

# The Propagator

APRIL 96



The newsletter of the Illawarra Amateur Radio Society Inc. ( IARS )

## LOOK BACK AND WONDER... 1982.

1982...a Liberal Federal Government entered its penultimate year of office, the IBM-PC was destined to arrive in Australia in the last quarter of the year, Australian pop group Men At Work soared to an international number one hit with their song "Down Under", Britain went to war over the Falklands Islands crisis and Matsushita Corporation announced the world's smallest, lightest colour TV receiver.

Model TH3-W3V had a 75mm screen and was the size of a small house-brick, although at 1.5Kg (about 3 pounds for oldies like me) it was considerably lighter. To produce this miraculous device the company had to design a new tube, new ICs, an ultra-thin tuner section and compact flyback transformer. Did it ever make it to Australia? Well, I can't recall ever seeing one. It was rather an advanced little machine because it had audio and video input terminals, something we take for granted on our receivers today but pretty avant garde in 1982.

The first computer on-line subscription service, The Australia Beginning Pty Ltd had started up. Users could join for \$100. I remember this because the concept had been successful in the United States but I was curious as to whether Australia had a large enough population to support such an endeavour. The answer was simple - The Australia Beginning Pty Ltd duly sank without trace a while later. Not in itself a great success but a portent for the future - today increasing numbers of Australian computer users are getting "on the Net". Rates for "Oz Beginning" were \$10 per hour (8am - 6pm) and 4.50 per hour at other times - how does this compare with Internet access? Not all that well, as it

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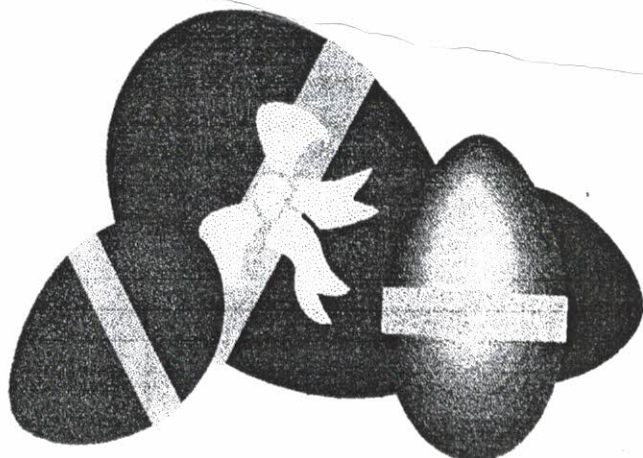
.... HA HA HA!!!

HamTalk

.... A new column by VK2DMR

Packet

.... Another column by VK2DMR





happens.

A company called Applied Technology was retailing yet another computer kit using the Z80A microprocessor. The kit was of course the famous Microbee, one of few Australian products to achieve a measure of success in personal computers in the 1980s. Designed to be easily expandable for enthusiasts whilst being usefully productive for mere computer users, this machine was the first of several successes for the company. The name Microbee was to be quite familiar to computer users right up to the late 80s. Who remembers it now? If you do the chances are you actually owned one.

Three Japanese companies (Matsushita, Hitachi and Hitachi-Maxwell) announced a new floppy disk format to replace the existing 14cm mini-floppy (the venerable 5-1/4" floppy now itself in danger of becoming extinct). This new format was to be known as the Panasonic disk and a few machines tried it (Amstrad was one of the chief users) but it somehow failed to catch the market and was soon to be ousted by the rival Sony format 3-1/2" micro-floppy. The Panasonic disk was also incorporated into some specialist equipment (I recall it being used in a Racal-Decca Colour Video Plotter for marine navigation) but it never made into mainstream computers. Sony's format would win that contest in due course. Nothing seems to impede progress as the right idea at the wrong time, does it?

Commodore Business Machines debuted their Commodore 64 computer at the Chicago Consumer Electronics Show. Today we may smile wryly at the thought of a mere 64K of RAM and a computer contained wholly within a keyboard-sized case, but this machine was perhaps the biggest single advance in personal computers for quite some time. Sure, it was just another 8-bit machine and didn't even use the Z80 chip, preferring Motorola's 6510 (a 6502 workalike). With a 40 column, 25 line screen and 16 colours plus the ability to run CP/M with the addition of a single plug-in cartridge it was eagerly awaited by enthusiasts. It's a safe bet no-one realised just what a classic machine the C64 was to become and although today we laugh at such a small and simple computer, let us not forget that in one enclosure it packed more computer power and RAM, with a more advanced processor, than anything NASA ever managed to launch into space onboard their deep space probes. How many of today's computer-literate people got their start on a C64? The C64 was the right idea at precisely the right time and hundreds of thousands

have gone on to outlive the company that made them. The saddest thing about the C64 is that so much computer power in such a small box is probably now gathering dust on top of wardrobes all over the country. If ever a computer museum is established, pride of place should go to one of these machines - perhaps alongside a PDP-11 mini-computer, itself the proud possessor of a whopping 64K of RAM.

