format to *cw@jidx.org*

There are several other contests during the month of April of interest. Two that are quite popular are the SP DX contest (Poland) and the Helvetia contest (Switzerland). Switzerland has the same propagation characteristics as Poland being they are both in Europe. The SP DX contest is a bit of a wacky contest in the way that the hours for the contest are out of sync of the time zones of Australia. The date is the 5th and 6th of April starting and finishing at 1500 UTC. Thus you start the contest very early

Contest Calendar for April 2014 - June 2014

Month	Date	Starts at	Spans	Name	Mode
April	**5th**	**1000 UTC**	**02 hours**	**QRP Hours contest**	**CW/SSB/RTTY/ PSK31**
	5th - 6th	1500 UTC	24 hours	SP DX contest	CW/SSB
	12th - 13th	0700 UTC	30 hours	JIDX CW contest	CW
	18th - 19th	2100 UTC	24 hours	Holyland DX contest	CW/SSB/Digital/ Mixed
	19th - 20th	2100 UTC	20 hours	YU DX contest	CW
	26th - 27th	1300 UTC	24 hours	Helvetia contest	CW/SSB/Digital
	26th - 27th	1200 UTC	24 hours	SP DX RTTY contest	RTTY
May	**3rd - 4th**	**1000 UTC**	**106 mins**	**Harry Angel Memorial 80 m sprint**	**Phone/CW/ Mixed**
	3rd - 4th	1200 UTC	24 hours	ARI International DX contest	CW/SSB/RTTY
	10th - 11th	1200 UTC	24 hours	Volta WW RTTY contest	RTTY
	10th - 11th	1200 UTC	24 hours	CQ-M International DX contest	CW/SSB
	17th - 18th	1200 UTC	24 hours	EU PSK DX contest	PSK63
	24th - 25th	0000 UTC	48 hours	CQ WW WPX contest	CW
June	**7th - 8th**	**0600 UTC**	**24 hours**	**VK Shires contest**	**CW/SSB**
	14th - 15th	1200 UTC	24 hours	Portugal Day contest	CW/SSB
	21st - 22nd	**0100 UTC**	**24 hours**	**Winter VHF/UHF Field Day**	**CW/SSB**
	21st - 22nd	0000 UTC	48 hours	All Asian DX contest	CW
	28th - 29th	1200 UTC	24 hours	Ukrainian DX Digi contest	RTTY/PSK63

Sunday morning local and finish the contest on Monday morning. Not bad for a shift worker but for a regular nine (9) to five (5) person a bit wacky. I usually like 20 metres for contacts with SP land at night time due to the propagation. However, I'm sure if you participated in the contest on other bands you may not have to stay up so late at night. There is usually some pretty stiff competition in the CW portion of the contest as we have some very good CW operators here in Australia. Depending on my work schedule, I definitely will be working some or all of these contests. So even if you have to work, you can still do a couple hours of the contest and have fun. See you on the bands and GL in the contests.

73. James VK4TJF.

Ross Hull Memorial VHF-UHF Contest 2014: Results

Contest Manager: John Martin VK3KM

Results Summary

Overall winner (first place in Section A): Ted Thrift, VK2ARA
Top scorer, two-day Analog Modes section: Andrew Davis, VK1DA
Top scorer, Digital Modes sections: Rex Moncur, VK7MO

Call	Name	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
Section A:	**Best 7 days, analog modes**											
VK2ARA	Ted Thrift	326	1206	675	56	-	-	-	-	-	-	2263
VK2AH	Brian Farrar	370	1065	750	-	-	-	-	-	-	-	2185
VK2BLS	Darrell Harman	410	549	160	71	-	-	-	-	-	-	1191
VK1DA	Andrew Davis	53	549	425	144	-	-	-	-	-	-	1171
VK4KLC	Ron Melton	614	108	95	144	-	-	-	-	-	-	961
VK2FLJD	Jason Dickens	-	336	295	-	-	-	-	-	-	-	631
VK2XIC	Rob Heyer	32	57	85	80	-	-	-	-	-	-	254
VK6ADI	Barrie Burns	36	117	-	-	-	-	-	-	-	-	153
Section B:	**Best 7 days, digital modes**											
VK7MO	Rex Moncur	-	150	120	-	-	-	-	490	40	-	800
VK1WJ	Waldis Jirgens	-	348	-	-	-	-	-	-	-	-	348
Section C:	**Best 2 days, analog modes**											
VK1DA	Andrew Davis	53	531	425	144	-	-	-	-	-	-	1153
VK4KLC	Ron Melton	614	108	95	144	-	-	-	-	-	-	961
VK2ARA	Ted Thrift	16	600	260	24	-	-	-	-	-	-	900
VK2AH	Brian Farrar	310	528	340	-	-	-	-	-	-	-	878
VK3YFL	Bryon Dunkley-Smith	168	132	140	160	-	-	-	120	-	-	720
VK2BLS	Darrell Harman	12	405	45	24	-	-	-	-	-	-	486
VK4ADC	Doug Hunter	100	96	95	104	-	10	-	10	-	-	415
VK6IR	Steve Chamberlain	316	-	-	-	-	-	-	-	-	-	316
VK2FLJD	Jason Dickens	-	114	140	-	-	-	-	-	-	-	254
VK3AUQ	Kevin Phillips	64	72	65	-	-	-	-	-	-	-	201
VK4JAM	Andrew Mason	14	36	40	30	48	-	-	-	-	-	126
VK2XIC	Rob Heyer	16	30	50	32	-	-	-	-	-	-	128
VK5MPJ	Patrick Morgan	-	27	35	-	-	-	-	-	-	-	62
VK3FEZZ	John Witte	-	27	20	-	-	-	-	-	-	-	47
VK2BBQ	Ken Rayner	-	21	25	-	-	-	-	-	-	-	46
VK2FREE	Leah Heggie	-	33	5	-	-	-	-	-	-	-	38
Section D:	**Best 2 days, digital modes**											
VK7MO	Rex Moncur	-	150	120	-	-	-	-	120	-	-	390
VK1WJ	Waldis Jirgens	-	165	-	-	-	-	-	-	-	-	165

