SHEPPARTON & DISTRICT AMATEUR RADIO CLUB

**Founded 1979 Incorporation No A6677 P.O. Box 692, Shepparton 3632**

**Repeaters VK3RGV Freq: 53.725MHz (1 meg offset) -146.65MHz(IRLP Node #6992) (600 kHz offset) - 439.775MHz (5 MHz offset) - 438.2MHz (D-Star) [D-Star not operational at this time]**
**Access to the analog repeaters is by sub-audible 123 Hz tone or noise mute (less sensitive).**

**Club Network informal on air get togethers. All welcome. Club callsign VK3SOL:-**
**Wednesday - 3.62 MHz ± interference 7.00pm (try also 8.30pm), 2mx repeater 8.00pm**

DISCLAIMER. No guarantee is given as to the accuracy of information in this newsletter. Warning:- There is a danger of electrocution or injury when working on electrical/radio gear. You do so at your own risk.

President:- Peter Rentsch (Temp) VK3FPSR Vice President:- Vacant
Secretary:- John Waters VK3PXJ Treasurer:- Greg Keegan (Temp) VK3POP
Membership Sec. :- Pat O'Shannessy VK3OV Newsletter:- Peter VK3FPSR & Rodney VK3UG
Technical Committee:- Phil VK3ELV, Ray VK3RW, Geoff VK3ZNA & Rodney VK3UG

# December/January Newsletter 2014/15

PRESIDENTS REPORT

Karen and I hope you all had a joyous and peaceful Christmas and New Year.

A brief report this time as time is a problem at the moment. Our next meeting to be held this Saturday will be a regular meeting followed by the reopening of the Annual General Meeting. All business in the AGM has been dealt with excepting the position of Office Bearers. Please put your hand up to take on a job and ensure the future of our Club. If no President is found then the Club goes into recess until such time as it the problem can be solved.

That's it for this time, my apology for such a brief report but life sometimes gets busy.

Peter
VK3FPSR
President - SADARC

**VALE**

It is with regret that we note the passing of Geoff Angus's mother on 21st December. We extend to Geoff our condolences and heartfelt sympathy on her passing. I'm sure Geoff and the family will miss her greatly.

**IN HOSPITAL**

Brian Webb VK3HBW is currently in Mansfield hospital. His condition is unknown to me but I understand visitors would be welcome. Trust you'll soon be out of hospital. STOP PRESS - from the latest information that I have received Brian has gone home.

**END OF YEAR BREAKUP**

Along with the members of the Vintage Radio Club of North East Victoria the club celebrated the end of the year with a smorgasbord luncheon at the Mooroopna Golf Club on Sunday 7th December. Whilst the numbers attending was lower than last year a very enjoyable time was had by members, their wives and families. Certificates of appreciation were presented to Norma Forbes and Karen Rentsch who worked tirelessly in the kitchen at the Hamfest. Further Certificates will be presented to the other ladies involved in the Hamfest at a later date. Kevin Reid VK3BPH and Dallas James VK3EB were each presented with a dummy load in recognition of their contributions to the effective functioning of the club over the year. The presidents of both clubs spoke briefly and wished all a Happy Christmas and New Year.

**A NEW AMATEUR**

I'm pleased to report that Liz Dwyer (Phil Dwyer's wife) has recently passed the Foundation exam and has been allocated the callsign VK3FUTO. Congratulations Liz and we hope to hear you on air soon.

**MOUNT WOMBAT REPEATERS**

The repeaters are functioning as normal although there is a suspicion that there is some desense occurring with the 6 metre repeater as well as occasional digital type interference. Interference on 6 metres was noticed down on the flat part of the mountain near the large buildings. It was not evident at the repeater. A trip was made to Mt Wombat on 27th January by Geoff VK3ZNA, Kevin VK3BPH and Rodney VK3UG to replace the damaged batteries with two new 120 AHC AGM batteries (which was done), and to determine the best way to mount the 6 metre antenna array on the equipment hut.

Measurements were taken and general discussion took place on site to determine the best way to mount the new 6 metre antenna array. The total height of the mast will be around 8.5 metres. As has been stated in previous newsletters a number of problems reared their ugly heads when we looked at putting the complete 6 metre antenna array on the lattice mast. If you want to know what the problems were I refer you to previous newsletters. Reluctantly we had to abandon that plan. With the antenna array mounted on the hut access to it will be easier and there are no guy wires in its radiation field to adversely affect the radiation pattern. To obtain the best performance from the 6 metre repeater and to have an antenna capture area similar to the highly successful 2 metre repeater, two 6 metre antennas will need to be mounted on this new mast. Kevin and Geoff will now work on obtaining the necessary materials and then constructing the mast and its bracing.

What work we propose on Mt. Wombat will be brought up at the meeting.