Yet another new computer appeared, a 16-bit machine, the Sirius 1. With an 8088 processor clocked at 5Mhz, 128K of RAM expandable to 512K, a 95-key keyboard, 80-characters-per-line display and supplied with both MS-DOS and CP/M-86 operating systems this was a very serious business machine. Supported languages included BASIC 86, Fortran, Cobol, Pascal, PL-1 and Assembler. Versions of commercial productivity software such as Wordstar, CBASIC and accounting software could also be purchased at prices which were affordable. Price of the system was about \$4950, excluding sales tax. This was a head-to-head competitor to the IBM-PC, itself destined for launch towards the end of the year. With this sort of pricing, these two machines were definitely aimed at business users - the hobbyist sector was not yet seriously contemplated as a market by the sales teams. The asking price for an IBM-PC initially in Australia was \$5500, for the machine with a monochrome monitor, a single disk drive and the keyboard. In 1980 such a price difference was pretty significant, but I very much doubt any Sirius systems remain in use today. Few of the original IBM-PCs likewise, if it comes to that.

If we were still waiting for the Commodore 64, then at least its little brother, the VIC-20, had arrived and was building a following. For just under four hundred dollars the machine could play music, had colour graphics and came with PET BASIC. Just connect it to any old TV set and away you went. Surprise, surprise, the keyboard case was almost identical to the Commodore 64 - when it works, don't change it. Maximum memory was 32K. 66 special graphic characters and four sound generators ensured this would be a winner for kids games, and so it was.

RCA Laboratories announced the development of the first solid-state laser suitable for commercial use. Early semiconductor lasers suffered from rapid burnout and were unable to produce a continuous beam, leaving the Helium-Neon gas lasers as the only commercially-usable ones. The development of solid-state lasers opened the way for development of smaller and more reliable consumer equipment. We



owe all our current laser-powered consumer products to this single development. Imagine our world without CD-ROM drives, compact disc players and laser printers, to say nothing of the medical and technical uses made of these tiny pinpoint-sized beams of highly coherent light. Philips were one of few manufacturers who put the Helium-Neon gas laser into first generation domestic equipment; their engineers and maintenance personnel must have breathed a sigh of relief when the new devices became available.

High Definition Television began rearing its head, with Sony, Matsushita and Ikegami announcing equipment and standards under development. The Japanese proposed system had pictures made of 1125 lines but required a transmission bandwidth of 30Mhz instead of the 7Mhz or so for current television systems. VHF/UHF transmission using 30Mhz channels is highly unlikely so alternative distribution via cable or microwave satellite channels would be required. Today there are three competing systems, the other two being European and American. Since every nation wishes the world to adopt its own standard at the expense of the others, the advent of broadcast HDTV is still some while off. So is digital TV, and both for the very simple reason that transmissions will not be backwardly compatible with analogue TV systems. The introduction of digital and HDTV will instantly render every analogue TV receiver (and every item of production and transmission equipment) obsolete. Don't hold your breath waiting. Even the year 2000 Olympics will be televised on ordinary PAL with standards conversion to NTSC and SECAM for international feeds. That's all the international broadcasters felt was required. Seems we'll have to wait a bit for real 16:9 HDTV.

They were still trying to invent a better light-bulb back in the eighties, and a couple of developments included a special tungsten "fuzzy" filament (which radiated considerably more efficiently than conventional filaments) plus a globe using a special three-layer coating of Titanium Dioxide, metallic silver and Titanium Dioxide. The idea of this was to let visible light out whilst re-focussing the radiant heat back onto the filament, reducing the current required to heat it and increasing the efficiency that way. Other manufacturers were looking at increasing the efficiency of fluorescent coatings. Looks like the fluoro idea won that contest although the cost of one of those new fluoro globes is still a bit steep. At about a hundred dollars to replace four conventional globes

a lot of people will keep buying incandescent types for a few years to come. I will be one of them, having better things to do with the ninety odd dollars change!

