FISTS DOWN UNDER

Newsletter of the Australian / New Zealand chapter of the International Morse Preservation Society

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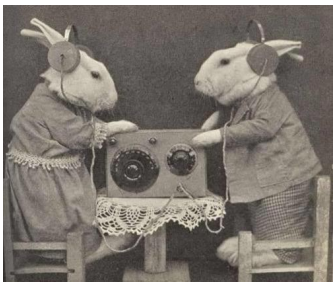
Recommended FISTS calling frequencies (MHz): 1.808 3.528 7.028 10.118 14.058 18.085 21.058 24.908 28.058

This month:

Happy Easter



Silent Key

We regret to report that **Lloyd Collier VK2VZB #9083** became a silent key on 9 March 2015.

Lloyd was a member of FISTS Down Under since August 2002.

New members

This month we welcome three new members: **Paul Harwood ZL3TU #14184**, **David Rushworth VK2JDR #14185**, and **Larry Cox VK4AAL #14186**.

David VK2JDR

David VK2JDR - I have been a radio amateur for over 18 years and have never used or fully learnt CW, the only time being when obtaining my licence back in the days when CW was a licence requirement. At the start of 2015, I decided to learn something new, so CW was the choice for me and I haven't looked back and fully enjoy the experience of CW. I am learning using Learn CW Online (http://lcwo.net/) plus other common apps from the net. Married with 2 adult boys, my other interests are antenna construction, PIC programming in C, home renovation, water and snow skiing. I look forward to meeting other CW operators on the air and increasing my speed and accuracy.

Larry VK4AAL - After several years being very quiet on the airwaves, I am now interested in getting back into CW primarily. Back in the latter part of the 1900's I was employed within the aviation arena in Canada, Australia and PNG. I gained a 2nd Class Certificate of Proficiency in Radio No. 3-129 10 Dec 1964. I worked with the Canadian Dept of Transport (Aviation) for five years with two years on Arctic Circle working Morse circuits with other stations and ground stations. I coded weather reports to southern forecasters and as a Radio Operator maintained radio contact with aircraft, ships and ground stations.

Larry VK4AAL

I married an Australian, moved to Brisbane and joined the Dept of Aviation. I completed local training and was sent to work in Papua New Guinea (8 years), and then transferred back to Queensland (via Weipa Airport). In PNG I experienced several years teaching at the Aviation College in Port Moresby, including teaching Morse code to 20 WPM send and receive to the Papua New Guineans, and some slow-speed receiving to Australian pilots for the navigation requirements. I have maintained my full amateur licence over the years. I have had a Canadian (VE8CL), PNG (P29CL) and now an Australian licence (VK4AAL). I operate a Yaesu FT-450D, with Cushcraft R8 8-band vertical - not perfect, but gets me back onto the frequencies. I must admit that many technical aspects over the years have changed, but CW naturally has remained and is now an art that fewer possess.

Members' news

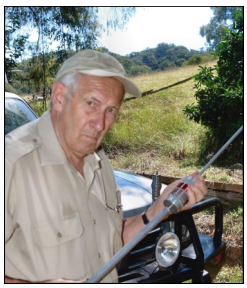
Gwynne ZL1AAR #9028 reported earlier this year that he is settling into a new retirement complex and setting up an antenna was a bit of a problem. We hope he resolves what is so often a problem for members in similar locations. If so, we would like to hear from you Gwynne, how you have managed to overcome the problem.

Along with other members of the Wagga Wagga radio club, **Joe VK2KJJ #9689** participated in the recent John Moyle Field Day. Located on Mt Flakney QF34RR, approximately 540m ASL, they made 11 CW contacts.

Joe VK2KJJ proudly wearing his FISTS t-shirt during the contest.

Mobile whip antennas

David VK3DBD / G3SCD #3756



VK3DBD with homebrew mobile antenna.

There is nothing new about mobile antennas. They were experimented with in the early days of radio, particularly where the various police forces in USA, England and Australia found the great advantages of keeping in touch with their mobile units while hunting lawbreakers.