Contest web page: *http://www.wia.org.au/members/contests/rosshull/*

Summer VHF-UHF Field Day 2014: Results

Contest Manager: John Martin VK3KM

Results Summary

Section	A	B	C	D	E	F
Top scoring stations (all bands)	VK5APN	VK3DJ	VK5LZ	VK3ER	VK3MY	VK5KK
Top scoring stations operating on VHF-UHF bands only	VK5KBJ	VK5KBJ	VK2SMC	VK2XLJ	VK5SFA	-
Top Scoring F Call Stations	-	VK5FBAA	-	-	VK3FRDN	-

Call	Name	Location	VHF - UHF Bands					Microwave Bands							ALL
			50 MHz	144 MHz	432 MHz	1296 MHz	SUB TOTAL	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	76 GHz	BAND TOTAL
Section A: Single Operator, 24 Hours															
VK5APN	Wayne Pearson	PF95,PF96	53	195	395	736	1379	550	780	760	770	450	420	-	5109
VK4OE	Doug Friend	QG61,QG62	81	372	475	640	1568	470	550	420	470	-	-	-	3478
VK3WRE	Ralph Edgar	QF31	-	438	525	608	1571	570	440	220	340	-	-	-	3141
VK5TE	Simon Brandenburg	PF94	128	465	600	672	1865	-	350	350	460	-	-	-	3025
VK5OQ	Keith Gooley	PF95	35	318	375	496	1224	460	480	450	210	-	-	-	2824
VK5KBJ	Barry Bates	PF94	121	432	585	648	1786	-	-	-	-	-	-	-	1786
VK3MRG	Marshall Graham	QF22	-	501	130	-	631	-	-	-	-	-	-	-	631
Section B: Single Operator, 8 Hours															
VK3DJ	Dallas Jones	QF11,QF12	-	303	490	536	1334	610	590	580	570	-	-	-	3684
VK3APW	Peter Westgarth	QF21	43	177	230	384	794	460	440	450	460	330	330	-	3304
VK5NI	John Ross	PF84,PF85	46	150	250	496	942	470	470	470	570	210	-	-	3132
VK5TE	Simon Brandenburg	PF94	33	351	490	648	1522	-	350	350	460	-	-	-	2682
VK3ZSJ	Simon Judge	QF21	22	102	170	280	743	440	340	340	360	230	230	-	2514
VK4OE	Doug Friend	QG61	57	285	325	416	1083	330	320	210	320	-	-	-	2263
VK5ZBK	Stephen Ruediger	PF95	-	108	235	592	935	220	340	340	220	-	-	-	2055
VK3YFL	Bryon Dunkley-Smith	QF22	47	309	370	456	1182	-	-	-	500	-	-	-	1682
VK4ADC	Doug Hunter	QG61	98	273	345	384	1100	-	210	-	210	-	-	-	1520
VK5KBJ	Barry Bates	PF94	55	312	485	624	1476	-	-	-	-	-	-	-	1476
VK3YE	Peter Parker	QF21	21	423	335	-	779	-	-	-	-	-	-	-	779
VK3SMC	Simon McClure	QF22	68	282	380	-	730	-	-	-	-	-	-	-	730
VK5FBAA	Bob Jeisman	PF84,PF85	-	261	385	-	646	-	-	-	-	-	-	-	646
VK3AUQ	Kevin Phillips	QF22	44	186	220	-	450	-	-	-	-	-	-	-	450
VK2ZRH	Roger Harrison	QF56	-	63	105	-	168	-	-	-	210	-	-	-	378
VK2BBQ	Ken Rayner	QF56	-	114	165	-	279	-	-	-	-	-	-	-	279
VK2FREE	Leah Heggie	QF56	-	111	-	-	111	-	-	-	-	-	-	-	111
VK3ANL	Nicholas Lock	QF22	22	-	-	-	22	-	-	-	-	-	-	-	22
Section C: Multi Operator, 24 Hours															
VK5LZ	Elizabeth ARC	PF95,PF96	129	429	710	1184	2452	1290	1400	1390	1390	1280	920	-	10122
VK3ER	EMDRC	QF22	340	1092	1600	1624	4656	970	750	790	700	230	-	-	8096
VK3UHF	LUMEG	QF21	139	675	920	1296	3030	980	910	850	1210	510	380	-	7870
VK3ALB		QF11	71	570	775	1096	2512	820	740	660	800	250	250	-	6032
VK3KQ		QF22	66	723	905	752	1546	570	-	490	660	-	-	-	4166
VK2SMC	SEWSG	QF43	235	1161	1035	808	3239	-	-	-	-	-	-	-	3239
VK4WIS	SCARC	QG63	242	408	445	656	1751	330	210	210	210	-	-	-	2711
VK1DSH		QF45	33	267	145	168	613	-	-	-	-	-	-	-	613
VK2MB	MWRS	QF56	100	81	110	-	291	-	-	-	-	-	-	-	291