What about amateur radio? News on the HF scene was the introduction of Yaesu's FT-ONE. With SSB, AM, RTTY, CW and optionally FM, this pricey transceiver was Yaesu's flagship. Cost was just under two thousand dollars, a price which this author finds pretty steep for 1982. When Kenwood released their general coverage TS-9000 there seemed to be a quantum leap in the price of HF transceivers, and it was not necessarily an improvement. Most of us were perfectly satisfied with an FT-101 or a TS-520S, both of which were less than six hundred dollars. Suddenly we were expected to pay three times this amount just to update to a rig with a general coverage receiver and the recently-assigned WARC bands (where there was precious little activity anyway). What is offered in HF transceivers from the big three today appears, to my mind anyway, equally ludicrous. The only other way to go was to buy something like a Yaesu FT-707, at a price not far in excess of the older 520S or FT-101 anyway. Another alternative was the FT-102, an HF all-mode transceiver which would set you back nearly twelve hundred dollars. Kenwood had similar offerings and prices which were comparable. Today you can spend nearly four thousand dollars for the top-of-the-range HF transceiver - or you can keep your eyes open and buy a well-cared-for second hand unit for a fraction of this. I leave it to the reader to decide which is the lesser of two evils.

Finally, in an article I dredged up from one magazine, I discovered a report about an example of bureaucratic lunacy which would be hard to beat even today. Back in the earliest days of public broadcasting in Australia, the service was launched with what were known as "sealed" sets. The listener purchased a licence for his (or her) receiver and was then required to subscribe to a program service of their own choosing. To ensure they did not cheat under this scheme, the PMG then sealed their receiver so it could only receive the nominated broadcasting station. Truly! This really happened! Four broadcasting stations in three states commenced operations under this crackpot scheme which would have been worthy of Josef Goebbels, although his appearance in matters broadcasting was to be over a decade and a half away. In any event, the sealed set scheme was so staggeringly successful that only 1400 listeners in the entire nation purchased licences. Apparently countless others, many mere shoolboys, built "open" sets





and listened to whatever service took their fancy. That set a pretty good precedent. Just who the bureaucrat was who devised this moronic and blinkered idea remains unknown - the perfect disguise for him, I should think. In 1924 the whole scheme was scrapped. The nameless bureaucrat is by now long since dead, as is his "sealed" set scheme. The arrogance and ignorance of bureaucracy in radio's early days sometimes beggars belief. Talk about trying it on!

Next issue...we disinter the body of 1983 and perform some belated forensic tests. Don't miss the Coroner's report to be published in these very pages! (IARS club members will even get theirs before they are leaked to the media.)

Ned ..... VK2AGV

## **REPEATER REPORT (FEBRUARY & MARCH 1996)**

This Report is written with great relief, after what could have been a terrible accident. The incident has hammered home to myself & the others present, how strenuous & dangerous some of the activities we Amateurs involve ourselves, in the pursuit of our hobby. Details later in the Report.

### **Saddleback Mountain - VK2RSM**

Voice VHF - 146.375/146.975MHz

This Rptr is working fine, but is occasionally plagued with interference that appears to be an intermod produced from two low-band UHF link TXers. SMA have been contacted & are willing to investigate the problem in the near future. The Rptr also suffered from another intermod which was produced from the Telecom Red Rocks site, west of Nowra. The intermod was the usual 2a-b problem involving a Pager TXer on 148.4125MHz & a Duplex remote phone system on 150.450MHz. Eg:  $2 \times 148.4125 - 150.450 = 146.375\text{MHz}$ . (The Rptr's RX frequency). Fortunately, a Shoalhaven ARC Member was able to rectify the problem for us. A little more work is planned to improve the Rptr's coverage & the Voice ident will be changed to the new callsign when all licence details are obtained from SMA.

Voice UHF - 434.275/439.275MHz

This Rptr is sponsored by the Shoalhaven ARC, but covers most of Wollongong. As for 6975, improvements to coverage are planned.

### **Knights Hill - VK2RUW**

Voice UHF - 433.725/438.725MHz

No problems to report at present. This frequency will shift to Maddens Plains as soon as the "new" 8725 Rptr is built.

Voice HF - 29.520/29.620MHz

The Club's 10 metre Rptr is still to be resurrected. John (AAL) is currently working on the conversion of the G-Band FM-828. Hopefully we will hear it on the air in the next few months.

### **Mt Murray - VK2RAW**

Currently there is no eqpmt at this site. The 10 metre Rptr's RXer is to be installed here when completed. There has been thoughts to put some type of Packet set-up here, but nothing has been decided. Got some ideas out there?

### **Sublime Point - VK2RIL**

As stated last Report, this site is planned as a ROSE Packet site. Unfortunately, there has been lots of problems with the planned continuation of the ROSE links down the coast to Bega. Problems with UHF radios & the 4800Bd TNC's are the current ones. We're playing the waiting game as to what should go ahead, it's all a bit disappointing.

