

FISTS DOWN UNDER

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

March 2015

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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:

- Tuning troubles
- The HF Packer amp
- Enjoying outdoors and indoors QRP operation - some equipment options
- An eyeball FISTS QSO

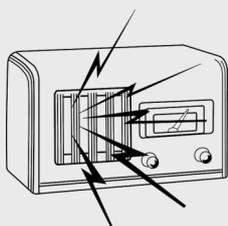
Broadcast station signature tunes

- by Ian ZL2AIM #9683

Having lived in three different countries in my life and also having spent a fair amount of time in other countries for short intervals, I loved to listen to the local broadcasts on radio.

At this site:

www.intervalsignals.net you can hear those lovely jingles from a bygone era. It has brought back some fond memories.



Tuning troubles



It takes but a couple of minutes to install my preferred mobile HF radio into the Nissan Patrol. This I did recently on my return to VK after an absence of around 8 months. It fits on a home-made bracket of wood and aluminium and 'hooks' comfortably on the passenger side of the gearbox housing with little inconvenience to anyone sitting there.

The automatic Kenwood antenna coupler is slightly more permanently fitted, just behind the centre console in front of the rear seats. The antenna mount being in the common Australian place, on the roof bars at the front of the vehicle.

Connecting up the power, tuner control cable, antenna coax, key and audio, I switched on. Having fitted the 20m aerial and seeing the frequency display coincidentally already in the CW part of the 20m band, I touched the auto tune and half a second later, all appeared normal with a perfect SWR.

However, trying to change the frequency with the main tuning knob failed, so naturally I looked at the frequency lock - it was not on. Strange... By clicking the microphone 'up-down' switches, normal steps of 10kcs were indicated on the dial. The mystery deepened. Band changes from the front panel also worked as expected, but still the tuning knob, which felt quite normal, did nothing at all. Back to the drawing board. Everything out of the vehicle and into the workshop.

I had to clear a space on the bench as there seldom is any, despite all the new year resolutions about clearing benches after a work session! Connected up the power, went through all the motions again, just the same. A software lock-up? Reset to factory default by holding a couple of buttons and powered up. No change. Somewhat drastic measures were required. I accessed the EPROM which holds all the special settings within the radio. Everything normal. Curiouser and curiouser as Alice (in Wonderland) said. I prepared to remove the covers to see if I could see anything wrong with the encoder - not expecting I would, but one has to go through the motions...

Luckily before I got that far, a thought occurred. The TS-50 has a heavy knob to give the nice flywheel effect that most of us like when tuning the bands. There is also a friction drive which allows a drag to be applied - a handy feature for mobile use. This is not an electronic frequency lock, but a mechanical one. The drag prevents a creep of frequency caused by vibration and motion that one expects in a mobile situation.

Finding a suitable Allen key (1 mm) to access the securing screw of the knob, I undid this - it seemed tight - and removed the knob. A light spring behind tensions it outwards, away from the front panel and I found the shaft had a groove in it for the point of the Allen screw to lock in. The tightness of the screw was mainly due to light rust and the screw was not actually tightening up onto the shaft, just sitting in the groove which allowed free rotation without letting the knob come off! A spot of WD40 on the threads, re-positioned, tightened up and back to normal.



The Kenwood TS-50 mounted in the VK3DBD mobile shack.

Business as usual, thankfully! Often our troubles are not always as bad as they seem!

The HF Packer amp



I have taken the plunge and ordered a 35 watt amplifier kit for my QRP stations. I have been playing with the idea of boosting the power of my QRP rigs for many a year. There are some very cheap ones on the market from the Far East, but reading reviews on them one finds that their filtering is not very good. The Tokyo HP ones were excellent but a bit expensive. As that company is in liquidation, I don't foresee anything being manufactured there in the near future.

Virgil K5OOR makes up a kit called the HF Packer amp which is a great favourite with backpackers and SOTA folk and that is what I decided to order. I have watched his site over the years and he continues to improve on an already proven design. I think he makes up the kit in batches of 15 or so and I ended up paying via PayPal NZ\$404 including all charges of freight etc.

*...my thoughts went
to extra power.*

The latest change he has made is putting in LEDs to inform you of what band the amp is set on. One doesn't want to set the amp on one band and transmit the rig on another one! However, the two IRF510 MOSFETs are easily obtainable and are less than a few dollars each. I

doubt if I will have a use for the linear amp in the shack, but it will be good to take out when operating /P. With 5 watts in, you get 30 – 35 watts out. The power out will depend on what band you are using.