The first ideas were I believe large wire 'frame aerials', that is, coils wound on wooden frames and mounted inside the car under the roof (canvas roof I presume) circa 1920s and certainly long before my time! (See my previous writings on police radio in earlier FISTS newsletters.)

In the 1960s, in England the most common mode and band for mobile use was AM on 160 metres. SSB was very much in its infancy then. The licence only allowed 10 watts on this band which was shared by maritime uses, the coast stations and a navigation device called Loran. The latter used up a fair chunk of the band around 1900kHz and emitted a pulsing noise of considerable strength. We had to avoid this for obvious reasons. In my local area the (very few) local amateurs around monitored that spot whenever they were in their shack and it was usual to put out a call on 1981kHz if a test or signal report was required.

Mobile and vertical whips are always a compromise...

The availability of surplus crystals was probably the main reason for this frequency - and it was just above the pulsing racket of Loran. So 1981kHz effectively became the calling channel on 160m. The word 'channel' was hardly invented then, it was long before 2m FM became into common use. Not that the crystals were always exact on the preferred frequency, but in those days many were often big enough and screwed apart to access the insides and remove the slab of quartz.

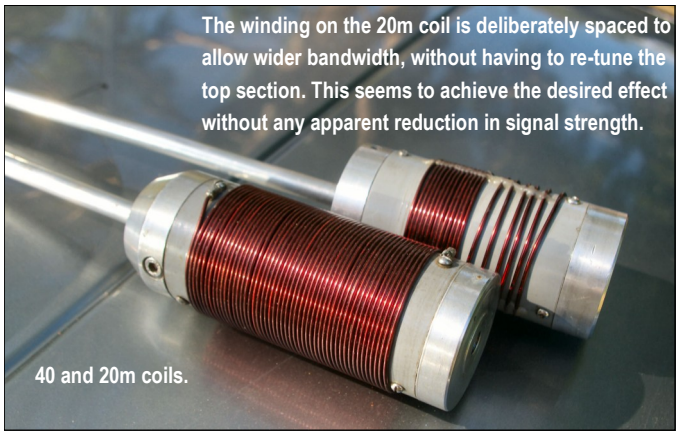
With care and a degree of luck, it was usually possible to grind the quartz on a bit of plate glass using water and kitchen scouring powder, a slow process of grinding, re-assemble and testing until the desired frequency was achieved, or very near. Final trimming could be done by adding capacity to the circuit too. Grinding of course shifted the resonant frequency higher.

Mobile and vertical whips are always a compromise in practice as the combinations of mechanical stability as well as safety and looks needed to be taken into consideration. Having said that, I have seen a few installations which complied with none of these!

The higher the coil the more turns are needed but in moderation, coils well towards the top are slightly better but also need a longer top section to add capacity. Remember the formula for resonance? It occurs when inductive capacitance equals capacitive reactance. So one is fighting a losing battle and particularly in respect of mechanical rigidity. In practice, about 8 feet (2.4 metres) is a good maximum height. Depends too on where the base mount is. It is best to cater for car ports, car parks and fuel station roofs unless you have a really good memory!

A centre-loaded coil or perhaps just above centre is an excellent compromise. Proportions outside these guidelines will not make vast improvements, a kind of inverse square law. In my tests and experiments, the base section below the coil about 3ft 6" (say a metre), a coil of say 6" (150mm) and a top of around 3ft (say 90cm) will be virtually one S point less than the same set up with an extended base section of 10ft (3 metres). Clearly not very practical for use in motion. And remember the top will require extending too to add the necessary capacity to restore resonance (with the same coil). A capacity hat is a way to achieve this, but neither pretty nor practical in motion.

From my early efforts to construct coils of various sizes and frequencies, there emerged a good compromise of working efficiencies and physical size and I find about 2" (50mm) diameter about ideal. I standardised on a 3/8" UNF thread partly because that was what the better mobile mounts seemed to have (USA origins) and I happened to pick up two of these at bargain prices at junk sales some years ago. The lower part of the coil has the same thread and I use stainless steel bolt or threaded rod at the top of the base section. This is 24 turns per inch thread which offers a better chance of staying tight than the slightly coarser metric thread of similar diameter.