### **Maddens Plains - Planned VK2RMP**

Voice VHF - 146.250/146.850MHz

Voice UHF - 433.225/438.225MHz

A working-bee was held on Sunday the 24th March. In attendance was Ken (TKE), Les (KLD), Chris (XBC), Brian (UBF) & myself. The main plan was to move the antenna higher up the tower & hopefully reduce the slight intermod problem produced from





other VHF services on site.

This move had been planned for a while, but was put off while trying to obtain a new dual-band antenna to replace the loan antenna from Brian, which was a Brainer GST-3. A few ideas were "floated" to obtain a replacement unit, one of them being a letter sent to Dick Smith Electronics by President Simon. Whatever it was that he wrote, the Dick Smith organisation VERY kindly donated free-of-charge, a Brainer GST-3 dual-band worth \$299! At best, we were hopeful for just a discount (like paying cost price), but we were pleasantly surprised by their generosity. The antenna was even sent overnight express courier, arriving the Friday before the Sunday working-bee.

Ken, Chris & Les spent most of Sunday morning 120 feet up the tower removing the loan antenna & bracket, then lowering both to the ground. My time was spent with my head buried deep in our rack of eqpmt doing some mods & fix-ups. One particular job was interfacing the old Ulladulla link radio (that used to be connected to 8225 at Knights Hill) to 6850 Rptr. The idea being to provide almost continuous mobile coverage from Gosford to Moruya on 6850 & 6700.

In between all this, Les returned to the ground & terminated an N-connector Socket & a PL-259 type plug to a 40 foot length of LDF 4-50 heliax. By the way, the heliax PL-259 plug which was needed for the antenna connector, is a very rare item. Fortunately for us, Norm (ZXC) was able to obtain one for us. Thanks Norm. Meanwhile, Brian was looking after us all by providing cups of tea & fruit cake for morning tea, then sausage sandwiches & hot dogs with our choice of onions, mushrooms & mustard for lunch. (Yeah, it wasn't too bad either).

After lunch, the boys returned up the tower, this time to the 150 foot level, where they went to work installing the antenna support arm (which had to be modified on the ground), the heliax & the new antenna. They had almost finished about 4.30pm, when the incident I spoke of earlier occurred. Chris (XBC) started feeling rather poorly with severe chest pains. He at first thought it was just a muscle cramp of sorts from the strain of working & holding on at that height. The pains became worse & for fear of him falling from the tower, Ken tied a safety rope around him in addition to his safety harness. After about 20 minutes, Chris was able to climb over to a tower platform where he sat & rested for another half an

hour. Fortunately, he felt a bit better & was able to climb very slowly back to the ground.

By this time, he felt very poorly again & Ken rang for an Ambulance. After some attention from the Ambulance Officers, they determined that Chris had just suffered from a "mild" heart attack. They decided to take him back to Bulli Hospital for further attention & tests. At the time of writing (29/3), Chris is still in hospital, but fortunately feeling much better & hopefully to be released soon. Best wishes Chris & get well soon.

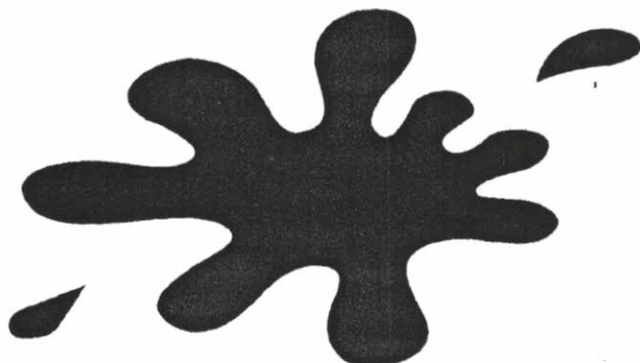
What could have happened is quite frightening & worrying & as I said at the beginning of this Report, it has reminded us all how dangerous our Rptr activities can be, no matter what precautions we may take.

While Les & Brian were taking Chris' belongings & car back to Brian's place, Ken & I finished off (very carefully) installing the antenna support system.

Reports from the new antenna installation have been very good & the linking to Ulladulla 6700 has also gone well. Unfortunately, for some reason that I haven't been able to figure out as yet, we can't operate the UHF 8225 Rptr while the 6700 link is enabled due to an interference problem. This probably won't be a problem when the new UHF Rptr is installed, but until then, if the 6700 link is enabled, 8225 will be off.

Before closing, I'd like to wish Chris on behalf of his fellow Rptr Committee members, a very speedy recovery. (As I said to you in the hospital Chris, there's another working-bee planned soon!)

Till next time - Rob VK2MT.







# NEW FGR-0104 TRANSCIVER

The Propeller-Heads at Kenwood have done it again and surprised us all with the launch of a new all-mode transceiver. But, this baby is something totally different.