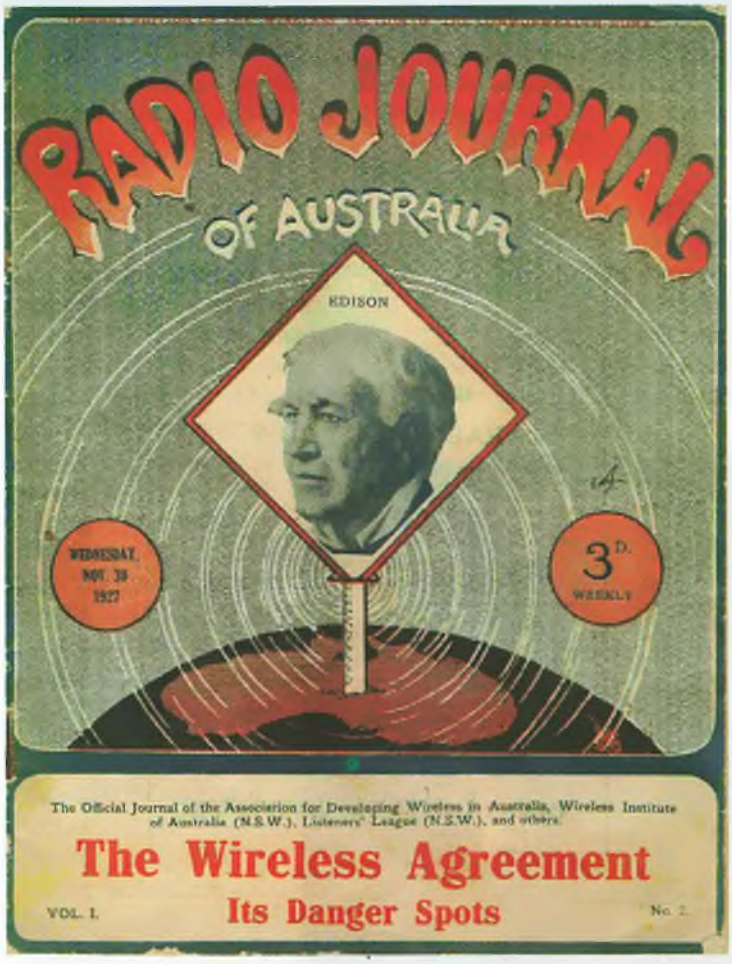
Call	Name	Location	VHF - UHF Bands					Microwave Bands							ALL
			50 MHz	144 MHz	432 MHz	1296 MHz	SUB TOTAL	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	76 GHz	BAND TOTAL
Section D: Multi Operator, 8 Hours															
VK3ER	EMDRC	QF22	200	717	915	904	2736	840	690	690	600	210	-	-	5766
VK3ALB		QF11	33	270	460	696	1459	720	680	580	580	220	220	-	4459
VK3KH		QF21,QF22	50	297	170	568	1085	340	460	460	460	350	350	-	3505
VK3KQ		QF22	52	315	505	528	1400	460	-	450	480	-	-	-	2790
VK4WIE	CBRS	QG62	114	270	155	416	955	330	-	-	230	-	-	-	1505
VK2XLJ		QF46	77	363	270	-	710	-	-	-	-	-	-	-	710
Section E: Home Station, 24 Hours															
VK3MY	Ross Keogh	QF22	116	588	675	864	2243	640	400	540	620	-	-	-	4443
VK3VFO	Nick Kraehe	QF31	50	768	665	448	1931	700	-	-	-	-	-	-	2631
VK5AKM	Keith Minchin	PF95	21	99	215	408	743	490	490	-	480	340	-	-	2543
VK5SFA	Steve Adler	PF95	252	465	525	592	1834	-	-	-	-	-	-	-	1834
VK4KLC	Ron Melton	QG62	216	405	500	672	1793	-	-	-	-	-	-	-	1793
VK3WT	Max Chadwick	QF22	105	345	485	584	1519	-	-	-	-	-	-	-	1519
VK4VDX	Roland Lang	QG62	68	357	415	536	1376	-	-	-	-	-	-	-	1376
VK4NA	Alan Wills	QG62	130	270	365	520	1285	-	-	-	-	-	-	-	1285
VK5DMC	David Carwana	PF96	54	321	385	352	1112	-	-	-	-	-	-	-	1112
VK5VCO	Paul Mullins	PF95	29	330	425	288	1072	-	-	-	-	-	-	-	1072
VK5ALX	Alex Glinski	PF86	117	267	231	448	1063	-	-	-	-	-	-	-	1063
VK3PH	Peter Hartfield	QF22	114	384	525	-	1023	-	-	-	-	-	-	-	1023
VK5DT	Darren Jury	PF95	92	378	545	-	1015	-	-	-	-	-	-	-	1015
VK4JAM	Andrew Mason	QG62	54	180	250	416	900	-	-	-	-	-	-	-	900
VK3KIS	Andrew Kayton	QF22	38	183	285	296	802	-	-	-	-	-	-	-	802
VK5VAB	Bruce Gauci	PF95	23	264	345	-	632	-	-	-	-	-	-	-	632
VK2TG	Robert Demkiw	QF55	43	204	165	176	589	-	-	-	-	-	-	-	589
VK3FRDN	Andrew Kayler-Thomson	QF22	-	165	330	-	495	-	-	-	-	-	-	-	495
VK5KLV	Les Virgo	PF87	153	207	105	-	465	-	-	-	-	-	-	-	465
VK3MEG	Steve Barr	QF22	39	180	215	-	434	-	-	-	-	-	-	-	434
VK3ZHQ	Eric Warren-Smith	QF22	-	222	185	-	407	-	-	-	-	-	-	-	407
VK5FBRO	Rob Williams	PF94	-	267	135	-	402	-	-	-	-	-	-	-	402
VK5MPJ	Patrick Morgan	PF95	-	147	180	-	327	-	-	-	-	-	-	-	327
VK5FCJM	Colin Mason	PF84	-	117	180	-	297	-	-	-	-	-	-	-	297
VK2YW	Wagga ARC	QF34	21	240	-	-	261	-	-	-	-	-	-	-	261
VK3VL	David Harms	QF33	-	168	-	-	168	-	-	-	-	-	-	-	168
VK3FMPW	David Scott	QF55	-	81	55	-	136	-	-	-	-	-	-	-	136
VK2IO	Gerard Hill	QF56	-	72	-	-	72	-	-	-	-	-	-	-	72
VK3SOT	Chris Halabut	QF22	-	63	-	-	63	-	-	-	-	-	-	-	63
Section F: Rover Station, 24 Hours															
VK5KK	David Minchin	PF96, PF86, PF87, PF97, PF95, QF04, PF94, QF05													
			130	534	1010	1632	3306	1320	1440	1310	1430	1670	860	-	11336
VK5APN	Wayne Pearson	PF 96, PF86, PF87, PF95, QF04, PF94, QF05													
			108	525	945	1624	3202	1100	1330	1310	1320	1660	860	-	10782

