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PROPAGATOR

The monthly newsletter of the Illawarra Amateur Radio Society Inc.
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Meetings are held on the second Tuesday each month (except January) at 7.30 pm
in the State Emergency Services building in Montague St, North Wollongong.

Visitors are most welcome.

Number 2 Volume 92

February 1993

***** Editorial *****

Do you ever run off the tracks? Lose your sense of direction? Forget what your aims and goals were?

I did last month. Last month's Propagator was terrible. Disasters like that can lead to an improvement, not only in the item itself, but in the lives of the people around it. It has caused me

to take a look at what I am doing and more important, why I am doing it. Do you ever look at your life. I mean, really look; study what you have, what you want and what you are doing to get what you want? What does Amateur radio

do for you? Maybe you should ask what can I do for Amateur radio. Why? Not because Amateur radio needs you. Although it hurts to say it, most of us are not vital to the survival of Amateur Radio. Why not try giving a bit more instead of taking, or worse, not doing anything. Doesn't it give you satisfaction to give presents to people? Don't you feel good when you go out of your way to help someone? When you're driving and someone wants to

move into your lane; you break away from tradition and let him in; don't you feel good? When your children have a problem and you say 'Here, let me help you with that', don't you feel good? Why not practice this more often in your daily life? Apart from making others feel great, you'll feel great yourself, and isn't that the aim of life?

***** Future Events *****

March

Dale Woodside VK2TZ will give a talk on Antennae. I'm told he's very good. I'm really looking forward to this night.

There will NOT be a field day week-end (or should that be field weekend weekend or maybe just a field weekend) at Saddle Back Mountain on the first week-end. Deferred to April 17/18.

April

John VK2XGJ will be running a packet demo, not just talking about it. With the development of 9600 baud, packet is really moving!

***** Way Back Then *****

WAY BACK THEN...Episode 16.

Dapto Moonbounce Project -1974.

- (i) Change to switched linear polisin.
- (ii) RTTY on 432MHz EME.
- (iii) New moonbounce distance record

(i) Change to linear polarisation.

In previous episodes, passing mention has been made of our use of circular polarisation for the dish feed. I will now go into this matter in a little more detail.

In designing the VK2AMW moonbounce antenna system it was realised that, if linear polarisation was used, then rapid deep fading of received signals would have to be tolerated. This can cause a transmitted "dash" to be received at the other station (or even as an echo of your own signal) as two "dots" or a short "dash" and a "dot" etc.

The dish feed was therefor designed as two dipoles, at 90 degrees to one another and fed via a quadrature hybrid to give circular polarisation - with a small groundplane reflector behind them as they "looked back" into the dish.

This method of feed allowed linearly polarised signals which arrived at the dish in any plane of polarisation to suffer only a 3dB loss, whereas an antenna with fixed linear polarisation would suffer up to 20 dB penalty (loss) if the received signal had up to 90 degrees of polarisation difference.

Now, as signals pass through the ionised layers surrounding the earth, their polarisation is rotated by a variable and often very significant amount (maybe several times 360 degrees) at 432MHz. This effect is known as "Faraday Rotation". The result is very noticeable as it can "chop up" weak signals.

Of course, other causes of fading (such as libration fading, scintillation effect etc.) also exist on the EME path and are not reduced by the use of circular polarisation, but, in general, they do not cause so much of a problem.

Unfortunately, a number of overseas stations coming on 432MHz EME were using stacked yagis and similar "inherently plane polarised" antennas and those with dishes stuck with linear polarisation, on the basis that received signal level ON PEAKS would not suffer even the small 3dB penalty.

Consequently, although we were using a technically superior system we were prevailed upon to go to the less suitable linearly polarised system by our friends in USA (so that they might more easily work a VK!!). This we did after W6FZJ sent us two "high power" coax. relays, which at least provided us the means to remotely switch polarisation by 90 degrees and thus reduce the possible 20dB loss on a cross polarised signal down to a maximum of about 6dB.

The first EME test using this feed system was made in January, but both of the US stations involved were prevented from coming on because of a dose of very severe winter weather in their part of the world.

We were, however, able to use the occasion to do "echo tests" which confirmed that the ability to switch polarisation by 90 degrees between the time that we transmitted a test "dash" and received the signal back from the moon (2.5 seconds later) could give a useful improvement in signal strength, even though the overall depth of fades was greater than when we were using circular polarisation. These results showed up very clearly when chart records were compared.