**THE 630 METRE BAND (472 TO 479 KHZ)**

Phil VK3ELV is an amateur with a very enquiring mind and is always experimenting with some type of activity on various bands. His latest exploits are with the 630 metre band. He is having great fun experimenting with his antenna (good job he has some tall trees to sling antenna supports over) and earth system to get the greatest efficiency he can achieve. Low frequency antennas and earthing systems are very different to what you would use on HF or VHF. He has a transverter running from his IC706 transceiver with a solid state amplifier running up around the 100 watt mark. The effective radiated power (ERP) from the antenna is well below this however. He is making contact with quite a few other amateurs on this band. He is

using normal reception methods and has recently been using a computer program called OPERA. VK5CV comes in well on that mode but Phil can also make out the signals on morse by just listening to the very weak signals. Perhaps we can persuade Phil to give a talk and some sort of demonstration at a forthcoming meeting. For a demonstration it is certainly not expected an antenna would be installed as a ¼ wave antenna is around 157 metres high.

## FOR SALE – AMATEUR RADIO RELATED BOOKS, HAVE OTHER VINTAGE RADIO TITLES TOO

- Fifty years of ARRL ARRL 1981 151 pages $5
- Radio Transmitter Principles and Projects Ed Noll Editors and Engineers 1973 320 pages $5
- Radio Frequency Interference – How to identify it and cure it. ARRL 1986 80? pages $5
- Radio Frequency Interference – Practical cures for Radio Frequency Interference ARRL 2007 Approx 300 pages $15
- Specialised Communications Techniques for the Radio Amateur ARRL 1975 208 pages $10
- Radio Communications Handbook RSGB 4th Edition 1968 Excellent text book. Some water staining, but generally in good condition. 700 to 800 pages HC $15

Postage if needed is extra.

Rodney VK3UG, rodlynn6@bigpond.com

# POWER SUPPLIES Pt III

In the previous two articles the power supplies have been very basic and whilst this one is still fairly basic I am now getting to the point of describing supplies that are bit more useful and have overload and adjustable and stable regulated output voltage. This supply is one that I use connected to a 12 volt battery to supply regulated voltages of between 4 and 8 volts at up to 2 amps.

If TR1 were not in circuit (or just cut off), TR2 would receive considerable forward bias and be switched hard on. As it would act almost like a short circuit it would also cause TR3 to also be switched hard on. Under this circumstance the voltage output would be nearly the same as the input voltage of 12 to 14 volts. To control the conduction of TR2 and TR3 a resistance placed between the base of TR2 and the negative rail will reduce the amount of conduction of these two transistors. And depending on the value of the resistance the output voltage can be approximately set. A transistor can also act like a resistor so if a transistor TR1 is connected between the base of TR2 and negative rail and then supply a variable voltage to the base, the transistor will act like a variable resistor.

Now if the emitter of TR1 is connected to a zener diode ZD1 and the base is connected to a voltage divider across the output of the supply it is possible to automatically control the conduction of TR1 which will then control the conduction of TR2 and TR3 and this will vary the output voltage. In more detail it will be seen that I have a 3 volt zener connected to the emitter of TR1, which means that TR1 will not conduct until the base is 3 volts + 0.6 volts (3.6 volts) is present at the base of TR1. The 0.6 volts is the forward bias voltage at which silicon transistors start to conduct. The voltage divider consisting of VR1 and R5 provides a voltage that is a portion of the output voltage at the moving arm of VR1 and this is applied to the base of TR1. The emitter has a voltage of 3 volts on it, so should the voltage at the base that vary from the 3.6 volts needed to get conduction will cause TR1s conduction to vary, which will control the conduction of TR2 and TR3. If the voltage rises to say 3.7 volts TR1 will conduct more heavily pulling the bases of TR2 closer to the negative rail which reduces its conduction and hence TR3 as well so that the output voltage will be reduced and the voltage at the base will be returned to near 3.6 volts. If on the other hand the voltage drops to 3.5 volts TR1 will be cut off and TR2 and TR3 will be turned full on which will cause the voltage at the output to rise hence the voltage at the base of TR1 will return to around 3.6 volts. Setting the output voltage is achieved by varying

the position of the moving arm of VR1to select a portion of the output voltage. For example, if the moving arm is at the lower end of its range near R5, the voltage divider will be producing around 3.6 volts at the moving arm but at the top of VR1 the voltage will be around 8 volts. So you can see that once an output voltage is set the supply will automatically compensate for variations in input voltage and loading. There is also dynamic filtering of any hum/ripple on the input to the regulator by the operation of TR1, TR2 and TR3.

This supply has a simple overload which takes the form of R1 the resistor in series with the input. The voltage applied to TR2 and TR3 is reduced as the current through the regulator is increased and the voltage will continue to drop so that TR3 is largely protected against excessive current being drawn through it. D1 and R2 protect the transistors should there be no supply on the input and a battery is attached to the output. This regulator is well over 30 years old and has proved satisfactory for its intended purpose where maintaining a rigid output voltage is not essential. It is simple and works well, but with the experience of many years I would now build a slightly different regulator for the work that it was built for and it would work even better.

Rodney VK3UG