Notes	
VK1DSH	Dale Hughes VK1DSH, Russell Manning VK1JRM
VK2MB	Manly-Warringah Radio Society: VK2FS, VK2MIA, VK2RQ, VK2MXC
VK2YW	Wagga ARC, operator John Eyles VK2YW
VK2SMC	South East Weak Signal Group: Rod Collman VK2TWR, David Moore VK2NC, Andrew Hurst VK2XDG
VK2XLJ	Doug Johnson VK2XLJ, Peter Hodgins VK2BLO

VK3ER	Eastern & Mountain District Radio Club: Mike VK3AVV, Andrew VK3BQ, Peter VK3QI, Steve VK3TAS, Jonas VK3VF, Jack VK3WWW
VK3KH	Alan Devlin VK3XPD, David Williams VK3RU, Michael Coleman VK3KH
VK3KQ	Ralph Parkhurst VK3LL, Damian Ayers VK3KQ
VK3ALB	Lou Blasco VK3ALB, Nik Presser VK3BA, Jenni Blasco VK3FJEN, Michael Blasco VK3FMIC
VK3UHF	Lara UHF-Microwave Experimenters Group: VK3AMZ Arie Groen, VK3BCL Carlo Leone, VK3NX Charlie Kahwagi, VK3PK Lee DeVries, VK3PY Chas Gnaccarini, VK3QM David Learmonth
VK4WIE	City of Brisbane Radio Society: Ron VK4CRO, John VK4MJF, Eric VK4NEF
VK4WIS	Sunshine Coast ARC: Robert Garland VK4LHD, Heinz Buff VK4BZT, Richard Philp VK4RY, Ches Bassingthwaighte VK4WT, Don Hamp-ton VK4FAAR, May Hampton VK4IMH, Leicester Hibbert VK4ALH
VK5LZ	Elizabeth Amateur Radio Club: VK5ZD Iain Crawford, VK5ZT Tim Dixon

WANTED – NATIONAL

Copies of Radio Journal of Australia magazine



The WIA Archive is seeking copies of the Radio Journal of Australia for copying and/or adding to the WIA Archive's shelves.

Little is known about this magazine. The WIA holds one copy only. Volume 1, Number 2 published on 30th November 1927 which contains 64 pages. The magazine claims to be the Official Organ of the Association for Developing Wireless in Australia, the Listeners' League (N.S.W.) and of importance to us, the Wireless Institute of Australia (N.S.W.).

The magazine contains articles of general radio interest, a comprehensive weekly radio guide for stations in N.S.W., S.A. Qld. and Vic. and some notes from the WIA, NSW Division. It was published in Sydney, presumably commencing on 23rd November 1927.

It is of interest to note that the magazine's Editor was George A. Taylor, the person responsible for calling the first meeting of Sydney wireless experimenters in March 1910 from which the WIA grew. Taylor was never known to be a member of the WIA, rather he returned to his interests in aviation and defence. Later he went on to form the Association for Developing Wireless in Australia, an organisation predominately representing those involved in commercial broadcasting.

There is little doubt that Australia had a colourful and heady start to those early days of radio communication and broadcasting - in all of its forms and magazines such as this provide a glimpse of that exciting pioneering time past!

Please contact WIA Historian, Peter VK3RV via email *vk3rv@wia.org.au* or c/o the National Office in Bayswater if you can help us locate copies of this magazine.

2014 WIA Conference

Sunshine Coast, Queensland 16-18 May 2014

For more information and booking, visit: **http://www.wia.org.au/joinwia/wia/2014agm/**

SOTA News

Allen Harvie VK3HRA and Bernard Petherbridge VK3AMB

Photo 1: The assembled Shack Sloths and Mountain Goat. L-R: Peter VK3PF, Ron VK3AFW, Allen VK3HRA, Wayne VK3WAM (Mountain Goat), Marshall VK3MRG, Bernard VK3AMB, Tony VK3CAT and Glenn VK3YY.

VK3

To celebrate the second anniversary of the commencement of SOTA in VK in February 2013, the M&DRC again convened a SOTA Conference. This year it was held on 1st February 2014 at the Club Rooms at 33 Turner Rd, Highett. About thirty people were there during the morning.

Australia's only Mountain goat and most of the VK3 Shack Sloths were present and gathered for a group photo with their glass trophies.

After the opening and welcome by M&DRC President Ian VK3IFM, Wayne VK3WAM presented some amazing statistics showing how SOTA activity was growing like a virus. See last month's column for the statistics.

Ron VK3AFW talked about avoiding confrontations when activating and then Wayne returned with a presentation on Lightweight and CW Field operating. An interesting presentation then followed with Glenn VK3YY talking and showing some homebuilt rigs and accessories. The last formal talk was on SOTA tools, a talk about software and smart phone applications by Allen VK3HRA. The morning concluded with a roundtable SOTA discussion moderated by VK3WAM. An indoor BBQ was then enjoyed by all and many a tall tale was told about hiking in tall mountains.