The winding on the 20m coil is deliberately spaced to allow wider bandwidth, without having to re-tune the top section. This seems to achieve the desired effect without any apparent reduction in signal strength.

40 and 20m coils.

The top section of each coil has its own top with a sliding adjustment for tuning and is made from about 10mm or 3/8 diameter alloy tube which is arranged to be an accurate sliding fit into the hole on top of the coil and is semi permanently secured with a stainless Allen headed grub screw. The adjustable section is usually made of some aluminium welding rod about 4mm diameter or stainless steel rod, depending on what is available. Locking of the sliding is done with a threaded collar and a split collett turned to suit on the lathe.

My findings and hours of experiments in this field are based on practical use. The purists will be sure to find some reason to doubt or dispute some of my comments I am sure. (Useful suggestions are welcome!)

Tuning adjustment collar.

G3SCD mobile.

The other factor which ought to affect mobile transmissions seriously is the low impedance which calculations show must exist when feeding a whip with 50 ohm coax. I have tried L matches and built base tuners using toroids and normal coil / capacitor combinations and to date for some reason have never succeeded in improving the effective radiation of the signal.

So, against all theory my coax feed is connected direct to the base and it is vital to ensure the braid is also well earthed to the body/ chassis of the vehicle very near to that point. If in doubt some copper braid (like coax outer braid, removed and flattened) is connected across any dubious paths.

I have worked mobile from VK to G and other similar distances many times. The proof of the pudding is in the eating.

Enjoying outdoors and indoors QRP operation - some equipment options (part 2)

Doc VK5BUG #14136, Norm VK5GI and Greg VK5GJ

This month we continue our review of QRP radios by looking at offerings from Heathkit, Kenwood, MFJ, and others.

HEATHKIT

Another long-time supporter of portable and QRP amateur radio was Heathkit (later as Daystrom), sadly no longer with us. However, it left behind a litany of budget-priced models from which to choose and have fun on air.

HW-7 (eHam.net rating 2.9/5) - appeared in 1973 and covered 40, 20 and 15m with about 2W CW output. Doc actually built one of these kits in 1976 as the required 'practical project' for the General Commercial Operators Certificate of Proficiency (the 1970s upgrade replacement for the First Class COCP in Australia) and along the way had to modify a number of original circuit shortcomings so it performed well enough to use in contests and for reliable QRP DXing. In today's band conditions, he thinks one off-the-shelf or unmodified would probably show up to be little more than a toy, a novelty rather than a 'performer' compared with other rigs on the airwaves, but he would like to be proven wrong!

HW-8 (eHam.Net rating 4.6/5) – perhaps the most heavily modified/ customised QRP rig ever to hit the market, this 80-15m 2-Watter has a good direct conversion receiver but its keying is relay controlled, thereby losing the traditional 'must have' full break-in for CW operators. Doc has had several of these over the years, all good performers, and they bob up in Australia and North America for around USD$150-200 depending on condition and how many/ how well modifications have been done: caveat emptor! Has a cult following.

HW-9 (eHam.net rating 4.8/5) – this was an early 1980s radical design departure and not without its share of issues, particularly selectivity and unstable transmission on 15 and 10m. It does have a superhet receiver and all nine HF bands however, so a competent techo-amateur with spectrum analyser, CRO and sweep generator access could make this USD$200-$350 radio something very special. Not frequently seen in Australia.

KENWOOD

TS120V (eHam.net rating 4/5) – until very recently Doc had one of these 10W classics that can be pulled down to 5W SSB and CW. It has a digital readout, many optional extras and produces good quality audio reports. For the keen among us, a whole 'TS120 lineup' can be assembled to good effect. Doc ran his with an MC-60 desk microphone and also with a CW key for portable DXing. For home station use, he had the external VFO and companion loudspeaker. Other accessories for a lineup could include the matching aerial coupler, power supply and 100W linear amplifier.

It covers the standard bands of 80-10m and would be a Number One recommendation for any QRP newbie looking to embark upon portable work on a tight budget. The transceiver is typically available for AUD$250-400 depending upon condition and accessories.

