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

REPEATERS VK3RGV 2m & 70cm	President:- Peter Rentsch	VK3FPSR
VK3RGV B D-Star	Vice President:- Ed Roache	VK3BG
2m IRLP Node # 6992	Secretary:- Alan(Temporary)	VK3AO
CLUB CALL SIGN VK3SOL	Treasurer:- Ron Burns	VK3COP

May Newsletter 2012

Presidents Report May 2012.

Thank you to all those that attended our last meeting. I hope they enjoyed it and got something out of the videos that were shown.

At the last meeting we accepted the resignation of John VK3PXJ as Secretary and Alan VK3AO has stepped into the breach for now. Thank you to John for the work that he did during the year and welcome to Alan.

Michael, VK3FMAA is organising a Field Day/ Promotional Day on the 3rd of June at the Kyabram Community Church. We would like to see as many members as possible turn up on the day to promote our great hobby and to support Michael. He has put a lot of work into this event and it is a great opportunity to demonstrate to the public what Amateur Radio is. Final organisation of the event will be discussed at our June 2nd meeting. More details of the event can be found later in the Newsletter.

Our Comms Day will be held on Sunday 9th September so please keep that day free to help with the day. Due to the unavailability of the hall to us on the Saturday prior to the Comms Day setup will occur bright and early on the Sunday. Setup time will be 6.30am Sunday morning so we need all hands on deck to assist with this and also the rest of the day. Also, if you have any bright ideas has to how we can improve the day please let us know at the next meeting.

Our July 7th meeting will be a BBQ meeting commencing at 11.30am approximately. If it is wet we can still cook our food in the Kitchen so please come along and enjoy some fellowship prior to the regular meeting. There will be an executive meeting at the Guide hall commencing at 10.00 am for those involved.

You will be pleased to know that I have been able to twist somebodies arm far enough up their back that they have capitulated and agreed to be guest speaker at our June meeting. Mr Bet Orr, Team Leader and Senior

Paramedic at the Cobram Ambulance Station has agreed to come along on the day and talk about basic First Aid for Amateurs. He will cover topics such as CPR, Wound Treatment, Electric Shock, Basic First Aid and how to deal with RF Burns. So please come along and listen to our speaker and make the effort that he puts into his talk worthwhile.

That's it for this time. See you all on the 2nd June.

Peter – VK3FPSR
President - SADARC

Minutes Of the April 2012 Meeting:

Minutes for SADARC

Saturday 5 May 2012

Meeting Open: 1300 hrs at the Mooroopna Club Rooms

Present:
VK3FPSR Peter, VK3COP Ron, VK3AO Alan, VK3FALN Alan, VK3FMAA Mike, VK3HBW Brian, VK3PXJ John, VK3BG Ed, VK3CHV Ian, VK3VCE Dave, VK3VG Trevor, VK3TEX Les, VK3OV Pat, VK3BPH Kevin, VK3TJS Jack

Apologies:
VK3BNG Bruce, VK3FNTB Matt, VK3ALF Jan, VK3ELV Phil, VK3UG Rodney, VK3DCX Duncan, VK3KL Daryl, VK3HEN Damien.

Previous Minutes:
It was noted that VK3BG's callsign was incorrect
Minutes moved as correct VK3FMAA Mike
Second: VK3FALN Alan

Business Arising:
Comms day: Pat recommended the use of the current church facility for the swapmeet although the hall will be having a function the previous night until 2330 hrs. This venue is known to many amateurs and short notice of a change may be detrimental to the function. Relocation may be considered for next year.
In order to set up the facility it was decided to commence at 0600 Sunday with exhibitors allowed entry at 0800

Michael gave details of the proposed "Display Day" to be held at Kyabram on Sun 3rd June.
Setup 1030 to 1200 open to public 1230 to 1500
Suggested dipole for operation on 20, 40 and 80 metres and an antenna for 2m
Actual frequencies that are decided on should be advertised to as many amateurs as possible so they are aware of the function and can listen/contact the group on the day
Display could demonstrate:

- How to build a dipole antenna
- Demonstration of CW
- IRLP (DTMF mike reqd)

Get interested people on the air as second operator

Michael, Les and Dave can make equipment available

BBQ facilities provided by the Church Group
The management of the function was handed to Michael who will keep the club informed

Time will be taken at the next meeting to discuss the clubs constitution

Ed has "T" shirts available with the club logo. Your name can also be included. Contact Ed with size and requirements. Cost $34

Correspondence:
Inward:
Invoice for Mooroopna clubroom rental
Jaycar flyer
QSL cards
A letter from Jill Riordan thanking the club for making her father, Alan Dobson, a life member

Outward:
Letter to the Griffith family expressing sympathy at the passing of Bill, VK3DWG

Treasurers Report:
Report was handed to members by Ron VK3COP
Moved: Ron VK3COP
Second: Dave VK3VCE
All in favour

Ron also drew to the clubs attention the need to source a new agent to provide photocopying of documents as the current provider has closed their business

Membership subs are due at the end of June . . . .Early payment would be appreciated.

Technical Report:
There was no representative from the technical committee present
Trevor has completed EMR reports. Copies are at the scout hall and Mt Wombat
Ed stated the 6 metre repeater is working well and advised simplex frequencies are:
52.525 FM calling frequency
53.525 FM secondary

The cost of the DSTAR internet connection was raised. To be discussed at the next meeting with Toby

General Business:
Peter VK3FPSR to update website
Alan VK3AO, is acting secretary until a permanent can fill the position

Alan VK3FALN gave a report on the recent get together at Nagambie. Approx 40 people attended from around the area including Melbourne (Wantirna), the Midland Radio Group and many locals. A good day was had by all

A car boot sale provided many of us with some more, greatly valued treasures at bargain prices. Well done organisers

A special thankyou to John VK3PXJ for his contribution to the club as secretary over the last six months. Thanks John.

Meeting Closed 1400 hrs

Next meeting June 2nd

Regards
Alan VK3AO.

SADARC Technical report:

MOUNT WOMBAT TECHNICAL REPORT – MAY 2012

All operational repeaters are working well with no problems evident. Trevor VK3VG has done all the Electro-Magnetic Radiation **(EMR)** calculations and none of our services exceed the levels of exposure to RF radiation considered safe. The Technical Committee has all these figures and a copy will reside on Mt Wombat after the next visit. Thanks Trevor.

APRS repeater. The simplex two metre **APRS** repeater is still not operational. Ray is waiting on the modem Toby is arranging to obtain from his contact Richard.

Two Metre FM. At this stage the 2 metre FM repeater is not being upset by stations in the Ballarat area working their repeater on the same channel. This is good news and we hope that any future problems due to the Ballarat repeater are just a minor nuisance. As tested recently the repeater range to the West is just slightly less than the 6 metre repeater – see below. However, the radiation pattern is more even so its performance is good as was noted in the last rep0ort.

Six Metre FM. On a recent trip to South Australia I conducted the same tests as I had before to see what range I could get out of the repeater. I found that I could only get 120 kilometres instead of the 160 kilometres over which I had heard it when it was first commissioned. This is not an indication that the repeater isn't working as it should, but shows the committee that the standby antenna is quite directional (as we believed it was) with a strong lobe in a West-Nor-Westerly direction and nulls in many other directions. The repeater now has a much more even radiation pattern which is desirable. This shows us that should we be able to increase our effective radiated power as mentioned in last month's report most of this lost range will be regained. This will also mean that areas that are only fair now will improve noticeably.

Last month Ray and I with Warren Brown of the CFA found the source of interference on six metres and filters were fitted to the offending equipment. This dropped the interference to a low level on the standby antenna and it is virtually undetectable on the main antenna.

Philip is in the process of obtaining a 50 watt FM814 PA output module to experiment with, with the expectation that the output power can be increased to near 50 watts before the cavities.