M&DRC intend to hold the conference as an annual event so mark your diaries for next year.

As a follow up, The M&DRC organised a Club outing to Mount Dandenong VK3/VC-025 on Saturday 21 February. Reports indicate a good attendance, with several stations set up inside the activation zone and inside the Dandenong Ranges National Park boundary. Several callsigns new to SOTA were heard activating and chasing during the day.

Photo 2: Nathan sending CW using the VK3CAT/p KX3 transceiver fitted with iambic paddles, under the watchful eye of Tony VK3CAT.

Andrew VK3BQ also joined in the fun, taking his family to the summit for a picnic. Andrew's six year old son Nathan has been practicing CW with Andrew and knows most of the alphabet. Nathan had a go at real CW during the event, using Tony VK3CAT's KX3 transceiver.

VK2

The SOTA special interest group was represented at the Wyong field day on February 23rd this year by a presentation in the seminar room and by a SOTA exhibit in the commercial display area.

The presentation about SOTA in the seminar room was given by Andrew VK1NAM and Andrew VK1DA/2UH. About 30 or 40 people were in the audience. There were many questions and we had to ask people to visit our exhibit table to talk about details. The exhibit was manned by Nic VK2KXN, Jack VK2AXL, John VK2YW, Stephen VK2RH, Ben VK5TX, Andrew VK1NAM, Andrew VK1DA, and assistance was also offered by Compton VK2HRX and Rod VK2LAX who visited the stand. Ed VK2JI arranged our seminar time and organised entry vouchers for the SOTA team.

We handed out many information brochures about SOTA and answered many questions. We are expecting increased knowledge and interest in SOTA will result in increased SOTA activity in VK2.

VK8 now live on SOTA

VK8 became live on SOTA on 1 March 2014 at 0001Z. The survey task for the Northern Territory was undertaken by Jack VK2AXL. Many regulars were happy to chase Greg VK8GM mid-afternoon.

Greg activated Mount Johns VK8/AL-153, close to Alice Springs. A total of 35 contacts were made, using 15 and 20 m.

It is anticipated that some summits will require careful negotiation skills to obtain permission to access them. The largest concentration of summits (176) is in the Central Region, which encompasses Alice Springs. The South region has 52 summits, including Uluru (VK8/UL-043), whilst the Northern region has 18 summits. Full details can be found on the SOTAwatch site via the Summits link.

Photo 3: Nic VK2KXN and Andrew VK1DA/VK2UH at the SOTA information desk at the CCARC field day at Wyong.

Plan ahead

International Lighthouse Lightship Weekend | 16 & 17 August

Spotlight on **SWLing**

Robin Harwood VK7RH
e *vk7rh@wia.org.au*

April has arrived and the days are quickly drawing in. I have already noticed propagation changes as higher frequencies drop off in the local evening hours. You will find that the lower frequencies have begun to open up much earlier than they were, just a few weeks previously.

The BBC World Service has announced that it is making further drastic cuts in their shortwave output. There also has been a funding cut to the entire World Service, as they prepare to rely on the licence fee, which is levied on British taxpayers. Up till now, they relied on funding from the Foreign and Commonwealth Office. At the end of March, the BBC Seychelles relay was permanently closed. This sender primarily was targeting eastern and central Africa. Programming will now be relayed from the BBC Ascension Island station.

HCJB was one of my first catches on shortwave and I still have their QSL card from 1960. It was for 11915 kHz. It took about 18 months to get to Quito and back. HCJB was easily heard here up until it closed the Pifo site in Ecuador. By that time, they had erected a station at Kununurra in WA, targeting Asia and the Pacific. Although HCJB may have closed Pifo, I believe a 50 kW sender remains on-air but now under a local Ecuadorian ministry allied to HCJB. You can occasionally hear it about 1000 on 6050 in Spanish and local indigenous dialects. The parent organisation has undergone a name change from HCJB to Reachout Ministries.

A small experimental broadcasting station in NSW has recently resumed operations on 3210 kHz from south of Sydney. Formerly it was known as Ozyradio and was on 5050 kHz. It presently is operating around the clock with approximately 250 watts and is licensed by the ACMA. Programming comes from a low power FM station with music and programs from the 50s and 60s. This morning I thought they had shifted in frequency because I was hearing music on 3222 kHz, followed by an announcement in Italian. Then it slowly dawned on me, 2 x 1611! Yes, Rete Italia is using the former 7EX site, barely a mile from this QTH. In fact the antenna is visible from my window! I must admit I am very slow until I have the obligatory cup of coffee!

In mid-February, a prolonged political crisis in the Ukraine finally came to a dramatic, swift conclusion. There had been jostling between Russia and the European Union over the preceding weeks which split this vast country on the Black Sea, mirroring east and west. The eastern section is largely Russian speaking and naturally feels closer to Moscow, whilst the western half sees itself part of Europe. There are other on-going tensions as well, along linguistic and religious lines. All this came to a head after riots in Kiev, the capital city that left over 100 dead. There was a brokered truce and in the space of two hours, the pro-Russian leaning government collapsed, leaving Kiev in the hands of the pro-western forces.

At the height of this escalating tension, I was alerted to a potential clandestine shortwave sender in the exclusive 40 metre amateur allocation. Best reception was obtained from the University of Twente webSDR. The signal was quite strong and on LSB. A coda of a fanfare was endlessly repeated. No voice announcements were heard. This alert was issued in the chatroom and said it was being heard on the Hong Kong Globetuners site also. This immediately made us suspicious. There were no signs of the sender on any other Globetuners receivers in Europe except weakly on another Dutch receiver. The next day, the signal was even stronger and in fact was putting out spurs every seven to 10 kHz. A challenge was apparently made and the signal disappeared abruptly. It looks like the sender must have been close to Twente webSDR.