I have prepared a table (which appears later in this article) of the power out for various bands. The amp is apparently very tolerant of low voltages and whilst designed for 12 volts input, it can still be operated on voltages as low as 9 volts. So a 12 volt 7 amp hour battery should be enough to power my rig and amplifier for quite a few hours of continuous QSOs.

I guess that some of you QRP purists will not go along with my thoughts of using an amp to boost my signal. I admit also to having these same feelings, but having spent a very cold morning at the Tairua Estuary with a bitterly cold wind coming off the sea and only working one DX station with my FT817 and my fingers getting stiff with cold, my thoughts went to extra power! Maybe if I had been able to work a few extra DX stations I might have shrugged off the cold, but my 5 watts was just not enough under the prevailing conditions. If my conscience gets to me, or if I'm lucky enough to work DX, I can always bypass the amp.

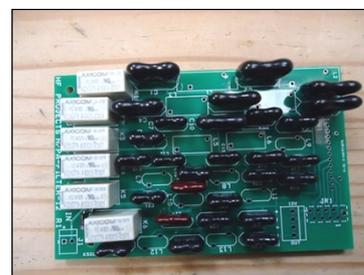
Having those extra watts is all very well, but I also have to think of what I must do to modify my present QRP antenna setup to take those extra watts. All my baluns and ununs I have built specifically for QRP use, so they would not stand 30 watts for very long. I did a few experiments on various bands to see what matching unit would work with higher power. To cut a long story short, I ended up using my IC703 with my Icom AH-4 long wire tuner. It tuned all the bands from 40m to 10m to a SWR of less than 1.5:1. On top of that, the tuner will happily take 100 watts in its stride. It is small and light weight. I used it with quarter wavelength counterpoise wires.

Ian ZL2AIM #9683

However, I also like the idea of using my FT817 with this new linear amp and the Yaesu FT817 is not compatible with the Icom long wire tuner. So after some experimentation I came up with a combination of FT817, HF Packer amp, Z11Proll ATU, LDG 4:1 balun, long wire and counterpoises.

I placed my order with Virgil and a few weeks later the parcel arrived. Packed nicely and everything present and correct. I must admit that I didn't do an inventory as such and just went along with each plastic bag as needed. The instructions are similar to those used in Heathkit, TenTec and Elecraft kit assembly and you just tick them off when you have inserted and soldered them on the board.

As you can see from the following photos, there are two boards to populate; the main board and the filter board.



The filter board is actually quite easy to do – I know that winding toroids is not everyone's cup of tea, but Virgil can supply pre wound toroids at an additional cost. I had no problem whatsoever in winding the toroids and just followed his detailed instructions. After a total of about 26 hours populating the two boards, the time came to do the tests before stuffing it all into the enclosure.



Once again I followed Virgil's advice and set up my Fluke multimeter (shown below) with a special cable for measuring the current drawn by the two MOSFETS and setting the bias.



Once I was happy with the bias settings, I put the two boards into the enclosure and gingerly connected it to my FT817 and did some tests into a wattmeter and dummy load. I was very happy to find the following outputs:

FT817 set at 5W output (9.7 v)		
Band (m)	In (W)	Out (W)
160	5	45
80	5.2	45
40	5	40
30	5	30
20	4.5	38
17	4.4	25
15	4.4	22
12	4.3	23
10	4	15

I won't go into the technicalities here of the advantages of using the packer amp other than to say that you can use the amp (and your FT817) at reduced voltages and still get the output you require. Therefore, you can use your setup being driven by a 7 amp hour battery for long periods, as the FT817 is quite happy to put out its 5 watts with a supplied voltage of down to 9.5 volts and the packer amp will also perform well at low voltages.

I have made tests with my IC703 coupled with the HF Packer amp and the combination performs well. Just remember that you must set the power output to be 5 watts, as the 703 can put out 10 watts which would be a disaster for the HF Packer amp.

I use an automatic CW memory keyer for doing all the hard work and I attached it to the amp/ FT817 setup. After calling for about 20 minutes, I noticed that the heatsink got pretty hot. Whilst I realise that this is what the heatsink is designed to do, I decided to mount a fan onto a sheet of acrylic and fashioned a mount that would keep the

fan above the heatsink. I connected it via an on/ off switch and an Anderson Power Pole connector. It looks a bit ugly but it does the job of cooling the heatsink. It only needs to be on for about one minute and the heatsink returns to room temperature.



