

ANODE

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THE W.R.A.R.C. AND ITS METALIC APPARATUS FOR SENDING AND RECEIVING ELECTROMAGNETIC WAVES

Saturday the 5th of August saw several club members and family members assisting at the clubhouse with antenna maintenance.

The beam antenna was brought down for repair and testing.

We have several of these devices adorning the Clubhouse grounds. After all, we have more than adequate space to install these devices to entrap condensations and refractions



Up the mast!

of energy travelling through space! At times these compounded compo-

nents of metal are also used to send out radio waves in nearly all directions.

To the average mortal these things are known as aerials and they reach high into the air.

The first one is a Gargantuan Discrete Unit, born in the South American Jungle some 62 years ago. Quad antennas are most popular with the formal ancestry. It is hailed as the greatest antenna devel-

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Special points of interest:

- Antenna maintenance
- Computers in Amateur Radio
- Cpu fans need checking
- Contact details on back page
- Boot Sale - 30th September

Reduce Antenna Fixing Maintenance

We all have an antenna on a pole or mast held together with a clamp or bracket of some sort. All is well until you try to remove it some 2 years later. The ideal is to use stainless steel or hot dip galvanised clamps or brackets. But I know the price and for a few of those I can buy a roll of RG213 cable. Now what can you do?

I have an easy solution this time. A company

called Spanjaard manufactures a product called Copper slip. You can buy this at any hardware or motor store for about R25.00 a tube. Copper Slip is unique as it is anti-sizing, anti-rust, conductive, steam resistant, and acid resistant and can be effective at temperatures of 1000 Degrees C. With a copper/golden colour it is best applied with a small to medium paint-

brush, as it will be difficult to remove once you get it on your clothes or hands.

You can cover your exhaust or TV type bracket thread and the nuts to prevent rust and to ensure that they can be removed in about 2 years time. First apply a thin layer to the thread of the clamp and some to the inside of the nut.

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The Practical Application of Micro-Computers to Amateur Radio

Introduction

In the 80's, Wayne Green wrote an article picturing what Amateur Radio would be like in the new century. He envisaged several things, one of which that amateurs would use computers to make their hobby more enjoyable. He was right.

This is our 'theme' for the year. Over the last decade or more, computers have been used more and more by radio amateurs to enhance their hobby. From the use of Packet Radio to Morse transmission/reception and tuition to Slow Scan TV to keeping an electronic log book. The Personal Computer has become another tool in the radio amateur's armoury. The computing power of today's average ham is awesome. Quite a few have several dedicated to specific amateur radio func-

tions.

Software

Before I discuss the various software applications that amateurs can use let me discuss the various operating systems that are available today.

1. Dos, FreeDOS and others.

There are several versions of the original Disk Operating System around. Most now are free and available for download from the Internet sites for personal use only. Embedded systems for commercial use can use them but have to pay a licence fee. Software that needs to access the PC hardware has virtually no limitation as this is a single tasking operating system. Networking as a client PC can be applied to the system so that mass storage (hard disks) and printing can be

done by a 'server' machine.

2. Windows 3.x

Yep its still around, usually installed on older PC's. Its still quite useful and allows the software that you run to access the hardware without much limitation. It is a multi-tasking operating system though not crash proof. Networking was built in to the Windows for Workgroups versions and can be a server for a small network of older PC's

3. Windows 95, 98

Of the versions, Windows 95b is probably the most useful to Radio Amateurs. The last version before Windows 98 came along is fairly 'lean' and will run satisfactorily on a 486 with only 16MB of memory. DOS type programs have no problem in accessing the PC hardware.

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Reduce Antenna Fixing Maintenance

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Tighten the nut and give a dab where needed.

Most ham's I know have a lot of backup batteries under the shack table. As we all know corrosion is bound to form on the terminals. Remove the battery terminal clamp and apply a generous layer of Copper Slip to the terminal and clamp. Replace and tighten.

Copper slip is also ideal for use on connections. Like the earth to the tap or on underground earth connections. Simply clean the earth connectors with a file/brush and apply Copper Slip.

The DX Mobile in the drive way can do with some Copper Slip on the battery terminals. Also apply some on the back of the brake pad to fix

the squeaking brakes. Cover all the bare spots to stop or prevent more rust.

Copper Slip is ideal for spark-plug thread, press fittings and slip joints. Till next month, happy maintenance.

73's De ZS6PVT
Phillip van Tonder

Feedback & Questions:

E-mail to: zr6pdd@mweb.co.za

THE W.R.A.R.C. AND ITS METALIC APPARATUS FOR SENDING AND RECEIVING ELECTROMAGNETIC WAVES

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opment of the previous century. Our Quad however is lax in attending to duty! It must come down and be repaired, a new rotator must be installed and thereafter it must be restored to its former excellence.

Wally ZS6WAL came to the rescue!

He arranged with Johan ZS6JVV to lower the Quad. All we have to do is to present ourselves as instruments of labour. My request for the



above failed to satisfy our expectations. My telephone was definitely not congested with volunteers offering their services!