We all know about those cheap little cordless intercom units available from certain electronics shops. You know, the ones that plug into 240v and transmit from room to room without cables everywhere. Imagine the advantages to be had if they had multiple channels and could communicate not just from room to room, but CITY TO CITY! No more antennas, no more interference, and no more license. Well, Kenwood have developed a radio that does just that.

The new Kenwood FGR-0104 transceiver is no ordinary radio. To start with you just plug it into your 240v wall outlet, plug in the microphone, and switch it on. It has been designed around the same concept of those FM Intercoms discussed earlier. The unit actually talks to other units via the electricity cables supplying it power. WOW!!!! Apart from the obvious fact that we no longer need to erect antennas (or repeaters), we will all get A1 perfect reception, and we no longer need to sit for a license.

Full details are not available at this stage, but the radio is said to boast 200 channels, it's signal is a digital format, and power output irrelevant. This radio may not appeal to all, but does really appear to be near perfect in concept. Release date is April 1st, and I know it will be a huge success. I will print

more details as they become available.

73's.....Mike (Ed.)

## FUNNIEST FAULT-FINDING NO 1.

I think this one was related to me well over a decade ago by Barry Lacey (VK2ZCQ) shortly after I had joined the staff of the AWA Port Kembla marine depot, so I'll give Barry all the credit and emphasize that all I'm doing is repeating the story as best I can recall it. We'll use this as an example of what we're looking for in this competition rather than as an actual entry per se. NOW READ ON...

We'd been discussing techniques of isolating the likely area of a fault in various items of equipment and the conversation turned to television receivers. Barry made a comment that often it was

very helpful to fiddle around with the horizontal hold control so the left edge of the raster was visible on-screen, from which a great deal of information could be obtained. We mused on this a few seconds, then he remembered a TV receiver fault which didn't even need that much technical tweaking to get a rough idea of where the problem was. It seems that Barry had received a call from one of the major shipping companies (possibly BHP) concerning a faulty TV receiver onboard one of their ships which was regularly in and out of Port Kembla. The only clue given by the informant was that the crew had complained there was no picture on the set at all - which could be down to any one

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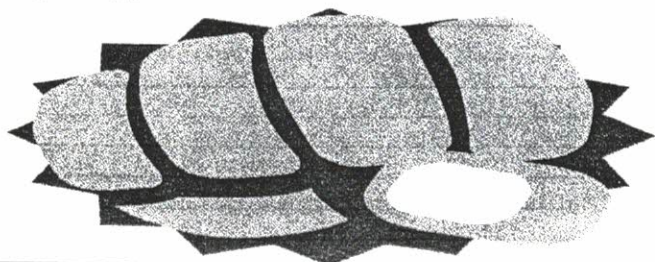




of a number of problems, both minor and major. Anyway, Barry grabbed his toolbox, drove down to the wharf and found the ship in question which had arrived a few hours earlier. He made his way to the room onboard in which the receiver was located and was prepared for a fairly lengthy session. As Barry put it, "it's very rarely you can diagnose a TV fault from door of the room, but on this occasion I could - the rear end of a tomato sauce bottle was protruding from the middle of the picture tube!". We both got a hell of a laugh from this, but then we paused to reflect on a few things which this fault implied:-

First, TV receiver picture tubes are made of very tough glass and the front is especially tough. Second, tomato sauce bottles are made of very cheap glass of questionable hardness and quality, with equally questionable ballistic characteristics. Third, the force and dexterity required to throw a tomato sauce bottle so it would penetrate and embed itself into the neck of the picture tube was prodigious and unlikely to be possessed by any other than a fairly inebriated (and partially deaf) seaman. Fourth, the diagnosis of a new picture tube as the best fix was one hundred percent correct and (keeping in mind the industrial relations situation on ships in those days) the matter ought to be attended to in time for the ship to sail as scheduled.

Well, that's about it. Diagnosis of the fault from the door. I still get a smile whenever I think of this one. Let's have your contributions for this Propogator segment, please...



## FUNNIEST FAULT-FINDING NO 2 ...

following on from No. 1

Whilst I was still at the AWA depot, I was asked to attend the "Iron Cumberland" where the Radio Officer had reported his emergency receiver

was "slightly" insensitive on MF. It was his practice to use this receiver to work the MF coast stations up and down the east coast, so we treated his complaint as serious and I attended the ship when it arrived.

The Radio Officer was Ray Crewe (VK2AQC), from whom I learned a great deal about coastal shipping and what ROs did. Ray was a terrific chap and the very first thing he'd ask when I got onboard was "have you had lunch yet?". As I made a point of

arriving at about the right sort of time I could answer "no", whereupon Ray would immediately invite me to the duty mess and see that I was well-fed before getting stuck into the more technical problems. As you can imagine this was a very satisfactory arrangement and on more than one occasion I made sure I was in the port at about that time when Ray's ship was alongside.