D-Star UHF. The repeater is functioning as it should. Negotiations are underway to endeavour to get more reasonable rates for the internet connection and we are waiting on hearing the results of Toby's negotiations. Internet connection to D-Star at this time is likely to cost around $600 per year unless Toby can get a concession on this fee.

70 Cm Analog FM. There is nothing to report on this repeater. It just sits up on the hill and works if someone should want a contact.

Rodney Champness on behalf of the Technical Committee

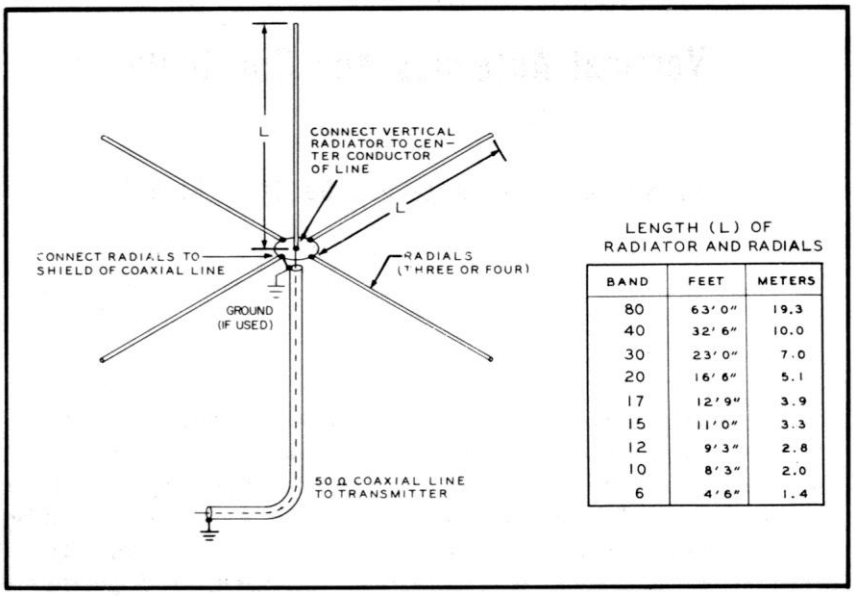
The Ground Plane Antenna

By Les, VK3TEX.

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 ¼ wave ground plane and the other is the elevated ¼ 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.



LENGTH (L) OF RADIATOR AND RADIALS

BAND	FEET	METERS
80	63' 0"	19.3
40	32' 6"	10.0
30	23' 0"	7.0
20	16' 6"	5.1
17	12' 9"	3.9
15	11' 0"	3.3
12	9' 3"	2.8
10	8' 3"	2.0
6	4' 6"	1.4

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 radiators 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.