(ii) RTTY on 432MHz EME.

We then had the "urge" to try a digital mode of transmission on EME. As the only digital mode known to us which would be compatible with a moderately powered station was RTTY, we proposed to K2UYH that this be given a try. He agreed.

We had realised that our crystal controlled frequency source may have to be modified as we would be using "standard" mark - space frequency shift for VHF (850Hz).

We were using a phase locked frequency source with its reference crystal oscillating on 500KHz, so for 850Hz shift at 432MHz we would have to shift crystal frequency by a little less than 1Hz. While this may be possible, it seemed that, if we could get a very high stability frequency source with its crystal operating at 13.5MHz, then we could obtain our 850Hz shift at 432MHz with a shift of about 27Hz of the crystal.

We then set about modifying our existing frequency source, while at the same time letting it be known in the

Sydney area that we were in the market for another one. In due course we were advised that John, VK2AU, was to come to our aid with a Racal very high stability ovenized frequency source, complete with not one but four crystals! Not only that, but remote shift of crystal frequency by the amount that we required, would be "built in"!!!

Without going into any more detail as to how we did it, we were capable of operating on 850Hz (approx.) shift on 432MHz EME, using our original frequency source, by the time of our sked with K2UYH on 31st March. We had a Creed teleprinter and a phase locked loop type terminal decoder. We checked our RTTY echoes by ear (you can't do the 2.5 second switchover trick with a Creed...Hi!!) and they sounded OK. We then worked K2UYH on CW and he taped our RTTY signals as he did not have his RTTY gear ready. Unfortunately he never did get to carry out a two way RTTY test with us.

Over the next few months the new frequency source project was carried out. It required low level and high level amplifier stages, various power supplies etc. but, by July it had been completed and checked out on a Spectrum Analyser by the PMG's Dept. to see that it met their stringent requirements.

In the meantime we tried to interest other EME stations in carrying out RTTY experiments with us. We even built a regenerative repeater in order to enhance our RTTY receiving capabilities - but there were no takers. It seemed that they were mostly struggling even to "make it" on CW!!

So, that ended our foray into RTTY on 432MHz EME!!! - and as far as I am aware it has not been tried again since. (nor any other digital modes). At least we now had a much better frequency source and could easily shift frequency to several positions in the EME segment of the 432MHz band.

(iii) 432MHz EME distance record

While all the above "playing about" was going on, we continued to carryout EME tests using CW, also optimising our transmit power output, using our newly acquired power meter and 600 watt dummy load, and to improve receive noise figure, using the new coaxial gas tube noise source. During our contact with K2UYH in March, his signal peaked at 10dB above noise.

On 30th March we carried out our first EME test with G3LTF in England. Amazingly this was successful!! (as was a second test carried out with him the next day). We had established a new 432MHz EME world distance record of 10,530 miles. Again more favourable publicity for VK2AMW and our Club!!

We received a test schedule for 27th April, for six stations in USA, but we only had one contact, with K2UYH once more, though we briefly copied a weak signal from W4NUS.

We carried out our first EME test with ZE5JJ, in Rhodesia on 23rd June, without results. During this test we were plagued by strong radar signals, which continued until 14th August - and were never heard again. We heard ZE5JJ's signal on a test on 20th July, but he did not hear us.

Unsuccessful tests were made with OZ3FYN and F8DO on 28th July.

432MHz EME operation was slowly becoming established around the world.

In August the Dapto Moonbounce site was visited by the Wollongong University College Pro Vice Chancellor and Professors of Electrical Engineering and Physics. They were given a demo of recorded EME signals and we discussed future Project liason with the Uni, our maintenance requirements etc.

During the August EME tests, with 7 stations, VE7BBG was heard for the first time. Although he also heard us, a valid contact was not made.

A simplified tape recorder operating system was installed in September, for making a record of received signals.

During a particularly violent thunderstorm at the end of October our EME site received a direct strike by lightning. Serious damage to much of the electronic equipment resulted, including burn out of relay coils (including our fancy coax relays). Our "state of the art" receive preamp transistor had "gone up in smoke", together with many other of the transistors.

As soon as our plight became known overseas, offers of assistance came literally pouring in. New replacement components were on their way in a few weeks.

For us it was "back to the soldering iron" and by year's end we were well underway with "Project Pheonix".