Ray's eyesight was not good, and he was the first to admit it. In fact, he had at least two different pairs of glasses to my knowledge so he could see objects within six feet. Anything past

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that was a bit of a blur but he knew the ship so well he could almost find his way around by memory alone - very handy in a blackout! We went to the radio office and I looked at the emergency receiver. It was a Marconi Marine "Sentinel", a relatively crude 1960s-designed unit with a cascode front-end. You popped the lid off it and there it was in all its glory - a few vertically-oriented circuit-boards and a tuning mechanism. I had actually trained on these units (amongst others) and was reasonably familiar with it although this was the first one I'd ever had to work on. I looked very carefully at the two transistors which comprised the front-end, then turned to Ray and said, "a bit down on signal strength, Ray?"

"Yes, Ned, and it's funny, you know, because it's usually so good. I can work every MF station on the east coast with this one, but it just doesn't seem to be hearing them quite as well as it should."

"Okay, Ray...could you just point out the front-end transistors for me?" Ray peered into the innards, then pointed to the two transistors.

"There, these two transistors right here." I looked very carefully. All I could see was two black transistor sockets, completely bare of anything which even remotely resembled a transistor. I began to see the problem. There was no front-end!

"These two here, Ray?"

"Yep, that's them, my boy." Ray replied, brimming with confidence.

"Well, they're gone."

"I suspected as much from the lack of sensitivity."

"No, I mean they're really gone."

"Gone?"

"Yes. Actually not there. Absent."

"But they look like transistors..."

"Ray," I began, "I hate to have to tell you this, but they're transistor sockets. To make matters worse, there aren't any transistors plugged into them! The front-end is completely missing."

"Seriously?"

"Absolutely!" It was hard not to burst out laughing, but I could see how proud Ray was of his diagnosis of the problem. Ray was quite correct, as far as it went and, with his eyes, transistor sockets looked identical to transistors anyway. We soon had a couple of devices plugged into the sockets and the "Sentinel" was performing as well as ever (within its limits, which were fairly narrow). One of the great advantages of having very conservative specifications is that the equipment can probably still meet them three decades after it was built!

Needless to say, Ray and I found this situation very

funny, and once we'd made sure the receiver was fully operational we retired to the wheelhouse to make coffee and try to work out what had happened. Normally there is a work report for any repairs or modifications done to the gear, but we found none to indicate who had removed the transistors or when. We weren't sure if someone was playing a practical joke on Ray or what had happened, but it all ended well and (as usual) I left the ship with a good lunch inside me and a very relieved Radio Officer. Oh yes, I made out a suitably-worded work report to cover the installation of two new transistors...the job's not done until the paperwork's finished, is it?

## The New Priest.

*A new Priest at his first Mass, was so scared he could hardly speak. After the service he asked the Monsignor how he had done.*

*"Fine, but next week it might help if you put a little Vodka or Gin in you water to relax you;"*

*The next week the new Priest put Vodka in his water and really kicked up a storm. After Mass he asked the Monsignor how he had done this time.*

*"Fine," he said, "but there are a few things you must get straight."*

- 1. There are 10 Commandments, not 12.*
- 2. There are 12 Disciples, not 10.*
- 3. David slew Goliath, he did not kick the shit out of him.*
- 4. We don't refer to Jesus Christ as the late J.C.*
- 5. Next Saturday will be a Taffy Pudding contest at St. Peters, not a Peter pulling contest at St. Taffys.*
- 6. The Father, Son, and Holy Ghosts are not referred to as Big Daddy, Junior, and the Spook.*
- 7. Moses parted water at the Red Sea, he did not pass water.*
- 8. We do not refer to Judas as "El Fink O".*
- 9. The Pope is concecrated, not castrated, and we do not refer to him as the Godfather.*



# HamTabk

## VK2DMR Denis McKay

This is intended to be a sometime column for the amateur who is a little more than a "black box operator". That may apply to some or all of the IARS members. It is intended to be a "discontinuous column" - that is copy is prepared as time permits. Feedback to the editor is sought and welcomed. Should you feel that this type of information is a waste of valuable space, let me know (if you would be embarrassed to say so, tell the editor - *he has no such hang-ups!*). The contents will range from modes that may be new to some hams, ham related software (with an emphasis on shareware), constructional articles - both electronic and mechanical or I may even get something off my chest!! (The Aussie Wayne Green lives - if you don't know who Wayne Green is - ask some old timers - he was and is editor of "73 Magazine").

