



REPEATERS VK3RGV 2m
& VK3RGV 70cm
CLUB CALL SIGN VK3SOL

Volume 3, Issue 3,
April 2007



SHEPPARTON & DISTRICT AMATEUR RADIO CLUB

Repeaters: VK3RGV 2m - 70cm - Packet.
Freq: 146.650 - 439.775 - Packet 147.575

Founded 1979

Incorporation No. A6677
P.O. Box 692 Shepparton 3632

SECURITY MEASURES



Danny VK3FDTH inspects the new security screen installed at the club radio room before Saurdays meeting.

Meet the Office Bearers

President:

Roger Conway VK2RO

Vice President:

Kane Hinchliffe VK3HKH

Secretary/Awards Manager:

Duncan Cameron VK3MDC

Treasurer:

Danny Hender VK3FDTH

Public Officer:

John Waters VK3PXJ

Membership Secretary:

Pat O'Shannessy VK3OV

Technical Committee:

Ray Wales VK3RW

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Committee:

Ben Styles VK3FBGS

Jacek Szczurek VK3TJS

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THE PRESIDENTS REPORT

The April report by Vice President Kane Hinchcliffe

Greetings everyone!

Looks like a lot has been going on within the club over the last few months. I, myself have been busily studying and haven't had much free time for radio.

On the meeting we welcomed our newest member, Graham, VK3ACK. I hope all members get a chance to say hello and make him feel welcome to our substantially growing club. First up, we had a working bee that was organised by Ben, VK3FBGS, and Danny VK3FDTH.

Danny and Ben were hard at it making sure that our club rooms were secured for our existing and new upcoming equipment. Danny and Ben arrived very early and by the time I got there they had pretty much finished the job, meanwhile, Daryl VK3KL, Les VK3TEX and Les VK3FLGL constructed and tested the new club beam to be hopefully erected at the next meeting.

Also, I have upgraded the firmware on our internet router and conducted some general maintenance to the

IRLP link. This should provide us with a little bit better stability for the future. Ed VK3BG has kindly accepted a replacement FM 828 instead of his current radio that we are using for the IRLP link. This will allow us to have no down time on the link and provide us with uninterrupted service.

Ben VK3FBGS, mentioned his concern regarding a very congested and rushed approach to the weekly check in help on Sundays and Wednesday nights and asked members if they could courteously take some time before pressing the PTT button and doubling over each other. Give Max VK3DSF a fair go and wait for his acknowledgement.

Ed VK3BG, wishes to inform people that he has some foundation licence books and if anyone is interested in getting their foundation licence or knows of someone this book is the best value for money.

Les VK3TEX, has indicated that he has been working on standard licence training notes and this is almost complete. Les has spent a great deal of time putting these together so please take the opportunity of reading his notes if you are looking at upgrading your licence.

Ben and Danny indicated that the next meeting would also be another working bee I have been informed that a cherry picker is to be

organised for the erection of the multi-band beam and rotator. Also the current dipoles, 80m and 40m will be reconstructed for a more permanent installation and tuned to perfection!

It doesn't look like it will be that long till we have a fully functioning radio shack with broadband facilities. I would have to say we would have to be one of the luckiest clubs in Australia, so many members with great personalities and assets that are willing to put in so much of there spare time so we can all reap the benefits! Well done!

Hopefully once we have the clubrooms up to scratch and full working order we can begin to have activities. There are so many different areas in the hobby and its almost impossible to cover them all! If anyone has any ideas of activities or wants to improve their knowledge in certain areas, stick up your hand and have your say! No ideas are dismissed; we need all the ideas thrown in so we can have an exciting future for all.

That's all for me this month, hope to see you all at the next meeting!

73's Kane VK3HKH

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Minutes of April Meeting

Shepparton and District Amateur Radio Club Inc. A6677S. Minutes of monthly meeting held on Saturday 14 April 2007 at the Mooroopna Community Hall, Echuca Road Mooroopna.

The Vice President Kane VK3HKK opened the meeting at 1325 hours and welcomed all present. A special welcome was extended to a new club member Graham VK3ACK.

Present: Kane VK3HKK, Duncan VK3MDC, Danny VK3FDTH, Daryl VK3KL, Ernie VK3BSD, Rob VK3FMAC, Graham VK3ACK, Les VK3FLGL, Ben VK3FBGS, Terry VK3FTED, Wayne VK3XQA, Ed VK3BG, Les VK3TEX, Max VK3DSF, Brian VK3HBW, Margaret Tingay SWL, Alan VK3AYD, Neil Tingay SWL, Barrie VK3KBY, Jan VK3ALF, Jac VK3TJS.