Lyle VK2ALU.

**** Science Centre Roster ****

Sat	6 Mar	vk2fpn	vk2xgj
Sun	7 Mar	vk2ur	vk2dsh
Sat	13 Mar		
Sun	14 Mar		
Sat	20 Mar	vk2xgj	vk2klh
Sun	21 Mar	vk2gnv,	vk2ur
Sat	27 Mar		
Sun	28 Mar		

Fair go fellows, how about a little support. This project can do a lot towards getting new members for Our Club, and if you all did 3 hours once a month, it would make life easier for the rest of us. This project is in danger of folding and the apathy could kill Our Club.

******* Field Weekend *******

I am embarrassed to say it, but I've been very slack (or to use the common excuse - I haven't had time). I missed the last meeting and due to an alteration in the committee meeting dates, I missed that too so I am completely in the dark. All I can say is that the last field day was great fun and there is no reason why this one shouldn't be either. I have no details except that it is at Saddleback Mountain near Kiama/Jamberoo and starts when you get there on Saturday and ends on Sunday afternoon. Bring everything including a tent sleeping bag and night cap; although you might not get too much sleep!

If you want more info, contact Simon VK2XQX on 83-6107 or Ron VK2JRH on 84-2691 for more information. It'll be mentioned at the meeting since it has been deferred until April.

Available in our junk yard

1. Electronic bits and pieces (millions!)
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Considerations.

As we may have several appliances, some of which may be worth devoting a PSU to, and we may wish to experiment, test, develop, there is no need to have one PSU which does everything. Thus, what we should do is touch bases on the principle, and 'best practices' with sufficient information for you to build your own ultimate PSU.

John D Lodding



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As we are only permitted 400 watts SSB PEP, let us start with a design ceiling for feeding a class B linear which can stand a continuous 2 tone test at 400 watts PEP, thus our PSU should be able to deliver about 700 watts without getting upset. In reality, most of us will be using our SSB set to deliver speech which has a load factor of about 20% so even at 400 watts PEP, our PSU need only stand 140 watts. Some of us, though, have echo and speech processors, and some of us tune up with the key down for a long time.

For 100 watts FM from a class C amplifier, who's efficiency is $P_i/4$, our PSU needs to deliver about 130 watts minimum. We also need to allow for ancillaries, which require power.

Some of us use appliances by ICOM, Kenwood and Yaesu etc which are designed for 13.8 volts. Some of us use military equipment designed for 28 volts.

The easiest way to design for this variety of output voltages and powers is to produce tables. In this way, each of us can match our own personal appliance to the bits either in, or about to be in, our junk boxes. Caviem, here we come.

Starting with the simplest PSU, we gradually add features and complexity while retaining the aim of achieving some kind of overall control, or architecture, ie a system.

The Simplest PSU

Assuming none of our appliances has on-board voltage control or ripple control and that these are designed features, the simplest PSU consists of a

transform, diode and output filter.
 This is a half-wave design. Its main advantages are cheapness and simplicity - especially from very low current applications. As soon as the current approaches the considerations above, the transformer, diode and capacitor required become huge and VERY expensive for any sensible regulation or ripple reduction.

The First Principal in PSU Design.

When running off the mains, the time between the pulses which recharge the output filter is 20 msec (for half wave). To deliver say 13.8 at 13.8v, $I_{out} = 10$ amps. Therefore $R_{out} = 13.8 / 10 = 1.38$

If our output filter is a capacitor, provided the transformer secondary has a low resistance compared with the load, the capacitor will be charged to its peak voltage each 20 msec and will then discharge into the load according to the formulae:-

$$E_t = E_i * e^{-t/RC}$$

where E = Voltage at time t after peak

E_t = Voltage at time t = 0 (peak)

R_i = Load R in ohms

C = Filter in farads

$$e = 2.7182818$$

If we choose to have a maximum ripple of say 460mV at full load, ie at maximum droop of the PSU then the peak value of the ripple = $22 * .460$ (simplified) = 1.3011 voltage peak drop. This ripple of $E_{out} = 3.3\%$.

When we have 1.3011 volts drop

$$E_t = \frac{13.8 - 1.3011}{1.38} = 0.9057$$

$$E_i = 13.8$$

Then $t = 0.1$ (analogous 0.905)

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Some of us receiving a signal generated by someone using such a PSU would complain of mains ripple.