TS130V (eHam.net rating 4.8/5) – the most elusive QRP rig we have ever heard of! Doc has been trying to source one of these for 25 years without success. In fact none of us has never even SEEN one yet! A highly desirable and much enhanced version of the 120V, it features added WARC bands, a 20db RF attenuator, speech processor and selectable dual crystal IF filters for both SSB and CW.

Expect to pay whatever is being asked for one of these beauties – those who have one tell us that they are 'keepers', which is probably why we do not see them on the regular market forums ANYWHERE very often. Happy hunting, and if you find a second one, please let us know!

TS670S (eHam.net rating 4.6/5, though Doc uses one and rates it a bit higher than that!). An upgraded TS660 quadbander covering 40, 15, 10 and 6m, plus a general coverage receiver option. AM / SSB / CW capable and FM was an available option also. Power output is continuously adjustable for QRP/ QRPp operations up to 10W SSB / CW and 4W AM.

Features keyboard entry or memory recall, dual VFOs and 80 memories, IF shift, attenuator, wide/ narrow selectivity and noise blanker.

Filter options included YK-88A (AM), YK-88C (CW 500KHz) and YK-88CN (CW 270KHz).

This very user-friendly rig requires 12/13.8VDC @ 4A for maximum power output and weighs 2.7Kg which makes it very suitable for Doc's pedestrian portable RF trolley. It's a keeper!

QRP-PLUS

QRP-Plus (eHam.net rating 4.1/5) – produced in 1994-6, it has 160-10m and general coverage receiver, microprocessor control, low current consumption (140mA on receive, 1.5A in transmit) and compact physical size.

Its large LCD display is useful for we OTs and it has a rugged steel case – quite handy for bush-bashing. Its superhet receiver has a good switched capacitance audio filter (SCAF) and its full output of 5W can be adjusted to mW levels for some 22-carat QRPing! Prices around $350-400AUD are asked in the North American market.

MFJ

Here is another manufacturer that has produced quite a prolific line-up of low power rigs suitable for home and portable action. Readers are recommended to review the company website as there are so many details for the large model range, including:

MFJ 9015-40 series (often referred to as 90XX and 94XX series)

Norm and Greg are quite familiar with this marque and user reviews state that they all work 'as claimed'. The 90XX models are monoband CW only and 94XX monoband SSB only.

They are robust plug and play models for 75, 40, 30, 20, 15 and 10m, producing 5W/10W respectively and have quality receivers with auto AGC but no NB.

Weighing less than one kilogram and physically small, they would be attractive to single band SOTA activators.

The website shows a current RRP of USD$209.95 and more than 20 items are listed.

MFJ 9340 Cub

This tiny rig gets really good user reports too, providing 80, 40, 30, 20, 17 or 15m, a hot receiver, sharp passband filtering, AGC, phones or external speaker options, full break-in, zero to 2W output up to 20m and 1W on 17 and 15m. Power consumption from12-15V is reported to be a miserly 36mA on receive and 380mA on transmit.

ICOM

Icom IC-703 and 703Plus – in 2003 Icom introduced the IC-703 as a low power HF radio. Shortly after, it added the IC-703Plus to their production line.

The 703Plus covers all the HF fun that its predecessor did plus 6m, an internal aerial coupler and 10W output capability. Both versions are basically stripped down variants of the IC706. The large LCD display is easy to read from any angle and the rig is ergonomically quite easy to use comfortably. It comes with a well-written manual.

Portable 6m could easily be tackled with a discone, halo, J-Pole, dipole and even a rotatable quad or yagi aerial. For full-break-in CW operation, it leaves much to be desired when compared to almost anything from the Ten Tec stable, but it provides satisfactory semi-break-in action.

The critical data for any QRP rig is current drain and in the receive condition the IC-703Plus is claimed to lope along with 450mA.

YAESU

Yaesu FT-817/ 817ND – perhaps the highest volume seller in QRP history, the FT-817 versions were designed for 160-10m, 6m, 2m and 70cm bands with a power output of 5W.