Apologies: Roger VK2RO, Terry VK3FTHS, Wes VK3FDDT, Rodney VK3UG, Bill VK3DWG, John VK3PXJ, Rob VK3ECH, Pat VK3OV, Neil VK3KAL, Angela VK3FELT, Lisa Laffan Newsletter Editor.

Moved: Daryl VK3KL, seconded Danny VK3FDTH, carried.

Treasurers Report: Danny VK3FDTH presented the report on the club finances. Moved: Danny VK3FDTH, seconded Ed VK3BG, carried.

Correspondence Inward:

AR April 07

Reply from Dr. Sharman Stone re BPL.

Letter from Federal Govt. regarding small grants.

QSL Cards.

Email from WIA confirming registration of new Club Invigilators.

Correspondence Outward:

Letter to WIA requesting registration of additional Club Invigilators.

Moved Les VK3FLGL, seconded Ben VK3FBGS, carried.

Acceptance of minutes of last meeting: Moved: Duncan VK3MDC, seconded Max VK3DSF, carried.

General Business:

Club Radio Station: Danny VK3FDTH proposed a vote of thanks to Ben and others who participated in the working bee prior to the meeting. The work included securing the radio room and assembling a beam antenna for the club radio station.

Work to secure the radio room was completed.

Les VK3TEX indicated that the beam has been tested and is ready to be installed.

Ben VK3FBGS indicated that a rotator is available and that another working bee is to be arranged with a cherry picker to install the antennas.

Ed VK3BG indicated that a 70cm beam for the IRLP would be available by the next meeting. A brief discussion followed as to whether a separate antenna for the IRLP was really required. This issue is still unresolved.

Standard Licence Upgrade Training: Les VK3TEX indicated that the notes he has prepared for upgrade to a standard licence course were almost complete.

Ed VK3BG indicated that additional Foundation Licence books are now available for purchase from the club.

Ben VK3FBGS suggested that we could introduce the hobby of amateur radio into schools and provided a licensed operator was available, Ben said his employer could make radio equipment available for demonstration to students.

Ed VK3BG asked about the replacement for the 828 he loaned to the club for the IRLP project. Ben VK3FBGS indicated that a replacement radio would be provided.

2M Net: Danny VK3FDTH raised the issue of stations being too impatient when checking into the 2M net using the repeater. Stations should wait until the previous call has been acknowledged by net control before checking in. Les VK3TEX suggested that we could document a procedure and include it in the newsletter.

Problems with VK3RGV: This issue was raised and Ben VK3FBGS indicated that there was a problem with the 2M antenna on Mt Wombat but this was being addressed.

LED Project: The future of this project was discussed and it was decided that once work on the club radio station was complete, this project could proceed.

Club Name Badges: Duncan VK3MDC to email Jac VK3TJS a request for name badges for Ernie VK3BSD and Graham VK3ACK.

Comms Day: Wayne VK3XQA suggested that we could arrange for someone with the required expertise to provide a service at Comms Day where amateurs could have their radios checked.

Next Meeting: Danny VK3FDTH indicated that the next meeting falls on the same weekend as the WIA AGM and he suggested that we move the club meeting forward one week. This was agreed.

The Vice President closed the meeting at 1405 hours.

Moorabbin and District Radio Club.

PO Box 58 Highett 3190

VK3APC

HAMFEST 2007

Saturday 12th May 2007

Location - BRENTWOOD SECONDARY COLLEGE

Watsons Road, Glen Waverley. Melways Reference 71 D7

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For further info or to book a table please contact:

Lee Moyle, VK3GK. Tel: (03) 9705 1051.

Fax: (03) 9705 1054.

Email: vk3gk@aanet.com.au

Graeme Lewis, VK3GL. Tel AH: (03) 9702 1199 or Mobile (0418) 289928

Email: vk3gl@aanet.com.au

Webpage - www.mdrc.org.au

Don't miss the RadioFest

Shaping up to be the biggest amateur radio event held south of the Murrumbidgee River, the Centre Victoria RadioFest will be at Kyneton, Sunday 22 April.

It introduces a number of new and innovative elements. In recognition that these gatherings usually only cater for radio enthusiasts, the RadioFest is seeking to be family friendly.

There will be a children's playground, free face painting, a mini-bus visit to local tourist attractions and room to have a picnic.