I have used the amp during one hour ragchews on 80m and 40m with favourable remarks on my signal. The cherry on the top was two QSOs with JA stations on 15m and receiving a 559 and a 599 report.

So if you want to add a bit more power to your QRP rig, give a thought to the HF Packer amp. I'm sure you won't be disappointed!



Enjoying outdoors and indoors QRP operation

- some equipment options

Doc VK5BUG #14136, Norm VK5GI and Greg VK5GJ

'Rogues gallery' introduction

As VK5HP and VK4CMY, Doc completed 12,000 QRP CW contacts between 1975-95 as the first VK op to achieve 20m QRP CW DXCC and WAC awards. He won the VK section of the 1975 inaugural MARTS SeaNet contest using a kit-built 3W Heathkit HW-8 on 20m, and the VK/Oceania sections of the busier 1976 USSR CQ-M contest with a 2.5W Ten Tec Argonaut 509, both rigs fired through a homebrew 2-element 20m spider quad aerial.



Doc VK5BUG

Currently as Adelaide Hills Amateur Radio Society (AHARS) member, Doc runs a stand-alone wind- and solar-powered home QRP station based on Ten Tec 579, Century 22 and Ten Tec 535 Argonaut II transceivers, plus an SLA battery powered pedestrian portable trolley running Kenwood TS670S, Ten Tec 555 Scout and Realistic HTX-100 transceivers.



Norm VK5GI

Norm VK5GI has embraced low power operation at home and portable for a number of years, using both SSB and CW from a range of commercial and kit-built equipment. He has recently acquired a camper trailer and plans to more frequently dent the ionosphere from exotic rural locations. This is scheduled to include AHARS Parks Award activations solo and in cahoots with Greg VK5GJ who has also engaged in a litany of portable and mobile low power SSB activity, particularly during caravanning adventures.

Greg has a comprehensive test equipment setup plus a well-equipped workshop and junkbox, and may frequently be found at the bench with Norm, sorting kitset alignments and all manner of other matters RF: automotive and caravan portable.

Background to QRP equipment options

Amateurs have never been so spoiled with respect to low-power portable equipment options for their domestic and radio operations. The most recently well-publicised transceivers include the Yaesu FT817/ND and Icom IC703Plus all-band, all-mode units.

We are hoping to stimulate interest related to the participation in SOTA, WWFF, AHARS Parks Award and other portable activities through considering the wealth of other options that are available today, including very effective items from yesteryear.

The intention here is to provide a 'heads-up' on some of those other options, particularly for portable CW use. Some are very 'today', while others are older rigs, still obtainable from various secondhand marketplaces, and often much cheaper than the newer units.

Snapshots of various brands and models are included here with no fear or favour and this listing is certainly neither complete nor perhaps even comprehensive. We believe it is at least a starting point. Hopefully, there will be enough information to engage a reader and perhaps assist with purchase decision-making.

Equipment makes and models

ELECRAFT



K1 - A compact dual or quad-band CW transceiver with many of the K2 bells and whistles. It could be

ordered with a choice of any TWO band modules, 80-15m, or if a FOUR band version was desired, provision could be made for 80, 40, 30, 20, 17 or 15m.

40 and 20m had potential for providing a good balance of regular and successful day/ night operating. This rig is very compact and portable, weighing only about one kilogram. Power output is adjustable from 100mW to 5W and higher. Current drain is about 60mA on receive and one amp when transmitting at the 5W level.

More information and photos are available at www.elecrafter.com

KX1 - This is a trail-friendly, ultra-lightweight CW rig with all the controls on top of the case for ease of portable operation in almost any conventional situation. The basic transceiver covers 40 and 20m, with the option of 30m and 80/30m PC boards. There are auto-coupler and key paddle options for this shirt-pocket size radio and its internal battery provides 20-30 hours of casual operation.



Add a pair of earbuds, a resonant aerial and maybe a counterpoise wire, and you are off and running (no pun intended!). Doc had one of these up until a few years ago but found it to be too fiddly for field use, compared to his current transceivers – he sold it to a VK6 who loves it! Horses for courses...