Author's note – both the IC-703Plus and FT-817ND are current market products, with much recent material and reviews readily available. The reader is recommended to pursue further research given that scenario and chat with rig owners, perhaps even being able to negotiate a 'test drive' – an important purchasing strategy that cannot be achieved when buying online via any source!

Next month we conclude this series by reviewing a number of QRP transceiver kits.

Gallipoli signals

Alan VK6PG #9018

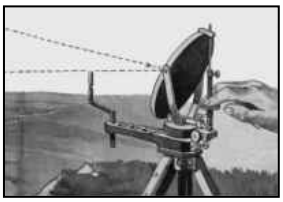
Before 1925, signals were part of the responsibility of the Royal Australian Engineers. In 1914, a syllabus for the grading of signallers was announced. Signallers were required to be proficient in Morse, signalling on flag, lamp and heliograph, as well as in map reading. Successful candidates were classified as first-class signallers and wore crossed flags with a star on their right forearm; those with slower speeds qualified as second-class signallers and wore the flags without the star.

As soon as they landed at Gallipoli on 25 April, they established a divisional signal office and laid wires between the divisional headquarters and the advanced brigades. By midnight, the Headquarters' signallers sat with telephones and message-forms, constantly in touch with the brigades.

Once cables had been connected at Anzac Cove through to the troops on the slopes and forward lines, D111 telephones were connected via exchanges that could redirect commanders to specific units. These telephones were simple 'wind to ring remote end' and 'talk'. The standard field telephone used with landlines consisted of a wooden box containing two dry cells, a magneto generator, polarised bell, induction coil testing plug, and a 'Hand Telephone C Mk.1'. These simple devices were the precursor to the Fullarphone not in general service until 1917.

The sappers were constantly exposed to danger when they repaired telephone lines or were forced to show themselves as they relayed messages manually. Manual signalling was vital when the troops moved too quickly to establish a telephone network. Dispatch messengers had to run with messages throughout the trenches. During fierce fighting and rapid movement between trenches, simple flag communications was used during daytime. However, at night runners carrying verbal or paper-based orders were used. Where it was not possible to lay landlines, many forms of visual signalling were used which made use of light either from sunlight (use of the sun and mirrors) in day time and lamps at night (Lucas Lamps).

Messages were sent in Morse code, one man operating the signalling device and one man using a telescope (where distances were great) to read the message sent back. Signallers were also used in forward positions to assist the artillery and provide information on their enemy targets. In these isolated positions, the signaller became vulnerable to enemy shelling and attack, many signallers lost their lives. The trench-signalling lamp was in a wooden case and was battery operated. It had a bullseye lens to concentrate the light and a Morse key to switch the lamp on and off. It was used mainly for local use from trench to trench and operators would receive the message through a periscope or telescope. It was always extremely dangerous to transmit towards the front of the battlefield, as this would attract enemy sniper rifle fire.



The Heliograph was also used for signalling to a distant point. It comprised of a wooden tripod of which each leg was adjustable. During daytime these were used to communicate between the Anzac slopes and the British ships to direct gunfire as the battles progressed. The mirror assembly for this device was usually kept safely packed in a stout leather or wooden box.

In 1914, the British Empire was well connected between the colonies and London by undersea cables. Morse code telegraph was widely used to keep in touch with distant lands like Australia. However, in the heat of intense battle, more localised communications were used like the field telephone networks.

As the Anzacs moved up the slopes and over the tops of the cliffs, the sappers went with them laying cables. Once established, sappers cut cables, stripped the ends and connected the two wires to the terminals on field telephones. When under intense gunfire and from bombs thrown from Turkish trenches, wires were severed and needed urgent repairs. In many cases, both Turkish and Anzac telephone wires existed in the same trench, along with dead and wounded soldiers from both sides.

Amidst the chaos of warfare, together with absolute carnage on both sides, the signallers did a massive job in keeping communications operational. Some running the gauntlet dragging new wire lines and often hit by sniper fire, others by shellfire or bombs thrown between trenches. Today, the many stories about the Anzac signallers echo in the halls of remembrance.