Clearly through widespread promotion the general public and in particular those interested in learning more about amateur radio are being encouraged to attend.

One innovation is the active encouragement of ride-sharing or car-pooling via an online facility on the Radiofest website to register requests for a ride and offers of a lift.

All local major traders plus Bushcomm from Western Australia and Hamak Electrical Industries of New South Wales will be under the one roof. Combined with a huge second-hand market, WICEN emergency communications, VK3 IOTA DXpedition display, ALARA, Modern ATV, APRS, Historical display, Software Defined Radio, Small Space Antenna Expert, the latest on the BPL threat to HF radio, come n' try activities and interesting mini-lectures make it a not to be missed event. Its strategic location of the Kyneton racecourse puts it less than an hour from Melbourne, Ballarat and Bendigo. Tickets costing \$10 on sale at 9am during breakfast and gates open 10am.

Heading the list of door prizes is a Yaesu FT-857D from Vertex Standard. More details on the event being organised by Amateur Radio Victoria, Central Goldfields ARC and Midland ARC, can be found at the website radiofest.amateurradio.com.au - Centre Victoria RadioFest 2007

If you have something you would like to share with the other members of SADARC then send it along with any photos you may have to accompany it to newsletter@sadarc.org

CLUB NEWS



No they are not locked up!

Danny and Ben are just putting the finishing touches to the security screen at the club radio room.



New Arrivals

Congratulations to Olivia & Damien on the birth of Jay Cooper Laffan born on the 29th March Weighing 9lb 12oz Time 04.24am at Goulburn Valley Health, Shepparton First Grandchild for Lisa & Mark Laffan and first Great Grandson for Daryl VK3KL and Janice Hitchcock



Michelle Margaret Tingay was born on the 13th March Weighing 8lb 6 oz Time 10:01 am at Goulburn Valley Health, Shepparton Congratulations to Kylie and Jason, Neil and Margaret .

Ham Radio and Travel outside Australia

By Bruce VK3QC & Muriel VK3BJO Plowman



Ham Radio and Travel outside (and inside) Australia.

Still in Western Australia. When we left the site where we assisted with the Bus rescue, we continued travelling North along highway 1 in the direction of Broome. First night we stayed at the 80 Mile Beach, where we found the site of a long abandoned Homestead, which, although only about one kilometre from the beach, had a very good large well with a concrete cover (no nasties!), and we took the opportunity to have a hot shower and refill our caravan tanks.. As there were several other campers we stayed two nights before heading off again.

We had only travelled about 40 km and noticed on the left side of the road a sedan car with the rear right wheel on the ground, with all of the wheel studs stripped off at the hub. There did not appear to anyone around, but there was quite a bit of litter. About 100 metres further up the road, was an aboriginal lad, about 18 years of age sleeping under a tree. When we went over to him, he sat up, and said he had been at that spot since Sunday, and as this was Wednesday, we asked if he was ok, for food and help. He said that only two other cars had stopped, but when they saw he was an aboriginal, they left. He had a companion with him, whom he described as "bush black", but he had "gone bush" to find tucker and water.

When we asked about where home was he said he was from a Catholic Mission, but they would not be worried about the two lads. We asked if any help was needed, and he asked us to call in at the LaGrange Mission and let them know, so they could arrange assistance, so we promised to call in. When we found the entrance to the Mission, we also found it was 14 km in to the Mission, and it was a very poor track. On arriving at the buildings, we were met by an older Aboriginal, who wanted to know what we were doing there, and making it very clear we could not stay over night. We asked to see "the boss" who, when he eventually came was a tall, bearded, unkempt man, who appeared to be very arrogant and said he was Father Batchelor, and "what do you want?" We told him about the two lads down the road, and asked if he would like us to take food to them and bring them to the Mission.

His reply was "we do not need do-gooders to tell us how to run our Mission. We know about those boys, who went to Sandfire Flats on Saturday, and did not come home on Sunday, and we are leaving them there, to teach them a lesson, until WE are ready to bring them back. Now please leave". So there were two more people who "were taught a lesson"—us. We then headed for Broome, which we reached the next day, May 7th 1978 and settled into the Caravan Park. When I erected my Band Spanner antenna on the caravan, it was not long before a CB'er knocked on the door and introduced himself, and was interested in the antenna, and he was also interested in becoming a Ham. He was followed over the next couple of days by other CB'ers who made us welcome.