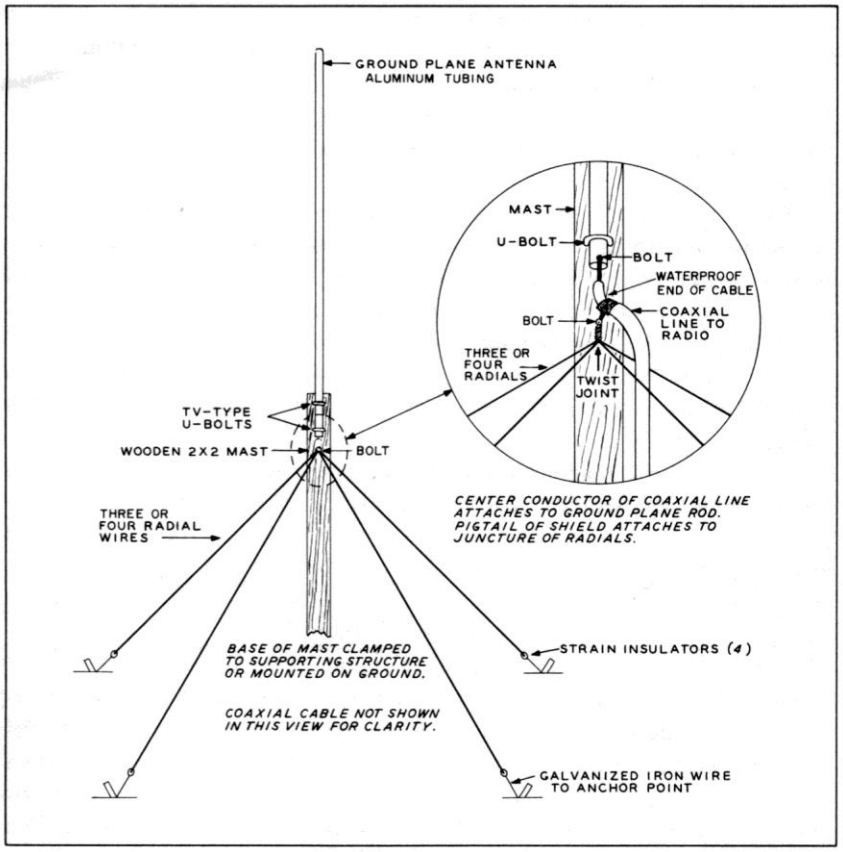
In the above configuration, the impedance of the antenna feed point is about 36 Ohms.
The reason for this is fairly straightforward. It's basically half of the impedance of a dipole antenna. Remember that only the vertical element radiates in the ground plane thus the bottom half is seen as a reflective 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 ¼ wave antenna usually has its elements (ground plane) as buried ¼ 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 below;



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 that the $5/8^{th}$ 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 1.3 to 1. Not many antennas can boast this!

Advantages:

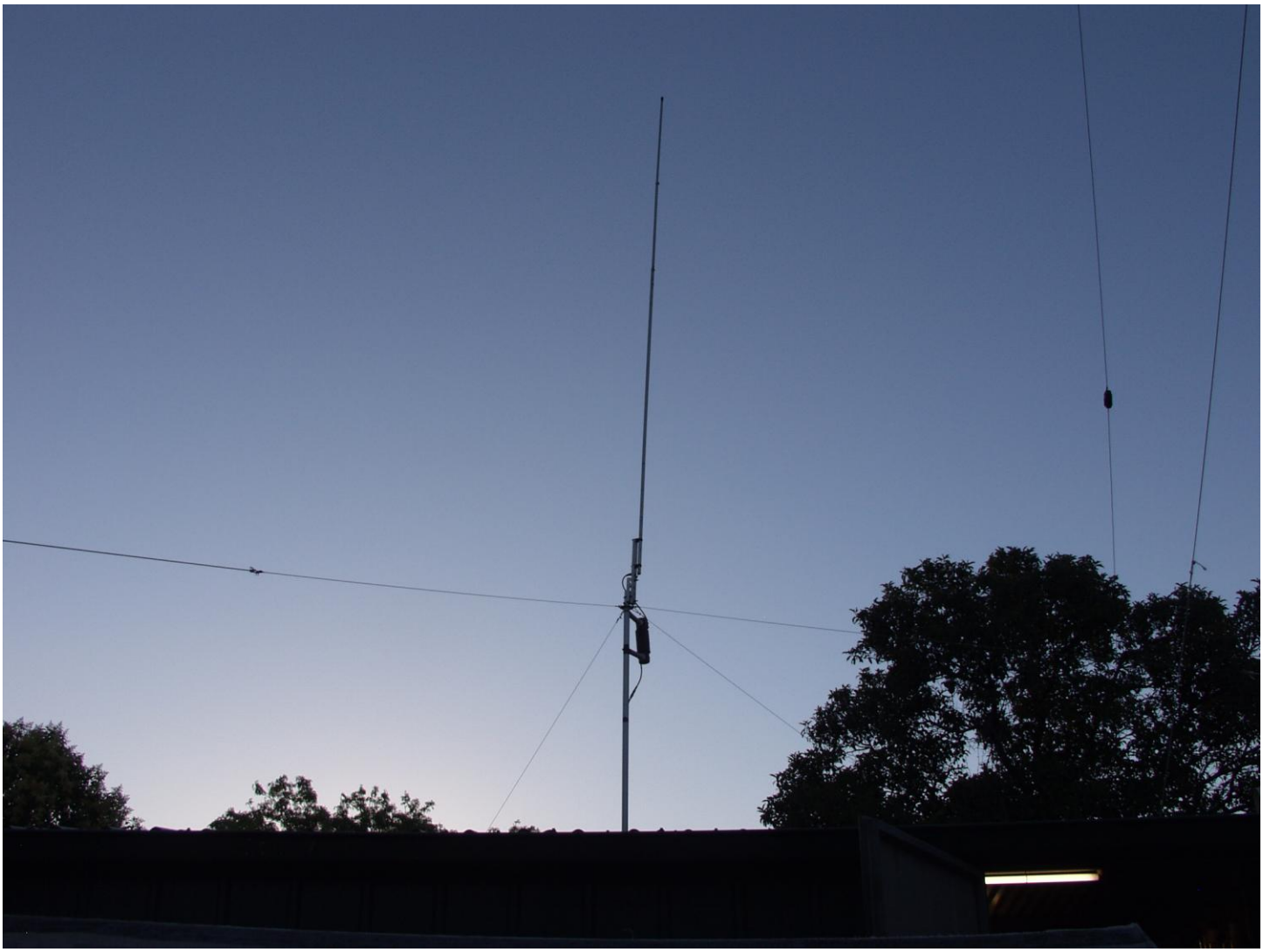
- The Ground Plane is cheap to make. Mine cost nothing to make, as I made it from bits and pieces lying around up near the shack. Even take a ½ wave CB antenna that will easily convert to 20 meters.
- It has a wide bandwidth if you use thicker elements for the radiator. Mine has very good VSWR for the 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.(At my Echuca QTH now!)
- 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. 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.