FISTS Down Under nets

CW

Tuesdays on 7.028MHz

0900 - 1000 UTC

Net controller: Chris VK1CT

CW (slow speed)

Wednesdays on 7.028MHz

0900 - 1000 UTC

Net controller: Garry VK2YA

SSB

Thursdays on 7.058MHz or 3.538MHz depending on band conditions.

0900 - 1000 UTC

Net controller: George VK2DLF

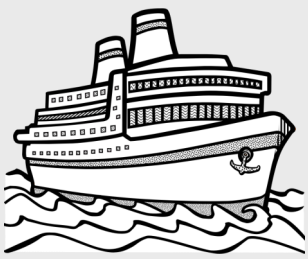
Maritime Radio Day

This year the Maritime Radio Day is being held on 14 - 15 April, 1200 to 1200 UTC.

This event is held annually to remember the years of wireless service for seafarers.

The MRD is open to all Amateur Radio Stations.

Further details:
http://www.trafficlist.net/mrd/



A dream fulfilled

Ralph ZL2AOH #1073

As a keen short wave listener, I had always planned to become a radio amateur after I retired. I was not entirely a novice when this dream became reality in 1990. I had been licensed as a 3rd class marine radio operator and general class marine radio telephone operator in 1947, when I was a deck officer in the Union Steam Ship Company of NZ. Apart from the passenger ferries and the few ships trading overseas, the USSCo ships did not carry radio officers. Radio communications on the coastal ships were part of the deck officers' responsibilities.

Shortly after obtaining my amateur licence I was introduced to the FISTS Club by Phil Blakeley ZL2KA #387 (SK in 1994). At that time there were only three ZLs in the club and only about three in VK. My club activity for the next few years included on-air contacts, and receiving the UK 'Key Note'. I lived a year in Japan 1995-6 as 7J5AAN, still making a few FISTS QSOs.

... I had always planned to become a radio amateur after I retired.

On returning to ZL I communicated with our founder Geo Longden G3ZQS and suggested that it might be worthwhile establishing a chapter of the club in this part of the world. The reaction was enthusiastic and I received a considerable amount of help and encouragement by Geo and the then awards manager Geo Lowe G0FRL #390. 1 June 1998 is our founding date as FISTS Down Under (FDU). We have had approximately 290 members over the years, of which 163 are current.

So for the 17 years since then, I have managed the membership and finances. I have from time to time also acted as editor and undertook other tasks that needed attention. I am fortunate in having Chris VK1CT #9057 as my right hand man in Australia who also recently also took up the reins as editor of our monthly newsletter 'FISTS Down Under'. Other appreciated help is forthcoming from Garry VK2GAZ #14151, Derek VK3KX #14125, Ian ZL2AIM #9685 and our former long serving editor Nigel ZL2TX #9040, who remains as the ZL FISTS QSL Manager.

In the past couple of years my circumstances have changed. I live alone since my XYL Gwenda's death last year, so I have less free time, having to be the housekeeper. Also at age 92 I have a few health problems. I have slight macular degeneration in one eye, (the other is fortunately 100%) and slight arthritis in both hands. These are ailments that make errors working on the computer more likely.

What I am leading into is my decision to ask someone who is a bit younger and fitter to take over the tasks of membership and finance. I think that because finance is closely associated with membership that the roles are best undertaken by one person, although that is subject to discussion. Depending on the person's circumstances, material support is available, such as a computer and printer, and any out of pocket expenses are covered.

So I welcome contact from anyone who would like to discuss the situation. I am not setting a deadline and I will continue to hold the fort until a successor is up and running.

Membership renewals

Thank you to Jim ZL1AYQ #9602 for including a donation when renewing his membership.

The following memberships are due for renewal to the end of April 2015:

9067 - 14161 - 14174 - 14160 - 9673 - 9072 - 14140 - 14175 - 9070 - 9075 - 9069 - 14121 - 9688 - 14163 - 9633 - 14162 - 14107

If you are listed in error, wish to receive a replacement reminder notice or would like to discuss your membership, please email us at: fists-down-under@ihug.co.nz

Until next month, ***73***