On Friday May 12th at 8.15 pm, there was a knock on our door, and it was Don ZL1DU/VK8 who asked whether we would help contact a boat in trouble. Of course we would, and he told us that several CB'ers had been trying to answer a distress call on the 27mc CB band from a large yacht which was in trouble in the Indian ocean, about 20 miles west of Broome in bad weather. The Owner was Lance Tresham of Onslow. The boat, a 30ft ferro-concrete vessel had left Port Hedland, against the Harbour Master's advice, (they had advised him of heavy seas and likely

gales) early that day to sail to Derby, about 1200 km away, hugging the coast, but he had a problem with the sails, so had tried to start his Diesel motor, but found that the diesel fuel was contaminated by water.

He had on board his wife and 2 year old son. He had expected to spend overnight sailing to Derby at the eastern end of King Sound, so he had not taken aboard much food, nor had he checked the diesel fuel. He did not have a working Marine radio, but did have a CB radio.

When he realised he was in trouble he called on CB Ch5 and was heard by Geoff Johnson (CB call BM619) in Broome, who had contacted the Police in Pt. Hedland, and they in turn had advised the newly formed Marine Rescue Service in Canberra, who immediately tried to "take over" the rescue. The MRS did not have any radio equipment and so all the communications between them and Broome and Pt Hedland were done by phone! The MRS also called the Aerodrome at Broome to seek their help. They promised two aircraft would be available, but they only had local radio communication, and no CB.

I decided to operate my Ham gear on the CB band, and to use my 100 watts SSB (although 12 watts PEP was the CB limit). After all this was a Marine Emergency, with 3 lives potentially at risk. As it was very obvious that the lack of a common channel for radio communication was going to inhibit the rescue I asked for two telephones to be installed in our caravan. The PMG boys were great, they had the phones in within half an hour. This meant I had contact with the Pt. Hedland Police, the Canberra MRS, the airport, and through them, the aircraft. For the sake of brevity I will now print from the notes I made at that time. The times are Western Australian. It took me quite while to wake up to the references to "miles" The boat owner was using sea miles so my calculations were "miles" out!

At 20.15. Don ZL1DU/VK8 came to the caravan, and told me about a boat in trouble at sea, and asked if I was willing to help. He had already contacted the airport and arranged for 2 aircraft to be made available and readied.

I asked for two telephones on separate lines be installed in our caravan.

We arranged skeds every 15 minutes to conserve the boat's battery.

20.45 The phones were installed and working. By this time Geoff Johnson had lost all contact with the boat, so I called and made good contact, and I acted as a relay. I suggested the boat send up a rocket, but he did not have any, but said he could see the lights of Broome at 120 degrees starboard, he was heading 06.00 he estimated 20 miles out to sea.

21.15 We asked the boat whether he could use flares. He agreed, but the planes were not out at that time. Boat said it was too dangerous out there for planes and the weather was worsening.

21.30. Canberra agreed no further flights that night and for boat to put out a "sea anchor": Determine the water depth. Note the time and direction of sunrise Take DF of Broome, Pt Headland, Cape Levesque and get plenty of rest for the night (guess who had never been at sea on a rough night!)

21.45 Boat called to say he would try and set a sea anchor. He had already furled sail.

22.00 Boat called to say depth was 31 to 32 fathoms (a fathom is 6 feet), using a leadline. Lights of Broome are brighter.

22.15 Boat called. Wind 20 knots conservative, visibility bad, wind due East..

22.45 Boat, have done all Canberra asked except for D/F, which is difficult because of

conditions on deck. Swell 15 to 16 ft. Wind still due East. He is using a safety line on deck.

23.00 Boat called. Closing down to have sleep. Wife and Child reasonably OK, everything very damp. He has faith in boat, which went through Cyclone Tracy ok. We told him we would listen all night and made another sked for 06.30

Saturday May 13th.

06.15 Boat called to advise he was awake and ready to carry on.

06.25 Boat called. He was now in a full gale. No Sunrise. Steep seas. He is adrift. Poor visibility. Light Rain. Asked for a Naval Vessel. (We had already asked for this last night, but received no reply. Found later that one was being organised to go out as soon as we were able to locate the Boat's position on Saturday)

06.45 Boat called. His boat's heading 0.30 (degrees). Broome RDF (radio direction finder) 124.00. A few minutes later. Bearing 000(North). Levesque 060 Starboard. Sea anchor no help. Drifting at 1.5 knots away from coast. Water depth unknown. Cannot get a bearing on Pt. Hedland.

06.50 He is concerned about battery, wants to conserve. Estimates he is 20 miles out from coast. Broome beacon on starboard Beam 280.00 bearing from Broome.