Using the same value of C and shifting to full wave rectification reduces t to 10 msec. Some professional PSU designers use 3 phase full wave and then t = 3.3 msec. In aircraft, PSU's use 400.3Hz (where t = 42 msec) for

full wave rectification. The relevant ripple becomes :-

50 Hz f.w. single phase = 1.8%

50 Hz f.w. three phase = 0.7%

400Hz f.w. three phase = 0.07%

So time between the recharge pulses is of the essence.

We could chase this half wave design out to 700 watts. For the same ripple as previously (460 Mv) we would need .86 Farads; allowing for tolerance on capacitors we should go to about 1F. The diode needs to stand very high current during the recharge pulses - typically $10 * I_L$ - perhaps even more when you first turn on, say $15 \text{ to } 20 * I_L$, ie up to 1160 amps!. What kind of transformer, size, heating, noise and cost will there be?

Load and line regulation of this design are poor, especially if we economise on the size of the capacitor. Mains spikes are faithfully transmitted unless a saturable core transformer is used. Once designed, output voltage depends on mains input, load and capacitive filter aging. The physical stress on windings carrying such peak currents means expensive construction - watch the jumper leads in your car is cranking (and that's only about 500 amps) for some idea of physical stress.

The full wave rectifier

The next more complex form of supplying is the full wave rectifier, capacitive input filter. This design is, in reality, two half wave rectifiers. It's main advantage over the half-wave is that the time between recharge pulses is halved, which as we saw previously, reduces the ripple to less than 50% of the half-wave design.

Because the ripple is smaller, voltage droop under load is smaller and, for the same transformer secondary voltage (per rectifier), the output voltage is higher. Current flow in the rectifiers is longer ie less peaky. Overall regulation, through transformer IR drop and diode volt drop is better than the half-wave BUT either one needs two transformers or one centre tapped. While physical stress on the secondary is slightly less than in the half-wave design, we still have half a winding doing nothing half the time. This is more cost effective than the half-wave, but less so than our next design.

The full wave design has slightly better load regulation, but is equal to the half-wave for line regulation, spike transmission and RF immunity. This design is used mainly in low voltage applications where component count and subsequent wiring and pcb loading costs need to be minimised, and where transformer heating and hence mains efficiency may be important eg plug top PSU packs left on for 168 hours a week.

Full-wave bridge rectifier

In the full-wave (non-bridge) design, the rectifier diodes need to be able to withstand twice the peak voltage across the filter. In the bridge design, the diodes need to withstand only the peak. ie $V_{RRM} = 2 * E_{RMS}$ in full-wave or $V_{RRM} = E_{RMS}$ in full-wave bridge.

For an unbalanced output, no centre tap is needed. Heat transmission and physical stress in the windings is continuous. This makes transformer design less costly than for the full-wave or half-wave designs.

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Compared to the full-wave non-bridge design, there are now two diodes in series with every charging pulse. Thus this design is suited to high voltages where diode voltage drop is less significant.

Otherwise it performs much the same as a non-bridge design re regulation, spikes and RF immunity but with slightly less mains efficiency due to the extra diode (voltage drop and heat loss). On the other hand, the transformer can be smaller for the same copper and iron losses than for the non-bridge design.

Editors note:

This article is written by our President Brian VK2KLH and transcribed from hand written notes - there are bound to be errors, so please bear with me since I haven't been able to get it proof read by Brian.

Your comments are wanted on this subject - it is a club project being co-ordinated by Brian. A lot of comments were made at the December meeting which shows the high level of interest there is in this project. What do you want from a power supply.

***Repeater Report ***

31/1/93 to 25/2/93

VK2RAW (146.850) - Ho Hum, nothing to report. The repeater is performing brilliantly. I'm unaware of any problems with the system. There has been some nice DX openings on 2m due to inversion &/or ducting. Have heard stations from Newcastle, Port Stephens, Port Macquarie, Scone, Canowindra, Canberra & the far south coast coming thru' 6850 in the last month or so.

VK2RIL (147.275) - A few things have occurred in the last month (& yes they are all to do with Telecom Pagers), but first something I meant to mention in the last report.