This month's subject is PC-Route, a shareware PC Board preparation program that is first class. Firstly, two comments:-

- a) If I talk about a shareware program, I have used it. As a service, I will have placed it in the Public directory of my tcp/ip system, where it can be downloaded. Instructions about how and where to do this will be at the end of this article. If you do not have a packet system, you may like to try using the BBS system of Bill Stone VK2JBS - also see below.

- b) If you like and use any shareware, pay the poor bugger the registration fee. There is a lot of excellent shareware available and the developer deserves some recompense.

The version of PC-Route I use is old (1989) but works well. There are probably (almost certainly) newer and better versions around. The address of Doug Ehlers, the developer of PC-Route is in the documentation.

So let's cut to the chase. What does PC-Route do?? It does a lot!!

- 1 Design and print pc board art work.
- 2 Produces 2X artwork in either mirror or standard image and either a positive or a negative.
- 3 The board can be either single or double sided
- 4 Produces a component overlay for the design
- 5 Autoroutes the board and allows interactive component placement to minimise crossovers and wire links
- 6 Produces an AutoCAD script file for those lucky to have access to this great system.
- 7 Will produce groundplane boards if required.

The package comes with a range of components and has an excellent routine to increase the range of components to include any that you may need.

I have included below a simple single sided board layout and component overlay produced by the software. The board is for a receive only Hamcom modem as discussed in last month's Propagator. The steps taken to produce these items were as follows:

- 1 Print out a copy of the schematic so you can scribble on it.
- 2 Mark all the components with name (like 100k for a resistor) and a designation (like R1 for the same resistor). Duplicate designations will be flagged so you can correct it.

- 3 Number each connection to the component - you may find this easier to do as you enter the data.
- 4 Start the program. Note that you need every scrap of 640k memory you can get. If you have a lot of bottom 640k being used, here is the VK2DMR Tip of the Month.

To maximise 640k memory, provided you use a recent DOS version, turn on your computer and when the prompt says "loading MS-DOS" or something like that, press F5. This will bypass your autobexec.bat and config.sys files. Your mouse won't work nor will all the other fancy stuff like your CD ROM but you will have plenty of core memory. Just reboot when you have finished using the memory hungry software.

- 5 Edit the board size (size is in .05 inch units). The Hamcom modem board is 2 x 1.5 inches (i.e. 40 x 30 units). This is done from the input/output menu.
- 6 From the input/output menu, add the components. I normally place each component as I add it but they can be left floating.
- 7 Edit the components as necessary
- 8 Define each connection
- 9 Route the board - you will need to define whether it is to be double sided etc.
- 10 With a bit of luck (and a bit of commonsense) everything will fit. If not, go back and edit the board. This is done by maybe moving a component, changing a component from vertical to horizontal orientation, or by adding pads for wire links and then editing the connections.









# Packet Packet

Denis VK2DMR

Yes, I know, some of you out there HATE packet. Funny thing is, I used to be one of you!!! Packet has come a long way in a few years. Now I operate a tcp/ip host with two ports and spend half of my hamming time at the computer!! Maybe I am maturing (like an old bottle of port!!) With this amount of listening, I must have noticed something and for what it is worth, here is my "two bob's worth".

You need to develop some level of comprehension of AX25 Packet and TCP/IP for a number of reasons, not the least of which is to ensure that nobody mutters under their breath every time you appear on a frequency. Most important is to develop some understanding of the protocols involved, the various parameters and their effects and, for God's sake, please make an effort to read the documentation. Here are some pet peeves and some advice (no hints as to which is which!!)

1 Setting AX25 parameters to be "aggressive" is ONLY effective while one or two nodes share a circuit. With more users than this then circuit utilisation falls rapidly due to packet collisions. I know it has been said before but some operators locally seem to ignore the advice. It may be that I should name particular offenders. I will accept advice on this from our readers. Would it help to publish here or elsewhere recommended AX25 parameters to assist you to be a good packet citizen??

2 Some comments on the international converts bridge(s) and converts bridges, in general, are definitely in order. These tcp/ip sockets are "chat channels". On any of these channels, all traffic on the channel is broadcast to ALL those logged onto the channel. The system is rapidly failing world wide because users are insisting on logging onto Channel 0 and remaining there. Worldwide, sysops have begged users to change of channel 0, users are logged onto a channel other than 0, flagrant violators are banned and still users persist on ignoring the pleas of sysops. Our own gate has been suffering from this problem. Indeed, on a number of occasions, the whole system has fallen over because of a combination of aggressive persists and long-term logging onto Channel 0. **You know who you are!!!!** If this practice continues we will lose AX25 access to the international converts server on our gateway. This has now happened in a large number of gateways because of this sort of abuse.