In the dying moments of the previous century it was decided to install another tower comprising a 3 element Trap Dipole. After all, these are the epitome of excellence. "Our H.F. problems will now cease", cried the critics of the Quad. We spared no expense, up went the tower! Secured with newly purchased

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The Practical Application of Micro-Computers to Amateur Radio

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Windows 95 also can be made to require less system resources by turning off all the cosmetic adornments such as window and menu animation. This makes even a 386 run Win95 without much problem. These operating systems also have networking built in. So they can be used as a server for xt/at/386 type PC's that run other tasks under dos.

4. Windows NT/2000

Both of these rather serious operating systems are heavily guarded against software accessing the PC's hardware. Neither would really be suitable for Radio Amateur use. It is possible to write programs for them that use the hardware but this is not a trivial task.

5. Linux (Unix)

This is a freely available version of Unix and has provoked a lot of good competition in the PC marketplace recently. It is a multi-user multi-tasking operating system with very low cpu overhead. It is well suited to server type applications and is used by over 85% of the Internet service providers. It is available for the 80386 and up, with some of the later versions being Pentium specific. However as a Ham network server this is ideal.

Some example applications

1 A receiver tuned to a 10 metre beacon frequency measures the signal strength.

The level reaches a preset level and switches a line into the PC from false to true. The PC could take action at this point and send you an sms message to say the band is open. It could page you on a pager or send an audible signal to your house. It could also store the time date and S meter reading for a period of time. You could later plot the readings and be able to predict openings etc. The PC could send a Morse or voice transmission on say 2m to say that 10 metres is "Open". Or it could do all of the above!

2 Monitor repeater activity and record usage with time/date etc. It could also record the transmissions to tape or hard disk. It could also monitor the input fre-

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The Practical Application of Micro-Computers to Amateur Radio

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quency and store the bearings to stations for later charting and analysis. With two or three stations equipped like this we could easily find the kerchunkers and other turkeys.

3 Morse training is a doddle on a PC with programs like Super Morse and others.

4 Radio Teletype transmission of both ASCII and Baudot is easy using the very basic PC (XT). Of course so is Packet Radio with a piece of software called a terminal emulator.

5 We could of course use a PC to issue lightning warnings via the repeater or weather reports and so on. The text to speech transmission is nowadays simple to apply to the PC.

Writing your own software

The PC has a vast amount of low cost options for writing your own application software. There are several useful compilers and trial packages that allow you to write your own ham application. The Quick Basic that comes as part of Ms-Dos and Windows 95/98 can be used to run all the older ham programs. There have been a few Visual Basic's that were released as 'trial versions', which allow the compilation of simple programs. Also the newly applied Windows

Scripting Host allows you to connect and use system objects along the lines of batch files that were used in dos. [* demo of VBScript running Merlin the Microsoft Agent]

If Basic or Java isn't your flavour, you can get free for personal use versions of Delphi and C++ from Borland. There are several GNU versions of C++ and Fortran that you could use as well.

Application software available

1. Morse TX/RX
2. Maidenhead calculations
3. DX calculations
4. RTTY Software
5. PACKET Software
6. Design Software - Coils, Antennas, Filters, Amplifiers
7. eMail & Internet resources
8. Reference Data
9. QSO/Contact managers
10. QSL Card generators
11. Test & Measurement
12. Circuit Diagram database, radio manuals
13. Communications - serial, parallel, Infra Red, USB
14. Weather Facsimile reception

Hardware projects available

1. Interfacing the PC - connecting to radios etc. With circuit diagrams etc.
2. Modems - packet, rtty. Building, testing etc.
3. TNC's - building, testing etc.

4. Networking - connecting more computers to your station.

5. CPU fans & Maintenance. Fixing old computers.

6. Test & Measurement. Using A/D converters, the PC as an Oscilloscope.

Conclusion

What we are setting out to do is to provide an 'Electronic Computer Handbook' for the Radio Amateur fraternity. This will detail the practical uses that the computer can be put to by the ham.

We intend releasing a CD ROM with both text articles, circuit diagrams, reference data stored on it. We as a club will sell this for a nominal sum at all our functions to interested Radio Amateurs.

Can you contribute to this list?

Can you test projects and software?

Please let us know of additional subjects or articles -

MailTo:
john.brock@pixie.co.za

Check Your Fans!

Recently I had to inspect a computer system for damage as it was described as 'hit by lightning'. This during the winter is unusual to say the least. Well it wasn't lightning, it was a stalled fan that had caused the processor (Pentium 166MHz) to fry. You can see the effect in the picture here. The heat generated by the cpu has melted the plastic label on the underside of the processor. It is no more, it is a dead cpu. As a result of this the entire computer system is useless.

Pentium processors haven't been in production for a couple of years now and there are very few second hand



Fryed Pentium!

ones around.