On the 28/12/92 (Boxing Day holiday), we installed CTCSS encoding on the output (not the input) of 7275. It in no way affects the performance or accessing of the rptr. It was installed to benefit rptr users who suffer from Pager interference & have CTCSS decoding installed on their rig's RXers. The CTCSS frequency to dial into your rig is 82.5 Hz. Your rig's mute will now only open when it "hears" the 82.5 Hz tone from 7275 rptr. It will not open on all those pager "blurts" that are so common in the top 1 Meg of 2 metres. The rptr also only transmits the tone when it's mute is actually open, not on rptr tails or on the ident. The apparent affect you get is as if you were listening on the input freq of the rptr, hearing only the stations TXing. Also when using CTCSS decode, the mute on your RXer closes very quickly & quietly, no "shhht" sound. Please note that this

addition to the rptr in no way helps 7275 with it's pager probs, it only helps the user's radios.

Since the last report, we have had 2 (yes 2) different types of pager interference caused by Telecom Pagers to our 7275 rptr. One is still with us, the other has stopped. The first is an "after-hours" problem. It only appears after around 11.30pm & stops around dawn. From my observations, I suspect the 148.0375MHz Telecom Pager at the W'gong Exchange. This particular Pager network runs almost continuously from 6am till midnight. When it's transmissions become fewer & far between, a spurious signal wanders down into 2 metres & positions itself right next to 7275's input freq. As soon as the Pager transmits a few times in a row, the spurious moves away from the input. I spoke to the Telecom Pager Maintenance Dept on the 8/2/93 about this (& the other interference as well). They found it hard to believe this would happen, so since then I have recorded the problem onto a cassette tape to prove it. I recorded 7275's output onto the left channel & the 148.0375 Pager onto the right channel, to help prove our case. The biggest obstacle to Telecom rectifying the problem, is that it occurs when these guys aren't at work. I suppose they could shut-down the Pager during the day to prove it, but would they??? I think this interference will be with us for a while, fortunately it occurs when most of us are in bed, but this doesn't make it OK for the problem to continue.

The other interference was the intermod problem again... Around the end of January while casually monitoring 7275, once every couple of days for 10 to 15 mins, the rpttr would suffer solid pager interference (it was "hearing" Telecom pager 148.1875). It would then disappear again. By the first week of February it had become constant. It was as bad as the intermod interference had ever been, even worse, considering we still have the 1 second delay installed on 7275's mute because of this problem. As stated above, I spoke to Telecom on Monday morning, the 8/2/93. I was assured they would attend to the problem ASAP & someone from Telecom would contact me before the end of the week. On Thursday morning (11/2) while monitoring before work, the interference was absolutely atrocious. The rpttr was unuseable with the amount of pager crud coming thru'. BUT, when I left work at 7.30pm that same day, it had TOTALLY stopped. I monitored all night & next morning, testing & listening & it was almost perfect. I thought to myself, "credit where credits due", Telecom have been true to their word & fixed the intermod, I'll ring them immediately & thank them for the quick fix-up (& even write something complimentary in this report). I was truly amazed when I rung them & they told me they hadn't done anything about my complaint as yet!!! I was told they would ask around their techs to see if anything had been done the day before & they would ring me back. When I was rung back that arvo, the tech I spoke to said "you guys got some interference on your rpttr

again?". Apparently from what I could understand he had only just been informed of the interference I had reported 4 days previous & knew nothing of the fact that it had stopped the day before. (Who said dinosaurs don't move slowly?) I rung Telecom again on the 15/2 but they still had no answer as to why our rpttr was being totally wiped-out by the Telecom Pager intermod up to & including the 11/2, but had totally stopped by that evening. What do you think??? (Maybe it was a Birthday present to me from Telecom, my birthday is on the 11/2!) Just to round off 7275's report, we did actually have a small problem with the rpttr on the 7/2. The feedline coax plugging into the bottom of rpttr's colinear got pulled very tight (somehow), damaging the N-connector socket in the base of the antenna. This was duly fixed & is now fine. VK2RUW (8225) - All OK except around the 30/1, the output of the Link transceiver appeared to fail. (We could still hear Goulburn, they couldn't hear us.) Ken visited Knights Hill on the 6/1 & found the same problem that had happened back in November last year. There is a thin piece of 1-2mm coax leading from the PA board to the antenna changeover relay. This had gone short-circuit, effectively shorting to earth the output of the PA. (It is a credit to the designers of this radio, that the PA TXed into this dead-short many, many times without sustaining any damage.) Ken replaced the piece of coax this time with some RG-58 type double-shielded stuff to try & stop the problem from occurring again.