Local converts servers are a different matter, in that case, usually channel 0 is a "chat channel" and other channels are used for separate conversations. Is there a need for a local AX25 chat channel? Maybe there is. Feel free to use my converts socket to do so. To do so, if you only have AX25 log onto

vk2dmr-1 and type *conv* at the prompt. For tcp/ip users, type *telnet vk2dmr.ampr.org 3600*. At the converts prompt enter */n <callsign>*. You will be on channel 0. An alternative to the above is to have the converts server at the PIG operate only as a server for the Illawarra/South Coast regions. Many gateways use their converts socket only for their own subnet. I regularly use the 44.88 subnet converts bridge to chat to my ham friends in Connecticut. If you would like to join us, the connection is: *telnet 44.88.3.100 3600*

3 There is a lot of justification for using "old fashioned" computers for packet, especially TCP/IP. These systems are meant for continual, unattended operation. If you are like me, you can't afford to tie up your DX2-66 and huge HDD just for packet and it is not necessary. An old clunker 286 with a small HDD is more than adequate.

4 A dilemma that many local packeteers have had is which packet frequency to use, the BBS frequency(ies) which John VK2XGJ so ably manages or the PIG frequency. You don't need two computers, two expensive TNCs and a multi-channel radio. One inexpensive 286 (see above), tcp/ip software, two inexpensive Baycom type modems and two single frequency, ex-commercial radios (FM-828s are ideal) is all that is needed. You can run two ports (one for each frequency) and you also have the ability to transfer data between ports. Baycom type modems are available for less than \$50 a piece and can be home brewed for even less.

5 The sysops of BBSs and gateways need and like to hear your views (at least most of them do). If some of the above comments have helped to have you form an opinion, let either the writer (see below) or the relevant local sysops know. Any comments you have I will (with your permission) pass on and discuss with John, David and Richard. We have, locally, an enviable system for both AX25 BSS and tcp/ip gateway systems and this is due in no small measure to the dedication of the sysops involved and their willingness to listen to suggestions and implement the ones that will improve the system.

Denis VK2DMR

AX25

tcp/ip

Internet

Snail Mail

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vk2dmr@vk2dmr.ampr.org@hamgate.gw.uow.edu.au

17 Doncaster Street Corrimall 2518





# BEWARE!

## TWO-WAY RADIO AFICINADO'S DISEASE

HIGHLY INFECTIOUS TO PERSONS OF ALL AGES

**THE SYMPTOMS:** The sufferer becomes confused and disorganized when a two-way radio is not within hearing. Will be observed wandering around in a bewildered state muttering strange words. Rapid rise in temperature and activity at sound of "CQ" or other terms associated with communications. Logorrohea usually follows. Behaviour can become erratic with involuntary finger-stabbing or hand claspings motions. Babbling and foaming at the mouth is not unusual which sometimes seems violent to non-believers. Patient spends much time and money locked away in small room by themselves muttering strange canticles into a microphone. Can also be seen climbing tall trees or erecting large vertical totems. They seem not to notice the presence of "normal" people.

CAUTION: THIS CONDITION IS INCURABLE

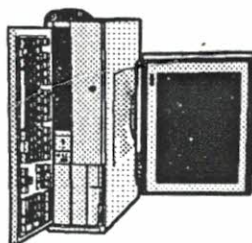
**THE TREATMENT:** Patient must be allowed to spend time alone with two-way radio with no interruptions in small quarantined area, sometimes mobile. Should be encouraged to attend bar-be-ques and special days to meet other victims of this illness and exchange ideas with them. Family and friends can aid recovery by allowing patient much time alone with radio and supplying free drinks and meals. In case of emergency contact Wireless Institute or nearest Citizen's Band Radio Club.

THIS DISEASE IS NO RESPECTOR OF PERSONS

*Sim... VK2ZWG*

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# Illawarra Amateur Radio Society Inc.

PO Box 1838

Wollongong NSW 2500

## REPEATERS

VK2RMP	146.850	VOICE	MADDENS PLAINS
(planned)		(currently linked to 6700 Ulladulla)	
VK2RMP	438.225	VOICE	MADDENS PLAINS
VK2RSM	146.975	VOICE	SADDLEBACK MTN
VK2RSM	439.275	VOICE	SADDLEBACK MTN
VK2RUW	438.725	VOICE	KNIGHTS HILL
VK2AMW-1	144.625	PACKET	WOLLONGONG UNIVERSITY (THE PIG)

(Presently VK2RUW 29.620, VK2RIL Sublime Pt & VK2RAW Mt Murray are not on air)

MEMBERSHIP \$20.00 PA \$15.00 CONCESSION EXPIRING IMMEDIATELY AFTER THE ANNUAL GENERAL MEETING IN AUGUST.

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