Our computers collect fluff and dust from the air and some of it is deposited on the cpu fan. It solidifies and stops the fan. A lot of users put their pc's on the floor, expecting to gain desk space, they eventually get a dead pc or even

worse, a pc that crashes in just about every application for no apparent reason.



This one claims to have ball bearings!

Pentium cpu fans are cheap, about R45. They can easily be

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Electrolytic corrosion

The use of dissimilar metals in an aerial system is likely to cause considerable trouble due to electrolytic corrosion.

Each metal has its own electro-potential, and unless metals of similar potential are used the difference will cause corrosion at the point of contact even when dry. When moisture is present this effect will be even more severe.

If, for any reason, dissimilar metals must be used then considerable care should be taken to exclude moisture, the corrosive effects of which will vary with the atmospheric pollution.

The various metals can be arranged in groups as follows:

| |
|-----------------------------|
| Anodic |
| ----- |
| Magnesium |
| Aluminium |
| Duralumin |
| Zinc |
| Cadmium |
| Iron |
| Chromium iron alloys |
| Chromium nickel iron alloys |
| Soft solder tin-lead alloys |
| Tin |
| -----000----- |
| Cathodic |
| ----- |
| Lead |
| Nickel |
| Brasses |
| Bronzes |
| Nickel copper alloys |
| Copper |
| Silver Solders |
| Silver |
| Gold |
| Platinum |

Metals in each of the above groups may be used together with little corrosive action, but metals from different groups will suffer from this effect.

Also, since the above is arranged in order, the greater the spacing in the list, the greater will be the effect.

The lower of the metals in this list will corrode those in the upper portion. For example, brass or copper screws in aluminium will corrode the aluminium very considerably, whereas with cadmium plated brass or copper screws there will be very much less corrosion of the aluminium.

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safety belts, devoted members secured the Dipole to the top of the tower.



Maybe this timeah!!

A great moment in our history! What an Anti-climax ensued: - "The Antenna does not work, the S.W.R. is too high, it also displays intermittent characteristics!" What a distress, what great misfortune!

We took the Dipole down sev-

Check Your Fans!

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replaced. (Bad news! 486 fans are slightly smaller than Pentium fans and are not available any more.) They can also be oiled and restarted to blow cool air over the cpu heatsink. Remove the sticky label on the rotating fan and you will see the bush/bearing. A little 3-in-1 or light machine oil and its as good as new.

Pentium II/III fans also give

eral weeks ago. Plenty of enthusiastic volunteers assisted. After it is repaired it will be re-united with the high pointed formation of the tower.

At the same time the V.H.F. Slim Jim antenna was relocated in a more practical position.

To all those members who assisted and took it upon themselves to perfect our antenna systems, sincere thanks.

Bill ZS6REV



**Don't forget the
Boot Sale on the
30th of
September!**

option). You can check this yourself next time you start/switch-on your pc.

I shall have fans available at the next "Bring & Fix" Meeting.

73's John ZS6BZF

out after a while. I've had to replace a few already. Most new motherboards have a means of reading the tachometer built into the fan. A warning two tone alarm will be sounded when the fan runs below a preset limit or stops. However most installers and pc makers don't bother to enable the feature, so you could be in for a nasty surprise. This feature is switched on from the BIOS setup, usually the 'chipset features' (3rd

The West Rand Amateur Radio Club

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Bulletins (Sundays at ...)
 11h15 Start call in of stations
 11h30 Main bulletin start

Frequencies
 145,625 MHz (West Rand Repeater)
 10,135 MHz (HF Relay)

Radio Amateurs do it with more frequency!



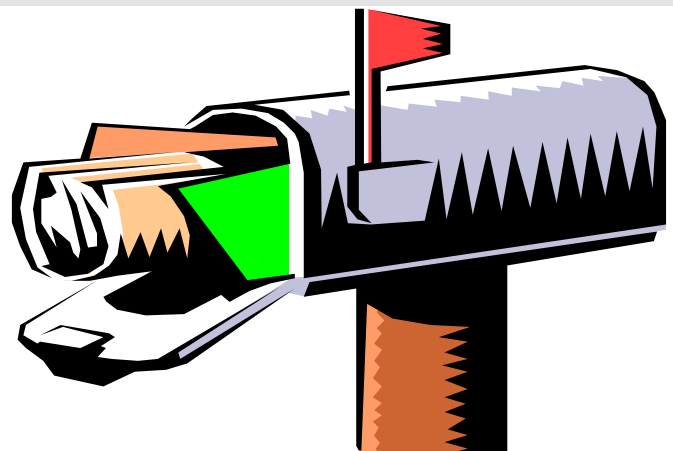
Have you contributed to the Christmas Tree fund yet?

| | | | | |
|---------------|-------|--------|----------------|--------------------------------|
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West Rand members input - we need your input!

To make this the best ham radio magazine in South Africa we need your input. Please submit articles, comments, suggestions etc.

Please send plain text with no formatting to the email address below.



We need your input! Email us articles, comments and suggestions please.
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