(This last one appeared contradictory) He has drifted an estimated 12 miles overnight.

07.20 Boat called with revised location estimate. Heading 03.00, Broome 124.00 Starboard, with heading 000. Levesque 060. He suggested a plot of bearing from Broome Beacon 280. 29 miles out to sea. Battery low.

07.30 I called VK6KC on 7080, and we discussed the situation, and he suggested I call Jack Ward VK6RJ. I phoned Jack, who said he would contact Canberra and the Coast Guard and would call me on 7080.

07.45 VK6RJ called back and told me the Operation was now under control from Pt. Hedland, with Police in charge with Sgt. Dywer of Pt. Hedland Police now in charge working from Broome Police Station.

09.10 Phone message from Snr/Const McCallum to ask boat to note and advise us of direction of approach of any aircraft heard, take bearing and accurate time.

09.30. We now stuck our noses right into it, after reviewing the info we had been getting from the boat, it seemed that he in actual fact, was a lot further out and further North than the boat reported. I had asked the boat if they had an ordinary portable radio, that used a Ferrite antenna. He did, so I suggested he put the radio close to the compass, tune in Broome Radio station, rotate the set each way until he could get a distinct drop in signal strength (or better still, a null) and compare the radio to the compass to get a direction. He would find two nulls, but one of them would indicate an out-to-sea direction, make a note of the bearing, then repeat the process with Pt. Headland and Derby stations, and see if he could find a more definite bearing. He called back about 15 minutes later to say it was very difficult to establish any accurate bearings due to the violent motion of the boat, but he found enough, to ask the search to be extended to 60 miles radius from

Continued next page

Ham Radio and Travel outside Australia continued

Broome, and plus 30 miles north and minus 30 miles south, centred on 118 Latitude.. That would give a square search area 60 miles by 60 miles out from Broome.

09.30 We called Broome Police and suggested to them they extend the search area to these dimensions and McCallum agreed, and sent instructions to the airport to that effect. He asked how I knew where to search as he was also puzzled by the conflicting info from the boat. I told him I used a Shell road map, (which had a lot of sea on it!), a cheap school protractor and the readings the boat gave me from his B/C band portable. The boat meanwhile had made three more attempts to position himself with the Portable radio, and averaged out the four readings he had done, so I recalculated his position as being at roughly 300 degrees north of Broome and about 50 miles out. So I asked McCallum to request the aircraft to also cover this area.

11.25 Boat called and said he had made a plot himself and the figures were:--Heading 330 degrees, Broome now 110 degrees off stern quarter, they are drifting North West The wind still due East. I also phoned this to McCallum, whose comment was" let me know when you finally make up your minds

just where he is" I am still waiting to hear from him nearly 29 years later!

12.29.From Geoff Johnson" Aircraft have sighted the Boat and are going to circle it in relays until the Naval Vessel arrives". They were found 40 miles out and at 300 degrees. (Nth West of Broome in the area we had suggested).. Other than the Hams and CB'ers no one, or organisation, bothered to tell us, or visit us, or want to acknowledge our existence!!

The Naval Vessel was one of the small coast patrol vessels, which are still operating around Oz. The vessel rescued the family, and because the boat was much heavier than them, they sank it with gunfire as it was in the middle of a busy shipping route, with ore carriers constantly moving. The vessel came back to Broome, and the police took the people back home by car. The vessel was docked at Broome for 3 days whilst it refuelled etc. We drove around to the Port and literally "looked down" on the vessel.

The tides at Broome (and the NW coast) average a rise and fall of 31 ft!! When we saw it, the vessel was actually sitting on the mud!

Now to communication! There are several aspects of this event that could have made a very big difference in the time taken to find this Boat.

We were trying to work with:-- Pt.Hedland and Broome Police: Broome Airport: Marine Rescue Service in Canberra: A boat with no Marine Radio: CB'ers (including the Boat): Coast Guard: Navy: And other Hams.

The Navy Vessel had no CB, or Ham, or Airport, or Police communication capability.

The Police had none of these either.

Canberra had no communication with any of the others except by telephone.

Broome airport had no communication with the Navy Vessel and so on! Just think what time could have been saved if the Navy could have contacted the Boat by radio!

What is the message to Hams? Do not ever expect appreciation from any other organisation, when you show them to be incompetent, or not organised.

After this event we continued on our around Oz trip and arrived home at Glenrowan in September 1978, keen to start building our new house, and to commence planning, for our next venture.....North America in 1980! More next month.