VK2RIL (438.725) - Once again no problems to report. I was able to access this rptr from down near Ulladulla recently which is not to bad.

VK2RUW (4775 Packet) - Michael (XCE) reinstalled the ROSE system on the 7/2/93. He had to do quite a bit of work on filtering for the VHF port (to try & "protect" it from all the crud at Knights Hill). Overall, Michael spent quite a bit of time on getting the system "just right", so a BIG thank-you to him.

VK2RUW (29.620) - Dale (DSH) is spending a little more time on the 10m RXer he has built for us to try & get it just right... he's a real perfectionist. Thanks Dale.

That's it for the rptr's. Finally, the rptr committee has purchased from Hamtronics in the USA, some DTMF control board kits for installation in our rptrs. Many, many hours were spent trying to perfect a "home-grown" design, but for the cost & time involved it wasn't worth pursuing, considering these boards we have decided on, are tried & tested in rptr systems all over the USA. These control boards will be duly installed in our rptrs in the near future (after we have put them together).

Until next time-Rob VK2MT

ATTENTION

Beam Antennae Owners

According to an announcement from the Minister of the Environment and the Minister of Communications, beginning April 1993 it will be forbidden to use beam antennae on the High Frequency bands. This is due to an International decision by the United Nations dealing with the quality of the environment and aimed to prevent the expansion of the hole in the Ozone Layer. The Official notice from the Ministry of the Environment reached the Illawarra Amateur Radio Club Inc, along with an interesting offer in which the Beam antennae owners will be able to receive a Vertical antenna in exchange for their Beam antennae and a nominal fee. Amateurs who are interested in receiving an alternate antenna are requested to apply no later than April 1st to the IARC Membership Services Group.

***** Racket Column *****

Well it's March already! Soon be Xmas again. A lot has happened over the time since I last put pen to paper, so speak. I gave a short talk on Amateur Satellites for the Nowra Club and I have been having a ball on AO-16, LO-19 and just listening on UO-22.

The VK2XGJ Packet Radio BBS has seen a fair amount of use but is still under used in its capabilities. I think the general User doesn't quite know what the FBB system is capable of, it is a VERY complex and comprehensive BBS programme.

For instance if you log on and type "F" for the Server you will be presented with a menu that looks like this:

Server-Menu

(C,D,N,Q,T,F,B. ? = HELP)

Through this menu you can then access the Satellite tracking section of the BBS, even see what time your favourite satellite is due for AOS at the BBS's QTH. Or would you like a general description of the Satellite? Just enter its number from the Menu presented when you type ?

Other sections will let you check how busy the BBS is/has been, when is the quietest/busiest times, which day is the busiest/quietest etc.

The QTH Locator can be accessed and by entering your Lat/L the BBS will give you your Maidenhead Locator Square, or conversly, by entering your Locator ie QF55jl the BBS will change that to your Lat/Long.

I am frequently asked about the List parameter on BBS's, generally if you log onto a BBS for the first time end enter L you will get a list of EVERY message sent to you. It is best if when you log onto a new BBS, to LL 20 ie list the last twenty msg's. If you log on again and mail has been delivered to that BBS, pressing L will get you a list of the mail delivered since your last log-in. If you connect to a BBS and no mail has been delivered, when you press L the answer will be something like "No mail available" or something like this. Now you can press LL 40 and get a listing of the last forty messages, or however many you want. Don't forget the space between the last L and the number that you wish to have sent to your system.

There is also two downloadable areas on the IBBS PRBBS. The first is the ASCII file area and is listed by typing: W After RX'ing the list of DIR's type: W General to get a list of the files available for downloading in the General area. To download for instance a file called PROBLEMS.TXT in the General Directory, type:-

D GENERAL\PROBLEMS.TXT

then open the buffer or however your particular terminal programme saves files, and the xferr will occur. I hope that you notice the BACK-SLASH between the directory name and the filename! That is where most problems occur. The second download area is for Binary files or files in an archived format. A special area for the mods for 9600 BPS operation is called simply 9600 in both the ASCII and PRG types. There are some nice pix in the .GIF format on where to locate the Varactor Diode/Discriminator points for some radios. To see what is in the DIR type:

YI

then to see what is in a particular DIR type: YI MODS to download from the MODS DIR the file called FT212.9K6 type:- YD MODS\FT212.9K6

and then set your terminal prg to rx a file xferred in the YAPP protocol. I had a p/call from a certain User last week and he was having problems getting any sense out of the VK2XGJ PRBBS, it kept throwing him off after the Connect. I sat and watched and saw NOCALL trying to Connect to the BBS. If you are having problems like this just a quick check that your Call is correct as most BBS PRG's now will not recognise the NOCALL and in fact can be

programmed to refuse access to the silly ones like WOMBAT, P1RATE etc. No names, no pack-drill! Also you might like to check out your timing parameters while you are there, I see a lot of Users with 0 as their RETRY instead of 6 or 8. I feel that after six retries you are rapidly becoming part of the interference yourself. VK2XSB has a file on his system that I suggest any serious User have a look at to help, not hinder the LAN's. The idea is to get the files/Mail that you want without stomping on the other Users of the system. At the time of writing the BBS is back on the 147.575 MHz freq because the UHF link to VK2XDM-3 has fallen over and has been off-air for a while. This freq. too a fair load off the 147.575 MHz freq and allowed more flexibility to the systems. Some Users are still having problems accessing the BBS, these other problems stem from my location. I have Mt Brown in close proximity to the North and East of my QTH. You can still use another stn as a Digi, ie VK2FPN on 144.700 MHz, VK2RUW-1 on 144.775 MHz and VK2DSH on 147.575 MHz if you have any difficulty with a direct connect. I must get permission to set up that 10 GHz dish in the back yard, turn the 10 Kw Linear on and weave the dish back and forth to wear the "hill" down. One of these years!! B-)

I now have a Space Shuttle tracking PRG similar to the large display used by NASA itself. It is in the YAPP section and to download it type YD SATS\STSPLUS.EXE The PRG need a VGA screen and a high speed computer 386 or above or a 286 with a Maths Co-Processor.

The VK2XGJ PRBBS has been operating an experimental protocol over the last three/four months on the 439.075 MHz 9600 BPS port. There are very, very few Users so testing has been sporadic, but I am glad to report that all seems to be working and hopefully we will have a Digi available shortly. VK2RAG was supposed to be online approx twelve months ago but..... I now have a fully operational Digi and all it lacks is some antenna cable an antenna and a well located site for IARS Inc to be the first to have a 9600 BPS Digi in VK2. Problem is I have now run out of the nece\$\$ary.

Any/all assistance would be welcomed. The Digi consists of a Tiny2/G3RUH TNC, ie a Tiny2 with the G3RUH daughter board to convert it to 9600 BPS, the radio is a Wormald 102R an ex-commercial radio, built like a Sherman tank giving 15 Watts. Due to the high Sig to Noise ratio of the 9600 BPS the 15 W is equivalent to 25-30 Watts on 1200 BPS. The 9600 Port on the BBS can be accessed by connecting to VK2XGJ-1 then C 3 VK2RAG, if and when it comes on-line.

Well that just about wraps up this months expose, hope you didn't spend all of your money at Gosford(Wyong?)
73, John de VK2XGJ

***** Mocom 70 *****

Our President has given me a copy of the MOCOM 70 mods, but I just haven't had the time to redraw the circuit - has naybody access to a decent CAD program to do the job for next month?

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***** Oh No!! *****

A little bird told me that a certain club member had problems accessing VK2RAW. He reported it to Rob VK2MT who had just spent a few hours at the site and knew there was nothing wrong. Rob 'kerchunked' it and found it was working it ok, so ignored the call. The same thing happened the following day. Rob wasn't available so a message was left. Rob kerchunked again, and again it was working. The same thing happened on the third day! Again Rob wasn't available so a message was left for him. Rob Kerchunked again and as expected, it was working. Someone obviously is a bit thick here so Rob made a phone call to the operator concerned and was told, rather sheepishly, to ignore the messages. Rob pressed for a reason and was told 'under threat of death not to tell anyone' that the gardner had cut through the coax whilst mowing the lawn!

Fortunately, Rob didn't just tell anyone, he told me and I have a BIG MOUTH! This is why I can tell you that the person concerned is my best mate. If that doesn't give it away, he is also the 'Packet Master'. If that doesn't help, he's also co-editor which means if you don't read this story, he cut it out (the story, not the coax)!