It is a trail-blazing little rig with digital readout, adjustable IF filtration, an excellent power economy, compact size and easy to use.

TEN TEC

This USA company is synonymous with successful QRP and portable operation, having been highly active in the commercial QRP market since 1969:

TX1 – 2W on 40 and 80m PA board

VO1 – VFO and buffer to drive the TX1

MX1 – dual-gate MOSFET direct conversion mixer for 40/ 80m

AA1 – IC audio amplifier with 100db gain and output Z of 1K ohm

Check the eHam.net rating of 4.5/5 for what became known as the 'PM' or 'Power-Mite' units.

PM1 – the first complete commercial QRP transceiver and it contained all the above modules wired as a band-switched CW 80/ 40m transceiver. This rig had just front, back and base panels.

PM2/PM2B – is a PM1 in a full case. PM2B also featured 20m capability.

PM3/PM3A – a 5W Power-Mite for 20/40m. The PM3A boasted full CW break-in.

This series of quirky, interesting rigs appear well-priced on North American eBay reasonably frequently. Allow for tracked freight cost and the monetary exchange rate.

Argonaut 505 (see eHam.net) – from 1971 this is a solid state SSB/CW QRP rig covering 80-10m bands and having a 9MHz IF.

Doc has owned and operated several of these radios at sea and ashore over the years, recalling that a lot of fun and reliable QRP operation resulted from use with very basic aerials.



Argonaut 509 (eHam.net rating of 4.8/5) - this model followed the 505 in 1973 and had improved circuitry plus the option of an external active CW filter. Again, Doc had several of these radios for DXing, contesting and local contacts. Originally the power supply was a pair of lantern batteries in series. Of course, there are a number of much more modern, efficient power sources available today!

The 505 and 509 come up occasionally on the VK market and much more often through the North American outlets, usually at very reasonable prices. Great 'bang for your buck' fun machines!



Argonaut 515 (eHam.net rating 4.8/5) – released in 1978 the 515 is known as THE classic QRP transceiver, with enhanced

band-spreading, 10m divided into 3 ranges, and slicker T-R switching. It instantly won popularity with DX operators and 36 years later is still used by many hams as their main station rig.

Argonaut II 535 (eHam.net rating 4.8/5) – Part of Doc's home station, this is really a 5W version of the 100W Delta II and is a big leap over the Argonaut 515. It is a fully synthesised transceiver with a general coverage (100KHz-30MHz) receiver and a 7-digit black-on-orange frequency display.

It features a double conversion receiver with 45MHz and 6.144MHz IFs, the latter using a Jones filter (8-pole crystal filter with continuously adjustable bandwidth from 500Hz to 2.5KHz).

It provides up to 5W of quality SSB/CW QRP action, features microprocessor control, multi-functional digital display, direct keypad entry, and is operationally the equal of Elecraft and any other current commercial rigs.



Argosy 525 and Argosy II 525D (eHam.net rating 4.8/5) – one of the best kept secrets in QRP amateur radio is the Argosy series. The 525 is analogue and 525D the model with digital readout.



The Argosy can be switched from 5 to 50W output on the 80, 40, 30, 20, 15 and 10m bands. A T-Kit speech processor really adds punch when installed inside the Argosy. Regrettably, Doc had an

Argosy II and sold it to a VK1 who desperately wanted a caravan rig about six years ago – we are given to believe that he has mentally kicked himself ever since!

Rare in Oz, the Argosies appear on the North American market for around USD\$300-\$400 plus approximately \$67 shipping. Price naturally depends on condition, options installed, original manual, digital or analogue model, etc. Like the Argonaut II, these radios are very hard not to love using!

Argonaut V Model 516 (eHam.net rating 4.7/5) – covers 160-10m with a general coverage receiver 0.5-30MHz, all band, all mode and 20W maximum output. This suggests 'QRP with an edge' but it would be a great power level for anyone enjoying the slow lane when operating mobile/ portable, and those just trying to beat the noise level if operating portable in RF-unfriendly locations. 5W can be selected for all normal authentic QRP goings-on.



It has 35 inbuilt filters and draws 950mA on receive, 6A on transmit at maximum output. The rig weighs in at 2.2kg and has two large front feet rather than a bail, 100 memories, scanning facility, CTCSS encoder, is PSK31 ready, IF-DSP, SDR and its RRP in 2003 was \$750USD.