If you have any queries or comments, please contact us on bpplowman@westnet.com.au

The Ground Plane Antenna

By Les, VK3TEX

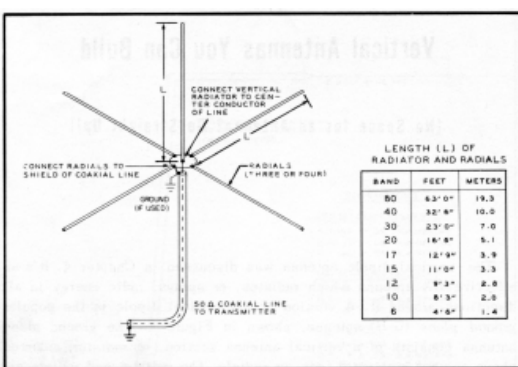
With the sunspot cycle going through its lowest point in the next few months, this means that reliable, consistent, DX communications on the HF bands has been rather sporadic...(Roger VK2RO would disagree with the above, but it sure helps when you have big antenna's.

Many of you would know of the dipole antenna (You shouldn't be in radio if not!)

This article will discuss an even simpler antenna the ground plane antenna (sometimes called the *monopole*).

There are a couple of different types. First is the ground mounted $\frac{1}{4}$ wave ground plane and the other is the elevated $\frac{1}{4}$ wave ground plane. The difference between the two is one has its feed point close to the ground and the other is elevated on a mast or tower (or tree if you must!)

Let's touch on a few points of the ground plane antenna. It is a vertical antenna ONLY. Refer to figure 1. Figure 1.



In its most basic form it is made up of a single vertical element that we call the radiating element. It is fed with the centre conductor of our 50 Ohm coaxial cable.

Then there are 3 or more radials at right angles (could be

different angles, more on this later) to the vertical element and these are known as the ground plane elements. These are attached to the coax braid.

In the above configuration, the impedance of the antenna feed point is about 36 Ohms.

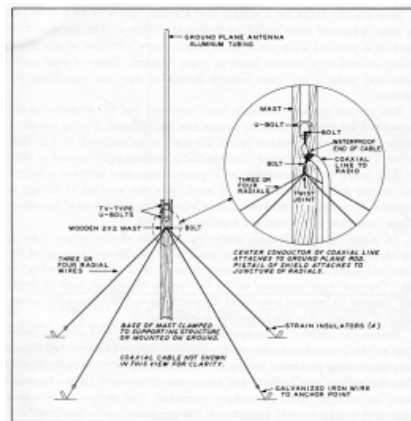
The reason for this is fairly straightforward. It's basically half of the impedance of a dipole antenna. Remember that only the vertical element radiates in the ground plane thus the bottom half is seen as a reflective artificial ground.

Imagine if you took the four ground plane elements in the diagram

above and bent them another 90 degrees downwards you would end up with a vertical dipole and an impedance of 72 ohms!

A ground mounted $\frac{1}{4}$ wave antenna usually has its elements (ground plane) as buried $\frac{1}{4}$ wave insulated copper wire. You can also add more radials than 4 to get a more efficient reflection. Sometimes this burying of radials when there are more than 4 wires is called a "Ground mat".

Generally the reason the radials are under the ground is to keep them out of the way and prevent people from tripping over them!



The vertical element must be insulated from the earth and not come in direct contact with it.

Ground mounted antennas are usually used on frequencies on the lower HF bands below 14 MHz where the sizes of the radiating elements are large. In the figure above the element lengths for 80 Meters is 19.3 Meters!

One practical way to make

an 80 meter ground plane antenna is to insulate the base of a convenient tower which is 20 meters tall, and feed it with 50 ohm coax! Attach the shield of the coax to the buried 19.3 meter (3 or more) wires and you have an efficient 80-meter antenna.

The other type of ground plane is the elevated type. These you can stick on the top of a tower or pole and they work great! See figure 2

The above diagram shows the vertical element mounted on a wooden mast, which is ok maybe for a temporary installation but probably not too great for anything more permanent. It's OK to use a metal base but you must remember to have the vertical radiating element INSULATED from the base (No need to worry about voltage arcs at the base, because it is fed at the high current and low voltage point of the antenna). On

mine, I used two plastic insulators to hold the element to a strong aluminium rectangular mount. This means I don't have to worry about it being weak. (On an earlier one I made, I made the base out of timber, but after a while it split down the middle and I had to change to aluminium.)