***** STOP PRESS *****

The field weekend that was supposed to be held this week-end has been postponed to April 17/18. Also in April there will be a visit to the Traffic Control Centre. This is where they sit in a booth and look at the traffic

in Sydney and modify the traffic lights to suit. I have been before and will definately be going again - it's very interesting to see life through another persons eyes.

On the 16th May, there will be a visit to Police Communications in Warilla. I missed the previous visit, but people who went gave it glowing reports - it's not so easy to criticize the police when you look at the world through their eyes. Hmmm. I've said that before - might be the makings of a good editorial. Remember those terrible essays we had at school - A Day in the life of a Penny! Yuk!

Back on track - gee, I seem to wander a lot don't I - did I ever tell you about..

On 13th June, we will have a visit to WIN TV. Rob VK2MT will be conducting the tour, and auditions will be held afterwards in Studio 1.

***** PLEASE *****

A group of operators were talking and two had complaints against me. Now I don't mind complaints. I know my shortcomings and that I upset a few people by what I say and the way I say it. All I can say is that if you are upset, there must be a good reason and maybe I have a point (not that you'll admit it). Actually, I'm getting off the point here. What annoyed me about the complaints is that they weren't made to me - it was what I call a whinge! The people concerned had valid complaints - what they complained about didn't happen, but if they had confronted me, they would have found there was a very good reason for (not) doing what I did. If you have a problem, tell the person who can fix the problem!

POST BOX "THE ILLAWARRA AMATEUR RADIO SOCIETY Inc"
PO Box 1838, Wollongong, 2500.

REPEATERS	VK2RUW	29.620	Voice	Mt Murray/Knights Hill (off air)
	VK2RUW	144.775	Packet (ROSE)	Knights Hill
	VK2RAW	146.850	Voice	Mt Murray
	VK2RIL	147.275	Voice/RTTY	Sublime Pt
	VK2RAW	147.575	Packet (NetRom)	Mt Murray (Off air)
	VK2RUW	438.225	Voice	Knights Hill
	VK2RIL	438.725	Voice/RTTY	Sublime Pt

BROADCASTS - The Wireless Institute of Australia, N.S.W Division broadcast is relayed to 29.620 MHz and 146.850 MHz at 10.45am and 7.15pm each Sunday. Callbacks after the broadcast. RTTY broadcast in the week before the meeting, Sunday evening, 6:45pm on 147.275 MHz, relayed onto 3.618 MHz +/- QRM and 29.620 MHz, with callbacks immediately after.

CLUB NET - There is a club net on 147.275 (VK2RIL) at 19:30, 7.30 pm and 09:30 UTC on Monday evenings. All amateurs are invited to join in and waffle.

NEWS LETTER - The "PROPAGATOR" is published each month to reach all financial members in the week preceding the Club meeting. Articles and letters are always welcome. Commercial advertising is \$60 per ad per year, member's classifieds are free. See Peter VK2FPN for details.

MEMBERSHIP - \$20.00 P.A, concessions \$15.00 P.A, expiring immediately after the Annual General Meeting in July.

LAWRENCE HARGRAVE AWARD - VK stations require 10 contacts with IARS members. Overseas stations require 5 contacts. One contact with the Club station VK2AMW is suitable. Details of contacts are to be sent to the Club secretary.

***** COMMITTEE *****

PRESIDENT	VK2KLH	Brian Clarke	
VICE PRES	VK2KWG	Ken Grimm	
SECRETARY	VK2JRH	Ron Hanks 84-2691	
ASSIST SEC	VK2SRB	Robert Bonella	
TREASURER	VK2DSH	Dale Hughes	
ASSIST TREAS	VK2GID	Graham Denney	
COMMITTEE	VK2SRB	Robert Bonella	VK2XQX - Simon Ferrie
REPEATER	VK2MT	Rob McKnight	VK2TKE - Ken Goodhew
QSL CARDS	VK2GID	Graham Denney	
PUBLICITY	VK2KWG	Ken Grimm	
BROADCAST	VK2XGJ	John Simon	
EDITORS	VK2XGJ	John Simon, 61-4628	VK2FPN Peter Read 61-7148
SOCIAL	VK2XCC	Ray Ball	
CANTEEN	VK2GMC	Phillip Klower	
DOTC LIASON	VK2MT	Rob McKnight	
LIFE MEMBERS	VK2ALU	Lyle Patison	VK2CAG - Graeme Dowse
	VK2OB	Keith Curle	