Ten Tec Scout 555 and 556 (eHam.net rating 4.3/5) - another of the Ten Tec QRP radios about which Doc can write from personal experience and is the one now reposing on his RF pedestrian portable

trolley: a Scout 555. It is a 5 or 50W radio, output power being altered by a small adjustment through an access hole in the bottom panel.

The 556 does not have the 50W option at all. Both Scouts are very unique in that they feature plug-in single band modules for each of the HF bands including WARC. This allows a purchaser to acquire one with only the bands really wanted for use. Doc has the 80, 40, 30, 20, 15 and 10m modules and is on the lookout for a 160m in the North American market. He bought his Scout 555 via Canada on eBay.com.

No longer in production, used Scouts come up reasonably frequently in that part of the world, with a radio and six modules fetching about USD\$650 plus \$70 shipping. In Doc's opinion, the eHam.net rating is harsh, and he assigns it at least 4.5/5.

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

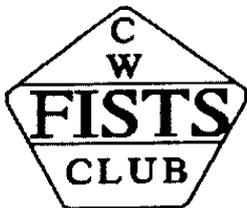
Net controller: Garry VK2YA

SSB

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

0900 - 1000 UTC

Net controller: George VK2DLF



Donations

Thank you to the following members who included a donation when renewing their membership:

Turner ZL1CDX #9048
Gwynne ZL1AAR #9028

Century 21 Model 570 (analogue) and 574 (digital)

Either of these presents a great QRP/ QRO rig for the home station or someone using mains power at caravan parks. It receives SSB and CW but transmits CW only, with an input power of 70W providing 25-30W output. It covers 80-10m and is a pre-WARC transceiver with onboard AC power supply; in fact, it is the only Ten Tec transceiver having an onboard AC power supply. Doc has run several of these since they first came on the market in the mid-1970s and speaks very highly of the operating fun that they provide.



Century 22 Model 579 - Doc's current home station QRO rig, this unit also receives SSB and CW and only transmits CW to about 20W output on 80, 40, 30, 20, 15 and 10m. He loves using it and had to wait many years to acquire one as only 700 were ever produced. If you can find one via North American eBay it will not disappoint.

Ten Tec summary – The company has supported the low power and portable operation fraternity since the 1960s, in spite of the fact that the cost of producing a QRP rig is the same as a 100W unit, but with much less market opportunity to recoup investment: research, design, manufacture, marketing, warranties etc. Since the QRP market is infinitesimal alongside the QRO scene, it is often a business disaster to enter into it, so before we bag any manufacturer for what it produces, we need to recall that it is actually NOT good business sense to do so. The view of QRP manufacturers is highly likely to differ from the view of amateur radio operators because of this fact.

Next month we will take a look at some rigs from Heathkit, Kenwood, MFJ, and others.

An eyeball FISTS QSO

Ralph ZL2AOH #1073

In 1945-6 my wife Gwenda and I spent a year in Shikoku, Japan (JA5). I was able to operate from there for a brief time as 7J5AAN. Late one night I had a long session with JE1CLH, Mack (now FISTS #9012) who lived in Kimitsu City, Chiba prefecture, across Tokyo Bay from Yokohama. We exchanged details and from that time on we have held fairly regular twice weekly skeds. Mack is a dental surgeon and his shack is situated in his dental surgery. I had the pleasure of visiting his home just before we returned to New Zealand.



A few years later, Mack visited us in Wellington accompanied with his daughter Akiko, then 14 years old. Fast forward to 2015. Akiko, now a mature young woman, became engaged and decided that she would like to be married in New Zealand. She, her fiancé and both of the couples' parents travelled to Queenstown where the ceremony took place on 23 February. The following day, Mack and his XYL Atsuyo travelled to Wellington for an overnight stop, especially to visit me and my family.

In the short time available, Mack and Atsuyo visited Wellington's two principal attractions, the Botanic Garden and the Te Papa museum. However, as far as I was concerned, the highlight of the visit was to have them with us for a family dinner at my QTH. It was a very enjoyable occasion for all eight of us. Mack is now back at his QTH, ready to resume our enjoyable Morse QSOs until, I hope, he can make another longer trip Down Under.

Membership renewals

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

14154 - 14156 - 9658 - 14118 - 9097 - 9067 - 14161 - 14139 - 9664 - 14173 - 14174 - 14160 - 14136 - 9673 - 9602 - 9631

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