Well that is all for now. Hope you do have good propagation and monitoring success.

Plan ahead

Remembrance Day Contest | 16 & 17 August

VK3 news Amateur Radio Victoria

Jim Linton VK3PC
e *arv@amateurradio.com.au*
w *www.amateurradio.com.au*

MW beacon creates band interest

The homebrew beacon built by Noel Ferguson VK3FI at Mildura, in Victoria's northwest, on a frequency of 473 kHz has been detected in VK1, VK2, VK3, VK5 and VK7.

The band 472-479 kHz, a 7 kHz wide secondary allocation, was granted at the World Radiocommunication Conference 2012.

An article 'New 630 metre beacon in Mildura' was published in Amateur Radio, on page 18, in March 2014.

Some thought went into the construction and location of a beacon. Mildura was ideal, on the cross-roads of Melbourne, Adelaide and Sydney. Apart from providing a much needed signal for propagation tests, it has already has created activity on the band. Details of its future transmissions will be on websites and the VK1WIA broadcast. Emailed signal reports can be sent to *vk3fi@wia.org.au*

Homebrewers meet

Each month the Homebrew Construction Group meets to exchange ideas between radio amateurs who are enthusiastic equipment builders, or those wanting to start out in the do-it-yourself world.

They meet on the first Saturday of each month (excluding January), at 2 pm, in the Amateur Radio Victoria rooms at 40g Victory Boulevard, Ashburton. The meetings are generally informal. The discussion usually generates a wealth of ideas for the newcomer and experienced constructor alike. At most meetings a guest speaker talks on a topic. For example it recently had Les Davey who was well received by a near capacity audience when he explained satellite linking. More short presentations will be part of the planning for 2014 as will the development of some group projects.

To further support the homebrew activity, Amateur Radio Victoria has provided funds for a soldering station and some tools. A power supply and test equipment have also been made available. More information about the group can be obtained by emailing *homebrew@amateurradio.com.au*

Homebrewing covers almost every aspect of our hobby and you will find something of interest in this group.

Working portable is enjoyable

The John Moyle Field Day held on March 15-16 had milder weather conditions with some venturing out to operate portable and take advantage of the ideal opportunity.

Manager of the Keith Roget Memorial National Parks Award, Tony Hambling VK3VTH noted that contacts in Victoria qualify for the KRMNPA, which promotes portable activity and continues to be popular.

The award rules mean that those who qualify by notching up parks are eligible for a certificate. At the top for those having worked from and also to all 45 Victorian National Parks, are given a plaque.

Aiming at having the first ever KRMNPA Plaque is Peter Fraser VK3ZPF who is well on his way. This is a huge effort by this exponent of portable operation who has helped many others along the way.

Travelling to and from the parks a few also gather in municipal locations so they can qualify for the Local Government Award. The rules of both can be read at *www.amateurradio.com.au/awards*

Astronomy news also on television

For more than two decades the Astronomical Society of Victoria has broadcast its events and news each Friday at 10 pm on 3541 kHz under its callsign of VK3EKH.

Clint Jeffrey VK3CSJ runs the outreach session broadcast from studios at Narre Warren South, with an equalised high fidelity audio enhanced SSB signal. Now Clint VK3CSJ is putting that broadcast on the digital amateur television repeater VK3RTV2. Any reception reports or feedback is welcome to *vk3ekh@bigpond.com*

Foundation classes and assessments

Enrolments are open for the Foundation Licence session to be held on April 26 and 27, at the Amateur Radio Victoria office.

The study and operational practice guide book is available at $26 delivered Australia wide through the secure online bookshop at *shop.amateurradio.com.au*

To enrol in the quality classes contact Barry Robinson VK3PV 0428 516 001 or *foundation@amateurradio.com.au*

Plan ahead **JOTA/JOTI 18** 18 & 19 October
Contact your local Scout or Guide group now.

Hamads

FOR SALE – NSW

CTCSS encoders, dual frequency, 91.5 Hz or 123 Hz. Micro controller crystal locked.

Small size to fit most VHF/UHF tranceivers. The cost is $18.00 or kit $15.00, plus postage.

Contact the Hunter Radio Group, via email to *rprout@idl.net.au*

Ham radio equipment ex VK2FTX - SK

1 Collins linear amplifier, 30 LI, no serial number.
2 Yaesu all band all mode transceiver, FT-897, S/N 6C670136.
3 Kenwood TR-2500, two metre HH, S/N 3033093.
4 Powertech regulated power supply, 13.8 VDC, 22 A, S/N 29314015.
5 Heathkit audio wattmeter, 220 V (from Daystrom Ltd., Gloucester, England). No manual.
6 Hustler mobile antenna whips, (but no mount), RM40, RM20, RM15, RM10, MO 1 mobile.

Instruction manuals available for items 1, 2 and 3.

No reasonable offer refused on any item. All are ex Sydney.

Contact Mannie VK2WMS on (02) 9416 1876 for information on above.

WANTED – NSW

Number 11 wireless set.

Please contact Nick Pritchard, 7/47 Amor Street, Asquith, NSW 2077 or on phone (02) 9477 2134.

FOR SALE - VIC

AF11 MP auto antenna tuner with manual

Bencher low pass filter

Bencher antenna baluns

Lafayette TE-48 GDO

TRIO noise bridge

MFJ TNCR packet radio

Moet MFJ-1274

Alinco FM tranceiver DR-112,with manual.

Osker SWR-200 meter

VK Powermaster PSU

Low power dummy load

80 metre mobile antenna

Two coils coax cable

All items are in excellent condition and working OK. Is a complete station. Will not separate

$1200.00 the lot.