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.



Antenna at Les VK3TEX QTH Echuca Victoria. 20 meter ¼ wave vertical.

Shepparton and District Amateur Radio Club

Sponsors of VK3RGV 6m, 2m, 70cm, D-Star Repeaters & IRLP Node 6992
PO Box 692 SHEPPARTON VIC 3632

Membership Application/Membership Renewal Form

Annual Subscription

Membership Fee $25.00

Name:_____

Call Sign/Listener Only:_____

Postal Address:_____

Town:_____Postcode_____

E-mail Address:_____

Please tick appropriate box:

New membership ☐

Renewal of membership ☐

Payment Method

Cash ☐ Cheque/Money Order ☐

Amount enclosed: $_____

Thankyou for you valued Patronage.

Office Use Only: Date Paid_____ Rec No _____

Please Print the previous page and fill out and post with Cheque to renew your subs for the club. That would be very much appreciated. Les VK3TEX.

OR BETTER STILL IF YOU CAN MAKE IT TO THE MEETING YOU CAN PAY ON THE DAY!

FOR SALE:

ONE FREESTANDING TRIAGULAR TOWER. GOOD CONDITION. 14 METER TALL FOLD OVER IN THE MIDDLE. ON THE GROUND AT KYABRAM. (MY OLD QTH) WOULD SUIT BEAM BUT DOES NOT HAVE A ROTATOR MOUNT. EX BRIAN VK3ASF SK. I NEVER GOT THE OPPORTUNITY TO PUT THIS FINE TOWER UP BUT IT IS COMPLETE AND I HAVE THE PLANS AND ENGINEERING DRAWINGS FOR IT. BUYER TO REMOVE, WOULD NEED FLATBED TRUCK IDEALLY BUT YOU MAY GET AWAY WITH A LONG TANDEM TRAILER. ASKING JUST $250. I CAN THROW IN A CREATE BRAND HEAVY DUTY(BRAND NEW NEVER UESED) THRUST BEARING IN FOR $50 EXTRA. I CAN BE CONTACTED AT lestatar@bigpond.com or call or message me on 0407829098.

Cheers Everyone and see you at the next club meeting or on the air!

Les VK3TEX Newsletter Editor.