You will also notice in the above diagram that the radials are sloped down in a 45 degree angle. This is convenient to tie out to your anchor points but also has an important characteristic of RAISING the impedance of your antenna from 36 ohm to 50 ohm to match the 50 ohm impedance of your coax cable. This way you can get a near perfect match on your antenna without worrying about antenna tuners!

The angle of radiation from this antenna is lower than the vertical dipole, and higher than the 5/8th wavelength antenna and thus is very well suited to DX communications via the ionosphere. (Better than the vertical dipole).

I have experimented for years with ground plane antennas and never found any problems with them. When I was first getting in to radio via 27MHz my first antenna that I built was a ground plane and I always got excellent reports both for local communications and DX.

The one I am using at present is one I made up for the 20 meter band. It uses a radiating element of 5.1 meters as per the first diagram. I have it on a very robust metal base concocted of various bits and pieces. I have three ground plane elements one of which is of solid aluminium tubes. The other two are normal wire with lugs on the ends to attach to the base. The lengths of these are not too critical, as long as they are near the length of the radiator or up to 5% longer. Some texts state that these elements MUST be longer but I have found in practice this is not so.

My main radiating element is 1 inch thick Aluminium tube at the base and only tapers of slightly towards the top.

This gives an excellent bandwidth over all of 20 meters with an SWR of 1.1 to 1. Not many antennas can boast this!

Now, the reason I have used one element of solid tube for the ground plane was I simple had no convenient tie off anchor point for it so I made it solid!

It is mounted roughly about 10 meters to the base on the tower.



TOP: Antenna mounted at 10 meter free standing tower

RIGHT: The base of the antenna. Note the vertical element is isolated from the rest of the steelwork.

Advantages:

- > The Ground Plane is cheap to make. Mine cost nothing to make, as I made it from bits and pieces lying around up near the shack. Even take a 1/2 wave CB antenna that will easily convert to 20 meters.
- > It has a wide bandwidth if you use thicker elements for the radiator. Mine has perfect VSWR for the entire 20 meter band. Very power efficient too. You can feed lots of power into it too and nothing will burn out. (Unlike Traps!)
- > Very compact antenna. You can put it up in a suburban lot if you are restricted for space and get great performance.
- > Low wind resistance. Ideal for cyclone prone areas.
- > Omni directional radiation pattern. This can be a disadvantage sometimes in high traffic areas (Europe, America, Japan) but its not too bad in Australia being far away from the major Amateur populations. The advantage is you receive all signals that are coming at you at any given time. Idea for a net controller.
- > A good "Try the band out" antenna. What I mean is, you can get on a band cheap and try it out and see if you like it before investing lots of dollars in beams etc.
- > Ideal beginners antenna. Excellent way for Foundation Licence holders to get experimenting with making antennas.
- > Excellent antenna when propagation is open.

Disadvantages:

- > Zero gain antenna. Has only 1.7 db gain over the isotropic radiator. Less than a dipole.
- > No front to back ratio or rejection of unwanted signals. This could be worse in populated amateur areas. USA, Japan etc.
- > Can pick up man made noise more easily than a horizontally polarised antenna. Not a problem if you live rurally. (As in my situation.) Also a good noise blanker in your radio should knock this sort of noise out.
- > Not a good antenna when propagation conditions are marginal. Harder to work the DX when conditions are tough.

I have just recently changed the wooden base on my 20 meter GP antenna (cracked!) to steel and put it back up. I was pleased to see a low SWR was present to the band edges.

My main concern with this antenna was to have it as efficient as possible and wide bandwidth to boot. This I have achieved and it works very well.

I have worked lots of DX in the afternoon into Europe when the conditions are open, and many of the stations are in amazement that I am pushing 59 to them with 100 watts of power to a ground plane antenna!

In conclusion, everyone should try and play around with the Ground Plane antenna, especially now that the sunspot cycle will be picking up and we can expect DX conditions to improve significantly.



DOC ON POWER LINE INTERFERENCE

By Rod Champness and Vic Pleuger

INTRODUCTION

With new technology comes new techniques for overcoming related interference problems. There are, of course, many potential sources of interference in our complex, technically-orientated society which can involve mechanical, electro-mechanical, electrical and electronic devices — all of these are capable of producing unwanted radio frequency energy. Of these sources, it is a fact of life that power line interference (PLI) constitutes more than 50% of all complaints received for investigation each year by DOC in all States.