Contact Norm VK3JAL anytime on 03 5456 3122 or email *bell122@westnet.com.au*

Deceased estate clearance sale. A clearance sale is to be held at the ATN antenna workshop and factory, Morrison Street, Birchip, on the weekend of the 25th and 26th of April. All stock and equipment must be sold.

Transceivers

IC-551, IC-471A, IC-271H, IC-706, TX-470S.

Test equipment

Ramsay Electronics Com 3 service monitor.

BWD 539C CRO.

AEA antenna analyzers - new.

Diamond SX-100 SWR meters – new.

HP signal generator 608E.

SHF Signal Generator 618C, 3.8 – 7.6 GHz.

DSI C1000 1 GHz counter.

Mirage MP1 SWR/wattmeter. 25–200–2000.

Antenna Equipment

Towers, including new aluminium tower sections.

Aluminium tubing – many sizes and lengths.

Antenna insulators, suit log periodic and Yagis.

Copper wire – hard and soft drawn.

Assembled beams.

Assembled wire antennas – V's etc.

Coaxial cable.

High Sierra HS1550 Screwdriver antenna.

Large porcelain egg insulators.

MFJ – 1500 50 Ohm 90 watt resistors.

MFJ-949E tuner.

RC5 rotator spares.

Valves

Large range of new and used valves – including 572B. All used valves tested and labeled.

Miscellaneous components

RF transistors, coaxial connectors, resistors and capacitors, and so on.

Miscellaneous items

GME 35 amp power supply.

Workshop equipment, press, hardware etc.

Military radio equipment.

Hundreds of other items, just too numerous to list.

For a complete list of all major items, together with sale times – refer to the Sunraysia Radio Group website *http://www.sunradio.org.au* or contact Noel Ferguson VK3FI on email *vk3fi@wia.org.au*

FOR SALE - SA

The VK5JST Aerial Analyser (*AR* May 2006). Over 10,000 built, and still available from the Adelaide Hills Amateur Radio Society. For full details see *www.ahars.com.au*

Participate

Harry Angel Memorial 80 m Sprint | 3 May
1000Z (106 minutes only)

Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at http://www.wia.org.au/members/armag/contributing/

Email the Editor:
editor@wia.org.au

About Hamads

- Submit by email **(MUCH PREFERRED)** or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

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BAYSWATER VIC 3153
hamads@wia.org.au

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Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

OUTbacker
www.outbacker.biz
The OB8 Classic, the go-anywhere mobile antenna - the unquestioned, all season, all climate, all terrain, HF mobile champion. This 1.8 metre tall antenna, (990mm when packed)covers 80-75-40-30-20-17-15-12-10m,no antenna tuning or base matching device is needed. When combined with OUTBACKER's, (TCCOSB) heavy duty, spring base, the OB8 makes a very rugged and professional installation, which will last for years. Maximum power:-300 Watts.

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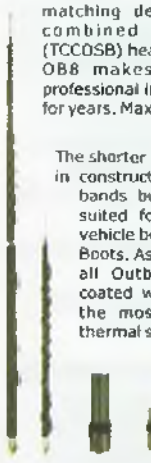

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WIA Functional Committees

The WIA is a membership organisation with a very wide range of complex functions and member services. Core functions and services are administrative in nature (general administrative functions, membership services, examination and callsign management, financial etc...) and are performed by salaried staff.

Volunteers perform a diverse range of highly specialist functions (ACMA liaison, Frequency Co-ordination, Standards liaison, Interference issues, technical support and training and assessment etc.). These volunteers provide the majority of member services, however they have been loosely organised and often overstretched.

The new committee system attempts to structure the WIA's non-core activities into 10 broad functional areas, each comprising a team of volunteers under the direction of the WIA Board. This structure is intended to spread the workload on our volunteers, improve communications between members and the WIA Board, improve services to members, and encourage more people to become involved in the WIA.

WIA Committee Charters

Spectrum Strategy Committee

Phil Wait VK2ASD (Board member – President); Geoff Atkinson VK3AFA (IARU Specialist); Peter Young VK3MV (Regulatory Counsel); Dale Hughes VK1DSH; Roger Harrison VK2ZRH; Doug McArthur VK3UM

- Perform all ITU and IARU liaison activities.
- Liaise with, and act as the 1st point of contact for, the ACMA.
- Advise the Board, and enact Board policy in relation to all radio communications regulatory issues and the LCD.
- Represent the WIA to State and Local Government
- Represent the WIA to Standards Australia
- Provide specialist technical advice and coordinate repeater and beacon licence applications and frequency allocation.
- Develop responses to significant and prolonged harmful interference issues affecting amateur radio operations.
- Provide an information resource for EMC/EMR issues.
- Administer the IARU Monitoring Service in Australia
- Provide a technical resource to other committees and the WIA Office.

Administrative & Finance Committee

John Longayroux VK3PZ - WIA Treasurer (Committee leader); Greg James VK2GRU - WIA Assistant Treasurer; David Williams VK3RU - WIA Company Secretary; Mal Brooks VK3FDSL - WIA Office Manager; Phil Wait VK2ASD - WIA Board member – President; Chris Platt VK5CP - WIA Board member - Vice President

- Responsible for the efficient and correct operation of the WIA office.
- Responsible for staffing and workplace safety.
- Provide a specialist administrative resource to the WIA office as required.
- Manage contractual agreements.
- Manage business relationships.
- Ensure compliance with the ACMA Business Rules
- Prepare yearly budgets
- Prepare quarterly financial reports for the Board
- Prepare independently reviewed YE financial reports and balance sheets for circulation to the membership prior to each Annual General Meeting.
- Manage insurances and to be responsible for currency of insurance policies.
- Maintain a complaints register.
- Ensure complaints are handled in accordance with WIA policy and any contractual agreements.

Communications, Marketing & Publications Committee

Robert Broomhead VK3DN - Committee Leader; Roger Harrison VK2ZRH - Deputy Leader

- Communication with members and the public:
- Communicate with the membership.
- Publicise WIA activities and initiatives.
- Develop strategies and resources for the promotion of Amateur radio to the public.
- Develop strategies and resources for the promotion of WIA membership to the Amateur community.
- Supervise and/or perform promotional activities.
- Co-ordinate the yearly AGM activities

Education Committee

Fred Swainston VK3DAC - Co-Leader; Owen Holmwood VK2AEJ - Co-Leader; Ron Bertrand VK2DQ; Mal Brooks VK3FDSL – Administration; Robert Broomhead VK3DN - Systems

- In association with the WIA's RTO and affiliated clubs offering training services, develop and administer the WIA's training and assessment systems.
- In association with the Spectrum Strategy Committee, develop and maintain the various licence syllabi and associated question banks.
- In association with the Community Support Committee and the RTO, develop and maintain the Emergency Communications Operator scheme.
- Ensure the confidentiality and security of all personal information, question banks and examination papers.

Affiliated Clubs Committee

Phil Wait VK2ASD - WIA Board member – President; Mal Brooks VK3FDSL - WIA Office Manager; Ted Thrift VK2ARA - Clubs Liaison officer; John Longayroux VK3PZ - WIA Treasurer

- Manage all arrangements between the WIA and WIA Affiliated Clubs
- In cooperation with the Administrative / Financial committee, manage the Club Insurance Scheme
- Encourage stronger relationships and communications flow between the WIA and WIA Affiliated Clubs
- Encourage increasing WIA membership ratios in Affiliated Clubs
- Manage the Club Grants Scheme
- Identify and bring regional Affiliated Club issues to the attention of the WIA Board

Community Service Committee

Bob Bristow VK6POP - Committee Leader; Fred Swainston VK3DAC; Greg James VK2GRJ; Ewan McLeod - WIA Director; Paul Hoffmann VK5PH

- Develop, promote and co-ordinate all WIA community support activities

Radio Activities Committee

Chris Platt VK5CP - WIA Board member; Geoff Atkinson VK3AFA

- All activities associated with actual radio operation, such as: contests, awards, distance records, QSL services, ARISS, AMSAT, ARDF etc.

Historical & Archive Committee

Peter Wolfenden VK3RV - Committee Leader; Roger Harrison VK2ZRH - Deputy Leader; Linda Luther VK7QP; Martin Luther VK7GN; Jenny Wardrop VK3WQ; Will McGhie VK6UU; Ian Morris VK3IFM; Drew Diamond VK3XU; David Wardlaw VK3ADW

- Develop, maintain and preserve the WIA's historical and archive collection
- Encourage access to the collection by WIA members and those seeking historical material for publication.

New Initiatives Committee

Phil Wait VK2ASD - Board member – President; Robert Broomhead VK3DN; Roger Harrison VK2ZRH; David Williams VK3RU - WIA Company Secretary

- Think-tank ideas and initiatives to advance amateur radio and WIA membership.
- On approval by the Board, run proof of concept trials.

IT Services Committee

Robert Broomhead VK3DN - Committee Leader; Tim Broomhead VK3KTB - Assistant Webmaster / Programmer; Marc Hillman VK3OHM - Awards System Developer

- Provide an IT resource to other committees and the WIA Board.
- Be responsible for the off-site data back-up of all IT systems information.
- To update and maintain the WIA website as required.
- Advise the Administrative / Financial committee in relation to the MEMNET Cloud Service contract.

2014 WIA Annual Conference

16, 17 & 18 May 2014, Sunshine Coast

he WIA is pleased to announce details for the **WIA 2014 Annual Conference** eing held on the Sunshine Coast. The host club is the *Sunshine Coast Amateur adio Club*, led by Richard VK4RY and Trent VK4TS.

he weekend program will commence on **Friday** evening t the *Alexandra Heads Surf Life Saving Club* and there will e several breakout options for like-minded amateurs to get ogether.

On **Saturday** morning the WIA Annual General Meeting llowed by the Open Forum will be held in the *Shed* at *Aussie Vorld* with lunch provided for all registered attendees.

On **Saturday** afternoon a technical symposium is being lanned.

On **Saturday** evening the Annual Dinner will be held in the *hed* at *Aussie World.*

Some of Saturday events

The WIA Annual General Meeting & Open Forum

Technical Symposium - Rescue

- EmCom interfacing WICEN to the real World
  Peter Schrader VK4EA
- Promoting your Club
  Scott Watson VK4CZ
- EMR Obligations
  Roger Harrison VK2ZRH
- Fund Raising for Clubs
  Richard Philp VK4RY
- 2 m meteor scatter
  Kevin Johnstone VK4UH

Sunday will feature a visit to the *Sunshine Coast* base of the *RACQ Rescue Helicopter* and various rescue venues on the *Mooloolaba Spit*, culminating in a visit to *Underwater World.*

For those not travelling back to their home QTH on **Sunday** afternoon and who will be staying on **Sunday** evening, then the host club the *Sunshine Coast Amateur Radio Club* would like to invite you to a relaxing evening BBQ at *SCARC HQ.*

WIA Chartered Buses are being provided for transport between weekend venue locations. Please see the WIA website for booking details.

The cost for the **Sunday** evening BBQ will be $10 per person; alcoholic drinks will be BYO, soft drinks will be available. *Photos courtesy of Aussie World.*

or more information about accommodation and how to register online, visit our site:
ttp://www.wia.org.au/joinwia/wia/2014agm/

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