DOC's current policy is to provide a cost effective service to the public, consistent with available resources in identifying sources of interference. The diagnosis and location of PLI is complex and time consuming, resulting in a great deal of DOC's limited resources being used in this activity. Regrettably, it is impractical for DOC to investigate cases of PLI to the amateur service unless there is also significant interference to broadcast or television reception from the same source. All interference complaints may be lodged at any of DOC's Radio Frequency management Offices throughout Australia.

It is an unfortunate fact that all power lines radiate radio noise. It must be regarded as impossible to prevent radio interference from power lines entirely, if not from a technical, at least from an economic point of view. Satisfactorily resolving PLI and other interference problems is often a matter of effective negotiation and education. In this context it is pleasing to note that the activities of the WIA's EMC advisory committee and other contributors of constructive magazine articles can

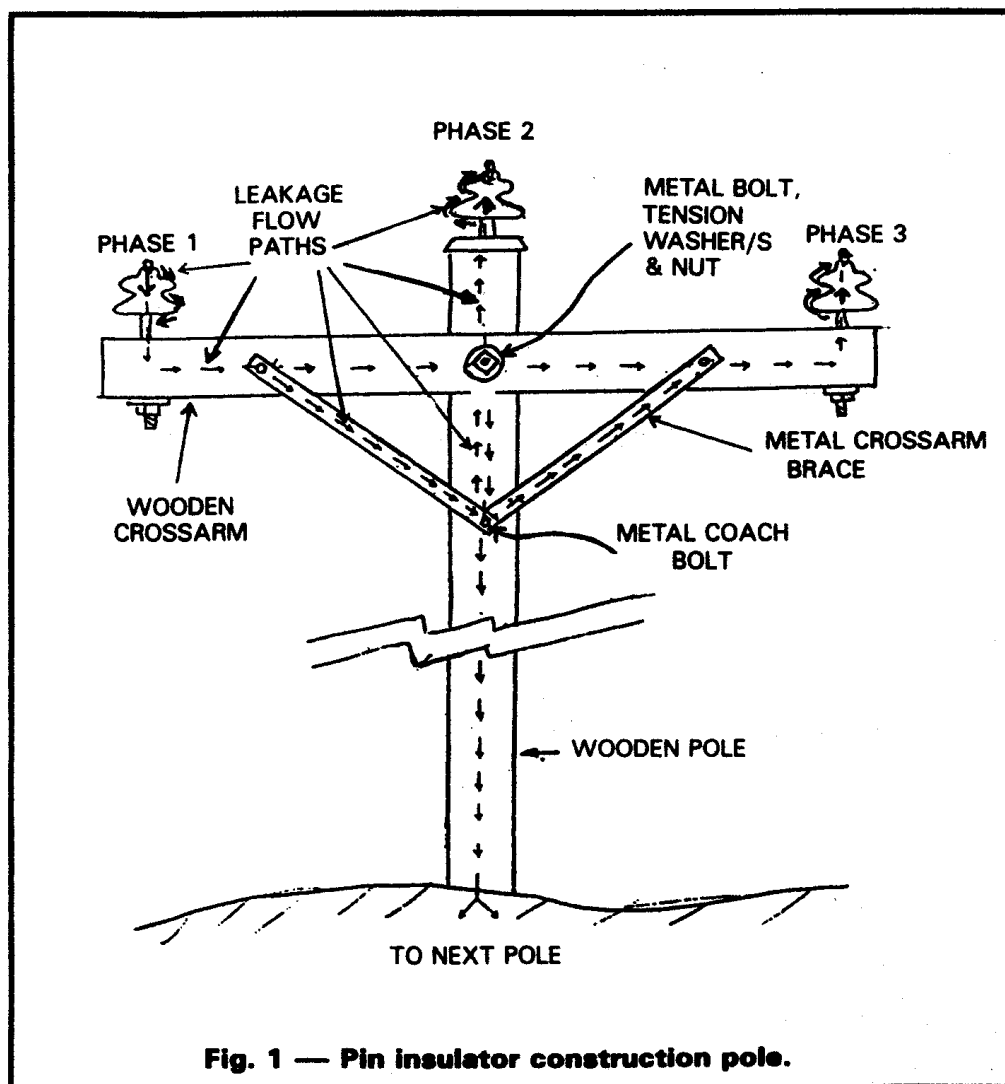


Fig. 1 — Pin insulator construction pole.

only enhance the understanding of interference problems in general.

In the following article on PLI, we will be discussing primarily the Victorian situation, for the sake of convenience. While there may be some differences in power line construction and climate

among the States, these should not significantly affect the basic problems encountered.

Continued next month